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By Toronto Local Appeal Body

Chapter 200 Parking Space Regulations

200.5 Regulations Applying to Parking Spaces

200.5.1 General

(1) Application of This Section

The regulations in Section 200.5 apply to all **parking spaces** and **drive aisles**.

(2) Requirement to Provide Parking Spaces

Parking spaces must be provided collectively for each use on a **lot** in an amount that complies with the regulations in Chapter 200 Parking Space Regulations.

(3) Drive Aisle Width

The following are the minimum **drive aisle** widths:

(A) If the centreline of a **parking space** is at an interior angle of 70 to 90 degrees to the centreline of the **drive aisle** providing **vehicle** access, the minimum width for that one or two **lane drive aisle** is 6.0 metres;

(B) If the centreline of a **parking space** is at an interior angle from 50 to less than 70 degrees to the centreline of the **drive aisle** providing **vehicle** access, the minimum width for that **drive aisle** is 5.5 metres for each aisle; [By-law: 0559-2014 (OMB PL130592)]

(C) If the centreline of a **parking space** is at an interior angle of less than 50 degrees from the centreline of the **drive aisle** providing **vehicle** access, the minimum width for that **drive aisle** is 4.0 metres for each aisle. [By-law: 0559-2014 (OMB PL130592)]

200.5.1.10 Interpretation

(1) Application of Parking Space Rates in Policy Areas 3 and 4

A **lot** located entirely or partly within Policy Area 3 or Policy Area 4 on the Policy Area Overlay Map is subject to the following:

(A) if the **buildings** on the **lot** cover at least 50% of the area located within 40 metres of the **lot line** that abuts the **street** in the Policy Area, the **parking space** rates for uses in that policy area apply to the entire **lot**; and

(B) in cases other than (A) above, the applicable **parking space** rate for a use is the **parking space** requirements for uses not located in Policy Area 1, Policy Area 2, Policy Area 3 or Policy Area 4.

(2) Parking Space Dimensions - Minimum

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

(A) A **parking space** must have the following minimum dimensions:

(i) length of 5.6 metres;

(ii) width of 2.6 metres;

(iii) vertical clearance of 2.0 metres; and

(iv) the minimum width in (ii) must be increased by 0.3 metres for each side of the **parking space** that is obstructed according to (D) below;

(B) For a **parking space** accessed by a **drive aisle** with a width of less than 6.0 metres, whether it is a one-way or two-way **drive aisle**, the minimum dimensions of a **parking space** are:

(i) length - 5.6 metres;

(ii) width - 2.9 metres;

(iii) vertical clearance - 2.0 metres; and

(iv) the minimum width in (ii) must be increased by 0.3 metres if one or both sides of the **parking space** is obstructed according to (D) below;

(C) The minimum dimensions of a **parking space** that is adjacent and parallel to a **drive aisle** from which **vehicle** access is provided are:

(i) length - 6.7 metres;
(ii) width - 2.6 metres;
(iii) vertical clearance - 2.0 metres; and
(iv) the minimum width in (ii) must be increased by 0.3 metres for each side of the **parking space** that is obstructed according to (D) below; and

(D) The side of a **parking space** is obstructed if any part of a fixed object such as a wall, column, bollard, fence or pipe is situated:

(i) within 0.3 metres of the side of the **parking space**, measured at right angles, and
(ii) more than 1.0 metre from the front or rear of the **parking space**.

(3) Parking Space Dimensions - Maximum

The maximum dimensions for a **parking space** are:

(A) length of 6.0 metres
(B) width of 3.2 metres

(4) Vertical Clearance of a Parking Space

The minimum vertical clearance for a **parking space** extends over the entire length and width of the **parking space**, excluding a wheel stop with a height of less than 18.0 centimetres.

(5) Tandem Parking Spaces

A required **parking space** may not be a **tandem parking space**, except when it is required for a **secondary suite**, **group home** or **duplex building**.

(6) Tandem Parking Space Minimum Dimensions

A **tandem parking space** must have the following minimum dimensions:

(A) length of 5.6 metres;
(B) width of 2.6 metres;
(C) vertical clearance of 2.0 metres.

(7) Calculation of Required Parking Space - Vacant Building Space

The **parking space** requirement for an area of a **building** that is vacant is calculated as follows:

(A) the previous use of that **building** or part of the **building**;
(B) the land use identified on the issued building permit; or
(C) if a **building** or part of a **building** has never been used, and its intended use has never been identified in a building permit, the **parking space** requirement is based on the permitted use in the zone that has the lowest minimum **parking space** requirement.

(8) Calculation of Parking Space Requirement

If a **parking space** rate is expressed as a ratio of **parking spaces** to the **gross floor area**, the **parking space** requirement for a use is calculated by multiplying the **gross floor area** of the use by the applicable rate found in Table 200.5.10.1 Parking Space Rates and Parking Space Occupancy.

(9) Calculation of Parking Space Requirements - Rounding

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

(10) Parking Space to be Clearly Marked

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

(11) Parking Space Calculation -Gross Floor Area Exclusion

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

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

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

(A) the **vehicle** entrance and exit for a two-way **driveway** into and out of the **building** must have a minimum width of 5.5 metres;

(B) the **vehicle** entrance or exit for a one-way **driveway** into or out of the **building** must have a minimum width of 3.5 metres; and

(C) in (A) and (B) above, the **vehicle** entrance or exit to the **building** must be at least 6.0 metres from the **lot line** abutting the **street**.

(13) Parking Space Access

Other than **stacked parking spaces** and **tandem parking spaces**, all areas used for required **parking spaces** must have **driveway** access to a **street** or **lane** that is direct and unobstructed, excluding a gate, moveable barrier or similar security feature.

200.5.10 Parking Rates

200.5.10.1 General

(1) Parking Space Rates

Off **street parking spaces** must be provided for every **building** or **structure** erected or enlarged, in compliance with Table 200.5.10.1 - Parking Space Rates And Parking Space Occupancy below:

Table 200.5.10.1

PARKING SPACE RATES AND PARKING SPACE OCCUPANCY

Notes:
AM = 6 a.m. to Noon. PM = Noon to 6 p.m. Eve = 6 p.m. to 6 a.m.

		Parking Occupancy Rate		
Land Use	**Parking Rate**	**AM**	**PM**	**Eve**
Adult Education School	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) and Policy Area 3 (PA3) at a minimum rate of 1.0 for each 100 square metres of **gross floor area**; (B) in Policy Area 4 (PA4) at a minimum rate of 1.5 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City, at a minimum rate of 2.0 for each 100 square metres of **gross floor area**.	100%	100%	25%
Adult Entertainment	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; (B) in Policy Area 2 (PA2) at a minimum rate of 4.5 for each 100 square metres of **gross floor area**; (C) in Policy Area 3 (PA3) at a minimum rate of 5.5 for each 100 square metres of **gross floor area**; (D) in Policy Area 4 (PA4) at a minimum rate of 5.5 for each 100 square metres of **gross floor area**; and (E) in all other areas of the City, at a minimum rate of 7.0 for each 100 square metres of **gross floor area**.	25%	100%	100%
Alternative Housing	**Parking spaces** must be provided at a minimum rate of 0.1 for each **dwelling unit**.	100%	100%	100%
Ambulance Depot	**Parking spaces** must be provided at a minimum rate of 0.2 for each 100 square metres of **gross floor area**.	100%	100%	100%
Amusement Arcade	**Parking spaces** must be provided at the same rate as a **retail store**.	25%	100%	100%
Animal Shelter	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 0.4 for each 100 square metres of **gross floor area** and at a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and	100%	100%	100%

	(B) in the rest of the City at a minimum rate of 1 for each 100 square metres of **gross floor area**.			
Artist Studio	**Parking spaces** must be provided at the same rate as a **retail store**.	25%	100%	100%
Art Gallery	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3), Policy Area 4 (PA4) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 1.3 for each 100 square metres of **gross floor area**.	25%	100%	100%
Assisted Housing	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) for each **dwelling unit** at a minimum rate of: (i) 0.12 for a bachelor **dwelling unit** up to 45 square metres and 0.5 for each bachelor **dwelling unit** greater than 45 square metres; (ii) 0.18 for a one bedroom **dwelling unit**; (iii) 0.3 for a two bedroom **dwelling unit**; and (iv) 0.5 for a three or more bedroom **dwelling unit**; and (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4), for each **dwelling unit** at a minimum rate of: (i) 0.14 for a bachelor **dwelling unit** up to 45 square metres and 0.5 for each bachelor **dwelling unit** greater than 45 square metres; (ii) 0.24 for a one bedroom **dwelling unit**; (iii) 0.4 for a two bedroom **dwelling unit**; and (iv) 0.75 for a three or more bedroom; **dwelling unit** and (C) in all other areas of the City for each **dwelling unit** at a minimum rate of: (i) 0.16 for a bachelor **dwelling unit** up to 45 square metres and 0.5 for each bachelor **dwelling unit** greater than 45 square metres; (ii) 0.3 for a one bedroom **dwelling unit**; (iii) 0.5 for a two bedroom **dwelling unit**; and (iv) 0.9 for a three or more bedroom **dwelling unit**.	100%	100%	100%
Billiard Hall, Pool Hall	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 2.5 for each 100 square metres of **gross floor area**; (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at a minimum rate of 3.5 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City at a minimum rate of 4.0 for each 100 square metres of **gross floor area**.	25%	50%	100%
Bowling Alley	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 2.5 for each 100 square metres of **gross floor area**; (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at a minimum rate of 3.5 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City at a minimum rate of 4.0 for each 100 square metres of **gross floor area**.	25%	50%	100%
Bus Station	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) and Policy Area 3 (PA3) at a minimum rate of 0.1 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 0.2 for each 100 square metres of **gross floor area**.	100%	100%	50%
Cabaret	**Parking spaces** must be provided at the same rate as an **eating establishment**.	10%	100%	100%
Cemetery	**Parking spaces** must be provided at a minimum rate of 2.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Clinic (medical)	**Parking spaces** must be provided : (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) and Policy Area 3 (PA3): (i) at a minimum rate of 0.4 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in Policy Area 4 (PA4): (i) at a minimum rate of 0.6 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 1.0 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City, at a minimum rate of 1.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Club	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), at a minimum rate of 3.0 for each 100 square metres of **gross floor area**;	25%	75%	100%

	(B) in Policy Area 2 (PA2), at a minimum rate of 4.5 for each 100 square metres of **gross floor area**; (C) in Policy Area 3 (PA3)and Policy Area 4 (PA4), at a minimum rate of 5.5 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City at a minimum rate of 7.0 for each 100 square metres of **gross floor area**.			
Community Centre	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 1.3 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.	25%	100%	100%
Contractor's Establishment	**Parking spaces** must be provided at a minimum rate of 0.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Court of Law	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 1.0 for each 100 square metres of **gross floor area**.	100%	100%	0%
Crisis Care Shelter	**Parking spaces** must be provided: (A) at a minimum rate of 0.22 for each 100 square metres of **gross floor area**; and (B) at a maximum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Day Nursery	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) at a minimum rate of 0.4 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 1.0 for each 100 square metres of **gross floor area**.	100%	100%	50%
Dwelling Unit in a **Detached House**, **Semi-detached House**, **Townhouse**, **Duplex**, **Triplex or Fourplex**	**Parking spaces** must be provided at a minimum rate of 1.0 for each **dwelling unit**.	100%	100%	100%
Dwelling unit in a Multiple Dwelling Unit Buildings - Resident **Parking Space**	**Parking spaces** must be provided at a minimum rate of 1.0 for each **dwelling unit**.	100%	100%	100%
Dwelling unit in a Multiple Dwelling Unit Buildings – Visitor **Parking Space**	**Parking spaces** must be provided at a minimum rate of 0.2 for each **dwelling unit**. [1676-2013]	100%	100%	100%
Dwelling unit in an **Apartment Building** (Tenant requirement)	For a **dwelling unit** in an **apartment building**, **parking spaces** must be provided: (A) in Policy Area 1 (PA1): (i) at a minimum rate of : (a) 0.3 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.5 for each one bedroom **dwelling unit**; (c) 0.8 for each two bedroom **dwelling unit**; and (d) 1.0 for each three or more bedroom **dwelling unit**; and (ii) at a maximum rate of: (a) 0.4 for each bachelor **dwelling unit** up to 45 square metres and 1.2 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.7 for each one bedroom **dwelling unit**; (c) 1.2 for each two bedroom **dwelling unit**; and (d) 1.5 for each three or more bedroom **dwelling unit**; and (B) in Policy Area 2 (PA2) and Policy Area 3 (PA3): (i) at a minimum rate of : (a) 0.6 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.7 for each one bedroom **dwelling unit**; (c) 0.9 for each two bedroom **dwelling unit**; and (d) 1.0 for each three or more bedroom **dwelling unit**; and (ii) at a maximum rate of:	100%	100%	100%

	(a) 0.9 for each bachelor **dwelling unit** up to 45 square metres and 1.3 for each bachelor **dwelling unit** greater than 45 square metres; (b) 1.0 for each one bedroom **dwelling unit**; (c) 1.3 for each two bedroom **dwelling unit**; and (d) 1.5 for each three or more bedroom **dwelling unit**; and (C) in Policy Area 4 (PA4): (i) at a minimum rate of : (a) 0.7 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.8 for each one bedroom **dwelling unit**; (c) 0.9 for each two bedroom **dwelling unit**; and (d) 1.1 for each three or more bedroom **dwelling unit**; and (ii) at a maximum rate of: (a) 1.0 for each bachelor **dwelling unit** up to 45 square metres and 1.3 for each bachelor **dwelling unit** greater than 45 square metres; (b) 1.2 for each one bedroom **dwelling unit**; (c) 1.3 for each two bedroom **dwelling unit**; and (d) 1.6 for each three or more bedroom **dwelling unit**; and (D) in all other areas of the City: (i) at a minimum rate of : (a) 0.8 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.9 for each one bedroom **dwelling unit**; (c) 1.0 for each two bedroom **dwelling unit**; and (d) 1.2 for each three or more bedroom **dwelling unit**.			
Dwelling unit in an **Apartment Building** – (Visitor requirement)	For a **dwelling unit** in an **Apartment Building**, **parking spaces** for visitors must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 0.1 for each **dwelling unit**; (B) in Policy Area 2 (PA2) at a minimum rate of 0.1 for each **dwelling unit**; (C) in Policy Area 3 (PA3) at a minimum rate of 0.1 for each **dwelling unit**; (D) in Policy Area 4 (PA4) at a minimum rate of 0.15 for each **dwelling unit**; and (E) in all other areas of the City at a minimum rate of 0.2 for each **dwelling unit**.	10%	35%	100%
Dwelling unit in a **Mixed Use Building**	**Parking spaces** are to be provided at the same rate as a **Dwelling unit** in an **Apartment Building**. (Tenant Requirement) [1675-2013]	100%	100%	100%
Dwelling unit in a **Mixed Use Building Visitor Parking**	For a **dwelling unit** in an **Mixed Use Building**, **parking spaces** for visitors must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 0.1 for each **dwelling unit**; (B) in Policy Area 2 (PA2) at a minimum rate of 0.1 for each **dwelling unit**; (C) in Policy Area 3 (PA3) at a minimum rate of 0.1 for each **dwelling unit**; (D) in Policy Area 4 (PA4) at a minimum rate of 0.15 for each **dwelling unit**; and (E) in all other areas of the City at a minimum rate of 0.2 for each **dwelling unit**. [1676-2013]	10%	35%	100%
Eating Establishment	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1): (i) at a minimum of 0; and (ii) at a maximum rate of 3.5 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2): (i) at a minimum of 0; and (ii) at a maximum rate of 4.0 for each 100 square metres of **gross floor area**; and (C) in Policy Areas and 3 (PA3) and 4 (PA4) : (i) at a minimum of 0; and (ii) at a maximum rate of 5.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City: (i) where the **gross floor area** used for **eating establishments** in a building is less than 200 square metres no **parking space** is required; (ii) where the **gross floor area** used for **eating establishments** in a building is 200 square metres or more but less than 500 square metres, **parking spaces** must be provided at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; and (iii) where the **gross floor area** used for **eating establishments** in a building is 500 square metres or more, **parking spaces** must be provided at a minimum rate of 5.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Education Use	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) and Policy Area 2 (PA2), at a minimum rate of 0.5 for each 100 square metres of **gross floor area**;	100%	100%	50%

	(B) in Policy Area 3 (PA3) at a minimum rate of 1.5 for each 100 square metres of **gross floor area**; (C) in Policy Area 4 (PA4) at a minimum rate of 2.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.			
Entertainment Place of Assembly	**Parking spaces** must be provided at the a minimum rate of: (A) 5.0 for each 100 square metres of **gross floor area** in Policy Area 1 (PA1) ; (B) 8.0 for each 100 square metres of **gross floor area** in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4); and (C) 10.0 for each 100 square metres of **gross floor area** in all other areas.	25%	50%	100%
Financial Institution	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at: (i) a minimum rate of 2.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 3.5 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) a minimum rate of 2.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 4.5 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City, at a minimum rate of 4.0 for each 100 square metres of **gross floor area**.	20%	100%	50%
Fire Hall	**Parking spaces** must be provided at a minimum rate of 0.2 for each 100 square metres of **gross floor area**.	100%	100%	100%
Funeral Home	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) and Policy Area 2 (PA2): (i) at a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 4.0 for each 100 square metres of **gross floor area**; and (B) in Policy Area 3 (PA3): (i) at a minimum rate of 2.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 5.0 for each 100 square metres of **gross floor area**; and (C) in Policy Area 4 (PA4): (i) at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 6.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City at a minimum rate of 6.0 for each 100 square metres of **gross floor area**.	20%	100%	100%
Gaming Establishment	**Parking spaces** must be provided at a minimum rate of 25.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Golf Course	The minimum number of **parking space** to be provided is the greater of: (A) 24; and (B) 3.5 for each 100 square metres of **gross floor area** of all buildings.	100%	100%	100%
Grocery Store	**Parking spaces** must be provided if the **gross floor area** used for grocery stores is greater than 200 square metres: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) at a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 4.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 2.5 for each 100 square metres of **gross floor area**; and (C) if the **gross floor area** is 200 square metres or less, no **parking space** is required.	20%	100%	100%
Group Home	**Parking spaces** must be provided at a minimum rate of 2 for a **group home.**	100%	100%	100%
Hospice Care Home	**Parking spaces** must be provided at a rate of 0.3 for each **dwelling unit** and bed-sitting room.	100%	100%	100%
Hospital	**Parking spaces** must be provided : (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) a minimum rate of 0.4 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 3.5 for each 100 square metres of **gross floor area**.	20%	100%	100%
Hotel	**Parking spaces** must be provided:	80%	75%	100%

	(A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4); (i) a minimum rate of 0.2 per 100 square metres of **gross floor area**; (ii) a maximum rate of 1.0 per 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 1.0 for each guest room.			
Industrial Sales and Service	**Parking spaces** must be provided at the same rate as a **retail store**.	100%	100%	0%
Industrial Skills Training	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) at a minimum rate of 2.0 for each 100 square metres of **gross floor area**; (B) in Policy Area 3 (PA3) at a minimum rate of 2.5 for each 100 square metres of **gross floor area**; (C) in Policy Area 4 (PA4) at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 5.0 for each 100 square metres of **gross floor area**.	100%	100%	0%
Kennel	**Parking spaces** must be provided at a minimum of 1 for each 100 square metres of pen area for animals.	100%	100%	0%
Laboratory	**Parking spaces** must be provided at the same rate as office.	100%	60%	0%
Library	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3), Policy Area 4 (PA4) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 1.3 for each 100 square metres of **gross floor area**.	25%	100%	100%
Manufacturing Uses	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4), at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 1.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Medical Office	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at: (i) a minimum rate of 0.3 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 3.0 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2) at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 3.5 for each 100 square metres of **gross floor area**; and (C) in Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) a minimum rate of 1.5 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 6.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.	100%	100%	50%
Motel	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) a minimum rate of 0.2 per 100 square metres of **gross floor area**; and (ii) a maximum rate of 1.0 per 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 1.0 for each guest room.	80%	75%	100%
Municipal Shelter,	**Parking spaces** must be provided: (A) at a minimum rate of 0.22 for each 100 square metres of **gross floor area**; and (B) at a maximum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Museum	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3), Policy Area 4 (PA4) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 1.3 for each 100 square metres of **gross floor area**.	25%	100%	100%
Nightclub	**Parking spaces** must be provided at the minimum rate of: (A) 3.0 for each 100 square metres for **gross floor area** in Policy Area 1 (PA1) ; (B) 4.5 for each 100 square metres for **gross floor area** in Policy Area 2 (PA2);	20%	50%	100%

	(C) 5.5 for each 100 square metres for **gross floor area** in Policy Area 3 (PA3) and Policy Area 4 (PA4); and (D) 7.0 for each 100 square metres for **gross floor area** in all other areas of the City.			
Nursing Home	**Parking spaces** must be provided at a rate of 0.3 for each **dwelling unit** and **bed-sitting room**.	100%	100%	100%
Office (excluding Medical office)	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at: (i) a minimum rate of 0.35 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2)at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate 1.4 for each 100 square metres of **gross floor area**; and (C) in Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 2.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	60%	0%
Park	**Parking spaces** must be provided: (A) for a **building** with a **recreation use** and located in the OR zone: (i) at a minimum 0.25 for each 100 square metres of **gross floor area** if it is located in Policy Areas 1 through 4; and (ii) at a minimum rate of 1.0 for each 100 square metres of **gross floor area** if not located in Policy Areas 1 through 4; and (B) for an arena located in the OR zone at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Performing Arts Studio	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), and Policy Area 3 (PA3) and Policy Area 4 (PA4); (i) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 1.3 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.	10%	100%	100%
Personal Service Shop	**Parking spaces** must be provided if the **gross floor area** used for **personal service shops** is greater than 200 square metres: (A) in Policy Area 1 (PA1) at a: (i) minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) maximum rate of 3.5 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at a: (i) minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) maximum rate of 4.0 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City at a minimum rate of 1.5 for each 100 square metres of **gross floor area**; and (D) if the **gross floor area** is 200 square metres or less, no **parking space** is required.	20%	100%	100%
Pet Services	**Parking spaces** must be provided at the same rate as a **retail store**.	20%	100%	100%
Place of Assembly	**Parking spaces** must be provided at the minimum rate of: (A) 3.0 for each 100 square metres for **gross floor area** in Policy Area 1 (PA1) ; (B) 4.5 for each 100 square metres for **gross floor area** in Policy Area 2 (PA2); (C) 5.5 for each 100 square metres for **gross floor area** in Policy Area 3 (PA3) and Policy Area 4 (PA4); and (D) 7.0 for each 100 square metres for **gross floor area** in all other areas of the City.	25%	50%	100%
Place of Worship	**Parking spaces** must be provided at the greater of : (A) if there is permanent or fixed seating in a **Place of Worship** and: (i) if it is in Policy Area 1 (PA1) at: (a) a minimum rate of 9.0 for each 100 square metres of worship area; and (b) a maximum rate of 18.0 for each 100 square metres of worship area; and (ii) if it is in Policy Area 2 (PA2) at: (a) a minimum rate of 15.0 for each 100 square metres of worship area; and (b) a maximum rate of 23.0 for each 100 square metres of worship area; and (iii) if it is in Policy Area 3 (PA3) or Policy Area 4 (PA4) at: (a) a minimum rate of 18.0 for each 100 square metres of worship area; and (b) a maximum rate of 29.0 for each 100 square metres of worship area; and	100%	100%	100%

	(iv) at a minimum rate of 23.0 for each 100 square metres of worship area if it is located in any other area of the City; and (B) if there is no seating or variable seating in a **Place of Worship** and: (i) if it is in Policy Area 1 (PA1) at: (a) a minimum rate of 11.0 for each 100 square metres of worship area; and (b) a maximum rate of 22.0 for each 100 square metres of worship area; and (ii) if it is in Policy Area 2 (PA2) at: (a) a minimum rate of 18.0 for each 100 square metres of worship area; and (b) a maximum rate of 27.0 for each 100 square metres of worship area; and (iii) if it is in Policy Area 3 and Policy Area 4 (PA4)at : (a) a minimum rate of 22.0 for each 100 square metres of worship area; and (b) a maximum rate of 33.0 for each 100 square metres of worship area; and (iv) at a minimum rate of 27.0 for each 100 square metres of worship area if it is located in any other area of the City; or (C) the required minimum parking rate for all other permitted uses on the lot.			
Police Station	**Parking spaces** must be provided at a minimum rate of 0.2 for each 100 square metres of **gross floor area**.	100%	100%	100%
Post Secondary School	**Parking spaces** must be provided at a minimum rate of: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) and Policy Area 3 (PA3), 0.1 for each 100 square metres of **gross floor area**; (B) in Policy Area 4 (PA4), 1.0 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City, 2.0 for each 100 square metres of **gross floor area**.	50%	100%	50%
Private School	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at: (i) a minimum rate of 0.15 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 0.3 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2) and Policy Area 3 (PA3) at: (i) a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 1.0 for each 100 square metres of **gross floor area**; and (C) in Policy Area 4 (PA4) at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 2.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	100%	20%
Production Studio	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at: (i) a minimum rate of 0.35 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2) at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate 1.4 for each 100 square metres of **gross floor area**; and (C) in Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 2.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	60%	0%
Public School	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at: (i) a minimum rate of 0.15 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 0.3 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2) and Policy Area 3 (PA3) at: (i) a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 1.0 for each 100 square metres of **gross floor area**; and (C) in Policy Area 4 (PA4) at: (i) a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) a maximum rate of 2.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	100%	20%
Railway Service and Repair Yard; Railway Station	**Parking spaces** must be provided at a minimum rate of 0.1 per 100 square metres of **gross floor area**.	100%	100%	50%
Recreation Use	**Parking spaces** must be provided:	25%	100%	100%

	(A) in Policy Area 1 (PA1), Policy Area 2 (PA2), and Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 1.3 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City, at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.			
Religious Education Use	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1): (i) at a minimum rate of 0.15 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 0.3 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2) and Policy Area 3 (PA3): (i) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 1.0 for each 100 square metres of **gross floor area**; and (C) in Policy Area 4 (PA4): (i) at a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 2.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City, at a minimum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	100%	20%
Religious Residence	**Parking spaces** must be provided at a minimum rate of 1.0 for each 10 **bed-sitting rooms** or **dwelling units**.	100%	100%	100%
Residential Care Home	**Parking spaces** must be provided: (A) at a minimum rate of 0.22 for each 100 square metres of **gross floor area**; and (B) at a maximum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Respite Care Facility	**Parking spaces** must be provided at a rate of 0.3 for each **dwelling unit** and **bed-sitting room**.	100%	100%	100%
Retail Store	**Parking spaces** must be provided if the **gross floor area** on a lot is more than 200 square metres: (A) in Policy Area 1 (PA1) at a: (i) minimum of 1.0 for each 100 square metres of **gross floor area**; and (ii) maximum of 3.5 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) minimum of 1.0 for each 100 square metres of **gross floor area**; and (ii) maximum of 4.0 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City: (i) if the **gross floor area** is more than 200 square metres and less than 10,000 square metres, at a minimum rate of 1.5 for each 100 square metres of **gross floor area**; and (ii) if the **gross floor area** is 10,000 square metres or more but less than 20,000 square metres, at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; and (iii) if the **gross floor area** is 20,000 square metres or more, at a minimum rate of 6.0 for each 100 square metres of **gross floor area**; and (D) if the **gross floor area on a lot** is 200 square metres or less, no **parking space** is required.	20%	100%	100%
Retail Service	**Parking spaces** must be provided at the same rate as a **retail store**.	100%	100%	20%
Retirement Home	**Parking spaces** must be provided at a rate of 0.3 for each **dwelling unit** and **bed-sitting room**.	100%	100%	100%
Secondary Suite	**Parking spaces** must be provided at a minimum rate of 1.0 for each **secondary suite** in excess of one.	100%	100%	100%
Self Storage Warehouse	(See **Warehouse**, self storage)			
Seniors Community House	**Parking spaces** must be provided at a minimum rate of 1.0 per **building**.			
Service Shop	**Parking spaces** must be provided if the **gross floor area** is more than 200 square metres: (A) in Policy Area 1 (PA1) at a: (i) minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) maximum rate of 3.5 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at: (i) minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) maximum rate of 4.0 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City a minimum rate of 1.5 for each 100 square metres of **gross floor area**; and (D) if the **gross floor area** is 200 square metres or less, no parking space is required.	100%	100%	100%

Software Development and Processing	**Parking spaces** must be provided at the same rate as an office.	100%	100%	10%
Vehicle Dealership	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) at a minimum rate of 1.0 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 1.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Vehicle Depot	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) and Policy Area 3 (PA3) at a minimum rate of 0.1 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 0.2 for each 100 square metres of **gross floor area**.	100%	100%	50%
Vehicle Fuel Station	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2) and Policy Area 3 (PA3) at a minimum rate of 2.5 for each 100 square metres of **gross floor area**; (B) in Policy Area 4 (PA4) at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City at a minimum rate of 3.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Vehicle Service Shop	**Parking spaces** must be provided at a minimum rate of 3.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Vehicle Repair Shop	**Parking spaces** must be provided at a minimum rate of 3.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Veterinary Hospital	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 0.4 for each 100 square metres of **gross floor area** and at a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in the rest of the City at a minimum rate of 1 for each 100 square metres of **gross floor area**.	100%	100%	100%
Visitation Centre	**Parking spaces** must be provided at a minimum rate of 2.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Warehouse	**Parking spaces** must be provided at a minimum rate of 1.0 for each 100 square metres of **gross floor area** up to 2750 square metres; plus 0.5 for each 100 square metres of **gross floor area** in excess of 2750 square metres.	100%	100%	50%
Warehouse, Self Storage	**Parking spaces** must be provided at a minimum rate of 0.6 for each 100 square metres of **gross floor area**.	100%	100%	50%
Wholesaling Use	**Parking spaces** must be provided at the same rate as a **retail store.**	100%	100%	50%

(2) Provision of Parking Spaces

Parking spaces provided for each use may not be:

(A) less than the required minimum; or

(B) greater than the permitted maximum.

(3) Parking Space Rate Ancillary Uses

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

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

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

(A) the use is not listed on Table 200.5.10.1; [By-law: 1429-2017]

(B) the **parking spaces** are used by the owner, occupant or visitors to the **premises**; and

(C) the number of **parking spaces** is not:

(i) less than the required minimum for all uses on the **lot** by Table 200.5.10.1; and

(ii) greater than the permitted maximum or all uses on the **lot** by Table 200.5.10.1.

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

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

(6) Shared Parking Space Calculation (Minimum)

In Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3), Policy Area 4 (PA4), the minimum number of **parking spaces** required for a **lot** is determined as follows:

(A) for each of the morning, afternoon and evening parking periods Table 200.5.10.1, the minimum number of **parking spaces** required for each use, is calculated using the respective **parking space** rate and occupancy rate;

(B) the minimum number of **parking spaces** required for each parking period is the total of the **parking spaces** required for all uses during that parking period; and

(C) the minimum number of **parking spaces** required for the **lot** is equal to the largest number of **parking spaces** required for any parking period.

(7) Interpretation of Minimum and Maximum Parking Space Requirement

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

(A) be less than the required minimum; and

(B) exceed the permitted maximum.

(8) Multiple Dwelling Unit Buildings Parking Rates

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

(9) Assisted Housing Parking Rates

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

(10) Alternative Housing Parking Rates

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

(11) Place of Worship Parking Rates

For the purpose of calculating **parking space** requirements for a **place of worship**, the "worship area" means 90% of the area in a **place of worship** used for the expression of worship through religious services, rites or ceremonies.

(12) Policy Area 1 (PA1) Parking Space Reduction for Bicycle Parking Spaces

In Policy Area 1 (PA1) the total minimum number of **vehicle parking spaces** required on a **lot** may be reduced at a rate of 1 **vehicle parking space** for each 5 **bicycle parking spaces** provided in excess of the minimum number of **bicycle parking spaces** required by Chapter 230 if the reduction of **vehicle parking space** is not greater than 20% of the total minimum **vehicle parking spaces** required.

200.5.10.11 Parking Rate Exemptions

(1) Parking Space Requirements for a Lawfully Existing Building

If the **lawful** number of **parking spaces** for a **lawfully existing building** is less than the required number of **parking spaces**, the **lawful** number of **parking spaces** is the minimum number of **parking spaces** for that **lawfully existing building**.

