QM Developments LP

TRANSPORTATION IMPACT STUDY

PROPOSED MIXED-USE DEVELOPMENT

90-104 QUEEN STREET EAST

CITY OF TORONTO

December 2018

19178

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December 18th, 2018 **Reference Number:** 19178/200

Mr. Ben MacNicol
QM Developments LP
Broccolini
2680 Matheson Blvd. East, Suite 104
Mississauga, ON
L4W 0A5

Dear Mr. MacNicol:

RE: Transportation Impact Study
Proposed Mixed-Use Development
90-104 Queen Street East, City of Toronto

LEA Consulting Ltd. is pleased to present the findings of our Transportation Impact Study for the proposed mixed-use development at 90-104 Queen Street East in the City of Toronto. It is prepared on behalf of QM Developments LP in support of a rezoning application. This report concludes that the traffic associated with the proposed development will have minimal impact on the surrounding road network.

Should you have any question regarding this Transportation Impact Study, please do not hesitate to contact the undersigned.

Yours truly,

LEA CONSULTING LTD.

Felipe Vernaza, P.Eng.
Senior Project Engineer
Transportation, Noise & Vibration Engineering

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Intermediate Traffic Analyst

: tcc/te

Encl. Transportation Impact Study – 90-104 Queen Street East

Disclaimer

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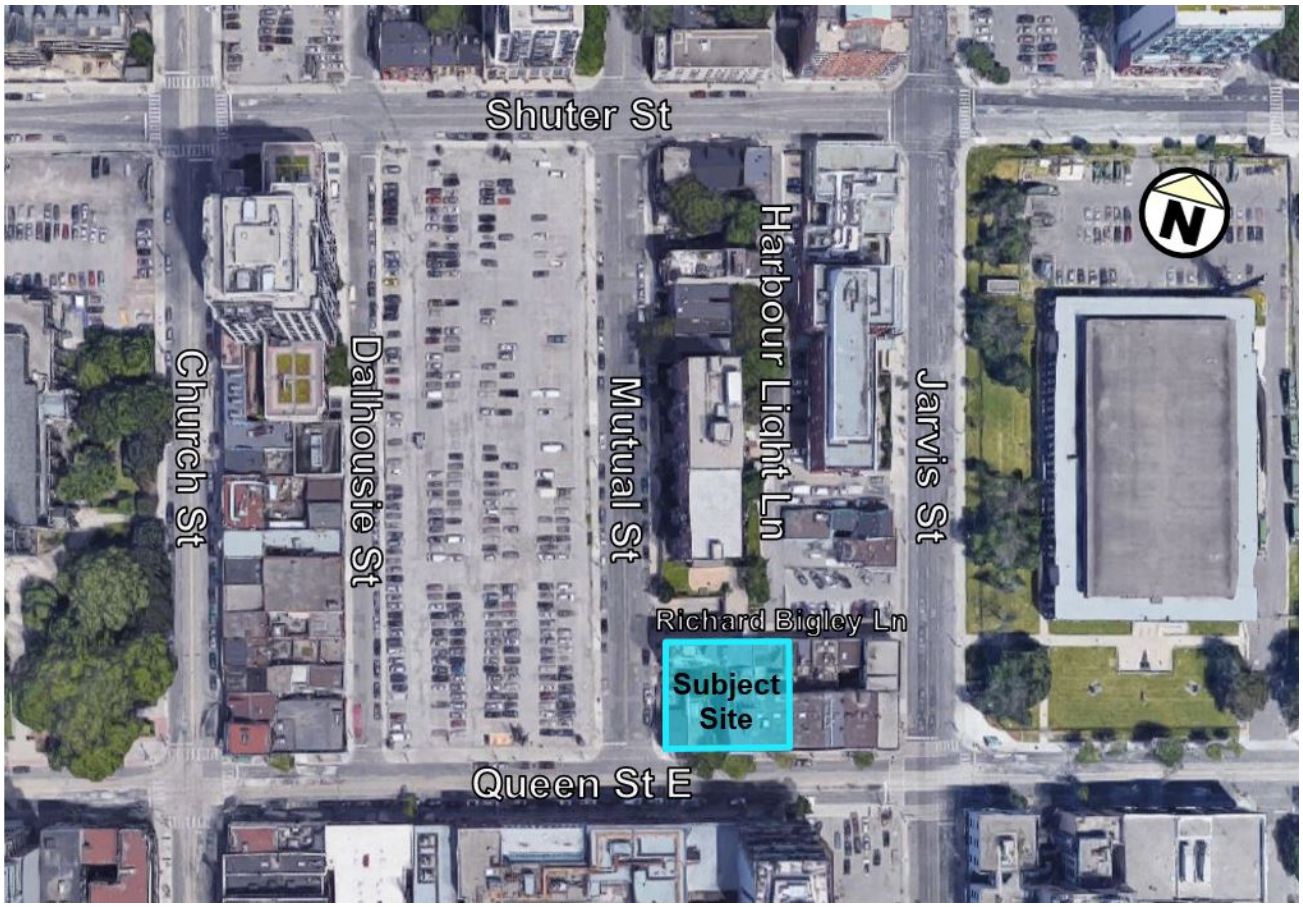
1 INTRODUCTION

LEA Consulting Ltd. (LEA) was retained by QM Development LP. to undertake a Transportation Impact Study (TIS) for the proposed mixed-use development to be located at 90-104 Queen Street East in the City of Toronto (herein referred to as the "subject site"). The subject site is located at the northeast corner of Queen Street East and Mutual Street and is currently occupied by multiple mixed-use buildings with at-grade commercial uses. The subject site location is illustrated in **Figure 1-1**.

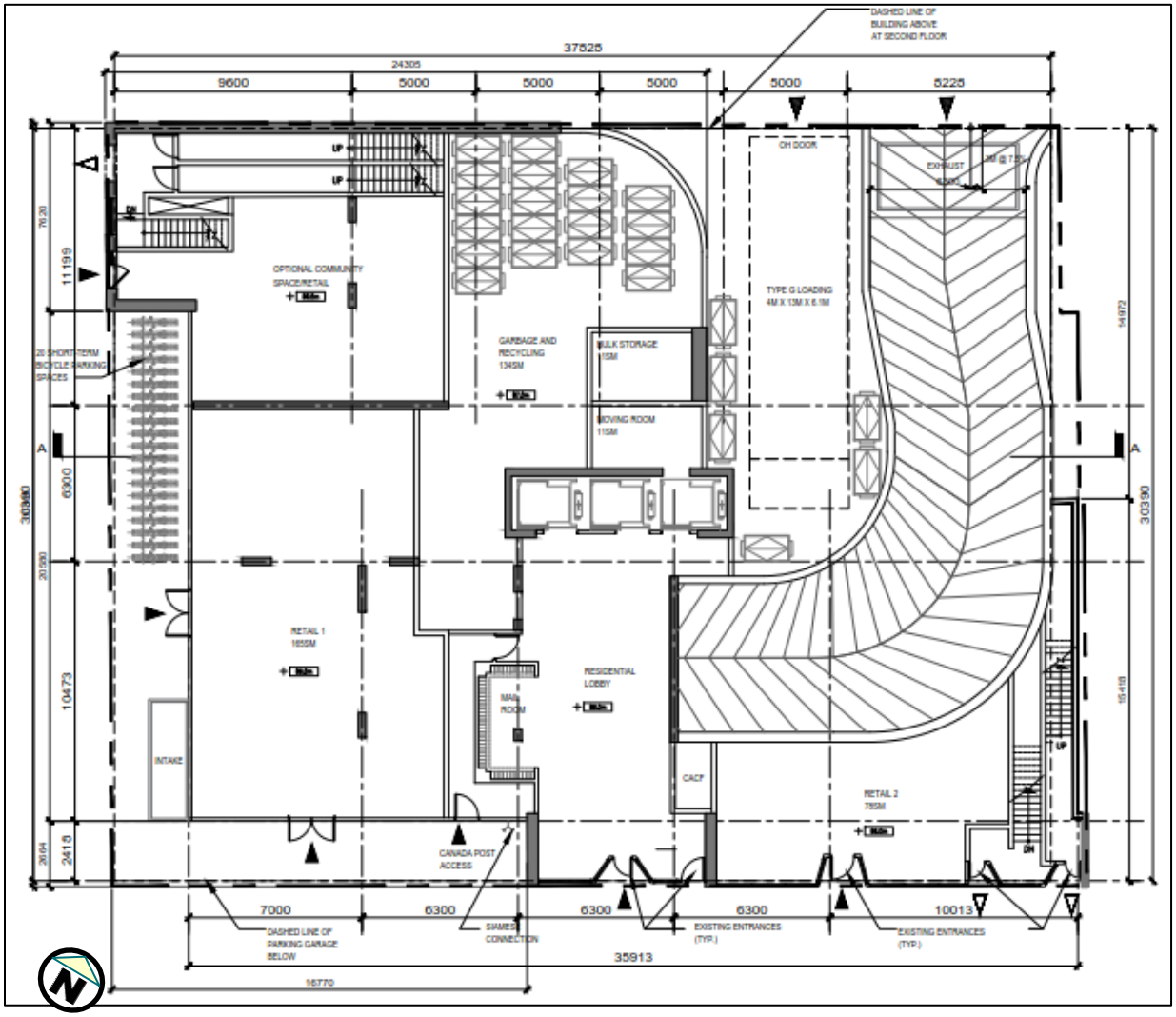
Figure 1-1: Site Location



Development Proposal

The development proposal consists of a mixed-use building, 34 storeys tall plus a wrapped mechanical penthouse, containing 356 units, 339 m^2 of ground-floor retail and 44 parking spaces, including six car-share spaces (effective parking supply of 61 spaces – more below), contained in three underground parking levels. Based on the site plan illustrated in **Figure 1-2**, the underground parking will be accessed from Richard Bigley Lane.

Figure 1-2: Preliminary Site Plan



Source: IBI Group. (December, 2018)

2 EXISTING TRAFFIC CONDITIONS

This section will identify and assess the existing transportation conditions in the study area, including the road, transit, cyclist and pedestrian network.

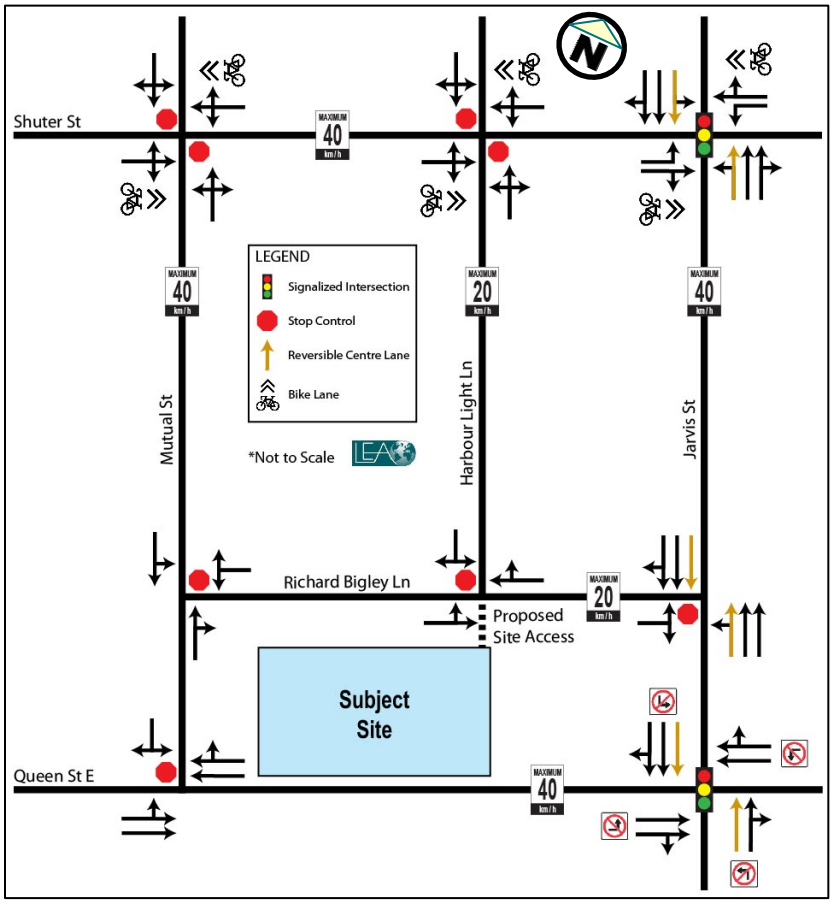
2.1 ROAD NETWORK

The Terms of Reference have been submitted and confirmed with City and the following intersections have been included in this study. The Terms of Reference are attached in **Appendix A**.

