

11 YORKVILLE PARTNERS INC.

# 11-21 YORKVILLE

PROPOSED MIXED-USE DEVELOPMENT  
TRANSPORTATION IMPACT STUDY ADDENDUM

DECEMBER 13, 2018







**11-21 YORKVILLE  
PROPOSED MIXED-USE  
DEVELOPMENT  
TRANSPORTATION IMPACT  
STUDY ADDENDUM**

11 YORKVILLE PARTNERS INC.

PROJECT NO.: 17M-01494-00  
DATE: DECEMBER 2018

WSP  
100 COMMERCE VALLEY DRIVE WEST  
THORNHILL, ON, CANADA L3T 0A1

WSP.COM



December 13, 2018

Kristy Shortall, MCIP, RPP  
Vice President of Development and Planning  
11 Yorkville Partners Inc.  
2300 Yonge Street, Suite 807  
Toronto, ON  
M4P 1E4

Dear Ms Shortall:

**Subject: Response to Comments from the City of Toronto  
11-21 Yorkville, Toronto, ON**

WSP Canada Group Ltd. (WSP) was retained by 11 Yorkville Partners Inc. to undertake a Traffic Impact Study (TIS) Addendum in support of your municipal application for a proposed mixed-use development between Yorkville Avenue and Cumberland Street west of Yonge Street. WSP prepared the original TIS dated March 23 2018. Since then, comments were received from Planning and Urban Design in September 2018, and Development Engineering at the City of Toronto in October 2018, and. This addendum addresses the transportation-related comments from both the City Divisions. The latest site plan has 670 residential units and 3293 m<sup>2</sup> of retail Gross Floor Area (GFA), compared to the previous site plan with 716 units and 4,664 m<sup>2</sup> of retail GFA.

**PLANNING AND URBAN DESIGN COMMENTS – SEPTEMBER 18, 2018**

***Provide required bicycle parking for retail users (i.e. 17 spaces)***

An updated bicycle parking review was conducted to ensure that the bicycle parking provided meets the City’s Zoning By-Law 569-2013 requirements. Bicycle parking is to be provided as per Bicycle Zone 1. Previously, no bicycle parking was provided for the retail portions of the site, which the updated site plan now does. Please see **Table 1** for the bicycle parking requirement and the corresponding supply.

Although the Zoning By-Law standards require 20 retail spaces based on the latest GFA, the Planning and Urban Design comments asked for 17 retail bicycle parking spaces when the GFA for the retail was greater than that which is currently proposed. As well, the retail bicycle parking rates are based upon Interior Floor Area (IFA), but we are using GFA in our calculations. Thus, we believe that 17 bicycle parking spaces for both short and long-term retail users will be sufficient.

**Table 1 Bicycle Parking Requirements and Supply with Updated Site Statistics**

<b>Building Component</b>	<b>Area (m<sup>2</sup>) or Units</b>	<b>Bicycle Parking Requirements</b>	<b>Bicycle Parking Spaces Required</b>	<b>Bicycle Parking Spaces Provided</b>
Residential Long-term	670 units	0.9 spaces/unit	603	603
Residential Short-term Visitor	670 units	0.1space/unit	67	67
Retail Short-Term	3293 m <sup>2</sup>	Short-Term: 3 spaces plus 0.3 spaces/100 m <sup>2</sup>	13	17
Retail Long-Term		0.2/100 m <sup>2</sup>	7	
<b>SUM</b>			<b>690</b>	<b>687</b>

Part 1 Comments

1. ***Satisfy all outstanding issues/requirements with respect to the Transportation Impact Study, dated March 23, 2018, prepared by the applicant’s transportation consultant, WSP, in support of the proposed development, the details of which are provided further in the memorandum.***

Noted. This response letter addresses all transportation related comments raised in the memorandum.

2. ***Site Plan***

- a. ***Comply with the parking allocation requirements identified in condition B(5), below, and as further discussed in this memorandum.***

Noted. The parking allocated now exceeds the required parking. Please see **Table 2** below.

- b. ***Provide a pick-up/drop-off facility for the development on-site abutting the north-south public lane, as widened, and operate in a counter-clockwise fashion.***

As per our discussions with the City’s Transportation Services staff, it was determined that a pick-up and drop-off facility with the capacity for four vehicles provided on the laneway is sufficient. Please see **Figure 1** that demonstrates the maneuvers within the pick-up/drop-off facility.

3. ***Include provision in the Site Specific By-law for this project, which require parking to be provided in accordance with the following minimum standards:***

- a. ***Residential Units – 0.30 spaces per unit (215 spaces)***

- b. ***Residential Visitors – 0.028 spaces per unit (20 spaces)***

The above rates were used to calculate the required parking based on the latest site statistics. The number of residential units has been reduced from 716 to 670, and the number of parking spaces required and supplied are shown in Table 2 below.

The current site plan provides 235 parking spaces, which exceeds the parking requirements, due to reduced units and retail GFA. Twenty spaces are designated as Residential Visitor spaces on the P1 level. There is a control gate on the ramp which separates the visitor parking from the residential parking which is located on P2 to P4.

**Table 2 Parking Requirements and Supply with Updated Site Statistics**

<b>Building Component</b>	<b>Area (m<sup>2</sup>) or Units</b>	<b>Parking Requirements</b>	<b>Parking Spaces Required</b>	<b>Parking Spaces Provided</b>
Residential	670 units	0.3 spaces/unit	201	215
Residential Visitor	670 units	0.028 space/unit	19	20
Retail	3293 m <sup>2</sup>	N/A	0	0
Pick-Up/Drop-Off Spaces				4*
<b>SUM</b>			<b>220</b>	<b>235</b>

\*Pick-Up/Drop-Off Spaces are excluded from the parking allocation

#### 4. *Transportation Services*

- a. ***Provide an acceptable warning system near the top/bottom of the parking garage access ramp that warns motorists exiting the garage to watch for large vehicles and pedestrians travelling/maneuvering within the public lane, as widened;***

A flashing beacon warning system has been added to the Site Plan to warn vehicles exiting the ramp that there may be a truck reversing out of the loading bays. Loop detectors will be installed just outside of the loading bays, which, when activated, will engage the flashing beacon. The beacon and warning sign will be placed on the ramp to alert exiting vehicles. The signage and loop detector locations are shown on **Figure 2**.

- b. ***Submit documentation describing, in detail, the type of warning system used to satisfy Condition No. C(3) and how it will be activated;***

See notes above and Figure 2.

#### 5. *Solid Waste Services*

- a. ***Current vehicle maneuvering diagram indicates the collection vehicle reversing into a public lane. Revised drawings must indicate and annotate a collection vehicle movement diagram with a minimum inside/outside turning radii of 9.5 m and 14 m respectively, when entering, exiting, and travelling throughout the site and entering/exiting the Type G loading space. The diagram must also indicate the ability of the collection vehicle to enter and exit the site in a forward motion with no more than a three-point turn without the need to reverse onto a public lane.***

We have discussed this matter with City staff and determined that because the laneway will only serve the development and other units on the laneway, traffic volumes will be very low and thus relatively safe for garbage trucks to reverse on to the laneway. The flashing beacon warning system will also provide additional warning to any motor vehicles exiting the ramp.

The City of Toronto Front-Loading Garbage Truck that was used in our maneuvering analysis has a 10.3 m inner turning radius and 14 m outside turning radius. Therefore our garbage truck maneuver is more conservative than the 9.5 m inner radius, the turning template is provided in **Figure 3**, and the garbage truck maneuvering diagram is provided on **Figure 4**.

### Part 2 Comments, Section E, Transportation Services

***Despite the above-noted conclusion and recommendations by the consultant, additional analyses and documentation is required prior to accepting the traffic impacts of the proposal, which are as follows:***

- a. ***Submit a revised report, which includes ‘Access Location Analysis’ as required by Section 3.4.3 of the Guidelines for the preparation of Transportation Impact Studies, version 2013;***

Please see the section below entitled Access Location Analysis. We believe that the current configuration of the laneway does not present any access issues.

- b. ***Figure 3-2 illustrates all outbound site-generated trips assigned to eastbound right-turn movement only at the intersection of Yonge Street and Cumberland Street. Given that the left-turn movement is permissive at this intersection as illustrated in Figure 2-3, Figure 2-3 must illustrate the left turn movement despite the fact that ‘zero’ site trips are assigned to this movement;***

Noted, however, Figure 2-3 is a site-generated trips figure, which is meant to illustrate the distribution of site-generated trips, and not all the possible movements at each intersection. Please refer to Figure 2-1 in our initial TIS submission, which illustrates the lane configurations, of which an eastbound left turn is shown because that is a possible movement.

- c. ***The foot note in the Capacity Analysis Worksheets for both Future Background and Future Total conditions provided at the bottom left, shows as existing AM/PM conditions. To help avoid confusion, the foot note in the worksheets must be corrected appropriately; and***

Noted. Please see Appendix A for revised capacity analysis worksheets.

- d. ***Replace the header in the capacity analysis worksheets for the intersection of site driveways with Cumberland Street and Yorkville Avenue to show as ‘Site Driveway and Cumberland Street’ and not just ‘Cumberland Street’. The same applies to the capacity analysis worksheet for the intersection of site driveway with Yorkville Avenue.***

Noted. Please see Appendix A for revised capacity analysis worksheets.

### ACCESS LOCATION ANALYSIS

An access location analysis as outlined in Section 3.4.3 of the Guidelines for the Preparation of Transportation Impact Studies, was conducted as per the City’s comments.

Turning sight distances were conducted using the Transportation Association of Canada’s Geometric Design Guide for Canadian Roads 2017 version. Turning sight distances for vehicles leaving the site driveway onto Yorkville Avenue or Cumberland Street were analyzed. **Figure 5** demonstrates the turning sight lines of vehicles exiting the site onto Yorkville Avenue and Cumberland Street. Sightlines towards Yonge Street are truncated at Yonge Street rather than illustrating the full sight distance. Figure 5 shows that there are no obstructions within the turning sight lines.

There is a pedestrian pathway on the west side of the east laneway that provides a pedestrian connection between Yorkville Avenue and the Residential Lobby main entrance. Thus, pedestrians will be crossing the laneway on the south side of Yorkville Avenue, while vehicles will be required to stop behind the crosswalk and check for pedestrians before turning onto Yorkville Avenue. The peak hour volume of vehicles turning out of the site does not exceed 40 in the P.M. peak hour, so we do not expect any issues with this.

Pedestrians will also be accessing the site using the PATH network, as discussed in our initial TIS submission. These pedestrians will be even more sheltered from interaction with vehicles, because the PATH is an underground pedestrian network.

There are currently no bicycle lanes on Yorkville Avenue or on Cumberland Street. Cyclists accessing the site can enter through the rear door (facing south), go down the stairs to P1 and park their bicycles there. This applies to both residents or residential/retail visitors that want to park their bicycle.

There are no potential interference conflicts with other driveways, because opposite the laneway access on Yorkville Avenue is the Town Hall Square park at 25 Yorkville Avenue. There are other driveways east and west of the laneway along Yorkville Avenue, but we do not think this will be an issue in terms of pedestrian safety due to the low volume of vehicle-pedestrian conflicts.

The intersection operations analysis from our initial TIS dated March 23, 2018 indicated that there is no need for any auxiliary turning lanes, and that the capacity of the laneway is sufficient to accommodate all vehicles.

In addition, due to the location of the site, the site access laneway connects to Yorkville Avenue and Cumberland Street, both of which are collector roads. Therefore, site trips are first directed to the collector roads before connecting to arterial roads such as Yonge or Bay Streets.

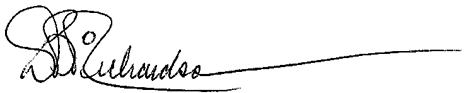
#### PEDESTRIAN CONNECTION BETWEEN P.A.T.H. AND RETAIL LOBBY

Pedestrians accessing 11 Yorkville from the P.A.T.H. system will first enter P1 of 33 Yorkville Avenue (Toronto Parking Authority building) before entering the 11 Yorkville building via the southwest corner on P1 level. Pedestrians will then follow the marked pathway until they reach the stairs and elevator that lead to the retail lobby. The marked pedestrian pathway on P1 uses 1.2 m of the 6.0 m east-west drive aisle, and thus it must be shared with motorists circulating through the garage. It is expected that the pedestrian volumes will be quite low, and enhanced lighting and pavement markings will increase driver's awareness to potential pedestrians walking along the pathway. Please see the P1 plan in Appendix B that illustrates the pedestrian connection.

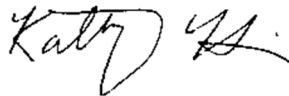
This addendum letter should address all related comments. Should you have any questions or comments, please do not hesitate to contact me directly at your convenience.

Best regards,

**WSP Canada Group Limited**



David B. Richardson, P.Eng., PTOE  
Manager - Transportation  
Planning and Advisory Services



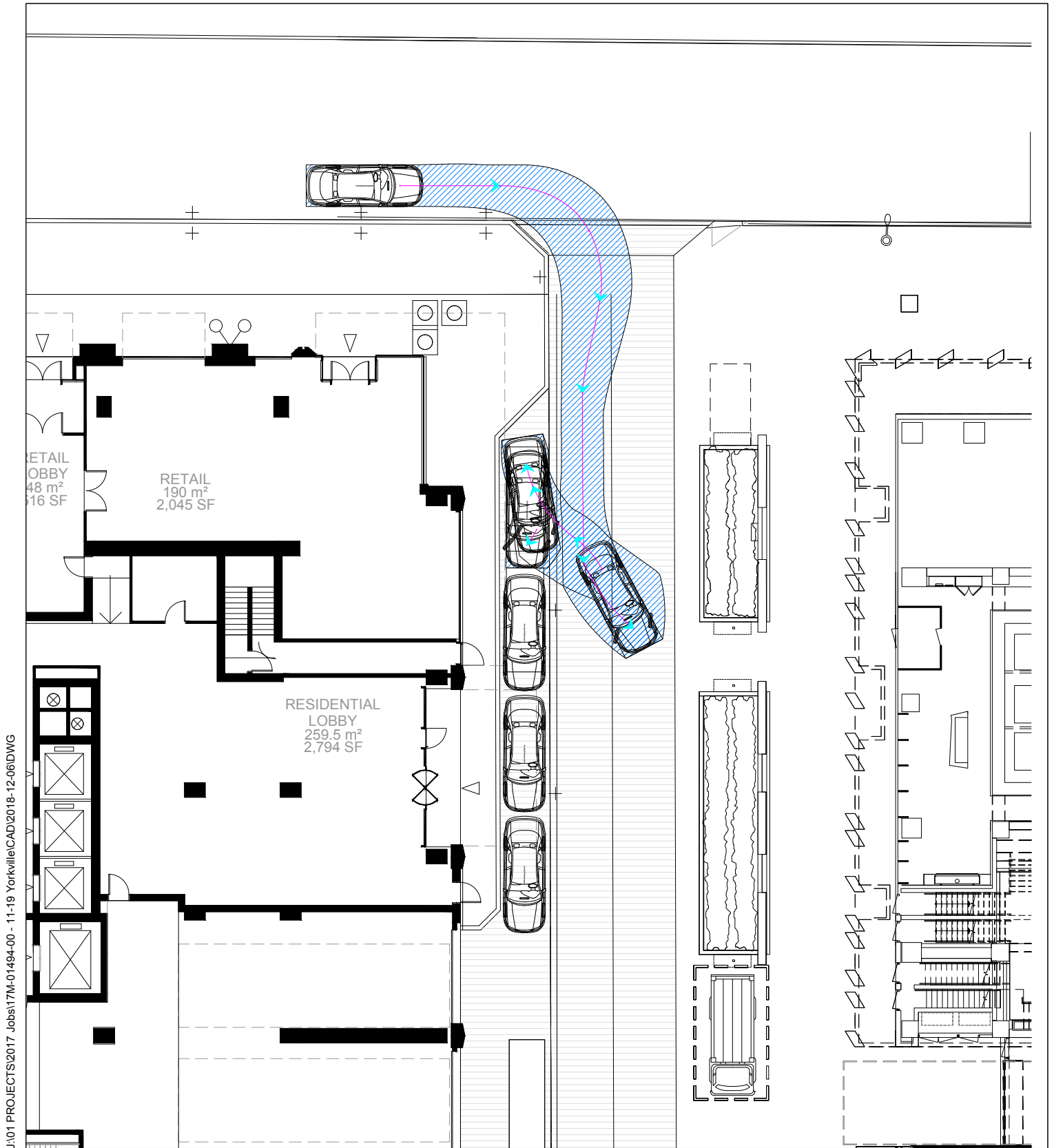
Kathy Hui, M.Sc., EIT  
Designer – Transportation  
Planning and Advisory Services





# FIGURES





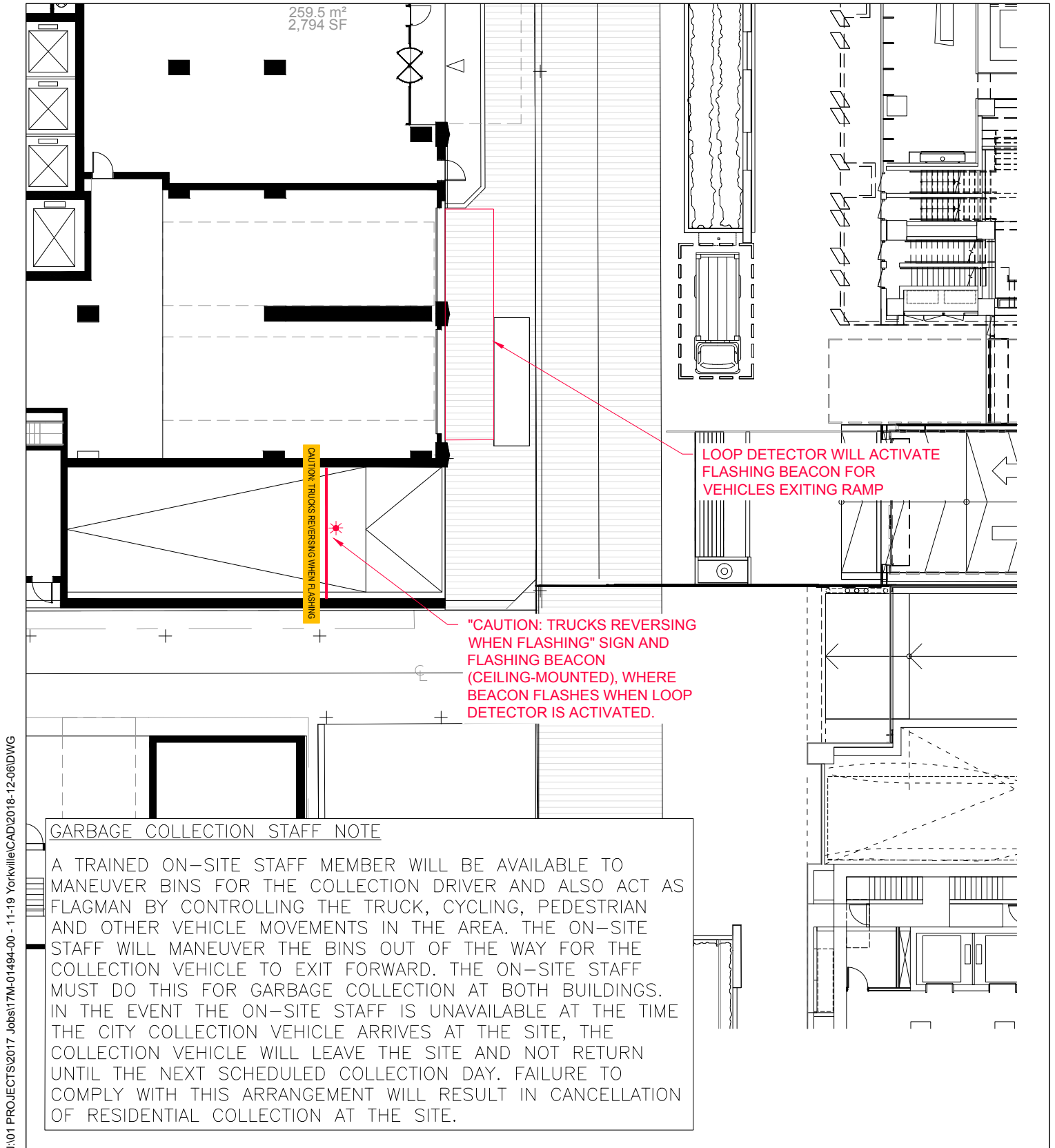
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Source: 181206 11 Yorkville-Sheet - A105 - Ground Floor Plan, from Sweeny & Co Architects, December 07, 2018

Scale: 1:250



Figure 1  
Ground Floor Pick-Up/Drop-Off  
11-21 Yorkville Avenue Response to Comments



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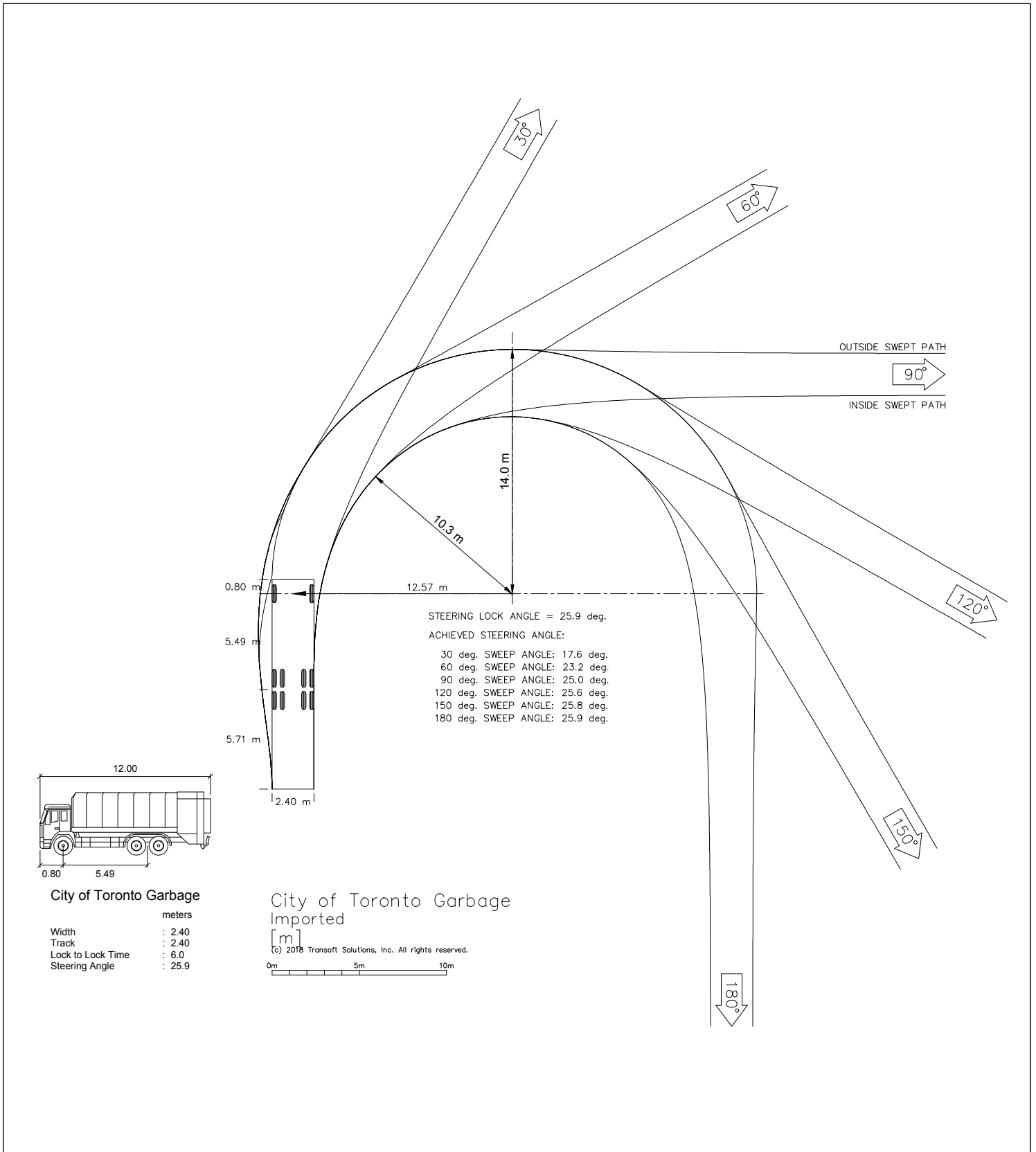
Source: 181206 11 Yorkville-Sheet - A105 - Ground Floor Plan, from Sweeny & Co Architects, December 07, 2018

Scale: 1:250



Figure 2  
Flashing Beacon Warning System  
11-21 Yorkville Avenue Response to Comments

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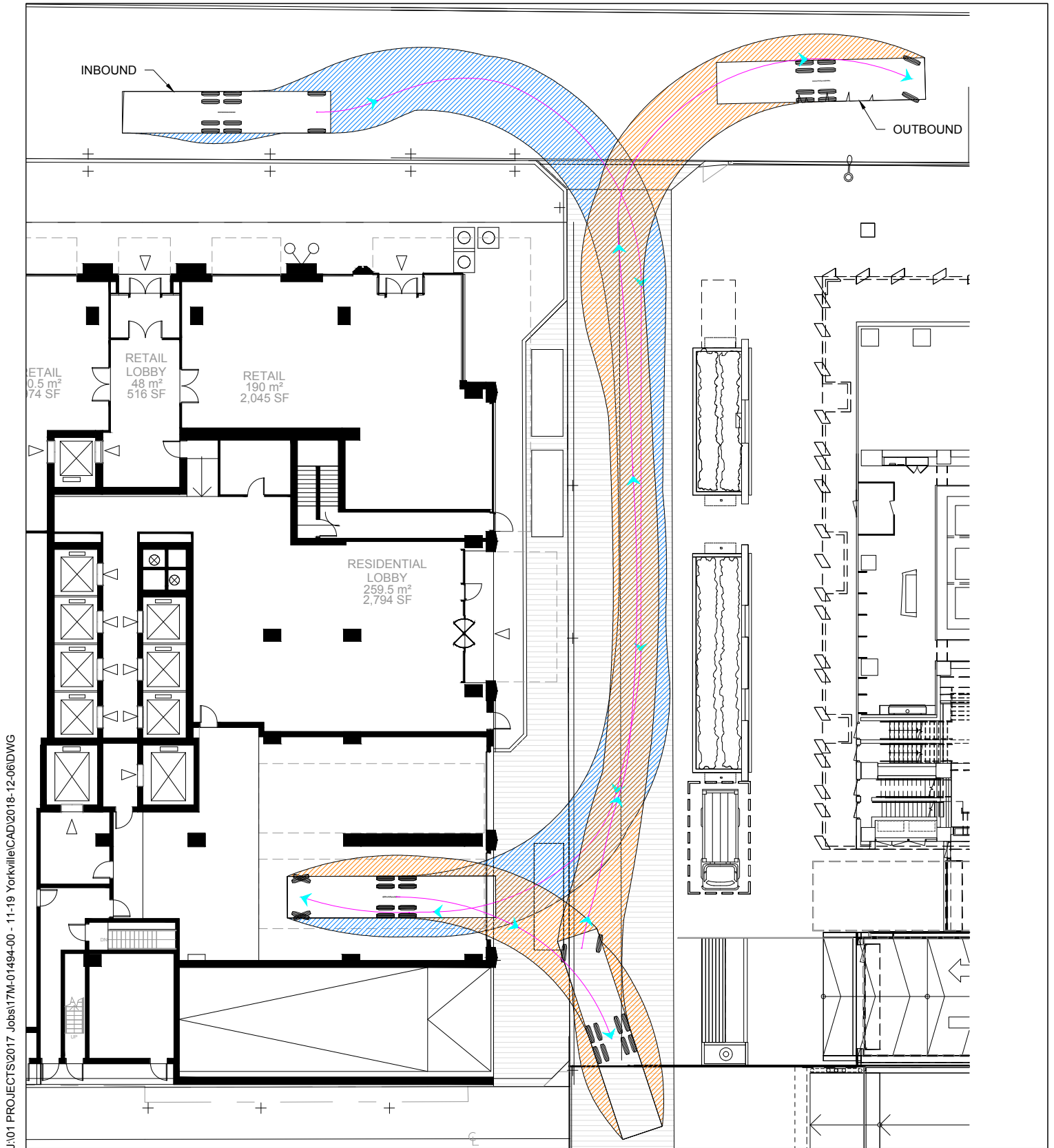


Source: 181206 11 Yorkville-Sheet - A105 - Ground Floor Plan, from Sweeny & Co Architects, December 07, 2018

Scale: 1:300



# Figure 3 Garbage Truck Profile 11-21 Yorkville Avenue Response to Comments



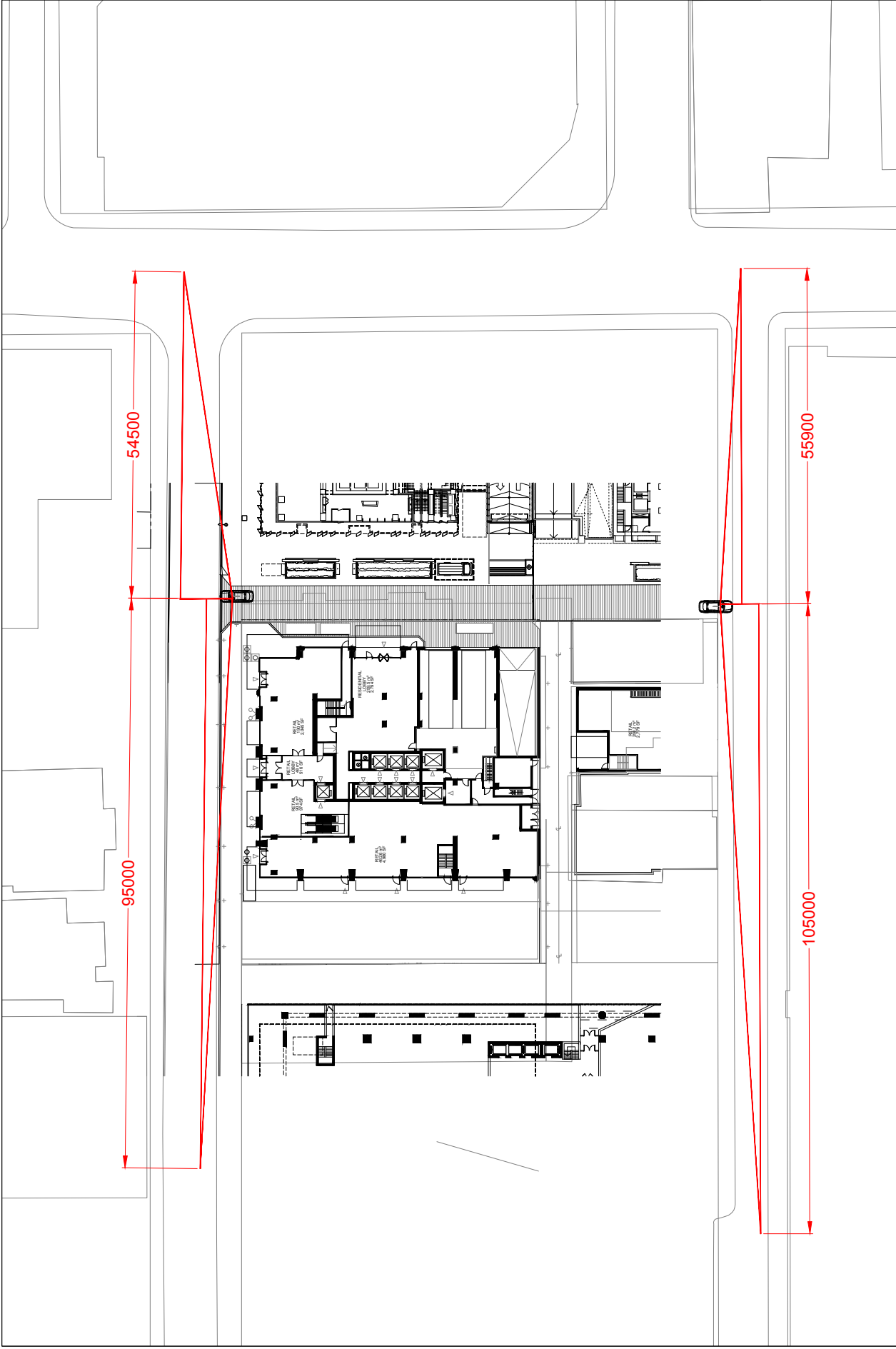
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Source: 181206 11 Yorkville-Sheet - A105 - Ground Floor Plan, from Sweeny & Co Architects, December 07, 2018

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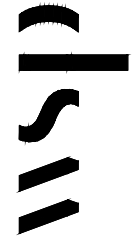
Figure 4  
Garbage Truck Entering and Leaving Site  
11-21 Yorkville Avenue Response to Comments



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Source: 181206 11 Yorkville-Sheet - A105 - Ground Floor Plan, from Sweeny & Co Architects, December 07, 2018

Scale: 1:900



**Figure 5**  
 Turning Sight Distance at Site Accesses  
 11-21 Yorkville Avenue Response to Comments

# APPENDIX

# A SYNCHRO CAPACITY WORKSHEETS



Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Existing AM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4T	4T					4T	4T		4T	4T
Traffic Volume (vph)	0	599	2	0	688	5	0	235	4	1	534	4
Future Volume (vph)	0	599	2	0	688	5	0	235	4	1	534	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00			1.00			0.99				0.999	
Fit				0.999			0.998				0.999	
Fit Protected												
Satd. Flow (prot)	0	3391	0	0	3418	0	0	3242	0	0	3450	0
Fit Permitted												
Satd. Flow (perm)	0	3391	0	0	3418	0	0	3242	0	0	3293	0
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)												
Link Speed (k/h)		48		1		48		2			1	
Link Distance (m)		232.1		48		189.9		14.2			48	
Travel Time (s)		17.4		17.5		17.5		14.2			7.7	
Confl. Peds. (#/hr)	715		563		715		275		542		542	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	5%	50%	3%	4%	0%	15%	9%	25%	0%	3%	25%
Adj. Flow (vph)	0	666	2	0	764	6	0	261	4	1	593	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	668	0	0	770	0	0	265	0	0	598	0
Turn Type		NA		NA		NA		NA		Perm	NA	
Protected Phases	2	2		6	6		4	4		8	8	
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Total Split (s)	33.0	33.0		33.0	33.0		31.0	31.0		31.0	31.0	
Total Split (%)	34.4%	34.4%		34.4%	34.4%		32.3%	32.3%		32.3%	32.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag				Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?				Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	C-Max	C-Max		Max	Max		Max	Max		Max	Max	
Act Effct Green (s)	28.0	28.0		28.0	28.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.27	0.27		0.27	0.27	
v/c Ratio	0.68	0.68		0.77	0.77		0.30	0.30		0.67	0.67	
Control Delay	34.1	34.1		37.2	37.2		28.7	28.7		35.5	35.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.1	34.1		37.2	37.2		28.7	28.7		35.5	35.5	
LOS	C	C		D	D		C	C		D	D	
Approach Delay	34.1	34.1		37.2	37.2		28.7	28.7		35.5	35.5	
Approach LOS	C	C		D	D		C	C		D	D	
Queue Length 50th (m)	57.2	57.2		68.4	68.4		20.3	20.3		51.9	51.9	
Queue Length 95th (m)	76.4	76.4		89.8	89.8		31.0	31.0		70.1	70.1	

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Existing AM  
12/10/2018

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Fit		
Fit Protected		
Satd. Flow (prot)		
Fit Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type	3	7
Protected Phases		
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	28.0
Minimum Split (s)	31.0	32.0
Total Split (s)	32.0	32.0
Total Split (%)	33%	33%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	Max	Max
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Existing AM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (m)	208.1			209.5				165.9				79.3
Turn Bay Length (m)												
Base Capacity (vph)	989			997				879				882
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	0.68			0.77				0.30				0.67

**Intersection Summary**

Area Type: Other

Cycle Length: 96

Actuated Cycle Length: 96

Offset: 0 (0%); Referenced to phase 2:EBTL; Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

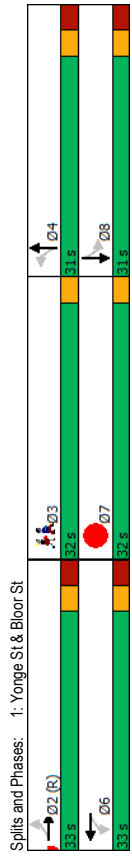
Intersection Signal Delay: 34.9

Intersection Capacity Utilization 44.3%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service A



Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Existing AM  
12/10/2018

Lane Group	Ø3	Ø7
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

**Intersection Summary**

Existing AM  
12/10/2018

HCM Signalized Intersection Capacity Analysis  
1: Yonge St & Bloor St

Existing AM  
12/10/2018

	EBT	WBT	NBT	SBT
Lane Group	668	770	265	598
Lane Group Flow (vph)	0.68	0.77	0.30	0.67
v/c Ratio	34.1	37.2	28.7	35.5
Control Delay	0.0	0.0	0.0	0.0
Queue Delay	34.1	37.2	28.7	35.5
Total Delay	57.2	68.4	20.3	51.9
Queue Length 50th (m)	76.4	89.8	31.0	70.1
Queue Length 95th (m)	208.1	209.5	165.9	79.3
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)	989	997	879	892
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	0.68	0.77	0.30	0.67

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4T		4T				4T			4T	
Traffic Volume (vph)	0	599	2	0	688	5	0	235	4	1	534	4
Future Volume (vph)	0	599	2	0	688	5	0	235	4	1	534	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0				5.0			5.0	
Lane Util. Factor		0.95		0.95				0.95			0.95	
Frpb, ped/bikes		1.00		1.00				0.99			1.00	
Flpb, ped/bikes		1.00		1.00				1.00			1.00	
Flt		1.00		1.00				1.00			1.00	
Flt Protected		1.00		1.00				1.00			1.00	
Satd. Flow (prot)		3390		3418				3241			3448	
Flt Permitted		1.00		1.00				1.00			0.85	
Satd. Flow (perm)		3390		3418				3241			3292	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	666	2	0	764	6	0	261	4	1	593	4
RTOR Reduction (vph)	0	0	0	0	1	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	668	0	0	769	0	0	264	0	0	597	0
Confl. Peds. (#/hr)	715		563	563	715		275	715	542	542	275	275
Heavy Vehicles (%)	7%	5%	50%	3%	4%	0%	15%	9%	25%	0%	3%	25%
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases		2		6				4			8	
Permitted Phases	2		6		4							8
Actuated Green, G (s)	27.0		27.0		25.0			25.0			25.0	
Effective Green, g (s)	28.0		28.0		26.0			26.0			26.0	
Actuated g/C Ratio	0.29		0.29		0.27			0.27			0.27	
Clearance Time (s)	6.0		6.0		6.0			6.0			6.0	
Vehicle Extension (s)	3.0		3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)	988		996		877			877			891	
v/s Ratio Prot	0.20		c0.23		0.08			0.08			c0.18	
v/s Ratio Perm		0.68		0.77		0.30		0.30			0.67	
Uniform Delay, d1	30.0		31.1		27.8			27.8			31.2	
Progression Factor	1.00		1.00		1.00			1.00			1.00	
Incremental Delay, d2	3.7		5.8		0.9			0.9			4.0	
Delay (s)	33.7		36.9		28.7			28.7			35.2	
Level of Service	C		D		D			C			D	
Approach Delay (s)	33.7		36.9		28.7			28.7			35.2	
Approach LOS	C		D		D			C			D	