(2) Parking Space Requirement - Addition or Extension of a Lawfully Existing Building

Any addition or extension to a **lawfully existing building** referred to in regulation 200.5.10.11(1) must provide any additional **parking space** required by Clause 200.5.10.1 or be authorized by a Section 45 Planning Act minor variance.

(3) Parking Space Requirement - Change of Use in a Lawfully Existing Building

If a **lawfully existing building** referred to in regulation 200.5.10.11(1) changes use:

(A) the **lawfully existing** number of **parking spaces** may not be reduced; and

(B) any additional required **parking spaces** required by Clause 200.5.10.1 must be provided or be authorized by a Section 45 Planning Act minor variance.

(4) Lawfully Existing Parking Space Located Off-Site

If the required **parking spaces** for **lawful** uses in a **lawfully existing building** are **lawfully** located on a **lot** that is not the same **lot** as the use for which the **parking spaces** are required:

(A) those **lawful parking spaces** may be provided on another **lot** for that **lawfully existing building**, if those **lawful parking spaces** are not reduced; and

(B) any addition or expansion to that **building** must comply with the parking requirements or be authorized by a Section 45 Planning Act minor variance.

200.5.200 Parking Exemptions

200.5.200.40 Commercial Residential Zone Category

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

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

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

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

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

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

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

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

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

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

(A) no additional **parking spaces** are required for a non-residential use with a higher **parking space** requirement; and

(B) the number of **parking spaces** existing on the **lot** on March 1, 1994 may not be reduced for a non-residential use with a lower **parking space** requirement.

(4) Policy Area 1 Parking Space Exemption

In a CR zone in Policy Area 1, no **parking spaces** are required for the following uses, if the **interior floor area** of all these uses, does not exceed 1.0 times the area of the **lot**:

(A) **Artist Studio**;

(B) **Custom Workshop**;

(C) **Financial Institution**;

(D) **Funeral Home**;

(E) Office;

(F) **Performing Arts Studio**;

(G) **Personal Service Shop**;

(H) **Pet Services**;

(I) **Retail Service**;
(J) **Retail Store**; and
(K) **Service Shop**.

200.5.200.50 Commercial Residential Employment Zone Category

(1) Parking Exception for change of Non-residential use
In a CRE zone in Policy Area 1 (PA1), if a change of non-residential use is proposed for a **lawfully existing building** or to a **building** that was erected pursuant to a building permit issued on or before March 7, 1983, and a minimum of 75% of the **lot area** is occupied by the **building**:

(A) additional **parking spaces** are not required for a non-residential use; and
(B) the number of **lawful parking spaces** on the **lot** may not be reduced.

200.10 Regulations Applying to Visitor Parking Spaces

200.10.1 General

(1) Access to Visitor Parking Spaces
All **driveways** or **drive aisles** that provide **vehicle** access to visitor **parking space** must be clearly identified.

(2) Visitor Parking Space - Marking
All visitor **parking spaces** must be clearly identified and marked.

(3) Visitor Parking Space Dimensions
A visitor **parking space** must comply with the **parking space** dimensions in Section 200.5.

200.15 Regulations Applying to Accessible Parking Spaces

200.15.1 General

(1) Accessible Parking Space Dimensions (Minimum)
An accessible **parking space** must have the following minimum dimensions:

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

(1) Accessible Parking Space Dimensions
An accessible **parking space** must have the following minimum dimensions:

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

(2) Accessible Parking Space Dimensions - Parallel Parking Space
The minimum dimensions of an accessible **parking space** that is adjacent and parallel to a **drive aisle** from which **vehicle** access is provided is:

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

(3) barrier Free Aisle

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

(4) Location of Accessible Parking Spaces

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

(A) entrance to a **building**;

(B) passenger elevator that provides access to the first **storey** of the **building**; and

(C) and shortest route from the required entrances in (A) and (B). [By-law: 579-2017 Under Appeal]

200.15.1.5 Interpretation

(1) Location of Accessible Parking Spaces

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

(A) closest to a main pedestrian access to a **building**; and

(B) at the same level as the pedestrian entrance to the **building**.

(1) Meaning of Accessible

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

200.15.10 Parking Rate

(1) Parking Rates - Accessible Parking Spaces

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

(A) if the number of required **parking spaces** is 5 to 24, a minimum of 1 **parking space** must comply with the minimum dimensions for an accessible **parking space**;

(B) if the number of required **parking spaces** is 25 to 100, a minimum of 1 **parking space** for every 25 **parking spaces** or part thereof must comply with the minimum dimensions for an accessible **parking space**; and

(C) if the number of required **parking spaces** is more than 100, a minimum of 4 **parking spaces** plus 1 **parking space** for every 50 **parking spaces** or part thereof in excess of 100 **parking spaces**, must comply with the minimum dimensions for an accessible **parking space**.

(1) Parking rates - Accesible Parking Spaces

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

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

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

(C) if the number of required **parking spaces** is more than 100, a minimum of 5 **parking spaces** plus 1 **parking space** for every 50 **parking spaces** or part thereof in excess of 100 **parking spaces**, must comply with all regulations for an accessible **parking space** in Section 200.15. [By-law: 579-2017 Under Appeal]

(2) Accessible Parking Space Requirement Medical Office and Clinics

A minimum of 10% of the required **parking spaces** for a medical office established after May 9, 2013 must comply with the minimum dimensions for an accessible **parking space** and any accessible **parking spaces lawfully existing** on the **lot** must be retained.

(2) Accessible Parking Space Requirement for Medical Offices and Clinics

A minimum of 10 percent of the required **parking spaces** for a medical office or clinic established after May 26, 2017, must comply with all regulations for an accessible **parking space** in Section 200.15 and any accessible **parking spaces lawfully existing** on the **lot** must be retained. [By-law: 579-2017 Under Appeal]

200.15.15 Transition: Accessible Parking Spaces

(1)

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

200.15.15.1 Transition: Building Permit Applications

(1) Building Permit Applications

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

(2) Building Permit Applications

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

200.15.15.2 Transition: Zoning Certificate Applications

(1) Zoning Certificate Applications

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

(2) Zonig Certificate Applications

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

(A) the building permit plans for the project are substantially in compliance with the plans approved with the zoning certificate referred to in regulation 200.15.15(3) and issued pursuant to Section 363-10.1 of Chapter 363, Building Construction and Demolition of the City of Toronto Municipal Code; and

(B) the project in question complies, or the building permit application for the project is amended to comply, with the provisions of regulations 200.15.15.4 and 200.15.15.5 below, and all finally approved minor variances. [By-law: 579-2017 Under Appeal]

200.15.15.3 Transition: Site Plan Applications

(1) Site Plan Approval Applications

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

(2) Site Plan Approval Applications

Where a project qualifies under regulation 200.15.15.3:

(A) the Notice of Approval Conditions and final site plan approval may be granted if the project complies with regulations 200.15.15.4 and 200.15.15.5 below, all requirements of the Planning Act, and Section 114 of the City of Toronto Act, 2006, S.O. 2006, c.11 Schedule. A; and

(B) after a Notice of Approval Conditions or final site plan approval is received for a project that qualifies under regulation 200.15.15.3, a building permit for that project may be issued if the project in question complies, or the building permit application for the project is amended to comply, with the provisions of regulations 200.15.15.4 and 200.15.15.5 below, the site plan approval, and all finally approved minor variances. [By-law: 579-2017 Under Appeal]

(3) Site Plan Approval Applications

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

200.15.15.4 Transition: Parking Space General Requirements

(1) Accessible Parking Space Dimensions

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

(A) length of 5.6 metres;

(B) width of 3.9 metres; and

(C) vertical clearance of 2.1 metres. [By-law: 579-2017 Under Appeal]

(2) Location of Accessible Parking Spaces

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

(A) closest to a main pedestrian access to a **building**; and

(B) at the same level as the pedestrian entrance to the **building**. [By-law: 579-2017 Under Appeal]

(3) Parking Rates - Accessible Parking Spaces

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

(A) if the number of required **parking spaces** is 5 to 24, a minimum of 1 **parking space** must comply with the minimum dimensions for an accessible **parking space**;

(B) if the number of required **parking spac**es is 25 to 100, a minimum of 1 **parking space** for every 25 **parking spaces** or part thereof must comply with the minimum dimensions for an accessible **parking space**; and

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

200.15.15.5 Transition: Medical Office and Clinic Requirements

(1) Medical Office and Clinic Accessible Parking Space Rates

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

200.15.15.6 Transition: Accessible Parking Spaces Duration of Transition

(1) Transition Application

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

(2) Transition Clause Duration

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

(3) Transition Regulations Repeal

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

200.20 Regulations Applying to Parking Spaces for Heritage Buildings

200.20.10 General

(1) Parking Space Requirements for Heritage Sites Designated Under the Ontario Heritage Act

The number of **parking spaces** required for a **heritage site** is the lesser of the requirements of Chapter 200, and the number of **parking spaces** that existed on July 20, 1993.

(2) Parking Space Requirements for Additions or Alterations to Heritage Sites Designated Under the Ontario Heritage Act

If **gross floor area** of a **building** on a **heritage site** is added to through an addition, alteration or extension or if the floor area is replaced, **parking spaces** must be provided in compliance with the requirements of this By-law or be authorized by a Section 45 Planning Act minor variance.

900.11 CR - Zone

900.11.1 General

(1) CR Zone Exception

The regulation located in Article 900.11.10 apply only to the exceptions subject to the CR zone and identified with the corresponding exception number.

900.11.10 Exceptions for CR Zone

(1) Exception CR 1

The lands, or a portion thereof as noted below, are subject to the following Site Specific Provisions, Prevailing By-laws and Prevailing Sections:

Site Specific Provisions: (None Apply)

Prevailing By-laws and Prevailing Sections:

(A) Section 64.23(126), former City of North York zoning by-law 7625; and

(B) Schedule 'D' Airport Hazard Map from City of North York zoning by-law 7625.

(2) Exception CR 2

The lands, or a portion thereof as noted below, are subject to the following Site Specific Provisions, Prevailing By-laws and Prevailing Sections:

Site Specific Provisions:

(A) If a **building** with 12 **dwelling units** or less, is located on a **lot** with a **lot frontage** of 12.5 metres or less, then **parking spaces** must be provided:

(i) for the **dwelling units** at a minimum rate of 1 for each 3.0 metres of **lot frontage**; and

(ii) at the minimum rate required by Chapter 200 for all other uses on the **lot**, if the **gross floor area** of those non- **dwelling unit** uses is more than 1.0 times the **lot area**; and

(B) If a **building** has more than 12 **dwelling units** or 12 bed sitting rooms or is located on a **lot** that has a **lot frontage** greater than 12.5 metres, then **parking spaces** must be provided at a minimum rate of:

(i) 1.0 for each 6 **bed-sitting rooms**;

(ii) 0.5 for each bachelor and one-bedroom **dwelling unit**;

(iii) 0.75 for each **dwelling unit** with two or more bedrooms; and

(iii) 0.06 for each **dwelling unit** and used for visitor parking. [TO: 438-86; 4(3)]

(C) Regulations (A) and (B) above do not apply if an alternative parking space rate requirement was applied to the site in a zoning by-law amendment enacted after December 31, 1994.
[By-law: 1675-2013]

Prevailing By-laws and Prevailing Sections: (None Apply)

(3) Exception CR 3

The lands, or a portion thereof as noted below, are subject to the following Site Specific Provisions, Prevailing By-laws and Prevailing Sections:

Site Specific Provisions:

(A) In addition to the uses permitted in the zone, the lands may be used for the purpose of a miniature golf course.

Prevailing By-laws and Prevailing Sections:

(A) Schedule 'D' Airport Hazard Map from City of North York zoning by-law 7625.

(4) Exception CR 4

(2481) Exception CR 2481

The lands, or a portion thereof as noted below, are subject to the following Site Specific Provisions, Prevailing By-laws and Prevailing Sections:

Site Specific Provisions:

(A) Despite regulations 40.10.20.40 (1), 40.10.20.100 (18), and Clause 40.10.150.1 (Waste) **dwelling units** are permitted in **building** types with less than 5 **dwelling units**; and

(B) These **premises** must comply with Exception 900 11.10(2).

Prevailing By-laws and Prevailing Sections:

(A) Section 12(1) 251 of former City of Toronto By-law 438-86;

(B) Section 12(2) 132 of former City of Toronto By-law 438-86;

(C) Section 12(2) 219 of former City of Toronto By-law 438-86;

(D) Section 12(2) 270(a) of former City of Toronto By-law 438-86;

(E) On or between the even numbered addresses of 480-482 Huron St., 488 Huron St., the even numbered addresses of 490-494 Huron St., 13 Madison Ave., the odd numbered addresses of 15-19 Madison Ave., the odd numbered addresses of 21-25 Madison Ave., 27 Madison Ave., former City of Toronto by-law 318-75; and

(F) On the even numbered addresses of 480-482 Huron St., 488 Huron St., the even numbered addresses of 490-494 Huron St., 13 Madison Ave., the odd numbered addresses of 15-19 Madison Ave., the odd numbered addresses of 21-25 Madison Ave., 27 Madison Ave., former City of Toronto by-law 319-75.

(2482) Exception CR 2482

The lands, or a portion thereof as noted below, are subject to the following Site Specific Provisions, Prevailing By-laws and Prevailing Sections:

Site Specific Provisions:

(A) On a **lot**, a **vehicle fuel station**, **vehicle washing establishment**, **vehicle service shop**, **vehicle repair shop**, or **public parking** is not a permitted use. This exception does not apply to 528-532 Bloor St. W. and the block bounded by Huron St., Prince Arthur Avenue, St. George St., and Bloor St. W. except for the lands on the north side of Bloor St. W. within 28.96 metres of the intersection of Huron St. and Bloor St. W.; [TO: 438-86; 12(2) 219]

(B) In a Commercial Residential zone, where the maximum **lawfully** permitted height exceeds the width of the right-of-way of the **street** it abuts then:

(i) the **angular plane** requirements of regulations 40.10.40.70(2)(E) and 40.10.40.70(2)(G) do not apply;

(ii) the **rear yard setback** requirements of regulation 40.10.40.70(2)(B) do not apply; and

(iii) if the rear **main wall** of a **building** does not contain windows or openings:

(a) the **building** must be set back at least 3.0 metres from any **rear lot line** that abuts a **lot** in the Residential Zone category; and

(b) no **building setback** is required from any other zone category.

Prevailing By-laws and Prevailing Sections:

(A) Section 12(1) 251 of former City of Toronto By-law 438-86;

(B) Section 12(2) 132 of former City of Toronto By-law 438-86;

(C) Section 12(2) 270 (a) of former City of Toronto By-law 438-86;

(D) On 1 Bedford Rd., the even numbered addresses of 230-244 Bloor St. W., City of Toronto by-law 645-07;

(E) On the lands municipally known as 1 Bedford Rd., 230, 232, 234, 236, 238, 240, 242 and 244 Bloor St. W., City of Toronto by-law 645-2007(OMB);

(F) On the lands municipally known as 204 Bloor St. W., City of Toronto by-law 907-2006; and

(G) On 220 Bloor St. W., former City of Toronto by-law 364-87.

(2483) Exception CR 2483

(2612) Exception CR 2612

The lands, or a portion thereof as noted below, are subject to the following Site Specific Provisions, Prevailing By-laws and Prevailing Sections.

Site Specific Provisions: (None Apply)

Prevailing By-laws and Prevailing Sections:

(A) Section 12(1) 251 of former City of Toronto By-law 438-86; and

(B) Section 12(2) 270(a) of former City of Toronto By-law 438-86.

(2613) Exception CR 2613

The lands, or a portion thereof as noted below, are subject to the following Site Specific Provisions, Prevailing By-laws and Prevailing Sections:

Site Specific Provisions:

(A) Despite regulations 40.10.20.40 (1) and 40.10.20.100 (18), **dwelling units** are permitted in **building** types with less than 5 **dwelling units**; and

(B) These **premises** must comply with Exception 900 11.10(2).

Prevailing By-laws and Prevailing Sections:

(A) Section 12(1) 251 of former City of Toronto By-law 438-86;

(B) Section 12(2) 256 of former City of Toronto By-law 438-86; and

(C) Section 12(2) 270(a) of former City of Toronto By-law 438-86.

(2614) Exception CR 2614

The lands, or a portion thereof as noted below, are subject to the following Site Specific Provisions, Prevailing By-laws and Prevailing Sections:

Site Specific Provisions:

(A) These **premises** must comply with Exception 900 11.10(2).

Prevailing By-laws and Prevailing Sections:

(A) Section 12(1) 251 of former City of Toronto By-law 438-86;

(B) Section 12(2) 132 of former City of Toronto By-law 438-86; and

(C) Section 12(2) 270(a) of former City of Toronto By-law 438-86.

(2615) Exception CR 2615

The lands, or a portion thereof as noted below, are subject to the following Site Specific Provisions, Prevailing By-laws and Prevailing Sections:

Site Specific Provisions:

(A) These **premises** must comply with Exception 900 11.10(2).

Prevailing By-laws and Prevailing Sections:

(A) Section 12(1) 251 of former City of Toronto By-law 438-86;

(B) Section 12(2) 132 of former City of Toronto By-law 438-86; and

(C) Section 12(2) 270(a) of former City of Toronto By-law 438-86.

(2616) Exception CR 2616

The lands, or a portion thereof as noted below, are subject to the following Site Specific Provisions, Prevailing By-laws and Prevailing Sections:

Site Specific Provisions:

(A) **Public parking** in a **building** or **structure** is not permitted [TO: 438-86; 12(2) 132]; and

(B) These **premises** must comply with Exception 900 11.10(2). [By-law: 1124-2018]

BOUSFIELDS INC.

Project No. 1613

March 26, 2018

Barry Brooks, Senior Planner
City of Toronto, City Planning Division
Toronto City Hall, 18th Floor East
100 Queen Street West
Toronto, Ontario M5H 2N2

Dear Mr. Brooks,

Re: Application for Site Plan Approval
9-11 Madison Avenue

We are the planning consultants for the Estonian (Toronto) Credit Union Limited, the owners of 11 Madison Avenue, and the City of Toronto, the owners of 9 Madison Avenue, with respect to the subject site (9 and 11 Madison Avenue).

We are pleased to submit a Site Plan Approval application to permit the redevelopment of the subject site for a 3-storey, "U"-shaped, mixed-use building to house the Estonian Centre, a cultural centre, community hub and gathering place for Toronto's Estonian community.

At its meeting on November 29, 30 and December 1, 2011, City Council declared the property at 9 Madison Avenue surplus, aside from a below grade strata to protect for the subway tunnel and an above-grade easement to protect this infrastructure and turned it over to Build Toronto (now CreateTO) for disposition. The Estonian Credit Union, Estonian Foundation of Canada and Tartu College subsequently entered into an agreement of purchase and sale with Build Toronto to redevelop the property. The property at 11 Madison Avenue was purchased by the Estonian Credit Union, with the intent of assembling the two properties.

The remainder of this letter provides an overview of the subject site and its surroundings, the applicable policy and regulatory framework, and the proposed future minor variance application to the Committee of Adjustment. It also summarizes the plans and studies submitted in support of this application.

Site and Surroundings

The subject site, municipally known as 9 and 11 Madison Avenue, is located on the east side of Madison Avenue, approximately 47 metres north of Bloor Street West. The property at 9 Madison Avenue is currently owned by the City of Toronto and is occupied by a Toronto Parking Authority surface parking lot with approximately 35 parking spaces. The Line 1 and 2 subway tunnels travel east-west underneath the property and will continue to be owned by the City of Toronto.

The property at 11 Madison Avenue is occupied by a 2½-storey detached house that is currently vacant but was most recently occupied by the Tengye Ling Tibetan Buddhist Temple. The existing building including a one-storey enclosed porch is set back 2.21 metres from Madison Avenue, 0.55 metres from the north property line shared with 13 Madison Avenue, and between 2.46 and 3.69 metres from the existing property line shared with 9 Madison Avenue. The building is set back approximately 14 metres from the rear lot line.

Together, the subject site consisting of 9 and 11 Madison Avenue is generally rectangular in shape, and has a frontage of approximately 41.3 metres along Madison Avenue, a depth of approximately 38.5 metres and a site area of approximately 1,589.1 square metres.

Immediately south of the site is the 18-storey Tartu College building (310 Bloor Street West), which is also owned by the Estonian community. Built in the 1960s, the building includes 460 student residence units and takes its main pedestrian entrance from Bloor Street West. The building is “L”-shaped and massed to the Bloor Street West and Madison Avenue lot lines, with a 2-storey podium in the rear. In the rear are a loading area, a ramp to a below-grade parking garage and a small surface parking lot that is accessed through the subject site.

East of Tartu College and the subject site is the Bloor Street United Church (300 Bloor Street West), which along with 478 Huron Street is the subject of a rezoning application to retain the majority of the church building and the entirety of Pidgeon House, located at 478 Huron Street, while permitting the development of a new 38-storey mixed-use building with residential, office, worship, retail and community uses. The subject site interfaces both with the tower portion of the building, which is to be located immediately north of the church building, and with Pidgeon House. No west-facing windows are proposed in the tower until the 5th storey (22.06 metres above grade).

North of the subject site is 13 Madison Avenue, a 2-storey detached dwelling set back between 2.37 and 5.42 metres from the north property line of 11 Madison Avenue. Although 13 Madison Avenue appears to be used for residential purposes, the majority of the houseform buildings fronting Madison Avenue and Huron Street further north are used for a mix of office, institutional, commercial, hotel and fraternity uses.

Immediately west of the subject site, across Madison Avenue, is Paul Martel Park, an approximately 870 square metre public park, which is located on the same property as the easterly entrance to the Spadina subway station and bus station (7 Spadina Road). South of the park, at the northwest corner of Madison Avenue and Bloor Street West, is 316 Bloor Street West, which is currently occupied by a 3-storey office building. It has zoning in place pursuant to a recent Ontario Municipal Board settlement permitting a 29-storey tower with a maximum height (including a mezzanine floor and the mechanical penthouse) of 98 metres. The approved building includes a 5-storey, 18.65 metre base building, with access from the side street, Madison Avenue.

In addition to the Spadina subway station, which is approximately 200 metres away by foot, the subject site is also located approximately 350 metres west of the St. George subway station.

Proposed Development

The proposed building would include a privately-owned publicly-accessible space (POPS) at grade, in a new courtyard in the middle of the “U”, along with a mid-block pedestrian path that would connect to Huron Street through the proposed redevelopment at 300 Bloor Street West and 478 Huron Street.

The proposed new building will have a gross floor area of 2,769 square metres (29,805 square feet), resulting in an overall gross floor area of 3,225 square metres (34,714 square feet) including the existing 456 square metre (4,908 square foot) house at 11 Madison Avenue. The proposal will have a maximum height of 12.0 metres (39 feet), and an overall density of 2.0 times the lot area.

Entrances to the building will be from Madison Avenue, the courtyard and the mid-block connection to Huron Street. At grade, a retail unit is proposed within the existing houseform building, while a café and a bank (the Estonian Credit Union)

are proposed to front the courtyard. The entrance to the core of the building is to be located between the café and the existing houseform building, where a ramp provides access to the main lobby.

The second and third storeys are to be occupied by the community centre, an office, antechamber/bar area, flex space, and a 2-storey grand hall on Level 2 and a board room, meeting rooms, and studio space on the third storey. A mechanical penthouse is to be located on the roof, massed along the east lot line, while the rest of the roof is to be used as a green roof and amenity terrace (approximately 219 square metres), oriented towards the courtyard. Additional leasable space (2 or 3 units) is to be located in the basement level.

Loading is proposed to be shared with Tartu College to the south (310 Bloor Street West), and no parking is proposed on-site.

Policy and Regulatory Framework

The subject site is designated *Mixed Use Areas* in the City of Toronto Official Plan, which provides for a broad mix of commercial, residential and institutional uses, in single use or mixed use buildings, as well as parks and open spaces and utilities. The site is surrounded by other lands designated *Mixed Use Areas* in all directions, except for Paul Martel Park to the west, which is designated *Parks*.

The Plan envisions that development in *Mixed Use Areas* will create a balance of high quality commercial, residential, institutional and open space uses that reduces automobile dependency and meets the needs of the local community, while providing for new jobs and homes for Toronto's growing population on underutilized lands.

Mixed Use Areas Policy 4.5(2) contains a number of criteria for development within the *Mixed Use Areas* designation, several of which set out the location and massing of new buildings. Accordingly, it focuses on providing appropriate transitions between buildings of different intensities and scales, as well as limiting the impacts of shadows, wind and site servicing impacts on adjacent *Neighbourhoods*, *Parks* and *Open Spaces*. The same policy states that new buildings should appropriately frame streets and provide an attractive, comfortable, and safe environment for pedestrians, as well as adequate traffic circulation.

The portion of the site at 9 Madison Avenue is subject to Site and Area Specific Policy 334 (SASP 334), which applies to the "Bloor Corridor" between Avenue Road and Bathurst Street. It was introduced by Official Plan Amendment No. 98, and resulted from the Bloor Corridor Visioning Study.

SASP 334 recognizes that the Bloor Corridor includes a variety of land uses, including residential, commercial, retail, institutional, cultural, and parks and open space. SASP 334 requires development to respect, conserve and reinforce heritage buildings and features throughout the Bloor Corridor, and requires new buildings to provide appropriate transition through setbacks, stepbacks and stepping down of height in order to protect adjacent heritage elements, significant views and the distinctive characteristics of Heritage Conservation Districts, such as the Madison Avenue Heritage Conservation District, which includes the subject site. It is noted that the by-law establishing the Madison Avenue Heritage Conservation District and adopting the Heritage Conservation District Plan is currently under appeal.

SASP 334 is proposed to be amended as part of the Bloor Corridor/ Annex Block Planning Study through Official Plan Amendment 365 (OPA 365). As it relates to the site, OPA 365 provides that the City shall secure publicly accessible open spaces, widened sidewalks and mid-block connections through the development application review process. The revised Map 3 shows an east-west Mid-block Connection across the properties at 9 Madison Avenue and 300 Bloor Street West, terminating at Huron Street. OPA 365 was adopted by City Council on March 9, 2017 but is currently under appeal.

The portion of the site at 11 Madison Avenue is subject to Site and Area Specific Policy 198 (Huron Madison). The policy provides that residential, institutional and commercial uses are permitted in house-form buildings and requires that development conserve the valued heritage buildings, reinforce the architectural unity that characterizes the area, and maintain the character of the heritage landscapes.

The site is split-zoned in the in-force Former Toronto Zoning By-law No. 438-86, with 9 Madison Avenue zoned CR T2.0 C2.0 R2.0 and 11 Madison zoned CR T1.5 C1.5 R1.0, with maximum heights of 12.0 metres on both properties. Similar to the underlying land use designation, the CR (Commercial-Residential) zone permits a wide range of uses.

The T2.0 C2.0 R2.0 zoning designation applying to 9 Madison permits a maximum density of 2.0 times the lot area, of which a maximum of 2.0 FSI may be commercial density and a maximum of 2.0 FSI may be residential density. The T1.5 C1.5 R1.0 zoning designation applying to 11 Madison permits a maximum density of 1.5 FSI, of which a maximum of 1.5 FSI may be commercial density but only a maximum of 1.0 FSI may be residential density.

The 9 Madison Avenue property is subject to Exceptions 12(1)3(b), 12(1)251, 12(2)132, and 12(2)270. The 11 Madison Avenue property is subject to the same exceptions, as well as Exception 12(2)219(A).

Exception 12(1)3(b) provides for the reconstruction of the building in the event of a disaster. Exception 12(1)251 permits the use of existing rooming houses or converted dwelling and rooming houses in the Annex. Exception 12(2)132 prohibits commercial parking garages. Exception 12(2)270 restricts permitted retail and service commercial uses to not greater than the amount which existed on the lot in July 1993, plus an additional 1,800 square metres.

Exception 12(2)219(A), which applies only to 11 Madison Avenue, prohibits various non-residential uses on any lot in that portion of the Annex located north of Bloor Street West between Spadina Road and Bedford Road. The prohibited uses include a branch of a bank or financial institution, a restaurant, a take-out restaurant, a retail store, and a real estate sales office, among others, but do not include an office or a place of assembly.

The subject site is proposed to be rezoned CR 2.0 (c2.0; r2.0) SS2 (x2614) (9 Madison) and CR 1.5 (c1.5; r1.0) SS2 (x2481) (11 Madison) by the under-appeal City-wide Zoning By-law No. 569-2013, both with a height limit of 12.0 metres, exclusive of mechanical penthouses up to 5.0 metres in height. The subject site is proposed to be located within Policy Area 1.

The CR (Commercial Residential) zone permits residential uses in a range of building types, including apartment buildings, and a wide range of non-residential uses.

With respect to setbacks, Development Standard Set 2 (SS2) requires that at least 75% of the main wall of the building facing a front lot line must be at or between the front lot line and a maximum of 3.0 metres from the front lot line. The SS2 provisions also require a 7.5 metre setback from the rear lot line, or, where the rear

lot line abuts a lane, a 7.5 metre setback from the lot line on the opposite side of the lane. No side yard setback is required except where a side wall has windows or openings, and only where that side lot line abuts a lot line that is not adjacent to a street or lane.

In addition, a building must not penetrate a 45-degree angular plane from the front lot line (in this case, Madison Avenue), measured at a height of 80% of the right-of-way width. Additional CR regulations include a minimum height of 4.5 metres for the first storey.

Exception 2614 applying to 9 Madison Avenue provides that Exception 900 11.10(2) applies, with reduced parking rates of 0.5 spaces for each bachelor and one-bedroom dwelling unit, 0.75 spaces for each 2-bedroom dwelling unit or larger, and 0.06 spaces for each dwelling unit for residential visitors. Exception 2614 also provides that Sections 12(1)251, 12(2)132 and 12(2)270(a) of By-law 438-86 continue to prevail. None of the exceptions are relevant to the proposed development.

Exception 2481 applying to 11 Madison Avenue also provides that Exception 900 11.10(2) applies, while permitting dwelling units in building types with less than 5 dwelling units. Exception 2481 also provides that Sections 12(1)251, 12(2)132, 12(2)219 and 12(2)270(a) of By-law 438-86 continue to prevail. Only Section 12(2)219 (summarized above) is relevant for the proposed development.

Consultation

As part of the pre-application process, our team has consulted with multiple parties on a number of occasions.

- Consulted with City Planning, Urban Design and Heritage Preservation Services staff on multiple occasions.
- Consulted with CreateTO (Build Toronto) staff on multiple occasions.
- Consulted with the Annex Residents Association on multiple occasions.
- Consulted with the Estonian community on multiple occasions.

- A pre-application community consultation meeting was held on October 30, 2017 at Tartu College, with approximately 40 residents, City Planning staff and the Ward Councillor in attendance.

- Multiple communications with the Ward Councillor's office.

Relief from Zoning By-laws

Permitting the proposed development will require some variances from the in-force Zoning By-law 438-86 and the under-appeal Zoning By-law 569-2013. It is anticipated that variances will be required to permit the proposed density, reduction in non-residential and accessible car parking, off-site loading, ground floor height, a reduced rear yard setback, an increased front yard setback for the courtyard portion of the building, and the proposed uses on the portion of the site at 11 Madison Avenue.

It is our intention to submit a minor variance application once the Site Plan Approval application has been circulated and technical circulation comments have been received and any necessary revisions incorporated into the proposed development.

In support of the Site Plan Approval application, please find enclosed herewith:

- Boundary and Topographical Survey prepared by Rouse Surveyors (7 copies);
- Architectural Drawing Set prepared by Kongats Architects (7 copies);
- Green Development Standards Checklist coordinated by Kongats Architects (2 copies);
- Accessibility Design Standards Checklist Letter prepared by Kongats Architects (2copies);
- 3D Building Mass Model prepared by Kongats Architects (digital copy);
- Landscape Plans prepared by North Design Office (7 copies);
- Arborist Report prepared by Cohen & Master (2 copies);
- Erosion and Sediment Control Plan prepared by MGM Consulting (5 copies);
- Functional Servicing and Storm Water Management Report prepared by MGM Consulting (2 copies);
- Heritage Impact Assessment prepared by Robyn Huether Architect (2 copies);
- Energy Efficiency Report prepared by Footprint (2 copies);
- Geotechnical Report prepared by Terraprobe Inc. (2 copies);

BOUSFIELDS INC.

- Noise & Vibration Feasibility Study prepared by RWDI (2 copies);
- One (1) USB with digital versions of the above-noted material; and
- One (1) cheque for $37,253.80, constituting the application fee for the Site Plan Approval application.