- Queen Street East & Jarvis Street (Signalized);
- Queen Street East & Mutual Street (Unsignalized);
- Shuter Street & Mutual Street (Unsignalized);
- Shuter Street & Harbour Light Lane (Unsignalized);
- Shuter Street & Jarvis Street (Signalized);
- Richard Bigley Lane & Harbour Light Lane (Unsignalized);
- Richard Bigley Lane & Mutual Street (Unsignalized); and
- Richard Bigley Lane & Jarvis Street (Unsignalized).

The existing lane configurations and road network information are illustrated in **Figure 2-1.**

Figure 2-1: Existing Lane Configuration



The existing roads within the study area are all under the jurisdiction of the City of Toronto. A detailed description of these roadways is provided below:

- **Queen Street East** is an east-west major arterial road with a four-lane cross-section (two lanes per direction) with streetcar tracks on both sides of the road in the vicinity of the subject site. The roadway operates with a posted 40 km/h speed limit in the study area.
- **Jarvis Street** is a north-south major arterial road with a five-lane cross-section. There are two lanes per direction and the centre lane functions as a reversible lane which operates as a northbound lane between 3:45 pm to 6:30 pm on Monday to Friday and as a southbound lane at all other times. The roadway operates with a posted 40 km/h speed limit in the study area.
- **Shuter Street** is an east-west minor arterial road with a two-lane cross-section (one lane per direction) and a posted speed limit of 40 km/h. Shutter Street contains dedicated bicycle lanes on sides of the road within the study area.
- **Mutual Street** is a north-south collector road with a two-lane cross-section (one lane per direction) within the vicinity of the subject site. The roadway operates with a posted 40 km/h speed limit in the study area.
- **Richard Bigley Lane** is an east-west laneway which provides access to the rear end of properties or parking garages for buildings facing Queen Street East.
- **Harbour Light Lane** is a north-south laneway which provides access to various developments or parking facilities, and connections Richard Bigley Lane to Shuter Street.

2.2 TRANSIT NETWORK

The subject site is located near many transit options including subway, streetcar and bus routes, serviced by the Toronto Transit Commission (TTC). The following TTC routes operate near the subject site.

Line 1 – Yonge-University is a "U-shaped" subway route running generally in a north-south direction along Yonge Street, University Avenue and Spadina Road. The route operates along Yonge Street from Finch Avenue East to Union Station in downtown Toronto, and then from Union Station to the Vaughan Metropolitan Centre. Line 1 provides connections to Line 2 – Bloor-Danforth at Bloor-Yonge Station, St George Station and Spadina Station. Line 1 also provides a connection to Line 4-Sheppard Line at Sheppard-Yonge Station. Line 1 subway trains run every 2-3 minutes during the AM and PM peak hours and every 4-5 minutes during off-peak hours. The nearest subway station to the subject site is Queen Station, located about 450 metres west of the subject site (approximately a 5-minute walk).

Route 501 – Queen is a streetcar route that operates generally in an east-west direction between Neville Park Loop and Long Branch Loop. It provides connections to the Line 1 subway at Queen and Osgoode Stations. The route's streetcars operate every 10 minutes or better all day. The nearest stops are located at the southwest corner (eastbound) and northeast corner (westbound) of Queen Street East and Jarvis Street intersection.

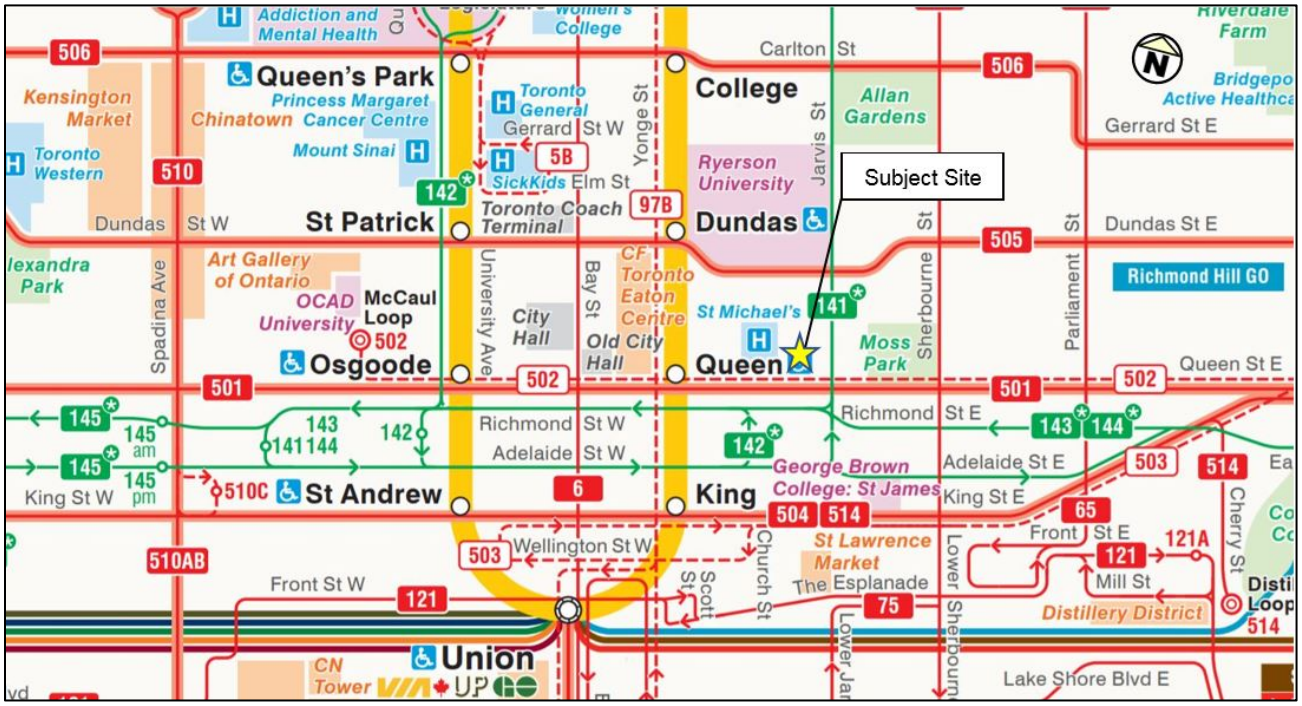
Route 502 - Downtowner is a streetcar route that operates generally in east-west direction between the area of Kingston Road and Victoria Park Avenue and the area of Queen Street West and McCaul Street. It provides connections to Line 1 subway at Queen and Osgoode Stations. The route operates 10 minutes or better during the peak periods and the midday period, from Monday to Friday only. The nearest stops are

located at the southwest corner (eastbound) and northeast corner (westbound) of Queen Street East and Jarvis Street intersection. Due to streetcar shortages, this route is temporarily being serviced by buses.

Route 141 – Downtown / Mt Pleasant Express is a bus route that operates generally in north-south direction between the area of Eglinton Avenue East and Mt. Pleasant Road and the Downtown Toronto area. Four southbound trips are operated during the AM peak and two northbound trips are operated during the PM peak, from Monday to Friday, with a 30-minute service frequency. The nearest bus stops are located at the southeast corner (northbound buses) and northwest corner (southbound buses) of Queen Street East and Jarvis Street intersection.

Figure 2-2 illustrates the existing transit network within vicinity of the study area, as of September 2018.

Figure 2-2: Existing Transit Services



Source: TTC (September 2018)

2.3 PEDESTRIAN NETWORK

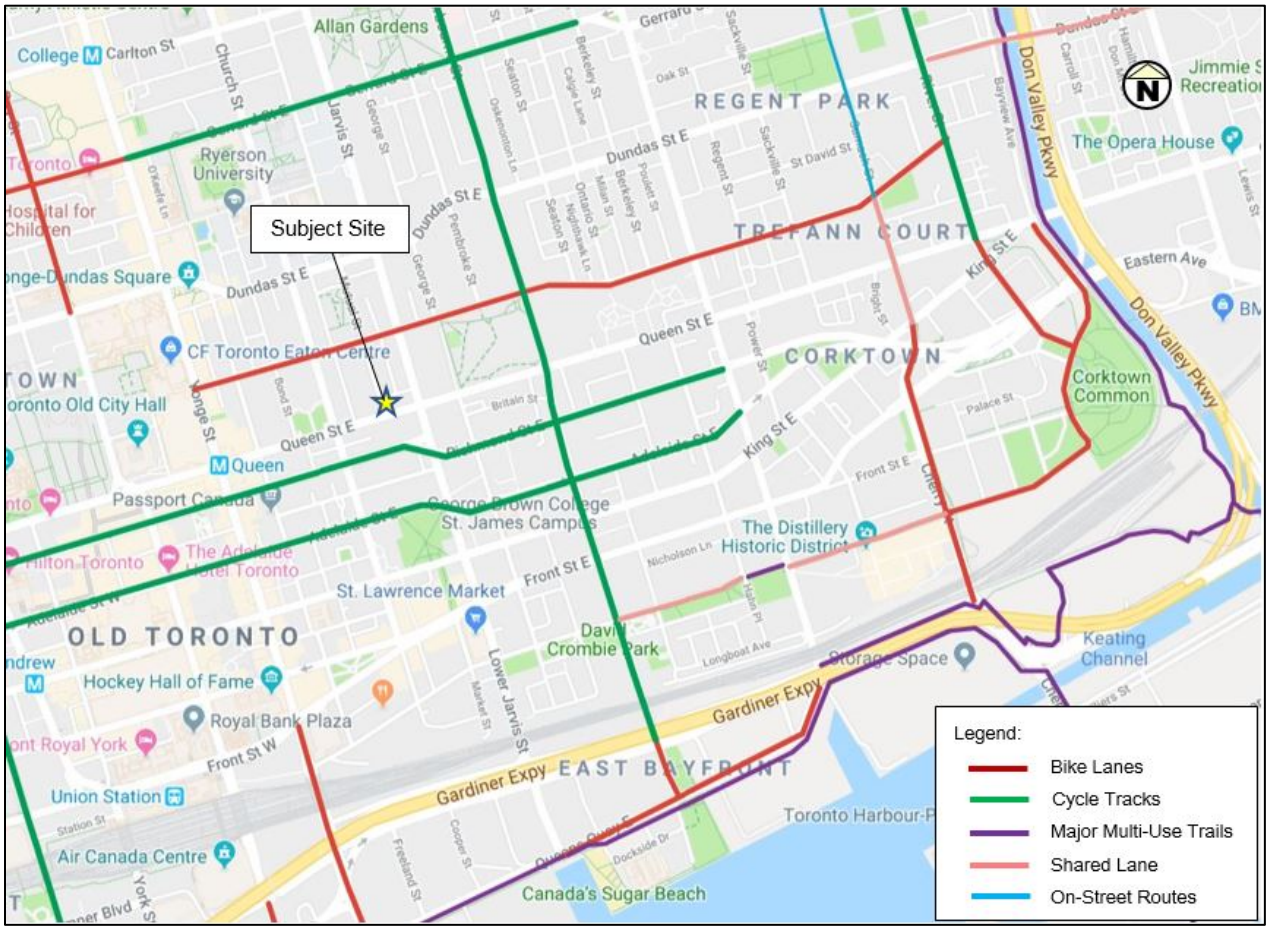
In the area immediately surrounding the subject site, continuous sidewalks are available on both sides of the street on Queen Street East, Jarvis Street, Shuter Street and Mutual Street, with crosswalks available at all signalized intersections. The existing pedestrian network provides good connections between the residential and commercial uses in the area as well as the nearby TTC bus/streetcar stops and Queen subway station which is essential for developments in the Downtown Toronto core.