Intersection Summary

HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings  
2: Bay St & Bloor St

Existing AM  
12/10/2018

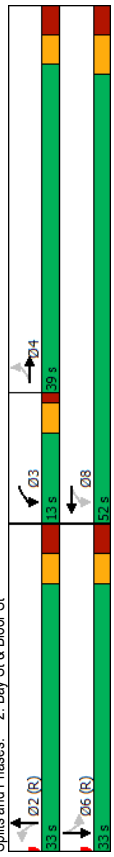
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	65	519	106	89	488	65	52	375	8	28	489	52
Future Volume (vph)	65	519	106	89	488	65	52	375	8	28	489	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5	3.0	3.5	3.5
Storage Length (m)	15.2	0.0	13.7	0.0	13.7	0.0	20.4	0.0	10.4	10.4	0.0	0.0
Storage Lanes	1	0	1	0	1	0	1	0	1	0	1	0
Taper Length (m)	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.95
Ped Bike Factor	0.86	0.95	0.91	0.96	0.88	1.00	0.997	0.986	0.997	0.986	0.997	0.986
Fit	0.950	0.975	0.950	0.982	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Flt Protected	1574	3185	0	1636	3262	0	1465	3322	0	1636	3261	0
Satd. Flow (prot)	0.419	0.385	0.216	0.385	0.385	0.385	0.385	0.385	0.385	0.385	0.385	0.385
Flt Permitted	599	3185	0	339	3262	0	494	3322	0	750	3261	0
Satd. Flow (perm)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Right Turn on Red	33	48	26	48	26	48	3	48	26	48	26	48
Satd. Flow (RTOR)	285.7	285.7	232.1	232.1	232.1	232.1	134.3	134.3	134.3	134.3	134.3	134.3
Link Speed (k/h)	21.4	21.4	17.4	17.4	17.4	17.4	10.1	10.1	10.1	10.1	10.1	10.1
Travel Time (s)	286	286	295	295	295	286	428	428	191	191	191	428
Confl. Peds. (#/hr)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak Hour Factor	7%	4%	1%	3%	3%	6%	15%	6%	37%	3%	4%	9%
Heavy Vehicles (%)	72	577	118	99	542	72	58	417	9	31	554	58
Adj. Flow (vph)	Shared Lane Traffic (%)											
72	695	0	99	614	0	58	426	0	31	612	0	
Lane Group Flow (vph)	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Turn Type	4	4	3	8	2	2	6	6	6	6	6	6
Permitted Phases	4	4	3	8	2	2	6	6	6	6	6	6
Detector Phase	4	4	3	8	2	2	6	6	6	6	6	6
Switch Phase	23.0	23.0	6.0	23.0	22.0	22.0	23.0	23.0	23.0	23.0	23.0	23.0
Minimum Initial (s)	30.0	30.0	10.0	30.0	29.0	29.0	30.0	30.0	30.0	30.0	30.0	30.0
Minimum Split (s)	39.0	39.0	13.0	39.0	38.4	38.4	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	45.9%	45.9%	15.3%	45.9%	45.9%	45.9%	45.9%	45.9%	45.9%	45.9%	45.9%	45.9%
Total Split (%)	3.0	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Yellow Time (s)	3.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.0	6.0	4.0	7.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Total Lost Time (s)	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead
Lead/Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead-Lag Optimize?	None	None	None	None	None	None	None	None	None	None	None	None
Recall Mode	26.3	26.3	38.4	35.4	36.6	36.6	26.3	26.3	26.3	26.3	26.3	26.3
Act Effct Green (s)	0.31	0.31	0.45	0.42	0.43	0.43	0.31	0.31	0.31	0.31	0.31	0.31
Actuated g/C Ratio	0.39	0.69	0.36	0.45	0.27	0.30	0.10	0.43	0.10	0.43	0.10	0.43
v/c Ratio	28.9	28.0	15.3	17.2	23.9	18.1	19.1	19.4	19.1	19.4	19.1	19.4
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	28.9	28.0	15.3	17.2	23.9	18.1	19.1	19.4	19.1	19.4	19.1	19.4
Total Delay	C	C	B	B	B	B	C	C	B	B	B	B
LOS												

Synchro 9 Report  
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Lanes, Volumes, Timings  
2: Bay St & Bloor St

Existing AM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay	28.1	16.9	16.9	16.9	16.9	16.9	18.8	18.8	18.8	18.8	18.8	18.8
Approach LOS	C	B	B	B	B	B	B	B	B	B	B	B
Queue Length 50th (m)	9.4	50.9	8.9	34.2	6.0	23.2	3.0	35.2	3.0	35.2	3.0	35.2
Queue Length 95th (m)	19.3	60.4	14.0	38.8	18.3	39.8	10.0	56.0	10.0	56.0	10.0	56.0
Internal Link Dist (m)	261.7	208.1	208.1	208.1	208.1	208.1	110.3	110.3	110.3	110.3	110.3	110.3
Turn Bay Length (m)	15.2	13.7	13.7	13.7	13.7	13.7	20.4	20.4	20.4	20.4	20.4	20.4
Base Capacity (vph)	232	1256	290	1739	212	1433	323	1413	323	1413	323	1413
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.55	0.34	0.35	0.27	0.30	0.10	0.57	0.10	0.57	0.10	0.57
Intersection Summary	Other											
Area Type:	Other											
Cycle Length:	85											
Actuated Cycle Length:	85											
Offset:	0 (0%), Referenced to phase 2NBL and 6SBL. Start of Green											
Natural Cycle:	70											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.69											
Intersection Signal Delay:	21.3											
Intersection Capacity Utilization:	97.4%											
Analysis Period (min):	15											
Intersection LOS:	C											
ICU Level of Service:	F											



Synchro 9 Report  
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Existing AM  
12/10/2018

HCM Signalized Intersection Capacity Analysis  
2: Bay St & Bloor St

Existing AM  
12/10/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	72	695	99	614	58	426	31	612
v/c Ratio	0.39	0.69	0.36	0.45	0.27	0.30	0.10	0.43
Control Delay	28.9	28.0	15.3	17.2	23.9	18.1	19.1	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	28.9	28.0	15.3	17.2	23.9	18.1	19.1	19.8
Queue Length 50th (m)	9.4	50.9	8.9	34.2	6.0	23.2	3.0	35.2
Queue Length 95th (m)	19.3	60.4	14.0	38.8	18.3	39.8	10.0	58.0
Internal Link Dist (m)	261.7		208.1		110.3			78.4
Turn Bay Length (m)	15.2		13.7		20.4		10.4	
Base Capacity (vph)	232	1256	290	1739	212	1433	323	1413
Starvation Cap Reductn	0	0	0	0	0	0	0	339
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	0.31	0.55	0.34	0.35	0.27	0.30	0.10	0.57

Intersection Summary

Turn Type	Perm	NA	pm-pt	NA	Perm	NA	Perm	NA
Protected Phases	4		3	8				6
Permitted Phases	4		8					6
Actuated Green, G (s)	26.3	26.3	36.1	36.1	35.9	35.9	35.9	35.9
Effective Green, g (s)	26.3	26.3	36.1	36.1	35.9	35.9	35.9	35.9
Actuated g/C Ratio	0.31	0.31	0.42	0.42	0.42	0.42	0.42	0.42
Clearance Time (s)	6.0	6.0	4.0	7.0	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)	185	985	255	1385	207	1402	315	1376
v/s Ratio Prot	0.21		0.03	0.18		0.13		0.19
v/s Ratio Perm	0.12		0.13		0.12		0.04	
v/c Ratio	0.39	0.68	0.39	0.43	0.28	0.30	0.10	0.44
Uniform Delay, d1	23.0	25.7	16.2	17.2	16.1	16.3	14.8	17.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	2.0	1.0	0.2	3.4	0.6	0.6	1.0
Delay (s)	24.4	27.7	17.1	17.4	19.4	16.8	15.4	18.4
Level of Service	C	C	B	B	B	B	B	B
Approach Delay (s)	27.4		17.4		17.1		18.3	
Approach LOS	C	C	B	B	B	B	B	B

Synchro 9 Report  
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HCM Signalized Intersection Capacity Analysis  
2: Bay St & Bloor St

Existing AM  
12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	519	106	89	488	65	52	375	8	28	489	52
Future Volume (vph)	65	519	106	89	488	65	52	375	8	28	489	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0	4.0	7.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Frbp, ped/bikes	0.86	1.00	0.99	1.00	0.96	1.00	0.87	1.00	1.00	0.89	1.00	0.97
Frbp, ped/bikes	0.86	1.00	0.99	1.00	0.96	1.00	0.87	1.00	1.00	0.89	1.00	0.97
Frt	1.00	0.97	1.00	0.98	1.00	0.98	1.00	1.00	1.00	1.00	0.99	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1359	3184	1612	3263	1277	3321	1448	3260				
Flt Permitted	0.42	1.00	0.22	1.00	0.37	1.00	0.49	1.00				
Satd. Flow (perm)	600	3184	366	3263	491	3321	746	3260				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	577	118	99	542	72	58	417	9	31	554	58
RTOR Reduction (vph)	0	23	0	0	15	0	0	2	0	0	8	0
Lane Group Flow (vph)	72	672	0	99	599	0	58	424	0	31	604	0
Conf. Peds. (#/hr)	286	295	295	295	286	428	191	191	191	428	191	428
Heavy Vehicles (%)	7%	4%	1%	3%	3%	6%	15%	6%	37%	3%	4%	9%
Turn Type	Perm	NA	NA	pm-pt	NA	Perm	NA	Perm	NA	Perm	NA	NA
Protected Phases	4		3	8								6
Permitted Phases	4		8									6
Actuated Green, G (s)	26.3	26.3	36.1	36.1	36.1	35.9	35.9	35.9	35.9	35.9	35.9	35.9
Effective Green, g (s)	26.3	26.3	36.1	36.1	36.1	35.9	35.9	35.9	35.9	35.9	35.9	35.9
Actuated g/C Ratio	0.31	0.31	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Clearance Time (s)	6.0	6.0	4.0	7.0	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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	985	255	1385	207	1402	315	1376				
v/s Ratio Prot	0.21		0.03	0.18		0.13		0.19				
v/s Ratio Perm	0.12		0.13		0.12		0.04					
v/c Ratio	0.39	0.68	0.39	0.43	0.28	0.30	0.10	0.44				
Uniform Delay, d1	23.0	25.7	16.2	17.2	16.1	16.3	14.8	17.4				
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	1.4	2.0	1.0	0.2	3.4	0.6	0.6	1.0				
Delay (s)	24.4	27.7	17.1	17.4	19.4	16.8	15.4	18.4				
Level of Service	C	C	B	B	B	B	B	B				
Approach Delay (s)	27.4		17.4		17.1		18.3					
Approach LOS	C	C	B	B	B	B	B	B				

Intersection Summary

Movement	Control Delay	HCM 2000 Level of Service
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.54	C
Actuated Cycle Length (s)	85.0	Sum of lost time (s)
Intersection Capacity Utilization	97.4%	ICU Level of Service
Analysis Period (min)	15	F
c Critical Lane Group		

Synchro 9 Report  
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Lanes, Volumes, Timings  
3: Bay St & Yorkville Ave

Existing AM  
12/10/2018

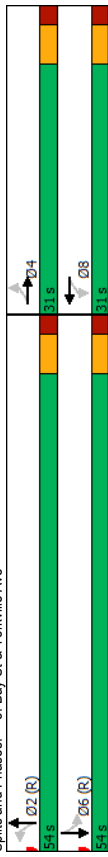
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations											
Traffic Volume (vph)	13	26	16	72	76	19	48	324	97	66	457
Future Volume (vph)	13	26	16	72	76	19	48	324	97	66	457
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.91	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.95	0.93
Fit	0.960	0.989	0.985	0.977	0.979	0.979	0.995	0.995	0.995	0.977	0.995
Flt Protected	0	1517	0	0	1646	0	0	3080	0	0	3167
Satd. Flow (prot)	0	923	0	0	843	0	0	829	0	0	835
Flt Permitted	0	1373	0	0	1309	0	0	2534	0	0	2633
Satd. Flow (perm)	18	48	18	8	8	8	65	65	40	40	48
Right Turn on Red	48	48	48	48	48	48	48	48	48	48	48
Satd. Flow (RTOR)	15.0	15.0	15.0	11.5	11.5	11.5	7.2	7.2	8.7	8.7	8.7
Link Speed (k/h)	182	182	182	182	182	182	144	144	76	76	144
Confl. Peds. (#/hr)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Peak Hour Factor	0%	3%	31%	14%	2%	5%	10%	8%	2%	0%	4%
Heavy Vehicles (%)	14	29	18	80	84	21	53	360	108	73	508
Adj. Flow (vph)	0	61	0	0	185	0	0	521	0	0	684
Shared Lane Traffic (%)	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Lane Group Flow (vph)	4	4	4	8	8	8	2	2	6	6	6
Turn Type	4	4	4	8	8	8	2	2	6	6	6
Protected Phases	4	4	4	8	8	8	2	2	6	6	6
Permitted Phases	4	4	4	8	8	8	2	2	6	6	6
Detector Phase	4	4	4	8	8	8	2	2	6	6	6
Switch Phase	24.0	24.0	24.0	24.0	24.0	24.0	17.0	17.0	17.0	17.0	17.0
Minimum Initial (s)	30.0	30.0	30.0	30.0	30.0	30.0	23.0	23.0	23.0	23.0	23.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	54.0	54.0	54.0	54.0	54.0
Total Split (s)	36.5%	36.5%	36.5%	36.5%	36.5%	36.5%	63.5%	63.5%	63.5%	63.5%	63.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Lead-Lag Optimize?	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Recall Mode	25.0	25.0	25.0	25.0	25.0	25.0	50.0	50.0	50.0	50.0	50.0
Act Effct Green (s)	0.29	0.29	0.29	0.29	0.29	0.29	0.59	0.59	0.59	0.59	0.59
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15	0.15	0.34	0.34	0.34	0.34	0.34
v/c Ratio	18.0	18.0	18.0	28.4	28.4	28.4	8.5	8.5	10.1	10.1	10.1
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0
Queue Delay	18.0	18.0	18.0	28.4	28.4	28.4	9.0	9.0	10.1	10.1	10.1
Total Delay	B	B	B	C	C	C	A	A	B	B	B
Approach Delay	18.0	18.0	18.0	28.4	28.4	28.4	9.0	9.0	10.1	10.1	10.1
Approach LOS	B	B	B	C	C	C	A	A	B	B	B
Queue Length 50th (m)	5.1	5.1	5.1	23.4	23.4	23.4	18.0	18.0	27.6	27.6	27.6
Queue Length 95th (m)	14.1	14.1	14.1	42.7	42.7	42.7	27.0	27.0	39.4	39.4	39.4

Synchro 9 Report  
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Lanes, Volumes, Timings  
3: Bay St & Yorkville Ave

Existing AM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Internal Link Dist (m)	176.3	176.3	176.3	128.8	128.8	128.8	71.5	71.5	71.5	91.7	91.7
Turn Bay Length (m)	432	432	432	405	405	405	1517	1517	1517	1565	1565
Base Capacity (vph)	0	0	0	0	0	0	560	560	560	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.14	0.14	0.46	0.46	0.46	0.54	0.54	0.54	0.44	0.44
Intersection Summary											
Area Type:	Other										
Cycle Length:	85										
Actuated Cycle Length:	85										
Offset:	0 (0%), Referenced to phase 2:NBT.L and 6:SBL.L, Start of Green										
Natural Cycle:	55										
Control Type:	Actuated-Coordinated										
Maximum v/c Ratio:	0.47										
Intersection Signal Delay:	12.4										
Intersection Capacity Utilization:	65.6%										
ICU Level of Service:	C										
Analysis Period (min):	15										



Synchro 9 Report  
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Existing AM  
12/10/2018

HCM Signalized Intersection Capacity Analysis  
3: Bay St & Yorkville Ave

Existing AM  
12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBT	WBT	NBT	SBT								
Lane Group Flow (vph)	61	185	521	684								
v/c Ratio	0.15	0.47	0.34	0.44								
Control Delay	18.0	28.4	8.5	10.1								
Queue Delay	0.0	0.0	0.5	0.0								
Total Delay	18.0	28.4	9.0	10.1								
Queue Length 50th (m)	5.1	23.4	18.0	27.6								
Queue Length 95th (m)	14.1	42.7	27.0	39.4								
Internal Link Dist (m)	176.3	128.8	71.5	91.7								
Turn Bay Length (m)												
Base Capacity (vph)	432	405	1517	1565								
Starvation Cap Reductn	0	0	560	0								
Spillback Cap Reductn	0	0	0	0								
Storage Cap Reductn	0	0	0	0								
Reduced v/c Ratio	0.14	0.46	0.54	0.44								

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	13	26	16	72	76	19	48	324	97	66	457	93	
Future Volume (vph)	13	26	16	72	76	19	48	324	97	66	457	93	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95	0.96	0.99	0.99	0.99	0.99	0.95	
Frpb, ped/bikes	0.94	0.94	0.94	0.98	0.98	0.96	0.96	0.99	0.99	0.99	0.99	0.94	
Flt, ped/bikes	0.96	0.96	0.96	0.98	0.98	0.97	0.97	0.99	0.99	0.99	0.99	0.98	
Flt Protected	0.99	0.99	0.99	0.98	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Satd. Flow (prot)	1471	1471	1519	1519	1519	3041	3041	3188	3188	3188	3188	3188	
Flt Permitted	0.92	0.92	0.84	0.84	0.84	0.83	0.83	0.84	0.84	0.84	0.84	0.84	
Satd. Flow (perm)	1374	1374	1308	1308	1308	2534	2534	2634	2634	2634	2634	2634	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	14	29	18	80	84	21	53	360	108	73	508	103	
RTOR Reduction (vph)	0	13	0	0	6	0	0	27	0	0	16	0	
Lane Group Flow (vph)	0	48	0	0	179	0	0	494	0	0	668	0	
Confl. Peds. (#/hr)	182	182	182	182	182	144	144	144	144	76	76	144	
Heavy Vehicles (%)	0%	3%	31%	14%	2%	5%	10%	8%	2%	0%	4%	3%	
Turn Type	Perm	NA	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	NA	
Protected Phases		4			8				2			6	
Permitted Phases	4		8			2				6			
Actuated Green, G (s)	24.0		24.0		24.0		49.0			49.0			
Effective Green, g (s)	25.0		25.0		25.0		50.0			50.0			
Actuated g/C Ratio	0.29		0.29		0.29		0.59			0.59			
Clearance Time (s)	6.0		6.0		6.0		6.0			6.0			
Vehicle Extension (s)	3.0		3.0		3.0		3.0			3.0			
Lane Grp Cap (vph)	404		384		384		1490			1549			
v/s Ratio Prot		0.04			c0.14		0.20			c0.25			
v/s Ratio Perm		0.12			0.47		0.33			0.43			
Uniform Delay, d1	21.9		24.5		24.5		9.0			9.7			
Progression Factor	1.00		1.00		1.00		1.00			1.00			
Incremental Delay, d2	0.1		0.9		0.6		0.6			0.9			
Delay (s)	22.1		25.4		25.4		9.6			10.5			
Level of Service	C		C		C		A			B			
Approach Delay (s)	22.1		25.4		25.4		9.6			10.5			
Approach LOS	C		C		C		A			B			
<b>Intersection Summary</b>													
HCM 2000 Control Delay	12.6											HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44												
Actuated Cycle Length (s)	85.0											Sum of lost time (s)	10.0
Intersection Capacity Utilization	65.6%											ICU Level of Service	C
Analysis Period (min)	15												
c Critical Lane Group													

Lanes, Volumes, Timings  
4: Yonge St & Collier St

Existing AM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group						
Lane Configurations						
Traffic Volume (vph)	0	0	230	34	7	658
Future Volume (vph)	0	0	230	34	7	658
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Fit			0.981			
Flt Protected						0.999
Satd. Flow (prot)	0	0	3356	0	0	3464
Flt Permitted						0.999
Satd. Flow (perm)	0	0	3356	0	0	3464
Link Speed (k/h)	48	48	48	48	48	48
Link Distance (m)	111.8	22.2	22.2	163.1	163.1	12.2
Travel Time (s)	8.4	1.7	1.7	712	712	12.2
Confl. Peds. (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	5%	0%	0%	3%
Adj. Flow (vph)	0	0	256	38	8	731
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	294	0	0	739
Sign Control	Stop	Free	Free	Free	Free	Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	26.4%					
Analysis Period (min)	15					
	ICU Level of Service A					

Synchro 9 Report  
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HCM Unsignalized Intersection Capacity Analysis  
4: Yonge St & Collier St

Existing AM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Movement						
Lane Configurations						
Traffic Volume (veh/h)	0	0	230	34	7	658
Future Volume (Veh/h)	0	0	230	34	7	658
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	256	38	8	731
Pedestrians	712					
Lane Width (m)	0.0					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)			None			None
Median type			None			None
Median storage (veh)						
Upstream signal (m)			22			
pX, platoon unblocked	0.98	0.98				0.98
vC, conflicting volume	1368	859				1006
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	1332	812				962
tC, single (s)	6.8	6.9				4.1
tC, 2 stage (s)						
tF (s)	3.5	3.3				2.2
p0 queue free %	100	100				99
cM capacity (veh/h)	141	315				708
Direction: Lane #	NB.1	NB.2	SB.1	SB.2		
Volume Total	171	123	252	487		
Volume Left	0	0	8	0		
Volume Right	0	38	0	0		
cSH	1700	1700	708	1700		
Volume to Capacity	0.10	0.07	0.01	0.29		
Queue Length 95th (m)	0.0	0.0	0.3	0.0		
Control Delay (s)	0.0	0.0	0.5	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.2			
Approach LOS						
<b>Intersection Summary</b>						
Average Delay	0.1					
Intersection Capacity Utilization	26.4%					
Analysis Period (min)	15					
	ICU Level of Service A					

Synchro 9 Report  
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Lanes, Volumes, Timings  
5: Yonge St & Asquith Avenue

Existing AM  
12/10/2018

	WBL	WBR	NBT	SBL	SBT
Lane Configurations	W		↑↑		↑↑
Traffic Volume (vph)	11	14	227	46	30
Future Volume (vph)	11	14	227	46	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor					
Flt Protected	0.923		0.975		
Flt Permitted	0.979				0.997
Satd. Flow (prot)	1571	0	3223	0	3526
Flt Permitted	0.979				0.997
Satd. Flow (perm)	1571	0	3223	0	3526
Link Speed (k/h)	48		48		48
Link Distance (m)	191.3		15.7		76.1
Travel Time (s)	14.3		1.2		5.7
Confl. Peds. (#/hr)				805	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	7%	13%	0%
Adj. Flow (vph)	12	16	252	51	33
Shared Lane Traffic (%)					
Lane Group Flow (vph)	28	0	303	0	574
Sign Control	Stop	Free	Free	Free	Free
<b>Intersection Summary</b>					
Area Type:	Other				
Control Type:	Unsignalized				
Intersection Capacity Utilization	41.0%				
Analysis Period (min)	15				
	ICU Level of Service A				

Synchro 9 Report  
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HCM Unsignalized Intersection Capacity Analysis  
5: Yonge St & Asquith Avenue

Existing AM  
12/10/2018

	WBL	WBR	NBT	SBL	SBT
Movement	W		↑↑		↑↑
Lane Configurations	W		↑↑		↑↑
Traffic Volume (veh/h)	11	14	227	46	30
Future Volume (Veh/h)	11	14	227	46	30
Sign Control	Stop	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	16	252	51	33
Pedestrians	805				541
Lane Width (m)	3.0				
Walking Speed (m/s)	1.1				
Percent Blockage	61				
Right turn flare (veh)			None		None
Median type			None		None
Median storage (veh)					76
Upstream signal (m)	0.93		119		
pX, platoon unblocked	1419	956			1108
vC, conflicting volume					
vC1, stage 1 cont vol					
vC2, stage 2 cont vol					
vCu, unblocked vol	1303	956			1108
tC, single (s)	6.8	6.9			4.1
tC, 2 stage (s)					
tF (s)	3.5	3.3			2.2
p0 queue free %	75	84			87
cM capacity (veh/h)	48	101			249
<b>Direction: Lane #</b>					
	WB.1	NB.2	NB.2	SB.1	SB.2
Volume Total	28	168	135	213	361
Volume Left	12	0	0	33	0
Volume Right	16	0	51	0	0
cSH	68	1700	1700	249	1700
Volume to Capacity	0.41	0.10	0.08	0.13	0.21
Queue Length 95th (m)	12.0	0.0	0.0	3.4	0.0
Control Delay (s)	90.1	0.0	0.0	6.1	0.0
Lane LOS	F	A	A	A	A
Approach Delay (s)	90.1	0.0	2.3		
Approach LOS	F	F			
<b>Intersection Summary</b>					
Average Delay	4.2				
Intersection Capacity Utilization	41.0%				
Analysis Period (min)	15				
	ICU Level of Service A				

Synchro 9 Report  
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Lanes, Volumes, Timings  
6: Yonge St & Yorkville Ave

Existing AM  
12/10/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W					
Traffic Volume (vph)	66	27	31	197	502	156
Future Volume (vph)	66	27	31	197	502	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.79		0.98	0.88		
Fit	0.961			0.965		
Flt Protected	0.966			0.993		
Satd. Flow (prot)	1489	0	0	3346	2951	0
Flt Permitted	0.966			0.826		
Satd. Flow (perm)	1259	0	0	2723	2951	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	23			95		
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.1			76.1	22.2	
Travel Time (s)	5.6			5.7	1.7	
Confl. Peds. (#/hr)	162	170	180			180
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	12%	5%	3%	4%
Adj. Flow (vph)	73	30	34	219	558	173
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	0	0	253	731	0
Turn Type	Prot	Perm	NA	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Minimum Split (s)	24.0	22.0	22.0	22.0	22.0	
Total Split (s)	25.0	60.0	60.0	60.0	60.0	
Total Split (%)	29.4%	70.6%	70.6%	70.6%	70.6%	
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0			6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	20.0			54.0	54.0	
Actuated g/C Ratio	0.24			0.64	0.64	
v/c Ratio	0.28			0.15	0.38	
Control Delay	23.2			6.5	7.0	
Queue Delay	0.0			0.0	0.0	
Total Delay	23.2			6.5	7.0	
LOS	C			A	A	
Approach Delay	23.2			6.5	7.0	
Approach LOS	C			A	A	
Queue Length 50th (m)	10.5			7.7	22.5	
Queue Length 95th (m)	23.7			12.3	32.2	
Internal Link Dist (m)	50.1			52.1	0.1	
Turn Bay Length (m)				1729	1909	
Base Capacity (vph)	367					

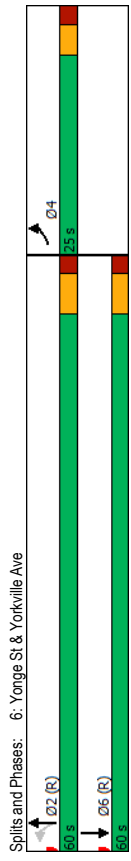
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Lanes, Volumes, Timings  
6: Yonge St & Yorkville Ave

Existing AM  
12/10/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.28			0.15	0.38	
<b>Intersection Summary</b>						
Area Type:	Other					
Cycle Length:	85					
Actuated Cycle Length:	85					
Offset:	0 (0%), Referenced to phase 2:NBL and 6:SBT, Start of Green					
Natural Cycle:	50					
Control Type:	Pretimed					
Maximum v/c Ratio:	0.38					
Intersection Signal Delay:	8.4					
Intersection Capacity Utilization:	54.4%					
Analysis Period (min):	15					
Intersection LOS:	A					
ICU Level of Service:	A					



Splits and Phases: 6: Yonge St & Yorkville Ave

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	EBL	NBT	SBT
Lane Group	103	253	731
Lane Group Flow (vph)	0.28	0.15	0.38
v/c Ratio	23.2	6.5	7.0
Control Delay	0.0	0.0	0.0
Queue Delay	23.2	6.5	7.0
Total Delay	10.5	7.7	22.5
Queue Length 50th (m)	23.7	12.3	32.2
Queue Length 95th (m)	50.1	52.1	0.1
Internal Link Dist (m)	367	1729	1909
Turn Bay Length (m)	0	0	0
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.28	0.15	0.38
<b>Intersection Summary</b>			

	EBL	EBR	NBL	NBT	SBT	SBR
Movement	↔	↔	↔	↔	↔	↔
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	66	27	31	197	502	156
Future Volume (vph)	66	27	31	197	502	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.5	3.5	3.5
Total Lost time (s)	5.0		6.0	6.0	6.0	
Lane Util. Factor	1.00		0.95	0.95	0.95	
Frbp, ped/bikes	0.93		1.00	0.88	1.00	
Frbp, ped/bikes	1.00		0.98	1.00	1.00	
Frt	0.96		1.00	0.96	1.00	
Fit Protected	0.97		0.99	1.00	1.00	
Satd. Flow (prot)	1488		3275	2950	2950	
Fit Permitted	0.97		0.83	1.00	1.00	
Satd. Flow (perm)	1488		2722	2950	2950	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	30	34	219	558	173
RTOR Reduction (vph)	18	0	0	0	35	0
Lane Group Flow (vph)	85	0	0	253	696	0
Confl. Peds. (#/hr)	162	170	180			180
Heavy Vehicles (%)	3%	3%	12%	5%	3%	4%
Turn Type	Prot	Perm	NA	NA	NA	NA
Protected Phases	4		2	2	6	
Permitted Phases		2				
Actuated Green, G (s)	20.0		54.0	54.0	54.0	
Effective Green, g (s)	20.0		54.0	54.0	54.0	
Actuated g/C Ratio	0.24		0.64	0.64	0.64	
Clearance Time (s)	5.0		6.0	6.0	6.0	
Lane Grp Cap (vph)	350		1729	1874	1874	
v/s Ratio Prot	c0.06		0.09	0.24	0.24	
v/s Ratio Perm			0.15	0.37	0.37	
v/c Ratio	0.24		0.15	0.37	0.37	
Uniform Delay, d1	26.4		6.2	7.4	7.4	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	1.7		0.2	0.6	0.6	
Delay (s)	28.0		6.4	8.0	8.0	
Level of Service	C		A	A	A	
Approach Delay (s)	28.0		6.4	8.0	8.0	
Approach LOS	C		A	A	A	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			9.5	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.34			
Actuated Cycle Length (s)			85.0	Sum of lost time (s)		11.0
Intersection Capacity Utilization			54.4%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings  
7: Bay St & Cumberland St

Existing AM  
12/10/2018

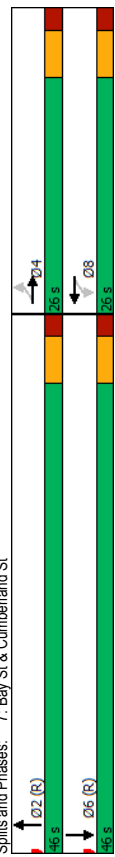
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations		↕↕			↕			↕↕			↕↕
Traffic Volume (vph)	30	0	28	0	0	0	0	245	0	0	497
Future Volume (vph)	30	0	28	0	0	0	0	245	0	0	497
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor		0.98									
Fit		0.927									
Flt Protected		0.975									
Satd. Flow (prot)	0	2874	0	0	1842	0	0	3336	0	0	3500
Flt Permitted		0.846									
Satd. Flow (perm)	0	2465	0	0	1842	0	0	3336	0	0	3500
Right Turn on Red			Yes			Yes			Yes		Yes
Satd. Flow (RTOR)	45										
Link Speed (k/h)	48			48				48			48
Link Distance (m)	190.2			155.6				102.4			95.5
Travel Time (s)	14.3			11.7				7.7			7.2
Confl. Peds. (#/hr)	20		1			136					136
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	13%	2%	10%	2%	2%	2%	7%	2%	2%	2%	2%
Adj. Flow (vph)	33	0	31	0	0	0	0	272	0	0	552
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	64	0	0	0	0	0	272	0	0	552
Turn Type	Perm	NA						NA			NA
Protected Phases	4			8				2			6
Permitted Phases	4			8				2			6
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	25.0	29.0			29.0
Total Split (s)	26.0	26.0	26.0	26.0	26.0	26.0	26.0	46.0			46.0
Total Split (%)	36.1%	36.1%	36.1%	36.1%	36.1%	36.1%	36.1%	63.9%			63.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0			6.0
Lead/Lag											
Lead-Lag Optimize?											
Act Effct Green (s)	20.0							40.0			40.0
Actuated g/C Ratio	0.28							0.56			0.56
v/c Ratio	0.09							0.15			0.28
Control Delay	9.6							8.0			8.9
Queue Delay	0.0							0.0			0.0
Total Delay	9.6							8.0			8.9
LOS	A							A			A
Approach Delay	9.6							8.0			8.9
Approach LOS	A							A			A
Queue Length 50th (m)	1.0							8.5			18.9
Queue Length 95th (m)	5.1							13.8			27.3
Internal Link Dist (m)	166.2			131.6				78.4			71.5
Turn Bay Length (m)											
Base Capacity (vph)	717							1853			1944
Starvation Cap Reductn	0							0			0

Synchro 9 Report  
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Lanes, Volumes, Timings  
7: Bay St & Cumberland St

Existing AM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Spillback Cap Reductn	0							0			0
Storage Cap Reductn	0							0			0
Reduced v/c Ratio	0.09							0.15			0.28
Intersection Summary											
Area Type:	Other										
Cycle Length:	72										
Actuated Cycle Length:	72										
Offset: 0 (0%):	Referenced to phase 2:NBT and 6:SBT, Start of Green										
Natural Cycle:	55										
Control Type:	PreTimed										
Maximum v/c Ratio:	0.28										
Intersection Signal Delay:	8.7										
Intersection Capacity Utilization:	45.0%										
Analysis Period (min):	15										
Intersection LOS:	A										
ICU Level of Service:	A										



Synchro 9 Report  
Page 24

Existing AM  
12/10/2018

HCM Signalized Intersection Capacity Analysis  
7: Bay St & Cumberland St

Existing AM  
12/10/2018

	EBT	NBT	SBT
Lane Group	64	272	552
Lane Group Flow (vph)	0.09	0.15	0.28
v/c Ratio	9.6	8.0	8.9
Control Delay	0.0	0.0	0.0
Queue Delay	9.6	8.0	8.9
Total Delay	1.0	8.5	18.9
Queue Length 50th (m)	5.1	13.8	27.3
Internal Link Dist (m)	166.2	78.4	71.5
Turn Bay Length (m)	717	1853	1944
Base Capacity (vph)	0	0	0
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.09	0.15	0.28

Intersection Summary

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Movement											
Lane Configurations											
Traffic Volume (vph)	30	0	28	0	0	0	0	245	0	0	497
Future Volume (vph)	30	0	28	0	0	0	0	245	0	0	497
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0						6.0				
Lane Util. Factor	0.95						0.95				
Flpb, ped/bikes	0.99						1.00				
Flt	0.93						1.00				
Flt Protected	0.97						1.00				
Satd. Flow (prot)	2841						3336				
Flt Permitted	0.85						1.00				
Satd. Flow (perm)	2465						3336				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	0	31	0	0	0	0	272	0	0	562
RTOR Reduction (vph)	0	33	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	32	0	0	0	0	0	272	0	0	562
Confl. Peds. (#/hr)	20		1				136				136
Heavy Vehicles (%)	13%	2%	10%	2%	2%	2%	2%	7%	2%	2%	2%
Turn Type	Perm	NA					NA			NA	
Protected Phases		4					8			2	
Permitted Phases	4			8							6
Actuated Green, G (s)	20.0						40.0			40.0	
Effective Green, g (s)	20.0						40.0			40.0	
Actuated g/C Ratio	0.28						0.56			0.56	
Clearance Time (s)	6.0						6.0			6.0	
Lane Grp Cap (vph)	684						1853			1944	
v/s Ratio Prot	c0.01						0.08			c0.16	
v/c Ratio Perm	0.05						0.15			0.28	
Uniform Delay, d1	19.0						7.7			8.4	
Progression Factor	1.00						1.00			1.00	
Incremental Delay, d2	0.1						0.2			0.4	
Delay (s)	19.1						7.9			8.8	
Level of Service	B						A			A	
Approach Delay (s)	19.1			0.0			7.9			8.8	
Approach LOS	B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
8: Yonge St & Cumberland St

Existing AM  
12/10/2018

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	W					
Lane Configurations						
Traffic Volume (vph)	27	67	0	433	527	0
Future Volume (vph)	27	67	0	433	527	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Flt	0.904					
Flt Protected	0.986					
Satd. Flow (prot)	1556	0	0	3305	3400	0
Flt Permitted	0.986					
Satd. Flow (perm)	1556	0	0	3305	3400	0
Link Speed (k/h)	48	48	48	48	48	48
Link Distance (m)	69.8			103.3	15.7	
Travel Time (s)	5.2			7.7	1.2	
Confl. Peds. (#/hr)	148	341	313	0.90	0.90	313
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	1%	2%	8%	5%	0%
Adj. Flow (vph)	30	74	0	481	586	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	0	0	481	586	0
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	34.6%					
Analysis Period (min)	15					
					ICU Level of Service A	

Synchro 9 Report  
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HCM Unsignalized Intersection Capacity Analysis  
8: Yonge St & Cumberland St

Existing AM  
12/10/2018

	EBL	EBR	NBL	NBT	SBT	SBR
Movement	W					
Lane Configurations						
Traffic Volume (veh/h)	27	67	0	433	527	0
Future Volume (Veh/h)	27	67	0	433	527	0
Sign Control	Stop			Free	Free	
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	30	74	0	481	586	0
Pedestrians	313			341	148	
Lane Width (m)	3.0			3.5	3.5	
Walking Speed (m/s)	1.1			1.1	1.1	
Percent Blockage	24			30	13	
Right turn flare (veh)						
Median type	None					
Median storage (veh)	None					
Upstream signal (m)	103					
pX, platoon unblocked	0.97	0.97	0.97			
vC, conflicting volume	1288	947	889			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1076	879	829			
IC, single (s)	6.9	6.9	4.1			
IC, 2 stage (s)						
p0 queue free %	3.5	3.3	2.2			
IF (s)	78	51	100			
cM capacity (veh/h)	136	151	589			
Direction: Lane #	EB.1	NB.1	NB.2	SB.1	SB.2	
Volume Total	104	240	240	293	293	
Volume Left	30	0	0	0	0	
Volume Right	74	0	0	0	0	
cSH	146	1700	1700	1700	1700	
Volume to Capacity	0.71	0.14	0.14	0.17	0.17	
Queue Length 95th (m)	31.4	0.0	0.0	0.0	0.0	
Control Delay (s)	74.5	0.0	0.0	0.0	0.0	
Lane LOS	F					
Approach Delay (s)	74.5	0.0	0.0			
Approach LOS	F					
<b>Intersection Summary</b>						
Average Delay	6.6					
Intersection Capacity Utilization	34.6%					
ICU Level of Service	A					
Analysis Period (min)	15					