A Transportation, Parking and Loading Study are forthcoming and will be submitted under separate cover.

If you have any questions and/or comments regarding this submission letter, please do not hesitate to contact me or Mike Dror, Senior Planner, of our office.

Yours very truly,
Bousfields Inc.

Peter Smith, MCIP, RPP

BOUSFIELDS INC.

Project No. 1613

May 17, 2018

Barry Brooks
Senior Planner
City of Toronto, City Planning Division
Toronto City Hall, 18th Floor East
100 Queen Street West
Toronto, Ontario M5H 2N2

Dear Mr. Brooks,

Re: Site Plan Control Resubmission (File No. 18 135022 STE 20 SA)
9 and 11 Madison Avenue

We are the planning consultants with respect to the above-noted property. On behalf of our client, Estonian (Toronto) Credit Union Limited., we are pleased to resubmit supporting studies in support of Site Plan Control application number 18 135022 STE 20 SA.

Please find enclosed herewith the following additional materials:

- one (1) copy of the resubmission form, prepared by Bousfields Inc.;
- two (2) copies of the Transportation Demand Management Plan, prepared by LMM Engineering Inc.;
- two (2) copies of the Traffic Impact Study, prepared by LMM Engineering Inc;
- two (2) copies of the Parking Study, prepared by LMM Engineering Inc.;
- two (2) copies of the Noise and Vibration Feasibility Study, prepared by RWDI;
- two (2) copies of the Geotechnical Engineering Report, prepared by Terraprobe Inc.;
- one (1) USB of the above noted digital materials

We trust that the foregoing is satisfactory. However, if you have any questions or require additional information, please do not hesitate to contact me at 416-947-9744.

Yours very truly,
Bousfields Inc.

Mike Dror, MCIP, RPP

TRAFFIC &
PARKING
CONSULTANTS

PARKING STUDY

TORONTO ESTONIAN CULTURAL CENTRE
9-11 MADISON AVENUE

Toronto, Ontario

Prepared for:

Kongats Architects
23 Morrow Avenue, Suite #2
Toronto, ON
416-504-8998

Prepared by:

LMM Engineering Inc.
1-877-878-7566
www.LMMEngineering.com

May 16, 2018

LMM Ref: PT-17-085

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1.0 INTRODUCTION

LMM Engineering Inc. was retained by Kongats Architects to undertake a parking study to evaluate the parking implications of the proposed Toronto Estonian Cultural Centre at 9 – 11 Madison Avenue in The Annex community in the City of Toronto.

1.1 THE APPLICATION

The proposed development will consist of a cultural centre with a leasable commercial component. The proposed development will replace an existing public surface parking lot. The subject site is located on the northeast corner of the Bloor Street / Madison Avenue intersection. The site location map is shown in **Figure 1-1**.

1.2 PROPOSED DEVELOPMENT

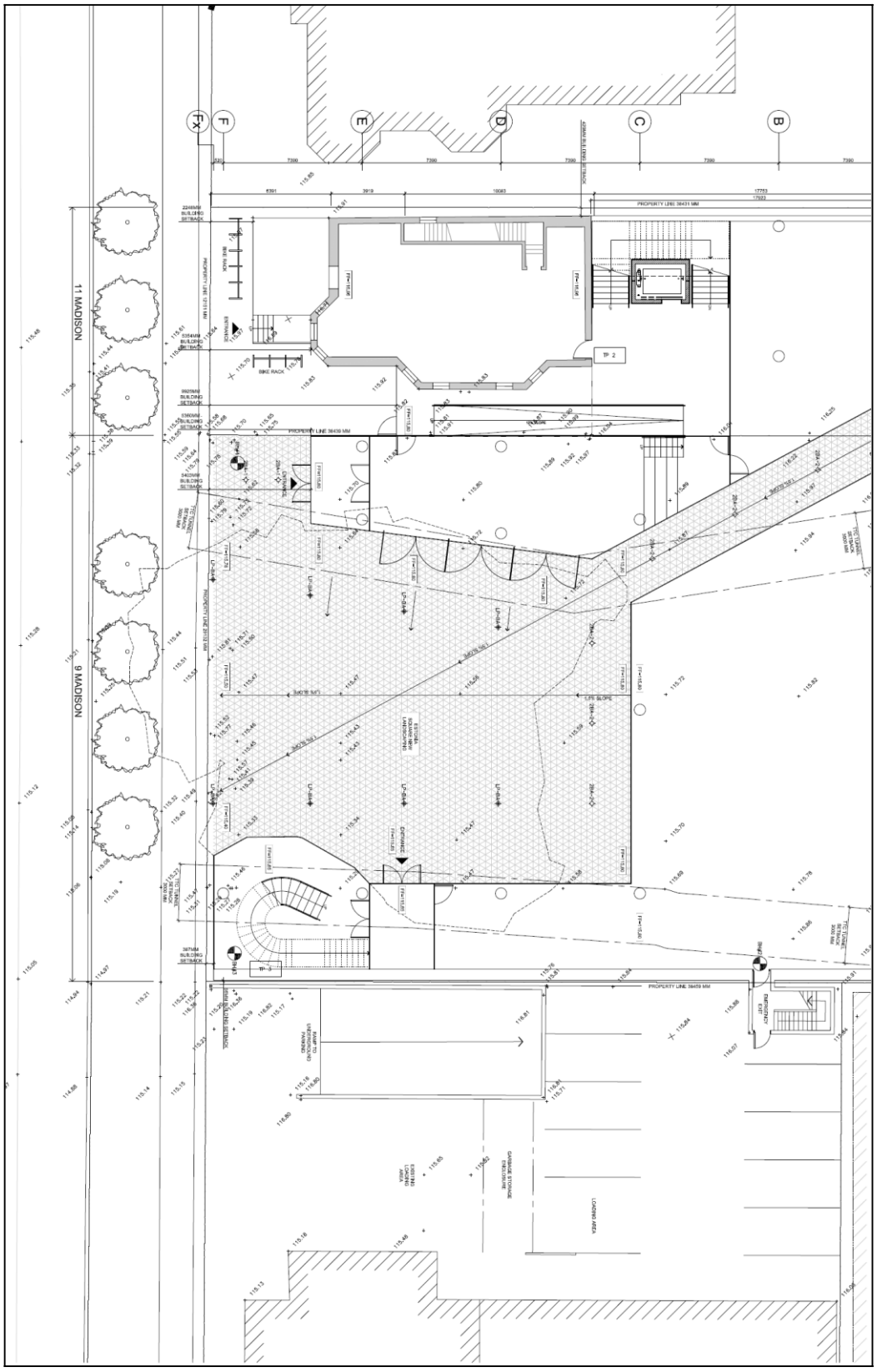
The proposed site plan is shown in **Figure 1-2**. The existing surface parking lot (paid public parking) would be demolished and replaced with a 29,805 s.f. GFA cultural centre which would include:

- 15,535 s.f. GFA community use areas (i.e. multi-purpose rooms, event centre)
- 11,968 s.f. GFA leasable area (commercial retail, office, financial institution, etc.)
- 3,657 s.f. GFA common area

No parking would be provided on site. Parking would be provided by on-street parking on Madison Avenue, and Lowther Avenue and at the public paid parking lots on Spadina Road and Huron Street.

Figure 1-1 Site Location Map

Figure 1-2 Proposed Site Plan



2.0 EXISTING PARKING UTILIZATION

Parking utilization surveys were conducted at anticipated peak parking times for the proposed development and the vicinity of the subject site. The surveys were conducted at a proxy site, the existing Estonian House at 958 Broadview Avenue to determine the future parking demand generated by the proposed development. Surveys were also conducted in the vicinity of the subject site to determine parking availability in the area.

2.1 STUDY TIME PERIODS

Based on information provided by the Estonian House, the following activities typically occur on a regular basis:

- Weekdays – businesses operate from 9:00 AM to 4:00 PM.
- Tuesdays – language classes occur from 7:30 PM to 9:30 PM with approximately 65 children and 20 adults attending and a men's choir practices with approximately 20 – 25 adults.
- Weeknights – on other weeknights, there are choir practices, pilates classes, girl guides and other activities that occur but Tuesday evening has the highest number of attendees at the centre.
- Saturday morning – language and cultural classes occur from 9:00 AM to 1:00 PM with approximately 85 children attending with some adult attendees and teachers.
- Weekend evenings – events occur at the banquet hall after 7:00 PM with up to 400 attendees. It is estimated that there are three to four (3-4) events every month.

Based on the above and the anticipated combination of peak parking for the proposed development and peak parking in the vicinity of the subject site, the parking utilization surveys were conducted at the following time periods:

- Saturday, March 24, 2018 – 8:30 AM to 1:30 PM
- Tuesday, March 27, 2018 – 9:00 AM to 8:00 PM

2.2 PROXY SITE PARKING UTILIZATION

The results of the parking utilization surveys for the proxy site, the existing Estonian House at 958 Broadview Avenue is detailed in **Table 2-1**. The parking utilization surveys indicate that the peak parking utilization occurred on the Tuesday between 4:30 PM to 5:00 PM when 12 parking spaces were occupied.

The coordinators of activities predicted that the parking lot would be most busy on a Saturday morning due to the language and cultural school activities. However, most of this traffic may be drop-off / pick up traffic slightly before and after lesson times and the actual parking demand is not as high as the weekday peak parking demand.

Table 2-1 Parking Utilization at Proxy Site

Time			Spaces Occupied
Tuesday, March 27, 2018			
9:00	to	9:30	9
9:30	to	10:00	7
10:00	to	10:30	9
10:30	to	11:00	9
11:00	to	11:30	8
11:30	to	12:00	9
12:00	to	12:30	11
12:30	to	13:00	12
13:00	to	13:30	5
13:30	to	14:00	8
14:00	to	14:30	8
14:30	to	15:00	8
15:00	to	15:30	7
15:30	to	16:00	9
16:00	to	16:30	11
16:30	to	17:00	12
17:00	to	17:30	6
17:30	to	18:00	5
18:00	to	18:30	7
18:30	to	19:00	7
19:00	to	19:30	7
19:30	to	20:00	9

Time			Spaces Occupied
Saturday, March 24, 2018			
08:30	to	09:00	5
09:00	to	09:30	7
9:30	to	10:00	7
10:00	to	10:30	6
10:30	to	11:00	8
11:00	to	11:30	9
11:30	to	12:00	9
12:00	to	12:30	8
12:30	to	13:00	9
13:00	to	13:30	8

2.3 Subject Site Parking Utilization

Parking utilization surveys were also conducted in the vicinity of the subject site on Thursday, May 3, 2018 and Saturday, March 24, 2018. The parking areas included in the parking utilization surveys are illustrated in **Figure 2-1** and include:

A. Madison Avenue between Bloor Street and Lowther Avenue
B. Lowther Avenue between Spadina Road and Huron Street
C. Huron Street between Bloor Street and Prince Arthur Street
D. Surface parking lot at 9 Madison Avenue
E. Surface parking lot at 468-488 Huron Street
F. Surface parking lot at 9 at 35 Spadina Road
G. Bloor Street W between Spadina Road & Huron Street
H. Surface parking lot at 455-481 Huron Street
I. Surface parking lot at 4 Spadina Road
J. Surface parking lot at 425 Bloor Street W
K. Underground parking garage at 138 Sussex Mews
L. Parking garage at Ontario Institute for Studies in Education

It is noted that parking is not allowed on Spadina Road in the vicinity of the subject site. The results of the weekday parking utilization surveys are included in **Table 2-2**. The weekday parking utilization surveys indicate that the peak parking demand occurred at 12:00 PM at which point 290 spaces were occupied and 97 spaces would have been available.

Areas A to F were surveyed on Saturday, March 24, 2018 and the results of the Saturday parking utilization survey are included in Table 2-3. The Saturday parking utilization survey indicates that the peak parking demand occurred at 11:30 AM at which time 140 parking spaces were occupied and 42 parking spaces were available.

Figure 2-1 Parking in Vicinity of Subject Site - Study Areas

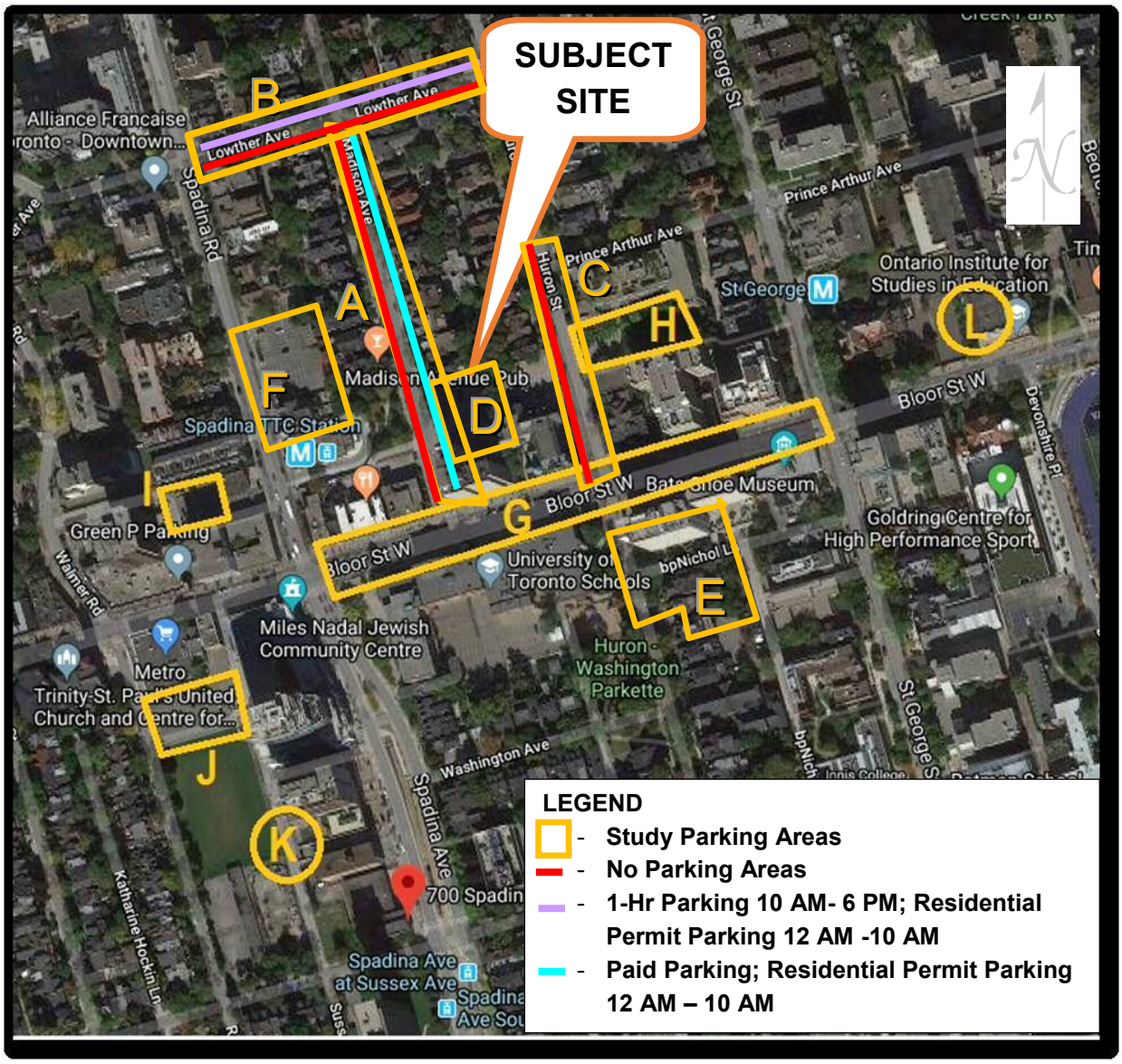


Table 2-2 Parking Utilization in the Vicinity of the Subject Site - Weekday

	Area													
	A	B	C	D	E	F	G	H	I	J	K	L		
Parking Supply:	**26***	**19****	**16**	**36**	**35**	**60**	**12**	**15**	**39**	**43**	**16**	**70**	**Total 387**	
Time Period	**Parking Spaces Occupied by Area Thursday, May 3, 2018**												**Total Occupied**	**Total Available**
09:00 to 09:30	20	11	1	16	32	37	1	7	31	23	9	20	208	179
09:30 to 10:00	17	9	6	18	30	35	2	9	34	27	11	22	220	167
10:00 to 10:30	20	11	6	17	28	37	2	9	37	34	12	25	238	149
10:30 to 11:00	22	12	7	19	28	40	3	10	39	35	11	24	250	137
11:00 to 11:30	25	14	8	20	29	45	4	10	38	33	10	26	262	125
11:30 to 12:00	25	12	8	22	29	45	3	11	39	34	12	37	277	110
12:00 to 12:30	**24**	**12**	**8**	**22**	**29**	**45**	**4**	**12**	**39**	**36**	**15**	**44**	**290**	**97**
12:30 to 13:00	25	12	8	24	30	46	4	11	39	33	14	43	289	98
13:00 to 13:30	24	13	8	26	30	47	4	12	37	34	14	39	288	99
13:30 to 14:00	23	14	8	26	31	47	3	12	36	36	11	36	283	104
14:00 to 14:30	23	15	7	24	27	47	3	10	35	34	12	28	265	122
14:30 to 15:00	23	14	6	23	24	48	2	9	37	32	11	23	252	135
15:00 to 15:30	23	13	5	21	20	49	1	8	33	34	14	18	239	148
15:30 to 16:00	24	14	5	22	19	48	2	8	36	36	14	17	245	142
16:00 to 16:30	26	14	6	21	18	45	3	7	35	32	11	15	233	154
16:30 to 17:00	27	14	6	20	14	42	2	7	35	34	12	14	227	160
17:00 to 17:30	29	14	6	20	12	39	2	5	34	33	12	14	220	167
17:30 to 18:00	26	14	4	16	10	40	3	5	36	31	11	16	212	175
18:00 to 18:30	24	13	3	16	8	39	3	5	35	34	10	24	214	173
18:30 to 19:00	23	12	3	14	8	40	2	4	37	30	11	23	207	180
19:00 to 19:30	22	13	2	13	7	39	2	4	39	28	11	23	203	184
19:30 to 20:00	23	12	1	12	6	39	2	3	36	25	11	21	191	196

* City of Toronto Parking Department indicated 24 spaces but 26 spaces were observed
** City of Toronto Parking Department indicated 11 spaces but 19 spaces were observed

Table 2-3 Parking Utilization Survey in the Vicinity of the Subject Site – Saturday

	Area						Total	
	A	B	C	D	E	F		
Parking Supply:	**24**	**11**	**16**	**36**	**35**	**60**	**Total Supply: 182**	
Time	**Parking Spaces Occupied by Area Thursday, May 3, 2018**						**Total Occupied**	**Total Available**
08:30 to 09:00	13	9	11	16	25	15	89	93
09:00 to 09:30	18	8	12	24	26	23	111	71
09:30 to 10:00	21	15	13	22	21	26	118	64
10:00 to 10:30	22	17	16	23	22	27	127	55
10:30 to 11:00	25	13	13	25	24	31	131	51
11:00 to 11:30	26	16	11	21	31	34	139	43
11:30 to 12:00	**21**	**19**	**12**	**22**	**33**	**33**	**140**	**42**
12:00 to 12:30	22	11	14	23	23	35	128	54
12:30 to 13:00	23	13	11	25	25	38	135	47
13:00 to 13:30	26	12	12	24	23	32	129	53

* City of Toronto Parking Department indicated 24 spaces but 26 spaces were observed
** City of Toronto Parking Department indicated 11 spaces but 19 spaces were observed

3.0 TRANSPORTATION DEMAND MANAGEMENT

3.1 EXISTING TRANSIT SERVICE

The subject site is less than 100 metres from the Spadina TTC Station which is on the Line 2 Bloor Subway line. The Line 2 Bloor Subway has service at the station between approximately 6:00 AM to 2:00 AM on Monday to Saturday and 8:00 AM to 2:00 AM service on Sundays. The Spadina Station on Line 1 Yonge-University line is approximately 350 m north of the Bloor line Spadina TTC station.

The station is service by Bus 127 Davenport and Streetcar 510 Spadina. Bus 127 Davenport has 17 to 20-minute service during the weekdays from 6:00 AM to 1:00 AM, 22 to 28-minute service on Saturday from 6:00 AM to 1:00 AM and 25-minute service on Sunday from 7:00 AM to 1:00 AM. Streetcar 510 Spadina provides service between Spadina Station and Union Station in a north-southStreetcar 510 Spadina provides 24-hour service with five to eight (5-8) minute frequency from 5:00 AM to 2:00 A M. Nighttime service is provided by Streetcar 310 Spadina Blue Night with 30-minute frequency from 2:00 AM to 5:00 AM. Streetcar 510 Spadina

The transit service at the subject site are much more frequent and connected than the transit service at the site of the existing Estonian House on Broadview Avenue.

3.2 Existing Cycling Facilities

There are bicycle/TTC lanes on both sides of Bloor Street West from Avenue Road to Shaw Street. The bicycle lanes provide right-of-way for bicycles to travel in both directions along Bloor Street W. The bike lanes would provide connections to other bicycle routes in the downtown area. In addition, there are Bike Share racks on the west side of Madison Avenue just north of Bloor Street. There are also bike racks available at the bike share parking.

3.3 Existing Pedestrian Facilities

Sidewalks are provided are on both sides of Madison Avenue, Bloor Street W, Spadina Road, Lowther Avenue, and Huron Street. Paul Martel Park between Madison Avenue and the Spadina TTC Station provides pedestrian connections from the subject site to the TTC Station as well as the Spadina Road parking lot. The area is very much pedestrian oriented development with buildings oriented towards wide sidewalks. There are pedestrian crosswalks and pedestrian phases at all signalized intersections in the study area.

3.4 Travel Demand Management

The proximity of the subject site to transit lines and sidewalks provides alternative modes for employees and visitors to the proposed development. The 2011 Transportation Tomorrow Survey (TTS) 24-hour modal split for the subject site area Ward 20 indicates that 27% of trips to the Ward are by Auto Driver. This auto driver modal split is significantly lower than the 48% of 24-hr trips to Ward 29 which is where the existing Estonian House is located. It is therefore estimated that the parking demand at the subject site could be approximately 56% of the parking at the existing proxy site.

4.0 Future Parking Demand

4.1 Proposed Development Compared to Proxy Site

The existing Estonian House is considered the best proxy site to estimate future parking demand generated by the proposed development. The floor areas for the proposed site slightly differ from the existing proxy site. The floor areas are compared in **Table 4-1**.

It is expected that the differences in community use area and common area will not have an impact on the parking demand calculations. The community use is likely to attract approximately the same number of participants although the floor area will be slightly smaller. The building managers have indicated that although the commercial area will be increased, the same tenants will be relocated to the new use.

However, since the leasable commercial use at the proposed development will be 4,051 s.f. GFA higher than at the existing proxy site, or approximately

Table 4-1 Comparison of Floor Areas - Existing and Proposed Cultural Centres

Land Use	Existing Estonian House 958 Broadview Avenue	Proposed Estonian Cultural Centre 9-11 Madison Avenue
Community Use	17,382 s.f. GFA	15,535 s.f. GFA
Leasable Commercial Use	7,917 s.f. GFA	11,968 s.f. GFA
Common Area	6,701 s.f. GFA	3,647 s.f. GFA

4.2 Parking Demand by Time of Day

To calculate the future post-development parking demand in the vicinity of the subject site, the following was considered:

- The peak parking utilization at the existing facilities in the vicinity of the subject site.
- The displacement of existing parking at the subject site (i.e. when the parking lot is no longer there, will the demand be accommodated?)
- The peak parking demand at the proxy site, decreased to 55% to account for a higher use of non-auto modes for travel to/from this area of the City.
- The parking demand by the additional commercial space will be calculated based on the existing weekday parking demand increased by the percent increase to commercial space. No adjustment will be applied to the Saturday demand.

The future parking demand and parking availability are detailed in **Table 4-2.**

The results of the analysis indicate that at noon on a weekday, the parking demand in the study area (including the proposed development) would be 299 parking spaces. Without the existing parking lot at 9-11 Madison Avenue removed (36 spaces), the parking supply in the study area would be 351 spaces and therefore the parking provisions would be adequate for the anticipated demand.

Similarly, considering the smaller study area for a Saturday peak period, the parking demand in the study area including the proposed development would be 145 spaces with 146 parking spaces available.

Table 4-2 Future Parking Demand Calculations

Time Period	Proxy Site Parking Demand	Increase for Additional Commercial	Total Site Demand	Site Demand Adjusted to 55%	Current Parking Demand	Total Parking Demand	Available Parking*
Weekday							
12:00 to 12:30	11	6	17	9	**290**	**299**	**351**
Saturday							
11:30 to 12:00	9	0	9	5	**140**	**145**	**146**

*Total Available parking not including existing 9 Madison Avenue parking lot (Area D – 36 spaces). For weekday, Areas A-C & E-L and for Saturday, Areas A-C & E-F

5.0 CONCLUSIONS AND RECOMMENDATIONS

LMM Engineering Inc. was retained by Kongats Architects to undertake a parking study to evaluate the parking implications of the proposed Toronto Estonian Cultural Centre. The centre is proposed at 9-11 Madison Avenue in The Annex community in the City of Toronto.

The proposed development includes a cultural centre with leasable commercial space. The proposed development will not include any on-site parking and will displace an existing public surface parking lot.

Parking utilization surveys were conducted at on-street and off-street parking areas in the immediate vicinity of the subject site. The surveys indicated that the peak parking demand in the area occurs on a weekday at mid-day.

Due to the increased non-auto usage at the subject site compared to the existing proxy site (existing Estonian House at 958 Broadview Avenue), the parking demand was adjusted accordingly. The peak parking demand for the subject site is expected to be **9 spaces on weekday** and **5 spaces on Saturday**.

The overall parking demand in the vicinity of the subject site including the proposed development expected to be **299 parking spaces** which would occur on a weekday at mid-day. The overall supply for the study area would be 351 parking spaces so the parking demand is not expected to exceed the supply in the area, even with the existing parking lot at Madison Avenue closed.

Based on the analysis within this study, it is expected that the additional parking demand generated by the proposed development will be accommodated by the parking supply in the area, even with the closing of the existing parking lot at the subject site.

TRAFFIC &
PARKING
CONSULTANTS

TRAFFIC IMPACT STUDY

TORONTO ESTONIAN CULTURAL CENTRE
9-11 MADISON AVENUE

Toronto, Ontario

Prepared for:

Kongats Architects
23 Morrow Avenue, Suite #2
Toronto, ON
416-504-8998

Prepared by:

LMM Engineering Inc.
1-877-878-7566
www.LMMEngineering.com

May 15, 2018

LMM Ref: PT-17-085

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EXECUTIVE SUMMARY

LMM Engineering Inc. was retained by Kongats Architects to undertake a traffic impact study to evaluate the traffic impacts of the proposed 29,805 s.f. GFA cultural centre proposed at 9-11 Madison Avenue. The proposed development includes commercial retail, and multi-purpose rooms which are used for language classes, community group meetings, and as a banquet hall venue for special events. The proposed development will not have any parking on site.

Based on the intersection capacity analysis methodology in this report, the study intersections and site entrances operate with the exception of Madison Avenue / Bloor Street, the study area intersections currently operate at acceptable levels of service and well below capacity and will continue to operate acceptable levels with the future background and future total traffic conditions. The traffic generated by the proposed development is expected to have negligible impact to traffic operations at these intersections.

At the Madison Avenue / Bloor Street unsignalized intersection, the turning movements from Madison Avenue onto Bloor Street currently experience high delays and exceed capacity and are expected to continue to do so with future background and future total traffic conditions. Delays for this movement are expected due to the congested downtown nature of the study area. Visitors to the site would use other streets to access parking in any case and it is expected that the site will have a large portion of non-auto trips. It is also expected that the peak traffic for the site will occur at off-peak times for the surrounding road network.

The existing transit service and facilities is excellent and additional service is not required for the proposed development. It is recommended that pedestrian connections to the Huron Street parking lot be reviewed through the course of site design.

Overall, the site will have minimal impact on the adjacent road network, transit network and pedestrian facilities.

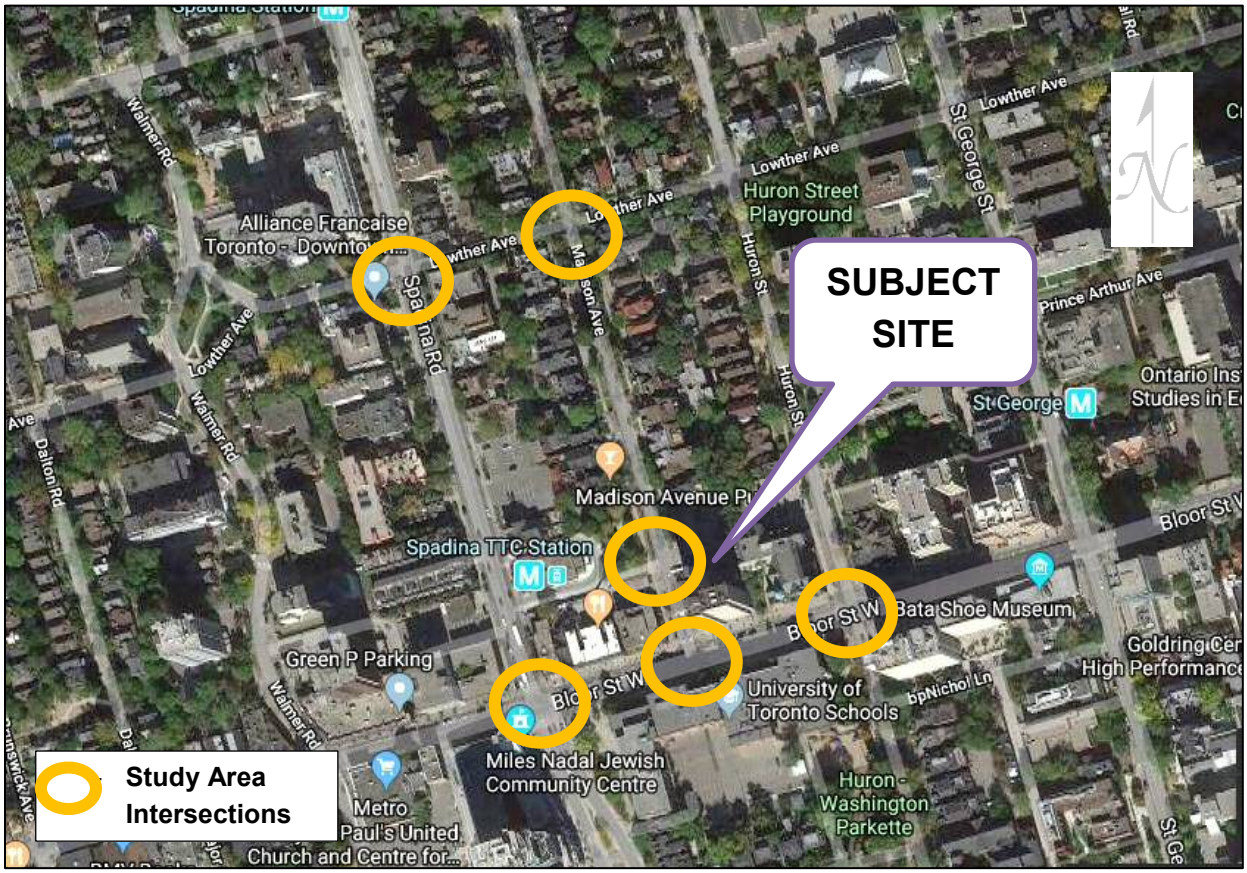
1.0 Introduction – The Development Proposal

LMM Engineering Inc. was retained by Kongats Architects to undertake a traffic impact study to evaluate the traffic impacts of the proposed cultural centre located at 9-11 Madison Avenue in the City of Toronto.

1.1 The Application

The traffic impact study is prepared in conjunction with a site plan application (No City application number has been assigned at the time of writing this report). The applicant is Kongats Architects. The subject site is located at 9-11 Madison Avenue in The Annex community in the City of Toronto. The site location map is shown in **Figure 1-1**.