2.4 CYCLING NETWORK

There are various cycling facilities accessible within a reasonable cycling and walking distance of the subject site. Dedicated bike lanes are provided along Shuter Street between Yonge Street and River Street. These

bike lanes are approximately 175 m north of the subject site and can be accessed via Mutual Street. These bike lanes connect to cycle tracks along Sherbourne Street which run in a north-south direction. Other nearby cycling infrastructure includes east-west cycle tracks on Gerrard Street, Richmond Street and Adelaide Street, along with a north-south bike lane on Cherry Street, and an on-street route along Sumach Street. The cycling network surrounding the subject site, as of September 2018, is illustrated in **Figure 2-3**.

Figure 2-3: Existing Cycling Network



Source: City of Toronto Cycling Network Map (September 2018)

2.5 DATA COLLECTION

Turning Movement Counts (TMCs) for the intersections within the study area were collected by LEA Consulting. Traffic volumes were collected during the weekday AM and PM peak periods between 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, respectively. A summary of the TMC data collection is outlined below in **Table 2-1**. Detailed TMCs and signal timing plans are included in **Appendix B.**

Table 2-1: Summary of TMC Survey

Intersection	Date of Survey	Source
Queen Street & Jarvis Street	November 2, 2017	LEA Consulting Ltd.
Queen Street & Mutual Street		
Shuter Street & Mutual Street		

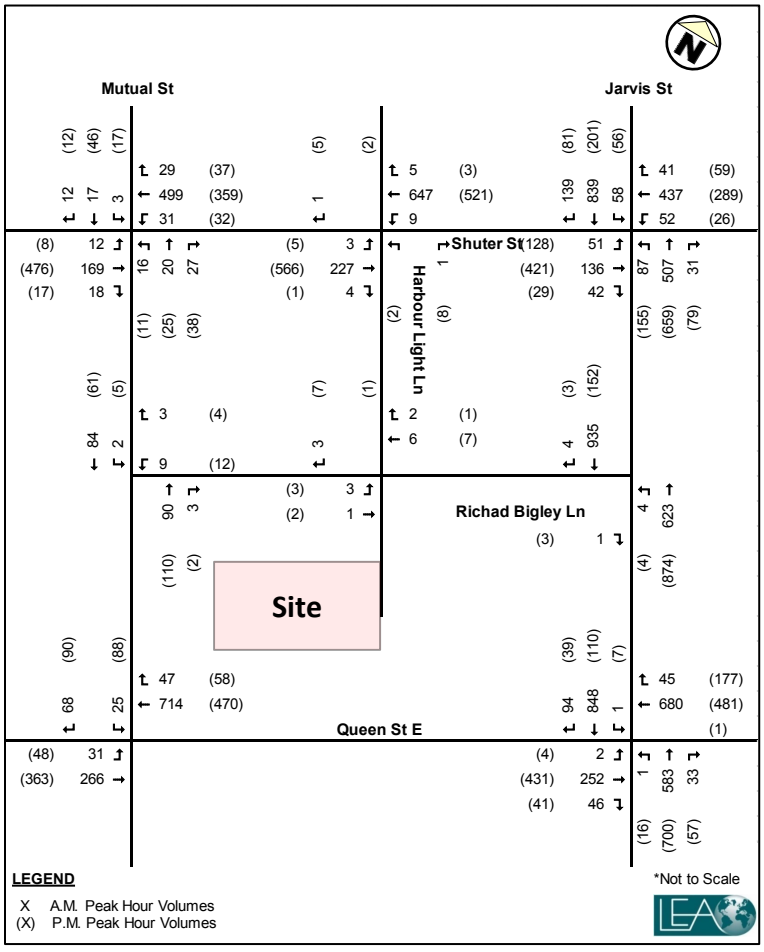
Shuter Street & Jarvis Street		
Shuter Street & Harbour Light Lane	October 2, 2018	
Richard Bigley Lane & Harbour Light Lane		
Richard Bigley Lane & Mutual Street		
Richard Bigley Lane & Jarvis Street		

Due to an ongoing watermain replacement project along Jarvis Street between Dundas Street and Queen Street, Jarvis Street was reduced to one lane, with left and right turn movements temporarily prohibited along Jarvis Street. As a result, current traffic volumes along Jarvis Street and Mutual Street are expected to be non-representative of typical conditions. As such, traffic counts for the affected intersections were taken from previous studies done by LEA, with data for the affected intersections dating November 2017. A growth factor was applied to through volumes for these intersections (growth rate discussed in Section 3.1) to project volumes to year 2018.

2.6 EXISTING INTERSECTION CAPACITY ANALYSIS

The existing intersection capacity analysis was undertaken using Synchro 9.1 which is based on the Highway Capacity Manual (HCM) 2000 methodology, with the input parameters adhering to the City of Toronto Transportation Impact Study and Synchro Guidelines. The existing traffic volumes in the study area during the weekday peak hours are illustrated **Figure 2-4**.

Figure 2-4: Existing Traffic Volumes



The existing intersection capacity analyses for the signalized and unsignalized intersections are summarized in **Table 2-2** and **Table 2-3**, respectively. Detailed Synchro reports are provided in **Appendix C**.

Table 2-2: Existing Intersection Capacity Analysis (Signalized)

Intersection	Movement	AM Peak Hour								PM Peak Hour							
		Overall			Movements					Overall			Movements				
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	Queue (m)		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th							50th	95th
Shuter Street & Jarvis Street	EBL	0.69	19.2	B	0.37	25	C	5	16	0.65	21.9	C	0.74	45	D	17	#45
	EBTR				0.29	18	B	16	30				0.84	37	D	62	#113
	WBL				0.16	17	B	5	13				0.24	23	C	3	10
	WBTR				0.82	33	C	61	#111				0.67	28	C	43	71
	NBLTR				0.61	16	B	32	48				0.52	13	B	29	40
	SBLTR				0.56	15	B	35	46				0.31	11	B	11	19
Queen Street & Jarvis Street	EBTR	0.56	17.3	B	0.30	18	B	15	25	0.64	21.3	C	0.58	25	C	33	49
	WBTR				0.66	23	C	48	66				0.79	31	C	48	#71
	NBTR				0.45	15	B	31	44				0.54	13	B	41	57
	SBTR				0.48	15	B	34	44				0.12	9	A	6	10

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

The existing signalized intersection capacity analysis indicates that all signalized intersections are operating at an acceptable overall Level of Service (LOS) 'C' or better during the weekday AM and PM peak hours, with all individual movements operating within capacity.

Table 2-3: Existing Intersection Capacity Analysis (Unsignalized)

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		Delay (s)	95th Queue (m)	V/C	LOS	Delay (s)	95th Queue (m)	V/C	LOS
Shuter Street & Mutual Street	EBLTR	1	0	0.01	A	0	0	0.01	A
	WBLTR	1	1	0.03	A	1	1	0.04	A
	NBLTR	21	6	0.20	C	31	12	0.36	D
	SBLTR	21	3	0.11	C	56	21	0.55	F
Shuter Street & Harbour Light Lane	EBLTR	0	0	0.00	A	0	0	0.01	A
	WBLTR	0	0	0.01	A	0	0	0.00	A
	NBLTR	11	0	0.00	B	20	1	0.04	C
	SBLTR	15	0	0.00	B	24	1	0.04	C
Richard Bigley Lane & Jarvis Street	EBLR	10	0	0.00	B	10	0	0.00	B
	NBTL	0	0	0.01	A	0	0	0.00	A
Queen Street & Mutual Street	EBLT	3	1	0.04	A	4	2	0.08	A
	SBL	20	3	0.10	C	65	27	0.65	F
	SBR	10	2	0.09	A	17	8	0.25	C
Richard Bigley Lane & Mutual Street	WBLR	10	1	0.02	A	10	1	0.02	A
	SBLT	0	0	0.00	A	1	0	0.00	A
Richard Bigley Lane & Harbour Light Lane	EBLT	6	0	0.00	A	4	0	0.00	A
	SBLR	8	0	0.00	A	8	0	0.01	A

Most unsignalized intersections within the study area are operating generally operating well under existing traffic conditions, with all individual movements operating within capacity during both peak hours.

The exceptions are the southbound left-turn and the shared southbound through-left-right movements for the intersections of Queen Street East / Mutual Street and Shuter Street/Mutual Street, which are considered constrained under existing conditions during the PM peak hour, as they currently operate at LOS 'F', with an average delay of 56 to 65 seconds per vehicle. It is noted that these outputs are considered conservative as Synchro does not consider the metering that results from the nearby signalized intersections at Church Street and Jarvis Street along Queen Street/Shuter Street. However, it is noted that is typical to experience long delays for left turns from a minor roadway to a major roadway at unsignalized intersections in downtown Toronto.

3 FUTURE BACKGROUND TRAFFIC CONDITIONS

For the analysis of the future background traffic conditions, this study considers a five-year study horizon to year 2023, as confirmed with the City. To determine future background traffic conditions, two components of traffic growth were considered, which are general corridor growth and background developments within the study area.

3.1 CORRIDOR GROWTH

As confirmed with the City, an annual growth rate of 0.5 percent per year was applied along Queen Street East, Shuter Street, Mutual Street and Jarvis Street, based on traffic studies completed by LEA for developments in the area, including 79-85 Shuter Street (September 2017), and 60,64 Queen Street East and 131,133,135 Church Street (January 2018).

3.2 BACKGROUND DEVELOPMENT

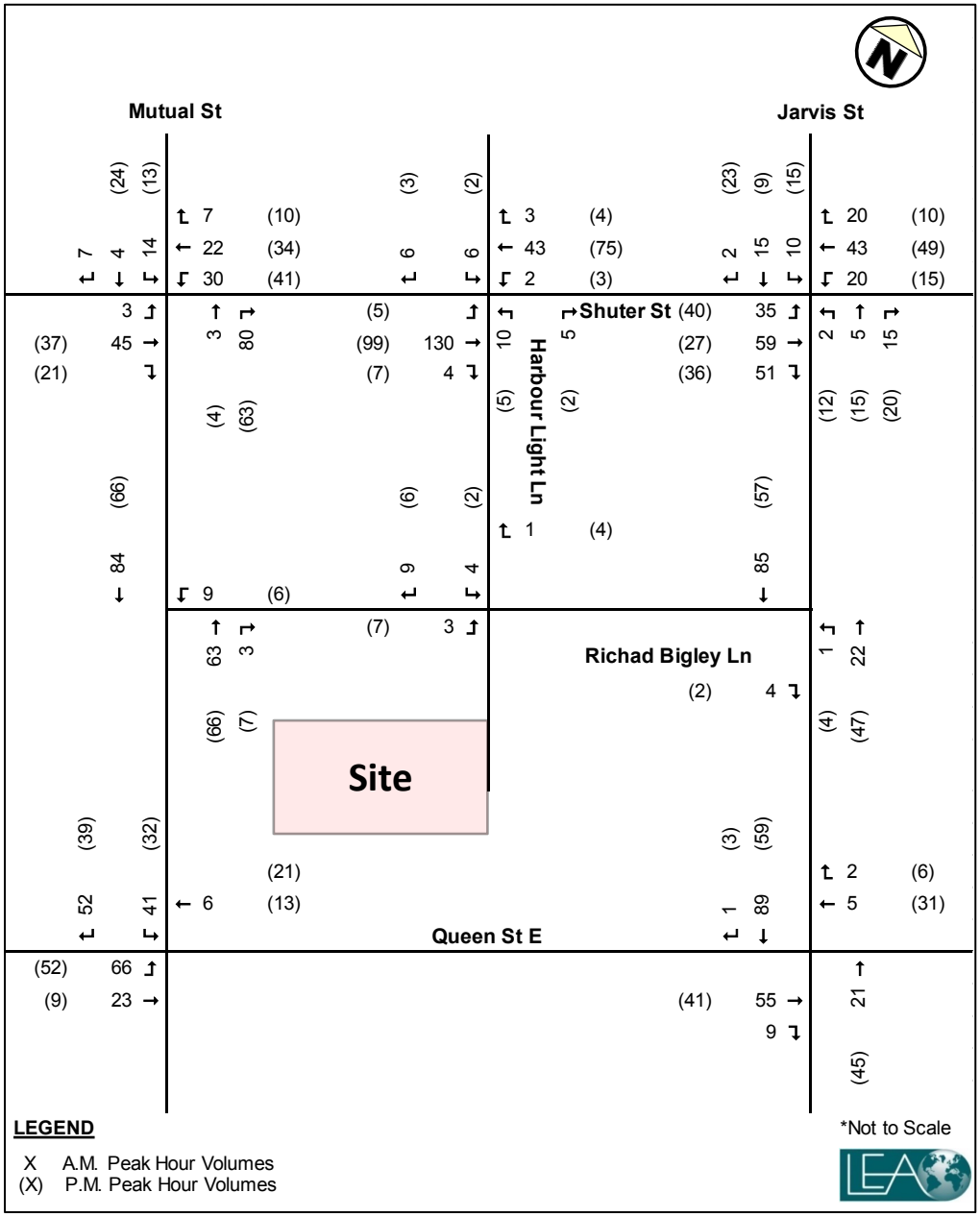
Based on discussion with City staff, nine background developments have been identified within the surrounding study area. Detailed information regarding the background developments are summarized **Table 3-1**.