Synchro 9 Report  
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Lanes, Volumes, Timings  
9: Site Driveway & Yorkville Ave

Existing AM  
12/10/2018

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	4	4	1	1
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fit						
Fit Protected						
Std. Flow (prot)	1842	0	0	1842	1739	0
Fit Permitted						
Std. Flow (perm)	1842	0	0	1842	1739	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	152.8			74.1	91.9	
Travel Time (s)	11.5			5.6	6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	0.0%					
Analysis Period (min)	15					
						ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
9: Site Driveway & Yorkville Ave

Existing AM  
12/10/2018

	EBT	EBR	WBL	WBT	NBL	NBR
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	4	4	1	1
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%					
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)	74					
pX, platoon unblocked	153					
vC, conflicting volume	0					
vC1, stage 1 cont vol	0					
vC2, stage 2 cont vol	0					
vCu, unblocked vol	4.1					
IC, single (s)	2.2					
IC, 2 stage (s)	100					
p0 queue free %	100					
cM capacity (veh/h)	1623					
Direction: Lane #	EB 1	WB 1	NB 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay	0.0					
Intersection Capacity Utilization	0.0%					
Analysis Period (min)	15					
						ICU Level of Service A

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Existing PM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4T		4T				4T			4T	
Traffic Volume (vph)	1	676	9	0	606	5	0	539	10	1	430	17
Future Volume (vph)	1	676	9	0	606	5	0	539	10	1	430	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00			0.99			0.99			0.98	
Fit	0.998	0.999			0.997			0.997			0.994	
Fit Protected												
Satd. Flow (prot)	0	3504	0	0	3511	0	0	3455	0	0	3436	0
Fit Permitted												
Satd. Flow (perm)	0	3346	0	0	3511	0	0	3455	0	0	3276	0
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)	1				1			2			4	
Link Speed (k/h)	48				48			48			48	
Link Distance (m)	232.1				233.5			189.9			103.3	
Travel Time (s)	17.4				17.5			14.2			7.7	
Confl. Peds. (#/hr)	1751		1320		1751		1116	1271		1271	1116	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	2%	1%	20%	2%	0%	0%	0%	1%	5%
Adj. Flow (vph)	1	712	9	0	638	5	0	567	11	1	463	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	722	0	0	643	0	0	578	0	0	472	0
Turn Type	Perm	NA			NA			NA		Perm	NA	
Protected Phases	2	2			6			4		8		
Detector Phase	2	2			6			4		8		
Switch Phase												
Minimum Initial (s)	20.0	20.0			20.0			20.0		20.0	20.0	
Minimum Split (s)	26.0	26.0			26.0			26.0		26.0	26.0	
Total Split (s)	33.0	33.0			33.0			31.0		31.0	31.0	
Total Split (%)	34.4%	34.4%			34.4%			32.3%		32.3%	32.3%	
Yellow Time (s)	3.0	3.0			3.0			3.0		3.0	3.0	
All-Red Time (s)	3.0	3.0			3.0			3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0				-1.0			-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0				5.0			5.0		5.0	5.0	
Lead/Lag						Lag		Lag		Lag	Lag	
Lead-Lag Optimize?						Yes		Yes		Yes	Yes	
Recall Mode	C-Max	C-Max			None			None		None	None	
Act Effct Green (s)	62.2	62.2			62.2			23.8		23.8	23.8	
Actuated g/C Ratio	0.65	0.65			0.65			0.25		0.25	0.25	
v/c Ratio	0.33	0.28			0.28			0.67		0.68	0.68	
Control Delay	8.5	8.0			8.0			36.4		34.1	34.1	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay	8.5	8.0			8.0			36.4		34.1	34.1	
LOS	A	A			A			D		C	C	
Approach Delay	8.5	8.0			8.0			36.4		34.1	34.1	
Approach LOS	A	A			A			D		C	C	
Queue Length 50th (m)	27.5	23.5			23.5			51.5		40.7	40.7	
Queue Length 95th (m)	43.8	37.6			37.6			64.1		52.2	52.2	

Synchro 9 Report  
Page 1

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Existing PM  
12/10/2018

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Fit		
Fit Protected		
Satd. Flow (prot)		
Fit Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)	3	7
Turn Type		
Protected Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	28.0
Minimum Split (s)	31.0	32.0
Total Split (s)	32.0	32.0
Total Split (%)	33%	33%
Yellow Time (s)	2.0	3.5
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		

Synchro 9 Report  
Page 2





Queues  
1: Yonge St & Bloor St

Existing PM  
12/10/2018

	EBT	WBT	NBT	SBT
Lane Group	722	643	578	472
Lane Group Flow (vph)	0.33	0.28	0.67	0.58
v/c Ratio	8.5	8.0	36.4	34.1
Control Delay	0.0	0.0	0.0	0.0
Queue Delay	8.5	8.0	36.4	34.1
Total Delay	27.5	23.5	51.5	40.7
Queue Length 50th (m)	43.8	37.6	64.1	52.2
Queue Length 95th (m)	208.1	209.5	165.9	79.3
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)	2188	2275	954	906
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	0.33	0.28	0.61	0.52

Intersection Summary

Synchro 9 Report  
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HCM Signalized Intersection Capacity Analysis  
1: Yonge St & Bloor St

Existing PM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Movement														
Lane Configurations		4T		4T				4T			4T			
Traffic Volume (vph)	1	676	9	0	606	5	0	539	10	10	1	430		
Future Volume (vph)	1	676	9	0	606	5	0	539	10	10	1	430		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)		5.0		5.0				5.0			5.0			
Lane Util. Factor		0.95		0.95				0.95			0.95			
Frpb, ped/bikes		0.99		1.00				0.99			0.99			
Flpb, ped/bikes		1.00		1.00				1.00			1.00			
Flt		1.00		1.00				1.00			1.00			
Flt Protected		1.00		1.00				1.00			1.00			
Satd. Flow (prot)		3603		3510				3455			3435			
Flt Permitted		0.95		1.00				1.00			0.95			
Satd. Flow (perm)		3345		3510				3455			3277			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Adj. Flow (vph)	1	712	9	0	638	5	0	567	11	1	463	18		
RTOR Reduction (vph)	0	0	0	0	0	0	0	2	0	0	3	0		
Lane Group Flow (vph)	0	722	0	0	643	0	0	576	0	0	469	0		
Confl. Peds. (#/hr)	1751	1320	1320	1751	1116	1116	1116	1271	1271	1271	1116	1116		
Heavy Vehicles (%)	0%	1%	0%	2%	1%	20%	2%	2%	0%	0%	1%	5%		
Turn Type	Perm	NA	NA	NA	NA	NA	NA	NA	Perm	NA	NA	NA		
Protected Phases		2		6				4			8			
Permitted Phases		2		6				4			8			
Actuated Green, G (s)		61.2		61.2				22.8			22.8			
Effective Green, g (s)		62.2		62.2				23.8			23.8			
Actuated g/C Ratio		0.65		0.65				0.25			0.25			
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)		2167		2274				856			812			
v/s Ratio Prot		c0.22		0.18				c0.17			0.14			
v/c Ratio Perm		0.33		0.28				0.67			0.58			
Uniform Delay, d1		7.6		7.3				32.6			31.7			
Progression Factor		1.00		1.00				1.00			1.00			
Incremental Delay, d2		0.4		0.1				2.1			1.0			
Delay (s)		8.0		7.4				34.7			32.7			
Level of Service		A		A				C			C			
Approach Delay (s)		8.0		7.4				34.7			32.7			
Approach LOS		A		A				C			C			
<b>Intersection Summary</b>														
HCM 2000 Control Delay												19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio												0.45		
Actuated Cycle Length (s)												96.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization												44.8%	ICU Level of Service	A
Analysis Period (min)												15		
c Critical Lane Group														

Synchro 9 Report  
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Lanes, Volumes, Timings  
2: Bay St & Bloor St

Existing PM  
12/10/2018

EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
56	489	60	448	132	777	9	72	400	86
56	489	60	448	132	777	9	72	400	86
1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
3.0	3.5	3.0	3.5	3.5	3.5	3.5	3.0	3.5	3.5
15.2	0.0	13.7	0.0	20.4	0.0	0.0	10.4	0.0	0.0
1	0	1	0	1	0	0	1	0	0
7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
1.00	0.95	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95
0.82	0.95	0.85	0.94	0.83	1.00	0.88	0.88	0.92	0.92
	0.981		0.981		0.998		0.973		0.973
0.950		0.950		0.950		0.950		0.950	
1685	3296	0	1636	3275	0	1685	3514	0	1668
0.382		0.357		0.313		0.340		0.340	
553	3296	0	520	3275	0	460	3514	0	527
	Yes		Yes		Yes		Yes		Yes
20		5		1		1		31	
48		48		48		48		48	
285.7		232.1		134.3		102.4		102.4	
21.4		17.4		10.1		7.7		7.7	
845	695	695	845	966		546		546	966
0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
0%	1%	3%	1%	1%	1%	0%	1%	4%	4%
59	515	73	63	472	68	139	818	9	76
	Yes		Yes		Yes		Yes		Yes
59	588	0	63	540	0	139	827	0	76
	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
4	4	8	8	5	2	6	6	6	6
4	4	8	8	5	2	6	6	6	6
23.0	23.0	23.0	23.0	6.0	23.0	22.0	22.0	22.0	22.0
29.0	29.0	29.0	29.0	10.0	29.0	29.0	29.0	29.0	29.0
40.0	40.0	40.0	40.0	15.0	50.0	35.0	35.0	35.0	35.0
44.4%	44.4%	44.4%	44.4%	16.7%	55.6%	38.9%	38.9%	38.9%	38.9%
3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
3.0	3.0	3.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0
-1.0	-1.0	-4.0	-1.0	2.0	-1.0	-1.0	-1.0	-1.0	-1.0
5.0	5.0	2.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0
Max	Max	Max	Max	None	C-Max	C-Max	C-Max	C-Max	C-Max
35.0	35.0	38.0	35.0	44.0	45.0	31.7	31.7	31.7	31.7
0.39	0.39	0.42	0.39	0.49	0.50	0.35	0.35	0.35	0.35
0.27	0.45	0.29	0.42	0.43	0.47	0.41	0.41	0.46	0.46
23.2	21.1	21.7	21.2	17.2	15.8	31.4	23.0	23.0	23.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23.2	21.1	21.7	21.2	17.2	15.8	31.4	23.0	23.0	23.0

Synchro 9 Report  
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Lanes, Volumes, Timings  
2: Bay St & Bloor St

Existing PM  
12/10/2018

EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
21.3		21.2		16.0		16.0		24.1	
6.8	37.4	7.0	34.8	12.8	46.8	9.9	33.3		
16.7	51.8	17.0	48.4	23.1	61.6	23.9	48.7		
261.7		208.1		110.3		78.4			
15.2		13.7		20.4		10.4			
215	1294	219	1276	347	1757	185	1124		
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	0.45	0.29	0.42	0.40	0.47	0.41	0.46		
<b>Intersection Summary</b>									
Area Type: Other									
Cycle Length: 90									
Actuated Cycle Length: 90									
Offset: 0 (0%), Referenced to phase 2NBT.L and 6SBT.L, Start of Green									
Natural Cycle: 70									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.47									
Intersection Signal Delay: 20.0									
Intersection Capacity Utilization: 95.2%									
Analysis Period (min): 15									
Intersection LOS: C									
ICU Level of Service: F									
Splits and Phases: 2: Bay St & Bloor St									
50 s		40 s		40 s		40 s		40 s	
5.5 s		5.5 s		5.5 s		5.5 s		5.5 s	

Synchro 9 Report  
Page 8

Existing PM  
12/10/2018

HCM Signalized Intersection Capacity Analysis  
2: Bay St & Bloor St

Existing PM  
12/10/2018

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	59	588	63	540	139	827	76	512
Lane Group Flow (vph)	0.27	0.45	0.29	0.42	0.43	0.47	0.41	0.46
v/c Ratio	23.2	21.1	21.7	21.2	17.2	15.8	31.4	23.0
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	23.2	21.1	21.7	21.2	17.2	15.8	31.4	23.0
Total Delay	6.8	37.4	7.0	34.8	12.8	46.8	9.9	33.3
Queue Length 50th (m)	16.7	51.8	17.0	48.4	23.1	61.6	23.9	48.7
Queue Length 95th (m)	261.7	208.1						78.4
Internal Link Length (m)	15.2	13.7	20.4			110.3	10.4	
Turn Bay Length (m)	215	1294	219	1276	347	1757	185	1124
Base Capacity (vph)	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.45	0.29	0.42	0.40	0.47	0.41	0.46
<b>Intersection Summary</b>								

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	56	488	69	60	448	65	132	777	9
Traffic Volume (vph)	56	488	69	60	448	65	132	777	9
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	3.0	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5
Lane Width	5.0	5.0	2.0	5.0	6.0	5.0	5.0	5.0	5.0
Total Lost time (s)	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Lane Util. Factor	1.00	0.95	1.00	0.94	1.00	0.94	1.00	1.00	0.92
Frbp, ped/bikes	0.82	1.00	0.85	1.00	0.85	1.00	0.95	1.00	0.88
Frbp, ped/bikes	1.00	0.98	1.00	0.98	1.00	0.98	1.00	1.00	0.97
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Flt Protected	1376	3297	1385	3275	1604	3515	1473	3137	
Satd. Flow (prot)	0.38	1.00	0.36	1.00	0.31	1.00	0.34	1.00	
Flt Permitted	554	3297	521	3275	528	3515	528	3137	
Satd. Flow (perm)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Peak-hour factor, PHF	59	515	73	63	472	68	139	818	9
Adj. Flow (vph)	0	12	0	0	3	0	0	1	0
RTOR Reduction (vph)	59	576	0	63	537	0	139	827	0
Lane Group Flow (vph)	845	695	695	845	966	845	546	546	966
Conf. Peds. (#/hr)	0%	1%	0%	3%	1%	1%	0%	1%	4%
Heavy Vehicles (%)	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Turn Type	4	8	5	2	2	6	6	6	6
Protected Phases	4	8	5	2	2	6	6	6	6
Permitted Phases	34.0	34.0	34.0	34.0	44.0	44.0	30.7	30.7	30.7
Actuated Green, G (s)	35.0	35.0	38.0	35.0	42.0	45.0	31.7	31.7	31.7
Effective Green, g (s)	0.39	0.39	0.42	0.39	0.47	0.50	0.35	0.35	0.35
Actuated g/C Ratio	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	215	1282	219	1273	333	1757	185	1104	
Lane Grp Cap (vph)	0.11	0.17	0.12	0.16	0.03	0.24	0.16	0.16	
v/s Ratio Prot	0.27	0.45	0.29	0.42	0.42	0.47	0.14	0.14	
v/s Ratio Perm	18.8	20.4	17.1	20.1	14.9	14.7	22.1	22.4	
v/c Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay, d1	3.1	1.1	3.3	1.0	0.8	0.9	6.6	1.3	
Progression Factor	21.9	21.5	20.4	21.1	15.7	15.6	28.7	23.7	
Incremental Delay, d2	C	C	C	C	B	B	C	C	
Delay (s)	21.5	21.5	20.4	21.1	15.7	15.6	28.7	23.7	
Level of Service	C	C	C	C	B	B	C	C	
Approach Delay (s)	21.5	21.5	21.1	21.1	15.6	15.6	24.3	24.3	
Approach LOS	C	C	C	C	B	B	C	C	
<b>Intersection Summary</b>									
HCM 2000 Control Delay	20.0				HCM 2000 Level of Service				B
HCM 2000 Volume to Capacity ratio	0.50				Sum of lost time (s)				16.0
Actuated Cycle Length (s)	95.2%				ICU Level of Service				F
Intersection Capacity Utilization	15				Critical Lane Group				
Analysis Period (min)									
c Critical Lane Group									

Lanes, Volumes, Timings  
3: Bay St & Yorkville Ave

Existing PM  
12/10/2018

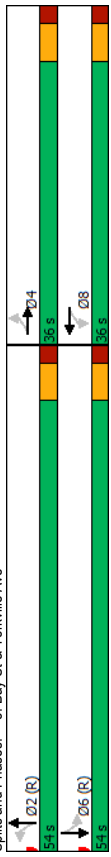
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	60	20	83	124	51	76	738	110	32	360	82
Future Volume (vph)	33	60	20	83	124	51	76	738	110	32	360	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.90			0.86			0.97				0.95	
Fit	0.976	0.973		0.974			0.992				0.974	
Flt Protected	0.986	0.984		0.984			0.996				0.997	
Satd. Flow (prot)	0	1689	0	0	1642	0	0	3389	0	0	3238	0
Flt Permitted	0.864	0.868		0.868			0.856				0.844	
Satd. Flow (perm)	0	1408	0	0	1329	0	0	2880	0	0	2736	0
Right Turn on Red			Yes		Yes		Yes		Yes		Yes	
Satd. Flow (RTOR)	13		15		15		26		48		44	
Link Speed (k/h)	48		48		48		95.5		115.7		48	
Link Distance (m)	200.3		161.7		161.7		95.5		115.7		48	
Travel Time (s)	15.0		12.1		12.1		7.2		8.7		8.7	
Confl. Peds. (#/hr)	263		358		358		263		106		60	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	5%	2%	2%	1%	1%	0%	0%	0%	0%	0%
Adj. Flow (vph)	35	63	21	87	131	54	80	777	116	34	368	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	119	0	0	272	0	0	973	0	0	488	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4	4		8	8		2	2		6	6	
Permitted Phases	4	4		8	8		2	2		6	6	
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	24.0	24.0		24.0	24.0		17.0	17.0		17.0	17.0	
Minimum Split (s)	30.0	30.0		30.0	30.0		23.0	23.0		23.0	23.0	
Total Split (s)	36.0	36.0		36.0	36.0		54.0	54.0		54.0	54.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	26.7	26.7		26.7	26.7		53.3	53.3		53.3	53.3	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.59	0.59		0.59	0.59	
v/c Ratio	0.28	0.28		0.28	0.28		0.57	0.57		0.57	0.57	
Control Delay	22.8	22.8		34.9	34.9		13.0	13.0		9.1	9.1	
Queue Delay	0.0	0.0		0.0	0.0		3.3	3.3		0.0	0.0	
Total Delay	22.8	22.8		34.9	34.9		16.3	16.3		9.1	9.1	
LOS	C	C		C	C		B	B		A	A	
Approach Delay	22.8	22.8		34.9	34.9		16.3	16.3		9.1	9.1	
Approach LOS	C	C		C	C		B	B		A	A	
Queue Length 50th (m)	14.3	14.3		40.1	40.1		45.8	45.8		17.1	17.1	
Queue Length 95th (m)	25.6	25.6		61.3	61.3		74.5	74.5		30.3	30.3	

Synchro 9 Report  
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Lanes, Volumes, Timings  
3: Bay St & Yorkville Ave

Existing PM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (m)	176.3			137.7			71.5			91.7		
Turn Bay Length (m)				467			1715			1637		
Base Capacity (vph)	493			0			621			0		
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	0.24			0.58			0.89			0.30		
Intersection Summary												
Area Type:	Other											
Cycle Length:	90											
Actuated Cycle Length:	90											
Offset:	0 (0%), Referenced to phase 2:NBT.L and 6:SBT.L, Start of Green											
Natural Cycle:	60											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.87											
Intersection Signal Delay:	17.5											
Intersection Capacity Utilization:	74.6%											
ICU Level of Service:	D											
Analysis Period (min):	15											



Splits and Phases: 3: Bay St & Yorkville Ave

Synchro 9 Report  
Page 12

Queues  
3: Bay St & Yorkville Ave

Existing PM  
12/10/2018

	EBT	WBT	NBT	SBT
Lane Group	119	272	973	488
Lane Group Flow (vph)	0.28	0.67	0.57	0.30
v/c Ratio	22.8	34.9	13.0	9.1
Control Delay	0.0	0.0	3.3	0.0
Queue Delay	22.8	34.9	16.3	9.1
Total Delay	14.3	40.1	45.8	17.1
Queue Length 50th (m)	25.6	61.3	74.5	30.3
Queue Length 95th (m)	176.3	137.7	71.5	91.7
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)	493	467	1715	1637
Starvation Cap Reductn	0	0	621	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.24	0.58	0.89	0.30

Intersection Summary

Synchro 9 Report  
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HCM Signalized Intersection Capacity Analysis  
3: Bay St & Yorkville Ave

Existing PM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations												
Traffic Volume (vph)	33	60	20	83	124	51	76	738	110	32	350	82
Future Volume (vph)	33	60	20	83	124	51	76	738	110	32	350	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frpb, ped/bikes	0.94	0.94	0.94	0.94	0.94	0.94	0.98	0.98	0.98	0.98	0.95	0.95
Flpb, ped/bikes	0.95	0.95	0.92	0.92	0.92	0.92	0.99	0.99	0.99	1.00	1.00	1.00
Flt	0.98	0.98	0.97	0.97	0.97	0.97	0.98	0.98	0.98	0.97	0.97	0.97
Flt Protected	0.99	0.99	0.98	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1608	1608	1509	1509	1509	1509	3350	3350	3350	3228	3228	3228
Flt Permitted	0.86	0.86	0.87	0.87	0.87	0.87	0.86	0.86	0.86	0.84	0.84	0.84
Satd. Flow (perm)	1410	1410	1331	1331	1331	1331	2881	2881	2881	2734	2734	2734
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	35	63	21	87	131	54	80	777	116	34	368	86
RTOR Reduction (vph)	0	9	0	0	11	0	0	11	0	0	18	0
Lane Group Flow (vph)	0	110	0	0	261	0	0	962	0	0	470	0
Confl. Peds. (#/hr)	263	358	358	358	263	106	263	106	60	60	60	106
Heavy Vehicles (%)	0%	0%	5%	5%	2%	2%	1%	1%	0%	0%	2%	0%
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4	4	8	8	8	8	2	2	2	6	6	6
Permitted Phases	4	4	8	8	8	8	2	2	2	6	6	6
Actuated Green, G (s)	25.7	25.7	25.7	25.7	25.7	25.7	52.3	52.3	52.3	52.3	52.3	52.3
Effective Green, g (s)	26.7	26.7	26.7	26.7	26.7	26.7	53.3	53.3	53.3	53.3	53.3	53.3
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30	0.30	0.59	0.59	0.59	0.59	0.59	0.59
Clearance Time (s)	6.0	6.0	6.0	6.0	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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	418	418	394	394	394	394	1706	1706	1706	1619	1619	1619
v/s Ratio Prot												
v/s Ratio Perm	0.08	0.08	c0.20	c0.20	c0.20	c0.20	0.33	0.33	0.33	0.17	0.17	0.17
v/c Ratio	0.26	0.26	0.66	0.66	0.66	0.66	0.56	0.56	0.56	0.29	0.29	0.29
Uniform Delay, d1	24.1	24.1	27.7	27.7	27.7	27.7	11.2	11.2	11.2	9.0	9.0	9.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3	4.2	4.2	4.2	4.2	1.4	1.4	1.4	0.5	0.5	0.5
Delay (s)	24.5	24.5	31.9	31.9	31.9	31.9	12.6	12.6	12.6	9.5	9.5	9.5
Level of Service	C	C	C	C	C	C	B	B	B	A	A	A
Approach Delay (s)	24.5	24.5	31.9	31.9	31.9	31.9	12.6	12.6	12.6	9.5	9.5	9.5
Approach LOS	C	C	C	C	C	C	B	B	B	A	A	A

Intersection Summary

HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Synchro 9 Report  
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Lanes, Volumes, Timings  
4: Yonge St & Collier St

Existing PM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group						
Lane Configurations						
Traffic Volume (vph)	0	0	660	94	16	444
Future Volume (vph)	0	0	660	94	16	444
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor			0.981			
Fit						
Flt Protected						0.998
Std. Flow (prot)	0	0	3472	0	0	3529
Flt Permitted						0.998
Std. Flow (perm)	0	0	3472	0	0	3529
Link Speed (k/h)	48	48	48	48	48	48
Link Distance (m)	111.8	22.2	163.1			12.2
Travel Time (s)	8.4	1.7				
Confl. Peds. (#/hr)				496	496	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	1%	0%	0%	1%
Adj. Flow (vph)	0	0	695	99	17	467
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	794	0	0	484
Sign Control	Stop	Free	Free	Free	Free	Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.3%					
Analysis Period (min)	15					
	ICU Level of Service A					

Synchro 9 Report  
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HCM Unsignalized Intersection Capacity Analysis  
4: Yonge St & Collier St

Existing PM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Movement						
Lane Configurations						
Traffic Volume (veh/h)	0	0	660	94	16	444
Future Volume (Veh/h)	0	0	660	94	16	444
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	695	99	17	467
Pedestrians	496					
Lane Width (m)	0.0					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)			None		None	
Median type			None		None	
Median storage (veh)						
Upstream signal (m)			22			
pX, platoon unblocked	0.92	0.92			0.92	
vC, conflicting volume	1508	893			1290	
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	1374	703			1136	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			97	
cM capacity (veh/h)	122	348			571	
Direction: Lane #	NB.1	NB.2	SB.1	SB.2		
Volume Total	463	331	173	311		
Volume Left	0	0	17	0		
Volume Right	0	99	0	0		
cSH	1700	1700	571	1700		
Volume to Capacity	0.27	0.19	0.03	0.18		
Queue Length 95th (m)	0.0	0.0	0.7	0.0		
Control Delay (s)	0.0	0.0	1.5	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.5			
Approach LOS						
<b>Intersection Summary</b>						
Average Delay	0.2					
Intersection Capacity Utilization	27.3%					
Analysis Period (min)	15					
	ICU Level of Service A					

Synchro 9 Report  
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Lanes, Volumes, Timings  
5: Yonge St & Asquith Avenue

Existing PM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑	↑		↑
Traffic Volume (vph)	15	66	597	45	10	355
Future Volume (vph)	15	66	597	45	10	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Flt Protected	0.890		0.990			
Flt Permitted	0.991					0.999
Satd. Flow (prot)	1491	0	3460	0	0	3532
Satd. Flow (perm)	1491	0	3460	0	0	3532
Link Speed (k/h)	48		48			48
Link Distance (m)	191.3		15.7			76.1
Travel Time (s)	14.3		1.2			5.7
Confl. Peds. (#/hr)				670	670	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	6%	2%	4%	0%	1%
Adj. Flow (vph)	16	69	628	47	11	374
Shared Lane Traffic (%)						
Lane Group Flow (vph)	85	0	675	0	0	385
Sign Control	Stop	Free	Free	Free	Free	Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	30.3%					
Analysis Period (min)	15					
					ICU Level of Service A	

Synchro 9 Report  
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HCM Unsignalized Intersection Capacity Analysis  
5: Yonge St & Asquith Avenue

Existing PM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Movement	W		↑	↑		↑
Lane Configurations	W		↑	↑		↑
Traffic Volume (veh/h)	15	66	597	45	10	355
Future Volume (Veh/h)	15	66	597	45	10	355
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	16	69	628	47	11	374
Pedestrians	670					
Lane Width (m)	3.0					
Walking Speed (m/s)	1.1					
Percent Blockage	51					
Right turn flare (veh)			None			None
Median type			None			None
Median storage (veh)						76
Upstream signal (m)			119			
pX, platoon unblocked	0.86	0.86			0.86	
vC, conflicting volume	1530	1008			1345	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1288	678			1071	
IC, single (s)	6.8	7.0			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.4			2.2	
p0 queue free %	75	58			96	
cM capacity (veh/h)	64	163			278	
<b>Direction: Lane #</b>						
	WB.1	NB.1	NB.2	SB.1	SB.2	
Volume Total	85	419	256	136	249	
Volume Left	16	0	0	11	0	
Volume Right	69	0	47	0	0	
cSH	126	1700	1700	278	1700	
Volume to Capacity	0.67	0.25	0.15	0.04	0.15	
Queue Length 95th (m)	27.5	0.0	0.0	0.9	0.0	
Control Delay (s)	78.3	0.0	0.0	2.2	0.0	
Lane LOS	F	A	A	A	A	
Approach Delay (s)	78.3	0.0	0.8			
Approach LOS	F					
<b>Intersection Summary</b>						
Average Delay	6.1					
Intersection Capacity Utilization	30.3%					
ICU Level of Service	A					
Analysis Period (min)	15					

Synchro 9 Report  
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Lanes, Volumes, Timings  
6: Yonge St & Yorkville Ave

Lanes, Volumes, Timings  
6: Yonge St & Yorkville Ave

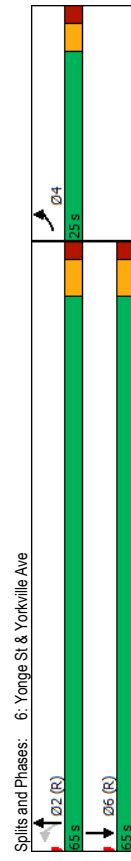
Existing PM  
12/10/2018

Existing PM  
12/10/2018

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W					
Traffic Volume (vph)	168	46	87	585	322	121
Future Volume (vph)	168	46	87	585	322	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.75		0.96	0.84		
Fit	0.971			0.959		
Fit Protected	0.962			0.994		
Satd. Flow (prot)	1536	0	0	3500	2862	0
Fit Permitted	0.962			0.813		
Satd. Flow (perm)	1239	0	0	2753	2862	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	14				125	
Link Speed (k/h)	48			48	48	
Link Distance (m)	65.2			76.1	22.2	
Travel Time (s)	4.9			5.7	1.7	
Confl. Peds. (#/hr)	173	274	289			289
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	4%	1%	1%	1%
Adj. Flow (vph)	177	48	92	616	339	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	225	0	0	708	466	0
Turn Type	Prot	Perm	NA	NA	NA	0
Protected Phases	4			2	6	
Permitted Phases			2			
Minimum Split (s)	24.0	22.0	22.0	22.0	22.0	
Total Split (s)	25.0	65.0	65.0	65.0	65.0	
Total Split (%)	27.8%	72.2%	72.2%	72.2%	72.2%	
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0			6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Act. Effct Green (s)	20.0			59.0	59.0	
Actuated g/C Ratio	0.22			0.66	0.66	
v/c Ratio	0.64			0.39	0.24	
Control Delay	39.1			8.0	4.9	
Queue Delay	0.0			0.0	0.0	
Total Delay	39.1			8.0	4.9	
LOS	D			A	A	
Approach Delay	39.1			8.0	4.9	
Approach LOS	D			A	A	
Queue Length 50th (m)	33.2			26.5	10.7	
Queue Length 95th (m)	57.1			36.4	16.6	
Internal Link Dist (m)	41.2			52.1	0.1	
Turn Bay Length (m)				1804	1919	
Base Capacity (vph)	352					

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.64			0.39	0.24	
<b>Intersection Summary</b>						
Area Type:	Other					
Cycle Length:	90					
Actuated Cycle Length:	90					
Offset: 0 (0%):	Referenced to phase 2:NBL and 6:SBT, Start of Green					
Natural Cycle:	50					
Control Type:	Pretimed					
Maximum v/c Ratio:	0.64					
Intersection Signal Delay:	11.9					
Intersection LOS:	B					
Intersection Capacity Utilization:	63.8%					
Analysis Period (min):	15					



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	EBL	NBT	SBT
Lane Group	225	708	466
Lane Group Flow (vph)	0.64	0.39	0.24
v/c Ratio	39.1	8.0	4.9
Control Delay	0.0	0.0	0.0
Queue Delay	39.1	8.0	4.9
Total Delay	33.2	26.5	10.7
Queue Length 50th (m)	57.1	36.4	16.6
Queue Length 95th (m)	41.2	52.1	0.1
Internal Link Dist (m)	352	1804	1919
Turn Bay Length (m)	0	0	0
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.64	0.39	0.24
<b>Intersection Summary</b>			

	EBL	EBR	NBL	NBT	SBT	SBR
Movement	↔	↔	↔	↔	↔	↔
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	168	46	87	585	322	121
Future Volume (vph)	168	46	87	585	322	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.5	3.5	3.5
Total Lost time (s)	5.0		6.0	6.0	6.0	
Lane Util. Factor	1.00		0.95	0.95	0.95	
Frbp, ped/bikes	0.93		1.00	0.84	1.00	
Frbp, ped/bikes	1.00		0.96	1.00	1.00	
Frt	0.97		1.00	0.96	1.00	
Fit Protected	0.96		0.99	1.00	1.00	
Satd. Flow (prot)	1536		3364	2862	3364	
Fit Permitted	0.96		0.81	1.00	1.00	
Satd. Flow (perm)	1536		2754	2862	2862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	177	48	92	616	339	127
RTOR Reduction (vph)	11	0	0	0	43	0
Lane Group Flow (vph)	214	0	0	708	423	0
Confl. Peds. (#/hr)	173	274	289		289	
Heavy Vehicles (%)	0%	2%	4%	1%	1%	1%
Turn Type	Prot	Perm	NA	NA	NA	NA
Protected Phases	4		2	2	6	
Permitted Phases		2				
Actuated Green, G (s)	20.0		59.0	59.0	59.0	
Effective Green, g (s)	20.0		59.0	59.0	59.0	
Actuated g/C Ratio	0.22		0.66	0.66	0.66	
Clearance Time (s)	5.0		6.0	6.0	6.0	
Lane Grp Cap (vph)	341		1805	1876	1876	
v/s Ratio Prot	c0.14				0.15	
v/s Ratio Perm			c0.26			
v/c Ratio	0.63		0.39	0.23	0.23	
Uniform Delay, d1	31.6		7.2	6.3	6.3	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	8.5		0.6	0.3	0.3	
Delay (s)	40.1		7.8	6.5	6.5	
Level of Service	D		A	A	A	
Approach Delay (s)	40.1		7.8	6.5	6.5	
Approach LOS	D		A	A	A	
<b>Intersection Summary</b>						
HCM 2000 Control Delay		12.6		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.45				
Actuated Cycle Length (s)		90.0		Sum of lost time (s)		11.0
Intersection Capacity Utilization		63.8%		ICU Level of Service		B
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings  
7: Yonge St & Cumberland St

Existing PM  
12/10/2018

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W					
Traffic Volume (vph)	116	70	0	528	365	0
Future Volume (vph)	116	70	0	528	365	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Flt	0.949					
Flt Protected	0.970					
Satd. Flow (prot)	1610	0	0	3500	3535	0
Flt Permitted	0.970					
Satd. Flow (perm)	1610	0	0	3500	3535	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	64.7			103.3	15.7	
Travel Time (s)	4.9			7.7	1.2	
Confl. Peds. (#/hr)	38	4	466			466
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	2%	2%	1%	2%
Adj. Flow (vph)	122	74	0	556	384	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	196	0	0	556	384	0
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	32.4%					
Analysis Period (min)	15					
					ICU Level of Service A	

Synchro 9 Report  
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HCM Unsignalized Intersection Capacity Analysis  
7: Yonge St & Cumberland St

Existing PM  
12/10/2018

	EBL	EBR	NBL	NBT	SBT	SBR
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W					
Traffic Volume (veh/h)	116	70	0	528	365	0
Future Volume (Veh/h)	116	70	0	528	365	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	122	74	0	556	384	0
Pedestrians	466			4	38	
Lane Width (m)	3.0			3.5	3.5	
Walking Speed (m/s)	1.1			1.1	1.1	
Percent Blockage	35			0	3	
Right turn flare (veh)						
Median type	None					
Median storage (veh)	None					
Upstream signal (m)	103					
pX, platoon unblocked	0.86					
vC, conflicting volume	1166					
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	859					
IC, single (s)	6.8					
IC, 2 stage (s)	6.9					
IF (s)	3.5					
p0 queue free %	23					
IC, 2 stage free %	72					
cM capacity (veh/h)	159					
					507	
Direction: Lane #	EB.1	NB.1	NB.2	SB.1	SB.2	
Volume Total	196	278	278	192	192	
Volume Left	122	0	0	0	0	
Volume Right	74	0	0	0	0	
cSH	187	1700	1700	1700	1700	
Volume to Capacity	1.05	0.16	0.16	0.11	0.11	
Queue Length 95th (m)	69.7	0.0	0.0	0.0	0.0	
Control Delay (s)	131.6	0.0	0.0	0.0	0.0	
Lane LOS	F					
Approach Delay (s)	131.6					
Approach LOS	F					
<b>Intersection Summary</b>						
Average Delay	22.7					
Intersection Capacity Utilization	32.4%					
Analysis Period (min)	15					
					ICU Level of Service A	

Synchro 9 Report  
Page 24

Lanes, Volumes, Timings  
8: Bay St & Cumberland St

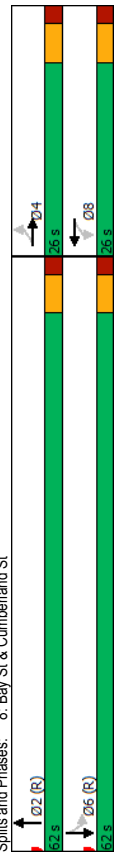
Existing PM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations		↕↕			↕			↕↕			↕↕
Traffic Volume (vph)	47	56	79	43	0	66	0	799	108	23	431
Future Volume (vph)	47	56	79	43	0	66	0	799	108	23	431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.77			0.71			0.93				0.99
Flt	0.935			0.918			0.992				
Flt Protected	0.987			0.981							0.997
Satd. Flow (prot)	0	2886	0	0	1372	0	0	3227	0	0	3493
Flt Permitted	0.859			0.805							0.883
Satd. Flow (perm)	0	2190	0	0	989	0	0	3227	0	0	3073
Right Turn on Red		Yes			Yes		Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	45			37			1				
Link Speed (k/h)	48			48			48				48
Link Distance (m)	190.2			160.7			102.4				95.5
Travel Time (s)	14.3			12.1			7.7				7.2
Confl. Peds. (#/hr)	239			582			239			471	530
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	0%	0%	0%	2%	0%	2%	1%	1%	0%	2%
Adj. Flow (vph)	49	59	83	45	0	69	0	841	114	24	454
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	191	0	0	114	0	0	955	0	0	478
Turn Type	Perm	NA	Perm	NA	NA	NA	NA	NA	Perm	NA	NA
Protected Phases	4			8			2				6
Permitted Phases	4			8			2				6
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	26.0	26.0	26.0	26.0	26.0	26.0	62.0	62.0	62.0	62.0	62.0
Total Split (%)	29.5%	29.5%	29.5%	29.5%	29.5%	29.5%	70.5%	70.5%	70.5%	70.5%	70.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag											
Lead-Lag Optimize?											
Act Effct Green (s)	20.0			20.0			56.0				56.0
Actuated g/C Ratio	0.23			0.23			0.64				0.64
v/c Ratio	0.36			0.45			0.47				0.24
Control Delay	23.9			26.6			9.2				7.3
Queue Delay	0.0			0.0			1.4				0.5
Total Delay	23.9			26.6			10.5				7.8
LOS	C			C			B				A
Approach Delay	23.9			26.6			10.5				7.8
Approach LOS	C			C			B				A
Queue Length 50th (m)	10.7			11.0			39.1				16.3
Queue Length 95th (m)	20.2			26.8			51.7				23.2
Internal Link Dist (m)	166.2			136.7			78.4				71.5
Turn Bay Length (m)											
Base Capacity (vph)	532			253			2053				1955
Starvation Cap Reductn	0			0			838				1005