Figure 1-1 Site Location Map



1.2 Proposed Development

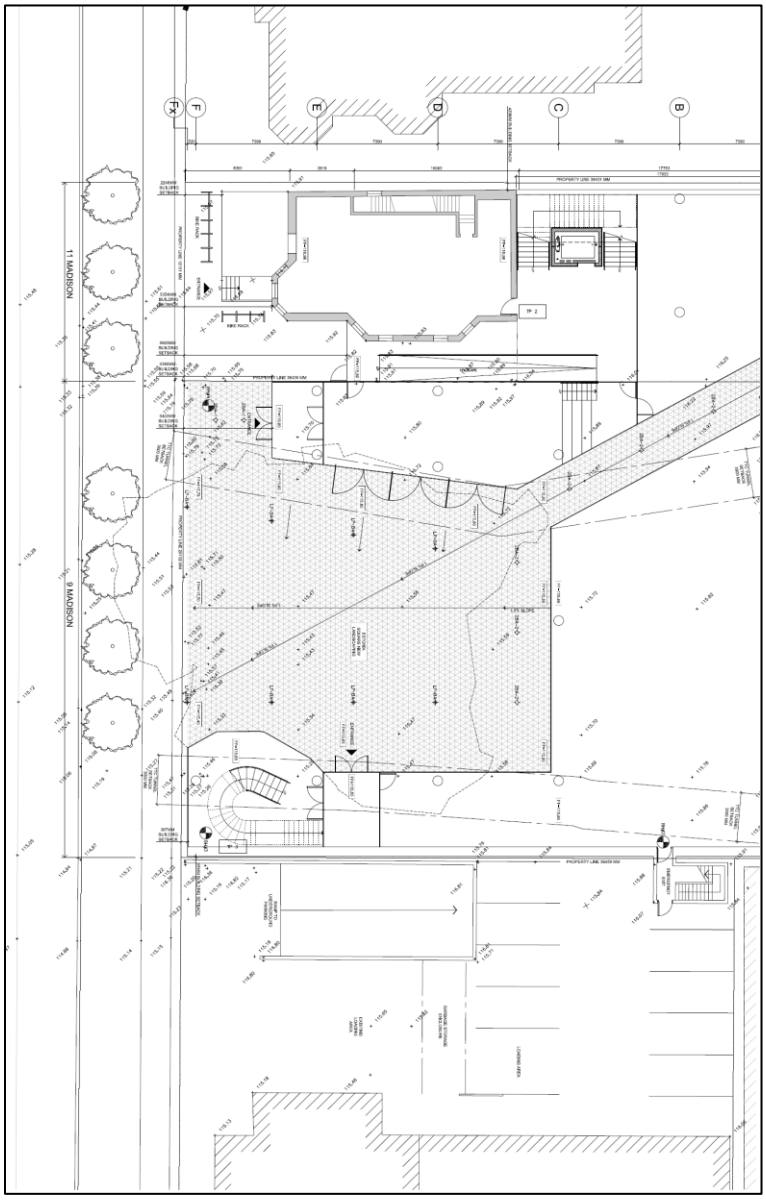
The current site plan is shown in **Figure 1-2.** The existing surface parking lot (paid public parking) would be demolished and replaced with a 29,805 s.f. GFA cultural centre which would include leased commercial retail space and multi-purpose rooms utilized for language/cultural schools, community group meeting space, and banquet space for rentals and special events for the cultural association. No parking would be provided on site. Parking would be provided by on-street parking on Madison Avenue and at the public paid parking lots on Spadina Road and Huron Street.

1.3 Study Area

In order to assess the traffic impacts of the proposed development, the following intersections (which are shown in Figure 1-1 were included in the Existing, Future Background, and Future Total conditions traffic operation evaluation:

- Bloor Street / Spadina Road
- Bloor Street / Madison Avenue
- Bloor Street / Huron Street
- Spadina Road / Lowther Avenue
- Lowther Avenue / Madison Avenue
- Existing driveway on Madison Avenue (existing and background conditions only)

Figure 1-2 Current Site Plan



2.0 TRANSPORTATION CONTEXT FOR ANALYSIS

2.1 STUDY HORIZONS AND ANALYSIS TIME PERIODS

The typical five year horizon, year 2023 was selected for the study horizon year for the future background and future total conditions analyses.

The subject site will include commercial retail and office space as well as site specific activities which typically peak on a weekday evening with some activities scheduled for mid-day Saturday or weekend evenings. The biggest overlap between site traffic and adjacent street traffic was expected to occur during the weekday AM peak hour (7 AM – 9 AM) and weekday PM peak hour (4:30 PM – 7:30 PM). These time periods were considered for analysis.

2.2 EXISTING TRANSPORTATION NETWORK

The existing transportation network was reviewed including the existing road network, transit service, and pedestrian facilities.

2.2.1 Existing Road Network

An inventory of the surrounding roads and highway facilities in the vicinity of the site was compiled and is summarized as follows:

Bloor Street West is an east-west four-lane major arterial roadway. In the vicinity of the subject site, Bloor Street has transit / bicycle lane on the curb lane. Vehicles turning onto side streets must yield to the bicycle and transit vehicles.

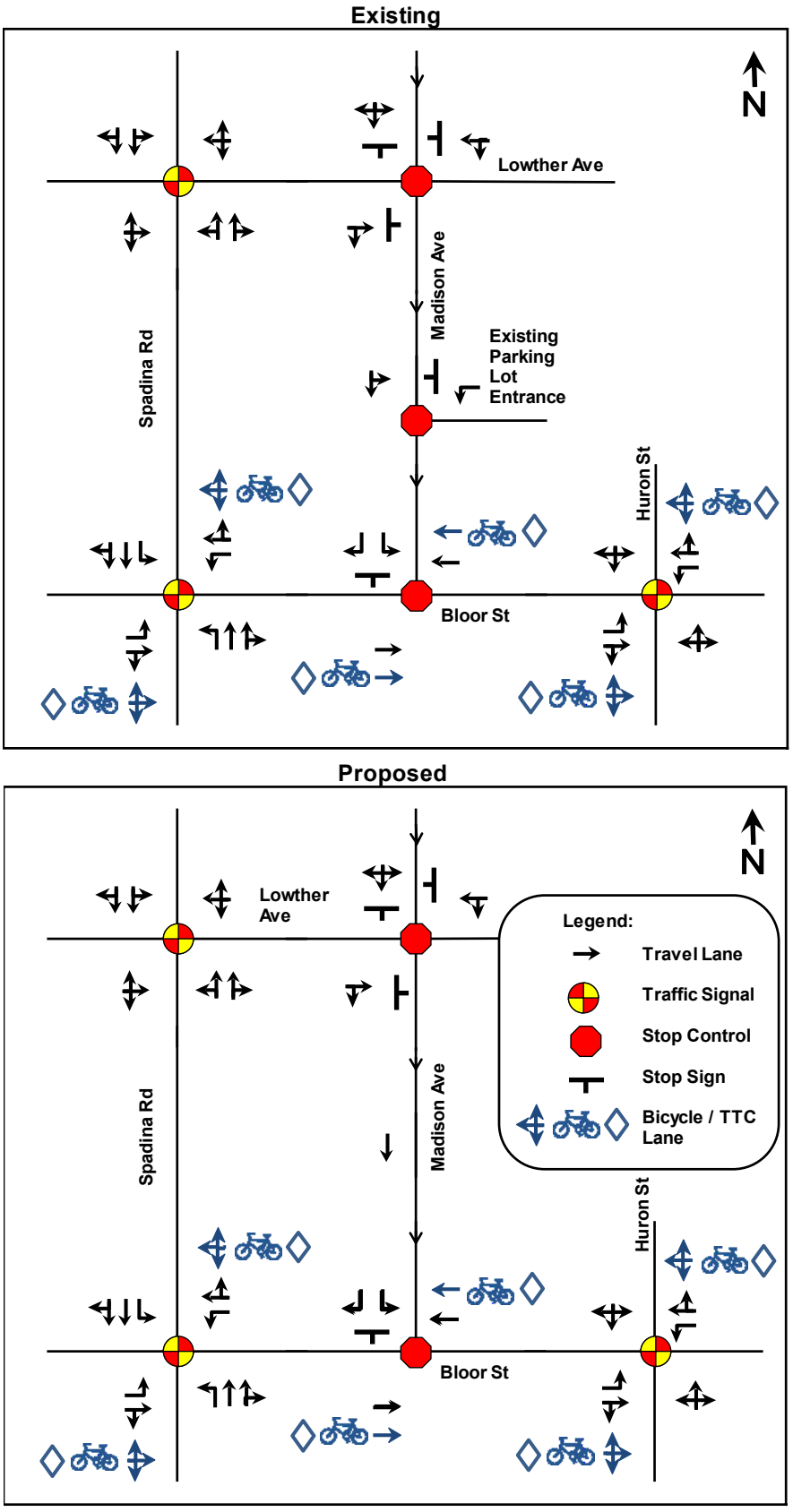
Spadina Road is a north-south four to five-lane City roadway which is classified as a minor arterial roadway north of Bloor Street. Spadina Road becomes Spadina Avenue, a major arterial roadway, south of Bloor Street.

Madison Avenue is a north-south local roadway. In the vicinity of the site, Madison Avenue is a one-way street in the southbound direction. There is parking on the east side of Madison Avenue.

Lowther Avenue is an east-west two-lane local roadway.

The geometric lane configuration of the study area intersections is shown in **Figure 2-1**.

Figure 2-1 Lane Configuration



2.2.2 Existing Transit Service

The subject site is less than 100 metres from the Spadina TTC Station which is on the Line 2 Bloor Subway line. The Line 2 Bloor Subway has service at the station between approximately 6:00 AM to 2:00 AM on Monday to Saturday and 8:00 AM to 2:00 AM service on Sundays. The Spadina Station on Line 1 Yonge-University line is approximately 350 m north of the Bloor line Spadina TTC station.

The station is service by Bus 127 Davenport and Streetcar 510 Spadina. Bus 127 Davenport has 17 to 20-minute service during the weekdays from 6:00 AM to 1:00 AM, 22 to 28-minute service on Saturday from 6:00 AM to 1:00 AM and 25-minute service on Sunday from 7:00 AM to 1:00 AM. Streetcar 510 Spadina provides service between Spadina Station and Union Station in a north-southStreetcar 510 Spadina provides 24-hour service with five to eight (5-8) minute frequency from 5:00 AM to 2:00 A M. Nighttime service is provided by Streetcar 310 Spadina Blue Night with 30-minute frequency from 2:00 AM to 5:00 AM. Streetcar 510 Spadina

The transit service at the subject site are much more frequent and connected than the transit service at the site of the existing Estonian House on Broadview Avenue.

2.2.3 Existing Cycling Facilities

There are bicycle/TTC lanes on both sides of Bloor Street West from Avenue Road to Shaw Street. The bicycle lanes provide right-of-way for bicycles to travel in both directions along Bloor Street W. The bike lanes would provide connections to other bicycle routes in the downtown area. In addition, there are Bike Share racks on the west side of Madison Avenue just north of Bloor Street. There are also bike racks available at the bike share parking.

2.2.4 Existing Pedestrian Facilities

Sidewalks are provided are on both sides of Madison Avenue, Bloor Street W, Spadina Road, Lowther Avenue, and Huron Street. Paul Martel Park between Madison Avenue and the Spadina TTC Station provides pedestrian connections from the subject site to the TTC Station as well as the Spadina Road parking lot. The area is very much pedestrian oriented development with buildings oriented towards wide sidewalks. There are pedestrian crosswalks and pedestrian phases at all signalized intersections in the study area.

2.3 Intersection Capacity Evaluation Methodology

In this study, the methodology used for evaluating traffic operations at each of the subject intersections was based on the criteria set forth in the Transportation Research Board's Highway Capacity Manual, 2000 edition (HCM 2000). Synchro 9 software, which utilizes the HCM 2000 methodology, was used for the analysis. The following is a description of the methodology employed for the analysis of unsignalized and signalized intersections.

2.3.1 Unsignalized Intersections

For unsignalized intersections at which the side street or minor street is controlled by a stop sign, the criteria for evaluating traffic operations are the level of service (LOS) for the turning movements at the intersection and the level of service for the overall intersection. Level of service is based on the average controlled delay incurred at the intersection. Controlled delay for unsignalized intersections includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Several factors affect the controlled delay for unsignalized intersections, such as the availability and distribution of gaps in the conflicting traffic stream, critical gaps, and follow-up time for a vehicle in the queue.

Level of service is assigned a letter designation from A through F. Level of service A indicates excellent operations with little delay to motorists, while level of service F exists when there are insufficient gaps of acceptable size to allow vehicles on the side street to cross freely, resulting long total delays and long queues. The level of service criteria for two-way stop-controlled and all-way stop-controlled (unsignalized) intersections is given in **Table 2-1**.

Table 2-1 Level of Service Criteria for Unsignalized Intersections.

Level of Service	Average Control Delay (sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

At unsignalized intersections, movements with a V/C ratio greater than 1.0 and/or an average controlled delay of greater than 50 seconds are defined as critical movements. For unsignalized intersections, the overall intersection operations are stated for the approach or movement with the worst level of service and highest delay.

2.3.2 Signalized Intersections

For signalized intersections, it is necessary to evaluate both capacity and level of service in order to evaluate the overall operation of the intersection. The capacity analysis of an intersection is performed by comparing the volume of traffic using the various lane groups at the intersection to the capacity of those lane groups. This results in a volume/capacity (v/c) ratio for each lane group. A v/c ratio greater than 1.0 indicates that the volume of traffic has exceeded the capacity available, resulting in a temporary excess of demand. Although the capacity of the entire intersection is not defined, a composite v/c ratio for the sum of the critical lane groups within the intersection is computed. This composite v/c ratio is an indication of the overall intersection efficiency.

Level of service for a signalized intersection is defined in terms of average controlled delay per vehicle, which is composed of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The levels of service criteria for signalized intersections, based on average controlled delay, are shown in **Table 2-2**. Level of service A indicates operations with very low controlled delay, while level of

service F describes operations with extremely high average controlled delay. Level of service E is typically considered to be the limit of acceptable delay, and level of service F is considered unacceptable by most drivers.

Table 2-2 Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	≤ 10
B	> 10 and ≤20
C	> 20 and ≤35
D	> 35 and ≤55
E	> 55 and ≤80
F	> 80

At congested arterial signalized intersections, movements with a level of service (LOS) of 'F', with average controlled delay greater than 80 seconds, and/or V/C ratio greater than 1.0 are considered critical.

2.4 Existing Conditions

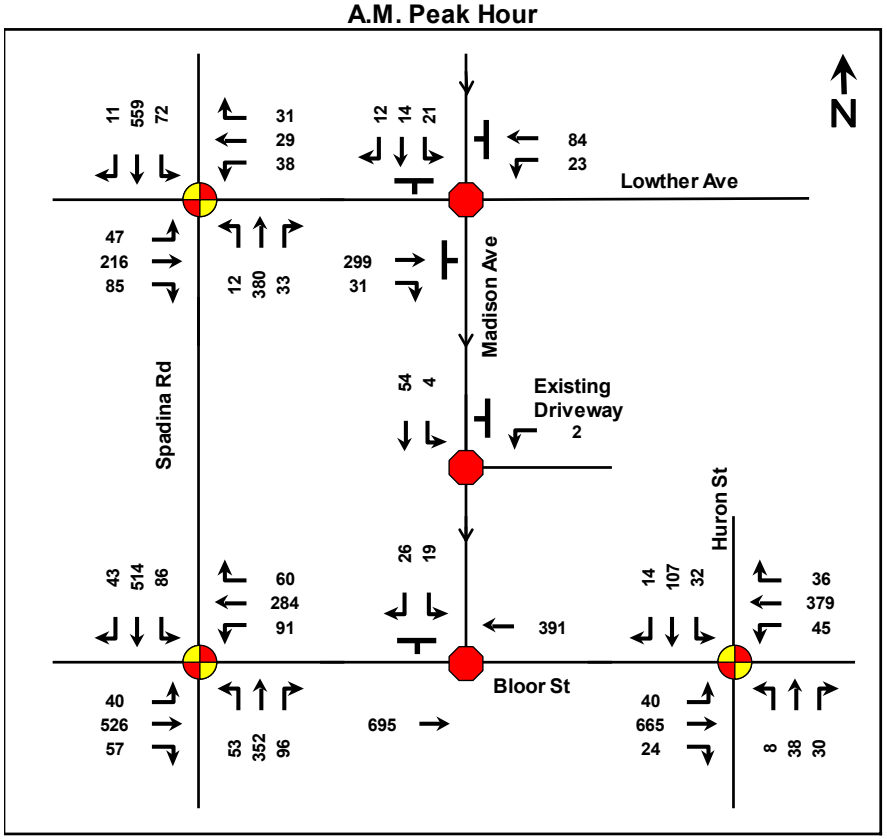
2.4.1 Existing Traffic Volumes

Weekday peak hour turning movement traffic counts were conducted on behalf of LMM Engineering Inc. on Tuesday, March 27, 2018 from 7:00 AM – 9:00 AM and 4:30 PM – 7:30 PM. The turning movement traffic count data is included in Appendix A. Also, automatic traffic recorder (ATR) traffic counts were conducted on Spadina Road, Bloor Street, and Madison Avenue on Thursday, March 22, 2018.

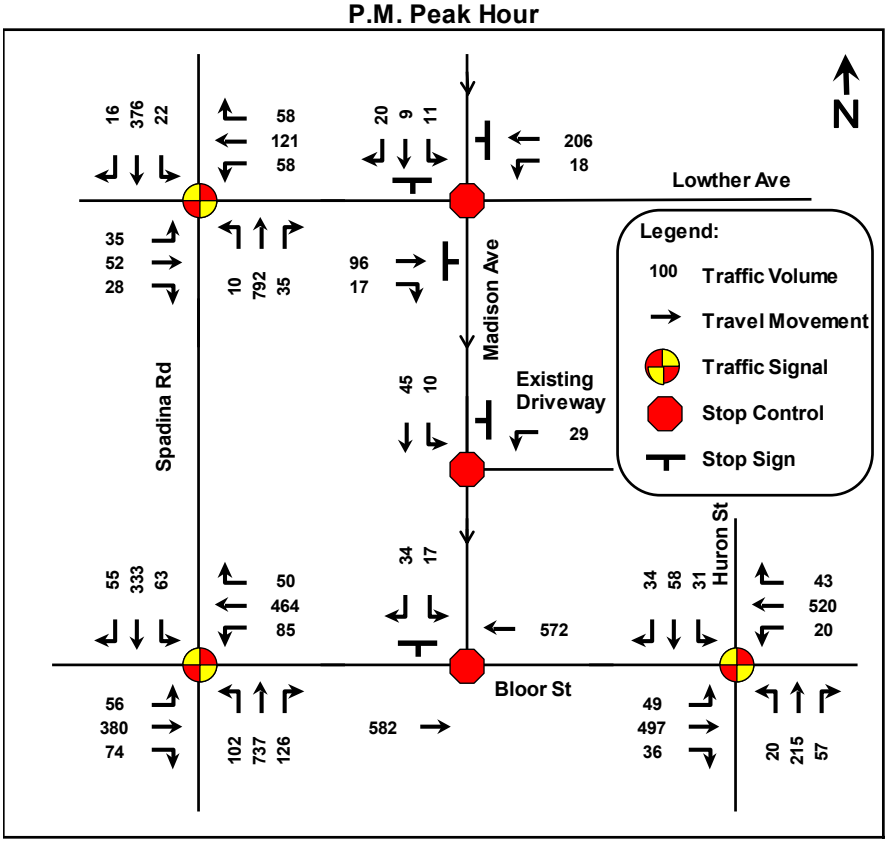
The existing weekday peak hour traffic volumes for the study intersections are shown in **Figure 2-2**.

Figure 2-2 Existing Peak Hour Traffic Volumes

A.M. Peak Hour



P.M. Peak Hour



2.4.2 Existing Intersection Capacity Analysis

Existing morning and afternoon peak hour traffic volumes shown in Figure 2-2 were used to analyze the key existing study intersection according to the methodology outlined in Section 2.2 *Intersection Capacity Evaluation* for unsignalized and signalized intersections.

The existing intersection capacity analysis results for the key study intersections are summarized in **Table 2-3** below. Detailed existing intersection capacity analysis output is included in *Appendix B*.

Table 2-3 Existing Condition Intersection Capacity Analysis Summary

Intersection	Overall / Critical Movement	Traffic Operations (LOS, Delay (sec's), V/C Ratio)	
		A.M. Peak Hour	P.M. Peak Hour
Bloor Street W / Spadina Road	Intersection	B, 19.7, 0.67	B, 19.9, 0.74
	Critical Movement	-	-
Bloor Street / Huron Street	Intersection	C, 21.0, 0.67	C, 20.1, 0.69
	Critical Movement	-	-
Spadina Road / Lowther Avenue	Intersection	B, 16.9, 0.65	B, 15..5, 0.58
	Critical Movement	-	-
Bloor Street / Madison Avenue*	Intersection	**F, 592.7, 1.35**	**F, 533.3, 1.51**
	Critical Movement	**SBL – F, 592.7, 1.35 SBR – F, 222.2, 0.85**	**SBL – F, 364.4, 0.92 SBR – F, 533.3, 1.51**
Lowther Avenue / Madison Avenue**	Intersection	B, 10.5, 0.50	A, 8.6, 0.29
	Critical Movement	-	-
Madison Avenue / Existing Site Entrance*	Intersection	A, 9.1, 0.00	A, 9.1, 0.02
	Critical Movement	-	-

* For two-way stop-controlled unsignalized intersections, the overall intersection operations are stated as the average delay and intersection capacity utilization.
**For all-way stop-controlled intersections, the intersection delay and level of service are shown with the highest degree of utilization for an individual movement.

The analysis indicates:

- Bloor Street W / Spadina Road, Bloor Street / Huron Street, and Spadina Road / Lowther Avenue signalized intersections currently operate at acceptable levels of service with all movements below capacity.
- Bloor Street / Madison Avenue unsignalized intersection currently operates with the stop-controlled movements experiencing lengthy delays and exceeding capacity. This is to be expected due to the high volumes on Bloor Street confined to one lane as well as pedestrian volumes crossing the stopped leg of the intersection.
- Lowther Avenue / Madison Avenue unsignalized intersection currently operates at acceptable levels of service and with low degrees of utilization.
- Existing site entrance on Madison Avenue currently operates with minimal delay for vehicles exiting the site onto Madison Avenue.

2.5 Background Transportation Conditions

2.5.1 Future Background Traffic Volumes - 2023

To study the traffic conditions at the future horizon, traffic volume growth projections for the year 2023 are needed. Annual growth rates applied to existing arterial traffic volumes to estimate horizon year future background arterial traffic volumes are typically used.

The proposed development occurs in an area which is well-established and unlikely to experience growth in traffic volumes. Historical traffic volumes available from the City of Toronto website were compared to current traffic volumes from the traffic counts factored up based on automatic traffic recorder (ATR) counts as detailed in **Table 2-3**. A comparison indicates negative yearly growth rates (i.e. decrease in traffic).

Table 2-4 Historical Traffic Volumes

8-Hour Vehicle Traffic	Historical Traffic Volume	Year of Previous Count	Current Traffic	Year	Yearly Growth Rate
Bloor St / Spadina	16,608	2013	16,003	2018	-0.7%
Bloor St / Huron	11,327	2012	10,170	2018	-1.7%

In order to be conservative, a growth factor of 0.5% was applied to the 2018 existing volumes for five years to estimate 2023 horizon year future background conditions.

The resultant 2023 Future Background peak hour traffic volumes during the morning and afternoon peak hours are shown in **Figure 2-3**.

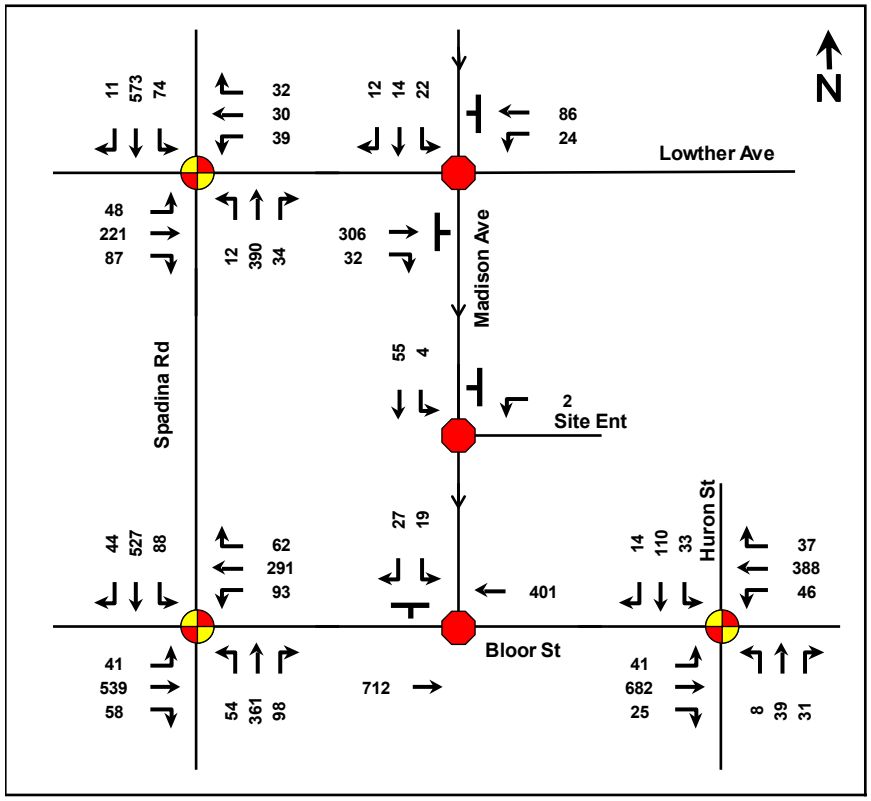
2.5.2 Future Background Intersection Capacity Analysis - 2023

The future background morning and afternoon peak hour traffic volumes shown in Figure 2-3 were used to analyze the study intersections according to the methodology outlined in Section 2.3 *Intersection Capacity Evaluation* for unsignalized and signalized intersections.

The 2023 future background intersection capacity analysis results for the study intersections are summarized in **Table 2-5** below. Detailed 2023 future background intersection capacity analysis output is included in *Appendix C*.

Figure 2-3 Future Background Peak Hour Traffic Volumes – 2023

A.M. Peak Hour



P.M. Peak Hour

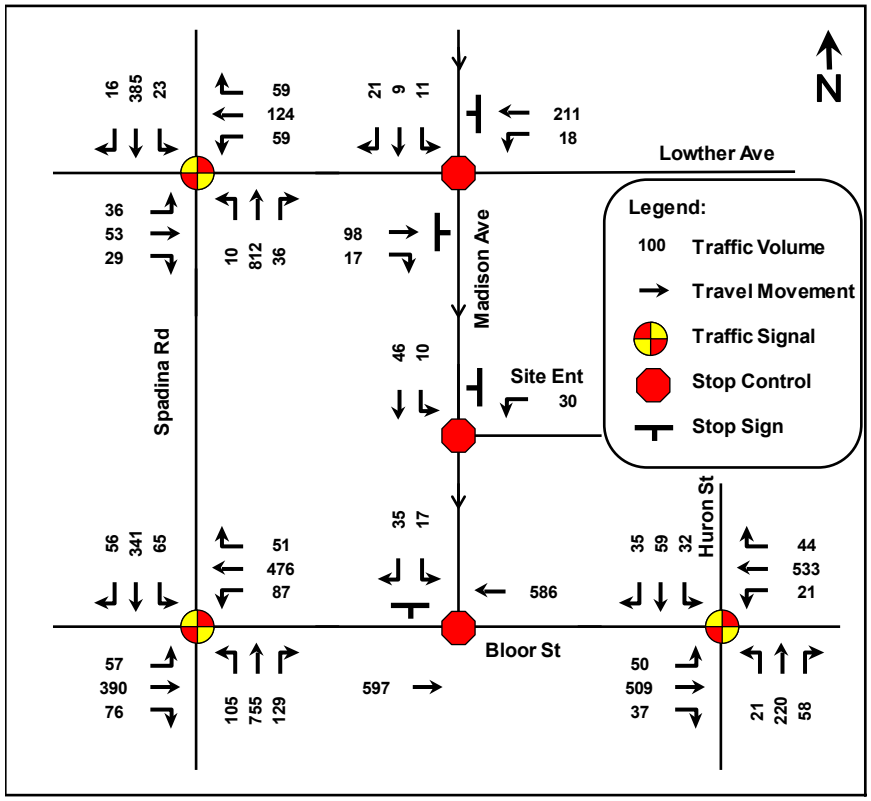


Table 2-5 Future Background Condition Intersection Capacity Analysis Summary - 2023

Intersection	Overall / Critical Movement	Traffic Operations (LOS, Delay (sec's), V/C Ratio)	
		A.M. Peak Hour	P.M. Peak Hour
Bloor Street W / Spadina Road	Intersection	C, 20.6, 0.69	C, 20.8, 0.76
	Critical Movement	-	-
Bloor Street / Huron Street	Intersection	C, 21.6, 0.69	C, 20.5, 0.71
	Critical Movement	-	-
Spadina Road / Lowther Avenue	Intersection	B, 17.2, 0.67	B, 15.8, 0.59
	Critical Movement	-	-
Bloor Street / Madison Avenue*	Intersection	F, 642.3, 1.43	F, 580.1, 1.60
	Critical Movement	SBL – F, 642.3, 1.43 SBR – F, 245.4, 0.92	SBL – F, 373.0, 0.93 SBR – F, 580.1, 1.60
Lowther Avenue / Madison Avenue**	Intersection	B, 10.7, 0.52	A, 8.6, 0.30
	Critical Movement	-	-
Madison Avenue / Existing Site Entrance*	Intersection	A, 9.1, 0.00	A, 9.4, 0.07
	Critical Movement	-	-

* For two-way stop-controlled unsignalized intersections, the overall intersection operations are stated as the intersection average delay and intersection capacity utilization.

**For all-way stop-controlled intersections, the intersection delay and level of service are shown with the highest degree of utilization for an individual movement.

The results of the 2023 future background condition are similar to the results for the existing conditions.

The intersection capacity analysis indicates:

- Bloor Street W / Spadina Road, Bloor Street / Huron Street, and Spadina Road / Lowther Avenue signalized intersections will continue to operate at acceptable levels of service with all movements below capacity.
- Bloor Street / Madison Avenue unsignalized intersection will continue to operate with the stop-controlled movements experiencing lengthy delays and exceeding capacity, similar to existing conditions. This is to be expected due to the high volumes on Bloor Street confined to one lane as well as pedestrian volumes crossing the stopped leg of the intersection.
- Lowther Avenue / Madison Avenue unsignalized intersection will operate at acceptable levels of service and with low degrees of utilization.
- Existing site entrance on Madison Avenue would operate with minimal delay for vehicles exiting the site onto Madison Avenue.

3.0 DEVELOPMENT SITE TRAFFIC

3.1 TRIP GENERATION / PASS-BY TRIPS / INTERNAL CAPTURE

The proposed development includes a cultural centre with a component of leasable commercial area. The components of the proposed cultural centre are compared to the existing Estonian House are compared as follows:

	Existing	**Proposed**
Community Use / Cultural Centre	17,382 s.f. GFA	15,535 s.f. GFA
Leasable Commercial Space	7,917 s.f. GFA	11,968 s.f. GFA
Common Areas	6,701 s.f. GFA	3,647 s.f. GFA

The traffic patterns at the existing Estonian House (958 Broadview Avenue) were studied to determine future trip generation. The existing driveway counts at the Estonian House are detailed in Appendix A. The weekday peak hour traffic generated at the existing proxy site (peak hour of adjacent street traffic) was considered as the trip generation for the cultural centre.

Since the proposed development has 4,051 s.f. GFA additional retail space, additional traffic generated by the additional commercial space was added to the trips generated by the existing Estonian House. Based on the Institute of Transportation Engineers (ITE) Trip Generation Informational Report (9th edition) trip generation equations for Land Use 820 Shopping Centre were applied to the additional retail space. It is possible that the additional space may be used for financial institution or professional office space which would be a lower trip generation but as the tenant is unknown at this time and subject to change, this trip generation calculation was applied to be conservative.

The trip generation calculations are detailed in **Table 3-1**.

Typically, a certain percentage of trips is designated as pass-by trips (i.e. trips diverted from the adjacent streets). It was assumed that 100% of the trips would be primary trips.

It is also expected that there would be a certain number of trips that would be internally captured between the cultural centre and the commercial space (i.e. attendees or employees visiting the commercial space). However, to be conservative, no deductions were applied for internal capture trips.