Table 3-1: Summary of Background Developments

#	Address of Development	Description	Application Status
1	60 Shuter Street	29-storey mixed-use building (328 residential units and 487m^2 of retail)	NOAC Issued
2	79 Shuter Street	32-storey residential building (234 units)	Under Review
3	60 Queen Street E	54-storey mixed-use building (364 residential units and ground-floor retail)	Under Review
4	88 Queen Street E	Four (4) mixed-use buildings (1,139 residential units, 2,241m^2 of retail and 8,344m^2 of hotel)	OPA Approved by Council
5	59 Mutual Street	32-storey residential building (275 units)	Under Review
6	75 Mutual Street	36-storey mixed-use building (385 residential units, 285m^2 of retail and 509m^2 of office)	OMB Appeal
7	139 Church Street	49-storey mixed-use building (414 residential units and 480m^2 of ground-floor retail)	Under Review
8	215 Church Street	Multi-storey mixed-use building (604 residential units and ground-floor retail)	NOAC Issued
9	203 Jarvis Street	35-storey mixed-use building (222 residential units and 241 hotel rooms)	OMB Appeal

The Traffic Impact Studies (TIS) for each development were obtained from the City of Toronto to extract the forecasted site traffic volumes, and to assign them to the study area road network. The total background development traffic volumes are illustrated in **Figure 3-1**.

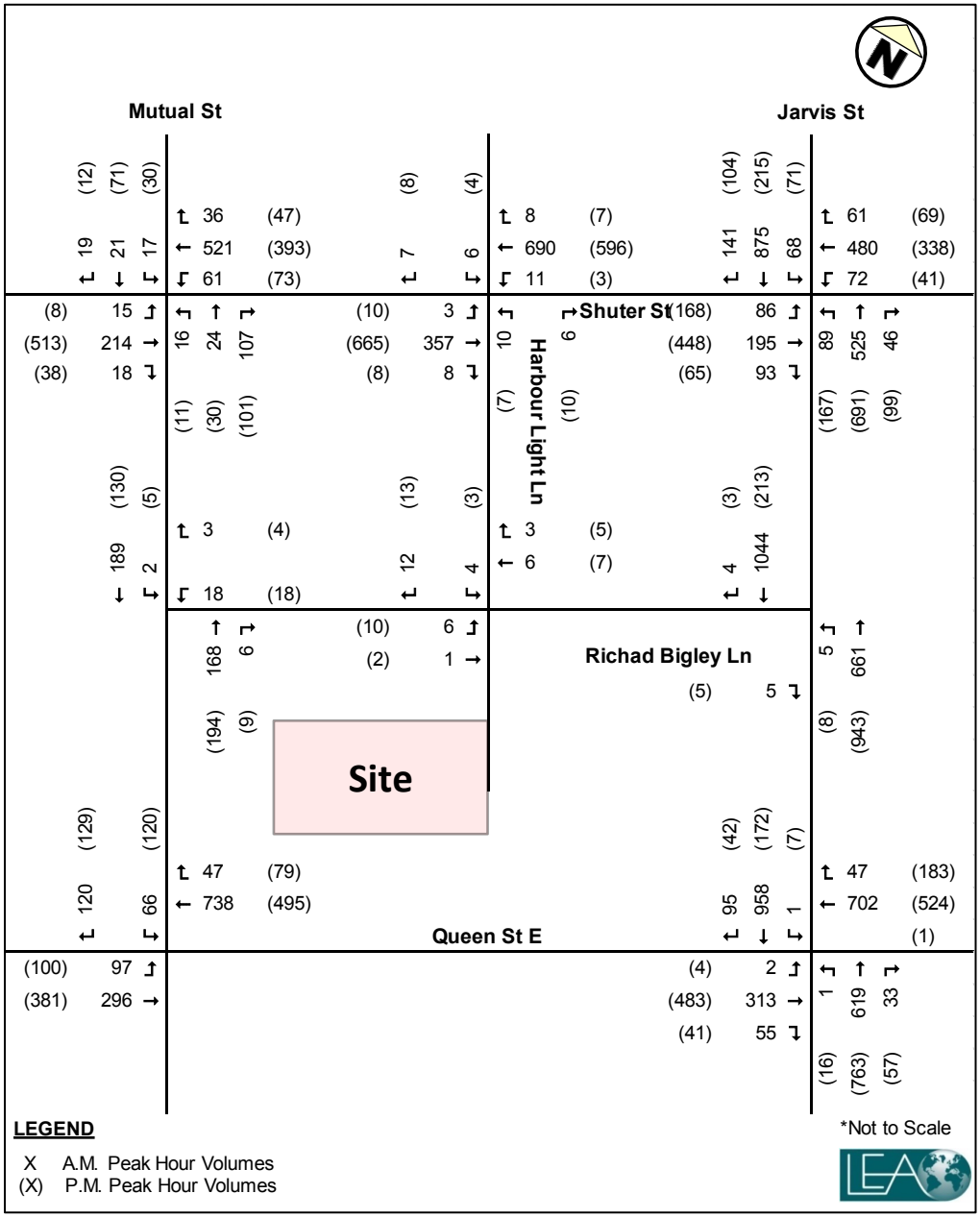
Figure 3-1: Background Development Site Traffic



3.3 FUTURE BACKGROUND INTERSECTION CAPACITY ANALYSIS

The future background traffic volumes for the 2023 horizon were determined by incorporating future background traffic due to growth and adding the background development site traffic to the existing traffic volumes. The future background traffic volumes are illustrated in **Figure 3-2**.

Figure 3-2: Future Background Traffic Volumes



The future background intersection capacity analyses for the signalized and unsignalized intersections are summarized in **Table 3-2** through **Table 3-5**. Detailed Synchro reports are provided in **Appendix D**.

Table 3-2: Future Background Intersection Capacity Analysis (Signalized)

Intersection	Movement	AM Peak Hour								PM Peak Hour							
		Overall			Movements					Overall			Movements				
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	Queue (m)		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th							50th	95th
Shuter Street & Jarvis Street	EBL	0.78	25.1	B	0.86	80	E	11	#38	0.82	36.9	D	1.21	166	F	~31.8	#68
	EBTR				0.49	22	C	28	50				0.98	59	E	75	#138
	WBL				0.28	20	B	7	17				0.56	46	D	5	#21
	WBTR				0.94	48	D	74	#135				0.78	33	C	53	#98
	NBLTR				0.66	18	B	35	53				0.58	14	B	33	44
	SBLTR				0.60	15	B	37	50				0.40	12	B	14	24
Queen Street & Jarvis Street	EBTR	0.60	17.9	B	0.38	19	B	20	31	0.69	23.0	C	0.65	26	C	38	56
	WBTR				0.68	24	C	50	70				0.86	35	D	55	#87
	NBTR				0.47	15	B	34	48				0.59	14	B	46	64
	SBTR				0.54	15	B	39	51				0.17	10	A	9	14

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

Most movements under future background conditions are expected to operate within capacity and with acceptable delays; however, compared to existing conditions, various individual movements have deteriorated and are expected to operate close to capacity, due to the traffic generated by the many background developments considered within the study area. The eastbound left-turn movement at Shuter Street & Jarvis Street is expected to operate at a v/c ratio of 1.21 during the PM peak hour. As such, the signal timing plan at this intersection has been improved to increase the available capacity and reduce average delays. This was done by optimizing the splits within the signal timing plan parameters; the cycle length and offset remain unchanged. **Table 3-3** outlines the signal timing modifications proposed for the intersection of Shuter Street & Jarvis Street.

Table 3-3: Signal Timing Improvements (PM Peak Hour)

Intersection	Timing Plan	NB/SB Total Splits (s)	EB/WB Total Splits (s)
Shuter Street & Jarvis Street	Existing	45 / 45	31/31
	Optimized	38 / 38	38/38
	Net Change	-7 / -7	+7 / +7

An additional intersection capacity analysis has been completed for Shuter Street & Jarvis Street during the PM peak hour, after applying the recommended signal timing improvements. The resulting operations are summarized in **Table 3-4**.

Table 3-4: Future Background (Optimized) Intersection Capacity Analysis (Signalized)

Intersection	Movement	PM Peak Hour							
		Overall			Movements				
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th
Shuter Street & Jarvis Street	EBL	0.74	22.4	C	0.75	38	D	21	#54
	EBTR				0.77	27	C	63	#114
	WBL				0.27	18	B	4	12
	WBTR				0.62	21	C	45	73
	NBLTR				0.70	20	C	41	55
	SBLTR				0.48	17	B	17	29

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

With the optimized signal timings, all movements are expected to operate well within capacity under future background (2023) conditions. It is emphasized that the signal timing improvements recommended herein are triggered by background development site traffic, assuming they are all approved based on the request densities, and not the subject site.

Table 3-5: Future Background Intersection Capacity Analysis (Unsignalized)

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		Delay (s)	95th Queue (m)	V/C	LOS	Delay (s)	95th Queue (m)	V/C	LOS
Shuter Street & Mutual Street	EBLTR	1	0	0	A	0	0	0.01	A
	WBLTR	2	1	0	A	2	2	0.09	A
	NBLTR	19	13	0	C	61	38	0.74	F
	SBLTR	37	11	0	E	386	75	1.54	F
Shuter Street & Harbour Light Lane	EBLTR	0	0	0	A	0	0	0.02	A
	WBLTR	0	0	0	A	0	0	0.00	A
	NBLTR	34	3	0	D	40	4	0.15	E
	SBLTR	30	2	0	D	36	3	0.10	E
Richard Bigley Lane & Jarvis Street	EBLR	11	0	0	B	11	0	0.01	B
	NBTL	0	0	0	A	0	0	0.01	A
Queen Street & Mutual Street	EBLT	6	3	0	A	7	5	0.18	A
	SBL	38	13	0	E	252	69	1.27	F
	SBR	10	4	0	B	20	13	0.38	C
Richard Bigley Lane & Mutual Street	WBLR	12	1	0	B	11	1	0.04	B
	SBLT	0	0	0	A	0	0	0.00	A
Richard Bigley Lane & Harbour Light Lane	EBLT	6	0	0	A	6	0	0.01	A
	SBLR	9	0	0	A	9	1	0.02	A

The future background unsignalized intersection capacity analysis indicates that the southbound shared through-left-right movement at Shuter Street / Mutual Street and the southbound left-turn movement at Queen Street / Mutual are expected to operate over capacity during the PM peak hour. These two movements were identified as constrained under existing conditions in Section 2.6, and operations have been exacerbated due to other developments in the area. Thus, these movements are expected to operate poorly regardless of the implementation of the subject site.