Lanes, Volumes, Timings  
8: Bay St & Cumberland St

Existing PM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Spillback Cap Reductn	0			0			0			0	0
Storage Cap Reductn	0			0			0			0	0
Reduced v/c Ratio	0.36			0.45			0.79			0.50	
Intersection Summary											
Area Type:	Other										
Cycle Length:	88										
Actuated Cycle Length:	88										
Offset: 0 (0%):	Referenced to phase 2:NBT and 6:SBTL, Start of Green										
Natural Cycle:	55										
Control Type:	PreTimed										
Maximum v/c Ratio:	0.47										
Intersection Signal Delay:	12.3										
Intersection Capacity Utilization:	75.7%										
Analysis Period (min):	15										
Intersection LOS:	B										
ICU Level of Service:	D										



Existing PM  
12/10/2018

HCM Signalized Intersection Capacity Analysis  
8: Bay St & Cumberland St

Existing PM  
12/10/2018

	EBT	WBT	NBT	SBT
Lane Group	191	114	955	478
Lane Group Flow (vph)	0.36	0.45	0.47	0.24
v/c Ratio	23.9	26.6	9.2	7.3
Control Delay	0.0	0.0	1.4	0.5
Queue Delay	23.9	26.6	10.5	7.8
Total Delay	10.7	11.0	39.1	16.3
Queue Length 50th (m)	20.2	26.8	51.7	23.2
Queue Length 95th (m)	166.2	136.7	78.4	71.5
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)	532	253	2053	1955
Starvation Cap Reductn	0	0	838	1005
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.36	0.45	0.79	0.50

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4	4		4			4			4	4
Traffic Volume (vph)	47	56	79	43	0	66	0	799	108	108	23	431
Future Volume (vph)	47	56	79	43	0	66	0	799	108	108	23	431
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		0.95			1.00			0.95			0.95	
Flpb, ped/bikes		0.82			0.81			0.93			1.00	
Flt		0.93			0.92			0.98			1.00	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		2517			1205			3227			3471	
Flt Permitted		0.86			0.81			1.00			0.88	
Satd. Flow (perm)		2189			990			3227			3073	
Peak-hour factor, PHF		0.95			0.95			0.95			0.95	
Adj. Flow (vph)		49	59	83	45		69	0	841	114	24	454
RTOR Reduction (vph)		0	35	0	0	29	0	0	0	0	0	0
Lane Group Flow (vph)		0	156	0	0	85	0	0	955	0	0	478
Confl. Peds. (#/hr)		239		582	582	239	530		471	471		530
Heavy Vehicles (%)		4%	0%	0%	2%	0%	2%	1%	1%	0%	2%	2%
Turn Type	Perm	NA	NA	Perm	NA	NA	NA	NA	NA	Perm	NA	NA
Protected Phases		4			8			2			6	
Permitted Phases		4		8						6		
Actuated Green, G (s)		20.0		20.0				56.0			56.0	
Effective Green, g (s)		20.0		20.0				56.0			56.0	
Actuated g/C Ratio		0.23		0.23				0.64			0.64	
Clearance Time (s)		6.0		6.0				6.0			6.0	
Lane Grp Cap (vph)		497		225				2053			1955	
v/s Ratio Prot		0.07		c0.09				c0.30			0.16	
v/c Ratio Perm		0.31		0.38				0.46			0.24	
Uniform Delay, d1		28.3		28.8				8.3			6.9	
Progression Factor		1.00		1.00				1.00			1.00	
Incremental Delay, d2		1.7		4.8				0.8			0.3	
Delay (s)		29.9		33.6				9.0			7.2	
Level of Service		C		C				A			A	
Approach Delay (s)		29.9		33.6				9.0			7.2	
Approach LOS		C		C				A			A	
Intersection Summary												
HCM 2000 Control Delay			12.4									B
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			88.0								12.0	
Intersection Capacity Utilization			75.7%								D	
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
9: Site Driveway & Yorkville Ave

Existing PM  
12/10/2018

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1				4	W
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fit						
Fit Protected						
Std. Flow (prot)	1842	0	0	1842	1739	0
Fit Permitted						
Std. Flow (perm)	1842	0	0	1842	1739	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	161.7			65.2	92.0	
Travel Time (s)	12.1			4.9	6.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	0.0%					
Analysis Period (min)	15					
						ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
9: Site Driveway & Yorkville Ave

Existing PM  
12/10/2018

	EBT	EBR	WBL	WBT	NBL	NBR
Movement	1				4	W
Lane Configurations	1				4	W
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)	162			65		
pX, platoon unblocked						
vC, conflicting volume	0	0	0	0	0	0
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	0	0	0	0	0	0
IC, single (s)	4.1			6.4	6.2	
IC, 2 stage (s)	2.2			3.5	3.3	
p0 queue free %	100			100	100	
cM capacity (veh/h)	1623			1023	1085	
Direction: Lane #	EB 1	WB 1	NB 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A	A	A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Average Delay	0.0					
Intersection Capacity Utilization	0.0%					
Analysis Period (min)	15					
						ICU Level of Service A

Lanes, Volumes, Timings  
10: Cumberland St & Site Driveway

Existing PM  
12/10/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4				
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Ideal Flow (veh/pl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fit						
Std. Flow (prot)	0	1842	1842	0	1739	0
Fit Permitted						
Std. Flow (perm)	0	1842	1842	0	1739	0
Link Speed (k/h)		48	48		48	
Link Distance (m)		160.7	64.7		92.0	
Travel Time (s)		12.1	4.9		6.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Sign Control		Free	Free		Stop	

Area Type	Other
Control Type	Unsignalized
Intersection Capacity Utilization	0.0%
Analysis Period (min)	15
ICU Level of Service	A

HCM Unsignalized Intersection Capacity Analysis  
10: Cumberland St & Site Driveway

Existing PM  
12/10/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4				
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)		None	None			
Median type		None	None			
Median storage (veh)						
Upstream signal (m)		161				
pX, platoon unblocked						
vC, conflicting volume	0			0	0	0
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	0			0	0	0
IC, single (s)	4.1			6.4	6.2	
IC, 2 stage (s)						
IF (s)	2.2			3.5	3.3	
p0 queue free %	100			100	100	
cM capacity (veh/h)	1623			1023	1085	

Direction	Lane #	EB 1	WB 1	SB 1
Volume Total		0	0	0
Volume Left		0	0	0
Volume Right		0	0	0
cSH		1700	1700	1700
Volume to Capacity		0.00	0.00	0.00
Queue Length 95th (m)		0.0	0.0	0.0
Control Delay (s)		0.0	0.0	0.0
Lane LOS		A	A	A
Approach Delay (s)		0.0	0.0	0.0
Approach LOS		A	A	A

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

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Background AM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4T		4T				4T			4T	
Traffic Volume (vph)	0	634	2	0	719	5	0	243	4	1	591	4
Future Volume (vph)	0	634	2	0	719	5	0	243	4	1	591	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00			1.00			0.99				0.999	
Fit Protected												
Satd. Flow (prot)	0	3392	0	0	3419	0	0	3243	0	0	3451	0
Fit Permitted												
Satd. Flow (perm)	0	3392	0	0	3419	0	0	3243	0	0	3295	0
Right Turn on Red		Yes		Yes			Yes		Yes		Yes	
Satd. Flow (RTOR)												
Link Speed (k/h)	48			1			1				1	
Link Distance (m)	232.1			48			48				48	
Travel Time (s)	17.4			17.5			14.2				7.7	
Confl. Peds. (#/hr)	715			563			715				542	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	5%	50%	3%	4%	0%	15%	9%	25%	0%	3%	25%
Adj. Flow (vph)	0	704	2	0	799	6	0	270	4	1	657	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	706	0	0	805	0	0	274	0	0	662	0
Turn Type	NA			NA			NA		NA	Perm	NA	
Protected Phases	2	2		6	6		4	4		8	8	
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Total Split (s)	33.0	33.0		33.0	33.0		31.0	31.0		31.0	31.0	
Total Split (%)	34.4%	34.4%		34.4%	34.4%		32.3%	32.3%		32.3%	32.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0			-1.0			-1.0			-1.0		
Total Lost Time (s)	5.0			5.0			5.0			5.0		
Lead/Lag				Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?				Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	C-Max			Max	Max		Max	Max		Max	Max	
Act Effct Green (s)	28.0			28.0			26.0			26.0		
Actuated g/C Ratio	0.29			0.29			0.27			0.27		
vic Ratio	0.71			0.81			0.31			0.74		
Control Delay	35.2			39.0			29.0			37.8		
Queue Delay	0.0			0.0			0.0			0.0		
Total Delay	35.2			39.0			29.0			37.8		
LOS	D			D			C			D		
Approach Delay	35.2			39.0			29.0			37.8		
Approach LOS	D			D			C			D		
Queue Length 50th (m)	61.3			72.5			21.2			58.7		
Queue Length 95th (m)	81.5			94.7			32.1			76.7		

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Background AM  
12/10/2018

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Fit Protected		
Satd. Flow (prot)		
Fit Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type	3	7
Protected Phases		
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	28.0
Minimum Split (s)	31.0	32.0
Total Split (s)	32.0	32.0
Total Split (%)	33%	33%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	Max	Max
Actuated g/C Ratio		
vic Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		



Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Background AM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (m)	208.1			209.5			165.9				79.3	
Turn Bay Length (m)		989		997			879				883	
Base Capacity (vph)	0			0			0				0	
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	0.71			0.81			0.31				0.74	

**Intersection Summary**

Area Type: Other

Cycle Length: 96

Actuated Cycle Length: 96

Offset: 0 (0%); Referenced to phase 2:EBTL; Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

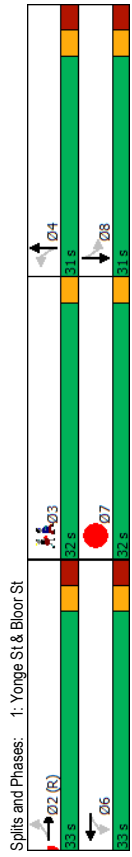
Intersection Signal Delay: 36.5

Intersection Capacity Utilization 45.7%

Analysis Period (min) 15

Intersection LOS: D

ICU Level of Service A



Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Background AM  
12/10/2018

Lane Group	Ø3	Ø7
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

**Intersection Summary**

Queues  
1: Yonge St & Bloor St

Future Background AM  
12/10/2018

	EBT	WBT	NBT	SBT
Lane Group	706	805	274	662
Lane Group Flow (vph)	0.71	0.81	0.31	0.74
v/c Ratio	35.2	39.0	29.0	37.8
Control Delay	0.0	0.0	0.0	0.0
Queue Delay	35.2	39.0	29.0	37.8
Total Delay	61.3	72.5	21.2	58.7
Queue Length 50th (m)	81.5	94.7	32.1	78.7
Queue Length 95th (m)	208.1	209.5	165.9	79.3
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)	989	997	879	893
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	0.71	0.81	0.31	0.74

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
1: Yonge St & Bloor St

Future Background AM  
12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4T			4T			4T			4T	
Traffic Volume (vph)	0	634	2	0	719	5	0	243	4	1	591	4
Future Volume (vph)	0	634	2	0	719	5	0	243	4	1	591	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			1.00			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Flt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3390			3418			3242			3450	
Flt Permitted		1.00			1.00			1.00			0.95	
Satd. Flow (perm)		3390			3418			3242			3294	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	704	2	0	799	6	0	270	4	1	657	4
RTOR Reduction (vph)	0	0	0	0	1	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	706	0	0	804	0	0	273	0	0	661	0
Confl. Peds. (#/hr)	715	563	563	715	275	715	275	542	542	275	542	275
Heavy Vehicles (%)	7%	5%	50%	3%	4%	0%	15%	9%	25%	0%	3%	25%
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases	2				6			4			8	
Permitted Phases	2		6		6		4				8	
Actuated Green, G (s)	27.0		27.0		27.0		25.0				25.0	
Effective Green, g (s)	28.0		28.0		28.0		26.0				26.0	
Actuated g/C Ratio	0.29		0.29		0.29		0.27				0.27	
Clearance Time (s)	6.0		6.0		6.0		6.0				6.0	
Vehicle Extension (s)	3.0		3.0		3.0		3.0				3.0	
Lane Grp Cap (vph)	988		986		996		878				892	
v/s Ratio Prot	0.21		c0.24		0.08		c0.20				0.74	
v/s Ratio Perm	0.71		0.81		0.31		0.74				0.74	
Uniform Delay, d1	30.4		31.5		27.9		31.9				31.9	
Progression Factor	1.00		1.00		1.00		1.00				1.00	
Incremental Delay, d2	4.4		7.0		0.9		5.5				5.5	
Delay (s)	34.8		38.5		28.8		37.5				37.5	
Level of Service	C		D		C		D				D	
Approach Delay (s)	34.8		38.5		28.8		37.5				37.5	
Approach LOS	C		D		C		D				D	

Intersection Summary

HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings  
2: Bay St & Bloor St

Future Background AM  
12/10/2018

EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
70	532	106	102	488	81	57	426	8	54	518
70	532	106	102	498	81	57	426	8	54	518
1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5
15.2	0.0	13.7	0.0	20.4	0.0	20.4	0.0	10.4	0.0	0.0
1	0	1	0	1	0	1	0	1	0	0
7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.95
0.87	0.95	0.91	0.95	0.88	1.00	0.90	0.97	0.90	0.97	0.985
0.975		0.979		0.997		0.997		0.985		0.985
0.950		0.950		0.950		0.950		0.950		0.950
1574	3189	0	1636	3225	0	1465	3326	0	1636	3250
0.408		0.213		0.345		0.345		0.447		0.447
587	3189	0	335	3225	0	470	3326	0	693	3250
	Yes		Yes		Yes		Yes		Yes	Yes
32		29		2		2		15		15
48		48		48		48		48		48
285.7		232.1		134.3		134.3		102.4		102.4
21.4		17.4		10.1		10.1		7.7		7.7
286	295	295	286	428	191	191	428	191	428	428
0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
7%	4%	3%	3%	6%	15%	6%	37%	3%	4%	9%
78	591	118	113	553	90	63	473	9	60	576
78	709	0	113	643	0	63	482	0	60	640
Perm	NA	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA	NA
4	4	3	8	2	2	6	6	6	6	6
4	4	3	8	2	2	6	6	6	6	6
23.0	23.0	6.0	23.0	22.0	22.0	23.0	23.0	23.0	23.0	23.0
30.0	30.0	10.0	30.0	29.0	29.0	30.0	30.0	30.0	30.0	30.0
39.0	39.0	13.0	52.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
46.9%	45.9%	15.3%	61.2%	38.8%	38.8%	38.8%	38.8%	38.8%	38.8%	38.8%
3.0	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
3.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.0	6.0	4.0	7.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
26.9	26.9	39.1	36.1	35.9	35.9	35.9	35.9	35.9	35.9	35.9
0.32	0.32	0.46	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
0.42	0.69	0.41	0.46	0.32	0.34	0.20	0.46	0.20	0.46	0.46
29.7	27.6	15.8	17.0	26.1	19.1	21.6	20.3	21.6	20.3	20.3
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.4
29.7	27.6	15.8	17.0	26.1	19.1	21.6	20.6	21.6	20.6	20.6
C	C	B	B	C	B	C	C	B	C	C

Lanes, Volumes, Timings  
2: Bay St & Bloor St

Future Background AM  
12/10/2018

EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
27.9		16.8		19.9		19.9		20.7		20.7
C		B		B		B		C		C
10.1	51.0	9.8	34.6	6.9	28.1	6.2	38.7	6.2	38.7	38.7
20.9	61.7	15.5	40.6	20.2	45.6	17.2	61.5	17.2	61.5	61.5
261.7		208.1		110.3		78.4		78.4		78.4
15.2		13.7		20.4		10.4		10.4		10.4
227	1257	291	1721	198	1407	293	1382	293	1382	1382
0	0	0	0	0	0	0	0	0	0	291
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0.34	0.96	0.39	0.37	0.32	0.34	0.20	0.99	0.20	0.99	0.99
Intersection Summary										
Area Type: Other										
Cycle Length: 85										
Actuated Cycle Length: 85										
Offset: 0 (0%), Referenced to phase 2NBL and 6SBTL, Start of Green										
Natural Cycle: 70										
Control Type: Actuated-Coordinated										
Maximum v/c Ratio: 0.69										
Intersection Signal Delay: 21.5										
Intersection Capacity Utilization: 97.5%										
Analysis Period (min): 15										
Intersection LOS: C										
ICU Level of Service: F										
Splits and Phases: 2: Bay St & Bloor St										

Queues  
2: Bay St & Bloor St  
Future Background AM  
12/10/2018

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	78	709	113	643	63	482	60	640
v/c Ratio	0.42	0.69	0.41	0.46	0.32	0.34	0.20	0.46
Control Delay	29.7	27.6	15.8	17.0	26.1	19.1	21.6	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	29.7	27.6	15.8	17.0	26.1	19.1	21.6	20.6
Queue Length 50th (m)	10.1	51.0	9.8	34.6	6.9	28.1	6.2	38.7
Queue Length 95th (m)	20.9	61.7	15.5	40.6	20.2	45.6	17.2	61.5
Internal Link Dist (m)	261.7		208.1		110.3		78.4	
Turn Bay Length (m)	15.2		13.7		20.4		10.4	
Base Capacity (vph)	227	1257	291	1721	198	1407	293	1382
Starvation Cap Reductn	0	0	0	0	0	0	0	291
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	0.56	0.39	0.37	0.32	0.34	0.20	0.59
<b>Intersection Summary</b>								

HCM Signalized Intersection Capacity Analysis  
2: Bay St & Bloor St  
Future Background AM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	70	532	106	102	498	81	57	426	8	54	518	58	
Traffic Volume (vph)	70	532	106	102	498	81	57	426	8	54	518	58	
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vphpl)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	
Lane Width	6.0	6.0	4.0	7.0	7.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Total Lost time (s)	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	
Frb, ped/bikes	0.87	1.00	0.99	1.00	0.95	1.00	0.88	1.00	1.00	0.90	1.00	1.00	
Frb, ped/bikes	1.00	0.98	1.00	0.98	1.00	0.98	1.00	1.00	1.00	1.00	0.98	1.00	
Frt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1368	3189	1613	3225	1287	3225	1287	3225	1467	3250	1467	3250	
Flt Permitted	0.41	1.00	0.21	1.00	0.34	1.00	0.34	1.00	0.45	1.00	0.45	1.00	
Satd. Flow (perm)	587	3189	362	3225	487	3225	487	3225	690	3250	690	3250	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	78	591	118	113	553	90	63	473	9	60	576	64	
RTOR Reduction (vph)	0	22	0	0	16	0	0	1	0	0	9	0	
Lane Group Flow (vph)	78	687	0	113	627	0	63	481	0	60	631	0	
Conf. Peds. (#/hr)	286	295	295	286	428	286	428	191	191	428	191	428	
Heavy Vehicles (%)	7%	4%	1%	3%	3%	6%	15%	6%	37%	4%	3%	4%	
Turn Type	Perm	NA	NA	pm-pt	NA	NA	Perm	NA	Perm	NA	Perm	NA	
Protected Phases	4		3	8		2		2		6		6	
Permitted Phases	4		8			2		2		6		6	
Actuated Green, G (s)	26.9	26.9	36.9	36.9	36.9	35.1	35.1	35.1	35.1	35.1	35.1	35.1	
Effective Green, g (s)	26.9	26.9	36.9	36.9	36.9	35.1	35.1	35.1	35.1	35.1	35.1	35.1	
Actuated g/C Ratio	0.32	0.32	0.43	0.43	0.43	0.41	0.41	0.41	0.41	0.41	0.41	0.41	
Clearance Time (s)	6.0	6.0	4.0	7.0	7.0	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	3.0	3.0	3.0	3.0	
Lane Crp Cap (vph)	185	1009	260	1400	192	1373	192	1373	284	1342	192	1342	
v/c Ratio Prot	0.22	0.04	0.19	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
v/c Ratio Perm	0.13	0.15	0.15	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	
v/c Ratio	0.42	0.68	0.43	0.45	0.33	0.35	0.35	0.35	0.21	0.47	0.21	0.47	
Uniform Delay, d1	22.9	25.3	15.9	16.9	16.9	17.1	16.9	17.1	16.0	18.2	16.0	18.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.6	1.9	1.2	0.2	4.5	0.7	4.5	0.7	1.7	1.2	1.7	1.2	
Delay (s)	24.5	27.2	17.0	17.1	21.5	17.8	21.5	17.8	17.7	19.4	17.7	19.4	
Level of Service	C	C	B	B	C	C	C	C	B	B	B	B	
Approach Delay (s)	26.9		17.1		18.2		18.2		19.2		19.2		
Approach LOS	C		B		B		B		B		B		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			20.6	HCM 2000 Level of Service						C			
HCM 2000 Volume to Capacity ratio			0.56										
Actuated Cycle Length (s)			85.0	Sum of lost time (s)						16.0			
Intersection Capacity Utilization			97.5%	ICU Level of Service						F			
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings  
3: Bay St & Yorkville Ave

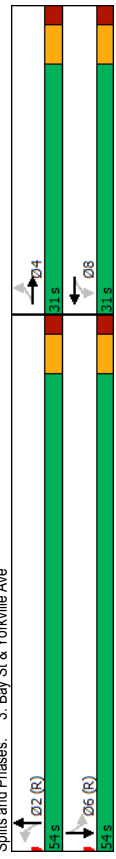
Future Background AM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Traffic Volume (vph)	13	26	16	106	76	45	48	357	119	72	524	93
Future Volume (vph)	13	26	16	106	76	45	48	357	119	72	524	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.92	0.90	0.88	0.88	0.88	0.88	0.96	0.96	0.96	0.96	0.96	0.94
Fit	0.960	0.973	0.977	0.977	0.977	0.977	0.995	0.995	0.995	0.995	0.995	0.995
Flt Protected	0	1517	0	0	1585	0	0	3062	0	0	3196	0
Satd. Flow (prot)	0	0.912	0	0.820	0	0.826	0	0.826	0	0.821	0	0.821
Flt Permitted	0	1363	0	0	1219	0	0	2518	0	0	2615	0
Satd. Flow (perm)	0	18	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Right Turn on Red	18	48	15	15	48	15	76	76	76	76	34	48
Satd. Flow (RTOR)	200.3	152.8	115.5	115.5	115.5	115.5	95.5	95.5	95.5	95.5	115.7	95.5
Link Speed (k/h)	182	182	182	182	182	182	144	144	144	144	144	144
Travel Time (s)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Confl. Peds. (#/hr)	0%	3%	31%	14%	2%	5%	10%	8%	2%	0%	4%	3%
Peak Hour Factor	14	29	18	118	84	50	53	397	132	80	582	103
Heavy Vehicles (%)	0	61	0	0	252	0	0	562	0	0	765	0
Adj. Flow (vph)	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Shared Lane Traffic (%)	4	4	8	8	8	8	2	2	2	6	6	6
Lane Group Flow (vph)	4	4	8	8	8	8	2	2	2	6	6	6
Turn Type	Protected Phases	Protected Phases	Protected Phases	Protected Phases	Protected Phases	Protected Phases	Protected Phases	Protected Phases	Protected Phases	Protected Phases	Protected Phases	Protected Phases
Permitted Phases	Detector Phase	Detector Phase	Detector Phase	Detector Phase	Detector Phase	Detector Phase	Detector Phase	Detector Phase	Detector Phase	Detector Phase	Detector Phase	Detector Phase
Switch Phase	Minimum Initial (s)	Minimum Initial (s)	Minimum Initial (s)	Minimum Initial (s)	Minimum Initial (s)	Minimum Initial (s)	Minimum Initial (s)	Minimum Initial (s)	Minimum Initial (s)	Minimum Initial (s)	Minimum Initial (s)	Minimum Initial (s)
Minimum Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	54.0	54.0	54.0	54.0	54.0	54.0
Total Split (%)	36.5%	36.5%	36.5%	36.5%	36.5%	36.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	25.4	25.4	25.4	25.4	25.4	25.4	49.6	49.6	49.6	49.6	49.6	49.6
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30	0.30	0.58	0.58	0.58	0.58	0.58	0.58
v/c Ratio	0.15	0.67	0.67	0.67	0.67	0.67	0.39	0.39	0.39	0.39	0.39	0.39
Control Delay	17.5	34.7	34.7	34.7	34.7	34.7	9.1	9.1	9.1	9.1	11.3	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.0	0.0
Total Delay	17.5	34.7	34.7	34.7	34.7	34.7	9.7	9.7	9.7	9.7	11.3	11.3
LOS	B	C	C	C	C	C	A	A	A	A	B	B
Approach Delay	17.5	34.7	34.7	34.7	34.7	34.7	9.7	9.7	9.7	9.7	11.3	11.3
Approach LOS	B	C	C	C	C	C	A	A	A	A	B	B
Queue Length 50th (m)	5.1	33.8	33.8	33.8	33.8	33.8	20.5	20.5	20.5	20.5	33.0	33.0
Queue Length 95th (m)	13.8	59.1	59.1	59.1	59.1	59.1	31.6	31.6	31.6	31.6	46.0	46.0

Lanes, Volumes, Timings  
3: Bay St & Yorkville Ave

Future Background AM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (m)	176.3	176.3	176.3	128.8	128.8	128.8	71.5	71.5	71.5	91.7	91.7	91.7
Turn Bay Length (m)	429	429	429	383	383	383	1500	1500	1500	1540	1540	1540
Base Capacity (vph)	0	0	0	0	0	0	528	528	528	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.14	0.14	0.66	0.66	0.66	0.60	0.60	0.60	0.50	0.50	0.50
<b>Intersection Summary</b>												
Area Type:	Other											
Cycle Length:	85											
Actuated Cycle Length:	85											
Offset:	0 (0%), Referenced to phase 2:NBT.L and 6:SBT.L, Start of Green											
Natural Cycle:	55											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.67											
Intersection Signal Delay:	14.5											
Intersection Capacity Utilization:	70.0%											
Analysis Period (min):	15											
ICU Level of Service:	C											



Queues  
3: Bay St & Yorkville Ave

HCM Signalized Intersection Capacity Analysis  
3: Bay St & Yorkville Ave

Future Background AM  
12/10/2018

	EBT	WBT	NBT	SBT
Lane Group	61	252	582	765
Lane Group Flow (vph)	0.15	0.67	0.39	0.50
v/c Ratio	17.5	34.7	9.1	11.3
Control Delay	0.0	0.0	0.6	0.0
Queue Delay	17.5	34.7	9.7	11.3
Total Delay	5.1	33.8	20.5	33.0
Queue Length 50th (m)	13.8	59.1	31.6	48.0
Queue Length 95th (m)	176.3	128.8	71.5	91.7
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)	429	383	1500	1540
Starvation Cap Reductn	0	0	528	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.14	0.66	0.80	0.50

Intersection Summary

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement		4			4			4			4	
Lane Configurations		26	16	106	76	45	48	357	119	72	524	93
Traffic Volume (vph)	13	26	16	106	76	45	48	357	119	72	524	93
Future Volume (vph)	13	26	16	106	76	45	48	357	119	72	524	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0				5.0			5.0	
Lane Util. Factor		1.00		1.00				0.95			0.95	
Frpb, ped/bikes		0.94		0.96				0.95			0.95	
Flpb, ped/bikes		0.97		0.92				0.99			0.99	
Flt		0.96		0.97				0.97			0.98	
Flt Protected		0.99		0.98				1.00			0.99	
Satd. Flow (prot)		1478		1453				3034			3168	
Flt Permitted		0.91		0.82				0.83			0.82	
Satd. Flow (perm)		1363		1220				2517			2614	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	29	18	118	84	50	53	397	132	80	582	103
RTOR Reduction (vph)	0	13	0	0	11	0	0	32	0	0	14	0
Lane Group Flow (vph)	0	48	0	0	241	0	0	550	0	0	751	0
Confl. Peds. (#/hr)	182	182	182	182	182	144	144	182	144	76	76	144
Heavy Vehicles (%)	0%	3%	31%	14%	2%	5%	10%	8%	2%	0%	4%	3%
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8				2			6	
Permitted Phases	4		8				2			6		
Actuated Green, G (s)	24.4		24.4				48.6			48.6		
Effective Green, g (s)	25.4		25.4				49.6			49.6		
Actuated g/C Ratio	0.30		0.30				0.58			0.58		
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)	407		364				1468			1525		
v/s Ratio Prot		0.04		c0.20			0.22			c0.29		
v/s Ratio Perm		0.12		0.66			0.37			0.49		
v/c Ratio	21.7		26.1				9.4			10.3		
Uniform Delay, d1	1.00		1.00				1.00			1.00		
Progression Factor	0.1		4.5				0.7			1.1		
Incremental Delay, d2	21.8		30.6				10.2			11.5		
Delay (s)	C		C				B			B		
Level of Service	21.8		30.6				10.2			11.5		
Approach Delay (s)	21.8		30.6				10.2			11.5		
Approach LOS	C		C				B			B		

Intersection Summary

HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings  
4: Yonge St & Collier St

Future Background AM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group						
Lane Configurations						
Traffic Volume (vph)	0	0	260	36	7	692
Future Volume (vph)	0	0	260	36	7	692
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Fit			0.982			
Flt Protected						0.999
Std. Flow (prot)	0	0	3358	0	0	3463
Flt Permitted						0.999
Std. Flow (perm)	0	0	3358	0	0	3463
Link Speed (k/h)	48		48			48
Link Distance (m)	111.8		22.2			163.1
Travel Time (s)	8.4		1.7			12.2
Confl. Peds. (#/hr)				712	712	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	5%	0%	0%	3%
Adj. Flow (vph)	0	0	289	40	8	769
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	329	0	0	777
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.4%					
Analysis Period (min)	15					
	ICU Level of Service A					

HCM Unsignalized Intersection Capacity Analysis  
4: Yonge St & Collier St

Future Background AM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Movement						
Lane Configurations						
Traffic Volume (veh/h)	0	0	260	36	7	692
Future Volume (Veh/h)	0	0	260	36	7	692
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	289	40	8	769
Pedestrians	712					
Lane Width (m)	0.0					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)			None			None
Median type			None			None
Median storage (veh)						
Upstream signal (m)			22			
pX, platoon unblocked	0.97	0.97			0.97	
vC, conflicting volume	1422	876			1041	
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	1380	820			989	
tC, single (s)	6.8	6.9			4.1	
tC, Z stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	130	310			689	
Direction: Lane #	NB.1	NB.2	SB.1	SB.2		
Volume Total	193	136	264	513		
Volume Left	0	0	8	0		
Volume Right	0	40	0	0		
cSH	1700	1700	689	1700		
Volume to Capacity	0.11	0.08	0.01	0.30		
Queue Length 95th (m)	0.0	0.0	0.3	0.0		
Control Delay (s)	0.0	0.0	0.4	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.2			
Approach LOS						
<b>Intersection Summary</b>						
Average Delay	0.1					
Intersection Capacity Utilization	27.4%					
Analysis Period (min)	15					
	ICU Level of Service A					

Lanes, Volumes, Timings  
5: Yonge St & Asquith Avenue

HCM Unsignalized Intersection Capacity Analysis  
5: Yonge St & Asquith Avenue

Future Background AM  
12/10/2018

Future Background AM  
12/10/2018

WBL	WBR	NBT	NBR	SBL	SBT
13	24	255	63	34	505
13	24	255	63	34	505
1900	1900	1900	1900	1900	1900
3.0	3.0	3.5	3.5	3.5	3.5
1.00	1.00	0.95	0.95	0.95	0.95
0.911		0.970			
0.983					0.997
1557	0	3201	0	0	3526
0.983					0.997
1557	0	3201	0	0	3526
48		48			48
191.3		15.7			76.1
14.3		1.2			5.7
0.90	0.90	0.90	0.90	0.90	0.90
2%	2%	7%	13%	0%	1%
14	27	283	70	38	561
41	0	353	0	0	599
Stop		Free			Free
<b>Intersection Summary</b>					
Area Type: Other					
Control Type: Unsignalized					
Intersection Capacity Utilization 41.6%					
Analysis Period (min) 15					

WBL	WBR	NBT	NBR	SBL	SBT
13	24	255	63	34	505
13	24	255	63	34	505
Stop		Free			Free
0%		0%			0%
0.90	0.90	0.90	0.90	0.90	0.90
14	27	283	70	38	561
805					
3.0					
1.1					
61					
		None			None
0.93		119			76
1480	982				1158
1367	982				1158
6.8	6.9				4.1
3.5	3.3				2.2
67	72				84
42	97				238
<b>Direction</b>	<b>Lane #</b>	<b>WB.1</b>	<b>NB.2</b>	<b>SB.1</b>	<b>SB.2</b>
41	189	164	225	374	
14	0	0	38	0	
27	0	70	0	0	
67	1700	1700	238	1700	
0.61	0.11	0.10	0.16	0.22	
19.9	0.0	0.0	4.2	0.0	
120.7	0.0	0.0	7.3	0.0	
F			A		
120.7	0.0		2.7		
F					
<b>Intersection Summary</b>					
Average Delay 6.6					
Intersection Capacity Utilization 41.6%					
ICU Level of Service A					
Analysis Period (min) 15					



Lanes, Volumes, Timings  
6: Yonge St & Yorkville Ave

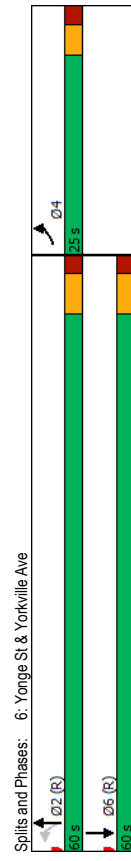
Lanes, Volumes, Timings  
6: Yonge St & Yorkville Ave

Future Background AM  
12/10/2018

Future Background AM  
12/10/2018

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W					
Traffic Volume (vph)	66	35	41	220	516	175
Future Volume (vph)	66	35	41	220	516	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.79		0.98	0.88		
Fit	0.953			0.962		
Fit Protected	0.968			0.992		
Satd. Flow (prot)	1458	0	0	3337	2915	0
Fit Permitted	0.968			0.785		
Satd. Flow (perm)	1251	0	0	2578	2915	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	30			107		
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.1			76.1	22.2	
Travel Time (s)	5.6			5.7	1.7	
Confl. Peds. (#/hr)	162	170	180			180
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	12%	5%	3%	4%
Adj. Flow (vph)	73	39	46	244	573	194
Shared Lane Traffic (%)						
Lane Group Flow (vph)	112	0	0	290	767	0
Turn Type	Prot	Perm	NA	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Minimum Split (s)	24.0	22.0	22.0	22.0	22.0	
Total Split (s)	25.0	60.0	60.0	60.0	60.0	
Total Split (%)	29.4%	70.6%	70.6%	70.6%	70.6%	
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0			6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	20.0			54.0	54.0	
Actuated g/C Ratio	0.24			0.64	0.64	
v/c Ratio	0.31			0.18	0.41	
Control Delay	22.4			6.7	7.2	
Queue Delay	0.0			0.0	0.0	
Total Delay	22.4			6.7	7.2	
LOS	C			A	A	
Approach Delay	22.4			6.7	7.2	
Approach LOS	C			A	A	
Queue Length 50th (m)	10.8			9.0	23.9	
Queue Length 95th (m)	24.6			14.1	34.1	
Internal Link Dist (m)	50.1			52.1	0.1	
Turn Bay Length (m)						
Base Capacity (vph)	366			1637	1890	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.31			0.18	0.41	
<b>Intersection Summary</b>						
Area Type:	Other					
Cycle Length:	85					
Actuated Cycle Length:	85					
Offset:	0 (0%), Referenced to phase 2:NBL and 6:SBT, Start of Green					
Natural Cycle:	50					
Control Type:	Pretimed					
Maximum v/c Ratio:	0.41					
Intersection Signal Delay:	8.5					
Intersection LOS:	A					
Intersection Capacity Utilization:	61.1%					
Analysis Period (min):	15					



Splits and Phases: 6: Yonge St & Yorkville Ave

Queues  
6: Yonge St & Yorkville Ave  
Future Background AM  
12/10/2018

	EBL	NBT	SBT
Lane Group	112	290	767
Lane Group Flow (vph)	0.31	0.18	0.41
v/c Ratio	22.4	6.7	7.2
Control Delay	0.0	0.0	0.0
Queue Delay	22.4	6.7	7.2
Total Delay	10.8	9.0	23.9
Queue Length 50th (m)	24.6	14.1	34.1
Queue Length 95th (m)	50.1	52.1	0.1
Internal Link Dist (m)			
Turn Bay Length (m)			
Base Capacity (vph)	366	1637	1890
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.31	0.18	0.41
<b>Intersection Summary</b>			

HCM Signalized Intersection Capacity Analysis  
6: Yonge St & Yorkville Ave  
Future Background AM  
12/10/2018

	EBL	EBR	NBL	NBT	SBT	SBR
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	66	35	41	220	516	175
Future Volume (vph)	66	35	41	220	516	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.5	3.5	3.5
Total Lost time (s)	5.0			6.0	6.0	
Lane Util. Factor	1.00			0.95	0.95	
Frbp, ped/bikes	0.92			1.00	0.88	
Frbp, ped/bikes	1.00			0.98	1.00	
Frt	0.95			1.00	0.96	
Flt Protected	0.97			0.99	1.00	
Satd. Flow (prot)	1459			3259	2915	
Flt Permitted	0.97			0.78	1.00	
Satd. Flow (perm)	1459			2578	2915	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	39	46	244	573	194
RTOR Reduction (vph)	23	0	0	0	39	0
Lane Group Flow (vph)	89	0	0	290	728	0
Confl. Peds. (#/hr)	162	170	180			180
Heavy Vehicles (%)	3%	3%	12%	5%	3%	4%
Turn Type	Prot	Perm	NA	NA	NA	NA
Protected Phases	4		2	2	6	
Permitted Phases		2				
Actuated Green, G (s)	20.0			54.0	54.0	
Effective Green, g (s)	20.0			54.0	54.0	
Actuated g/C Ratio	0.24			0.64	0.64	
Clearance Time (s)	5.0			6.0	6.0	
Lane Grp Cap (vph)	343			1637	1851	
v/s Ratio Prot	c0.06				c0.25	
v/s Ratio Perm		0.11				
v/c Ratio	0.26			0.18	0.39	
Uniform Delay, d1	26.5			6.4	7.5	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.8			0.2	0.6	
Delay (s)	28.3			6.6	8.2	
Level of Service	C			A	A	
Approach Delay (s)	28.3			6.6	8.2	
Approach LOS	C			A	A	
<b>Intersection Summary</b>						
HCM 2000 Control Delay				9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio				0.36		
Actuated Cycle Length (s)				85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization				61.1%	ICU Level of Service	B
Analysis Period (min)				15		
c Critical Lane Group						