3.2 TRAVEL DEMAND MANAGEMENT

The proximity of the subject site to transit lines and sidewalks provides alternative modes for employees and residents at the proposed development. The 2011 Transportation Tomorrow Survey (TTS) 24-hour modal split for the subject site area Ward 20 indicates that 27% of trips to the Ward are by Auto Driver. This auto driver modal split is significantly lower than the 48% of 24-hr trips to Ward 29 which is where the existing Estonian House is located. It is therefore estimated that the trip generation at the subject site could be approximately 55% of the parking at the existing proxy site.

The adjusted trip generation is also shown in **Table 3-1.**

Table 3-1 Trip Generation Summary

Land Use		Trip Generation					
		AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Existing Proxy Site		10	23	33	18	32	50
Land Use 820 Shopping Centre*	4,051 s.f. GFA	14	8	22	34	36	70
Total Trips		24	31	55	52	68	120
Adjusted for Modal Split (55%)		**13**	**17**	**30**	**29**	**37**	**66**

* Equations applied based on T = number of trips, x = 1000 s.f. GFA
AM Peak Hour Trips: Ln T = 0.61 Ln X + 2.24 (62% entering, 38% exiting)
PM Peak Hour Trips: Ln T = 0.67 Ln X + 3.31 (48% entering, 52% exiting)

3.3 Trip Distribution / Assignment

The site traffic detailed in **Table 3-1** was assigned to the driveways and adjacent road network based on the Statistics Canada distribution of persons of Estonian ethnic heritage throughout the 2013 Federal Electoral Districts within the City of Toronto. The trip distribution patterns and calculations are included in Appendix D.

Based on this population distribution, site traffic was assigned to the adjacent road network. Since no parking is provided at the subject site, it was assumed that 50% of traffic from each direction would turn onto the

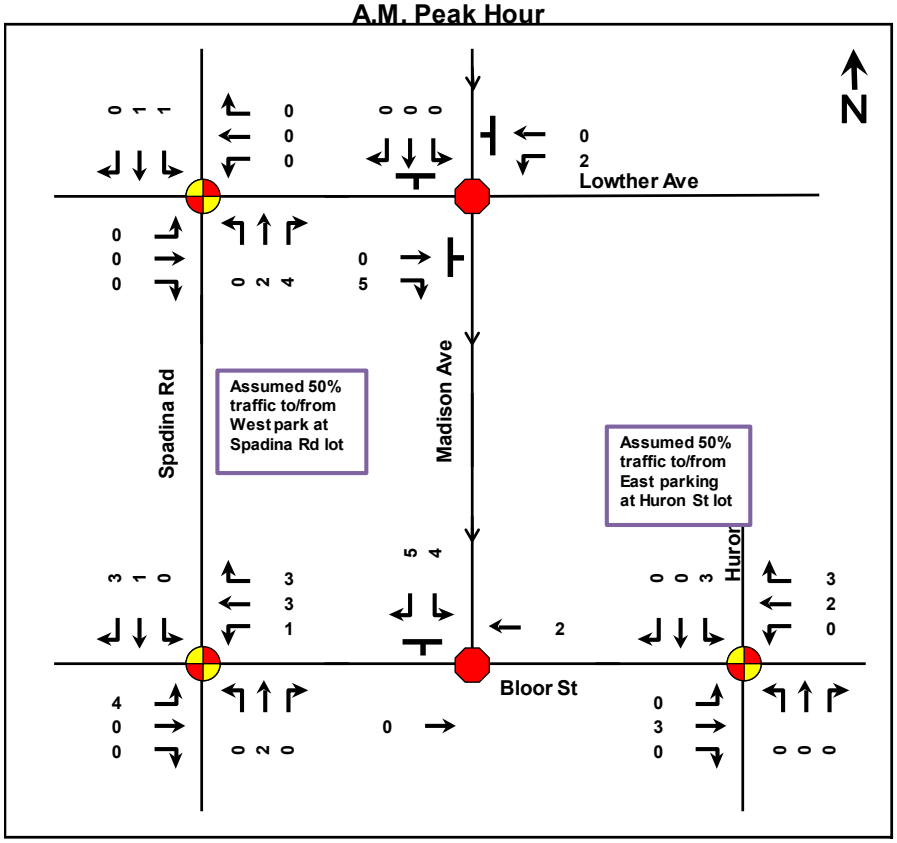
The site traffic from the proposed development is shown in **Figure** 3-1**.**

3.4 Evaluation of Impacts – 2023 Horizon

The site generated traffic volumes in **Figure 3-1** were superimposed onto the 2023 Future Background Peak Hour Traffic Volumes in **Figure 2-3** to obtain the 2023 Future Total Peak Hour Traffic Volumes shown in **Figure 3-2**.

Figure 3-1 Site Generated Peak Hour Traffic Volumes

A.M. Peak Hour



P.M. Peak Hour

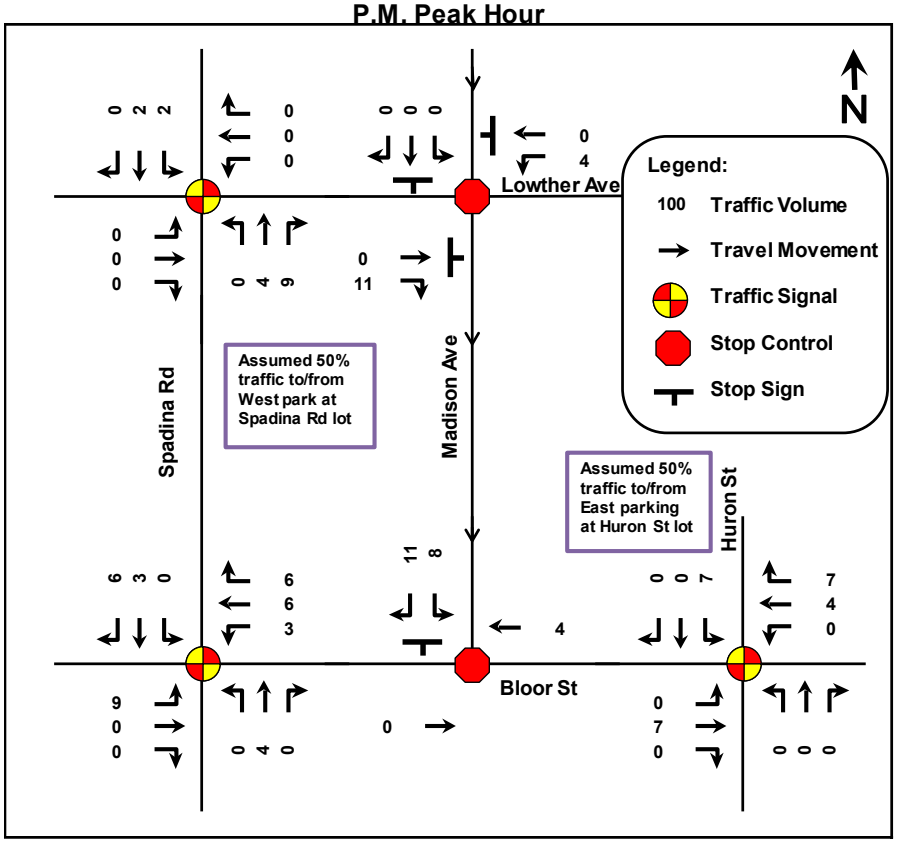
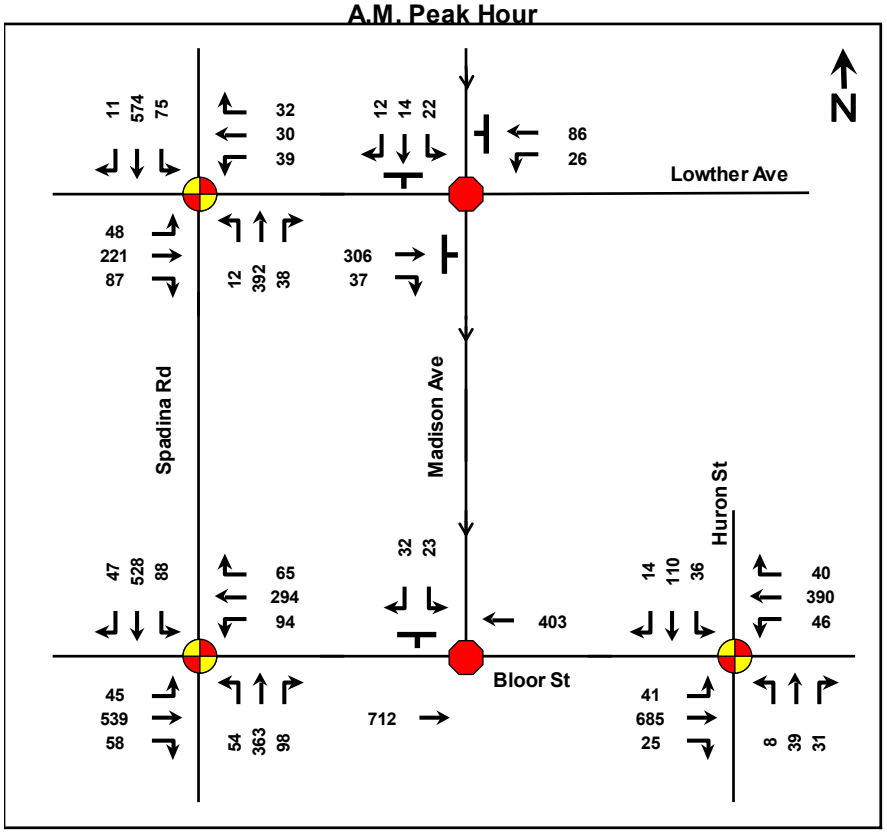
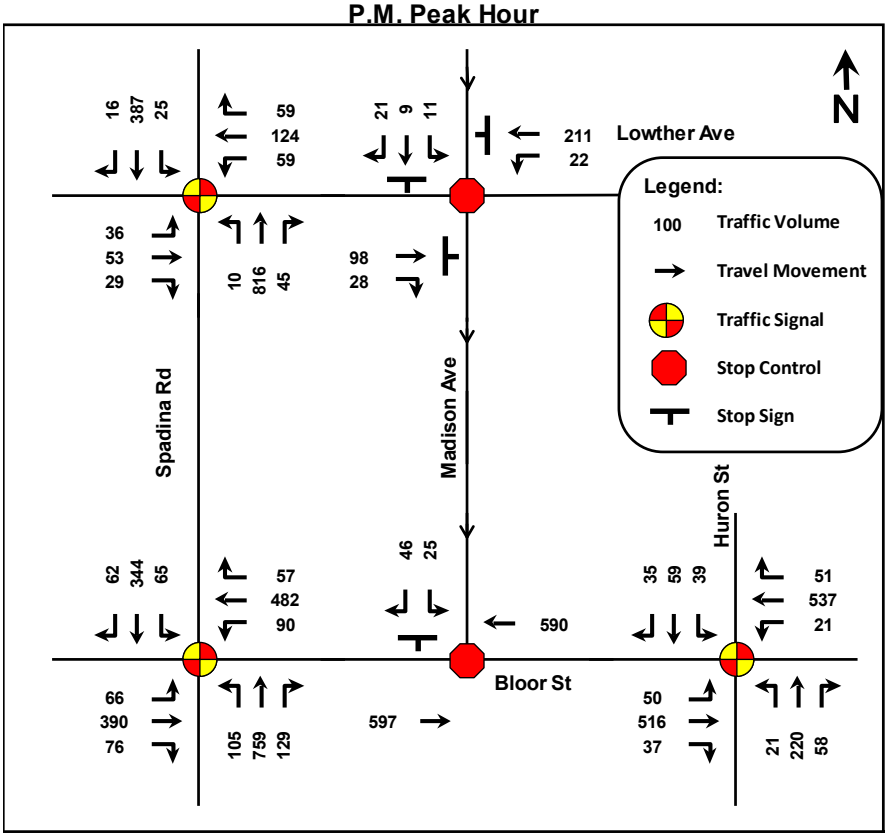


Figure 3-2 Future Total Peak Hour Traffic Volumes – 2023

A.M. Peak Hour



P.M. Peak Hour



3.4.1 Future Total Intersection Capacity Analysis - 2023

The 2023 future total morning and afternoon peak hour traffic volumes shown in **Figure 3-2** were used to analyze the study intersections according to the methodology outlined in Section 2.3 *Intersection Capacity Evaluation* for unsignalized and signalized intersections.

The 2023 future total intersection capacity analysis results for the study intersections are summarized in **Table 3-2** below. Detailed 2023 future total intersection capacity analysis output is included in *Appendix E*

Table 3-2 Future Total Condition Intersection Capacity Analysis Summary – 2023

Intersection	Overall / Critical Movement	Traffic Operations (LOS, Delay (sec's), V/C Ratio)	
		A.M. Peak Hour	P.M. Peak Hour
Bloor Street W / Spadina Road	Intersection	C, 20.6, 0.69	C, 21.3, 0.77
	Critical Movement	-	-
Bloor Street / Huron Street	Intersection	C, 21.7, 0.69	C, 20.6, 0.71
	Critical Movement	-	-
Spadina Road / Lowther Avenue	Intersection	B, 17.3, 0.67	B, 16.1, 0.60
	Critical Movement	-	-
Bloor Street / Madison Avenue*	Intersection	F, 757.4, 1.72	F, 810.9, 2.15
	Critical Movement	SBL – F, 757.4, 1.72 SBR – F, 297.1, 1.08	SBL – F, 545.3, 1.39 SBR – F, 810.9, 2.15
Lowther Avenue / Madison Avenue**	Intersection	B, 10.8, 0.52	A, 8.6, 0.30
	Critical Movement	-	-

* For two-way stop-controlled unsignalized intersections, the overall intersection operations are stated as the intersection average delay and intersection capacity utilization.
**For all-way stop-controlled intersections, the intersection delay and level of service are shown with the highest degree of utilization for an individual movement.

The results of the 2023 future total condition are similar to the results for future background conditions and the existing conditions.

The intersection capacity analysis indicates:

- Bloor Street W / Spadina Road, Bloor Street / Huron Street, and Spadina Road / Lowther Avenue signalized intersections will continue to operate at acceptable levels of service with all movements below capacity.
- Bloor Street / Madison Avenue unsignalized intersection will continue to operate with the stop-controlled movements experiencing lengthy delays and exceeding capacity, similar to existing conditions. This is to be expected due to the high volumes on Bloor Street confined to one lane as well as pedestrian volumes crossing the stopped leg of the intersection. Since parking is provided on Spadina Road and Huron Street, patrons to the development who are parking can avoid the Madison Avenue intersection all together. Drop off traffic for classes at the cultural centre or special events will still utilize Madison Avenue but most of this traffic will take place at off-peak times such as evenings and/or weekends and therefore, delays during these time periods will likely be lower.
- Lowther Avenue / Madison Avenue unsignalized intersection will operate at acceptable levels of service and with low degrees of utilization.

3.5 Transportation Impacts of Proposed Development

As indicated by the intersection capacity analysis, the proposed development is expected to have negligible impact on the adjacent road network. At most of the study intersections, the LOS is not expected to change and the average delays are expected to increase by 0.0 to 0.5 seconds per vehicle. The impact to these intersections will not be noticeable.

The only intersection that showed a noticeable increase in delay was the Madison Avenue / Bloor Street intersection which currently operates with the stop-controlled movements at LOS F and would continue to do so with future total and future background conditions. As previously noted, site traffic would use other streets to access parking and peak site traffic would occur at off-peak times for the study area intersections.

It is anticipated that visitors to the site would make use of the excellent existing transit and pedestrian connections to the site. No additional improvements for transit would be required as the site has excellent service through the Spadina TTC station and the buses and streetcars serving Bloor Street. It is recommended that site design consider pedestrian connections to the Huron Street public parking lot.

4.0 Conclusions and Recommendations

LMM Engineering Inc. was retained by Kongats Architects to undertake a traffic impact study to evaluate the traffic impacts of the proposed cultural centre located at 9-11 Madison Avenue in the Annex community of the City of Toronto. The proposed development includes the cultural centre and leasable commercial retail space.

4.1 Conclusions

Based on the intersection capacity analysis methodology in this report, with the exception of Madison Avenue / Bloor Street, the study area intersections currently operate at acceptable levels of service and well below capacity and will continue to operate acceptable levels with the future background and future total traffic conditions. The traffic generated by the proposed development is expected to have negligible impact to traffic operations at these intersections.

At the Madison Avenue / Bloor Street unsignalized intersection, the turning movements from Madison Avenue onto Bloor Street currently experience high delays and exceed capacity and are expected to continue to do so with future background and future total traffic conditions. Delays for this movement are expected due to the congested downtown nature of the study area. Visitors to the site would use other streets to access parking in any case and it is expected that the site will have a large portion of non-auto trips. It is also expected that the peak traffic for the site will occur at off-peak times for the surrounding road network.

Overall, the site will have minimal impact on the adjacent, transit network and pedestrian facilities. The existing transit service and facilities is extra and additional service is not required for the proposed development. It is recommended that pedestrian connections to the Huron Street parking lot be reviewed through the course of site design.

4.2 RECOMMENDATIONS

No improvements are recommended to the surrounding road network or transit network.

It is recommended that appropriate traffic signage and traffic control should be implemented to provide pedestrian vehicular accessibility safety and manoeuvrability with minimum conflicts throughout the site. Also, pedestrian connections to the Huron Street parking lot should be reviewed through the course of site design.

Appendix A

Turning Movement Count Data

INTERSECTION TURNING MOVEMENT COUNT - BLOOR STREET / SPADINA ROAD

File: 1
Site: I2800002
Facing: WEST

DATE	TIME	NORTH APPROACH										EAST APPROACH									
		CAR			TRUCK			TOTAL			Peds	CAR			TRUCK			TOTAL			Peds
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
********** Recording started at:06:58:14																					
27/03/2018	7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27/03/2018	7:15:00	17	87	5	0	2	0	17	89	5	37	14	36	5	0	2	0	14	38	5	34
27/03/2018	7:30:00	17	98	4	1	0	0	18	98	4	42	19	45	7	1	1	1	20	46	8	40
27/03/2018	7:45:00	21	101	6	1	2	1	22	103	7	53	20	51	11	1	3	0	21	54	11	52
27/03/2018	8:00:00	17	114	7	2	1	0	19	115	7	61	22	51	12	2	4	0	24	55	12	68
27/03/2018	8:15:00	20	120	11	1	1	0	21	121	11	70	17	65	9	0	3	1	17	68	10	108
27/03/2018	8:30:00	17	123	10	2	2	1	19	125	11	126	24	78	16	1	1	2	25	79	18	165
27/03/2018	8:45:00	22	128	9	1	1	0	23	129	9	167	22	73	12	0	3	1	22	76	13	199
27/03/2018	9:00:00	21	138	12	2	1	0	23	139	12	172	25	61	18	2	0	1	27	61	19	181
27/03/2018	9:00:24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		**80**	**509**	**42**	**6**	**5**	**1**	**86**	**514**	**43**	**535**	**88**	**277**	**55**	**3**	**7**	**5**	**91**	**284**	**60**	**653**
Truck%/PHF					**7%**	**1%**	**2%**	**0.93**	**0.92**	**0.90**					**3%**	**2%**	**8%**	**0.84**	**0.90**	**0.79**	
********** Recording restarted at:16:29:40																					
27/03/2018	16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27/03/2018	16:45:00	14	68	11	0	2	0	14	70	11	207	20	84	12	1	1	0	21	85	12	153
27/03/2018	17:00:00	15	71	11	1	1	1	16	72	12	241	14	119	11	0	0	1	14	119	12	139
27/03/2018	17:15:00	16	82	9	2	2	0	18	84	9	267	23	117	18	0	3	0	23	120	18	178
27/03/2018	17:30:00	18	77	15	1	1	0	19	78	15	298	17	112	14	0	2	2	17	114	16	169
27/03/2018	17:45:00	14	68	10	0	1	1	14	69	11	311	18	120	11	2	1	1	20	121	12	198
27/03/2018	18:00:00	16	89	13	0	1	1	16	90	14	286	21	110	13	1	2	0	22	112	13	163
27/03/2018	18:15:00	14	92	15	0	4	0	14	96	15	337	26	114	9	0	3	0	26	117	9	148
27/03/2018	18:30:00	17	77	9	1	1	0	18	78	9	291	21	106	14	1	1	1	22	107	15	117
27/03/2018	18:45:00	13	88	11	1	0	0	14	88	11	301	15	97	13	0	3	0	15	100	13	123
27/03/2018	19:00:00	18	82	13	0	2	1	18	84	14	248	12	93	16	0	2	0	12	95	16	108
27/03/2018	19:15:00	14	81	10	1	0	0	15	81	10	216	23	96	11	2	0	1	25	96	12	87
27/03/2018	19:30:00	16	77	15	2	1	1	18	78	16	189	5	81	8	0	1	1	5	82	9	74
27/03/2018	19:30:41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		**62**	**326**	**53**	**1**	**7**	**2**	**63**	**333**	**55**	**1232**	**82**	**456**	**47**	**3**	**8**	**3**	**85**	**464**	**50**	**678**
Truck%/PHF					**2%**	**2%**	**4%**	**0.83**	**0.87**	**0.92**					**4%**	**2%**	**6%**	**0.82**	**0.96**	**0.78**	

INTERSECTION TURNING MOVEMENT COUNT - BLOOR STREET / SPADINA ROAD (cont'd)

File: 1
Site: I2800002
Facing: WEST

DATE	TIME	SOUTH APPROACH										WEST APPROACH									
		CAR			TRUCK			TOTAL			Peds	CAR			TRUCK			TOTAL			Peds
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
********** R																					
27/03/2018	7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27/03/2018	7:15:00	8	51	12	1	2	1	9	53	13	13	5	68	6	0	1	1	5	69	7	62
27/03/2018	7:30:00	10	69	16	0	1	0	10	70	16	12	6	111	14	0	1	0	6	112	14	54
27/03/2018	7:45:00	11	60	19	3	1	1	14	61	20	22	3	139	13	1	2	0	4	141	13	66
27/03/2018	8:00:00	9	67	22	1	3	1	10	70	23	33	6	152	10	0	4	0	6	156	10	61
27/03/2018	8:15:00	12	77	19	2	2	1	14	79	20	52	6	142	12	0	3	1	6	145	13	79
27/03/2018	8:30:00	10	81	24	2	2	1	12	83	25	79	10	133	10	1	2	1	11	135	11	98
27/03/2018	8:45:00	15	100	22	0	3	1	15	103	23	118	13	123	14	0	1	0	13	124	14	146
27/03/2018	9:00:00	11	84	26	1	3	2	12	87	28	106	10	120	18	0	2	1	10	122	19	138
27/03/2018	9:00:24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		**48**	**342**	**91**	**5**	**10**	**5**	**53**	**352**	**96**	**355**	**39**	**518**	**54**	**1**	**8**	**3**	**40**	**526**	**57**	**461**
Truck%/PHF					**9%**	**3%**	**5%**	**0.88**	**0.85**	**0.86**					**3%**	**2%**	**5%**	**0.77**	**0.91**	**0.75**	
********** P																					
27/03/2018	16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27/03/2018	16:45:00	27	126	29	2	1	1	29	127	30	157	14	74	13	0	2	1	14	76	14	157
27/03/2018	17:00:00	24	133	33	1	3	2	25	136	35	144	12	86	17	0	1	0	12	87	17	146
27/03/2018	17:15:00	29	159	34	1	2	1	30	161	35	185	14	99	16	0	1	2	14	100	18	162
27/03/2018	17:30:00	25	194	28	2	1	2	27	195	30	199	9	101	17	0	2	1	9	103	18	158
27/03/2018	17:45:00	24	167	31	0	2	1	24	169	32	225	13	98	19	1	0	0	14	98	19	177
27/03/2018	18:00:00	27	177	28	1	3	2	28	180	30	240	17	91	15	0	1	1	17	92	16	182
27/03/2018	18:15:00	21	191	33	2	2	1	23	193	34	219	16	86	20	0	1	1	16	87	21	200
27/03/2018	18:30:00	26	156	26	1	1	1	27	157	27	176	14	90	16	1	1	0	15	91	16	184
27/03/2018	18:45:00	30	166	24	0	2	1	30	168	25	209	10	83	21	0	0	0	10	83	21	162
27/03/2018	19:00:00	25	127	20	0	1	2	25	128	22	147	18	82	27	1	0	0	19	82	27	147
27/03/2018	19:15:00	27	124	27	1	0	1	28	124	28	133	16	79	16	0	2	0	16	81	16	156
27/03/2018	19:30:00	22	94	22	1	1	0	23	95	22	128	14	62	17	0	1	1	14	63	18	114
27/03/2018	19:30:41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		**97**	**729**	**120**	**5**	**8**	**6**	**102**	**737**	**126**	**883**	**55**	**376**	**71**	**1**	**4**	**3**	**56**	**380**	**74**	**717**
Truck%/PHF					**5%**	**1%**	**5%**	**0.91**	**0.94**	**0.93**					**2%**	**1%**	**4%**	**0.82**	**0.92**	**0.88**	

INTERSECTION TURNING MOVEMENT COUNT - BLOOR STREET / MADISON AVENUE

File: 1
Site: 1812800003
Facing: SOUTH

DATE	TIME	NORTH APPROACH										EAST APPROACH										WEST APPROACH									
		CAR			TRUCK			TOTAL			Peds	CAR			TRUCK			TOTAL			Peds	CAR			TRUCK			TOTAL			Peds
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
********** Recording started at:06:57:22																															
27/03/2018	7:00:00	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
27/03/2018	7:15:00	3	0	4	0	0	1	3	0	5	0	0	53	0	0	1	0	0	54	0	0	0	94	0	0	2	0	0	96	0	0
27/03/2018	7:30:00	4	0	4	0	0	1	4	0	5	0	0	65	0	0	2	0	0	67	0	0	0	141	0	0	2	0	0	143	0	0
27/03/2018	7:45:00	0	0	2	0	0	0	0	0	2	0	0	81	0	0	3	0	0	84	0	0	0	177	0	0	4	0	0	181	0	0
27/03/2018	8:00:00	4	0	3	0	0	0	4	0	3	0	0	84	0	0	6	0	0	90	0	0	0	193	0	0	7	0	0	200	0	0
27/03/2018	8:15:00	1	0	3	0	0	0	1	0	3	0	0	93	0	0	4	0	0	97	0	0	0	178	0	0	5	0	0	183	0	0
27/03/2018	8:30:00	7	0	10	0	0	0	7	0	10	0	0	106	0	0	4	0	0	110	0	0	0	170	0	0	5	0	0	175	0	0
27/03/2018	8:45:00	5	0	7	0	0	0	5	0	7	0	0	93	0	0	4	0	0	97	0	0	0	165	0	0	3	0	0	168	0	0
27/03/2018	9:00:00	5	0	6	1	0	0	6	0	6	0	0	84	0	0	3	0	0	87	0	0	0	164	0	0	5	0	0	169	0	0
27/03/2018	9:00:38	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
Peak Hour		**18**	**0**	**26**	**1**	**0**	**0**	**19**	**0**	**26**	**0**	**0**	**376**	**0**	**0**	**15**	**0**	**0**	**391**	**0**	**0**	**0**	**677**	**0**	**0**	**18**	**0**	**0**	**695**	**0**	**0**
Truck%/PHF					**5%**	**#####**	**0%**	**0.68**	**#####**	**0.65**					**#####**	**4%**	**#####**	**#####**	**0.89**	**#####**					**#####**	**3%**	**#####**	**#####**	**0.95**	**#####**	
********** Recording restarted at:16:28:19																															
27/03/2018	16:30:00	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
27/03/2018	16:45:00	7	0	13	0	0	0	7	0	13	0	0	106	0	0	4	0	0	110	0	0	0	117	0	0	3	0	0	120	0	0
27/03/2018	17:00:00	3	0	10	0	0	0	3	0	10	0	0	137	0	0	1	0	0	138	0	0	0	135	0	0	3	0	0	138	0	0
27/03/2018	17:15:00	6	0	12	0	0	0	6	0	12	0	0	143	0	0	2	0	0	145	0	0	0	146	0	0	4	0	0	150	0	0
27/03/2018	17:30:00	3	0	11	0	0	0	3	0	11	0	0	138	0	0	4	0	0	142	0	0	0	149	0	0	5	0	0	154	0	0
27/03/2018	17:45:00	3	0	7	1	0	0	4	0	7	0	0	135	0	0	4	0	0	139	0	0	0	141	0	0	1	0	0	142	0	0
27/03/2018	18:00:00	4	0	4	0	0	0	4	0	4	0	0	144	0	0	2	0	0	146	0	0	0	133	0	0	3	0	0	136	0	0
27/03/2018	18:15:00	1	0	7	0	0	0	1	0	7	0	0	140	0	0	4	0	0	144	0	0	0	138	0	0	2	0	0	140	0	0
27/03/2018	18:30:00	4	0	6	0	0	0	4	0	6	0	0	132	0	0	4	0	0	136	0	0	0	136	0	0	3	0	0	139	0	0
27/03/2018	18:45:00	5	0	2	0	0	0	5	0	2	0	0	119	0	0	2	0	0	121	0	0	0	123	0	0	2	0	0	125	0	0
27/03/2018	19:00:00	5	0	1	0	0	0	5	0	1	0	0	117	0	0	3	0	0	120	0	0	0	123	0	0	2	0	0	125	0	0
27/03/2018	19:15:00	4	0	7	0	0	0	4	0	7	0	0	120	0	0	2	0	0	122	0	0	0	116	0	0	3	0	0	119	0	0
27/03/2018	19:30:00	5	0	4	0	0	0	5	0	4	0	0	93	0	0	2	0	0	95	0	0	0	97	0	0	2	0	0	99	0	0
27/03/2018	19:30:38	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
Peak Hour		**16**	**0**	**34**	**1**	**0**	**0**	**17**	**0**	**34**	**0**	**0**	**560**	**0**	**0**	**12**	**0**	**0**	**572**	**0**	**0**	**0**	**569**	**0**	**0**	**13**	**0**	**0**	**582**	**0**	**0**
Truck%/PHF					**6%**	**#####**	**0%**	**0.71**	**#####**	**0.71**					**#####**	**2%**	**#####**	**#####**	**0.98**	**#####**					**#####**	**2%**	**#####**	**#####**	**0.94**	**#####**	

INTERSECTION TURNING MOVEMENT COUNT - BLOOR STREET / MADISON AVENUE

File: 1
Site: 812800004
Facing: NORTH

DATE	TIME	NORTH APPROACH										EAST APPROACH									
		CAR			TRUCK			TOTAL			Peds	CAR			TRUCK			TOTAL			Peds
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
********** Recording started at:06:56:14																					
27/03/2018	7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27/03/2018	7:15:00	3	12	2	0	0	0	3	12	2	16	7	51	3	0	1	0	7	52	3	11
27/03/2018	7:30:00	2	9	1	0	0	0	2	9	1	22	10	65	1	0	2	0	10	67	1	8
27/03/2018	7:45:00	4	13	4	0	0	0	4	13	4	17	9	77	5	0	3	0	9	80	5	14
27/03/2018	8:00:00	6	16	2	0	0	0	6	16	2	27	11	83	10	1	7	0	12	90	10	22
27/03/2018	8:15:00	6	22	2	0	1	0	6	23	2	38	8	91	8	0	5	0	8	96	8	27
27/03/2018	8:30:00	11	31	4	0	1	0	11	32	4	54	12	101	8	0	5	0	12	106	8	33
27/03/2018	8:45:00	9	36	6	0	0	0	9	36	6	69	13	82	10	0	5	0	13	87	10	41
27/03/2018	9:00:00	14	29	7	0	0	0	14	29	7	98	13	70	7	0	3	0	13	73	7	78
27/03/2018	9:00:32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		**32**	**105**	**14**	**0**	**2**	**0**	**32**	**107**	**14**	**188**	**44**	**357**	**36**	**1**	**22**	**0**	**45**	**379**	**36**	**123**
Truck%/PHF					**0%**	**2%**	**0%**	**0.73**	**0.74**	**0.58**					**2%**	**6%**	**0%**	**0.87**	**0.89**	**0.90**	
********** Recording restarted at:16:28:47																					
27/03/2018	16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27/03/2018	16:45:00	2	10	5	0	0	0	2	10	5	95	5	99	7	0	4	0	5	103	7	44
27/03/2018	17:00:00	2	8	10	0	0	0	2	8	10	114	7	124	8	0	1	0	7	125	8	31
27/03/2018	17:15:00	4	11	11	0	0	0	4	11	11	120	3	130	6	0	2	0	3	132	6	47
27/03/2018	17:30:00	6	14	8	0	0	0	6	14	8	129	6	126	10	0	4	0	6	130	10	38
27/03/2018	17:45:00	8	10	10	0	0	0	8	10	10	164	4	118	9	0	4	0	4	122	9	33
27/03/2018	18:00:00	10	16	9	0	0	0	10	16	9	171	3	132	13	0	2	0	3	134	13	46
27/03/2018	18:15:00	7	17	7	0	1	0	7	18	7	159	7	129	11	0	5	0	7	134	11	51
27/03/2018	18:30:00	8	20	12	0	1	0	8	21	12	148	6	121	14	0	4	1	6	125	15	47
27/03/2018	18:45:00	3	16	5	0	0	0	3	16	5	121	1	115	6	1	2	1	2	117	7	36
27/03/2018	19:00:00	5	13	8	0	0	0	5	13	8	108	5	101	14	0	3	0	5	104	14	41
27/03/2018	19:15:00	4	10	6	0	1	0	4	11	6	94	4	110	10	0	2	0	4	112	10	32
27/03/2018	19:30:00	7	14	7	0	0	0	7	14	7	76	3	86	8	0	2	0	3	88	8	30
27/03/2018	19:30:28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		**31**	**57**	**34**	**0**	**1**	**0**	**31**	**58**	**34**	**623**	**20**	**505**	**43**	**0**	**15**	**0**	**20**	**520**	**43**	**168**
Truck%/PHF					**0%**	**2%**	**0%**	**0.78**	**0.81**	**0.85**					**0%**	**3%**	**0%**	**0.71**	**0.97**	**0.83**	