The adverse capacity analysis results can be attributed to the additional traffic added onto Shuter Street and Queen Street East, which further limits turning opportunities, as well as the additional trips added to the minor roadways (north/south) movements, which results in a greater number of vehicles attempting to conduct an already constrained movement (as identified in Section 2.6). Furthermore, Synchro assumes that all pedestrians walk in front of a vehicle when crossing the minor street, further limiting gap opportunities for turning vehicles in the minor roadway. Typically, courtesy gaps are provided at these intersections to allow vehicles to turn, or pedestrians walk behind turning vehicles as they attempt to turn onto the major roadway. This behaviour is illustrated in **Figure 3-3**.

Figure 3-3: Example of Pedestrian Crossing Behaviour (Yonge Street/Edward Street)

Moreover, the Synchro software does not account for upstream metering of unsignalized intersections, due to the presence of nearby signalized intersections at Church Street and Jarvis Street. This metering by the nearby signalized intersections creates further gap opportunities for vehicles turning from the minor roadway.

In addition, it is acknowledged that Synchro's unsignalized delay calculations, based on HCM 2000 methodology can be conservative. Synchro overestimates the time for vehicles to complete a turning movement at TWSC intersections. For the westbound approach Synchro's default parameters assume that it takes more than 7 seconds to make the left-turn and more than 6 seconds to make a right-turn for vehicles entering the major street.

Based on the above, the results presented in **Table 3-5** can be regarded as a conservative analysis, and are based on the assumption that the background developments are approved as requested. Nonetheless, as previously noted, long delays at two-way stop intersections are typical for the minor approaches in the downtown Toronto environment.

The future background conditions will be used as the baseline for evaluating the impact of the proposed development.

4 Site Generated Traffic

The proposed mixed-use development will introduce a residential tower containing a total of 356 units and 339 m^2 of retail. The following subsections discuss in detail the calculation, distribution and assignment of the site-generated single-occupant vehicle (SOV) trips.

4.1 AUTO TRIP GENERATION

As discussed in Section 3.2, nine background developments have been identified within the surrounding study area with similar land uses. A summary of the auto trip generation rates used in the traffic studies for those background developments are summarized in **Table 4-1**.

Based on the limited amount of proposed ground-floor retail (339 m^2), it is expected that the retail component will be ancillary to the residents of the development and immediate surrounding area. Therefore, the trip generation rates were only projected for the residential uses of the proposed development.

Table 4-1: Residential Auto Trip Generation Rates

#	Address of Development	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
1	60 Shuter Street	0.03	0.10	0.13	0.08	0.05	0.13
2	79 Shuter Street	0.04	0.11	0.15	0.08	0.05	0.13
3	60 Queen Street E	0.02	0.10	0.12	0.08	0.04	0.11
4	88 Queen Street E	0.03	0.10	0.13	0.08	0.05	0.13
5	59 Mutual Street	0.04	0.11	0.15	0.08	0.05	0.13
6	75 Mutual Street	Not Available					
7	139 Church Street	0.02	0.10	0.12	0.08	0.04	0.12
8	215 Church Street	0.04	0.11	0.15	0.08	0.05	0.13
9	203 Jarvis Street	0.01	0.05	0.06	0.04	0.03	0.07
Average Residential Trip Rates* (trips/residential unit)		**0.03**	**0.10**	**0.13**	**0.08**	**0.05**	**0.12**

*Trip Rate of In and Out directions may not add up to the total due to rounding.

The average residential auto trip rate of the nine developments is 0.13 trips/residential unit in the AM peak period and 0.12 trips/residential unit in the PM peak period. As confirmed with the City, applying these rates to the proposed development is appropriate. The resulting subject site trip generation is summarized in **Table 4-2**.

Table 4-2: Auto Residential Trip Generation of the Subject Site

Proposed Development			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Residential	356 units	Trip Rate	0.03	0.10	0.13	0.08	0.05	0.12
		Total Auto Trips	**11**	**35**	**46**	**27**	**16**	**43**

As shown in **Table 4-2**, the proposed development is expected to generate 46 two-way auto trips (11 inbound and 35 outbound) during the AM peak hour, and 43 two-way auto trips (27 inbound and 16 outbound) in the PM peak hour. We note that given the proposed parking supply of 44 parking spaces, this trip generation is deemed conservative.

4.2 AUTO TRIP DISTRIBUTION AND ASSIGNMENT

Directional trip distribution of site traffic was derived using Transportation Tomorrow Survey (TTS) 2016 data. The estimated trip distribution for this study is outlined in **Table 4-3**. The site traffic was assigned to the road network based on trip patterns in the study area, location and configuration of the site accesses, and the route providing the shortest travel time.

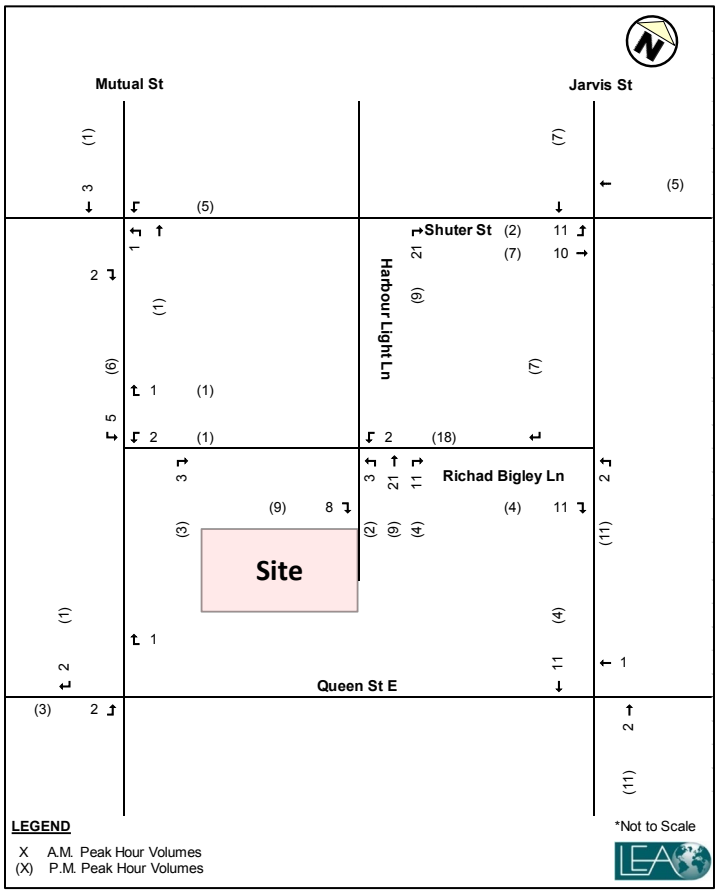
Table 4-3: Subject Site Trip Distribution

Direction	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
NB on Jarvis	0%	32%	27%	15%
SB on Jarvis	20%	31%	41%	27%
NB on Mutual	27%	0%	3%	9%
EB on Queen	12%	0%	0%	2%
WB on Queen	24%	6%	9%	4%
EB on Shuter	0%	29%	20%	42%
WB on Shuter	17%	2%	0%	0%
Total*	**100%**	**100%**	**100%**	**99%**

*Total may not add up to 100% due to rounding.

The site traffic volumes for the weekday AM and PM peak hours are illustrated in **Figure 4-1**. Conservatively, traffic generated by the existing uses was not deleted from the projected site traffic.

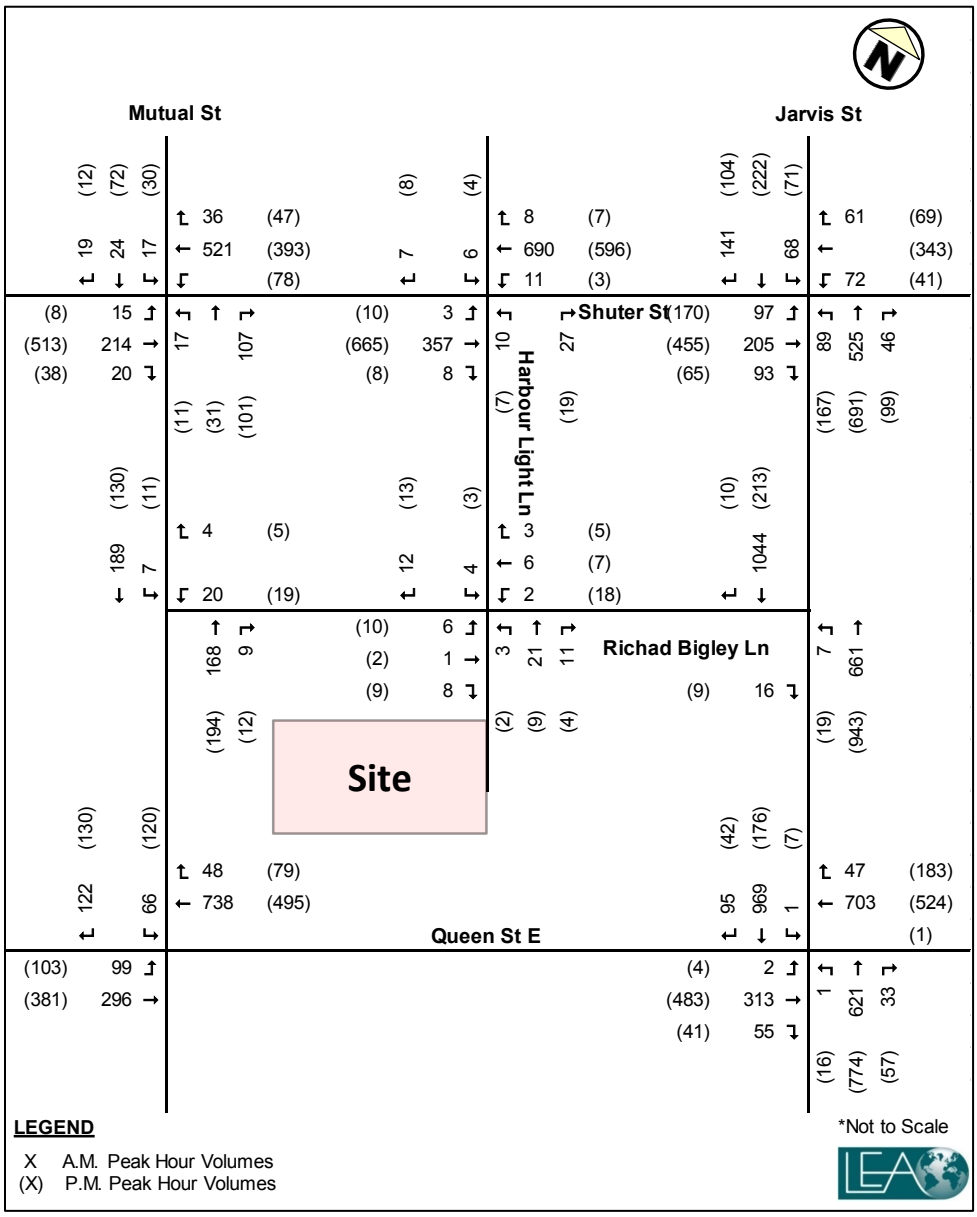
Figure 4-1: Site Traffic Volumes



5 FUTURE TOTAL TRAFFIC CONDITIONS

The future total traffic volumes were estimated by superimposing the site-generated traffic volumes illustrated in **Figure 4-1** onto the future background traffic volumes in **Figure 3-2**. The resulting future total traffic forecasts are illustrated in **Figure 5-1**.

Figure 5-1: Future Total Traffic Volumes



The future total intersection capacity analyses for the signalized and unsignalized intersections are summarized in **Table 5-1** and **Table 5-2** respectively. Detailed Synchro reports are provided in **Appendix E**. The signal timing improvements proposed under future background conditions have been carried forward into the future total analysis.