Lanes, Volumes, Timings  
7: Bay St & Cumberland St

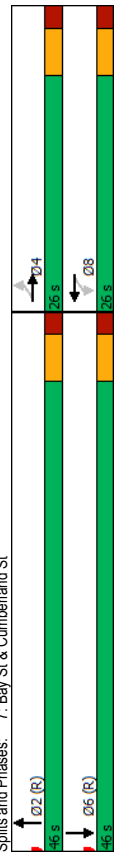
Future Background AM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations											
Traffic Volume (vph)	67	0	65	0	0	0	0	253	0	0	517
Future Volume (vph)	67	0	65	0	0	0	0	253	0	0	517
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor	0.98										
Fit	0.926										
Flt Protected	0.975										
Satd. Flow (prot)	0	2871	0	0	1842	0	0	3336	0	0	3500
Flt Permitted	0.815										
Satd. Flow (perm)	0	2373	0	0	1842	0	0	3336	0	0	3500
Right Turn on Red			Yes			Yes		Yes		Yes	Yes
Satd. Flow (RTOR)	72										
Link Speed (k/h)	48			48				48			48
Link Distance (m)	190.2			155.6				102.4			95.5
Travel Time (s)	14.3			11.7				7.7			7.2
Confl. Peds. (#/hr)	20		1			136					136
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	13%	2%	10%	2%	2%	2%	7%	2%	2%	2%	2%
Adj. Flow (vph)	74	0	72	0	0	0	0	281	0	0	574
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	146	0	0	0	0	0	281	0	0	574
Turn Type	Perm	NA						NA			NA
Protected Phases	4			8				2			6
Permitted Phases	4			8				2			6
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	26.0	26.0	26.0	26.0	26.0	26.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	36.1%	36.1%	36.1%	36.1%	36.1%	36.1%	63.9%	63.9%	63.9%	63.9%	63.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag											
Lead-Lag Optimize?											
Act Effct Green (s)	20.0							40.0			40.0
Actuated g/C Ratio	0.28							0.56			0.56
v/c Ratio	0.21							0.15			0.30
Control Delay	11.7							8.0			9.0
Queue Delay	0.0							0.0			0.0
Total Delay	11.7							8.0			9.0
LOS	B							A			A
Approach Delay	11.7							8.0			9.0
Approach LOS	B							A			A
Queue Length 50th (m)	3.8							8.8			19.8
Queue Length 95th (m)	10.3							14.2			28.4
Internal Link Dist (m)	166.2			131.6				78.4			71.5
Turn Bay Length (m)	711							1853			1944
Base Capacity (vph)	0							0			0
Starvation Cap Reductn											

Lanes, Volumes, Timings  
7: Bay St & Cumberland St

Future Background AM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Spillback Cap Reductn	0							0			0
Storage Cap Reductn	0							0			0
Reduced v/c Ratio	0.21							0.15			0.30
Intersection Summary											
Area Type:	Other										
Cycle Length:	72										
Actuated Cycle Length:	72										
Offset: 0 (0%):	Referenced to phase 2:NBT and 6:SBT, Start of Green										
Natural Cycle:	55										
Control Type:	PreTimed										
Maximum v/c Ratio:	0.30										
Intersection Signal Delay:	9.1										
Intersection Capacity Utilization:	45.0%										
Analysis Period (min):	15										
Intersection LOS:	A										
ICU Level of Service:	A										



Queues  
7: Bay St & Cumberland St

Future Background AM  
12/10/2018

	EBT	NBT	SBT
Lane Group	146	281	574
Lane Group Flow (vph)	0.21	0.15	0.30
v/c Ratio	11.7	8.0	9.0
Control Delay	0.0	0.0	0.0
Queue Delay	11.7	8.0	9.0
Total Delay	3.8	8.8	19.8
Queue Length 50th (m)	10.3	14.2	28.4
Queue Length 95th (m)	166.2	78.4	71.5
Internal Link Dist (m)			
Turn Bay Length (m)			
Base Capacity (vph)	711	1853	1944
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.21	0.15	0.30

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
7: Bay St & Cumberland St

Future Background AM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations												
Traffic Volume (vph)	67	0	65	0	0	0	0	253	0	0	517	0
Future Volume (vph)	67	0	65	0	0	0	0	253	0	0	517	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0							6.0				
Lane Util. Factor	0.95							0.95				
Frpb, ped/bikes	0.99							1.00				
Flpb, ped/bikes	0.99							1.00				
Flt	0.93							1.00				
Flt Protected	0.98							1.00				
Satd. Flow (prot)	2839							3336				
Flt Permitted	0.82							1.00				
Satd. Flow (perm)	2374							3336				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	0	72	0	0	0	0	281	0	0	574	0
RTOR Reduction (vph)	0	52	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	94	0	0	0	0	0	281	0	0	574	0
Confl. Peds. (#/hr)	20		1					136				
Heavy Vehicles (%)	13%	2%	10%	2%	2%	2%	2%	7%	2%	2%	2%	2%
Turn Type	Perm	NA						NA			NA	
Protected Phases		4						2			6	
Permitted Phases	4		8									
Actuated Green, G (s)	20.0							40.0			40.0	
Effective Green, g (s)	20.0							40.0			40.0	
Actuated g/C Ratio	0.28							0.56			0.56	
Clearance Time (s)	6.0							6.0			6.0	
Lane Grp Cap (vph)	659							1853			1944	
v/s Ratio Prot	c0.04							0.08			c0.16	
v/c Ratio Perm	0.14							0.15			0.30	
Uniform Delay, d1	19.6							7.8			8.5	
Progression Factor	1.00							1.00			1.00	
Incremental Delay, d2	0.5							0.2			0.4	
Delay (s)	20.0							7.9			8.9	
Level of Service	C							A			A	
Approach Delay (s)	20.0			0.0				7.9			8.9	
Approach LOS	C			A				A			A	

Intersection Summary

HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
8: Yonge St & Cumberland St

Future Background AM  
12/10/2018

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	W					
Lane Configurations						
Traffic Volume (vph)	27	67	0	483	594	0
Future Volume (vph)	27	67	0	483	594	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Flt	0.904					
Flt Protected	0.986					
Satd. Flow (prot)	1556	0	0	3305	3400	0
Flt Permitted	0.986					
Satd. Flow (perm)	1556	0	0	3305	3400	0
Link Speed (k/h)	48	48	48	48	48	48
Link Distance (m)	69.8			103.3	15.7	
Travel Time (s)	5.2			7.7	1.2	
Confl. Peds. (#/hr)	148	341	313	0.90	0.90	313
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	1%	2%	8%	5%	0%
Adj. Flow (vph)	30	74	0	537	660	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	0	0	537	660	0
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	36.4%					
Analysis Period (min)	15					
					ICU Level of Service A	

HCM Unsignalized Intersection Capacity Analysis  
8: Yonge St & Cumberland St

Future Background AM  
12/10/2018

	EBL	EBR	NBL	NBT	SBT	SBR
Movement	W					
Lane Configurations						
Traffic Volume (veh/h)	27	67	0	483	594	0
Future Volume (Veh/h)	27	67	0	483	594	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	30	74	0	537	660	0
Pedestrians	313			341	148	
Lane Width (m)	3.0			3.5	3.5	
Walking Speed (m/s)	1.1			1.1	1.1	
Percent Blockage	24			30	13	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				103	92	
pX, platoon unblocked	0.95					
vC, conflicting volume	1390	984	973			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1299	984	973			
IC, single (s)	6.9	6.9	4.1			
IC, Z stage (s)						
p0 queue free %	3.5	3.3	2.2			
IF (s)	69	44	100			
cM capacity (veh/h)	95	133	537			
<b>Direction: Lane #</b>						
	EB.1	NB.1	NB.2	SB.1	SB.2	
Volume Total	104	268	268	330	330	
Volume Left	30	0	0	0	0	
Volume Right	74	0	0	0	0	
cSH	119	1700	1700	1700	1700	
Volume to Capacity	0.87	0.16	0.16	0.19	0.19	
Queue Length 95th (m)	40.7	0.0	0.0	0.0	0.0	
Control Delay (s)	118.9	0.0	0.0	0.0	0.0	
Lane LOS	F					
Approach Delay (s)	118.9	0.0	0.0			
Approach LOS	F					
<b>Intersection Summary</b>						
Average Delay	9.5					
Intersection Capacity Utilization	36.4%					
ICU Level of Service	A					
Analysis Period (min)	15					

Lanes, Volumes, Timings  
9: Site Driveway & Yorkville Ave

HCM Unsignalized Intersection Capacity Analysis  
9: Site Driveway & Yorkville Ave

Future Background AM  
12/10/2018

Future Background AM  
12/10/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	4	4	1	1
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None	None	None	None	None	None
Median storage (veh)						
Upstream signal (m)	153			74		
pX, platoon unblocked						
vC, conflicting volume						
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol						
IC, single (s)						
IC, Z stage (s)						
p0 queue free %						
cm capacity (veh/h)						
Direction: Lane #	EB 1	WB 1	NB 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A	A	A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	0.0%					
Analysis Period (min)	15					
ICU Level of Service	A					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	4	4	1	1
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None	None	None	None	None	None
Median storage (veh)						
Upstream signal (m)	153			74		
pX, platoon unblocked						
vC, conflicting volume						
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol						
IC, single (s)						
IC, Z stage (s)						
p0 queue free %						
cm capacity (veh/h)						
Direction: Lane #	EB 1	WB 1	NB 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A	A	A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	0.0%					
Analysis Period (min)	15					
ICU Level of Service	A					

Lanes, Volumes, Timings  
10: Cumberland St & Site Driveway

HCM Unsignalized Intersection Capacity Analysis  
10: Cumberland St & Site Driveway

Future Background AM  
12/10/2018

Future Background AM  
12/10/2018

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4				
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)	None	None	None	None		
Median type	None	None	None	None		
Median storage (veh)						
Upstream signal (m)	155					
pX, platoon unblocked						
vC, conflicting volume	0				0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
IC, single (s)	4.1				6.4	6.2
IC, 2 stage (s)						
IF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1623				1023	1085
Direction: Lane #	EB 1	WB 1	SB 1	SB 1		
Volume Total	0	0	0	0		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.00	0.00	0.00	0.00		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS					A	
Approach Delay (s)	0.0	0.0	0.0	0.0		
Approach LOS					A	
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	0.0%					
Analysis Period (min)	15					
ICU Level of Service	A					

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4				
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected						
Std. Flow (prot)	0	1842	1842	0	1739	0
Flt Permitted						
Std. Flow (perm)	0	1842	1842	0	1739	0
Link Speed (k/h)		48	48		48	
Link Distance (m)		155.6	69.8		91.9	
Travel Time (s)		11.7	5.2		6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	0.0%					
Analysis Period (min)	15					
ICU Level of Service	A					

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Background PM  
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Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Background PM  
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	1	701	9	0	649	5	0	546	10	1	461
Traffic Volume (vph)	1	701	9	0	649	5	0	546	10	1	461
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Lane Util. Factor	0.99	0.99	1.00	0.99	0.99	0.99	0.99	0.99	0.99	0.98	0.98
Ped Bike Factor	0.998	0.998	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.995	0.995
Fit Protected	0	3505	0	0	3512	0	0	3455	0	0	3444
Satd. Flow (prot)	Fit Permitted	0.955									0.954
Fit Permitted	0	3347	0	0	3512	0	0	3455	0	0	3284
Satd. Flow (perm)	Right Turn on Red	Yes				Yes		Yes			Yes
Right Turn on Red	Satd. Flow (RTOR)	1	1	1	1	2	2	48	48	4	4
Satd. Flow (RTOR)	Link Speed (k/h)	48				48		48			48
Link Speed (k/h)	Link Distance (m)	232.1				233.5		189.9			103.3
Link Distance (m)	Travel Time (s)	17.4				17.5		14.2			7.7
Travel Time (s)	Confl. Peds. (#/hr)	1751				1751		1116			1271
Confl. Peds. (#/hr)	Peak Hour Factor	0.95				0.95		0.95			0.95
Peak Hour Factor	Heavy Vehicles (%)	0%				1%		20%			2%
Heavy Vehicles (%)	Adj. Flow (vph)	1				738		9			575
Adj. Flow (vph)	Shared Lane Traffic (%)	0				748		0			566
Shared Lane Traffic (%)	Lane Group Flow (vph)	Perm				NA		NA			Perm
Lane Group Flow (vph)	Turn Type	2				6		4			4
Turn Type	Protected Phases	2				6		6			6
Protected Phases	Detector Phase	2				6		6			6
Detector Phase	Switch Phase	20.0				20.0		20.0			20.0
Switch Phase	Minimum Initial (s)	26.0				26.0		26.0			26.0
Minimum Initial (s)	Minimum Split (s)	33.0				33.0		31.0			31.0
Minimum Split (s)	Total Split (s)	34.4%				34.4%		32.3%			32.3%
Total Split (s)	Yellow Time (s)	3.0				3.0		3.0			3.0
Yellow Time (s)	All-Red Time (s)	3.0				3.0		3.0			3.0
All-Red Time (s)	Lost Time Adjust (s)	-1.0				-1.0		-1.0			-1.0
Lost Time Adjust (s)	Total Lost Time (s)	5.0				5.0		5.0			5.0
Total Lost Time (s)	Lead/Lag	Lag				Lag		Lag			Lag
Lead/Lag	Lead-Lag Optimize?	C-Max				C-Max		C-Max			C-Max
Lead-Lag Optimize?	Recall Mode	61.9				61.9		24.1			24.1
Recall Mode	Act Effct Green (s)	0.64				0.64		0.25			0.25
Act Effct Green (s)	Actuated g/C Ratio	0.35				0.30		0.68			0.61
Actuated g/C Ratio	v/c Ratio	8.7				8.4		36.2			34.6
v/c Ratio	Control Delay	0.0				0.0		0.0			0.0
Control Delay	Queue Delay	8.7				8.4		36.2			34.6
Queue Delay	Total Delay	A				A		D			C
Total Delay	LOS	8.7				8.4		36.2			34.6
LOS	Approach Delay	A				A		D			C
Approach Delay	Approach LOS	29.0				25.7		52.3			43.8
Approach LOS	Queue Length 50th (m)	47.0				41.8		64.1			55.0
Queue Length 50th (m)	Queue Length 95th (m)										

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Fit Protected		
Satd. Flow (prot)		
Fit Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type	3	7
Protected Phases		
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	28.0
Minimum Split (s)	31.0	32.0
Total Split (s)	32.0	32.0
Total Split (%)	33%	33%
Yellow Time (s)	2.0	3.5
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		



Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Background PM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (m)	208.1			209.5			165.9			79.3		
Turn Bay Length (m)		2159		2286			961			915		
Base Capacity (vph)	0			0			0			0		
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	0.35			0.30			0.61			0.55		

**Intersection Summary**

Area Type: Other

Cycle Length: 96

Actuated Cycle Length: 96

Offset: 0 (0%); Referenced to phase 2:EBTL; Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

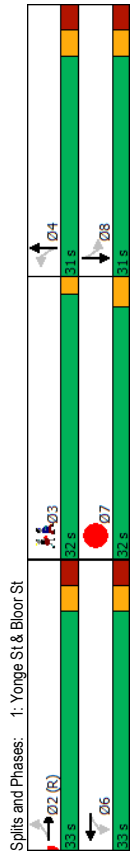
Intersection Signal Delay: 20.2

Intersection Capacity Utilization 45.5%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service A



Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Background PM  
12/10/2018

Lane Group	Ø3	Ø7
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

**Intersection Summary**

Queues  
1: Yonge St & Bloor St

Future Background PM  
12/10/2018

	EBT	WBT	NBT	SBT
Lane Group	748	688	586	504
Lane Group Flow (vph)	0.35	0.30	0.68	0.61
v/c Ratio	8.7	8.4	36.2	34.6
Control Delay	0.0	0.0	0.0	0.0
Queue Delay	8.7	8.4	36.2	34.6
Total Delay	29.0	25.7	52.3	43.8
Queue Length 50th (m)	47.0	41.8	64.1	55.0
Internal Link Dist (m)	208.1	209.5	165.9	79.3
Turn Bay Length (m)				
Base Capacity (vph)	2159	2266	961	915
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	0.35	0.30	0.61	0.55

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
1: Yonge St & Bloor St

Future Background PM  
12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4↑			4↑			4↑			4↑		
Traffic Volume (vph)	1	701	9	0	649	5	0	546	10	1	461	17	
Future Volume (vph)	1	701	9	0	649	5	0	546	10	1	461	17	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.0			5.0			5.0			5.0		
Lane Util. Factor		0.95			0.95			0.95			0.95		
Frpb, ped/bikes		0.99			1.00			0.99			0.98		
Fltb, ped/bikes		1.00			1.00			1.00			1.00		
Flt		1.00			1.00			1.00			0.99		
Flt Protected		1.00			1.00			1.00			1.00		
Satd. Flow (prot)		3505			3512			3456			3441		
Flt Permitted		0.95			1.00			1.00			0.95		
Satd. Flow (perm)		3346			3512			3456			3283		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	1	738	9	0	683	5	0	575	11	1	485	18	
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	3	0	
Lane Group Flow (vph)	0	748	0	0	688	0	0	585	0	0	501	0	
Confl. Peds. (#/hr)	1751	1320	1320	1751	1116	1751	1116	1271	1271	1271	1116	1116	
Heavy Vehicles (%)	0%	1%	0%	2%	1%	20%	2%	2%	0%	0%	1%	5%	
Turn Type	Perm	NA	NA	NA	NA	NA	NA	NA	Perm	NA	NA	NA	
Protected Phases		2			6			4			8		
Permitted Phases		2		6			4				8		
Actuated Green, G (s)		60.9			60.9			23.1			23.1		
Effective Green, g (s)		61.9			61.9			24.1			24.1		
Actuated g/C Ratio		0.64			0.64			0.25			0.25		
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)		2157			2264			867			824		
v/s Ratio Prot		c0.22			0.20			c0.17			0.15		
v/s Ratio Perm		0.35			0.30			0.67			0.61		
Uniform Delay, d1		7.8			7.5			32.4			31.8		
Progression Factor		1.00			1.00			1.00			1.00		
Incremental Delay, d2		0.4			0.1			2.1			1.3		
Delay (s)		8.2			7.6			34.5			33.1		
Level of Service		A			A			C			C		
Approach Delay (s)		8.2			7.6			34.5			33.1		
Approach LOS		A			A			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay	19.1											HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46												
Actuated Cycle Length (s)	96.0											Sum of lost time (s)	13.5
Intersection Capacity Utilization	45.5%											ICU Level of Service	A
Analysis Period (min)	15												
c Critical Lane Group													

Lanes, Volumes, Timings  
2: Bay St & Bloor St

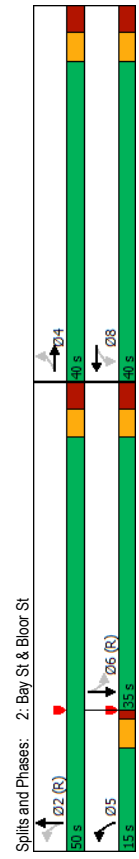
Future Background PM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	72	514	69	95	475	101	137	853	9	96	417	104
Traffic Volume (vph)	72	514	69	95	475	101	137	853	9	96	417	104
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	3.0	3.5	3.0	3.5	3.0	3.5	3.5	3.5	3.5	3.0	3.5	3.5
Lane Width (m)	15.2	0.0	13.7	0.0	13.7	0.0	20.4	0.0	10.4	0.0	0.0	0.0
Storage Length (m)	1	0	1	0	1	0	1	0	1	0	1	0
Taper Length (m)	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.95
Lane Util. Factor	0.84	0.95	0.85	0.92	0.84	1.00	0.999	0.970				
Ped Bike Factor	0.982											
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1685	3307	0	1636	3177	0	1685	3518	0	1668	3090	0
Flt Permitted	0.340			0.342			0.290			0.314		
Satd. Flow (perm)	506	3307	0	503	3177	0	432	3518	0	494	3090	0
Right Turn on Red		Yes		Yes			Yes		Yes		Yes	
Satd. Flow (RTOR)	19			4			1			37		
Link Speed (k/h)	48			48			48			48		
Link Distance (m)	285.7			232.1			134.3			102.4		
Travel Time (s)	21.4			17.4			10.1			7.7		
Confl. Peds. (#/hr)	845			695			966			546		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	3%	1%	1%	1%	0%	1%	4%	1%	4%
Adj. Flow (vph)	76	541	73	100	500	106	144	898	9	101	439	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	614	0	100	606	0	144	907	0	101	548	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	4	4		8	8		5	2		6		
Permitted Phases	4	4		8	8		5	2		6		
Detector Phase	4	4		8	8		5	2		6		
Switch Phase												
Minimum Initial (s)	23.0	23.0		23.0	23.0		6.0	23.0		22.0	22.0	
Minimum Split (s)	29.0	29.0		29.0	29.0		10.0	29.0		29.0	29.0	
Total Split (s)	40.0	40.0		40.0	40.0		15.0	50.0		35.0	35.0	
Total Split (%)	44.4%	44.4%		44.4%	44.4%		16.7%	55.6%		38.9%	38.9%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		1.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-4.0	-1.0		2.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		2.0	5.0		6.0	5.0		5.0	5.0	
Lead/Lag							Lead			Lag		
Recall Mode	Max	Max		Max	Max		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	35.0	35.0		38.0	35.0		44.0	45.0		31.6	31.6	
Actuated g/C Ratio	0.39	0.39		0.42	0.39		0.49	0.50		0.35	0.35	
v/c Ratio	0.39	0.47		0.47	0.49		0.46	0.52		0.58	0.49	
Control Delay	27.2	21.4		27.9	22.3		17.9	16.5		41.2	23.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.5	
Total Delay	27.2	21.4		27.9	22.3		17.9	16.5		41.2	23.9	
LOS	C	C		C	C		B	B		D	C	

Lanes, Volumes, Timings  
2: Bay St & Bloor St

Future Background PM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay	22.0			23.1			16.6			26.6		
Approach LOS	C			C			B			C		
Queue Length 50th (m)	9.3	39.5		12.1	40.4		13.3	52.8		14.1	36.0	
Queue Length 95th (m)	22.1	54.6		28.2	55.5		23.9	69.0		#37.3	52.4	
Internal Link Dist (m)		261.7			208.1			110.3			78.4	
Turn Bay Length (m)	15.2			13.7			20.4			10.4		
Base Capacity (vph)	196	1297		212	1237		336	1759		173	1108	
Starvation Cap Reductn	0	0		0	0		0	0		0	209	
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	0.39	0.47		0.47	0.49		0.43	0.52		0.58	0.61	
Intersection Summary												
Area Type:	Other											
Cycle Length:	90											
Actuated Cycle Length:	90											
Offset:	0 (0%), Referenced to phase 2NBL and 6SBTL, Start of Green											
Natural Cycle:	70											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.58											
Intersection Signal Delay:	21.4											
Intersection Capacity Utilization:	97.3%											
ICU Level of Service:	F											
Analysis Period (min):	15											
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												



Queues  
2: Bay St & Bloor St  
Future Background PM  
12/10/2018

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	76	614	100	606	144	907	101	548
Lane Group Flow (vph)	0.39	0.47	0.47	0.49	0.46	0.52	0.58	0.49
v/c Ratio	27.2	21.4	27.9	22.3	17.9	16.5	41.2	23.5
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Queue Delay	27.2	21.4	27.9	22.3	17.9	16.5	41.2	23.9
Total Delay	9.3	39.5	12.1	40.4	13.3	52.8	14.1	36.0
Queue Length 50th (m)	22.1	54.6	28.2	55.5	23.9	69.0	437.3	52.4
Queue Length 95th (m)	261.7		208.1		110.3		78.4	
Internal Link Length (m)	15.2	13.7	20.4		20.4		10.4	
Turn Bay Length (m)	196	1297	212	1237	336	1759	173	1108
Base Capacity (vph)	0	0	0	0	0	0	0	209
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	0.39	0.47	0.47	0.49	0.43	0.52	0.58	0.61

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

HCM Signalized Intersection Capacity Analysis  
2: Bay St & Bloor St  
Future Background PM  
12/10/2018

Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	72	514	69	95	475	101	137	853	9
Future Volume (vph)	72	514	69	95	475	101	137	853	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.5	3.5	3.5	3.5	3.0	3.5
Total Lost time (s)	5.0	5.0	2.0	5.0	6.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Frbp, ped/bikes	1.00	0.95	1.00	0.92	1.00	0.92	1.00	1.00	0.91
Frbp, ped/bikes	0.84	1.00	0.85	1.00	0.96	1.00	0.90	1.00	1.00
Frt	1.00	0.98	1.00	0.97	1.00	1.00	1.00	1.00	0.97
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1414	3307	1398	3176	1616	3517	1494	3091	
Flt Permitted	0.34	1.00	0.34	1.00	0.29	1.00	0.31	1.00	
Satd. Flow (perm)	506	3307	503	3176	494	3517	494	3091	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	76	541	73	100	500	106	144	898	9
RTOR Reduction (vph)	0	12	0	0	2	0	0	1	0
Lane Group Flow (vph)	76	602	0	100	604	0	144	907	0
Conf. Peds. (#/hr)	845	695	695	845	966	845	546	546	966
Heavy Vehicles (%)	0%	1%	0%	3%	1%	0%	1%	0%	1%
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	NA
Protected Phases	4		8		5	2		6	
Permitted Phases	4		8		2			6	
Actuated Green, G (s)	34.0	34.0	34.0	34.0	44.0	44.0	44.0	30.6	30.6
Effective Green, g (s)	35.0	35.0	38.0	35.0	42.0	45.0	45.0	31.6	31.6
Actuated g/C Ratio	0.39	0.39	0.42	0.39	0.47	0.50	0.50	0.35	0.35
Clearance Time (s)	6.0	6.0	6.0	6.0	4.0	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	3.0
Lane Crp Cap (vph)	196	1286	212	1235	322	1758	173	1085	
v/c Ratio Prot	0.15	0.18	0.19	0.19	0.04	0.26		0.17	
v/c Ratio Perm	0.39	0.47	0.47	0.49	0.45	0.52		0.58	0.48
Uniform Delay, d1	19.8	20.5	18.8	20.7	15.1	15.2		23.8	22.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.7	1.2	7.4	1.4	1.0	1.1		13.6	1.5
Delay (s)	25.5	21.8	26.1	22.1	16.1	16.2		37.4	24.4
Level of Service	C	C	C	C	B	B		D	C
Approach Delay (s)	22.2		22.7		16.2			26.4	
Approach LOS	C		C		B			C	

Intersection Summary

HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
3: Bay St & Yorkville Ave

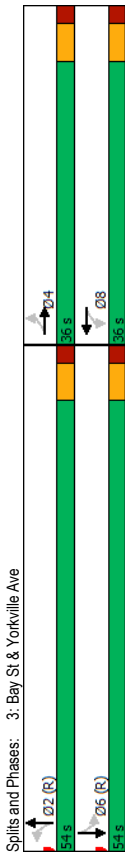
Future Background PM  
12/10/2018

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
33	60	20	132	124	77	76	783	150	42	417	82
33	60	20	132	124	77	76	783	150	42	417	82
1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
0.90	0.90	0.90	0.83	0.83	0.97	0.97	0.97	0.97	0.95	0.95	0.95
0.976	0.976	0.969	0.969	0.981	0.977	0.977	0.977	0.977	0.977	0.977	0.977
0.986	0.986	0.981	0.981	0.981	0.996	0.996	0.996	0.996	0.996	0.996	0.996
0	1689	0	0	1610	0	0	3358	0	0	3269	0
0.844	0.844	0.828	0.828	0.828	0.849	0.849	0.849	0.849	0.807	0.807	0.807
0	1387	0	0	1220	0	0	2837	0	0	2644	0
13	48	15.0	18	48	35	48	35	48	35	48	35
200.3	161.7	12.1	161.7	12.1	95.5	115.7	95.5	115.7	95.5	115.7	95.5
263	358	358	263	358	106	7.2	106	60	60	60	106
0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
0%	0%	5%	2%	2%	1%	1%	0%	0%	0%	0%	0%
35	63	21	139	131	81	80	824	158	44	439	86
0	119	0	0	351	0	0	1062	0	0	569	0
Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
4	4	8	8	8	2	2	2	2	6	6	6
4	4	8	8	8	2	2	2	2	6	6	6
24.0	24.0	24.0	24.0	24.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
30.0	30.0	30.0	30.0	30.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
36.0	36.0	36.0	36.0	36.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0
40.0%	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
29.1	29.1	29.1	29.1	29.1	50.9	50.9	50.9	50.9	50.9	50.9	50.9
0.32	0.32	0.32	0.32	0.32	0.57	0.57	0.57	0.57	0.57	0.57	0.57
0.26	0.26	0.26	0.26	0.26	0.66	0.66	0.66	0.66	0.38	0.38	0.38
21.0	21.0	21.0	21.0	21.0	15.9	15.9	15.9	15.9	11.3	11.3	11.3
0.0	0.0	0.0	0.0	0.0	5.6	5.6	5.6	5.6	0.0	0.0	0.0
21.0	21.0	21.0	21.0	21.0	21.5	21.5	21.5	21.5	11.3	11.3	11.3
C	C	C	C	C	D	D	D	D	B	B	B
21.0	21.0	21.0	21.0	21.0	21.5	21.5	21.5	21.5	11.3	11.3	11.3
C	C	C	C	C	D	D	D	D	B	B	B
12.9	12.9	12.9	12.9	12.9	63.6	63.6	63.6	63.6	26.2	26.2	26.2
25.6	25.6	25.6	25.6	25.6	85.4	85.4	85.4	85.4	37.4	37.4	37.4

Lanes, Volumes, Timings  
3: Bay St & Yorkville Ave

Future Background PM  
12/10/2018

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
176.3	486	486	137.7	432	432	1618	490	0	0	1509	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
0.24	0.24	0.24	0.81	0.81	0.94	0.94	0.94	0.94	0.38	0.38	0.38
<b>Intersection Summary</b>											
Area Type: Other											
Cycle Length: 90											
Actuated Cycle Length: 90											
Offset: 0 (0%), Referenced to phase 2:NBT.L and 6:SBL.L, Start of Green											
Natural Cycle: 60											
Control Type: Actuated-Coordinated											
Maximum v/c Ratio: 0.86											
Intersection Signal Delay: 23.3											
Intersection Capacity Utilization: 85.2%											
Analysis Period (min): 15											
# 95th percentile volume exceeds capacity, queue may be longer.											
Queue shown is maximum after two cycles.											



Queues  
3: Bay St & Yorkville Ave

HCM Signalized Intersection Capacity Analysis  
3: Bay St & Yorkville Ave

Future Background PM  
12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBT	WBT	NBT	SBT								
Lane Group Flow (vph)	119	351	1062	569								
v/c Ratio	0.26	0.86	0.66	0.38								
Control Delay	21.0	48.9	15.9	11.3								
Queue Delay	0.0	0.0	5.6	0.0								
Total Delay	21.0	48.9	21.5	11.3								
Queue Length 50th (m)	12.9	52.0	63.6	26.2								
Queue Length 95th (m)	25.6	#98.2	85.4	37.4								
Internal Link Dist (m)	176.3	137.7	71.5	91.7								
Turn Bay Length (m)												
Base Capacity (vph)	486	432	1618	1509								
Starvation Cap Reductn	0	0	490	0								
Spillback Cap Reductn	0	0	0	0								
Storage Cap Reductn	0	0	0	0								
Reduced v/c Ratio	0.24	0.81	0.94	0.38								

# 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	33	60	20	132	124	77	76	783	150	42	417	82
Traffic Volume (vph)	33	60	20	132	124	77	76	783	150	42	417	82
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	0.94	0.94	0.94	0.93	0.93	0.97	0.97	0.98	0.98	0.98	0.96	0.96
Frpb, ped/bikes	0.96	0.96	0.90	0.90	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flt, ped/bikes	0.98	0.98	0.97	0.97	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Flt Protected	0.99	0.99	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1621	1621	1445	1445	3328	3328	3264	3264	3264	3264	3264	3264
Flt Permitted	0.84	0.84	0.83	0.83	0.85	0.85	0.81	0.81	0.81	0.81	0.81	0.81
Satd. Flow (perm)	1389	1389	1220	1220	2836	2836	2645	2645	2645	2645	2645	2645
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	35	63	21	139	131	81	80	824	158	44	439	86
RTOR Reduction (vph)	0	9	0	0	12	0	0	15	0	0	15	0
Lane Group Flow (vph)	0	110	0	0	339	0	0	1047	0	0	554	0
Confl. Peds. (#/hr)	263	358	358	358	263	106	60	60	60	60	60	106
Heavy Vehicles (%)	0%	0%	5%	5%	2%	2%	1%	1%	0%	0%	2%	0%
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4	4	8	8	2	2	6	6	6	6	6	6
Permitted Phases	4	4	8	8	2	2	6	6	6	6	6	6
Actuated Green, G (s)	28.1	28.1	28.1	28.1	49.9	49.9	49.9	49.9	49.9	49.9	49.9	49.9
Effective Green, g (s)	29.1	29.1	29.1	29.1	50.9	50.9	50.9	50.9	50.9	50.9	50.9	50.9
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
Clearance Time (s)	6.0	6.0	6.0	6.0	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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	449	449	394	394	1603	1603	1495	1495	1495	1495	1495	1495
v/s Ratio Prot	0.08	0.08	c0.28	c0.28	0.37	0.37	0.21	0.21	0.21	0.21	0.21	0.21
v/s Ratio Perm	0.25	0.25	0.86	0.86	0.65	0.65	0.37	0.37	0.37	0.37	0.37	0.37
v/c Ratio	22.4	22.4	28.5	28.5	13.5	13.5	10.7	10.7	10.7	10.7	10.7	10.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.3	0.3	16.8	16.8	2.1	2.1	0.7	0.7	0.7	0.7	0.7	0.7
Incremental Delay, d2	22.7	22.7	45.4	45.4	15.6	15.6	11.5	11.5	11.5	11.5	11.5	11.5
Delay (s)	C	C	D	D	B	B	B	B	B	B	B	B
Level of Service	C	C	D	D	B	B	B	B	B	B	B	B
Approach Delay (s)	22.7	22.7	45.4	45.4	15.6	15.6	11.5	11.5	11.5	11.5	11.5	11.5
Approach LOS	C	C	D	D	B	B	B	B	B	B	B	B

Intersection Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
HCM 2000 Control Delay	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
HCM 2000 Volume to Capacity ratio	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Actuated Cycle Length (s)	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Intersection Capacity Utilization	85.2%	85.2%	85.2%	85.2%	85.2%	85.2%	85.2%	85.2%	85.2%	85.2%	85.2%	85.2%
Analysis Period (min)	15	15	15	15	15	15	15	15	15	15	15	15

c Critical Lane Group

Lanes, Volumes, Timings  
4: Yonge St & Collier St

Future Background PM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group						
Lane Configurations						
Traffic Volume (vph)	0	0	680	94	16	489
Future Volume (vph)	0	0	680	94	16	489
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor			0.982			
Fit						
Flt Protected						0.998
Std. Flow (prot)	0	0	3475	0	0	3529
Flt Permitted						0.998
Std. Flow (perm)	0	0	3475	0	0	3529
Link Speed (k/h)	48	48	48	48	48	48
Link Distance (m)	111.8	22.2	163.1			12.2
Travel Time (s)	8.4	1.7				
Confl. Peds. (#/hr)				496	496	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	1%	0%	0%	1%
Adj. Flow (vph)	0	0	716	99	17	515
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	815	0	0	532
Sign Control	Stop	Free	Free	Free	Free	Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.4%					
Analysis Period (min)	15					
						ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
4: Yonge St & Collier St

Future Background PM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Movement						
Lane Configurations						
Traffic Volume (veh/h)	0	0	680	94	16	489
Future Volume (Veh/h)	0	0	680	94	16	489
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	716	99	17	515
Pedestrians	496					
Lane Width (m)	0.0					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)			None			None
Median type			None			None
Median storage (veh)						
Upstream signal (m)			22			
pX, platoon unblocked	0.91	0.91			0.91	
vC, conflicting volume	1553	904			1311	
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	1417	706			1152	
tC, single (s)	6.8	6.9			4.1	
tC, Z stage (s)						
p0 queue free %	3.5	3.3			2.2	
tF (s)	100	100			97	
cM capacity (veh/h)	113	346			561	
Direction: Lane #	NB.1	NB.2	SB.1	SB.2		
Volume Total	477	338	189	343		
Volume Left	0	0	17	0		
Volume Right	0	99	0	0		
cSH	1700	1700	561	1700		
Volume to Capacity	0.28	0.20	0.03	0.20		
Queue Length 95th (m)	0.0	0.0	0.7	0.0		
Control Delay (s)	0.0	0.0	1.4	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.5			
Approach LOS						
<b>Intersection Summary</b>						
Average Delay	0.2					
Intersection Capacity Utilization	28.4%					
Analysis Period (min)	15					
						ICU Level of Service A

Lanes, Volumes, Timings  
5: Yonge St & Asquith Avenue

HCM Unsignalized Intersection Capacity Analysis  
5: Yonge St & Asquith Avenue

Future Background PM  
12/10/2018

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑		↑↑	↑↑
Traffic Volume (veh/h)	17	70	616	56	17	378
Future Volume (Veh/h)	17	70	616	56	17	378
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	18	74	648	59	18	398
Pedestrians	670					
Lane Width (m)	3.0					
Walking Speed (m/s)	1.1					
Percent Blockage	51					
Right turn flare (veh)			None			None
Median type			None			None
Median storage (veh)						76
Upstream signal (m)				119		
pX, platoon unblocked	0.86	0.86			0.86	
vC, conflicting volume	1582	1024			1377	
vC1, stage 1 cont vol						
vC2, stage 2 cont vol	1344	691			1104	
IC, single (s)	6.8	7.0			4.1	
IC, 2 stage (s)	3.5	3.4			2.2	
p0 queue free %	69	54			93	
cM capacity (veh/h)	57	159			270	
Direction: Lane #	WB.1	NB.1	NB.2	SB.1	SB.2	
Volume Total	92	432	275	151	265	
Volume Left	18	0	0	18	0	
Volume Right	74	0	59	0	0	
cSH	118	1700	1700	270	1700	
Volume to Capacity	0.78	0.25	0.16	0.07	0.16	
Queue Length 95th (m)	34.0	0.0	0.0	1.6	0.0	
Control Delay (s)	100.6	0.0	0.0	3.5	0.0	
Lane LOS	F	A	A	A	A	
Approach Delay (s)	100.6	0.0		1.3		
Approach LOS	F	F				
<b>Intersection Summary</b>						
Average Delay						8.1
Intersection Capacity Utilization						34.9%
ICU Level of Service						A
Analysis Period (min)						15