INTERSECTION TURNING MOVEMENT COUNT - BLOOR STREET / MADISON AVENUE (cont'd)

File: 1
Site: 812800004
Facing: NORTH

DATE	TIME	SOUTH APPROACH										WEST APPROACH									
		CAR			TRUCK			TOTAL			Peds	CAR			TRUCK			TOTAL			Peds
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
********** R																					
27/03/2018	7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27/03/2018	7:15:00	2	8	2	0	0	0	2	8	2	19	3	89	3	0	2	0	3	91	3	5
27/03/2018	7:30:00	0	7	1	0	0	0	0	7	1	20	5	133	4	0	2	0	5	135	4	10
27/03/2018	7:45:00	2	11	2	0	0	0	2	11	2	23	9	165	2	0	4	0	9	169	2	13
27/03/2018	8:00:00	1	8	4	0	0	0	1	8	4	35	11	178	6	0	6	0	11	184	6	10
27/03/2018	8:15:00	2	6	6	0	0	0	2	6	6	41	8	160	6	0	5	0	8	165	6	14
27/03/2018	8:30:00	2	13	9	0	1	0	2	14	9	58	13	152	8	0	5	0	13	157	8	26
27/03/2018	8:45:00	3	10	11	0	0	0	3	10	11	76	8	155	4	0	4	0	8	159	4	24
27/03/2018	9:00:00	5	12	14	0	0	0	5	12	14	98	10	151	3	0	5	0	10	156	3	37
27/03/2018	9:00:32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		**8**	**37**	**30**	**0**	**1**	**0**	**8**	**38**	**30**	**210**	**40**	**645**	**24**	**0**	**20**	**0**	**40**	**665**	**24**	**74**
Truck%/PHF					**0%**	**3%**	**0%**	**0.67**	**0.68**	**0.68**					**0%**	**3%**	**0%**	**0.77**	**0.90**	**0.75**	
********** R																					
27/03/2018	16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27/03/2018	16:45:00	4	29	11	0	0	0	4	29	11	112	14	102	4	0	2	0	14	104	4	33
27/03/2018	17:00:00	5	39	8	0	0	0	5	39	8	103	13	124	3	0	3	0	13	127	3	29
27/03/2018	17:15:00	5	36	13	0	0	0	5	36	13	132	13	129	5	0	4	0	13	133	5	35
27/03/2018	17:30:00	9	48	18	0	0	0	9	48	18	117	10	132	8	0	6	0	10	138	8	42
27/03/2018	17:45:00	4	52	14	0	0	0	4	52	14	89	16	120	11	0	2	0	16	122	11	33
27/03/2018	18:00:00	6	62	12	0	0	0	6	62	12	103	10	121	8	0	2	0	10	123	8	19
27/03/2018	18:15:00	1	53	13	0	0	0	1	53	13	123	13	111	9	0	3	0	13	114	9	26
27/03/2018	18:30:00	3	49	8	0	0	1	3	49	9	95	9	120	12	0	4	0	9	124	12	28
27/03/2018	18:45:00	4	55	11	0	0	0	4	55	11	83	17	109	5	0	3	0	17	112	5	26
27/03/2018	19:00:00	6	42	9	0	0	0	6	42	9	77	12	116	4	0	1	0	12	117	4	31
27/03/2018	19:15:00	1	47	7	0	0	0	1	47	7	86	8	106	2	0	3	0	8	109	2	20
27/03/2018	19:30:00	2	36	6	0	0	0	2	36	6	68	6	87	5	0	2	0	6	89	5	18
27/03/2018	19:30:28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		**20**	**215**	**57**	**0**	**0**	**0**	**20**	**215**	**57**	**432**	**49**	**484**	**36**	**0**	**13**	**0**	**49**	**497**	**36**	**120**
Truck%/PHF					**0%**	**0%**	**0%**	**0.56**	**0.87**	**0.79**					**0%**	**3%**	**0%**	**0.77**	**0.90**	**0.82**	

INTERSECTION TURNING MOVEMENT COUNT - SPADINA ROAD / LOWTHER AVENUE

File: 1
Site: 812800005
Facing: SOUTH

DATE	TIME	NORTH APPROACH										EAST APPROACH									
		CAR			TRUCK			TOTAL			Peds	CAR			TRUCK			TOTAL			Peds
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
********** Recording started at:06:56:51																					
27/03/2018	7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27/03/2018	7:15:00	3	86	2	0	2	0	3	88	2	8	2	2	3	0	0	0	2	2	3	6
27/03/2018	7:30:00	5	101	1	0	2	0	5	103	1	14	4	2	4	0	1	0	4	3	4	12
27/03/2018	7:45:00	5	112	1	1	4	0	6	116	1	9	3	4	4	0	0	1	3	4	5	17
27/03/2018	8:00:00	9	109	2	0	4	0	9	113	2	12	4	5	7	0	0	0	4	5	7	14
27/03/2018	8:15:00	14	122	1	0	2	0	14	124	1	13	9	6	8	0	0	1	9	6	9	21
27/03/2018	8:30:00	12	137	3	0	4	1	12	141	4	19	9	4	7	0	0	0	9	4	7	28
27/03/2018	8:45:00	15	140	4	1	3	0	16	143	4	37	11	11	9	0	0	0	11	11	9	36
27/03/2018	9:00:00	28	149	2	2	2	0	30	151	2	36	9	8	5	0	0	1	9	8	6	22
27/03/2018	9:00:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		**69**	**548**	**10**	**3**	**11**	**1**	**72**	**559**	**11**	**105**	**38**	**29**	**29**	**0**	**0**	**2**	**38**	**29**	**31**	**107**
Truck%/PHF					**4%**	**2%**	**9%**	**0.60**	**0.93**	**0.69**					**0%**	**0%**	**6%**	**0.86**	**0.66**	**0.86**	
********** Recording restarted at:16:27:37																					
27/03/2018	16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27/03/2018	16:45:00	4	76	5	0	2	0	4	78	5	20	11	21	20	0	0	0	11	21	20	33
27/03/2018	17:00:00	6	85	4	0	3	0	6	88	4	23	10	14	14	0	0	0	10	14	14	27
27/03/2018	17:15:00	4	89	3	1	4	0	5	93	3	31	10	28	12	0	0	1	10	28	13	36
27/03/2018	17:30:00	7	92	7	0	1	0	7	93	7	26	16	27	10	1	0	0	17	27	10	41
27/03/2018	17:45:00	6	80	2	0	2	0	6	82	2	19	12	29	23	0	1	0	12	30	23	37
27/03/2018	18:00:00	5	103	3	0	0	0	5	103	3	24	15	34	10	2	1	0	17	35	10	32
27/03/2018	18:15:00	4	94	4	0	4	0	4	98	4	16	12	26	14	0	3	1	12	29	15	29
27/03/2018	18:30:00	3	76	6	0	2	1	3	78	7	28	13	29	15	0	0	0	13	29	15	34
27/03/2018	18:45:00	7	81	2	0	2	0	7	83	2	14	13	20	12	0	0	1	13	20	13	22
27/03/2018	19:00:00	5	92	4	0	3	0	5	95	4	16	9	21	13	0	0	0	9	21	13	27
27/03/2018	19:15:00	4	81	2	0	0	0	4	81	2	10	14	26	10	0	0	0	14	26	10	16
27/03/2018	19:30:00	3	85	1	0	3	0	3	88	1	14	7	22	17	0	0	0	7	22	17	24
27/03/2018	19:30:09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		**22**	**369**	**16**	**0**	**7**	**0**	**22**	**376**	**16**	**85**	**55**	**116**	**57**	**3**	**5**	**1**	**58**	**121**	**58**	**139**
Truck%/PHF					**0%**	**2%**	**0%**	**0.79**	**0.91**	**0.57**					**5%**	**4%**	**2%**	**0.85**	**0.86**	**0.63**	

INTERSECTION TURNING MOVEMENT COUNT - SPADINA ROAD / LOWTHER AVENUE (cont'd)

File: 1
Site: 812800005
Facing: SOUTH

DATE	TIME	SOUTH APPROACH										WEST APPROACH									
		CAR			TRUCK			TOTAL			Peds	CAR			TRUCK			TOTAL			Peds
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
**********																					
27/03/2018	7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27/03/2018	7:15:00	2	50	2	0	3	0	2	53	2	14	3	3	7	0	0	0	3	3	7	10
27/03/2018	7:30:00	2	67	3	0	1	0	2	68	3	21	1	8	6	0	0	0	1	8	6	13
27/03/2018	7:45:00	1	66	1	0	2	0	1	68	1	19	4	14	12	0	0	0	4	14	12	17
27/03/2018	8:00:00	4	66	5	0	2	1	4	68	6	27	7	34	18	0	0	0	7	34	18	12
27/03/2018	8:15:00	3	87	8	0	4	0	3	91	8	32	9	36	24	0	0	0	9	36	24	26
27/03/2018	8:30:00	4	82	8	0	6	0	4	88	8	24	14	52	20	0	0	0	14	52	20	22
27/03/2018	8:45:00	2	105	7	0	4	0	2	109	7	41	11	67	17	0	0	0	11	67	17	48
27/03/2018	9:00:00	3	89	10	0	3	0	3	92	10	35	13	60	24	0	1	0	13	61	24	39
27/03/2018	9:00:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		12	363	33	0	17	0	12	380	33	132	47	215	85	0	1	0	47	216	85	135
Truck%/PHF					0%	4%	0%	0.75	0.87	0.83					0%	0%	0%	0.84	0.81	0.89	
**********																					
27/03/2018	16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27/03/2018	16:45:00	1	136	7	0	2	0	1	138	7	21	10	5	6	0	1	0	10	6	6	24
27/03/2018	17:00:00	1	145	7	0	3	0	1	148	7	27	8	13	8	0	0	0	8	13	8	26
27/03/2018	17:15:00	3	174	9	0	2	0	3	176	9	32	9	8	7	0	0	0	9	8	7	25
27/03/2018	17:30:00	2	198	9	0	2	0	2	200	9	31	8	10	4	0	0	0	8	10	4	38
27/03/2018	17:45:00	1	183	8	1	3	0	2	186	8	28	8	14	4	0	0	0	8	14	4	42
27/03/2018	18:00:00	2	204	10	0	4	0	2	208	10	30	13	13	9	0	2	0	13	15	9	31
27/03/2018	18:15:00	4	196	8	0	2	0	4	198	8	24	6	13	11	0	0	0	6	13	11	29
27/03/2018	18:30:00	2	174	13	0	4	0	2	178	13	29	8	16	6	0	0	0	8	16	6	35
27/03/2018	18:45:00	3	189	9	0	1	1	3	190	10	22	7	11	7	0	1	0	7	12	7	26
27/03/2018	19:00:00	1	145	8	0	2	0	1	147	8	24	6	7	1	0	0	0	6	7	1	29
27/03/2018	19:15:00	2	133	10	0	1	0	2	134	10	26	11	7	3	0	0	0	11	7	3	21
27/03/2018	19:30:00	2	101	9	0	3	0	2	104	9	19	4	6	4	0	0	0	4	6	4	16
27/03/2018	19:30:09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		9	781	35	1	11	0	10	792	35	113	35	50	28	0	2	0	35	52	28	140
Truck%/PHF					10%	1%	0%	0.63	0.95	0.88					0%	4%	0%	0.67	0.87	0.64	

INTERSECTION TURNING MOVEMENT COUNT - LOWTHER AVENUE / MADISON AVENUE

File: 14
Site: I2800006
Facing: NORTH

DATE	TIME	NORTH APPROACH										EAST APPROACH										SOUTH LEG	WEST APPROACH									
		CAR			TRUCK			TOTAL			PEDS	CAR			TRUCK			TOTAL			PEDS	PEDS	CAR			TRUCK			TOTAL			PEDS
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
********** Recording started at:06:45:22																																
27/03/2018	7:00:00	1	1	2	0	0	0	1	1	2	1	2	1	0	0	0	0	2	1	0	0	0	0	2	1	0	0	0	0	2	1	0
27/03/2018	7:15:00	1	2	1	0	0	0	1	2	1	5	2	5	0	1	0	0	3	5	0	0	4	0	5	0	0	0	0	0	5	0	0
27/03/2018	7:30:00	2	0	1	0	0	0	2	0	1	0	4	10	0	1	1	0	5	11	0	1	13	0	7	6	0	0	0	0	7	6	4
27/03/2018	7:45:00	0	2	2	0	0	0	0	2	2	9	0	7	0	0	1	0	0	8	0	1	9	0	16	2	0	1	0	0	17	2	6
27/03/2018	8:00:00	4	2	3	0	0	0	4	2	3	17	3	11	0	0	0	0	3	11	0	6	18	0	43	1	0	0	1	0	43	2	6
27/03/2018	8:15:00	3	1	2	0	0	0	3	1	2	12	0	24	0	0	1	0	0	25	0	2	17	0	54	6	0	0	0	0	54	6	10
27/03/2018	8:30:00	7	5	1	0	0	0	7	5	1	15	10	16	0	0	0	0	10	16	0	4	33	0	65	6	0	0	0	0	65	6	7
27/03/2018	8:45:00	6	5	6	0	0	0	6	5	6	23	4	29	0	0	0	0	4	29	0	18	29	0	82	10	0	1	0	0	83	10	9
27/03/2018	9:00:00	5	2	3	0	1	0	5	3	3	51	9	14	0	0	0	0	9	14	0	8	44	0	94	9	0	3	0	0	97	9	15
27/03/2018	9:00:04	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		21	13	12	0	1	0	21	14	12	101	23	83	0	0	1	0	23	84	0	32	123	0	295	31	0	4	0	0	299	31	41
Truck%/PHF					0%	7%	0%	0.75	0.70	0.50					0%	1%	####	0.58	0.72	####						####	1%	0%	####	0.77	0.78	
********** Recording restarted at:16:20:56																																
27/03/2018	16:30:00	0	0	1	0	0	0	0	0	1	3	2	2	0	1	0	0	3	2	0	2	0	0	1	1	0	0	0	0	1	1	0
27/03/2018	16:45:00	1	1	2	0	0	0	1	1	2	20	6	52	0	0	0	0	6	52	0	6	34	0	10	5	0	1	0	0	11	5	4
27/03/2018	17:00:00	2	1	2	0	0	0	2	1	2	11	9	38	0	0	0	0	9	38	0	7	13	0	22	6	0	0	0	0	22	6	8
27/03/2018	17:15:00	0	2	4	0	0	0	0	2	4	9	6	43	0	0	1	0	6	44	0	3	11	0	20	5	0	0	0	0	20	5	6
27/03/2018	17:30:00	0	1	1	0	1	0	0	2	1	14	3	53	0	0	1	0	3	54	0	2	14	0	19	4	0	0	0	0	19	4	6
27/03/2018	17:45:00	2	1	4	0	0	1	2	1	5	14	4	56	0	0	0	0	4	56	0	8	14	0	21	6	0	0	0	0	21	6	11
27/03/2018	18:00:00	1	1	3	0	0	0	1	1	3	18	5	52	0	0	3	0	5	55	0	7	27	1	23	4	1	1	0	2	24	4	9
27/03/2018	18:15:00	2	4	3	2	0	1	4	4	4	12	6	45	0	0	3	0	6	48	0	3	13	0	22	2	0	0	0	0	22	2	2
27/03/2018	18:30:00	4	3	8	0	0	0	4	3	8	12	3	47	0	0	0	0	3	47	0	4	6	0	29	5	0	0	0	0	29	5	6
27/03/2018	18:45:00	0	1	1	0	1	1	0	2	2	13	6	40	0	0	0	0	6	40	0	8	12	0	20	4	0	2	0	0	22	4	6
27/03/2018	19:00:00	2	2	1	0	0	0	2	2	1	13	4	43	0	0	0	0	4	43	0	4	9	0	18	0	0	0	0	0	18	0	14
27/03/2018	19:15:00	2	3	6	0	0	0	2	3	6	17	4	44	0	0	0	0	4	44	0	5	12	0	18	5	0	0	0	0	18	5	11
27/03/2018	19:30:00	3	1	7	0	0	0	3	1	7	7	2	37	0	0	0	0	2	37	0	2	7	0	13	7	0	0	0	0	13	7	4
27/03/2018	19:30:18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0
		9	9	18	2	0	2	11	9	20	56	18	200	0	0	6	0	18	206	0	22	60	1	95	17	1	1	0	2	96	17	28
					0%	7%	0%	0.69	0.56	0.63					0%	1%	####	0.75	0.92	####						####	1%	0%	0.25	0.83	0.71	

INTERSECTION TURNING MOVEMENT COUNT - LOWTHER AVENUE / MADISON AVENU

File: 1

Site: 1812800007 Facing: NORTH		NORTH APPROACH											
DATE	TIME	CAR			TRUCK			TOTAL			PEDS	CAR	
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru
********** Recording started at:06:49:17													
27/03/2018	7:00:00	0	0	0	0	0	0	0	0	0	0	0	0
27/03/2018	7:15:00	0	5	0	0	1	0	0	6	0	0	1	0
27/03/2018	7:30:00	0	6	0	0	1	0	0	7	0	0	0	0
27/03/2018	7:45:00	2	2	0	0	0	0	2	2	0	4	1	0
27/03/2018	8:00:00	2	2	0	0	0	0	2	2	0	1	1	0
27/03/2018	8:15:00	0	4	2	0	1	0	0	5	2	1	1	0
27/03/2018	8:30:00	1	17	0	0	0	0	1	17	0	1	1	0
27/03/2018	8:45:00	2	16	0	0	0	0	2	16	0	3	0	0
27/03/2018	9:00:00	1	15	1	0	1	0	1	16	1	1	0	0
27/03/2018	9:01:39	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour		**4**	**52**	**3**	**0**	**2**	**0**	**4**	**54**	**3**	**6**	**2**	**0**
Truck%/PHF					**0%**	**4%**	**0%**	**0.50**	**0.79**	**0.38**			
********** Recording restarted at:16:15:24													
27/03/2018	16:30:00	0	1	0	0	0	0	0	1	0	1	0	0
27/03/2018	16:45:00	3	10	0	0	0	0	3	10	0	2	13	0
27/03/2018	17:00:00	6	11	0	0	0	0	6	11	0	3	4	0
27/03/2018	17:15:00	1	16	0	0	0	0	1	16	0	2	5	0
27/03/2018	17:30:00	0	8	0	0	0	0	0	8	0	1	7	0
27/03/2018	17:45:00	1	12	0	0	1	0	1	13	0	0	0	0
27/03/2018	18:00:00	2	11	0	0	0	0	2	11	0	1	4	0
27/03/2018	18:15:00	2	12	0	0	0	0	2	12	0	3	3	0
27/03/2018	18:30:00	0	13	0	0	0	0	0	13	0	0	1	0
27/03/2018	18:45:00	2	8	0	0	0	0	2	8	0	2	1	0
27/03/2018	19:00:00	0	6	0	0	0	0	0	6	0	1	4	0
27/03/2018	19:15:00	2	7	0	0	0	0	2	7	0	1	8	0
27/03/2018	19:30:00	1	7	0	0	0	0	1	7	0	2	6	0
27/03/2018	19:30:41	0	0	0	0	0	0	0	0	0	0	0	0
		5	**48**	**0**	**0**	**1**	**0**	**5**	**49**	**0**	**4**	**8**	**0**
					0%	**2%**	**#####**	**0.63**	**0.94**	**#####**			

E

EAST APPROACH									
	TRUCK			TOTAL			PEDS	SOUTH PEDS	WEST PEDS
Right	Left	Thru	Right	Left	Thru	Right			
0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	1	2
0	0	0	0	0	0	0	1	0	2
0	0	0	0	1	0	0	0	1	2
0	0	0	0	1	0	0	2	2	1
0	0	0	0	1	0	0	3	2	2
0	0	0	0	1	0	0	0	0	2
0	0	0	0	0	0	0	3	3	1
0	0	0	0	0	0	0	1	4	0
0	0	0	0	0	0	0	0	0	0
0	**0**	**0**	**0**	**2**	**0**	**0**	**7**	**9**	**5**
	0%	**#####**	**#####**	**0.50**	**#####**	**#####**			
0	0	0	0	0	0	0	0	0	0
0	0	0	0	13	0	0	21	3	12
0	0	0	0	4	0	0	7	9	13
0	0	0	0	5	0	0	9	2	11
0	0	0	0	7	0	0	11	4	5
0	0	0	0	0	0	0	4	3	4
0	0	0	0	4	0	0	6	0	3
0	0	0	0	3	0	0	6	0	8
0	0	0	0	1	0	0	5	0	4
0	0	0	0	1	0	0	3	2	4
0	0	0	0	4	0	0	0	3	2
0	0	0	0	8	0	0	4	0	4
0	0	0	0	6	0	0	5	1	3
0	0	0	0	0	0	0	0	0	0
0	**0**	**0**	**0**	**8**	**0**	**0**	**21**	**3**	**19**
	0%	**#####**	**#####**	**0.50**	**#####**	**#####**			

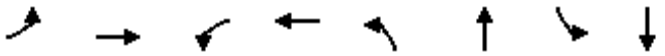
DRIVEWAY COUNT - 958 BROADVIEW AVE - ESTONIAN HOUSE

File: **1**
Site: **1812800009**
Facing: **NORTH**

DATE	TIME	Exitting traffic	Entering Traffic			TWO-WAY
			Right	Left	TOTAL	
********** Recording started at:06:58:11						
27/03/2018	**7:00:00**	0	0	0	0	0
27/03/2018	**7:15:00**	4	0	0	0	4
27/03/2018	**7:30:00**	5	0	0	0	5
27/03/2018	**7:45:00**	7	1	0	1	8
27/03/2018	**8:00:00**	7	2	1	3	10
27/03/2018	**8:15:00**	6	1	1	2	8
27/03/2018	**8:30:00**	3	3	1	4	7
27/03/2018	**8:45:00**	5	4	3	7	12
27/03/2018	**9:00:00**	4	4	4	8	12
27/03/2018	**9:00:19**	0	0	0	0	0
AM Peak(STREET) 7:30-8:30 AM		**23**	**7**	**3**	**10**	**33**
********** Recording restarted at:16:27:13						
27/03/2018	**16:30:00**	0	0	0	0	0
27/03/2018	**16:45:00**	4	3	3	6	10
27/03/2018	**17:00:00**	6	2	2	4	10
27/03/2018	**17:15:00**	6	3	2	5	11
27/03/2018	**17:30:00**	6	1	1	2	8
27/03/2018	**17:45:00**	5	2	3	5	10
27/03/2018	**18:00:00**	8	4	1	5	13
27/03/2018	**18:15:00**	8	2	1	3	11
27/03/2018	**18:30:00**	7	5	3	8	15
27/03/2018	**18:45:00**	9	1	1	2	11
27/03/2018	**19:00:00**	6	2	4	6	12
27/03/2018	**19:15:00**	7	1	0	1	8
27/03/2018	**19:30:00**	5	0	1	1	6
27/03/2018	**19:30:30**	0	0	0	0	0
PM Peak(STREET) 5:30-6:30 PM		**28**	**13**	**8**	**21**	**49**
PM Peak(SITE) 5:45-6:45 PM		**32**	**12**	**6**	**18**	**50**

Appendix B

Intersection Capacity Analysis Output
Existing Condition



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	52	654	108	392	60	526	92	607
v/c Ratio	0.18	0.84	0.72	0.54	0.33	0.48	0.49	0.48
Control Delay	13.8	28.6	45.7	17.7	24.9	20.2	31.2	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	28.6	45.7	17.7	24.9	20.2	31.2	19.8
Queue Length 50th (m)	4.2	77.0	11.7	38.0	5.7	28.3	9.5	32.6
Queue Length 95th (m)	10.0	137.4	#37.3	69.8	19.0	50.1	30.5	60.5
Internal Link Dist (m)		102.5		69.6		172.2		240.0
Turn Bay Length (m)	25.0		25.0		30.0		20.0	
Base Capacity (vph)	393	1067	205	995	214	1276	218	1496
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.61	0.53	0.39	0.28	0.41	0.42	0.41

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	526	57	91	284	60	53	352	96	86	514	43
Future Volume (vph)	40	526	57	91	284	60	53	352	96	86	514	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.95		1.00	0.91		1.00	0.85		1.00	0.94	
Flpb, ped/bikes	0.79	1.00		0.89	1.00		0.75	1.00		0.67	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1382	1740		1557	1631		1243	2865		1122	3331	
Flt Permitted	0.45	1.00		0.20	1.00		0.37	1.00		0.42	1.00	
Satd. Flow (perm)	650	1740		334	1631		478	2865		497	3331	
Peak-hour factor, PHF	0.77	0.91	0.75	0.84	0.90	0.79	0.88	0.85	0.86	0.93	0.92	0.90
Adj. Flow (vph)	52	578	76	108	316	76	60	414	112	92	559	48
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	1	0
Lane Group Flow (vph)	52	654	0	108	392	0	60	525	0	92	606	0
Confl. Peds. (#/hr)	996		816	1008		1188	816		1008	1188		996
Confl. Bikes (#/hr)			100			100			100			100
Heavy Vehicles (%)	3%	2%	5%	3%	2%	8%	9%	3%	5%	7%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	33.5	33.5		33.5	33.5		28.5	28.5		28.5	28.5	
Effective Green, g (s)	33.5	33.5		33.5	33.5		28.5	28.5		28.5	28.5	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	294	787		151	738		184	1103		191	1282	
v/s Ratio Prot		c0.38			0.24			0.18			0.18	
v/s Ratio Perm	0.08			0.32			0.13			c0.19		
v/c Ratio	0.18	0.83		0.72	0.53		0.33	0.48		0.48	0.47	
Uniform Delay, d1	12.0	17.8		16.4	14.6		16.0	17.1		17.2	17.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	7.5		14.9	0.7		1.0	0.3		1.9	0.3	
Delay (s)	12.3	25.2		31.3	15.3		17.0	17.5		19.1	17.4	
Level of Service	B	C		C	B		B	B		B	B	
Approach Delay (s)		24.3			18.8			17.4			17.6	
Approach LOS		C			B			B			B	

Intersection Summary

HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	119.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Huron St & Bloor St

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	52	771	52	466	112	213
v/c Ratio	0.18	0.87	0.45	0.56	0.24	0.41
Control Delay	11.8	29.1	26.0	15.9	16.4	23.7
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	11.8	29.2	26.0	15.9	16.4	23.7
Queue Length 50th (m)	4.2	98.6	4.9	46.2	7.7	23.2
Queue Length 95th (m)	8.6	148.8	15.0	69.7	15.9	40.8
Internal Link Dist (m)		71.5		116.6	96.5	120.4
Turn Bay Length (m)	25.0		20.0			
Base Capacity (vph)	401	1198	158	1131	472	519
Starvation Cap Reductn	0	32	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.66	0.33	0.41	0.24	0.41

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	665	24	45	379	36	8	38	30	32	107	14
Future Volume (vph)	40	665	24	45	379	36	8	38	30	32	107	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.96			0.79			0.95	
Flpb, ped/bikes	0.83	1.00		0.91	1.00			0.97			0.92	
Frt	1.00	0.99		1.00	0.99			0.95			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1501	1800		1606	1702			1346			1597	
Flt Permitted	0.39	1.00		0.14	1.00			0.96			0.92	
Satd. Flow (perm)	623	1800		241	1702			1302			1485	
Peak-hour factor, PHF	0.77	0.90	0.75	0.87	0.89	0.90	0.67	0.68	0.68	0.73	0.74	0.58
Adj. Flow (vph)	52	739	32	52	426	40	12	56	44	44	145	24
RTOR Reduction (vph)	0	2	0	0	5	0	0	24	0	0	5	0
Lane Group Flow (vph)	52	769	0	52	461	0	0	88	0	0	208	0
Confl. Peds. (#/hr)	262		284	333		311	284		333	311		262
Confl. Bikes (#/hr)			100			100			100			100
Heavy Vehicles (%)	0%	3%	0%	2%	6%	0%	0%	3%	0%	0%	2%	0%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	15	0	0	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	38.0	38.0		38.0	38.0			27.4			27.4	
Effective Green, g (s)	38.0	38.0		38.0	38.0			27.4			27.4	
Actuated g/C Ratio	0.49	0.49		0.49	0.49			0.35			0.35	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	305	883		118	835			460			525	
v/s Ratio Prot		c0.43			0.27							
v/s Ratio Perm	0.08			0.22				0.07			c0.14	
v/c Ratio	0.17	0.87		0.44	0.55			0.19			0.40	
Uniform Delay, d1	10.9	17.5		12.8	13.8			17.3			18.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	9.4		2.6	0.8			0.2			0.5	
Delay (s)	11.2	26.9		15.4	14.6			17.5			19.3	
Level of Service	B	C		B	B			B			B	
Approach Delay (s)		25.9			14.6			17.5			19.3	
Approach LOS		C			B			B			B	

Intersection Summary

HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	77.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	419	124	493	737
v/c Ratio	0.64	0.23	0.38	0.69
Control Delay	21.8	12.4	14.9	20.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.8	12.4	14.9	20.8
Queue Length 50th (m)	39.6	7.6	22.0	39.8
Queue Length 95th (m)	73.5	14.6	38.4	71.1
Internal Link Dist (m)	77.6	76.0	240.0	139.2
Turn Bay Length (m)				
Base Capacity (vph)	842	707	1823	1506
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.18	0.27	0.49

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	216	85	38	29	31	12	380	33	72	559	11
Future Volume (vph)	47	216	85	38	29	31	12	380	33	72	559	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.95			0.94			0.98			0.99	
Flpb, ped/bikes		0.98			0.98			1.00			0.98	
Frt		0.97			0.96			0.99			1.00	
Flt Protected		0.99			0.98			1.00			0.99	
Satd. Flow (prot)		1682			1631			3359			3378	
Flt Permitted		0.94			0.80			0.92			0.76	
Satd. Flow (perm)		1597			1331			3100			2575	
Peak-hour factor, PHF	0.84	0.81	0.89	0.86	0.66	0.86	0.75	0.87	0.83	0.60	0.93	0.69
Adj. Flow (vph)	56	267	96	44	44	36	16	437	40	120	601	16
RTOR Reduction (vph)	0	12	0	0	17	0	0	8	0	0	2	0
Lane Group Flow (vph)	0	407	0	0	107	0	0	485	0	0	735	0
Confl. Peds. (#/hr)	240		267	139		212	267		139	212		240
Confl. Bikes (#/hr)			60			60			60			60
Heavy Vehicles (%)	0%	1%	0%	0%	0%	6%	0%	4%	0%	4%	2%	9%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	15	0	0	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		28.9			28.9			29.5			29.5	
Effective Green, g (s)		28.9			28.9			29.5			29.5	
Actuated g/C Ratio		0.41			0.41			0.42			0.42	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		655			546			1299			1079	
v/s Ratio Prot												
v/s Ratio Perm		c0.25			0.08			0.16			c0.29	
v/c Ratio		0.62			0.20			0.37			0.68	
Uniform Delay, d1		16.4			13.3			14.1			16.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.8			0.2			0.2			1.8	
Delay (s)		18.3			13.5			14.3			18.4	
Level of Service		B			B			B			B	
Approach Delay (s)		18.3			13.5			14.3			18.4	
Approach LOS		B			B			B			B	