Table 5-1: Future Total Intersection Capacity Analysis (Signalized)

Intersection	Movement	AM Peak Hour								PM Peak Hour							
		Overall			Movements					Overall			Movements				
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	Queue (m)		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th							50th	95th
Shuter Street & Jarvis Street	EBL	0.79	26.3	C	0.97	105	F	14	#43	0.74	22.7	C	0.77	40	D	21	#56
	EBTR				0.51	22	C	30	52				0.78	27	C	64	#116
	WBL				0.28	20	B	7	17				0.27	18	B	4	12
	WBTR				0.94	48	D	74	#135				0.62	21	C	45	75
	NBLTR				0.66	18	B	35	53				0.70	20	C	41	55
	SBLTR				0.60	15	B	37	50				0.48	18	B	18	30
Queen Street & Jarvis Street	EBTR	0.61	17.9	B	0.38	19	B	20	31	0.70	23.0	C	0.65	26	C	38	56
	WBTR				0.69	24	C	50	70				0.86	35	D	55	#87
	NBTR				0.48	15	B	34	48				0.60	14	B	47	65
	SBTR				0.55	15	B	40	52				0.17	10	A	9	15

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

The future total signalized intersection capacity analysis indicates that all signalized intersections are expected to operate at an acceptable overall LOS during all peak hours, with all individual movements operating within capacity. Traffic operations under future total conditions are very similar to future background conditions; all intersections are expected to continue operating at a similar LOS with minimal increases in V/C ratios.

Table 5-2: Future Total Intersection Capacity Analysis (Unsignalized)

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		Delay (s)	95th Queue (m)	V/C	LOS	Delay (s)	95th Queue (m)	V/C	LOS
Shuter Street & Mutual Street	EBLTR	1	0	0.02	A	0	0	0.01	A
	WBLTR	2	1	0.06	A	3	3	0.10	A
	NBLTR	20	14	0.40	C	73	42	0.80	F
	SBLTR	38	12	0.37	E	423	78	1.61	F
Shuter Street & Harbour Light Lane	EBLTR	0	0	0.00	A	0	0	0.02	A
	WBLTR	0	0	0.01	A	0	0	0.00	A
	NBLTR	22	4	0.15	C	33	5	0.17	D
	SBLTR	32	2	0.09	D	37	3	0.10	E
Richard Bigley Lane & Jarvis Street	EBLR	11	1	0.03	B	11	0	0.02	B
	NBTL	1	0	0.01	A	1	1	0.02	A
Queen Street & Mutual Street	EBLT	6	3	0.13	A	7	5	0.18	A
	SBL	38	13	0.39	E	260	70	1.29	F
	SBR	10	4	0.16	B	20	13	0.38	C
Richard Bigley Lane & Mutual Street	WBLR	12	1	0.06	B	11	1	0.04	B
	SBLT	0	0	0.01	A	1	0	0.01	A
Richard Bigley Lane & Harbour Light Lane	EBLT	6	0	0.00	A	6	0	0.01	A
	SBLR	9	0	0.02	A	9	1	0.02	A

The future total traffic conditions at the unsignalized intersections are very similar to the future background traffic conditions in **Table 3-5**. The addition of site-generated traffic results in marginal increases in average

delay and v/c ratio. The results continue to indicate capacity issues for the southbound through-left-right movement at Shuter Street & Mutual Street and the southbound left-turn movement at Queen Street & Mutual; however operations are very similar to future background conditions, indicating the site has a minimal impact on these movements. As noted previously, the Synchro model is deemed conservative due its assumed pedestrian behaviour, its high gap acceptance times, and as it does not account upstream intersection metering. The v/c ratios for the aforementioned critical movements have marginally increased from 1.54 to 1.61 and from 1.27 to 1.29 respectively. The total volumes of all legs at Shuter Street / Mutual Street has increased from 1327 to 1334 vehicles per hour (approximately 0.5 percent) after the addition of site-generated traffic; this is a negligible increase. Similarly, the total volumes of all legs at Queen Street / Mutual Street has increased from 1304 to 1308 vehicles per hour (approximately 0.3 percent). Thus, the addition of site-generated traffic has minimal impacts to the surrounding unsignalized intersections.

It should also be noted that the site-generated traffic does not result in any new critical movements. The remaining unsignalized intersections all operate at an acceptable LOS and within capacity during both peak hours.

Based on the above-noted and our comparison in traffic operations between Background Conditions and Total Conditions, it is concluded that the proposed development will have minimal traffic impacts on the study area intersections.

6 TRANSIT ASSESSMENT

6.1 EXISTING TRANSIT CAPACITY ANALYSIS

The existing transit capacity analysis has been conducted using data received from the TTC for TTC Route 501 – Queen (data was collected in 2006), 502 – Downtowner (Data was collected in 2014) and 141 - Downtown/Mt Pleasant Express (data was collected in 2012). The TTC Route data can be found in **Appendix F**. To account for growth since the time data was collected, an annual growth rate of 1.7 percent has been calculated based on TTC overall ridership from 2006 to 2017. For a conservative approach, an annual growth rate of 2 percent has been applied. The existing transit capacity analyses are summarized in **Table 6-1**.

Table 6-1: Existing Transit Capacity Analysis

Routes	Direction	Location	Peak Hour	Capacity	Departure Demand	Departure % Utilization	Arrival Demand	Arrival % Utilization
501 Queen	EB	Queen/Jarvis	AM Peak	1433	561	39%	614	43%
501 Queen	WB	Queen/Jarvis		1535	1215	79%	1211	79%
502 Downtowner*	EB	Queen/Jarvis		370	97	26%	108	29%
502 Downtowner*	WB	Queen/Jarvis		370	354	96%	354	96%
141 Downtown/ Mt Pleasant	SB	Jarvis/Queen		265	77	49%	78	49%
501 Queen	EB	Queen/Jarvis	PM Peak	1126	1045	93%	1070	95%
501 Queen	WB	Queen/Jarvis		1228	665	54%	651	53%
502 Downtowner*	EB	Queen/Jarvis		370	271	73%	265	72%
502 Downtowner*	WB	Queen/Jarvis		370	90	24%	89	24%
141 Downtown/ Mt Pleasant	NB	Jarvis/Queen		106	28	26%	28	26%

* - Since TTC Route 502 – Downtowner was serviced by streetcar in 2014, the capacity was derived based on service summary from November 22, 2015 to January 2, 2016 (latest available data before service replaced by bus).

As shown in **Table 6-1**, all routes operate within capacity during both AM and PM peak hours under existing conditions, no capacity constraints have been identified. It is noted that Route 502 Downtowner – westbound direction – is close to capacity during the AM peak, and Route 501 Queen – eastbound direction – is close to capacity in the east direction during the PM peak.

6.2 FUTURE BACKGROUND TRANSIT CAPACITY ANALYSIS

The transit capacity analysis assumes the existing transit network is in place by 2023. It is noted that the planned rollout of the new Flexity streetcars has been assumed within this study's planning horizon year of 2023 for the Route 501 – Queen and 502 – Downtowner. The new streetcars are expected to increase the route capacity due to their larger crush capacity. These assumptions have been incorporated into the analysis.

The future background transit capacity analysis involves the trips evaluated under existing conditions, plus the addition of a growth rate over five-year planning horizon of this study. A growth rate of 2 percent has been applied, as noted above. The future background transit capacity analyses are summarized in **Table 6-2**.

Table 6-2: Future Background Transit Capacity Analysis

Routes	Direction	Location	Peak Hour	Capacity	Departure Demand	Departure % Utilization	Arrival Demand	Arrival % Utilization
501 Queen	EB	Queen/Jarvis	AM Peak	1820	619	34%	678	37%
501 Queen	WB	Queen/Jarvis		1950	1341	69%	1337	69%
502 Downtowner	EB	Queen/Jarvis		650	107	17%	119	18%
502 Downtowner	WB	Queen/Jarvis		650	391	60%	391	60%
141 Downtown/ Mt Pleasant	SB	Jarvis/Queen		159	85	54%	87	54%
501 Queen	EB	Queen/Jarvis	PM Peak	1430	1154	81%	1181	83%
501 Queen	WB	Queen/Jarvis		1560	734	47%	719	46%
502 Downtowner	EB	Queen/Jarvis		650	299	46%	292	45%
502 Downtowner	WB	Queen/Jarvis		650	99	15%	98	15%
141 Downtown/ Mt Pleasant	NB	Jarvis/Queen		106	31	29%	31	29%

As shown in **Table 6-2,** all routes are expected to operate within capacity during both AM and PM peak hours under future background conditions, with no capacity constraints identified.

6.3 TRANSIT TRIP GENERATION AND DISTRIBUTION

To determine the anticipated transit trips generated by the proposed residential uses on the subject site, the auto trip generation rates were used and factored to the transit modal split in the area to estimate transit trip generation. TTS 2016 data reveals that the auto mode split in the area is approximately 14%, while transit modal split is estimated to be approximately 27% during AM peak hour, as shown in **Table 6-3**. Further details are provided in **Appendix G**.

Table 6-3: Modal Split

Auto Driver	Auto Passenger	Transit	Walk	Cycle	Other	Total
14%	2%	27%	54%	4%	0%	100%

*Percentage may not add up to the total due to rounding.

The residential auto trip generation rates (Table 4.2) have therefore been used to calculate the transit trip generation using this modal split data. **Table 6-4** below summarizes the transit trip generation rates and transit trip generation for the subject site.

Table 6-4: Transit Trip Generation of the Subject Site

Proposed Development			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Residential	356 units	Trip Rate*	0.06	0.19	0.25	0.15	0.09	0.24
		Total Transit Trips	**21**	**68**	**89**	**53**	**32**	**85**

*Trip Rate of In and Out directions may not add up to the total due to rounding.

6.4 FUTURE TOTAL TRANSIT CAPACITY ANALYSIS

The future total transit capacity analysis involves the addition of the transit trips generated by the subject site to the future background transit condition. **Table 6-5** below summarizes the future total transit capacity analysis.

Table 6-5: Future Total Transit Capacity Analysis

Routes	Direction	Location	Peak Hour	Capacity	Departure Demand	Departure % Utilization	Arrival Demand	Arrival % Utilization
501 Queen	EB	Queen/Jarvis	AM Peak	1820	630	35%	690	38%
501 Queen	WB	Queen/Jarvis		1950	1373	70%	1340	69%
502 Downtowner	EB	Queen/Jarvis		650	121	19%	123	19%
502 Downtowner	WB	Queen/Jarvis		650	402	62%	393	60%
141 Downtown/ Mt Pleasant	SB	Jarvis/Queen		159	85	54%	87	54%
501 Queen	EB	Queen/Jarvis	PM Peak	1430	1166	82%	1214	85%
501 Queen	WB	Queen/Jarvis		1560	751	48%	734	47%
502 Downtowner	EB	Queen/Jarvis		650	304	47%	294	45%
502 Downtowner	WB	Queen/Jarvis		650	101	16%	100	15%
141 Downtown/ Mt Pleasant	NB	Jarvis/Queen		106	31	29%	31	29%

As shown in **Table 6-5**, with the addition of the site transit trips, very minor increases in departure and arrival utilization are noted for all routes. All routes are expected to continue operating within capacity. Thus, the subject site is expected to have insignificant impacts on the nearby transit routes.

It is worth noting that further design work of the Relief Line South is currently underway. The latest alignment which was approved by the City would be running from Pape to Downtown via Queen/Richmond. The nearest station along the latest alignment would be located at Queen Street & Sherbourne Street, approximately 400 metres from the subject site. Although the exact year of construction/completion is still to be determined, the Relief Line South were implemented, it would provide an alternative transit option for the subject site in the future.

7 PARKING

7.1 VEHICULAR PARKING

7.1.1 Vehicle Parking Requirements

The subject site is governed by the City of Toronto Zoning By-law 569-2013, Policy Area 1. Therefore, the minimum vehicular parking requirements for the proposed development are evaluated using applicable parking standards from the aforementioned By-law. The parking requirements for the proposed development, as well as the proposed parking supply, are summarized in **Table 7-1**.