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑		↑↑	↑↑
Traffic Volume (vph)	17	70	616	56	17	378
Future Volume (vph)	17	70	616	56	17	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Flt Protected	0.891		0.987			
Flt Permitted	0.990					0.998
Satd. Flow (prot)	1482	0	3449	0	0	3529
Flt Permitted	0.990					0.998
Satd. Flow (perm)	1492	0	3449	0	0	3529
Link Speed (k/h)	48		48			48
Link Distance (m)	191.3		15.7			76.1
Travel Time (s)	14.3		1.2			5.7
Confl. Peds. (#/hr)				670		670
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	6%	2%	4%	0%	1%
Adj. Flow (vph)	18	74	648	59	18	398
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	707	0	0	416
Sign Control	Stop	Free	Free	Free	Free	Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization						34.9%
ICU Level of Service A						
Analysis Period (min)						15



Lanes, Volumes, Timings  
6: Yonge St & Yorkville Ave

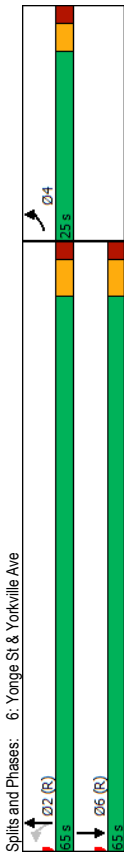
Future Background PM  
12/10/2018

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W					
Traffic Volume (vph)	168	59	98	597	339	147
Future Volume (vph)	168	59	98	597	339	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.75		0.96	0.83		
Flt	0.965			0.955		
Flt Protected	0.964			0.993		
Satd. Flow (prot)	1503	0	0	3495	2792	0
Flt Permitted	0.964			0.788		
Satd. Flow (perm)	1230	0	0	2666	2792	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	18			155		
Link Speed (k/h)	48			48	48	
Link Distance (m)	65.2			76.1	22.2	
Travel Time (s)	4.9			5.7	1.7	
Confl. Peds. (#/hr)	173	274	289			289
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	4%	1%	1%	1%
Adj. Flow (vph)	177	62	103	628	357	155
Shared Lane Traffic (%)						
Lane Group Flow (vph)	239	0	0	731	512	0
Turn Type	Prot	Perm	NA	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Minimum Split (s)	24.0	22.0	22.0	22.0	22.0	
Total Split (s)	25.0	65.0	65.0	65.0	65.0	
Total Split (%)	27.8%	72.2%	72.2%	72.2%	72.2%	
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0			6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Act. Effct Green (s)	20.0			59.0	59.0	
Actuated g/C Ratio	0.22			0.66	0.66	
v/c Ratio	0.69			0.42	0.27	
Control Delay	41.2			8.2	4.8	
Queue Delay	0.0			0.0	0.0	
Total Delay	41.2			8.2	4.8	
LOS	D			A	A	
Approach Delay	41.2			8.2	4.8	
Approach LOS	D			A	A	
Queue Length 50th (m)	35.3			28.0	11.3	
Queue Length 95th (m)	#65.0			38.4	17.6	
Internal Link Dist (m)	41.2			52.1	0.1	
Turn Bay Length (m)						
Base Capacity (vph)	348			1747	1883	

Lanes, Volumes, Timings  
6: Yonge St & Yorkville Ave

Future Background PM  
12/10/2018

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.69			0.42	0.27	
<b>Intersection Summary</b>						
Area Type:	Other					
Cycle Length:	90					
Actuated Cycle Length:	90					
Offset:	0 (0%), Referenced to phase 2:NBL and 6:SBT, Start of Green					
Natural Cycle:	50					
Control Type:	Pretimed					
Maximum v/c Ratio:	0.69					
Intersection Signal Delay:	12.4					
Intersection LOS:	B					
Intersection Capacity Utilization:	66.0%					
Analysis Period (min):	15					
ICU Level of Service C						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						



Queues  
6: Yonge St & Yorkville Ave  
Future Background PM  
12/10/2018

	EBL	NBT	SBT
Lane Group	239	731	512
Lane Group Flow (vph)	0.69	0.42	0.27
v/c Ratio	41.2	8.2	4.8
Control Delay	0.0	0.0	0.0
Queue Delay	41.2	8.2	4.8
Total Delay	35.3	28.0	11.3
Queue Length 50th (m)	#65.0	38.4	17.6
Queue Length 95th (m)	41.2	52.1	0.1
Internal Link Dist (m)			
Turn Bay Length (m)	348	1747	1883
Base Capacity (vph)	0	0	0
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.69	0.42	0.27

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

HCM Signalized Intersection Capacity Analysis  
6: Yonge St & Yorkville Ave  
Future Background PM  
12/10/2018

	EBL	EBR	NBL	NBT	SBT	SBR
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	168	59	98	597	339	147
Future Volume (vph)	168	59	98	597	339	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.5	3.5	3.5
Total Lost time (s)	5.0			6.0	6.0	
Lane Util. Factor	1.00			0.95	0.95	
Frbp, ped/bikes	0.92			1.00	0.83	
Frbp, ped/bikes	1.00			0.96	1.00	
Frt	0.96			1.00	0.95	
Fit Protected	0.96			0.99	1.00	
Satd. Flow (prot)	1504			3359	2790	
Fit Permitted	0.96			0.79	1.00	
Satd. Flow (perm)	1504			2667	2790	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	177	62	103	628	357	155
RTOR Reduction (vph)	14	0	0	0	53	0
Lane Group Flow (vph)	225	0	0	731	459	0
Conf. Peds. (#/hr)	173	274	289		289	
Heavy Vehicles (%)	0%	2%	4%	1%	1%	1%
Turn Type	Prot	Perm	NA	NA	NA	NA
Protected Phases	4		2	2	6	
Permitted Phases		2				
Actuated Green, G (s)	20.0		59.0	59.0	59.0	
Effective Green, g (s)	20.0		59.0	59.0	59.0	
Actuated g/C Ratio	0.22		0.66	0.66	0.66	
Clearance Time (s)	5.0		6.0	6.0	6.0	
Lane Grp Cap (vph)	334		1748	1829		
v/s Ratio Prot	c0.15			0.16		
v/s Ratio Perm			c0.27			
v/c Ratio	0.67		0.42	0.25		
Uniform Delay, d1	32.0		7.4	6.4		
Progression Factor	1.00		1.00	1.00		
Incremental Delay, d2	10.4		0.7	0.3		
Delay (s)	42.4		8.1	6.7		
Level of Service	D		A	A		
Approach Delay (s)	42.4		8.1	6.7		
Approach LOS	D		A	A		
<b>Intersection Summary</b>						
HCM 2000 Control Delay			13.2	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.48			
Actuated Cycle Length (s)			90.0	Sum of lost time (s)		11.0
Intersection Capacity Utilization			66.0%	ICU Level of Service		C
Analysis Period (min)			15			

c Critical Lane Group

Lanes, Volumes, Timings  
7: Yonge St & Cumberland St

Future Background PM  
12/10/2018

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W					
Traffic Volume (vph)	139	89	0	535	390	0
Future Volume (vph)	139	89	0	535	390	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Flt Protected	0.947					
Flt Permitted	0.970					
Satd. Flow (prot)	1607	0	0	3500	3535	0
Satd. Flow (perm)	1607	0	0	3500	3535	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	64.7			103.3	15.7	
Travel Time (s)	4.9			7.7	1.2	
Confl. Peds. (#/hr)	38	4	466			466
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	2%	2%	1%	2%
Adj. Flow (vph)	146	94	0	563	411	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	240	0	0	563	411	0
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	34.8%					
Analysis Period (min)	15					
					ICU Level of Service A	

HCM Unsignalized Intersection Capacity Analysis  
7: Yonge St & Cumberland St

Future Background PM  
12/10/2018

	EBL	EBR	NBL	NBT	SBT	SBR
Movement						
Lane Configurations	W					
Traffic Volume (veh/h)	139	89	0	535	390	0
Future Volume (Veh/h)	139	89	0	535	390	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	146	94	0	563	411	0
Pedestrians	466			4	38	
Lane Width (m)	3.0			3.5	3.5	
Walking Speed (m/s)	1.1			1.1	1.1	
Percent Blockage	35			0	3	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				103	92	
pX, platoon unblocked	0.85					
vC, conflicting volume	1196	676	877			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	890	676	877			
IC, single (s)	6.8	6.9	4.1			
IC, 2 stage (s)						
p0 queue free %	3.5	3.3	2.2			
IF (s)	4	63	100			
cM capacity (veh/h)	152	255	495			
<b>Direction: Lane #</b>						
	EB.1	NB.1	NB.2	SB.1	SB.2	
Volume Total	240	282	282	206	206	
Volume Left	146	0	0	0	0	
Volume Right	94	0	0	0	0	
cSH	181	1700	1700	1700	1700	
Volume to Capacity	1.33	0.17	0.17	0.12	0.12	
Queue Length 95th (m)	105.7	0.0	0.0	0.0	0.0	
Control Delay (s)	231.1	0.0	0.0	0.0	0.0	
Lane LOS	F					
Approach Delay (s)	231.1	0.0		0.0		
Approach LOS	F					
<b>Intersection Summary</b>						
Average Delay	45.7					
Intersection Capacity Utilization	34.8%					
Analysis Period (min)	15					
					ICU Level of Service A	

Lanes, Volumes, Timings  
8: Bay St & Cumberland St

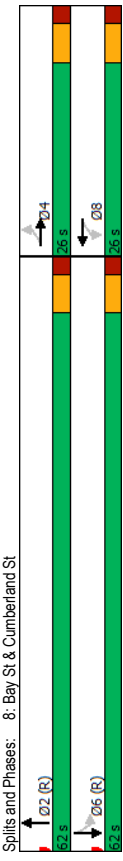
Future Background PM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕	↕		↕	↕
Traffic Volume (vph)	47	56	79	43	0	66	0	876	150	45	520	0
Future Volume (vph)	47	56	79	43	0	66	0	876	150	45	520	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.77	0.935	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918	0.918
Flt Protected	0.987	0.987	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981
Satd. Flow (prot)	0	2886	0	1372	0	0	0	3159	0	0	3491	0
Flt Permitted	0.859	0.859	0.805	0.805	0.805	0.805	0.805	0.805	0.805	0.805	0.805	0.805
Satd. Flow (perm)	0	2190	0	989	0	0	0	3159	0	0	2774	0
Right Turn on Red		Yes		Yes		Yes		Yes		Yes		Yes
Satd. Flow (RTOR)	36	37	37	37	37	37	37	37	37	37	37	37
Link Speed (k/h)	48	48	48	48	48	48	48	48	48	48	48	48
Link Distance (m)	190.2	160.7	160.7	160.7	160.7	160.7	160.7	160.7	160.7	160.7	160.7	160.7
Travel Time (s)	14.3	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
Confl. Peds. (#/hr)	239	582	582	239	530	530	471	471	471	471	530	530
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	0%	0%	2%	0%	2%	1%	1%	0%	2%	2%	2%
Adj. Flow (vph)	49	59	83	45	0	69	0	922	158	47	547	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	191	0	0	114	0	0	1080	0	0	594	0
Turn Type	Perm	NA	Perm	NA	NA	NA	NA	Perm	NA	Perm	NA	NA
Protected Phases	4	4	8	8	8	8	2	6	6	6	6	6
Permitted Phases	4	4	8	8	8	8	2	6	6	6	6	6
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	26.0	26.0	26.0	26.0	26.0	26.0	62.0	62.0	62.0	62.0	62.0	62.0
Total Split (%)	29.5%	29.5%	29.5%	29.5%	29.5%	29.5%	70.5%	70.5%	70.5%	70.5%	70.5%	70.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)	20.0	20.0	20.0	20.0	20.0	20.0	56.0	56.0	56.0	56.0	56.0	56.0
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.23	0.64	0.64	0.64	0.64	0.64	0.64
v/c Ratio	0.36	0.36	0.45	0.45	0.45	0.45	0.34	0.34	0.34	0.34	0.34	0.34
Control Delay	25.4	25.4	26.6	26.6	26.6	26.6	10.1	8.0	8.0	8.0	8.0	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.7	0.7	0.7	0.7	0.7
Total Delay	25.4	25.4	26.6	26.6	26.6	26.6	12.2	8.7	8.7	8.7	8.7	8.7
LOS	C	C	C	C	C	C	B	A	A	A	A	A
Approach Delay	25.4	25.4	26.6	26.6	26.6	26.6	12.2	8.7	8.7	8.7	8.7	8.7
Approach LOS	C	C	C	C	C	C	B	A	A	A	A	A
Queue Length 50th (m)	11.5	11.5	11.0	11.0	11.0	11.0	47.4	21.8	21.8	21.8	21.8	21.8
Queue Length 95th (m)	21.0	21.0	26.8	26.8	26.8	26.8	62.4	30.5	30.5	30.5	30.5	30.5
Internal Link Dist (m)	166.2	166.2	136.7	136.7	136.7	136.7	78.4	71.5	71.5	71.5	71.5	71.5
Turn Bay Length (m)												
Base Capacity (vph)	525	525	253	253	253	253	2010	1765	1765	1765	1765	1765
Starvation Cap Reductn	0	0	0	0	0	0	751	782	782	782	782	782

Lanes, Volumes, Timings  
8: Bay St & Cumberland St

Future Background PM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.36	0.45	0.45	0.45	0.45	0.86	0.86	0.86	0.86	0.86	0.86
Intersection Summary												
Area Type:	Other											
Cycle Length:	88											
Actuated Cycle Length:	88											
Offset: 0 (0%):	Referenced to phase 2:NBT and 6:SBTL, Start of Green											
Natural Cycle:	55											
Control Type:	PreTimed											
Maximum v/c Ratio:	0.54											
Intersection Signal Delay:	13.3											
Intersection Capacity Utilization:	95.6%											
Analysis Period (min):	15											



Queues  
8: Bay St & Cumberland St

HCM Signalized Intersection Capacity Analysis

8: Bay St & Cumberland St

Future Background PM  
12/10/2018

Future Background PM  
12/10/2018

	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	191	114	1080	594
v/c Ratio	0.36	0.45	0.54	0.34
Control Delay	25.4	26.6	10.1	8.0
Queue Delay	0.0	0.0	2.2	0.7
Total Delay	25.4	26.6	12.2	8.7
Queue Length 50th (m)	11.5	11.0	47.4	21.8
Queue Length 95th (m)	21.0	26.8	62.4	30.5
Internal Link Dist (m)	166.2	136.7	78.4	71.5
Turn Bay Length (m)				
Base Capacity (vph)	525	253	2010	1765
Starvation Cap Reductn	0	0	751	782
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.36	0.45	0.86	0.60

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4	4		4			4			4	4
Traffic Volume (vph)	47	56	79	43	0	66	0	876	150	45	520	0
Future Volume (vph)	47	56	79	43	0	66	0	876	150	45	520	0
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		0.95			1.00			0.95			0.95	
Flpb, ped/bikes		0.82			0.81			0.91			1.00	
Flt, ped/bikes		0.93			0.88			1.00			0.99	
Flt		0.93			0.92			0.98			1.00	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		2517			1205			3159			3463	
Flt Permitted		0.86			0.81			1.00			0.80	
Satd. Flow (perm)		2189			990			3159			2775	
Peak-hour factor, PHF		0.95			0.95			0.95			0.95	
Adj. Flow (vph)		49	59	83	45	0	69	0	922	158	47	547
RTOR Reduction (vph)		0	28	0	0	29	0	0	0	0	0	0
Lane Group Flow (vph)		0	163	0	0	85	0	1080	0	0	594	0
Confl. Peds. (#/hr)		239	582	582	239	530	530	471	471	471	530	530
Heavy Vehicles (%)		4%	0%	0%	2%	0%	2%	1%	0%	2%	2%	2%
Turn Type	Perm	NA	NA	Perm	NA	NA	NA	NA	Perm	NA	NA	NA
Protected Phases		4			8			2			6	
Permitted Phases		4		8				2		6		6
Actuated Green, G (s)		20.0		20.0	20.0			56.0		56.0		56.0
Effective Green, g (s)		20.0		20.0	20.0			56.0		56.0		56.0
Actuated g/C Ratio		0.23		0.23	0.23			0.64		0.64		0.64
Clearance Time (s)		6.0		6.0	6.0			6.0		6.0		6.0
Lane Grp Cap (vph)		497		225	225			2010		1765		1765
v/s Ratio Prot.		0.07		c0.09	c0.09			c0.34		0.21		0.21
v/c Ratio Perm		0.33		0.38	0.38			0.54		0.34		0.34
Uniform Delay, d1		28.4		28.8	28.8			8.8		7.4		7.4
Progression Factor		1.00		1.00	1.00			1.00		1.00		1.00
Incremental Delay, d2		1.8		4.8	4.8			1.0		0.5		0.5
Delay (s)		30.2		33.6	33.6			9.9		7.9		7.9
Level of Service		C		C	C			A		A		A
Approach Delay (s)		30.2		33.6	33.6			9.9		7.9		7.9
Approach LOS		C		C	C			A		A		A
Intersection Summary												
HCM 2000 Control Delay			12.6									B
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			88.0									12.0
Intersection Capacity Utilization			95.6%									F
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
9: Site Driveway & Yorkville Ave

Future Background PM  
12/10/2018

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1				4	
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fit						
Fit Protected						
Std. Flow (prot)	1842	0	0	1842	1739	0
Fit Permitted						
Std. Flow (perm)	1842	0	0	1842	1739	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	161.7			65.2	92.0	
Travel Time (s)	12.1			4.9	6.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	0.0%					
Analysis Period (min)	15					
						ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
9: Site Driveway & Yorkville Ave

Future Background PM  
12/10/2018

	EBT	EBR	WBL	WBT	NBL	NBR
Movement	1				4	
Lane Configurations	1				4	
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)	None					
Upstream signal (m)	65					
pX, platoon unblocked	162					
vC, conflicting volume	0					
vC1, stage 1 cont vol	0					
vC2, stage 2 cont vol	0					
vCu, unblocked vol	0					
IC, single (s)	4.1					
IC, 2 stage (s)	2.2					
p0 queue free %	100					
ICU	100					
cM capacity (veh/h)	1623					
Direction: Lane #	EB 1	WB 1	NB 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0					
Approach LOS	A					
Intersection Summary						
Average Delay	0.0					
Intersection Capacity Utilization	0.0%					
Analysis Period (min)	15					
						ICU Level of Service A

Lanes, Volumes, Timings  
10: Cumberland St & Site Driveway

Future Background PM  
12/10/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4				
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Ideal Flow (veh/pl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fit						
Std. Flow (prot)	0	1842	1842	0	1739	0
Fit Permitted						
Std. Flow (perm)	0	1842	1842	0	1739	0
Link Speed (k/h)		48	48		48	
Link Distance (m)		160.7	64.7		92.0	
Travel Time (s)		12.1	4.9		6.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Sign Control		Free	Free		Stop	

Area Type	Other
Control Type	Unsignalized
Intersection Capacity Utilization	0.0%
Analysis Period (min)	15
ICU Level of Service	A

HCM Unsignalized Intersection Capacity Analysis  
10: Cumberland St & Site Driveway

Future Background PM  
12/10/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4				
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)		None	None		None	
Median type		None	None		None	
Median storage (veh)						
Upstream signal (m)		161				
pX, platoon unblocked						
vC, conflicting volume	0			0	0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0			0	0	0
IC, single (s)	4.1			6.4	6.2	
IC, 2 stage (s)	2.2			3.5	3.3	
p0 queue free %	100			100	100	
cM capacity (veh/h)	1623			1023	1085	

Direction	Lane #	EB 1	WB 1	SB 1
Volume Total		0	0	0
Volume Left		0	0	0
Volume Right		0	0	0
cSH		1700	1700	1700
Volume to Capacity		0.00	0.00	0.00
Queue Length 95th (m)		0.0	0.0	0.0
Control Delay (s)		0.0	0.0	0.0
Lane LOS		A	A	A
Approach Delay (s)		0.0	0.0	0.0
Approach LOS		A	A	A

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

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Total AM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations		4T	4T					4T	4T		4T
Traffic Volume (vph)	0	634	2	0	719	8	0	243	4	1	593
Future Volume (vph)	0	634	2	0	719	8	0	243	4	1	593
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Fit Protected											
Satd. Flow (prot)	0	3392	0	0	3410	0	0	3243	0	0	3387
Fit Permitted											
Satd. Flow (perm)	0	3392	0	0	3410	0	0	3243	0	0	3233
Right Turn on Red		Yes		Yes		Yes		Yes		Yes	
Satd. Flow (RTOR)							1	48		4	
Link Speed (k/h)		48		48		48		48		48	
Link Distance (m)		232.1		233.5		189.9		103.3		103.3	
Travel Time (s)		17.4		17.5		14.2		7.7		7.7	
Confl. Peds. (#/hr)	715	563	563	715	275	715	275	542	542	275	275
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	5%	50%	3%	4%	0%	15%	9%	25%	0%	3%
Adj. Flow (vph)	0	704	2	0	799	9	0	270	4	1	659
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	706	0	0	808	0	0	274	0	0	683
Turn Type		NA		NA		NA		NA		Perm	NA
Protected Phases	2	2		6	6	4	4	8		8	8
Detector Phase	2	2		6	6	4	4	8		8	8
Switch Phase											
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	33.0	32.3%	32.3%	32.3%	32.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.27	0.27	0.27	0.27	0.27	0.27
v/c Ratio	0.71	0.71	0.81	0.81	0.31	0.31	0.31	0.78	0.78	0.78	0.78
Control Delay	35.2	35.2	39.3	39.3	29.0	29.0	29.0	39.3	39.3	39.3	39.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	35.2	39.3	39.3	29.0	29.0	29.0	39.3	39.3	39.3	39.3
LOS	D	D	D	D	C	C	C	D	D	D	D
Approach Delay	35.2	35.2	39.3	39.3	29.0	29.0	29.0	39.3	39.3	39.3	39.3
Approach LOS	D	D	D	D	C	C	C	D	D	D	D
Queue Length 50th (m)	61.3	61.3	72.8	72.8	21.2	21.2	21.2	61.2	61.2	61.2	61.2
Queue Length 95th (m)	81.5	81.5	95.3	95.3	32.1	32.1	32.1	81.7	81.7	81.7	81.7

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Total AM  
12/10/2018

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Fit Protected		
Satd. Flow (prot)		
Fit Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type	3	7
Protected Phases		
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	28.0
Minimum Split (s)	31.0	32.0
Total Split (s)	32.0	32.0
Total Split (%)	33%	33%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	Max	Max
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		



Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Total AM  
12/10/2018

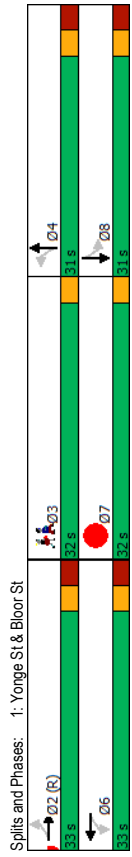
Future Total AM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (m)	208.1			209.5			165.9				79.3	
Turn Bay Length (m)		989		995			879				878	
Base Capacity (vph)		0		0			0				0	
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		0.71		0.81			0.31				0.78	

Lane Group	Ø3	Ø7
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Area Type: Other  
 Cycle Length: 96  
 Actuated Cycle Length: 96  
 Offset: 0 (0%); Referenced to phase 2:EBTL; Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 37.0  
 Intersection Capacity Utilization 46.6%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service A



Queues  
1: Yonge St & Bloor St

Future Total AM  
12/10/2018

	EBT	WBT	NBT	SBT
Lane Group	706	808	274	683
Lane Group Flow (vph)	0.71	0.81	0.31	0.78
v/c Ratio	35.2	39.3	29.0	39.3
Control Delay	0.0	0.0	0.0	0.0
Queue Delay	35.2	39.3	29.0	39.3
Total Delay	61.3	72.8	21.2	61.2
Queue Length 50th (m)	81.5	95.3	32.1	81.7
Queue Length 95th (m)	208.1	209.5	165.9	79.3
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)	989	995	879	878
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	0.71	0.81	0.31	0.78

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
1: Yonge St & Bloor St

Future Total AM  
12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4T			4T			4T			4T	
Traffic Volume (vph)	0	634	2	0	719	8	0	243	4	1	583	21
Future Volume (vph)	0	634	2	0	719	8	0	243	4	1	583	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			0.99			0.99	
Fltb, ped/bikes		1.00			1.00			1.00			1.00	
Flt		1.00			1.00			1.00			0.99	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3390			3411			3242			3385	
Flt Permitted		1.00			1.00			1.00			0.95	
Satd. Flow (perm)		3390			3411			3242			3232	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	704	2	0	799	9	0	270	4	1	659	23
RTOR Reduction (vph)	0	0	0	0	1	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	706	0	0	807	0	0	273	0	0	680	0
Confl. Peds. (#/hr)	715	563	563	715	275	715	275	542	542	275	542	275
Heavy Vehicles (%)	7%	5%	50%	3%	4%	0%	15%	9%	25%	0%	3%	25%
Turn Type	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protected Phases	2							4				8
Permitted Phases	2		6		6		4					8
Actuated Green, G (s)	27.0		27.0		27.0		25.0					25.0
Effective Green, g (s)	28.0		28.0		28.0		26.0					26.0
Actuated g/C Ratio	0.29		0.29		0.29		0.27					0.27
Clearance Time (s)	6.0		6.0		6.0		6.0					6.0
Vehicle Extension (s)	3.0		3.0		3.0		3.0					3.0
Lane Grp Cap (vph)	988		994		994		878					875
v/s Ratio Prot	0.21		c0.24		c0.24		0.08					c0.21
v/s Ratio Perm	0.71		0.81		0.81		0.31					0.78
Uniform Delay, d1	30.4		31.6		31.6		27.9					32.3
Progression Factor	1.00		1.00		1.00		1.00					1.00
Incremental Delay, d2	4.4		7.2		7.2		0.9					6.7
Delay (s)	34.8		38.8		38.8		28.8					39.1
Level of Service	C		D		D		C					D
Approach Delay (s)	34.8		38.8		38.8		28.8					39.1
Approach LOS	C		D		D		C					D

Intersection Summary

HCM 2000 Control Delay	36.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings  
2: Bay St & Bloor St

Lanes, Volumes, Timings  
2: Bay St & Bloor St

Future Total AM  
12/10/2018

Future Total AM  
12/10/2018

EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
70	532	106	102	515	81	57	426	8	54
70	532	106	102	515	81	57	426	8	54
1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0	3.5
15.2	0.0	13.7	0.0	20.4	0.0	20.4	0.0	10.4	0.0
1	0	1	0	1	0	0	1	0	0
7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
0.87	0.95	0.91	0.96	0.89	1.00	0.90	0.97	0.90	0.97
0.950	0.975	0.950	0.980	0.997	0.950	0.985	0.950	0.985	0.950
1574	3189	0	1636	3233	0	1465	3326	0	1636
0.400	0.213	0.343	0.343	0.447	0.447	0.447	0.447	0.447	0.447
578	3189	0	335	3233	0	468	3326	0	653
32	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
48	29	48	48	48	2	48	14	48	14
285.7	232.1	134.3	134.3	102.4	10.1	10.1	7.7	10.1	7.7
21.4	295	295	286	428	191	191	191	428	428
0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
7%	4%	3%	3%	6%	15%	6%	37%	3%	9%
Adj. Flow (vph)	78	591	118	113	572	90	63	473	9
Shared Lane Traffic (%)	78	709	0	113	662	0	63	482	0
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA	NA
Protected Phases	4	4	3	8	2	2	6	6	6
Detector Phase	4	4	3	8	2	2	6	6	6
Switch Phase	4	4	3	8	2	2	6	6	6
Minimum Initial (s)	23.0	23.0	6.0	23.0	22.0	22.0	23.0	23.0	23.0
Minimum Split (s)	30.0	30.0	10.0	30.0	29.0	29.0	30.0	30.0	30.0
Total Split (s)	39.0	39.0	13.0	52.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	45.9%	45.9%	15.3%	61.2%	38.8%	38.8%	38.8%	38.8%	38.8%
Yellow Time (s)	3.0	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	7.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	26.9	26.9	39.1	36.1	35.9	35.9	35.9	35.9	35.9
Actuated g/C Ratio	0.32	0.32	0.46	0.42	0.42	0.42	0.42	0.42	0.42
v/c Ratio	0.43	0.69	0.41	0.48	0.32	0.34	0.20	0.47	0.47
Control Delay	30.0	27.6	15.8	17.2	26.2	19.1	21.6	20.3	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
Total Delay	30.0	27.6	15.8	17.2	26.2	19.1	21.6	20.7	20.7
LOS	C	C	B	B	C	B	C	C	C

Synchro 9 Report  
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EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
27.9	C	17.0	B	20.0	B	20.0	20.8	C	20.8
10.1	51.0	9.8	36.0	6.9	28.1	6.2	38.1	C	38.1
21.0	61.7	15.5	41.9	20.2	45.6	17.2	61.8	C	61.8
261.7	208.1	208.1	208.1	110.3	110.3	78.4	78.4	C	78.4
15.2	13.7	20.4	20.4	10.4	10.4	10.4	10.4	C	10.4
224	1257	291	1725	197	1407	293	1382	C	1382
0	0	0	0	0	0	0	294	C	294
0	0	0	0	0	0	0	0	C	0
0	0	0	0	0	0	0	0	C	0
0.35	0.96	0.39	0.38	0.32	0.34	0.20	0.99	C	0.99
<b>Intersection Summary</b>									
Area Type: Other									
Cycle Length: 85									
Actuated Cycle Length: 85									
Offset: 0 (0%), Referenced to phase 2NBT.L and 6SBT.L, Start of Green									
Natural Cycle: 70									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.69									
Intersection Signal Delay: 21.6									
Intersection Capacity Utilization: 97.5%									
Analysis Period (min): 15									
ICU Level of Service: F									
Splits and Phases: 2: Bay St & Bloor St									

Synchro 9 Report  
Page 8

Queues  
2: Bay St & Bloor St

Future Total AM  
12/10/2018

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	78	709	113	662	63	482	60	643
v/c Ratio	0.43	0.69	0.41	0.48	0.32	0.34	0.20	0.47
Control Delay	30.0	27.6	15.8	17.2	26.2	19.1	21.6	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	30.0	27.6	15.8	17.2	26.2	19.1	21.6	20.7
Queue Length 50th (m)	10.1	51.0	9.8	36.0	6.9	28.1	6.2	39.1
Queue Length 95th (m)	21.0	61.7	15.5	41.9	20.2	45.6	17.2	61.8
Internal Link Dist (m)	261.7		208.1		110.3		78.4	
Turn Bay Length (m)	15.2		13.7		20.4		10.4	
Base Capacity (vph)	224	1257	291	1725	197	1407	293	1382
Starvation Cap Reductn	0	0	0	0	0	0	0	294
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	0.35	0.56	0.39	0.38	0.32	0.34	0.20	0.59
<b>Intersection Summary</b>								

HCM Signalized Intersection Capacity Analysis  
2: Bay St & Bloor St

Future Total AM  
12/10/2018

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	70	532	106	102	515	81	57	426
Traffic Volume (vph)	70	532	106	102	515	81	57	426
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	3.0	3.5	3.5	3.0	3.5	3.5	3.5	3.0
Lane Width	6.0	6.0	4.0	7.0	6.0	6.0	6.0	6.0
Total Lost time (s)	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Lane Util. Factor	1.00	0.95	1.00	0.96	1.00	0.95	1.00	0.97
Flpb, ped/bikes	0.87	1.00	0.99	1.00	0.88	1.00	0.90	1.00
Flpb, ped/bikes	1.00	0.98	1.00	0.98	1.00	1.00	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)	1373	3189	1613	3232	1288	3232	1467	3251
Flt Permitted	0.40	1.00	0.21	1.00	0.34	1.00	0.45	1.00
Satd. Flow (perm)	578	3189	362	3232	485	3232	690	3251
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	78	591	118	113	572	90	63	473
RTOR Reduction (vph)	0	22	0	0	16	0	0	0
Lane Group Flow (vph)	78	687	0	113	646	0	63	481
Conf. Peds. (#/hr)	286	295	295	286	428	191	191	428
Heavy Vehicles (%)	7%	4%	1%	3%	3%	6%	15%	3%
Turn Type	Perm	NA	NA	pm-pt	NA	NA	Perm	NA
Protected Phases	4	3	8	2	2	2	6	6
Permitted Phases	4	8	8	2	2	2	6	6
Actuated Green, G (s)	26.9	26.9	36.9	36.9	35.1	35.1	35.1	35.1
Effective Green, g (s)	26.9	26.9	36.9	36.9	35.1	35.1	35.1	35.1
Actuated g/C Ratio	0.32	0.32	0.43	0.43	0.41	0.41	0.41	0.41
Clearance Time (s)	6.0	6.0	4.0	7.0	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 Crp Cap (vph)	182	1009	260	1403	192	1373	284	1342
v/c Ratio Prot	0.22	0.04	0.04	0.20	0.14	0.14	0.09	0.20
v/c Ratio Perm	0.13	0.15	0.15	0.14	0.14	0.14	0.09	0.15
v/c Ratio	0.43	0.68	0.43	0.46	0.33	0.35	0.21	0.47
Uniform Delay, d1	23.0	25.3	15.9	17.0	16.9	17.1	16.0	18.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	1.9	1.2	0.2	4.5	0.7	1.7	1.2
Delay (s)	24.6	27.2	17.0	17.2	21.5	17.8	17.7	19.4
Level of Service	C	C	B	B	C	B	B	B
Approach Delay (s)	27.0	27.0	17.2	17.2	18.2	18.2	19.3	19.3
Approach LOS	C	C	B	B	B	B	B	B
<b>Intersection Summary</b>								
HCM 2000 Control Delay	20.7		HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio	0.56							
Actuated Cycle Length (s)	85.0							
Sum of lost time (s)	16.0							
Intersection Capacity Utilization	97.5%		ICU Level of Service		F			
Analysis Period (min)	15							
c Critical Lane Group								

Lanes, Volumes, Timings  
3: Bay St & Yorkville Ave

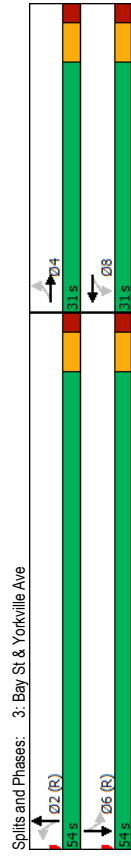
Future Total AM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Traffic Volume (vph)	13	34	16	108	92	52	48	357	119	76	524	93
Future Volume (vph)	13	34	16	108	92	52	48	357	119	76	524	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.93	0.965	0.972	0.89	0.966	0.980	0.985	0.995	0.995	0.995	0.995	0.995
Flt Protected	0	1553	0	0	1590	0	0	3062	0	0	3198	0
Satd. Flow (prot)	0	0.918	0	0.829	0	0.825	0	0.814	0	0.814	0	0
Flt Permitted	0	1409	0	0	1245	0	0	2515	0	0	2593	0
Satd. Flow (perm)	18	18	18	182	182	144	144	76	76	76	76	144
Right Turn on Red	48	48	48	48	48	48	48	48	48	48	48	48
Satd. Flow (RTOR)	15.0	15.0	15.0	11.5	11.5	7.2	7.2	8.7	8.7	8.7	8.7	8.7
Link Speed (k/h)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Link Distance (m)	0%	3%	3%	14%	2%	5%	10%	8%	2%	0%	4%	3%
Conf. Peds. (#/hr)	14	38	18	120	102	58	53	397	132	84	582	103
Peak Hour Factor	0	70	0	0	280	0	0	562	0	0	769	0
Heavy Vehicles (%)	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Adj. Flow (vph)	4	4	4	8	8	8	2	2	2	6	6	6
Shared Lane Traffic (%)	4	4	4	8	8	8	2	2	2	6	6	6
Lane Group Flow (vph)	0	70	0	0	280	0	0	562	0	0	769	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4	4	4	8	8	8	2	2	2	6	6	6
Permitted Phases	4	4	4	8	8	8	2	2	2	6	6	6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6
Switch Phase	24.0	24.0	24.0	24.0	24.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Initial (s)	30.0	30.0	30.0	30.0	30.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0
Total Split (s)	36.5%	36.5%	36.5%	36.5%	36.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	None	None	None	None	None	None	None	None	None	None	None	None
Lead-Lag Optimize?	None	None	None	None	None	None	None	None	None	None	None	None
Recall Mode	25.4	25.4	25.4	25.4	25.4	49.6	49.6	49.6	49.6	49.6	49.6	49.6
Act Effct Green (s)	0.30	0.30	0.30	0.30	0.30	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16	0.39	0.39	0.39	0.39	0.39	0.39	0.39
v/c Ratio	18.3	18.3	18.3	18.3	18.3	9.1	9.1	11.4	11.4	11.4	11.4	11.4
Control Delay	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Queue Delay	18.3	18.3	18.3	18.3	18.3	9.7	9.7	11.4	11.4	11.4	11.4	11.4
Total Delay	B	B	B	B	B	A	A	A	A	A	A	A
LOS	18.3	18.3	18.3	18.3	18.3	9.7	9.7	11.4	11.4	11.4	11.4	11.4
Approach Delay	B	B	B	B	B	A	A	A	A	A	A	A
Approach LOS	6.2	6.2	6.2	6.2	6.2	38.6	38.6	20.5	20.5	20.5	33.4	33.4
Queue Length 50th (m)	15.5	15.5	15.5	15.5	15.5	#72.5	#72.5	31.7	31.7	31.7	48.5	48.5
Queue Length 95th (m)												

Lanes, Volumes, Timings  
3: Bay St & Yorkville Ave

Future Total AM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (m)	176.3			128.8						71.5		91.7
Turn Bay Length (m)				391						1499		1527
Base Capacity (vph)	443			0						525		0
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	0.16			0.72						0.60		0.50
<b>Intersection Summary</b>												
Area Type:	Other											
Cycle Length:	85											
Actuated Cycle Length:	85											
Offset:	0 (0%), Referenced to phase 2:NBT.L and 6:SBL.L. Start of Green											
Natural Cycle:	55											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.73											
Intersection Signal Delay:	15.5											
Intersection Capacity Utilization:	71.5%											
Analysis Period (min):	15											
ICU Level of Service:	C											
# 95th percentile volume exceeds capacity. queue may be longer.												
Queue shown is maximum after two cycles.												