Intersection Summary

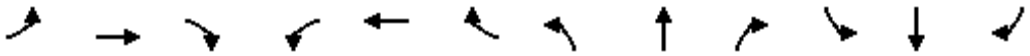
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	70.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Volume (veh/h)	0	695	391	0	19	26
Future Volume (Veh/h)	0	695	391	0	19	26
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.95	0.89	0.92	0.68	0.65
Hourly flow rate (vph)	0	732	439	0	28	40
Pedestrians		500	500		500	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		42	42		42	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		94	95			
pX, platoon unblocked	0.82				0.77	0.82
vC, conflicting volume	939				2171	1439
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	819				1859	1426
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				0	15
cM capacity (veh/h)	389				21	47

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	732	439	28	40
Volume Left	0	0	28	0
Volume Right	0	0	0	40
cSH	1700	1700	21	47
Volume to Capacity	0.43	0.26	1.35	0.85
Queue Length 95th (m)	0.0	0.0	29.8	27.7
Control Delay (s)	0.0	0.0	592.7	222.2
Lane LOS			F	F
Approach Delay (s)	0.0	0.0	374.8	
Approach LOS			F	

Intersection Summary			
Average Delay	20.6		
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	299	31	23	84	0	0	0	0	21	14	12
Future Volume (vph)	0	299	31	23	84	0	0	0	0	21	14	12
Peak Hour Factor	0.92	0.77	0.78	0.58	0.72	0.92	0.92	0.92	0.92	0.75	0.70	0.50
Hourly flow rate (vph)	0	388	40	40	117	0	0	0	0	28	20	24

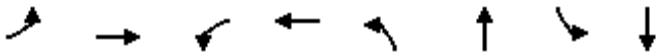
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	428	157	72
Volume Left (vph)	0	40	28
Volume Right (vph)	40	0	24
Hadj (s)	-0.04	0.06	-0.09
Departure Headway (s)	4.2	4.6	5.1
Degree Utilization, x	0.50	0.20	0.10
Capacity (veh/h)	837	750	635
Control Delay (s)	11.4	8.7	8.7
Approach Delay (s)	11.4	8.7	8.7
Approach LOS	B	A	A

Intersection Summary			
Delay	10.5		
Level of Service	B		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	0	0	0	4	54
Future Volume (Veh/h)	2	0	0	0	4	54
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.50	0.92	0.92	0.92	0.50	0.79
Hourly flow rate (vph)	4	0	0	0	8	68
Pedestrians	13		16			
Lane Width (m)	3.6		0.0			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	1		0			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	113	13			13	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	113	13			13	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	874	1056			1601	

Direction, Lane #	WB 1	SB 1
Volume Total	4	76
Volume Left	4	8
Volume Right	0	0
cSH	874	1601
Volume to Capacity	0.00	0.00
Queue Length 95th (m)	0.1	0.1
Control Delay (s)	9.1	0.8
Lane LOS	A	A
Approach Delay (s)	9.1	0.8
Approach LOS	A	

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	497	104	547	112	919	76	443
v/c Ratio	0.38	0.71	0.53	0.76	0.57	0.74	0.58	0.35
Control Delay	22.2	24.3	27.8	26.2	33.3	23.8	40.6	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	24.3	27.8	26.2	33.3	23.8	40.6	16.7
Queue Length 50th (m)	7.0	61.6	11.6	69.8	11.1	52.5	7.5	20.5
Queue Length 95th (m)	15.7	95.0	24.2	106.9	#42.0	100.7	#29.3	40.5
Internal Link Dist (m)		102.5		69.6		172.2		240.0
Turn Bay Length (m)	25.0		25.0		30.0		20.0	
Base Capacity (vph)	261	1015	285	1045	212	1353	143	1383
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.49	0.36	0.52	0.53	0.68	0.53	0.32

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	380	74	85	464	50	102	737	126	63	333	55
Future Volume (vph)	56	380	74	85	464	50	102	737	126	63	333	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.91		1.00	0.94		1.00	0.88		1.00	0.90	
Flpb, ped/bikes	0.85	1.00		0.80	1.00		0.55	1.00		0.80	1.00	
Frt	1.00	0.97		1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1495	1666		1385	1705		946	3043		1407	3106	
Flt Permitted	0.27	1.00		0.32	1.00		0.49	1.00		0.21	1.00	
Satd. Flow (perm)	432	1666		472	1705		486	3043		311	3106	
Peak-hour factor, PHF	0.82	0.92	0.88	0.82	0.96	0.78	0.91	0.94	0.93	0.83	0.87	0.92
Adj. Flow (vph)	68	413	84	104	483	64	112	784	135	76	383	60
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	68	497	0	104	547	0	112	919	0	76	443	0
Confl. Peds. (#/hr)	1168		1600	1561		1920	1600		1561	1920		1168
Confl. Bikes (#/hr)			100			100			100			100
Heavy Vehicles (%)	2%	1%	4%	4%	2%	6%	5%	1%	5%	2%	2%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	31.4	31.4		31.4	31.4		30.7	30.7		30.7	30.7	
Effective Green, g (s)	31.4	31.4		31.4	31.4		30.7	30.7		30.7	30.7	
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.41	0.41		0.41	0.41	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	183	705		200	722		201	1260		128	1286	
v/s Ratio Prot		0.30			c0.32			c0.30			0.14	
v/s Ratio Perm	0.16			0.22			0.23			0.24		
v/c Ratio	0.37	0.70		0.52	0.76		0.56	0.73		0.59	0.34	
Uniform Delay, d1	14.6	17.5		15.8	18.1		16.5	18.2		16.9	14.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	3.2		2.4	4.6		3.3	2.1		7.2	0.2	
Delay (s)	15.9	20.8		18.2	22.7		19.8	20.4		24.1	15.0	
Level of Service	B	C		B	C		B	C		C	B	
Approach Delay (s)		20.2			22.0			20.3			16.3	
Approach LOS		C			C			C			B	

Intersection Summary

HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	74.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	120.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	64	596	28	588	355	152
v/c Ratio	0.38	0.78	0.17	0.78	0.62	0.34
Control Delay	20.6	24.4	14.1	24.7	23.6	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	24.4	14.1	24.7	23.6	18.8
Queue Length 50th (m)	5.7	66.2	2.2	65.6	32.8	12.3
Queue Length 95th (m)	12.4	103.2	5.4	102.5	74.8	30.0
Internal Link Dist (m)		71.5		116.6	96.5	120.4
Turn Bay Length (m)	25.0		20.0			
Base Capacity (vph)	278	1277	278	1254	577	449
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.47	0.10	0.47	0.62	0.34

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	497	36	20	520	43	20	215	57	31	58	34
Future Volume (vph)	49	497	36	20	520	43	20	215	57	31	58	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.94			0.88			0.83	
Flpb, ped/bikes	0.80	1.00		0.82	1.00			0.96			0.91	
Frt	1.00	0.99		1.00	0.99			0.97			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1446	1748		1475	1721			1541			1363	
Flt Permitted	0.26	1.00		0.25	1.00			0.96			0.85	
Satd. Flow (perm)	390	1748		386	1721			1484			1170	
Peak-hour factor, PHF	0.77	0.90	0.82	0.71	0.97	0.83	0.56	0.87	0.79	0.78	0.81	0.85
Adj. Flow (vph)	64	552	44	28	536	52	36	247	72	40	72	40
RTOR Reduction (vph)	0	1	0	0	1	0	0	9	0	0	4	0
Lane Group Flow (vph)	64	595	0	28	587	0	0	346	0	0	148	0
Confl. Peds. (#/hr)	743		552	600		791	552		600	791		743
Confl. Bikes (#/hr)			100			100			100			100
Heavy Vehicles (%)	0%	3%	0%	0%	3%	0%	0%	0%	0%	0%	2%	0%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	15	0	0	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	30.9	30.9		30.9	30.9			27.2			27.2	
Effective Green, g (s)	30.9	30.9		30.9	30.9			27.2			27.2	
Actuated g/C Ratio	0.44	0.44		0.44	0.44			0.39			0.39	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	171	770		170	758			575			453	
v/s Ratio Prot		0.34			c0.34							
v/s Ratio Perm	0.16			0.07				c0.23			0.13	
v/c Ratio	0.37	0.77		0.16	0.77			0.60			0.33	
Uniform Delay, d1	13.1	16.6		11.8	16.6			17.1			15.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.4	4.9		0.5	5.0			1.8			0.4	
Delay (s)	14.5	21.5		12.3	21.6			18.9			15.5	
Level of Service	B	C		B	C			B			B	
Approach Delay (s)		20.8			21.2			18.9			15.5	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	70.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	156	301	890	469
v/c Ratio	0.29	0.53	0.66	0.38
Control Delay	13.1	18.4	18.3	14.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.1	18.4	18.3	14.3
Queue Length 50th (m)	10.5	26.0	46.8	21.0
Queue Length 95th (m)	24.1	49.5	66.3	32.2
Internal Link Dist (m)	77.6	76.0	240.0	139.2
Turn Bay Length (m)				
Base Capacity (vph)	731	771	1998	1818
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.21	0.39	0.45	0.26

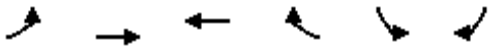
Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	52	28	58	121	58	10	792	35	22	376	16
Future Volume (vph)	35	52	28	58	121	58	10	792	35	22	376	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.94			0.93			0.98			0.98	
Flpb, ped/bikes		0.97			0.97			1.00			1.00	
Frt		0.96			0.96			0.99			0.99	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		1605			1570			3475			3420	
Flt Permitted		0.82			0.89			0.94			0.87	
Satd. Flow (perm)		1339			1421			3278			2982	
Peak-hour factor, PHF	0.67	0.87	0.64	0.85	0.86	0.63	0.63	0.95	0.88	0.79	0.91	0.57
Adj. Flow (vph)	52	60	44	68	141	92	16	834	40	28	413	28
RTOR Reduction (vph)	0	16	0	0	12	0	0	4	0	0	5	0
Lane Group Flow (vph)	0	140	0	0	289	0	0	886	0	0	464	0
Confl. Peds. (#/hr)	225		253	252		244	253		252	244		225
Confl. Bikes (#/hr)			60			60			60			60
Heavy Vehicles (%)	0%	4%	0%	5%	4%	2%	10%	1%	0%	0%	2%	0%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	15	0	0	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		27.1			27.1			27.8			27.8	
Effective Green, g (s)		27.1			27.1			27.8			27.8	
Actuated g/C Ratio		0.41			0.41			0.42			0.42	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		542			575			1362			1239	
v/s Ratio Prot												
v/s Ratio Perm		0.10			c0.20			c0.27			0.16	
v/c Ratio		0.26			0.50			0.65			0.37	
Uniform Delay, d1		13.2			14.9			15.7			13.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.7			1.1			0.2	
Delay (s)		13.5			15.6			16.8			13.7	
Level of Service		B			B			B			B	
Approach Delay (s)		13.5			15.6			16.8			13.7	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	66.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

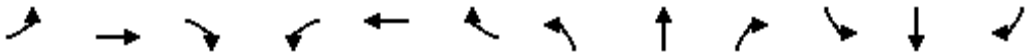
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Volume (veh/h)	0	582	572	0	17	34
Future Volume (Veh/h)	0	582	572	0	17	34
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	0.98	0.92	0.71	0.71
Hourly flow rate (vph)	0	619	584	0	24	48
Pedestrians		500	500		500	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		42	42		42	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		94	95			
pX, platoon unblocked	0.72				0.83	0.72
vC, conflicting volume	1084				2203	1584
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	924				1750	1616
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	100				8	0
cM capacity (veh/h)	312				26	32

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	619	584	24	48
Volume Left	0	0	24	0
Volume Right	0	0	0	48
cSH	1700	1700	26	32
Volume to Capacity	0.36	0.34	0.92	1.51
Queue Length 95th (m)	0.0	0.0	23.0	43.0
Control Delay (s)	0.0	0.0	364.4	533.3
Lane LOS			F	F
Approach Delay (s)	0.0	0.0	477.0	
Approach LOS			F	

Intersection Summary			
Average Delay	26.9		
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	96	17	18	206	0	0	0	0	22	9	20
Future Volume (vph)	0	96	17	18	206	0	0	0	0	22	9	20
Peak Hour Factor	0.92	0.83	0.71	0.75	0.92	0.92	0.92	0.92	0.92	0.69	0.56	0.63
Hourly flow rate (vph)	0	116	24	24	224	0	0	0	0	32	16	32

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	140	248	80
Volume Left (vph)	0	24	32
Volume Right (vph)	24	0	32
Hadj (s)	-0.09	0.02	-0.14
Departure Headway (s)	4.3	4.3	4.6
Degree Utilization, x	0.17	0.29	0.10
Capacity (veh/h)	817	817	720
Control Delay (s)	8.1	9.0	8.1
Approach Delay (s)	8.1	9.0	8.1
Approach LOS	A	A	A

Intersection Summary				
Delay	8.6			
Level of Service	A			
Intersection Capacity Utilization	38.0%	ICU Level of Service	A	
Analysis Period (min)	15			

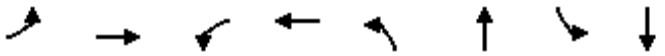
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	0	0	0	5	49
Future Volume (Veh/h)	8	0	0	0	5	49
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.50	0.92	0.92	0.92	0.63	0.94
Hourly flow rate (vph)	16	0	0	0	8	52
Pedestrians	13		16			
Lane Width (m)	3.6		0.0			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	1		0			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	97	13			13	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	97	13			13	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	893	1056			1601	

Direction, Lane #	WB 1	SB 1
Volume Total	16	60
Volume Left	16	8
Volume Right	0	0
cSH	893	1601
Volume to Capacity	0.02	0.00
Queue Length 95th (m)	0.4	0.1
Control Delay (s)	9.1	1.0
Lane LOS	A	A
Approach Delay (s)	9.1	1.0
Approach LOS	A	

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix C

Intersection Capacity Analysis Output
Future Background Condition - 2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	669	111	401	61	539	95	622
v/c Ratio	0.19	0.85	0.78	0.55	0.34	0.50	0.52	0.49
Control Delay	14.0	29.8	54.4	18.0	25.8	20.7	32.8	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.0	29.8	54.4	18.0	25.8	20.7	32.8	20.3
Queue Length 50th (m)	4.2	79.9	12.6	39.2	6.1	30.0	10.2	34.6
Queue Length 95th (m)	10.2	142.5	#40.9	71.8	19.4	51.6	#31.8	62.2
Internal Link Dist (m)		102.5		69.6		172.2		240.0
Turn Bay Length (m)	25.0		25.0		30.0		20.0	
Base Capacity (vph)	383	1053	191	981	206	1260	213	1475
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.64	0.58	0.41	0.30	0.43	0.45	0.42

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	539	58	93	291	62	54	361	98	88	527	44
Future Volume (vph)	41	539	58	93	291	62	54	361	98	88	527	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.95		1.00	0.91		1.00	0.85		1.00	0.94	
Flpb, ped/bikes	0.79	1.00		0.89	1.00		0.76	1.00		0.67	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1388	1741		1565	1630		1253	2867		1133	3331	
Flt Permitted	0.44	1.00		0.19	1.00		0.35	1.00		0.41	1.00	
Satd. Flow (perm)	640	1741		317	1630		468	2867		489	3331	
Peak-hour factor, PHF	0.77	0.91	0.75	0.84	0.90	0.79	0.88	0.85	0.86	0.93	0.92	0.90
Adj. Flow (vph)	53	592	77	111	323	78	61	425	114	95	573	49
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	53	669	0	111	401	0	61	538	0	95	622	0
Confl. Peds. (#/hr)	996		816	1008		1188	816		1008	1188		996
Confl. Bikes (#/hr)			100			100			100			100
Heavy Vehicles (%)	3%	2%	5%	3%	2%	8%	9%	3%	5%	7%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.2	34.2		34.2	34.2		28.9	28.9		28.9	28.9	
Effective Green, g (s)	34.2	34.2		34.2	34.2		28.9	28.9		28.9	28.9	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.38	0.38		0.38	0.38	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	291	792		144	742		180	1103		188	1281	
v/s Ratio Prot		c0.38			0.25			0.19			0.19	
v/s Ratio Perm	0.08			0.35			0.13			c0.19		
v/c Ratio	0.18	0.84		0.77	0.54		0.34	0.49		0.51	0.49	
Uniform Delay, d1	12.1	18.1		17.2	14.8		16.3	17.5		17.6	17.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	8.2		22.1	0.8		1.1	0.3		2.1	0.3	
Delay (s)	12.4	26.3		39.3	15.6		17.5	17.8		19.8	17.8	
Level of Service	B	C		D	B		B	B		B	B	
Approach Delay (s)		25.3			20.7			17.8			18.0	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	75.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	120.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	53	791	53	477	115	218
v/c Ratio	0.18	0.89	0.48	0.57	0.25	0.42
Control Delay	11.8	30.2	28.9	15.9	16.8	24.5
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	11.8	30.3	28.9	15.9	16.8	24.5
Queue Length 50th (m)	4.3	103.1	5.1	47.6	8.2	24.7
Queue Length 95th (m)	8.7	156.4	16.5	71.8	16.2	41.7
Internal Link Dist (m)		71.5		116.6	96.5	120.4
Turn Bay Length (m)	25.0		20.0			
Base Capacity (vph)	391	1184	146	1119	466	514
Starvation Cap Reductn	0	31	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.69	0.36	0.43	0.25	0.42

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	682	25	46	388	37	8	39	31	33	110	14
Future Volume (vph)	41	682	25	46	388	37	8	39	31	33	110	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.96			0.78			0.95	
Flpb, ped/bikes	0.83	1.00		0.91	1.00			0.97			0.92	
Frt	1.00	0.99		1.00	0.99			0.95			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1505	1800		1616	1701			1335			1599	
Flt Permitted	0.39	1.00		0.13	1.00			0.96			0.92	
Satd. Flow (perm)	613	1800		225	1701			1292			1484	
Peak-hour factor, PHF	0.77	0.90	0.75	0.87	0.89	0.90	0.67	0.68	0.68	0.73	0.74	0.58
Adj. Flow (vph)	53	758	33	53	436	41	12	57	46	45	149	24
RTOR Reduction (vph)	0	2	0	0	5	0	0	25	0	0	5	0
Lane Group Flow (vph)	53	789	0	53	472	0	0	90	0	0	213	0
Confl. Peds. (#/hr)	262		284	333		311	284		333	311		262
Confl. Bikes (#/hr)			100			100			100			100
Heavy Vehicles (%)	0%	3%	0%	2%	6%	0%	0%	3%	0%	0%	2%	0%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	15	0	0	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	38.9	38.9		38.9	38.9			27.4			27.4	
Effective Green, g (s)	38.9	38.9		38.9	38.9			27.4			27.4	
Actuated g/C Ratio	0.50	0.50		0.50	0.50			0.35			0.35	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	304	894		111	845			452			519	
v/s Ratio Prot		c0.44			0.28							
v/s Ratio Perm	0.09			0.24				0.07			c0.14	
v/c Ratio	0.17	0.88		0.48	0.56			0.20			0.41	
Uniform Delay, d1	10.9	17.7		13.0	13.7			17.8			19.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	10.2		3.2	0.8			0.2			0.5	
Delay (s)	11.1	27.9		16.2	14.5			18.0			19.9	
Level of Service	B	C		B	B			B			B	
Approach Delay (s)		26.8			14.7			18.0			19.9	
Approach LOS		C			B			B			B	

Intersection Summary

HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	428	127	505	755
v/c Ratio	0.66	0.23	0.39	0.70
Control Delay	22.8	12.9	14.9	21.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.8	12.9	14.9	21.2
Queue Length 50th (m)	40.8	7.9	22.5	41.3
Queue Length 95th (m)	77.5	15.5	39.8	74.5
Internal Link Dist (m)	77.6	76.0	240.0	139.2
Turn Bay Length (m)				
Base Capacity (vph)	834	702	1807	1484
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	0.18	0.28	0.51

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	221	87	39	30	32	12	390	34	74	573	11
Future Volume (vph)	48	221	87	39	30	32	12	390	34	74	573	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.95			0.94			0.98			0.99	
Flpb, ped/bikes		0.98			0.98			1.00			0.98	
Frt		0.97			0.96			0.99			1.00	
Flt Protected		0.99			0.98			1.00			0.99	
Satd. Flow (prot)		1681			1630			3359			3380	
Flt Permitted		0.94			0.80			0.92			0.75	
Satd. Flow (perm)		1595			1329			3100			2556	
Peak-hour factor, PHF	0.84	0.81	0.89	0.86	0.66	0.86	0.75	0.87	0.83	0.60	0.93	0.69
Adj. Flow (vph)	57	273	98	45	45	37	16	448	41	123	616	16
RTOR Reduction (vph)	0	12	0	0	17	0	0	8	0	0	2	0
Lane Group Flow (vph)	0	416	0	0	110	0	0	497	0	0	753	0
Confl. Peds. (#/hr)	240		267	139		212	267		139	212		240
Confl. Bikes (#/hr)			60			60			60			60
Heavy Vehicles (%)	0%	1%	0%	0%	0%	6%	0%	4%	0%	4%	2%	9%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	15	0	0	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		29.0			29.0			30.0			30.0	
Effective Green, g (s)		29.0			29.0			30.0			30.0	
Actuated g/C Ratio		0.41			0.41			0.42			0.42	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		651			542			1309			1080	
v/s Ratio Prot												
v/s Ratio Perm		c0.26			0.08			0.16			c0.29	
v/c Ratio		0.64			0.20			0.38			0.70	
Uniform Delay, d1		16.8			13.6			14.1			16.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.1			0.2			0.2			2.0	
Delay (s)		18.9			13.7			14.3			18.8	
Level of Service		B			B			B			B	
Approach Delay (s)		18.9			13.7			14.3			18.8	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	71.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Volume (veh/h)	0	712	401	0	19	27
Future Volume (Veh/h)	0	712	401	0	19	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.95	0.89	0.92	0.68	0.65
Hourly flow rate (vph)	0	749	451	0	28	42
Pedestrians		500	500		500	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		42	42		42	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		94	95			
pX, platoon unblocked	0.82				0.76	0.82
vC, conflicting volume	951				2200	1451
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	830				1887	1440
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				0	8
cM capacity (veh/h)	383				20	46

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	749	451	28	42
Volume Left	0	0	28	0
Volume Right	0	0	0	42
cSH	1700	1700	20	46
Volume to Capacity	0.44	0.27	1.43	0.92
Queue Length 95th (m)	0.0	0.0	30.5	29.9
Control Delay (s)	0.0	0.0	642.3	245.4
Lane LOS			F	F
Approach Delay (s)	0.0	0.0	404.2	
Approach LOS			F	

Intersection Summary			
Average Delay	22.3		
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	306	32	24	86	0	0	0	0	22	14	12
Future Volume (vph)	0	306	32	24	86	0	0	0	0	22	14	12
Peak Hour Factor	0.92	0.77	0.78	0.58	0.72	0.92	0.92	0.92	0.92	0.75	0.70	0.50
Hourly flow rate (vph)	0	397	41	41	119	0	0	0	0	29	20	24

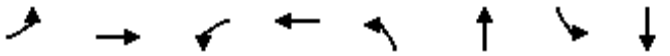
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	438	160	73
Volume Left (vph)	0	41	29
Volume Right (vph)	41	0	24
Hadj (s)	-0.04	0.06	-0.09
Departure Headway (s)	4.2	4.6	5.1
Degree Utilization, x	0.52	0.21	0.10
Capacity (veh/h)	835	748	630
Control Delay (s)	11.7	8.8	8.7
Approach Delay (s)	11.7	8.8	8.7
Approach LOS	B	A	A

Intersection Summary				
Delay	10.7			
Level of Service	B			
Intersection Capacity Utilization	45.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	0	0	0	4	55
Future Volume (Veh/h)	2	0	0	0	4	55
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.50	0.92	0.92	0.92	0.50	0.79
Hourly flow rate (vph)	4	0	0	0	8	70
Pedestrians	13		16			
Lane Width (m)	3.6		0.0			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	1		0			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	115	13			13	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	115	13			13	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	872	1056			1601	

Direction, Lane #	WB 1	SB 1
Volume Total	4	78
Volume Left	4	8
Volume Right	0	0
cSH	872	1601
Volume to Capacity	0.00	0.00
Queue Length 95th (m)	0.1	0.1
Control Delay (s)	9.1	0.8
Lane LOS	A	A
Approach Delay (s)	9.1	0.8
Approach LOS	A	

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	70	510	106	561	115	942	78	453
v/c Ratio	0.41	0.73	0.56	0.78	0.59	0.75	0.61	0.35
Control Delay	23.6	25.2	29.8	27.2	34.8	24.8	44.6	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	25.2	29.8	27.2	34.8	24.8	44.6	17.2
Queue Length 50th (m)	7.3	63.9	12.1	72.5	11.7	55.6	8.1	21.5
Queue Length 95th (m)	16.4	97.9	25.0	109.8	#44.9	#117.2	#32.3	43.1
Internal Link Dist (m)		102.5		69.6		172.2		240.0
Turn Bay Length (m)	25.0		25.0		30.0		20.0	
Base Capacity (vph)	243	992	267	1022	207	1321	135	1353
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.51	0.40	0.55	0.56	0.71	0.58	0.33

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	390	76	87	476	51	105	755	129	65	341	56
Future Volume (vph)	57	390	76	87	476	51	105	755	129	65	341	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.91		1.00	0.94		1.00	0.87		1.00	0.90	
Flpb, ped/bikes	0.85	1.00		0.80	1.00		0.55	1.00		0.81	1.00	
Frt	1.00	0.97		1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1505	1665		1395	1707		951	3036		1425	3106	
Flt Permitted	0.26	1.00		0.31	1.00		0.48	1.00		0.20	1.00	
Satd. Flow (perm)	411	1665		454	1707		480	3036		300	3106	
Peak-hour factor, PHF	0.82	0.92	0.88	0.82	0.96	0.78	0.91	0.94	0.93	0.83	0.87	0.92
Adj. Flow (vph)	70	424	86	106	496	65	115	803	139	78	392	61
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	70	510	0	106	561	0	115	942	0	78	453	0
Confl. Peds. (#/hr)	1168		1600	1561		1920	1600		1561	1920		1168
Confl. Bikes (#/hr)			100			100			100			100
Heavy Vehicles (%)	2%	1%	4%	4%	2%	6%	5%	1%	5%	2%	2%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.2	32.2		32.2	32.2		31.7	31.7		31.7	31.7	
Effective Green, g (s)	32.2	32.2		32.2	32.2		31.7	31.7		31.7	31.7	
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.42	0.42		0.42	0.42	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	174	706		192	724		200	1268		125	1297	
v/s Ratio Prot		0.31			c0.33			c0.31			0.15	
v/s Ratio Perm	0.17			0.23			0.24			0.26		
v/c Ratio	0.40	0.72		0.55	0.77		0.57	0.74		0.62	0.35	
Uniform Delay, d1	15.2	18.1		16.4	18.7		16.9	18.7		17.4	15.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.5	3.7		3.4	5.2		4.0	2.4		9.3	0.2	
Delay (s)	16.7	21.8		19.8	23.9		20.9	21.1		26.7	15.2	
Level of Service	B	C		B	C		C	C		C	B	
Approach Delay (s)		21.2			23.3			21.0			16.9	
Approach LOS		C			C			C			B	

Intersection Summary

HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	75.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	121.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	65	611	30	602	364	155
v/c Ratio	0.39	0.78	0.18	0.79	0.64	0.35
Control Delay	20.8	24.6	14.3	24.8	25.4	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.8	24.6	14.3	24.8	25.4	19.5
Queue Length 50th (m)	5.8	68.8	2.4	68.0	35.8	13.2
Queue Length 95th (m)	12.7	106.3	5.7	105.3	#82.5	31.5
Internal Link Dist (m)		71.5		116.6	96.5	120.4
Turn Bay Length (m)	25.0		20.0			
Base Capacity (vph)	269	1262	267	1239	568	445
Starvation Cap Reductn	0	7	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.49	0.11	0.49	0.64	0.35

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	509	37	21	533	44	21	220	58	32	59	35
Future Volume (vph)	50	509	37	21	533	44	21	220	58	32	59	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.94			0.88			0.83	
Flpb, ped/bikes	0.81	1.00		0.82	1.00			0.95			0.92	
Frt	1.00	0.99		1.00	0.99			0.97			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1458	1749		1487	1721			1542			1362	
Flt Permitted	0.25	1.00		0.24	1.00			0.96			0.85	
Satd. Flow (perm)	381	1749		376	1721			1481			1173	
Peak-hour factor, PHF	0.77	0.90	0.82	0.71	0.97	0.83	0.56	0.87	0.79	0.78	0.81	0.85
Adj. Flow (vph)	65	566	45	30	549	53	38	253	73	41	73	41
RTOR Reduction (vph)	0	1	0	0	1	0	0	9	0	0	4	0
Lane Group Flow (vph)	65	610	0	30	601	0	0	355	0	0	151	0
Confl. Peds. (#/hr)	743		552	600		791	552		600	791		743
Confl. Bikes (#/hr)			100			100			100			100
Heavy Vehicles (%)	0%	3%	0%	0%	3%	0%	0%	0%	0%	0%	2%	0%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	15	0	0	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	31.7	31.7		31.7	31.7			27.2			27.2	
Effective Green, g (s)	31.7	31.7		31.7	31.7			27.2			27.2	
Actuated g/C Ratio	0.45	0.45		0.45	0.45			0.38			0.38	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	170	781		168	769			568			450	
v/s Ratio Prot		0.35			c0.35							
v/s Ratio Perm	0.17			0.08				c0.24			0.13	
v/c Ratio	0.38	0.78		0.18	0.78			0.63			0.34	
Uniform Delay, d1	13.1	16.7		11.8	16.7			17.7			15.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.4	5.1		0.5	5.2			2.2			0.4	
Delay (s)	14.5	21.8		12.3	21.9			19.9			15.9	
Level of Service	B	C		B	C			B			B	
Approach Delay (s)		21.1			21.4			19.9			15.9	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	70.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	160	307	912	480
v/c Ratio	0.30	0.54	0.67	0.39
Control Delay	13.5	19.0	18.7	14.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.5	19.0	18.7	14.6
Queue Length 50th (m)	10.9	26.9	48.4	21.6
Queue Length 95th (m)	25.8	53.1	70.6	34.2
Internal Link Dist (m)	77.6	76.0	240.0	139.2
Turn Bay Length (m)				
Base Capacity (vph)	721	764	1983	1794
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.22	0.40	0.46	0.27

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	53	29	59	124	59	10	812	36	23	385	16
Future Volume (vph)	36	53	29	59	124	59	10	812	36	23	385	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.94			0.93			0.98			0.98	
Flpb, ped/bikes		0.97			0.97			1.00			1.00	
Frt		0.96			0.96			0.99			0.99	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		1604			1570			3475			3422	
Flt Permitted		0.81			0.89			0.94			0.86	
Satd. Flow (perm)		1329			1419			3278			2969	
Peak-hour factor, PHF	0.67	0.87	0.64	0.85	0.86	0.63	0.63	0.95	0.88	0.79	0.91	0.57
Adj. Flow (vph)	54	61	45	69	144	94	16	855	41	29	423	28
RTOR Reduction (vph)	0	16	0	0	11	0	0	4	0	0	5	0
Lane Group Flow (vph)	0	144	0	0	296	0	0	908	0	0	475	0
Confl. Peds. (#/hr)	225		253	252		244	253		252	244		225
Confl. Bikes (#/hr)			60			60			60			60
Heavy Vehicles (%)	0%	4%	0%	5%	4%	2%	10%	1%	0%	0%	2%	0%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	15	0	0	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		27.4			27.4			28.2			28.2	
Effective Green, g (s)		27.4			27.4			28.2			28.2	
Actuated g/C Ratio		0.41			0.41			0.42			0.42	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		538			575			1367			1238	
v/s Ratio Prot												
v/s Ratio Perm		0.11			c0.21			c0.28			0.16	
v/c Ratio		0.27			0.51			0.66			0.38	
Uniform Delay, d1		13.4			15.1			15.9			13.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.8			1.2			0.2	
Delay (s)		13.7			15.9			17.1			13.9	
Level of Service		B			B			B			B	
Approach Delay (s)		13.7			15.9			17.1			13.9	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	67.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Volume (veh/h)	0	597	586	0	17	35
Future Volume (Veh/h)	0	597	586	0	17	35
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	0.98	0.92	0.71	0.71
Hourly flow rate (vph)	0	635	598	0	24	49
Pedestrians		500	500		500	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		42	42		42	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		94	95			
pX, platoon unblocked	0.71				0.83	0.71
vC, conflicting volume	1098				2233	1598
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	938				1758	1637
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	100				7	0
cM capacity (veh/h)	305				26	31