Table 7-1: Minimum Vehicle Parking Requirement

Proposed Use	No. of Units/GFA	City of Toronto By-law 569-2013		Proposed Supply (Rate)	
		Minimum Parking Requirement Rate	Parking Spaces Required	Physical Supply	Effective Supply based on 6 Car-Share Spaces
Residential	356	-	-	34 (including six car-share spaces)	51 (0.14 spaces per unit)
Bachelor	65 units	0.3 spaces / unit	19	-	-
1-bedroom	150 units	0.5 spaces / unit	75	-	-
2-bedroom	105 units	0.8 spaces / unit	84	-	-
3-bedroom	36 units	1.0 spaces / unit	36	-	-
Visitors	356 units	0.1 spaces / unit	35	10	10 (0.03 spaces per unit)
Retail	339 m^2	None*	0	0	0
Total			**249**	**44**	**61 (0.17 spaces per unit)**

* As per By-law 569-2013 Section 200.5.200.40 (4), in a CR zone in Policy Area 1, no parking spaces are required for retail uses, if the interior floor area of all these uses does not exceed 1.0 times the area of the lot.

A total of 249 parking spaces are required based on the minimum parking requirements of the Zoning By-law 569-2013. When incorporating the car share reduction, the physical supply of 34 residential parking spaces (including six car-share spaces) is equivalent to providing a total of 51 residential spaces (0.14 spaces/unit). Details on the car-share reduction are further discussed in section 7.1.6. Visitor parking spaces are proposed to be supplied at a rate of 0.03 spaces per unit, consisting of 10 visitor parking spaces. With an effective parking supply of 61 spaces, the proposed development will still be 188 deficient of the By-law.

However, there are several similar developments in the surrounding area that have adopted a similar or lower parking rates. Given the parking supply deficiency, the following subsections will provide justification for the proposed parking rates.

7.1.2 Observed Proxy Parking Rates

LEA conducted two parking demand surveys of residential developments at 155 Dundas Street East and 8 Mercer Street. The first survey (155 Dundas Street East) was conducted between 5:00 AM and 1:00 AM on Wednesday August 31, Thursday September 8 and Wednesday September 14 of 2016. The parking spaces were counted every hour during the survey and the parking occupancy was recorded for each parking space individually. The second survey (8 Mercer Street) was conducted between midnight and 2:00 AM on

Wednesday February 10 and Friday February 12 of 2016, and between midnight and 3:00 AM on January 15, 2016. The parking spaces were counted every half hour during the survey and parking occupancy was recorded for each parking space individually.

These proxy sites are located in very similar transportation contexts, close to the TTC subway Line 1 and surface transit, and active transportation facilities, and near a multitude of employment, retail, and institutional uses, all conveniently located within walking distance. The observed parking demand rates are summarized in **Table 7-2**. Detailed survey results are provided in **Appendix H**.

Table 7-2: Observed Parking Demand Rates at Proxy Site

Residential Parking Demand Rates			
Proxy Development	# Of Units	Maximum Parking Demand	Rate (Spaces / Unit)
8 Mercer Street	412	72	0.17
155 Dundas Street East	377	39	0.10
Subject Site	**356**	**-**	**0.14**

Given the similarity in the development type and the transit, cycling and pedestrian facilities between these sites and the subject site, the low parking supply rates observed at these sites provides indicate that the proposed parking supply can meet the expected parking demand, and thus these rates are supportive of the proposed parking reduction for the subject site.

7.1.3 Observed Parking Rates at Similar Developments

LEA has also reviewed approved parking supplies at other residential developments in the vicinity of the subject site. The evaluation concluded that the approved parking supply at various sites are similar to the proposed parking supply at the subject site. The approved parking supply rates of various developments are summarized in Table 7-3.

Table 7-3: Approved Residential Parking Supply Rates of Various Developments in the Area

Site Address	# of Units	Approved Parking Supply Rate
9-21 Grenville Street	495	0.21
426 University Avenue	315	0.03
485-495 Wellington Street West	136	0.18
32 Camden Street	87	0.13
70 Temperance Street	798	0.10
40-58 Widmer Street	426	0.21
Average Approved Residential Parking Supply Rate		**0.14**
Proposed Parking Supply Rate		**0.14**

Evidently, lower residential parking supply rates are becoming common in the Downtown Toronto area. The average parking supply rate of nearby approved developments is 0.14, which is equal to the proposed residential parking rate of 0.14 for the subject site.

7.1.4 Boundary Transportation Network

The transportation network of the surrounding area features a robust and diverse transportation network with many different modes of transportation readily available. As mentioned in Section 2.2, there are several transit options that exist within walking distance of the subject site. The proposed development is located within a transit-oriented development environment and therefore a high auto usage is neither expected nor recommended. Furthermore, the existing pedestrian network provides good connections between the residential and commercial uses in the area as well as the nearby TTC bus/streetcar stops and Queen subway station as summarized in Section 2.2. Lastly, a notable cycling network exists in the surrounding area of the subject site. Section 2.3 summarizes the available cycling infrastructure travelling in both the east-west and north-south direction.

Given that the subject site's area features good pedestrian and cycling network, with excellent access to transit options, this relieves the necessity of owning a vehicle. Thus, the proposed parking supply is deemed appropriate given the transportation context of the area.

Based on our assessment which included parking survey data, a review of parking rates approved in the vicinity, and a review of the transportation context area in vicinity of the subject site, we conclude that the proposed residential parking supply of 34 parking spaces, which includes six car-share spaces (effective parking supply of 51 residential parking spaces), is appropriate to accommodate the parking demand of the subject site.

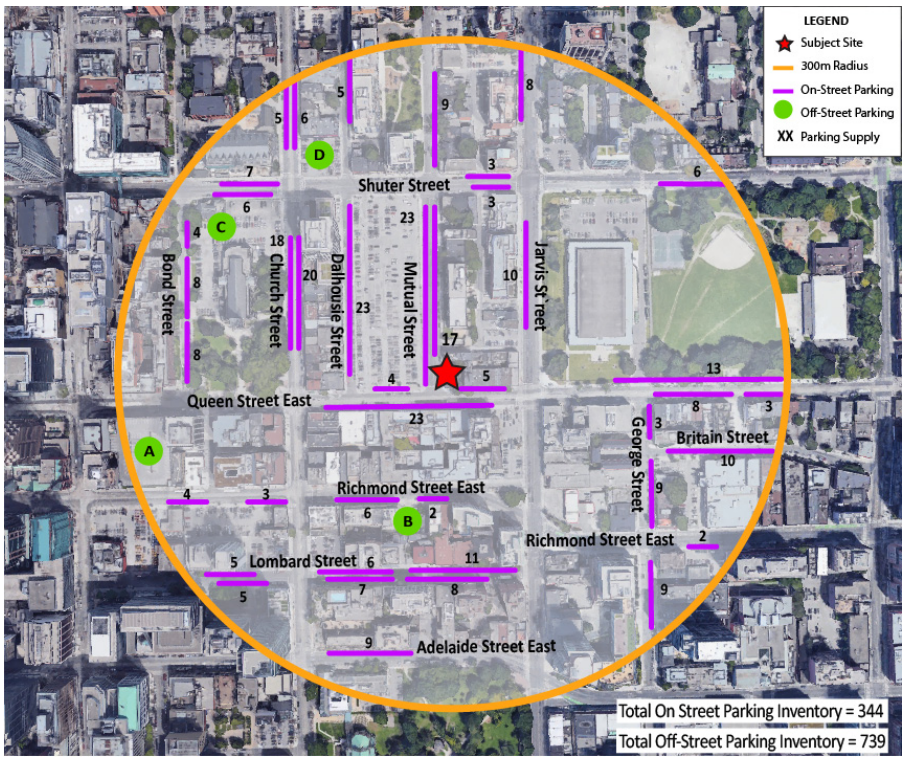
7.1.5 Visitor Parking Reduction

A total of 10 visitor parking spaces are proposed on-site. This reflects a deficiency of 25 visitor parking spaces from the By-law requirements. However, the abundance of public parking options available immediately surrounding the site is expected to adequately accommodate the visitor parking demand generated by the subject site. The available off-site public parking facilities are summarized in **Table 7-4** and both the on-street and off-street facilities are illustrated in **Figure 7-1**. An on-street and off-street public parking supply of 344 spaces and 739 spaces, respectively, exists within a 300-metre radius of the subject site. This abundance of nearby public parking sufficiently offsets the visitor parking deficiency.

Table 7-4: Off-Street Public Parking Facilities

Map Label	Location	Provider	Type	Parking Supply
A	37 Queen Street East	Green P	Garage	645
B	87 Richmond Street	Green P	Surface	20
C	51 Bond Street	Impark	Garage	34
D	206 Church Street	Canada Auto Parks	Surface	40
			TOTAL	739

Figure 7-1: Available Public Parking Facilities



Based on our review, there is an abundance of public parking supply in the surrounding area; therefore, the remaining 25 visitor parking spaces required for the proposed development can be accommodated through on-street parking of public parking facilities in the area.

7.1.6 Car-Share Spaces

There has been a recent increase in the provision of car share spaces with new condominium developments within the Greater Toronto Area (GTA). As per the *Parking Standards Review: Examination of Potential Options and Impacts of Car Share Programs on Parking Standards* report prepared by IBI Group in 2009 for the City of Toronto, one car share space can replace the demand of four resident spaces. The report also suggests providing car share spaces at the rate of one space per 60 residential units with a maximum reduction of 23 parking spaces. Therefore, six car share spaces are recommended for the proposed 356 units, which will replace the demand of 23 residential spaces. The resulting effective parking supply and parking ratio are summarized in **Table 7-5**.

Table 7-5: Effective Parking Supply

Level	Physical Parking Supply	Effective Parking Supply
P1	3	3
P1	6 car-share	= minimum ([6 x 4], 23) = 23
P2	22	22
P3	13	13
Total Supply (rate)	44 (0.12)	61 (0.17)

7.2 BICYCLE PARKING

The bicycle parking requirements for the subject site was reviewed based on the City's By-law 569-2013 and the Toronto Green Standards (v3). A summary of minimum bicycle parking requirement is provided in **Table 7-6**.

Table 7-6: Minimum Bicycle Parking Requirement

Land Use	No. of Units	City of Toronto By-law 569-2013		Proposed Bicycle Parking Supply
		Minimum Bicycle Parking Requirement Rate	Bicycle Spaces Required	
Residential	356	Long -Term: 0.9 spaces / unit	321	360
		Short-Term: 0.1 spaces / unit	36	36
		Total	**357**	**396**

Based on the architectural drawings provided, the proposed development will meet the minimum bicycle requirements.

8 LOADING

The loading requirements for the subject site was reviewed based on the City's Zoning By-law 569-25013. A summary of the minimum loading requirements is provided in **Table 8-1**.

Table 8-1: Minimum Loading Requirement

Land Use	Units/GFA	By-Law Requirement	Proposed Supply
Residential	356	1 Type "G"	1 Type "G"
Retail	339 m^2	None required if GFA <500 m^2	-

As presented in the above table, one Type "G" loading space is required for the proposed development. The proposed site plan indicated one Type "G" loading space, sufficiently satisfying the By-law requirement.

A site circulation assessment was completed using AutoTURN 9.1 software package to ensure adequate manoeuvrability through the site for both garbage and delivery trucks. The swept path diagrams are provided in **Appendix I**. Based on the swept path diagrams, the garbage and delivery trucks are able to enter and exit the proposed loading bay in an acceptable manner.

9 CONCLUSIONS

The subject site to be located at 90-104 Queen Street East, is currently occupied by four different mixed-use buildings with ground-floor commercial uses. The subject site is proposed to be redeveloped into a 34-storey plus wrapped mechanical penthouse mixed-use building containing 356 units, 339 m^2 of ground-floor retail and three underground parking levels. The underground parking will be accessed from Richard Bigley Lane.