Spills and Phases: 3: Bay St & Yorkville Ave

Queues  
3: Bay St & Yorkville Ave

Future Total AM  
12/10/2018

	EBT	WBT	NBT	SBT
Lane Group	70	280	582	769
Lane Group Flow (vph)	0.16	0.73	0.39	0.50
v/c Ratio	18.3	38.1	9.1	11.4
Control Delay	0.0	0.0	0.6	0.0
Queue Delay	18.3	38.1	9.7	11.4
Total Delay	6.2	38.6	20.5	33.4
Queue Length 50th (m)	15.5	#72.5	31.7	48.5
Queue Length 95th (m)	176.3	128.8	71.5	91.7
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)	443	391	1499	1527
Starvation Cap Reductn	0	0	525	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.16	0.72	0.80	0.50

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

Intersection Summary

Permitted Phases	4	8	2	6
Actuated Green, G (s)	24.4	24.4	48.6	48.6
Effective Green, g (s)	25.4	25.4	49.6	49.6
Actuated g/C Ratio	0.30	0.30	0.58	0.58
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)	421	372	1467	1513
v/s Ratio Prot	0.04	c0.22	0.22	c0.29
v/s Ratio Perm	0.14	0.72	0.38	0.50
v/c Ratio	21.8	26.6	9.4	10.4
Uniform Delay, d1	1.00	1.00	1.00	1.00
Progression Factor	0.1	6.8	0.7	1.2
Incremental Delay, d2	21.9	33.4	10.2	11.6
Delay (s)	C	C	B	B
Level of Service	21.9	33.4	10.2	11.6
Approach Delay (s)	C	C	B	B
Approach LOS	C	C	B	B

HCM Signalized Intersection Capacity Analysis  
3: Bay St & Yorkville Ave

Future Total AM  
12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations		4			4			4		4	
Traffic Volume (vph)	13	34	16	108	92	52	48	357	119	76	524
Future Volume (vph)	13	34	16	108	92	52	48	357	119	76	524
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Flpb, ped/bikes	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Flt	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Flt Protected	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Satd. Flow (prot)	1521	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470
Flt Permitted	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Satd. Flow (perm)	1409	1409	1245	1245	1245	1245	1245	1245	1245	1245	1245
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	38	18	120	102	58	53	397	132	84	582
RTOR Reduction (vph)	0	13	0	0	11	0	0	32	0	0	14
Lane Group Flow (vph)	0	57	0	0	269	0	0	550	0	0	755
Confl. Peds. (#/hr)	182	182	182	182	182	144	144	182	76	76	144
Heavy Vehicles (%)	0%	3%	31%	14%	2%	5%	10%	8%	2%	0%	4%
Turn Type	Perm	NA	Perm	NA	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4			8			2		6	
Permitted Phases	4		8		2			2		6	
Actuated Green, G (s)	24.4		24.4		24.4			48.6		48.6	
Effective Green, g (s)	25.4		25.4		25.4			49.6		49.6	
Actuated g/C Ratio	0.30		0.30		0.30			0.58		0.58	
Clearance Time (s)	6.0		6.0		6.0			6.0		6.0	
Vehicle Extension (s)	3.0		3.0		3.0			3.0		3.0	
Lane Grp Cap (vph)	421		372		372			1467		1513	
v/s Ratio Prot	0.04		c0.22		c0.22			0.22		c0.29	
v/s Ratio Perm	0.14		0.72		0.72			0.38		0.50	
v/c Ratio	21.8		26.6		26.6			9.4		10.4	
Uniform Delay, d1	1.00		1.00		1.00			1.00		1.00	
Progression Factor	0.1		6.8		6.8			0.7		1.2	
Incremental Delay, d2	21.9		33.4		33.4			10.2		11.6	
Delay (s)	C		C		C			B		B	
Level of Service	21.9		33.4		33.4			10.2		11.6	
Approach Delay (s)	C		C		C			B		B	
Approach LOS	C		C		C			B		B	

Intersection Summary	
HCM 2000 Control Delay	15.1 HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio	0.57
Actuated Cycle Length (s)	85.0 Sum of lost time (s) 10.0
Intersection Capacity Utilization	71.5% ICU Level of Service C
Analysis Period (min)	15

c Critical Lane Group

Lanes, Volumes, Timings  
4: Yonge St & Collier St

Future Total AM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group						
Lane Configurations						
Traffic Volume (vph)	0	0	269	36	7	698
Future Volume (vph)	0	0	269	36	7	698
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor			0.982			
Flt Protected						0.999
Satd. Flow (prot)	0	0	3358	0	0	3463
Flt Permitted						0.999
Satd. Flow (perm)	0	0	3358	0	0	3463
Link Speed (k/h)	48	48	48	48	48	48
Link Distance (m)	111.8	22.2	163.1	163.1	163.1	163.1
Travel Time (s)	8.4	1.7	12.2	12.2	12.2	12.2
Confl. Peds. (#/hr)				712	712	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	5%	0%	0%	3%
Adj. Flow (vph)	0	0	289	40	8	776
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	339	0	0	784
Sign Control	Stop	Free	Free	Free	Free	Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.5%					
Analysis Period (min)	15					
	ICU Level of Service A					

HCM Unsignalized Intersection Capacity Analysis  
4: Yonge St & Collier St

Future Total AM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Movement						
Lane Configurations						
Traffic Volume (veh/h)	0	0	269	36	7	698
Future Volume (Veh/h)	0	0	269	36	7	698
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	239	40	8	776
Pedestrians	712					
Lane Width (m)	0.0					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)			None	None	None	None
Median storage (veh)						
Upstream signal (m)			22			
pX, platoon unblocked	0.97	0.97			0.97	
vC, conflicting volume	1435	882			1051	
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	1393	825			999	
tC, single (s)	6.8	6.9			4.1	
tC, Z stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	128	307			683	
Direction: Lane #	NB.1	NB.2	SB.1	SB.2		
Volume Total	199	140	267	517		
Volume Left	0	0	8	0		
Volume Right	0	40	0	0		
cSH	1700	1700	683	1700		
Volume to Capacity	0.12	0.08	0.01	0.30		
Queue Length 95th (m)	0.0	0.0	0.3	0.0		
Control Delay (s)	0.0	0.0	0.4	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.2			
Approach LOS						
<b>Intersection Summary</b>						
Average Delay	0.1					
Intersection Capacity Utilization	27.5%					
Analysis Period (min)	15					
	ICU Level of Service A					





Lanes, Volumes, Timings  
6: Yonge St & Yorkville Ave

Lanes, Volumes, Timings  
6: Yonge St & Yorkville Ave

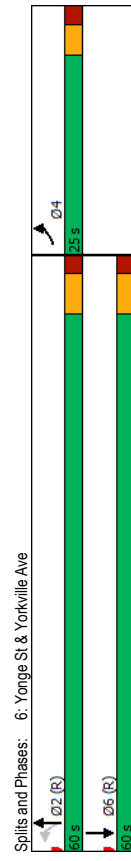
Future Total AM  
12/10/2018

Future Total AM  
12/10/2018

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W					
Traffic Volume (vph)	75	46	51	220	516	181
Future Volume (vph)	75	46	51	220	516	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.79			0.97	0.87	
Fit	0.949			0.961		
Fit Protected	0.970			0.991		
Satd. Flow (prot)	1443	0	0	3327	2901	0
Fit Permitted	0.970			0.749		
Satd. Flow (perm)	1248	0	0	2445	2901	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	34			113		
Link Speed (k/h)	48			48	48	
Link Distance (m)	74.1			76.1	22.2	
Travel Time (s)	5.6			5.7	1.7	
Confl. Peds. (#/hr)	162	170	180			180
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	12%	5%	3%	4%
Adj. Flow (vph)	83	51	57	244	573	201
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	0	0	301	774	0
Turn Type	Prot	Perm	NA	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Minimum Split (s)	24.0	22.0	22.0	22.0	22.0	
Total Split (s)	25.0	60.0	60.0	60.0	60.0	
Total Split (%)	29.4%	70.6%	70.6%	70.6%	70.6%	
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0			6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	20.0			54.0	54.0	
Actuated g/C Ratio	0.24			0.64	0.64	
v/c Ratio	0.37			0.19	0.41	
Control Delay	23.5			6.8	7.1	
Queue Delay	0.0			0.0	0.0	
Total Delay	23.5			6.8	7.1	
LOS	C			A	A	
Approach Delay	23.5			6.8	7.1	
Approach LOS	C			A	A	
Queue Length 50th (m)	13.4			9.5	24.1	
Queue Length 95th (m)	28.9			14.8	34.3	
Internal Link Dist (m)	50.1			52.1	0.1	
Turn Bay Length (m)						
Base Capacity (vph)	365			1553	1884	

Synchro 9 Report  
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.37			0.19	0.41	
<b>Intersection Summary</b>						
Area Type:	Other					
Cycle Length:	85					
Actuated Cycle Length:	85					
Offset:	0 (0%), Referenced to phase 2:NBL and 6:SBT, Start of Green					
Natural Cycle:	50					
Control Type:	Pretimed					
Maximum v/c Ratio:	0.41					
Intersection Signal Delay:	8.9					
Intersection LOS:	A					
Intersection Capacity Utilization:	65.3%					
Analysis Period (min):	15					



Splits and Phases: 6: Yonge St & Yorkville Ave

Synchro 9 Report  
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	EBL	NBT	SBT
Lane Group	134	301	774
Lane Group Flow (vph)	0.37	0.19	0.41
v/c Ratio	23.5	6.8	7.1
Control Delay	0.0	0.0	0.0
Queue Delay	23.5	6.8	7.1
Total Delay	13.4	9.5	24.1
Queue Length 50th (m)	28.9	14.8	34.3
Queue Length 95th (m)	50.1	52.1	0.1
Internal Link Dist (m)			
Turn Bay Length (m)			
Base Capacity (vph)	365	1553	1884
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.37	0.19	0.41
<b>Intersection Summary</b>			

	EBL	EBR	NBL	NBT	SBT	SBR
Movement	↔	↔	↔	↔	↔	↔
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	75	46	51	220	516	181
Future Volume (vph)	75	46	51	220	516	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.5	3.5	3.5
Total Lost time (s)	5.0		6.0	6.0		
Lane Util. Factor	1.00		0.95	0.95		
Frbp, ped/bikes	0.91		1.00	0.87		
Frbp, ped/bikes	1.00		0.97	1.00		
Frt	0.95		1.00	0.96		
Flt Protected	0.97		0.99	1.00		
Satd. Flow (prot)	1442		3233	2901		
Flt Permitted	0.97		0.75	1.00		
Satd. Flow (perm)	1442		2445	2901		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	83	51	57	244	573	201
RTOR Reduction (vph)	26	0	0	0	41	0
Lane Group Flow (vph)	108	0	0	301	733	0
Confl. Peds. (#/hr)	162	170	180			180
Heavy Vehicles (%)	3%	3%	12%	5%	3%	4%
Turn Type	Prot	Perm	NA	NA	NA	NA
Protected Phases	4		2	2	6	
Permitted Phases		2				
Actuated Green, G (s)	20.0		54.0	54.0	54.0	
Effective Green, g (s)	20.0		54.0	54.0	54.0	
Actuated g/C Ratio	0.24		0.64	0.64	0.64	
Clearance Time (s)	5.0		6.0	6.0	6.0	
Lane Grp Cap (vph)	339		1553	1842		
v/s Ratio Prot	c0.07		0.12	c0.25		
v/s Ratio Perm			0.19	0.40		
v/c Ratio	0.32		0.19	0.40		
Uniform Delay, d1	26.9		6.4	7.6		
Progression Factor	1.00		1.00	1.00		
Incremental Delay, d2	2.5		0.3	0.6		
Delay (s)	29.3		6.7	8.2		
Level of Service	C		A	A		
Approach Delay (s)	29.3		6.7	8.2		
Approach LOS	C		A	A		
<b>Intersection Summary</b>						
HCM 2000 Control Delay			10.2	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.38			
Actuated Cycle Length (s)			85.0	Sum of lost time (s)		11.0
Intersection Capacity Utilization			65.3%	ICU Level of Service		C
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings  
7: Bay St & Cumberland St

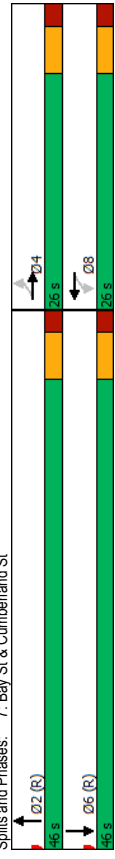
Lanes, Volumes, Timings  
7: Bay St & Cumberland St

Future Total AM  
12/10/2018

Future Total AM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	0	84	0	0	0	0	256	0	0	517	0
Future Volume (vph)	67	0	84	0	0	0	0	256	0	0	517	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98											
Fit	0.916											
Flt Protected	0.978											
Satd. Flow (prot)	0	2852	0	0	1842	0	0	3336	0	0	3500	0
Flt Permitted	0.828											
Satd. Flow (perm)	0	2390	0	0	1842	0	0	3336	0	0	3500	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)	93											
Link Speed (k/h)	48			48				48			48	
Link Distance (m)	190.2			155.6				102.4			95.5	
Travel Time (s)	14.3			11.7				7.7			7.2	
Confl. Peds. (#/hr)	20		1			136						136
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	13%	2%	10%	2%	2%	2%	2%	7%	2%	2%	2%	2%
Adj. Flow (vph)	74	0	93	0	0	0	0	284	0	0	574	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	167	0	0	0	0	0	284	0	0	574	0
Turn Type	Perm	NA						NA			NA	
Protected Phases	4			8				2			6	
Permitted Phases	4			8				2			6	
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	25.0	29.0	25.0	25.0	29.0	25.0
Total Split (s)	26.0	26.0	26.0	26.0	26.0	26.0	26.0	46.0	26.0	26.0	46.0	26.0
Total Split (%)	36.1%	36.1%	36.1%	36.1%	36.1%	36.1%	36.1%	63.9%	36.1%	36.1%	63.9%	36.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)	20.0							40.0			40.0	
Actuated g/C Ratio	0.28							0.56			0.56	
v/c Ratio	0.23							0.15			0.30	
Control Delay	10.6							8.0			9.0	
Queue Delay	0.0							0.0			0.0	
Total Delay	10.6							8.0			9.0	
LOS	B							A			A	
Approach Delay	10.6							8.0			9.0	
Approach LOS	B							A			A	
Queue Length 50th (m)	3.8							9.0			19.8	
Queue Length 95th (m)	10.6							14.3			28.4	
Internal Link Dist (m)	166.2			131.6				78.4			71.5	
Turn Bay Length (m)												
Base Capacity (vph)	731							1853			1944	
Starvation Cap Reductn	0							0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0							0			0	
Storage Cap Reductn	0							0			0	
Reduced v/c Ratio	0.23							0.15			0.30	
Intersection Summary												
Area Type:	Other											
Cycle Length:	72											
Actuated Cycle Length:	72											
Offset: 0 (0%):	Referenced to phase 2:NBT and 6:SBT, Start of Green											
Natural Cycle:	55											
Control Type:	PreTimed											
Maximum v/c Ratio:	0.30											
Intersection Signal Delay:	9.0											
Intersection Capacity Utilization:	45.0%											
Analysis Period (min):	15											
Intersection LOS:	A											
ICU Level of Service:	A											



Queues  
7: Bay St & Cumberland St

Future Total AM  
12/10/2018

	EBT	NBT	SBT
Lane Group	167	284	574
Lane Group Flow (vph)	0.23	0.15	0.30
v/c Ratio	10.6	8.0	9.0
Control Delay	0.0	0.0	0.0
Queue Delay	10.6	8.0	9.0
Total Delay	3.8	9.0	19.8
Queue Length 50th (m)	10.6	14.3	28.4
Internal Link Dist (m)	166.2	78.4	71.5
Turn Bay Length (m)	731	1853	1944
Base Capacity (vph)	0	0	0
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.23	0.15	0.30

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
7: Bay St & Cumberland St

Future Total AM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	67	0	84	0	0	0	0	256	0	0	517	0
Future Volume (vph)	67	0	84	0	0	0	0	256	0	0	517	0
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
Lane Util. Factor		0.95						0.95				0.95
Flpb, ped/bikes		0.99						1.00				1.00
Flt		0.92						1.00				1.00
Flt Protected		0.98						1.00				1.00
Satd. Flow (prot)		2825						3336				3500
Flt Permitted		0.83						1.00				1.00
Satd. Flow (perm)		2392						3336				3500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	0	93	0	0	0	0	284	0	0	574	0
RTOR Reduction (vph)	0	67	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	100	0	0	0	0	0	284	0	0	574	0
Confl. Peds. (#/hr)	20		1				136					136
Heavy Vehicles (%)	13%	2%	10%	2%	2%	2%	2%	7%	2%	2%	2%	2%
Turn Type	Perm	NA						NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8								
Actuated Green, G (s)	20.0							40.0			40.0	
Effective Green, g (s)	20.0							40.0			40.0	
Actuated g/C Ratio	0.28							0.56			0.56	
Clearance Time (s)	6.0							6.0			6.0	
Lane Grp Cap (vph)	664							1853			1944	
v/s Ratio Prot	c0.04							0.09			c0.16	
v/c Ratio Perm	0.15							0.15			0.30	
Uniform Delay, d1	19.6							7.8			8.5	
Progression Factor	1.00							1.00			1.00	
Incremental Delay, d2	0.5							0.2			0.4	
Delay (s)	20.1							7.9			8.9	
Level of Service	C							A			A	
Approach Delay (s)	20.1			0.0				7.9			8.9	
Approach LOS	C			A				A			A	

Intersection Summary

HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
8: Yonge St & Cumberland St

Future Total AM  
12/10/2018

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	W					
Lane Configurations						
Traffic Volume (vph)	27	67	0	483	594	2
Future Volume (vph)	27	67	0	483	594	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Flt	0.904					
Flt Protected	0.986					
Satd. Flow (prot)	1556	0	0	3305	3400	0
Flt Permitted	0.986					
Satd. Flow (perm)	1556	0	0	3305	3400	0
Link Speed (k/h)	48	48	48	48	48	48
Link Distance (m)	69.8			103.3	15.7	
Travel Time (s)	5.2			7.7	1.2	
Confl. Peds. (#/hr)	148	341	313	0.90	0.90	313
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	1%	2%	8%	5%	0%
Adj. Flow (vph)	30	74	0	537	660	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	0	0	537	662	0
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	36.5%					
Analysis Period (min)	15					
					ICU Level of Service A	

HCM Unsignalized Intersection Capacity Analysis  
8: Yonge St & Cumberland St

Future Total AM  
12/10/2018

	EBL	EBR	NBL	NBT	SBT	SBR
Movement	W					
Lane Configurations						
Traffic Volume (veh/h)	27	67	0	483	594	2
Future Volume (Veh/h)	27	67	0	483	594	2
Sign Control	Stop			Free	Free	
Grade	0%			0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	30	74	0	537	660	2
Pedestrians	313			341	148	
Lane Width (m)	3.0			3.5	3.5	
Walking Speed (m/s)	1.1			1.1	1.1	
Percent Blockage	24			30	13	
Right turn flare (veh)						
Median type	None					
Median storage (veh)	None					
Upstream signal (m)	103					
pX, platoon unblocked	0.95					
vC, conflicting volume	1390					
vC1, stage 1 conf vol	975					
vC2, stage 2 conf vol	975					
vCu, unblocked vol	1300					
IC, single (s)	6.9					
IC, 2 stage (s)	6.9					
p0 queue free %	3.5					
IF (s)	3.3					
p0 capacity (veh/h)	68					
cm capacity (veh/h)	44					
	95					
	133					
	536					
Direction: Lane #	EB.1	NB.1	NB.2	SB.1	SB.2	
Volume Total	104	268	268	440	222	
Volume Left	30	0	0	0	0	
Volume Right	74	0	0	0	2	
cSH	119	1700	1700	1700	1700	
Volume to Capacity	0.87	0.16	0.16	0.26	0.13	
Queue Length 95th (m)	40.8	0.0	0.0	0.0	0.0	
Control Delay (s)	119.3	0.0	0.0	0.0	0.0	
Lane LOS	F					
Approach Delay (s)	119.3	0.0	0.0	0.0	0.0	
Approach LOS	F					
<b>Intersection Summary</b>						
Average Delay	9.5					
Intersection Capacity Utilization	36.5%					
Analysis Period (min)	15					
					ICU Level of Service A	

Lanes, Volumes, Timings  
9: Site Driveway & Yorkville Ave

Future Total AM  
12/10/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	0	12	17	0	26	20
Traffic Volume (veh/h)	0	12	17	0	26	20
Future Volume (Veh/h)	0	12	17	0	26	20
Ideal Flow (Vehpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fit	0.865				0.942	
Fit Protected				0.950	0.972	
Satd. Flow (prot)	1593	0	0	1750	1592	0
Fit Permitted				0.950	0.972	
Satd. Flow (perm)	1593	0	0	1750	1592	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	152.8			74.1	91.9	
Travel Time (s)	11.5			5.6	6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	13	19	0	29	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	0	19	51	0
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	17.6%					
Analysis Period (min)	15					
	ICU Level of Service A					

HCM Unsignalized Intersection Capacity Analysis  
9: Site Driveway & Yorkville Ave

Future Total AM  
12/10/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	0	12	17	0	26	20
Traffic Volume (veh/h)	0	12	17	0	26	20
Future Volume (Veh/h)	0	12	17	0	26	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	13	19	0	29	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)	None					
Upstream signal (m)	74					
pX, platoon unblocked	153					
vC, conflicting volume	13					
vC1, stage 1 cont vol	13					
vC2, stage 2 cont vol	13					
vCu, unblocked vol	4.1					
IC, single (s)	2.2					
IC, 2 stage (s)	99					
p0 queue free %	1606					
cM capacity (veh/h)	955					
	1076					
<b>Direction: Lane #</b>						
	EB 1	WB 1	NB 1			
Volume Total	13	19	51			
Volume Left	0	19	29			
Volume Right	13	0	22			
cSH	1700	1606	1003			
Volume to Capacity	0.01	0.01	0.05			
Queue Length 95th (m)	0.0	0.3	1.2			
Control Delay (s)	0.0	7.3	8.8			
Lane LOS	A	A	A			
Approach Delay (s)	0.0	7.3	8.8			
Approach LOS	A	A	A			
<b>Intersection Summary</b>						
Average Delay	7.1					
Intersection Capacity Utilization	17.6%					
Analysis Period (min)	15					
	ICU Level of Service A					

Lanes, Volumes, Timings  
10: Cumberland St & Site Driveway

HCM Unsignalized Intersection Capacity Analysis  
10: Cumberland St & Site Driveway

Future Total AM  
12/10/2018

Future Total AM  
12/10/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1	0	0	0	19	0
Traffic Volume (veh/h)	1	0	0	0	19	0
Future Volume (Veh/h)	1	0	0	0	19	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	0	0	0	21	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)	None	None	None	None		
Median type	None	None	None	None		
Median storage (veh)						
Upstream signal (m)	155					
pX, platoon unblocked						
vC, conflicting volume	0				2	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				2	0
IC, single (s)	4.1				6.4	6.2
IC, 2 stage (s)						
IF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1623				1020	1085

Direction	Lane #	EB 1	WB 1	SB 1
Volume Total		1	0	21
Volume Left		1	0	21
Volume Right		0	0	0
cSH		1623	1700	1020
Volume to Capacity		0.00	0.00	0.02
Queue Length 95th (m)		0.0	0.0	0.5
Control Delay (s)		7.2	0.0	8.6
Lane LOS		A	A	A
Approach Delay (s)		7.2	0.0	8.6
Approach LOS		A	A	A

Intersection Summary	
Average Delay	8.5
Intersection Capacity Utilization	13.3%
ICU Level of Service	A
Analysis Period (min)	15

Intersection Summary	
Average Delay	8.5
Intersection Capacity Utilization	13.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Total PM  
12/10/2018

Future Total PM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	1	701	9	0	649	6	0	546	10	4	461
Traffic Volume (vph)	1	701	9	0	649	6	0	546	10	4	461
Future Volume (vph)	1	701	9	0	649	6	0	546	10	4	461
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	0.99	1.00	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.987
Fit	0.998	0.999		0.999							
Fit Protected											
Satd. Flow (prot)	0	3505	0	0	3509	0	0	3455	0	0	3315
Fit Permitted											
Satd. Flow (perm)	0	3547	0	0	3509	0	0	3455	0	0	3145
Right Turn on Red			Yes			Yes		Yes			Yes
Satd. Flow (RTOR)	1			1			2				10
Link Speed (k/h)	48			48			48				48
Link Distance (m)	232.1			233.5			189.9				103.3
Travel Time (s)	17.4			17.5			14.2				7.7
Confl. Peds. (#/hr)	1751			1320			1751				1271
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	2%	1%	20%	2%	0%	0%	0%	5%
Adj. Flow (vph)	1	738	9	0	683	6	0	575	11	4	485
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	748	0	0	689	0	0	586	0	0	535
Turn Type	Perm	NA		NA		NA	NA	NA	Perm	NA	NA
Protected Phases	2	2		6		6	4		4		8
Detector Phase	2	2		6		6	4		4		8
Switch Phase											
Minimum Initial (s)	20.0	20.0		20.0		20.0	20.0		20.0		20.0
Minimum Split (s)	26.0	26.0		26.0		26.0	26.0		26.0		26.0
Total Split (s)	33.0	33.0		33.0		31.0	31.0		31.0		31.0
Total Split (%)	34.4%	34.4%		34.4%		32.3%	32.3%		32.3%		32.3%
Yellow Time (s)	3.0	3.0		3.0		3.0	3.0		3.0		3.0
All-Red Time (s)	3.0	3.0		3.0		3.0	3.0		3.0		3.0
Lost Time Adjust (s)	-1.0			-1.0		-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	5.0			5.0		5.0	5.0		5.0		5.0
Lead/Lag						Lag	Lag		Lag		Lag
Lead-Lag Optimize?						Yes	Yes		Yes		Yes
Recall Mode	C-Max	C-Max		None		None	None		None		None
Act Effct Green (s)	61.9	61.9		61.9		24.1	24.1		24.1		24.1
Actuated g/C Ratio	0.64	0.64		0.64		0.25	0.25		0.25		0.25
v/c Ratio	0.35	0.35		0.30		0.68	0.67		0.67		0.67
Control Delay	8.7	8.7		8.4		36.2	36.0		36.0		36.0
Queue Delay	0.0	0.0		0.0		0.0	0.0		0.0		0.0
Total Delay	8.7	8.7		8.4		36.2	36.0		36.0		36.0
LOS	A	A		A		D	D		D		D
Approach Delay	8.7	8.7		8.4		36.2	36.0		36.0		36.0
Approach LOS	A	A		A		D	D		D		D
Queue Length 50th (m)	29.0	29.0		25.7		52.3	46.9		46.9		46.9
Queue Length 95th (m)	47.0	47.0		42.0		64.1	58.7		58.7		58.7

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Total PM  
12/10/2018

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Fit		
Fit Protected		
Satd. Flow (prot)		
Fit Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type	3	7
Protected Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	28.0
Minimum Split (s)	31.0	32.0
Total Split (s)	32.0	32.0
Total Split (%)	33%	33%
Yellow Time (s)	2.0	3.5
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		



Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Lanes, Volumes, Timings  
1: Yonge St & Bloor St

Future Total PM  
12/10/2018

Future Total PM  
12/10/2018

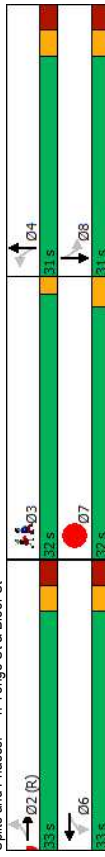
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (m)	208.1			209.5			165.9					79.3
Turn Bay Length (m)												
Base Capacity (vph)	2159			2264			961				880	
Starvation Cap Reductn	0			0			0				0	
Spillback Cap Reductn	0			0			0				0	
Storage Cap Reductn	0			0			0				0	
Reduced v/c Ratio	0.35			0.30			0.61				0.61	

Lane Group	Ø3	Ø7
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Area Type: Other  
 Cycle Length: 96  
 Actuated Cycle Length: 96  
 Offset: 0 (0%); Referenced to phase 2:EBTL; Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.68  
 Intersection Signal Delay: 20.6  
 Intersection Capacity Utilization 47.0%  
 Analysis Period (min) 15  
 Intersection LOS: C  
 ICU Level of Service A

Splits and Phases: 1: Yonge St & Bloor St



Queues  
1: Yonge St & Bloor St

Future Total PM  
12/10/2018

	EBT	WBT	NBT	SBT
Lane Group	748	689	586	535
Lane Group Flow (vph)	0.35	0.30	0.68	0.67
v/c Ratio	8.7	8.4	36.2	36.0
Control Delay	0.0	0.0	0.0	0.0
Queue Delay	8.7	8.4	36.2	36.0
Total Delay	29.0	25.7	52.3	46.9
Queue Length 50th (m)	47.0	42.0	64.1	58.7
Queue Length 95th (m)	208.1	209.5	165.9	79.3
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)	2159	2264	961	880
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	0.35	0.30	0.61	0.61

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
1: Yonge St & Bloor St

Future Total PM  
12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4↑			4↑			4↑			4↑	
Traffic Volume (vph)	1	701	9	0	649	6	0	546	10	4	461	44
Future Volume (vph)	1	701	9	0	649	6	0	546	10	4	461	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		0.99			1.00			0.99			0.95	
Fltb, ped/bikes		1.00			1.00			1.00			1.00	
Flt		1.00			1.00			1.00			0.99	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3505			3508			3456			3310	
Flt Permitted		0.95			1.00			1.00			0.95	
Satd. Flow (perm)		3346			3508			3456			3146	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1	738	9	0	683	6	0	575	11	4	485	46
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	748	0	0	689	0	0	585	0	0	528	0
Confl. Peds. (#/hr)	1751	1320	1320	1751	1116	1751	1116	1271	1271	1271	1116	1116
Heavy Vehicles (%)	0%	1%	0%	2%	1%	20%	2%	2%	0%	0%	1%	5%
Turn Type	Perm	NA	NA	NA	NA	NA	NA	NA	Perm	NA	NA	NA
Protected Phases		2			6			4			8	
Permitted Phases		2		6			4				8	
Actuated Green, G (s)		60.9			60.9			23.1			23.1	
Effective Green, g (s)		61.9			61.9			24.1			24.1	
Actuated g/C Ratio		0.64			0.64			0.25			0.25	
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)		2157			2261			867			789	
v/s Ratio Prot		c0.22			0.20			c0.17			0.17	
v/s Ratio Perm		0.35			0.30			0.67			0.67	
Uniform Delay, d1		7.8			7.5			32.4			32.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.4			0.1			2.1			2.2	
Delay (s)		8.2			7.6			34.5			34.5	
Level of Service		A			A			C			C	
Approach Delay (s)		8.2			7.6			34.5			34.5	
Approach LOS		A			A			C			C	

Intersection Summary

HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings  
2: Bay St & Bloor St

Future Total PM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	94	514	69	95	502	101	137	854	9	96	417	104
Future Volume (vph)	94	514	69	95	502	101	137	854	9	96	417	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Storage Length (m)	15.2	0.0	13.7	0.0	13.7	0.0	20.4	0.0	10.4	0.0	0.0	0.0
Storage Lanes	1	0	1	0	1	0	1	0	1	0	1	0
Taper Length (m)	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	0.95
Ped Bike Factor	0.85	0.95	0.85	0.93	0.84	1.00	0.999			0.90	0.91	0.970
Fit	0.950	0.982	0.950	0.975	0.950	0.950				0.950		
Flt Protected	1685	3307	0	1636	3192	0	1685	3518	0	1668	3090	0
Satd. Flow (prot)	0.323	0.342	0	0.342	0.290	0.314				0.314		
Flt Permitted	486	3307	0	503	3192	0	432	3518	0	494	3090	0
Satd. Flow (perm)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Right Turn on Red	19	48	4	48	1	48	1	37		48		
Satd. Flow (RTOR)	285.7	232.1	134.3		102.4							
Link Speed (k/h)	21.4	17.4	10.1		7.7							
Travel Time (s)	845	695	695	845	966	546	966	546	966	546	966	966
Confl. Peds. (#/hr)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Peak Hour Factor	0%	1%	0%	3%	1%	1%	0%	1%	0%	1%	4%	4%
Heavy Vehicles (%)	99	541	73	100	528	106	144	899	9	101	439	109
Adj. Flow (vph)	Shared Lane Traffic (%)											
Lane Group Flow (vph)	99	614	0	100	634	0	144	908	0	101	548	0
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA	NA	NA
Protected Phases	4	4	8	8	5	2	6	6	6	6	6	6
Permitted Phases	4	4	8	8	5	2	6	6	6	6	6	6
Detector Phase	4	4	8	8	5	2	6	6	6	6	6	6
Switch Phase												
Minimum Initial (s)	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%	44.4%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Actuated g/C Ratio	0.39	0.39	0.42	0.39	0.49	0.50	0.35	0.35	0.35	0.35	0.35	0.35
v/c Ratio	0.52	0.47	0.47	0.51	0.46	0.52	0.58	0.49	0.58	0.49	0.58	0.49
Control Delay	33.3	21.4	27.9	22.6	17.9	16.5	41.2	23.5	41.2	23.5	41.2	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	33.3	21.4	27.9	22.6	17.9	16.5	41.2	23.9	41.2	23.9	41.2	23.9
LOS	C	C	C	C	C	B	B	B	D	D	C	C

Lanes, Volumes, Timings  
2: Bay St & Bloor St

Future Total PM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay	23.0	23.0	23.0	23.3	23.3	23.3	16.7	16.7	16.7	26.6	26.6	26.6
Approach LOS	C	C	C	C	C	C	B	B	B	C	C	C
Queue Length 50th (m)	12.9	39.5	12.1	42.7	13.3	53.0	14.1	36.0	14.1	36.0	36.0	36.0
Queue Length 95th (m)	30.4	54.6	28.2	58.3	23.9	69.3	37.3	52.4	37.3	52.4	52.4	52.4
Internal Link Dist (m)	261.7	208.1				110.3				78.4		
Turn Bay Length (m)	15.2	13.7	13.7	20.4	20.4	20.4	10.4	10.4	10.4	10.4	10.4	10.4
Base Capacity (vph)	189	1297	212	1243	336	1759	173	1108	173	1108	1108	1108
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	209
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.47	0.47	0.51	0.43	0.52	0.58	0.61	0.58	0.61	0.61	0.61
Intersection Summary	Other											
Area Type:	Other											
Cycle Length:	90											
Actuated Cycle Length:	90											
Offset:	0 (0%), Referenced to phase 2NBL and 6SBL. Start of Green											
Natural Cycle:	70											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.58											
Intersection Signal Delay:	21.7											
Intersection Capacity Utilization:	97.3%											
ICU Level of Service:	F											
Analysis Period (min):	15											
# 95th percentile volume exceeds capacity, queue may be longer.	Queue shown is maximum after two cycles.											
Spills and Phases:	2: Bay St & Bloor St											
Diagram												

Queues  
2: Bay St & Bloor St

Future Total PM  
12/10/2018

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	99	614	100	634	144	908	101	548
Lane Group Flow (vph)	0.52	0.47	0.47	0.51	0.46	0.52	0.58	0.49
v/c Ratio	33.3	21.4	27.9	22.6	17.9	16.5	41.2	23.5
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Queue Delay	33.3	21.4	27.9	22.6	17.9	16.5	41.2	23.9
Total Delay	12.9	39.5	12.1	42.7	13.3	53.0	14.1	36.0
Queue Length 50th (m)	30.4	54.6	28.2	58.3	23.9	69.3	43.7	52.4
Queue Length 95th (m)	261.7		208.1		110.3		78.4	
Internal Link Length (m)	15.2	13.7	20.4		20.4		10.4	
Turn Bay Length (m)	189	1297	212	1243	336	1759	173	1108
Base Capacity (vph)	0	0	0	0	0	0	0	209
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	0.52	0.47	0.47	0.51	0.43	0.52	0.58	0.61

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

HCM Signalized Intersection Capacity Analysis  
2: Bay St & Bloor St

Future Total PM  
12/10/2018

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	
Movement	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	
Lane Configurations	94	514	69	502	101	137	854	9	96	
Traffic Volume (vph)	94	514	69	502	101	137	854	9	96	
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vphpl)	3.0	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	
Lane Width	5.0	5.0	2.0	5.0	6.0	5.0	5.0	5.0	5.0	
Total Lost time (s)	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	
Lane Util. Factor	1.00	0.95	1.00	0.93	1.00	0.93	1.00	1.00	0.91	
Frbp, ped/bikes	0.85	1.00	0.85	1.00	0.96	1.00	0.90	1.00	1.00	
Frbp, ped/bikes	1.00	0.98	1.00	0.97	1.00	1.00	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1429	3307	1398	3191	1616	3517	1494	3091		
Flt Permitted	0.32	1.00	0.34	1.00	0.29	1.00	0.31	1.00		
Satd. Flow (perm)	486	3307	503	3191	494	3517	494	3091		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	99	541	73	100	528	106	144	899	9	
RTOR Reduction (vph)	0	12	0	0	2	0	1	0	0	
Lane Group Flow (vph)	99	602	0	100	632	0	144	908	0	
Conf. Peds. (#/hr)	845	695	695	845	845	966	546	546	966	
Heavy Vehicles (%)	0%	1%	0%	3%	1%	0%	1%	0%	1%	
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	NA	
Protected Phases	4		8		5	2		6		
Permitted Phases	4		8		2		6			
Actuated Green, G (s)	34.0	34.0	34.0	34.0	44.0	44.0	44.0	30.6	30.6	
Effective Green, g (s)	35.0	35.0	38.0	35.0	42.0	45.0	31.6	31.6	31.6	
Actuated g/C Ratio	0.39	0.39	0.42	0.39	0.47	0.50	0.35	0.35	0.35	
Clearance Time (s)	6.0	6.0	6.0	6.0	4.0	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	3.0	
Lane Grp Cap (vph)	189	1286	212	1240	322	1758	173	1085		
v/s Ratio Prot	c0.20	0.18	0.20	0.20	0.04	c0.26		0.17		
v/s Ratio Perm	0.52	0.47	0.47	0.51	0.45	0.52	c0.20	0.58	0.48	
Uniform Delay, d1	21.1	20.5	18.8	21.0	15.1	15.2	23.8	22.8		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	10.0	1.2	7.4	1.5	1.0	1.1	13.6	1.5		
Delay (s)	31.1	21.8	26.1	22.5	16.1	16.3	37.4	24.4		
Level of Service	C	C	C	C	B	B	D	C		
Approach Delay (s)	23.1		23.0		16.2		26.4			
Approach LOS	C		C		B		C			
Intersection Summary										
HCM 2000 Control Delay					21.4	HCM 2000 Level of Service				C
HCM 2000 Volume to Capacity ratio					0.57					
Actuated Cycle Length (s)					90.0	Sum of lost time (s)				16.0
Intersection Capacity Utilization					97.3%	ICU Level of Service				F
Analysis Period (min)					15					
c Critical Lane Group										

Lanes, Volumes, Timings  
3: Bay St & Yorkville Ave

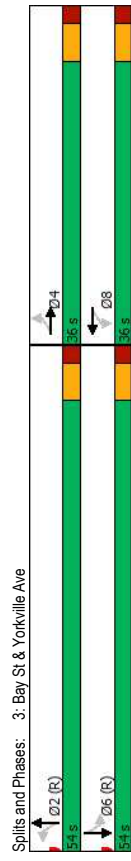
Future Total PM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	75	20	133	147	85	76	783	160	50	417	82
Future Volume (vph)	33	75	20	133	147	85	76	783	160	50	417	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.92	0.979	0.969	0.85	0.969	0.978	0.978	0.978	0.978	0.978	0.978	0.978
Flt Protected	0.987	0.987	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982
Satd. Flow (prot)	0	1710	0	0	1613	0	0	3358	0	0	3272	0
Flt Permitted	0.849	0.849	0.827	0.827	0.827	0.847	0.847	0.847	0.847	0.847	0.847	0.847
Satd. Flow (perm)	0	1422	0	0	1235	0	0	2831	0	0	2524	0
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)	11	11	18	18	18	35	35	35	35	35	35	35
Link Speed (k/h)	48	48	48	48	48	48	48	48	48	48	48	48
Link Distance (m)	200.3	200.3	161.7	161.7	161.7	95.5	95.5	115.7	115.7	115.7	115.7	115.7
Travel Time (s)	15.0	15.0	12.1	12.1	12.1	7.2	7.2	8.7	8.7	8.7	8.7	8.7
Confl. Peds. (#/hr)	263	358	358	263	358	106	106	60	60	60	60	106
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	5%	2%	2%	1%	1%	0%	0%	0%	0%	0%
Adj. Flow (vph)	35	79	21	140	155	89	80	824	158	53	439	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	135	0	0	384	0	0	1062	0	0	578	0
Turn Type	Perm	NA	NA	Perm	NA	Perm	NA	NA	Perm	NA	Perm	NA
Protected Phases	4	4	8	8	8	2	2	2	6	6	6	6
Permitted Phases	4	4	8	8	8	2	2	2	6	6	6	6
Detector Phase												
Switch Phase												
Minimum Initial (s)	24.0	24.0	24.0	24.0	24.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Split (s)	30.0	30.0	30.0	30.0	30.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	36.0	36.0	36.0	36.0	36.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	29.8	29.8	29.8	29.8	29.8	50.2	50.2	50.2	50.2	50.2	50.2	50.2
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33	0.56	0.56	0.56	0.56	0.56	0.56	0.56
v/c Ratio	0.28	0.28	0.91	0.91	0.91	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Control Delay	21.7	21.7	55.8	55.8	55.8	16.4	16.4	11.9	11.9	11.9	11.9	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	7.2	7.2	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	21.7	55.8	55.8	55.8	23.6	23.6	11.9	11.9	11.9	11.9	11.9
LOS	C	C	E	E	E	C	C	B	B	B	B	B
Approach Delay	21.7	21.7	55.8	55.8	55.8	23.6	23.6	11.9	11.9	11.9	11.9	11.9
Approach LOS	C	C	E	E	E	C	C	B	B	B	B	B
Queue Length 50th (m)	15.2	15.2	59.1	59.1	59.1	63.7	63.7	27.1	27.1	27.1	27.1	27.1
Queue Length 95th (m)	29.1	29.1	#111.3	#111.3	#111.3	85.7	85.7	36.8	36.8	36.8	36.8	36.8

Lanes, Volumes, Timings  
3: Bay St & Yorkville Ave

Future Total PM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (m)												
Turn Bay Length (m)												
Base Capacity (vph)												
Starvation Cap Reductn												
Spillback Cap Reductn												
Storage Cap Reductn												
Reduced v/c Ratio												
Intersection Summary												
Area Type:	Other											
Cycle Length:	90											
Actuated Cycle Length:	90											
Offset:	0 (0%), Referenced to phase 2:NBT.L and 6:SBL.T.L. Start of Green											
Natural Cycle:	60											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.91											
Intersection Signal Delay:	26.1											
Intersection Capacity Utilization:	87.2%											
Analysis Period (min):	15											
ICU Level of Service:	E											
# 95th percentile volume exceeds capacity. queue may be longer.												
Queue shown is maximum after two cycles.												