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	635	598	24	49
Volume Left	0	0	24	0
Volume Right	0	0	0	49
cSH	1700	1700	26	31
Volume to Capacity	0.37	0.35	0.93	1.60
Queue Length 95th (m)	0.0	0.0	23.2	44.7
Control Delay (s)	0.0	0.0	373.0	580.1
Lane LOS			F	F
Approach Delay (s)	0.0	0.0	512.0	
Approach LOS			F	

Intersection Summary			
Average Delay	28.6		
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	98	17	18	211	0	0	0	0	11	9	21
Future Volume (vph)	0	98	17	18	211	0	0	0	0	11	9	21
Peak Hour Factor	0.92	0.83	0.71	0.75	0.92	0.92	0.92	0.92	0.92	0.69	0.56	0.63
Hourly flow rate (vph)	0	118	24	24	229	0	0	0	0	16	16	33

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	142	253	65
Volume Left (vph)	0	24	16
Volume Right (vph)	24	0	33
Hadj (s)	-0.09	0.02	-0.23
Departure Headway (s)	4.2	4.2	4.5
Degree Utilization, x	0.17	0.30	0.08
Capacity (veh/h)	828	827	730
Control Delay (s)	8.1	9.0	7.9
Approach Delay (s)	8.1	9.0	7.9
Approach LOS	A	A	A

Intersection Summary			
Delay	8.6		
Level of Service	A		
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	0	0	0	10	46
Future Volume (Veh/h)	30	0	0	0	10	46
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.50	0.92	0.92	0.92	0.63	0.94
Hourly flow rate (vph)	60	0	0	0	16	49
Pedestrians	13		16			
Lane Width (m)	3.6		0.0			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	1		0			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	110	13			13	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	110	13			13	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	100			99	
cM capacity (veh/h)	873	1056			1601	

Direction, Lane #	WB 1	SB 1
Volume Total	60	65
Volume Left	60	16
Volume Right	0	0
cSH	873	1601
Volume to Capacity	0.07	0.01
Queue Length 95th (m)	1.8	0.2
Control Delay (s)	9.4	1.8
Lane LOS	A	A
Approach Delay (s)	9.4	1.8
Approach LOS	A	

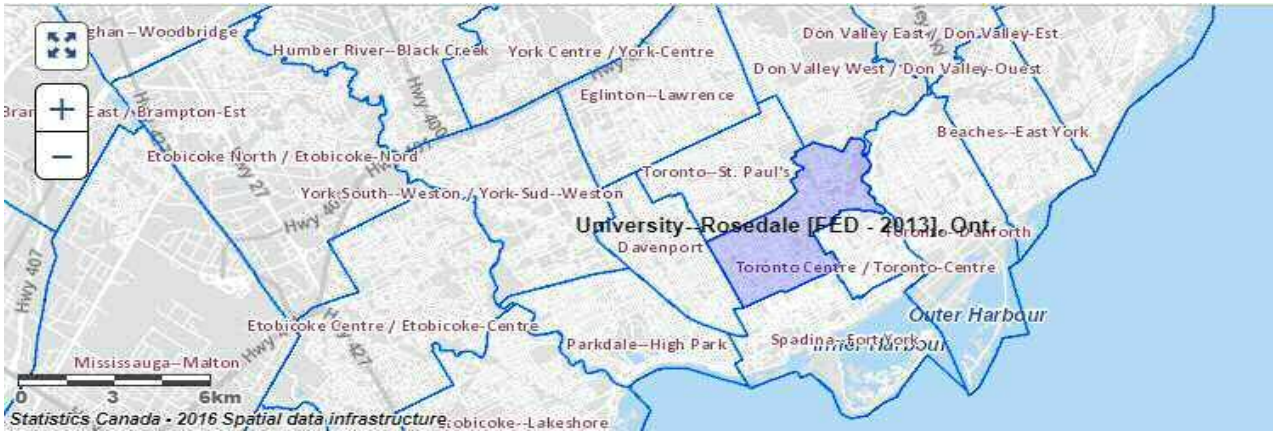
Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix D

Trip Distribution Patterns

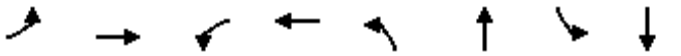
Trip Distribution Calculations

Federal Electoral District (2013)	2016 Population	Ethnic origin - Estonia	% of total	North on Spadina Rd		South on Spadina Ave		North on Huron St		South on Huron St		East on Bloor St		West on Bloor St	
					11.8%		14.6%		0.8%		1.3%		38.8%		32.8%
University-Rosedale	104,311	190	5%	20%	1.1%	15%	0.8%	15%	0.8%	20%	1.1%	15%	0.8%	15%	0.8%
Toronto Centre	103,805	180	5%		0.0%	80%	4.0%		0.0%	5%	0.3%	15%	0.8%		0.0%
Spadina-Fort York	115,506	235	7%		0.0%	80%	5.3%		0.0%		0.0%	20%	1.3%		0.0%
Davenport	108,473	160	4%		0.0%		0.0%		0.0%		0.0%		0.0%	100%	4.5%
Toronto - St. Paul's	107,900	310	9%	30%	2.6%		0.0%		0.0%		0.0%	35%	3.0%	35%	3.0%
Toronto Danforth	106,875	265	7%		0.0%	10%	0.7%		0.0%		0.0%	90%	6.7%		0.0%
Don Valley West	102,508	455	13%	10%	1.3%		0.0%		0.0%		0.0%	90%	11.5%		0.0%
Don Valley East	94,579	245	7%	10%	0.7%		0.0%		0.0%		0.0%	90%	6.2%		0.0%
Beaches - East York	109,468	300	8%		0.0%		0.0%		0.0%		0.0%	100%	8.4%		0.0%
York South - Weston	116,686	70	2%		0.0%		0.0%		0.0%		0.0%		0.0%	100%	2.0%
Parkdale - High Park	108,805	330	9%		0.0%	40%	3.7%		0.0%		0.0%		0.0%	60%	5.6%
Etobicoke Centre	118,022	195	5%		0.0%		0.0%		0.0%		0.0%		0.0%	100%	5.5%
Etobicoke Lakeshore	129,081	260	7%		0.0%		0.0%		0.0%		0.0%		0.0%	100%	7.3%
Etobicoke North	118,040	35	1%		0.0%		0.0%		0.0%		0.0%		0.0%	100%	1.0%
Humber River - Black Cre	108,037	25	1%	20%	0.1%		0.0%		0.0%		0.0%		0.0%	80%	0.6%
York Centre	104,319	50	1%	20%	0.3%		0.0%		0.0%		0.0%		0.0%	80%	1.1%
Eglinton-Lawrence	114,395	255	7%	80%	5.7%		0.0%		0.0%		0.0%		0.0%	20%	1.4%
TOTAL	**1,870,810**	**3560**													



Appendix E

Intersection Capacity Analysis Output
Future Total Condition – 2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	58	669	112	409	61	541	95	626
v/c Ratio	0.21	0.85	0.78	0.56	0.34	0.50	0.52	0.49
Control Delay	14.4	29.8	55.5	18.3	25.9	20.7	32.9	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	29.8	55.5	18.3	25.9	20.7	32.9	20.4
Queue Length 50th (m)	4.7	79.9	12.7	40.2	6.1	30.1	10.2	34.9
Queue Length 95th (m)	11.0	142.5	#40.9	73.8	19.4	51.7	#32.0	62.6
Internal Link Dist (m)		102.5		69.6		172.2		240.0
Turn Bay Length (m)	25.0		25.0		30.0		20.0	
Base Capacity (vph)	377	1053	191	977	205	1261	212	1470
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.64	0.59	0.42	0.30	0.43	0.45	0.43

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	539	58	94	294	65	54	363	98	88	528	47
Future Volume (vph)	45	539	58	94	294	65	54	363	98	88	528	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.95		1.00	0.91		1.00	0.85		1.00	0.94	
Flpb, ped/bikes	0.80	1.00		0.89	1.00		0.76	1.00		0.67	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1394	1741		1565	1623		1256	2869		1135	3317	
Flt Permitted	0.43	1.00		0.19	1.00		0.35	1.00		0.41	1.00	
Satd. Flow (perm)	631	1741		317	1623		465	2869		488	3317	
Peak-hour factor, PHF	0.77	0.91	0.75	0.84	0.90	0.79	0.88	0.85	0.86	0.93	0.92	0.90
Adj. Flow (vph)	58	592	77	112	327	82	61	427	114	95	574	52
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	58	669	0	112	409	0	61	540	0	95	626	0
Confl. Peds. (#/hr)	996		816	1008		1188	816		1008	1188		996
Confl. Bikes (#/hr)			100			100			100			100
Heavy Vehicles (%)	3%	2%	5%	3%	2%	8%	9%	3%	5%	7%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.2	34.2		34.2	34.2		28.9	28.9		28.9	28.9	
Effective Green, g (s)	34.2	34.2		34.2	34.2		28.9	28.9		28.9	28.9	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.38	0.38		0.38	0.38	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	287	792		144	739		178	1104		187	1276	
v/s Ratio Prot		c0.38			0.25			0.19			0.19	
v/s Ratio Perm	0.09			0.35			0.13			c0.19		
v/c Ratio	0.20	0.84		0.78	0.55		0.34	0.49		0.51	0.49	
Uniform Delay, d1	12.3	18.1		17.2	14.9		16.4	17.5		17.7	17.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	8.2		22.7	0.9		1.2	0.3		2.2	0.3	
Delay (s)	12.6	26.3		40.0	15.8		17.5	17.8		19.8	17.8	
Level of Service	B	C		D	B		B	B		B	B	
Approach Delay (s)		25.2			21.0			17.8			18.1	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	75.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	120.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	53	794	53	482	115	222
v/c Ratio	0.18	0.89	0.48	0.57	0.25	0.44
Control Delay	11.8	30.4	29.1	16.1	16.8	24.9
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	11.8	30.5	29.1	16.1	16.8	24.9
Queue Length 50th (m)	4.3	103.9	5.1	48.3	8.3	25.4
Queue Length 95th (m)	8.7	156.9	16.6	72.9	16.2	42.6
Internal Link Dist (m)		71.5		116.6	96.5	120.4
Turn Bay Length (m)	25.0		20.0			
Base Capacity (vph)	387	1182	145	1113	465	507
Starvation Cap Reductn	0	31	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.69	0.37	0.43	0.25	0.44

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	685	25	46	390	40	8	39	31	36	110	14
Future Volume (vph)	41	685	25	46	390	40	8	39	31	36	110	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.95			0.78			0.95	
Flpb, ped/bikes	0.84	1.00		0.91	1.00			0.97			0.92	
Frt	1.00	0.99		1.00	0.99			0.95			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1508	1800		1617	1695			1335			1590	
Flt Permitted	0.38	1.00		0.13	1.00			0.96			0.91	
Satd. Flow (perm)	608	1800		223	1695			1291			1465	
Peak-hour factor, PHF	0.77	0.90	0.75	0.87	0.89	0.90	0.67	0.68	0.68	0.73	0.74	0.58
Adj. Flow (vph)	53	761	33	53	438	44	12	57	46	49	149	24
RTOR Reduction (vph)	0	2	0	0	5	0	0	25	0	0	5	0
Lane Group Flow (vph)	53	792	0	53	477	0	0	90	0	0	217	0
Confl. Peds. (#/hr)	262		284	333		311	284		333	311		262
Confl. Bikes (#/hr)			100			100			100			100
Heavy Vehicles (%)	0%	3%	0%	2%	6%	0%	0%	3%	0%	0%	2%	0%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	15	0	0	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	39.1	39.1		39.1	39.1			27.4			27.4	
Effective Green, g (s)	39.1	39.1		39.1	39.1			27.4			27.4	
Actuated g/C Ratio	0.50	0.50		0.50	0.50			0.35			0.35	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	302	896		111	844			450			511	
v/s Ratio Prot		c0.44			0.28							
v/s Ratio Perm	0.09			0.24				0.07			c0.15	
v/c Ratio	0.18	0.88		0.48	0.57			0.20			0.43	
Uniform Delay, d1	10.8	17.7		13.0	13.8			17.9			19.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	10.3		3.2	0.9			0.2			0.6	
Delay (s)	11.1	28.0		16.2	14.6			18.1			20.1	
Level of Service	B	C		B	B			B			C	
Approach Delay (s)		26.9			14.8			18.1			20.1	
Approach LOS		C			B			B			C	

Intersection Summary

HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	78.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	428	127	513	758
v/c Ratio	0.66	0.23	0.39	0.71
Control Delay	22.9	13.0	14.9	21.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.9	13.0	14.9	21.4
Queue Length 50th (m)	40.8	7.9	22.9	41.6
Queue Length 95th (m)	78.1	15.5	40.5	75.2
Internal Link Dist (m)	77.6	76.0	240.0	139.2
Turn Bay Length (m)				
Base Capacity (vph)	833	701	1802	1471
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	0.18	0.28	0.52

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	221	87	39	30	32	12	392	38	75	574	11
Future Volume (vph)	48	221	87	39	30	32	12	392	38	75	574	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.94			0.94			0.98			0.99	
Flpb, ped/bikes		0.98			0.98			1.00			0.98	
Frt		0.97			0.96			0.99			1.00	
Flt Protected		0.99			0.98			1.00			0.99	
Satd. Flow (prot)		1681			1630			3349			3380	
Flt Permitted		0.94			0.80			0.92			0.75	
Satd. Flow (perm)		1595			1329			3092			2539	
Peak-hour factor, PHF	0.84	0.81	0.89	0.86	0.66	0.86	0.75	0.87	0.83	0.60	0.93	0.69
Adj. Flow (vph)	57	273	98	45	45	37	16	451	46	125	617	16
RTOR Reduction (vph)	0	12	0	0	17	0	0	9	0	0	2	0
Lane Group Flow (vph)	0	416	0	0	110	0	0	504	0	0	756	0
Confl. Peds. (#/hr)	240		267	139		212	267		139	212		240
Confl. Bikes (#/hr)			60			60			60			60
Heavy Vehicles (%)	0%	1%	0%	0%	0%	6%	0%	4%	0%	4%	2%	9%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	15	0	0	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		29.0			29.0			30.2			30.2	
Effective Green, g (s)		29.0			29.0			30.2			30.2	
Actuated g/C Ratio		0.41			0.41			0.42			0.42	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		649			541			1311			1076	
v/s Ratio Prot												
v/s Ratio Perm		c0.26			0.08			0.16			c0.30	
v/c Ratio		0.64			0.20			0.38			0.70	
Uniform Delay, d1		16.9			13.6			14.1			16.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.2			0.2			0.2			2.1	
Delay (s)		19.1			13.8			14.3			18.9	
Level of Service		B			B			B			B	
Approach Delay (s)		19.1			13.8			14.3			18.9	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Volume (veh/h)	0	712	403	0	23	32
Future Volume (Veh/h)	0	712	403	0	23	32
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.95	0.89	0.92	0.68	0.65
Hourly flow rate (vph)	0	749	453	0	34	49
Pedestrians		500	500		500	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		42	42		42	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		94	95			
pX, platoon unblocked	0.82				0.76	0.82
vC, conflicting volume	953				2202	1453
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	830				1882	1442
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				0	0
cM capacity (veh/h)	382				20	46

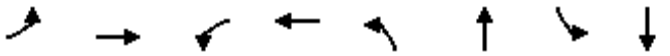
Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	749	453	34	49
Volume Left	0	0	34	0
Volume Right	0	0	0	49
cSH	1700	1700	20	46
Volume to Capacity	0.44	0.27	1.72	1.08
Queue Length 95th (m)	0.0	0.0	36.5	36.0
Control Delay (s)	0.0	0.0	757.4	297.1
Lane LOS			F	F
Approach Delay (s)	0.0	0.0	485.7	
Approach LOS			F	

Intersection Summary			
Average Delay	31.4		
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	306	38	24	86	0	0	0	0	22	14	12
Future Volume (vph)	0	306	38	24	86	0	0	0	0	22	14	12
Peak Hour Factor	0.92	0.77	0.78	0.58	0.72	0.92	0.92	0.92	0.92	0.75	0.70	0.50
Hourly flow rate (vph)	0	397	49	41	119	0	0	0	0	29	20	24

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	446	160	73
Volume Left (vph)	0	41	29
Volume Right (vph)	49	0	24
Hadj (s)	-0.05	0.06	-0.09
Departure Headway (s)	4.2	4.6	5.1
Degree Utilization, x	0.52	0.21	0.10
Capacity (veh/h)	837	746	618
Control Delay (s)	11.8	8.8	8.7
Approach Delay (s)	11.8	8.8	8.7
Approach LOS	B	A	A

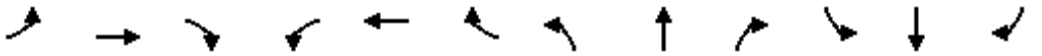
Intersection Summary			
Delay	10.8		
Level of Service	B		
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	80	510	110	575	115	946	78	462
v/c Ratio	0.47	0.72	0.57	0.79	0.60	0.76	0.63	0.37
Control Delay	26.4	24.6	29.7	28.1	36.4	25.6	47.8	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	24.6	29.7	28.1	36.4	25.6	47.8	17.7
Queue Length 50th (m)	8.7	63.9	12.6	75.5	12.5	59.5	8.7	23.4
Queue Length 95th (m)	19.2	97.9	25.9	114.7	#45.4	#118.2	#32.8	44.3
Internal Link Dist (m)		102.5		69.6		172.2		240.0
Turn Bay Length (m)	25.0		25.0		30.0		20.0	
Base Capacity (vph)	234	982	268	1003	202	1308	130	1323
Starvation Cap Reductn	0	0	0	8	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.52	0.41	0.58	0.57	0.72	0.60	0.35

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	390	76	90	482	57	105	759	129	65	344	62
Future Volume (vph)	66	390	76	90	482	57	105	759	129	65	344	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.91		1.00	0.93		1.00	0.87		1.00	0.89	
Flpb, ped/bikes	0.86	1.00		0.80	1.00		0.56	1.00		0.81	1.00	
Frt	1.00	0.97		1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1514	1664		1393	1692		960	3036		1430	3071	
Flt Permitted	0.25	1.00		0.31	1.00		0.47	1.00		0.20	1.00	
Satd. Flow (perm)	400	1664		459	1692		476	3036		294	3071	
Peak-hour factor, PHF	0.82	0.92	0.88	0.82	0.96	0.78	0.91	0.94	0.93	0.83	0.87	0.92
Adj. Flow (vph)	80	424	86	110	502	73	115	807	139	78	395	67
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	80	510	0	110	575	0	115	946	0	78	462	0
Confl. Peds. (#/hr)	1168		1600	1561		1920	1600		1561	1920		1168
Confl. Bikes (#/hr)			100			100			100			100
Heavy Vehicles (%)	2%	1%	4%	4%	2%	6%	5%	1%	5%	2%	2%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	33.0	33.0		33.0	33.0		31.7	31.7		31.7	31.7	
Effective Green, g (s)	33.0	33.0		33.0	33.0		31.7	31.7		31.7	31.7	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.41	0.41		0.41	0.41	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	172	715		197	727		196	1254		121	1269	
v/s Ratio Prot		0.31			c0.34			c0.31			0.15	
v/s Ratio Perm	0.20			0.24			0.24			0.27		
v/c Ratio	0.47	0.71		0.56	0.79		0.59	0.75		0.64	0.36	
Uniform Delay, d1	15.6	18.0		16.4	18.9		17.4	19.2		18.0	15.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	3.4		3.4	5.9		4.4	2.6		11.2	0.2	
Delay (s)	17.5	21.3		19.8	24.7		21.9	21.8		29.2	15.7	
Level of Service	B	C		B	C		C	C		C	B	
Approach Delay (s)		20.8			23.9			21.8			17.7	
Approach LOS		C			C			C			B	

Intersection Summary

HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	76.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	122.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	65	618	30	607	364	164
v/c Ratio	0.39	0.79	0.19	0.79	0.64	0.38
Control Delay	20.8	24.8	14.3	24.9	25.7	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.8	24.8	14.3	24.9	25.7	20.4
Queue Length 50th (m)	5.8	70.0	2.4	68.8	36.1	14.4
Queue Length 95th (m)	12.6	107.7	5.6	106.7	#87.9	34.0
Internal Link Dist (m)		71.5		116.6	96.5	120.4
Turn Bay Length (m)	25.0		20.0			
Base Capacity (vph)	266	1258	261	1236	565	434
Starvation Cap Reductn	0	11	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.50	0.11	0.49	0.64	0.38

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	516	37	21	537	44	21	220	58	39	59	35
Future Volume (vph)	50	516	37	21	537	44	21	220	58	39	59	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.94			0.88			0.84	
Flpb, ped/bikes	0.81	1.00		0.83	1.00			0.96			0.90	
Frt	1.00	0.99		1.00	0.99			0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.98	
Satd. Flow (prot)	1462	1750		1493	1722			1543			1359	
Flt Permitted	0.25	1.00		0.24	1.00			0.95			0.83	
Satd. Flow (perm)	378	1750		370	1722			1480			1146	
Peak-hour factor, PHF	0.77	0.90	0.82	0.71	0.97	0.83	0.56	0.87	0.79	0.78	0.81	0.85
Adj. Flow (vph)	65	573	45	30	554	53	38	253	73	50	73	41
RTOR Reduction (vph)	0	1	0	0	1	0	0	9	0	0	4	0
Lane Group Flow (vph)	65	617	0	30	606	0	0	355	0	0	160	0
Confl. Peds. (#/hr)	743		552	600		791	552		600	791		743
Confl. Bikes (#/hr)			100			100			100			100
Heavy Vehicles (%)	0%	3%	0%	0%	3%	0%	0%	0%	0%	0%	2%	0%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	15	0	0	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	32.0	32.0		32.0	32.0			27.2			27.2	
Effective Green, g (s)	32.0	32.0		32.0	32.0			27.2			27.2	
Actuated g/C Ratio	0.45	0.45		0.45	0.45			0.38			0.38	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	169	786		166	773			565			437	
v/s Ratio Prot		c0.35			0.35							
v/s Ratio Perm	0.17			0.08				c0.24			0.14	
v/c Ratio	0.38	0.79		0.18	0.78			0.63			0.37	
Uniform Delay, d1	13.0	16.7		11.7	16.7			17.9			15.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.5	5.2		0.5	5.2			2.2			0.5	
Delay (s)	14.5	21.9		12.3	21.9			20.1			16.3	
Level of Service	B	C		B	C			C			B	
Approach Delay (s)		21.2			21.5			20.1			16.3	
Approach LOS		C			C			C			B	

Intersection Summary

HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	160	307	931	485
v/c Ratio	0.30	0.54	0.69	0.40
Control Delay	13.6	19.2	19.2	14.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.6	19.2	19.2	14.7
Queue Length 50th (m)	10.9	27.0	49.9	22.0
Queue Length 95th (m)	26.3	54.2	73.6	35.1
Internal Link Dist (m)	77.6	76.0	240.0	139.2
Turn Bay Length (m)				
Base Capacity (vph)	718	760	1958	1761
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.22	0.40	0.48	0.28

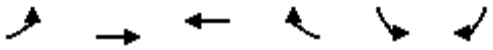
Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	53	29	59	124	59	10	816	49	25	387	16
Future Volume (vph)	36	53	29	59	124	59	10	816	49	25	387	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.94			0.93			0.98			0.98	
Flpb, ped/bikes		0.97			0.97			1.00			1.00	
Frt		0.96			0.96			0.99			0.99	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		1604			1569			3448			3422	
Flt Permitted		0.81			0.89			0.94			0.85	
Satd. Flow (perm)		1328			1418			3253			2926	
Peak-hour factor, PHF	0.67	0.87	0.64	0.85	0.86	0.63	0.63	0.95	0.88	0.79	0.91	0.57
Adj. Flow (vph)	54	61	45	69	144	94	16	859	56	32	425	28
RTOR Reduction (vph)	0	16	0	0	11	0	0	5	0	0	5	0
Lane Group Flow (vph)	0	144	0	0	296	0	0	926	0	0	480	0
Confl. Peds. (#/hr)	225		253	252		244	253		252	244		225
Confl. Bikes (#/hr)			60			60			60			60
Heavy Vehicles (%)	0%	4%	0%	5%	4%	2%	10%	1%	0%	0%	2%	0%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	15	0	0	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		27.6			27.6			28.4			28.4	
Effective Green, g (s)		27.6			27.6			28.4			28.4	
Actuated g/C Ratio		0.41			0.41			0.42			0.42	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		539			575			1358			1222	
v/s Ratio Prot												
v/s Ratio Perm		0.11			c0.21			c0.28			0.16	
v/c Ratio		0.27			0.52			0.68			0.39	
Uniform Delay, d1		13.5			15.2			16.1			13.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.8			1.4			0.2	
Delay (s)		13.7			16.0			17.5			14.0	
Level of Service		B			B			B			B	
Approach Delay (s)		13.7			16.0			17.5			14.0	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↖	↗
Traffic Volume (veh/h)	0	597	590	0	25	46
Future Volume (Veh/h)	0	597	590	0	25	46
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	0.98	0.92	0.71	0.71
Hourly flow rate (vph)	0	635	602	0	35	65
Pedestrians		500	500		500	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		42	42		42	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		94	95			
pX, platoon unblocked	0.71				0.83	0.71
vC, conflicting volume	1102				2237	1602
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	941				1768	1643
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	100				0	0
cM capacity (veh/h)	303				25	30

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	635	602	35	65
Volume Left	0	0	35	0
Volume Right	0	0	0	65
cSH	1700	1700	25	30
Volume to Capacity	0.37	0.35	1.39	2.15
Queue Length 95th (m)	0.0	0.0	34.3	60.6
Control Delay (s)	0.0	0.0	545.3	810.9
Lane LOS			F	F
Approach Delay (s)	0.0	0.0	718.0	
Approach LOS			F	

Intersection Summary			
Average Delay	53.7		
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
11: Madison Ave & Lowther Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	98	28	22	211	0	0	0	0	11	9	21
Future Volume (vph)	0	98	28	22	211	0	0	0	0	11	9	21
Peak Hour Factor	0.92	0.83	0.71	0.75	0.92	0.92	0.92	0.92	0.92	0.69	0.56	0.63
Hourly flow rate (vph)	0	118	39	29	229	0	0	0	0	16	16	33

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	157	258	65
Volume Left (vph)	0	29	16
Volume Right (vph)	39	0	33
Hadj (s)	-0.14	0.02	-0.23
Departure Headway (s)	4.2	4.2	4.6
Degree Utilization, x	0.18	0.30	0.08
Capacity (veh/h)	836	823	721
Control Delay (s)	8.1	9.1	8.0
Approach Delay (s)	8.1	9.1	8.0
Approach LOS	A	A	A

Intersection Summary			
Delay	8.6		
Level of Service	A		
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

TRAFFIC &
PARKING
CONSULTANTS

TRANSPORTATION DEMAND MANAGEMENT PLAN

TORONTO ESTONIAN CULTURAL CENTRE
9-11 MADISON AVENUE
Toronto, Ontario

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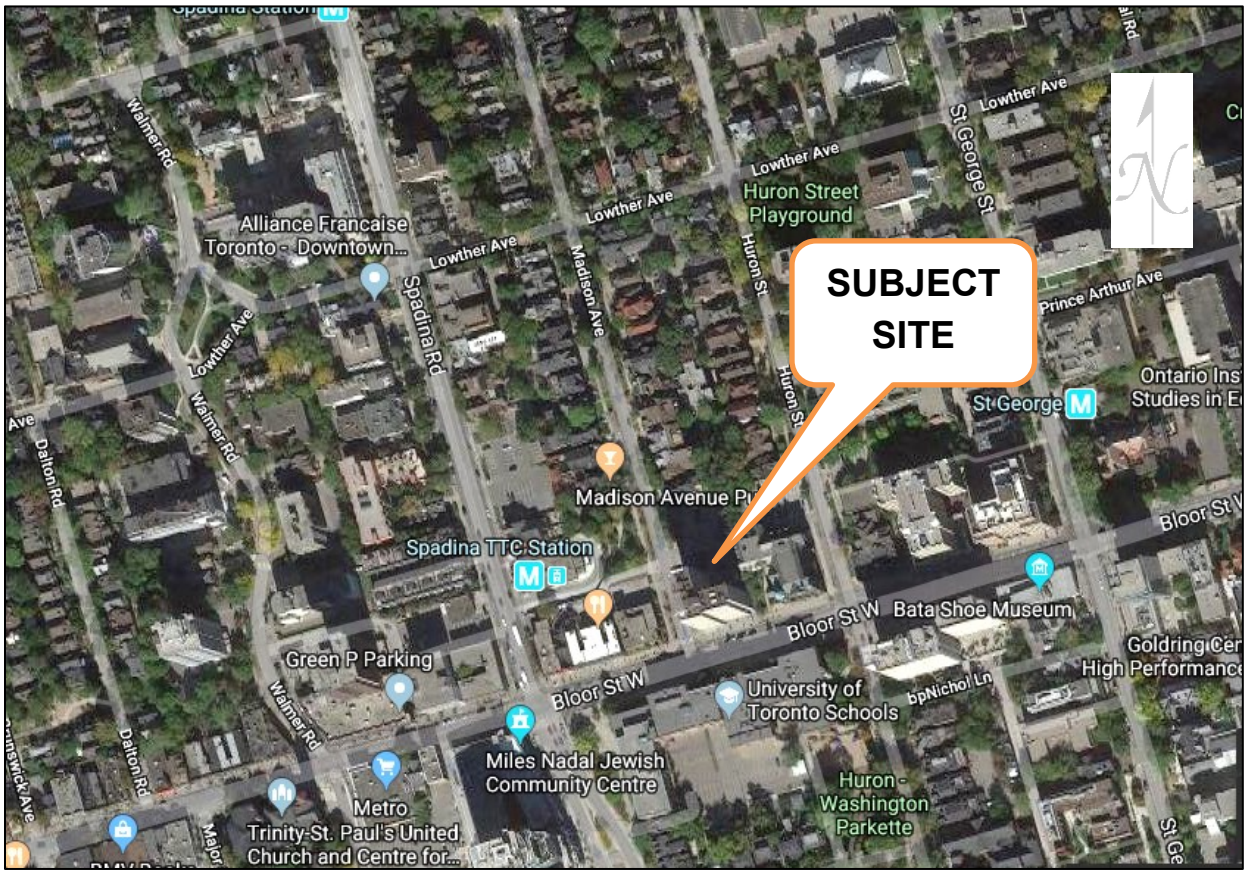
1.0 Introduction – The Development Proposal

LMM Engineering Inc. was retained by Kongats Architects to undertake a transportation demand management (TDM) plan for the proposed cultural centre located at 9-11 Madison Avenue in the City of Toronto.

1.1 The Application

The TDM plan is prepared in conjunction with a site plan application (No City application number has been assigned at the time of writing this report). The applicant is Kongats Architects. The subject site is located at 9-11 Madison Avenue in The Annex community in the City of Toronto. The site location map is shown in **Figure 1-1**.

Figure 1-1 Site Location Map



1.2 Proposed Development

The current site plan is shown in **Figure 1-2.** The existing surface parking lot (paid public parking) would be demolished and replaced with a 29,805 s.f. GFA cultural centre which would include leased commercial retail space and multi-purpose rooms utilized for language/cultural schools, community group meeting space, and banquet space for rentals and special events for the cultural association. No parking would be provided on site. Parking would be provided by on-street parking on Madison Avenue and at the public paid parking lots on Spadina Road and Huron Street.

Figure 1-2 Current Site Plan