Queues  
3: Bay St & Yorkville Ave

Future Total PM  
12/10/2018

	EBT	WBT	NBT	SBT
Lane Group	135	384	1062	578
Lane Group Flow (vph)	0.28	0.91	0.87	0.41
v/c Ratio	21.7	55.8	16.4	11.9
Control Delay	0.0	0.0	7.2	0.0
Queue Delay	21.7	55.8	23.6	11.9
Total Delay	15.2	59.1	63.7	27.1
Queue Length 50th (m)	29.1	#111.3	85.7	38.8
Queue Length 95th (m)	176.3	137.7	71.5	91.7
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)	497	437	1595	1424
Starvation Cap Reductn	0	0	487	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.27	0.88	0.96	0.41

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

Intersection Summary

Permitted Phases	4	8	2	6
Actuated Green, G (s)	28.8	28.8	49.2	49.2
Effective Green, g (s)	29.8	29.8	50.2	50.2
Actuated g/C Ratio	0.33	0.33	0.56	0.56
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)	471	408	1579	1407
v/s Ratio Prot				
v/s Ratio Perm	0.09	c0.30	c0.37	0.22
v/c Ratio	0.27	0.91	0.66	0.40
Uniform Delay, d1	22.1	28.8	14.0	11.3
Progression Factor	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	24.2	2.2	0.8
Delay (s)	22.4	53.1	16.2	12.2
Level of Service	C	D	B	B
Approach Delay (s)	22.4	53.1	16.2	12.2
Approach LOS	C	D	B	B

Intersection Summary

HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
3: Bay St & Yorkville Ave

Future Total PM  
12/10/2018

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Movement											
Lane Configurations											
Traffic Volume (vph)	33	75	20	133	147	85	76	783	150	50	417
Future Volume (vph)	33	75	20	133	147	85	76	783	150	50	417
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	0.95	0.95	0.93	0.93	0.97	0.97	0.97	0.97	0.97	0.96	0.96
Flt, ped/bikes	0.98	0.97	0.91	0.91	0.99	0.99	0.98	0.98	0.98	0.98	0.98
Flt Protected	0.99	0.99	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1654	1467	1467	1467	3329	3329	3265	3265	3265	3265	3265
Flt Permitted	0.85	0.85	0.83	0.83	0.85	0.85	0.77	0.77	0.77	0.77	0.77
Satd. Flow (perm)	1423	1423	1235	1235	2831	2831	2524	2524	2524	2524	2524
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	35	79	21	140	155	89	80	824	158	53	439
RTOR Reduction (vph)	0	7	0	0	12	0	0	15	0	0	15
Lane Group Flow (vph)	0	128	0	0	372	0	0	1047	0	0	563
Confl. Peds. (#/hr)	263	358	358	263	106	263	106	60	60	60	106
Heavy Vehicles (%)	0%	0%	5%	5%	2%	2%	1%	1%	0%	0%	2%
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases	4	4	8	8	2	2	6	6	6	6	6
Permitted Phases	4	8	8	2	2	2	49.2	49.2	50.2	50.2	50.2
Actuated Green, G (s)	28.8	28.8	28.8	28.8	49.2	49.2	50.2	50.2	50.2	50.2	50.2
Effective Green, g (s)	29.8	29.8	29.8	29.8	50.2	50.2	50.2	50.2	50.2	50.2	50.2
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Clearance Time (s)	6.0	6.0	6.0	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	3.0	3.0	3.0
Lane Grp Cap (vph)	471	471	408	408	1579	1579	1407	1407	1407	1407	1407
v/s Ratio Prot											
v/s Ratio Perm	0.09	c0.30	c0.30	c0.37	0.22	0.22	0.22	0.22	0.22	0.22	0.22
v/c Ratio	0.27	0.91	0.91	0.66	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Uniform Delay, d1	22.1	28.8	28.8	14.0	11.3	11.3	11.3	11.3	11.3	11.3	11.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	24.2	2.2	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Delay (s)	22.4	53.1	16.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2
Level of Service	C	D	B	B	B	B	B	B	B	B	B
Approach Delay (s)	22.4	53.1	16.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2
Approach LOS	C	D	B	B	B	B	B	B	B	B	B

Intersection Summary

HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings  
4: Yonge St & Collier St

HCM Unsignalized Intersection Capacity Analysis  
4: Yonge St & Collier St

Future Total PM  
12/10/2018

Future Total PM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group						
Lane Configurations						
Traffic Volume (vph)	0	0	682	95	16	498
Future Volume (vph)	0	0	682	95	16	498
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor			0.982			
Flt Protected						0.998
Std. Flow (prot)	0	0	3475	0	0	3529
Flt Permitted						0.998
Std. Flow (perm)	0	0	3475	0	0	3529
Link Speed (k/h)	48	48	48	48	48	48
Link Distance (m)	111.8	22.2	163.1			12.2
Travel Time (s)	8.4	1.7				
Confl. Peds. (#/hr)				496	496	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	1%	0%	0%	1%
Adj. Flow (vph)	0	0	728	100	17	524
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	828	0	0	541
Sign Control	Stop	Free	Free	Free	Free	Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.7%					
Analysis Period (min)	15					
	ICU Level of Service A					

	WBL	WBR	NBT	NBR	SBL	SBT
Movement						
Lane Configurations						
Traffic Volume (veh/h)	0	0	682	95	16	498
Future Volume (Veh/h)	0	0	682	95	16	498
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	728	100	17	524
Pedestrians	496					
Lane Width (m)	0.0					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)			None			None
Median type			None			None
Median storage (veh)						
Upstream signal (m)			22			
pX, platoon unblocked	0.91	0.91			0.91	
vC, conflicting volume	1570	910			1324	
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	1433	709			1163	
tC, single (s)	6.8	6.9			4.1	
tC, Z stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			97	
cM capacity (veh/h)	111	343			555	
Direction: Lane #	NB.1	NB.2	SB.1	SB.2		
Volume Total	485	343	192	349		
Volume Left	0	0	17	0		
Volume Right	0	100	0	0		
cSH	1700	1700	555	1700		
Volume to Capacity	0.29	0.20	0.03	0.21		
Queue Length 95th (m)	0.0	0.0	0.7	0.0		
Control Delay (s)	0.0	0.0	1.4	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.5			
Approach LOS						
<b>Intersection Summary</b>						
Average Delay	0.2					
Intersection Capacity Utilization	28.7%					
Analysis Period (min)	15					
	ICU Level of Service A					

Lanes, Volumes, Timings  
5: Yonge St & Asquith Avenue

Future Total PM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	T	T	T
Traffic Volume (vph)	17	81	617	56	36	381
Future Volume (vph)	17	81	617	56	36	381
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor			0.987			
Flt	0.889					
Flt Protected	0.991					0.996
Std. Flow (prot)	1577	0	3449	0	0	3523
Flt Permitted	0.991					0.996
Std. Flow (perm)	1577	0	3449	0	0	3523
Link Speed (k/h)	48		48			48
Link Distance (m)	191.3		15.7			76.1
Travel Time (s)	14.3		1.2			5.7
Confl. Peds. (#/hr)				670	670	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	6%	2%	4%	0%	1%
Adj. Flow (vph)	18	85	649	59	38	401
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	0	708	0	0	439
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	47.3%					
Analysis Period (min)	15					
	ICU Level of Service A					

HCM Unsignalized Intersection Capacity Analysis  
5: Yonge St & Asquith Avenue

Future Total PM  
12/10/2018

	WBL	WBR	NBT	NBR	SBL	SBT
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	T	T	T
Traffic Volume (veh/h)	17	81	617	56	36	381
Future Volume (Veh/h)	17	81	617	56	36	381
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	18	85	649	59	38	401
Pedestrians	670					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.1					
Percent Blockage	59					
Right turn flare (veh)			None			None
Median type			None			None
Median storage (veh)						
Upstream signal (m)			119			76
pX, platoon unblocked	0.86	0.86			0.86	
vC, conflicting volume	1625	1024			1378	
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	1394	692			1106	
IC, single (s)	6.8	7.0			4.1	
IC, Z stage (s)						
IF (s)	3.5	3.4			2.2	
p0 queue free %	54	35			83	
cM capacity (veh/h)	39	132			223	
Direction: Lane #	WB.1	NB.1	NB.2	SB.1	SB.2	
Volume Total	103	433	275	172	267	
Volume Left	18	0	0	38	0	
Volume Right	85	0	59	0	0	
cSH	93	1700	1700	223	1700	
Volume to Capacity	1.11	0.25	0.16	0.17	0.16	
Queue Length 95th (m)	52.1	0.0	0.0	4.6	0.0	
Control Delay (s)	208.1	0.0	0.0	8.9	0.0	
Lane LOS	F			A		
Approach Delay (s)	208.1	0.0		3.5		
Approach LOS	F					
<b>Intersection Summary</b>						
Average Delay	18.4					
Intersection Capacity Utilization	47.3%					
Analysis Period (min)	15					
	ICU Level of Service A					



Lanes, Volumes, Timings  
6: Yonge St & Yorkville Ave

Lanes, Volumes, Timings  
6: Yonge St & Yorkville Ave

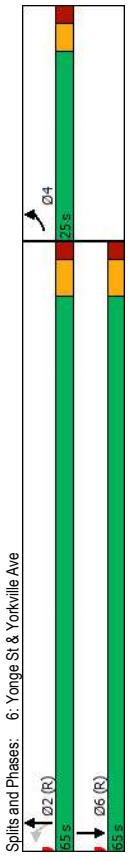
Future Total PM  
12/10/2018

Future Total PM  
12/10/2018

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W					
Traffic Volume (vph)	182	82	111	597	339	157
Future Volume (vph)	182	82	111	597	339	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.75		0.96	0.82		
Flt	0.958			0.953		
Flt Protected	0.967			0.992		
Satd. Flow (prot)	1469	0	0	3490	2760	0
Flt Permitted	0.967			0.767		
Satd. Flow (perm)	1220	0	0	2583	2760	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	23			165		
Link Speed (k/h)	48			48	48	
Link Distance (m)	65.2			76.1	22.2	
Travel Time (s)	4.9			5.7	1.7	
Confl. Peds. (#/hr)	173	274	289			289
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	4%	1%	1%	1%
Adj. Flow (vph)	192	86	117	628	357	165
Shared Lane Traffic (%)						
Lane Group Flow (vph)	278	0	0	745	522	0
Turn Type	Prot	Perm	NA	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Minimum Split (s)	24.0	22.0	22.0	22.0	22.0	
Total Split (s)	25.0	65.0	65.0	65.0	65.0	
Total Split (%)	27.8%	72.2%	72.2%	72.2%	72.2%	
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0			6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	20.0			59.0	59.0	
Actuated g/C Ratio	0.22			0.66	0.66	
v/c Ratio	0.81			0.44	0.28	
Control Delay	50.1			8.5	4.7	
Queue Delay	0.0			0.0	0.0	
Total Delay	50.1			8.5	4.7	
LOS	D			A	A	
Approach Delay	50.1			8.5	4.7	
Approach LOS	D			A	A	
Queue Length 50th (m)	42.1			29.1	11.4	
Queue Length 95th (m)	#82.1			40.1	17.7	
Internal Link Dist (m)	41.2			52.1	0.1	
Turn Bay Length (m)						
Base Capacity (vph)	344			1693	1866	

Synchro 9 Report  
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.81			0.44	0.28	
<b>Intersection Summary</b>						
Area Type:	Other					
Cycle Length:	90					
Actuated Cycle Length:	90					
Offset:	0 (0%), Referenced to phase 2:NBL and 6:SBT, Start of Green					
Natural Cycle:	50					
Control Type:	Pretimed					
Maximum v/c Ratio:	0.81					
Intersection Signal Delay:	14.7					
Intersection LOS:	B					
Intersection Capacity Utilization:	68.7%					
Analysis Period (min):	15					
ICU Level of Service C						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						



Synchro 9 Report  
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	EBL	NBT	SBT
Lane Group	278	745	522
Lane Group Flow (vph)	0.81	0.44	0.28
v/c Ratio	50.1	8.5	4.7
Control Delay	0.0	0.0	0.0
Queue Delay	50.1	8.5	4.7
Total Delay	42.1	29.1	11.4
Queue Length 50th (m)	#82.1	40.1	17.7
Queue Length 95th (m)	41.2	52.1	0.1
Internal Link Dist (m)			
Turn Bay Length (m)	344	1693	1866
Base Capacity (vph)	0	0	0
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.81	0.44	0.28

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

	EBL	EBR	NBL	NBT	SBT	SBR
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	182	82	111	597	339	157
Future Volume (vph)	182	82	111	597	339	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.5	3.5	3.5
Total Lost time (s)	5.0		6.0	6.0	6.0	
Lane Util. Factor	1.00		0.95	0.95	0.95	
Frbp, ped/bikes	0.90		1.00	0.82	1.00	
Frbp, ped/bikes	1.00		0.96	1.00	1.00	
Frt	0.96		1.00	0.95	1.00	
Fit Protected	0.97		0.99	1.00	1.00	
Satd. Flow (prot)	1469		3341	2759	2759	
Fit Permitted	0.97		0.77	1.00	1.00	
Satd. Flow (perm)	1469		2581	2759	2759	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	192	86	117	628	357	165
RTOR Reduction (vph)	18	0	0	0	57	0
Lane Group Flow (vph)	260	0	0	745	465	0
Conf. Peds. (#/hr)	173	274	289		289	
Heavy Vehicles (%)	0%	2%	4%	1%	1%	1%
Turn Type	Prot	Perm	NA	NA	NA	NA
Protected Phases	4		2	2	6	
Permitted Phases		2				
Actuated Green, G (s)	20.0		59.0	59.0	59.0	
Effective Green, g (s)	20.0		59.0	59.0	59.0	
Actuated g/C Ratio	0.22		0.66	0.66	0.66	
Clearance Time (s)	5.0		6.0	6.0	6.0	
Lane Grp Cap (vph)	326		1691	1808	1808	
v/s Ratio Prot	c0.18				0.17	
v/s Ratio Perm			c0.29			
v/c Ratio	0.80		0.44	0.26	0.26	
Uniform Delay, d1	33.1		7.5	6.4	6.4	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	18.2		0.8	0.3	0.3	
Delay (s)	51.3		8.3	6.8	6.8	
Level of Service	D		A	A	A	
Approach Delay (s)	51.3		8.3	6.8	6.8	
Approach LOS	D		A	A	A	
<b>Intersection Summary</b>						
HCM 2000 Control Delay		15.5		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio		0.53				
Actuated Cycle Length (s)		90.0		Sum of lost time (s)		11.0
Intersection Capacity Utilization		68.7%		ICU Level of Service		C
Analysis Period (min)		15				

c Critical Lane Group

Lanes, Volumes, Timings  
7: Yonge St & Cumberland St

HCM Unsignalized Intersection Capacity Analysis  
7: Yonge St & Cumberland St

Future Total PM  
12/10/2018

Future Total PM  
12/10/2018

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W					
Traffic Volume (vph)	139	116	0	536	393	0
Future Volume (vph)	139	116	0	536	393	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.0	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Flt Protected	0.939					
Flt Permitted	0.973					
Satd. Flow (prot)	1597	0	0	3500	3535	0
Satd. Flow (perm)	1597	0	0	3500	3535	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	64.7			103.3	15.7	
Travel Time (s)	4.9			7.7	1.2	
Confl. Peds. (#/hr)	38	4	466			466
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	2%	2%	1%	2%
Adj. Flow (vph)	146	122	0	564	414	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	268	0	0	564	414	0
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	36.5%					
Analysis Period (min)	15					
				ICU Level of Service A		

	EBL	EBR	NBL	NBT	SBT	SBR
Movement						
Lane Configurations	W					
Traffic Volume (veh/h)	139	116	0	536	393	0
Future Volume (Veh/h)	139	116	0	536	393	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	146	122	0	564	414	0
Pedestrians	466			4	38	
Lane Width (m)	3.0			3.5	3.5	
Walking Speed (m/s)	1.1			1.1	1.1	
Percent Blockage	35			0	3	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				103	92	
pX, platoon unblocked	0.85					
vC, conflicting volume	1200	677	880			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	894	677	880			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
p0 queue free %	3.5	3.3	2.2			
tF (s)	3	52	100			
cM capacity (veh/h)	151	255	494			
Direction: Lane #	EB.1	NB.1	NB.2	SB.1	SB.2	
Volume Total	268	282	282	207	207	
Volume Left	146	0	0	0	0	
Volume Right	122	0	0	0	0	
cSH	185	1700	1700	1700	1700	
Volume to Capacity	1.45	0.17	0.17	0.12	0.12	
Queue Length 95th (m)	125.0	0.0	0.0	0.0	0.0	
Control Delay (s)	275.5	0.0	0.0	0.0	0.0	
Lane LOS	F					
Approach Delay (s)	275.5	0.0		0.0		
Approach LOS	F					
<b>Intersection Summary</b>						
Average Delay	59.3					
Intersection Capacity Utilization	36.5%					
ICU Level of Service	A					
Analysis Period (min)	15					

Lanes, Volumes, Timings  
8: Bay St & Cumberland St

Lanes, Volumes, Timings  
8: Bay St & Cumberland St

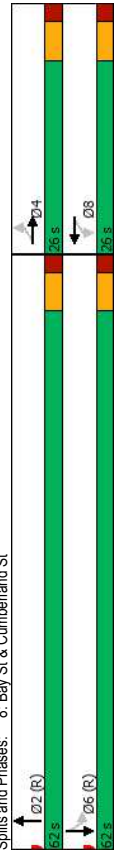
Future Total PM  
12/10/2018

Future Total PM  
12/10/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	57	79	43	0	66	0	876	174	45	520	1
Future Volume (vph)	47	57	79	43	0	66	0	876	174	45	520	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.77			0.71			0.90				0.99	
Fit	0.935			0.918			0.975					
Flt Protected	0.987			0.981							0.996	
Satd. Flow (prot)	0	2689	0	0	1372	0	0	3110	0	0	3488	0
Flt Permitted	0.859			0.805							0.795	
Satd. Flow (perm)	0	2193	0	0	989	0	0	3110	0	0	2762	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)	36			37			1					
Link Speed (k/h)	48			48			48				48	
Link Distance (m)	190.2			160.7			102.4				95.5	
Travel Time (s)	14.3			12.1			7.7				7.2	
Confl. Peds. (#/hr)	239			582			239			530	471	530
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	0%	0%	0%	2%	0%	2%	1%	1%	0%	2%	2%
Adj. Flow (vph)	49	60	83	45	0	69	0	922	183	47	547	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	192	0	0	114	0	0	1105	0	0	595	0
Turn Type	Perm	NA	Perm	NA	NA	NA	NA	NA	Perm	NA	NA	NA
Protected Phases	4			8			2				6	
Permitted Phases	4			8			2				6	
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	26.0	26.0	26.0	26.0	26.0	26.0	62.0	62.0	62.0	62.0	62.0	62.0
Total Split (%)	29.5%	29.5%	29.5%	29.5%	29.5%	29.5%	70.5%	70.5%	70.5%	70.5%	70.5%	70.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)	20.0			20.0			56.0				56.0	
Actuated g/C Ratio	0.23			0.23			0.64				0.64	
v/c Ratio	0.37			0.45			0.56				0.34	
Control Delay	25.4			26.6			10.4				8.1	
Queue Delay	0.0			0.0			2.4				0.7	
Total Delay	25.4			26.6			12.8				8.8	
LOS	C			C			B				A	
Approach Delay	25.4			26.6			12.8				8.8	
Approach LOS	C			C			B				A	
Queue Length 50th (m)	11.5			11.0			49.5				21.8	
Queue Length 95th (m)	21.1			26.8			65.4				30.7	
Internal Link Dist (m)	166.2			136.7			78.4				71.5	
Turn Bay Length (m)												
Base Capacity (vph)	526			253			1979				1757	
Starvation Cap Reductn	0			0			773				776	

Synchro 9 Report  
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0			0			0			0		0
Storage Cap Reductn	0			0			0			0		0
Reduced v/c Ratio	0.37			0.45			0.87			0.61		0.61
Intersection Summary												
Area Type:	Other											
Cycle Length:	88											
Actuated Cycle Length:	88											
Offset: 0 (0%):	Referenced to phase 2:NBT and 6:SBTL, Start of Green											
Natural Cycle:	55											
Control Type:	PreTimed											
Maximum v/c Ratio:	0.56											
Intersection Signal Delay:	13.6											
Intersection Capacity Utilization:	95.6%											
Analysis Period (min):	15											



Synchro 9 Report  
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Queues  
8: Bay St & Cumberland St

Future Total PM  
12/10/2018

	EBT	WBT	NBT	SBT
Lane Group	192	114	1105	595
Lane Group Flow (vph)	0.37	0.45	0.56	0.34
v/c Ratio	25.4	26.6	10.4	8.1
Control Delay	0.0	0.0	2.4	0.7
Queue Delay	25.4	26.6	12.8	8.8
Total Delay	11.5	11.0	49.5	21.8
Queue Length 50th (m)	21.1	26.8	65.4	30.7
Queue Length 95th (m)	166.2	136.7	78.4	71.5
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)	526	253	1979	1757
Starvation Cap Reductn	0	0	713	776
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.45	0.87	0.61

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
8: Bay St & Cumberland St

Future Total PM  
12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4	4		4			4			4	4
Traffic Volume (vph)	47	57	79	43	0	66	0	876	174	45	520	1
Future Volume (vph)	47	57	79	43	0	66	0	876	174	45	520	1
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		0.95			1.00			0.95			0.95	
Flpb, ped/bikes		0.82			0.81			0.90			1.00	
Flt, ped/bikes		0.94			0.88			0.98			1.00	
Flt		0.94			0.92			0.98			1.00	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		2522			1205			3111			3460	
Flt Permitted		0.86			0.81			1.00			0.79	
Satd. Flow (perm)		2194			990			3111			2761	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	49	60	83	45	0	69	0	922	183	47	547	1
RTOR Reduction (vph)	0	28	0	0	29	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	164	0	0	85	0	0	1105	0	0	585	0
Confl. Peds. (#/hr)	239	582	582	582	239	530	530	471	471	471	530	530
Heavy Vehicles (%)	4%	0%	0%	0%	2%	0%	2%	1%	1%	0%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	NA	NA	NA	Perm	NA	NA	NA
Protected Phases		4			8			2			6	
Permitted Phases	4		8						6			
Actuated Green, G (s)	20.0		20.0		20.0			56.0			56.0	
Effective Green, g (s)	20.0		20.0		20.0			56.0			56.0	
Actuated g/C Ratio	0.23		0.23		0.23			0.64			0.64	
Clearance Time (s)	6.0		6.0		6.0			6.0			6.0	
Lane Grp Cap (vph)	498		225		225			1979			1757	
v/s Ratio Prot		0.07			c0.09			c0.36			0.22	
v/c Ratio Perm		0.33			0.38			0.56			0.34	
Uniform Delay, d1	28.4		28.8		28.8			9.0			7.4	
Progression Factor	1.00		1.00		1.00			1.00			1.00	
Incremental Delay, d2	1.8		4.8		4.8			1.1			0.5	
Delay (s)	30.2		33.6		33.6			10.2			7.9	
Level of Service	C		C		C			B			A	
Approach Delay (s)	30.2		33.6		33.6			10.2			7.9	
Approach LOS	C		C		C			B			A	
Intersection Summary												
HCM 2000 Control Delay			12.7		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			88.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			95.6%		ICU Level of Service					F		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
9: Site Driveway & Yorkville Ave

HCM Unsignalized Intersection Capacity Analysis  
9: Site Driveway & Yorkville Ave

Future Total PM  
12/10/2018

Future Total PM  
12/10/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	4	4	1	1
Traffic Volume (veh/h)	0	24	24	0	34	37
Future Volume (Veh/h)	0	24	24	0	34	37
Ideal Flow (Vehpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fit	0.865				0.930	
Fit Protected				0.950	0.977	
Satd. Flow (prot)	1593	0	0	1750	1580	0
Fit Permitted				0.950	0.977	
Satd. Flow (perm)	1593	0	0	1750	1580	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	161.7			65.2	92.0	
Travel Time (s)	12.1			4.9	6.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	25	25	0	36	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	0	0	25	75	0
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	18.8%					
Analysis Period (min)	15					
	ICU Level of Service A					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	4	4	1	1
Traffic Volume (veh/h)	0	24	24	0	34	37
Future Volume (Veh/h)	0	24	24	0	34	37
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	25	25	0	36	39
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)	None					
Upstream signal (m)	65					
pX, platoon unblocked	162					
vC, conflicting volume	25					
vC1, stage 1 cont vol	62					
vC2, stage 2 cont vol	12					
vCu, unblocked vol	25					
IC, single (s)	4.1					
IC, 2 stage (s)	2.2					
p0 queue free %	98					
ICU capacity (veh/h)	1589					
	929					
	1068					
<b>Direction: Lane #</b>						
	EB.1	WB.1	NB.1			
Volume Total	25	25	75			
Volume Left	0	25	36			
Volume Right	25	0	39			
cSH	1700	1589	996			
Volume to Capacity	0.01	0.02	0.08			
Queue Length 95th (m)	0.0	0.4	1.9			
Control Delay (s)	0.0	7.3	8.9			
Lane LOS	A			A		
Approach Delay (s)	0.0			7.3		
Approach LOS	A			A		
<b>Intersection Summary</b>						
Average Delay	6.8					
Intersection Capacity Utilization	18.8%					
Analysis Period (min)	15					
	ICU Level of Service A					

Lanes, Volumes, Timings  
10: Cumberland St & Site Driveway

Future Total PM  
12/10/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4			4	
Traffic Volume (veh/h)	25	0	0	0	27	0
Future Volume (Veh/h)	25	0	0	0	27	0
Ideal Flow (veh/pl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	0.950				0.950	
Std. Flow (prot)	0	1750	1842	0	1652	0
Fit Permitted	0.950				0.950	
Std. Flow (perm)	0	1750	1842	0	1652	0
Link Speed (k/h)	48	48	48	48	48	48
Link Distance (m)	160.7	64.7	92.0			
Travel Time (s)	12.1	4.9	6.9			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	26	0	0	0	28	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	26	0	0	28	0
Sign Control	Free	Free	Free	Free	Stop	Stop

Direction	Lane #	EB 1	WB 1	SB 1
Volume Total		26	0	28
Volume Left		0	0	28
Volume Right		0	0	0
cSH		1623	1700	941
Volume to Capacity		0.02	0.00	0.03
Queue Length 95th (m)		0.4	0.0	0.7
Control Delay (s)		7.3	0.0	8.9
Lane LOS		A	A	A
Approach Delay (s)		7.3	0.0	8.9
Approach LOS		A	A	A

Intersection Summary	Value
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
Analysis Period (min)	15
ICU Level of Service A	

HCM Unsignalized Intersection Capacity Analysis  
10: Cumberland St & Site Driveway

Future Total PM  
12/10/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4			4	
Traffic Volume (veh/h)	25	0	0	0	27	0
Future Volume (Veh/h)	25	0	0	0	27	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	26	0	0	0	28	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)		None	None	None		
Median type		None	None	None		
Median storage (veh)						
Upstream signal (m)		161				
pX, platoon unblocked						
vC, conflicting volume	0				52	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				52	0
IC, single (s)	4.1				6.4	6.2
IC, 2 stage (s)						
IF (s)	2.2				3.5	3.3
p0 queue free %	98				97	100
cM capacity (veh/h)	1623				941	1085

Direction	Lane #	EB 1	WB 1	SB 1
Volume Total		26	0	28
Volume Left		0	0	28
Volume Right		0	0	0
cSH		1623	1700	941
Volume to Capacity		0.02	0.00	0.03
Queue Length 95th (m)		0.4	0.0	0.7
Control Delay (s)		7.3	0.0	8.9
Lane LOS		A	A	A
Approach Delay (s)		7.3	0.0	8.9
Approach LOS		A	A	A

Intersection Summary	Value
Average Delay	8.1
Intersection Capacity Utilization	13.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings  
10: Cumberland St & Site Driveway

Existing AM  
12/10/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	0	0	0	0	0
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Ideal Flow (veh/pl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected						
Std. Flow (prot)	0	1842	1842	0	1739	0
Fit Permitted						
Std. Flow (perm)	0	1842	1842	0	1739	0
Link Speed (k/h)		48	48		48	
Link Distance (m)		155.6	69.8		91.9	
Travel Time (s)		11.7	5.2		6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Sign Control		Free	Free		Stop	

Area Type	Other
Control Type	Unsignalized
Intersection Capacity Utilization	0.0%
Analysis Period (min)	15
ICU Level of Service	A

HCM Unsignalized Intersection Capacity Analysis  
10: Cumberland St & Site Driveway

Existing AM  
12/10/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	0	0	0	0	0
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None	None	None	None	None	None
Median storage (veh)						
Upstream signal (m)		155				
pX, platoon unblocked						
vC, conflicting volume	0			0	0	0
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	0			0	0	0
IC, single (s)	4.1			6.4	6.4	6.2
IC, Z stage (s)	2.2			3.5	3.5	3.3
p0 queue free %	100			100	100	100
cM capacity (veh/h)	1623			1023	1085	

Direction	Lane #	EB 1	WB 1	SB 1
Volume Total		0	0	0
Volume Left		0	0	0
Volume Right		0	0	0
cSH		1700	1700	1700
Volume to Capacity		0.00	0.00	0.00
Queue Length 95th (m)		0.0	0.0	0.0
Control Delay (s)		0.0	0.0	0.0
Lane LOS		A	A	A
Approach Delay (s)		0.0	0.0	0.0
Approach LOS		A	A	A

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



# APPENDIX

**B**

P1 PLAN WITH  
PEDESTRIAN  
CONNECTION

DATE: 2018.05.11  
SCALE: As Indicated  
DRAWN: AG  
CHECKED: CR  
PROJ. NO.: 1734  
A104  
DWG No.



DWG TITLE  
P1 Floor Plan

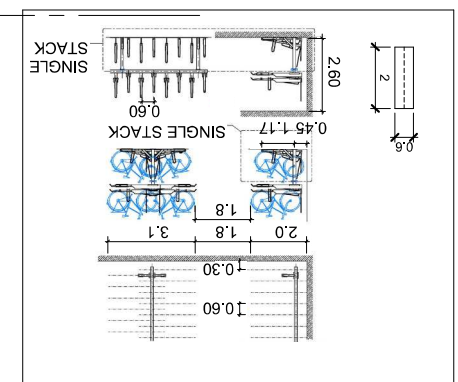
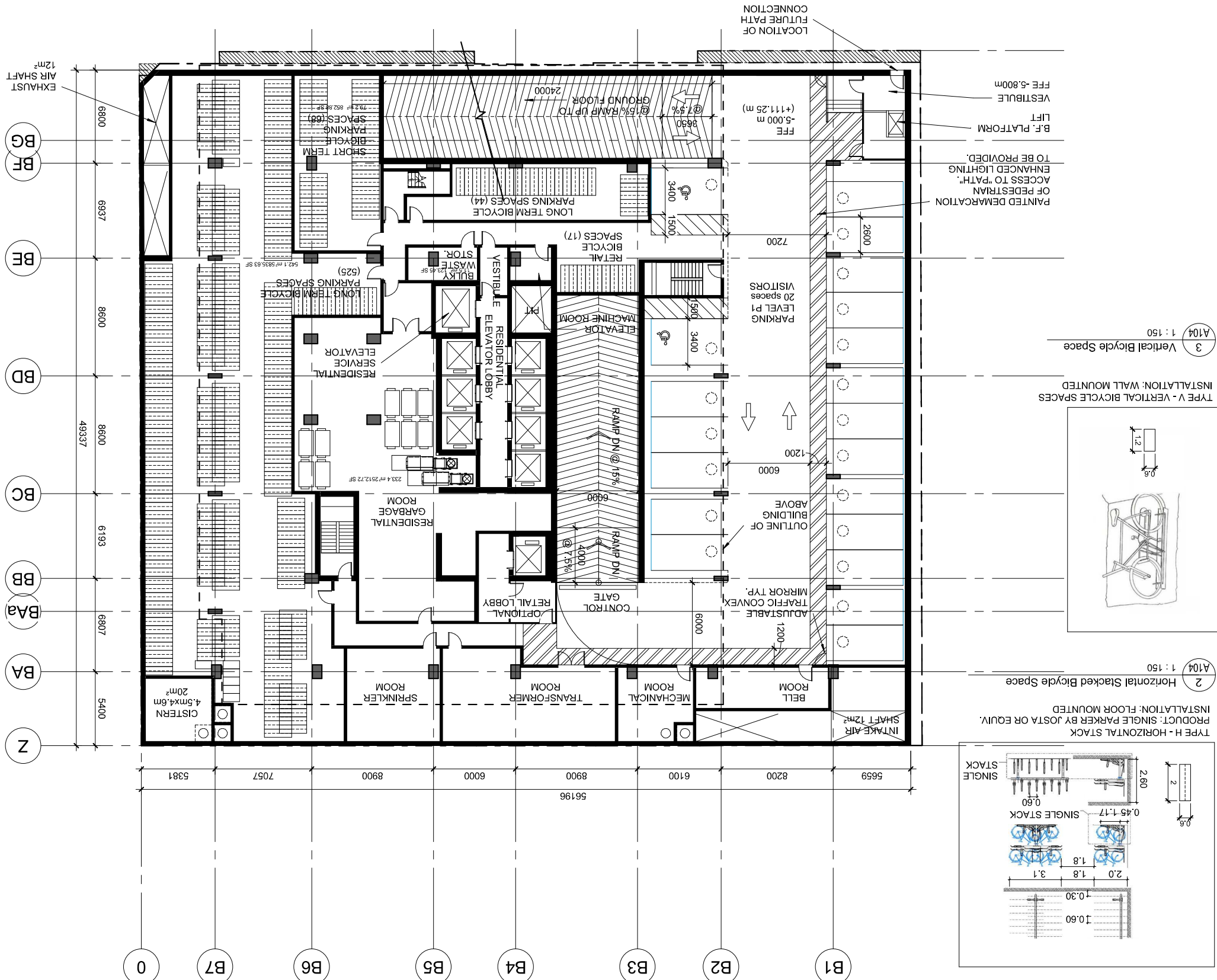
PROJ. NAME  
Mixed-Use Development  
11-21 Yorkville Avenue,  
16-18 Cumberland Street,  
11 Yorkville Partners  
Inc.  
OWNER

134 PETER STREET | SUITE 1601  
TORONTO, ONTARIO | M5V 2H2 | CANADA  
P: 416-971-6252 | F: 416-971-6420  
E: info@andco.com | www.sweenyandco.com

**Sweeny&Co Architects**



**DRAWING NOT TO BE SCALED**  
Contractor must check and verify all dimensions on the job and report any discrepancies to the architect before proceeding with the work.  
This drawing shall not be used for construction purposes unless signed by the consultant responsible. This drawing, as an instrument of service, is provided by and is the property of Sweeny & Co. Architects.  
**ISSUED / REVISED**  
NOV 28.17 ISSUED FOR REVIEW  
JAN 16.18 ISSUED FOR REVIEW  
JAN 26.18 ISSUED FOR COORDINATION  
MAR 02.18 ISSUED FOR COORDINATION  
MAR 21.18 ISSUED FOR REVIEW  
MAR 22.18 ISSUED FOR REZONING/SPA  
NOV 5.18 ISSUED FOR REVIEW  
NOV 23.18 ISSUED FOR REVIEW  
DEC 12.18 ISSUED FOR COORDINATION



**2** Horizontal Stacked Bicycle Space  
INSTALLATION: FLOOR MOUNTED  
PRODUCT: SINGLE PARKER BY JOSTA OR EQUIV.

**3** Vertical Bicycle Space  
INSTALLATION: WALL MOUNTED