Under existing traffic conditions, all movements at the studied intersections are operating within capacity during AM and PM peak hours. With the addition of background developments traffic volumes and signal timing optimization, all studied signalized intersections under the future background conditions are operating within capacity. However, the southbound shared through-left-right movement at Shuter Street / Mutual Street and the southbound left-turn movement at Queen Street / Mutual are expected to operate over capacity during the PM peak hour. It is noted that these capacity issues are trigged by background traffic and would occur regardless of the implementation of the proposed development. Synchro's default parameters for unsignalized intersections are quite conservative and significantly influence the V/C ratio. Furthermore, the software assumes that all pedestrians walk in front of a vehicle when crossing the stop-controlled minor street, further limiting gap opportunities for vehicles that are making turns on the minor street. In an urban environment, courtesy gaps are typically provided to allow vehicles to turn, or pedestrians walk behind turning vehicles while they are attempting to make their manoeuvre. Lastly, Synchro does not account for upstream metering of unsignalized intersections, due to the presence of nearby signalized intersections; this also inflates the V/C ratio. For these reasons, the capacity analyses results for the unsignalized intersections can be regarded as conservative.

The proposed development is expected to generate 46 and 43 two-way vehicle trips during the weekday AM and PM peak hours respectively. The expected site traffic was distributed based on TTS 2016 data.

The future total intersections capacity analysis indicates that the proposed development will have minimal impacts on the study area intersections, as the studied intersections are expected to operate similarly under background traffic conditions and total traffic conditions, during the weekday AM and PM peak hours. No intersection improvements are required to support the proposed residential development. It is noted that the signal timing optimization proposed under future background conditions is triggered by the background conditions and not the subject site traffic.

Transit capacity analyses were completed for the TTC Route 501 – Queen streetcar, Route 502 – Downtowner streetcar and Route 141 – Downtown/Mt Pleasant Express bus routes. All routes are expected to operate within capacity during AM and PM peak hours, with no capacity constraints identified, under the existing and future background conditions. Capacity improvements on Route 501 – Queen streetcar and Route 502 – Downtowner are expected in the future horizon (2023) with the planned rollout of the new Flexity streetcars.

The subject site is expected to generate 89 transit trips during both the weekday AM and PM peak hours. Minimal impacts on the streetcar and bus routes analyzed under future total conditions are expected.

A total effective vehicle parking supply of 61 spaces (0.17 spaces/unit) is proposed. However, the proximity of the subject site to various transit, cycling and pedestrian facilities provides viable travel alternatives to automobile trips. Furthermore, proxy site parking demand survey data supports the proposed parking rate at the subject site. Additionally, other approved parking rates for similar developments were reviewed and it was concluded that the average parking rates of these developments was lower to that being proposed by

the subject site. Lastly, the deficiency in visitor parking is met with the abundance of public parking facilities within a 300 m radius of the proposed development. On this basis, the parking supply at the subject site is deemed adequate.

A total bicycle parking supply of 396 spaces is proposed which meets the minimum requirements of City's By-law and Toronto Green Standard. Lastly, the loading review determined that the subject site will meet the City's loading requirements with the provision of one Type "G" loading space.

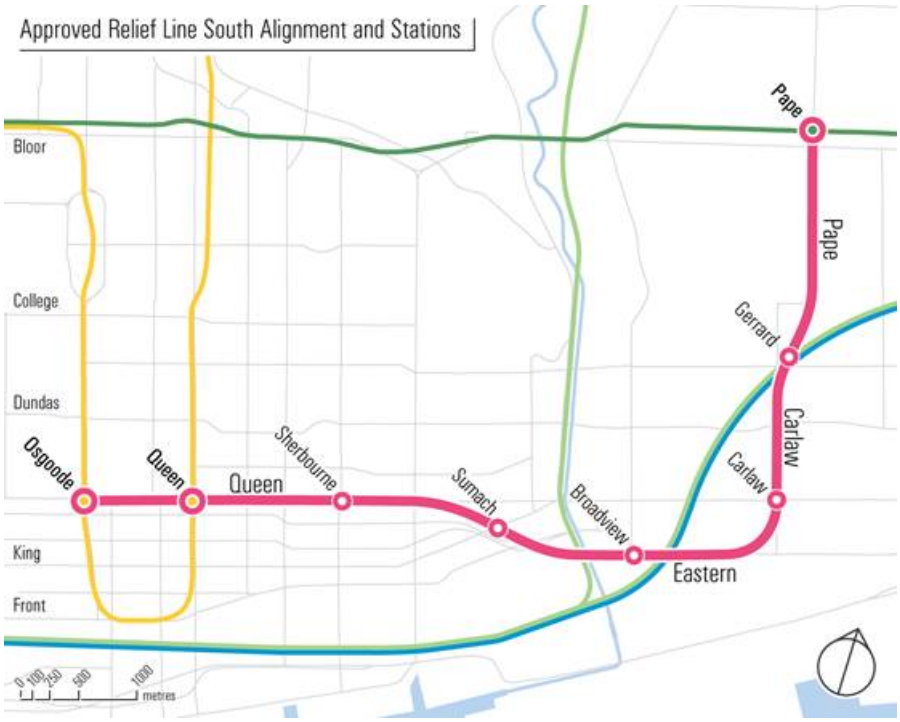
APPENDIX A

Terms of Reference

Timothy Chin

From: Eddy Lam <Eddy.Lam@toronto.ca>
Sent: September-24-18 9:37 AM
To: Timothy Chin; Tabassum Rafique
Cc: Felipe Vernaza; Tony Chiu
Subject: RE: 90-104 Queen Street East - Terms of Reference

Hello Timothy,
Your scope is satisfactory for matters under my purview. Please note that Tabassum Rafique may provide additional comments within the Transportation Services realm.



As a side note, the Relief Line South project is underway. This project is likely beyond your study's horizon year. The subway alignment will follow Queen Street. There is no subway stations planned in the near vicinity of your site. Nevertheless, things can change and you should always be aware of the project's latest news, which is available at: http://reliefline.ca/south/current-work

Regards,
Eddy

From: Timothy Chin [mailto:TChin@lea.ca]
Sent: September-21-18 11:00 AM
To: Tabassum Rafique <Tabassum.Rafique@toronto.ca>; Eddy Lam <Eddy.Lam@toronto.ca>
Cc: Felipe Vernaza <fvernaza@lea.ca>; Tony Chiu <tchiu@lea.ca>
Subject: 90-104 Queen Street East - Terms of Reference

Dear Tabassum/Eddie,

We wish to confirm the following work plan for a Transportation Impact Assessment (TIA) for the proposed redevelopment located at 90-104 Queen Street East in the City of Toronto. The subject site is located at the northeast corner of Queen Street East and Mutual Street. The redevelopment will consist of a 33-storey residential building with ground floor retail. **Figure 1** below illustrates the subject site.

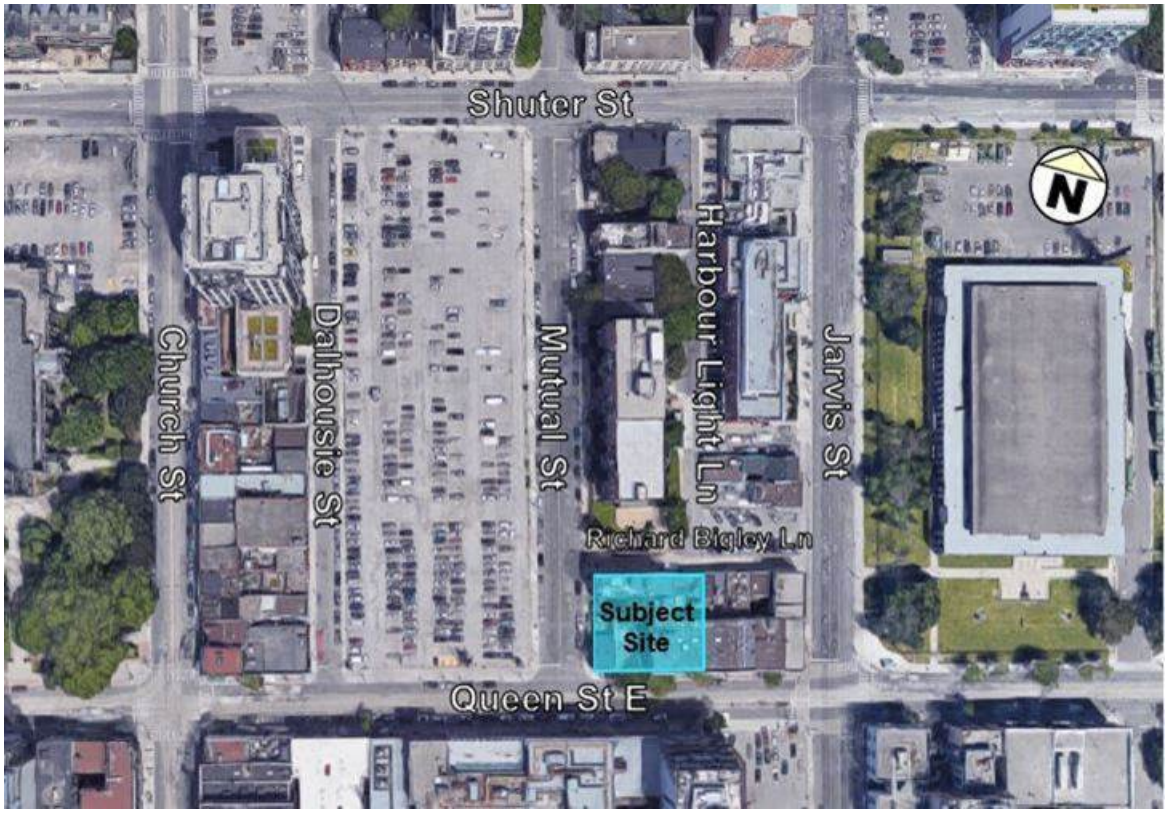


Figure 1: Subject Site

The Transportation Impact Study for the proposed redevelopment will be conducted following the ***City of Toronto Guidelines for the Preparation of Transportation Impact Studies***. The following outlines the proposed Terms of Reference for the Transportation Impact Study.

Proposed Development

It is our understanding that the proposed development will consist of a 33-storey residential building, ground floor retail and underground parking.

Study Area & Traffic Data

The TIS will assess weekday AM (7:00 to 9:00 a.m.) and PM (4:00 to 6:00 p.m.) peak hours. The proposed study area will include the analysis of the following intersections:

- Queen Street East & Jarvis Street (Signalized);
- Queen Street East & Mutual Street (Unsignalized);
- Shuter Street & Mutual Street (Unsignalized);
- Shuter Street & Harbour Light Lane (Unsignalized);
- Shuter Street & Jarvis Street (Signalized);
- Richard Bigley Lane & Harbour Light Lane (Unsignalized);
- Richard Bigley Lane & Mutual Street (Unsignalized); and
- Richard Bigley Lane & Jarvis Street (Unsignalized).

Turning movement counts at all intersections will be within the last 2 years.

Traffic Assessment and Study Horizon Year

The study will focus on weekday AM and PM peak hour traffic operations. Synchro version 9.0 will be used to assess intersection operations during the peak hours. The horizon year of 2023 will be assessed in this TIS.

Background Traffic

General Corridor Growth Rate – To be consistent with the TIS completed for 79-85 Shuter Street by LEA dated September 2017 and 60,64 Queen Street East and 131,133,135 Church Street by LEA dated January 2018, annual growth rate of 0.5% will be applied for the north-south directions along Mutual Street and Jarvis Street, and in the east-west directions along Queen Street East and Shuter Street.

Road Network Improvements – We do not anticipate any external road improvements to be in place in the horizon year of 2023 for this study.

Background Development Traffic – Upon initial review of the City of Toronto Development Applications database, the background developments in the study area was identified as summarized in **Table 1**.

Table 1: Identified Background Developments in the Study Area

#	Address of Development	Description	Application Status
1	60 Shuter Street	29-storey mixed-use building (328 residential units and 487m^2 of retail)	NOAC Issued
2	79 Shuter Street	32-storey residential building (234 units)	Under Review
3	60 Queen Street E	54-storey mixed-use building (364 residential units and ground floor retail)	Under Review
4	30 Mutual Street	Four (4) mixed-use buildings (1,139 residential units, 2,241m^2 of retail and 8,344m^2 of hotel)	OPA Approved by Council
5	59 Mutual Street	32-storey residential building (275 units)	Under Review
6	75 Mutual Street	36-storey mixed-use building (385 residential units, 285m^2 of retail and 509m^2 of office)	OMB Appeal
7	139 Church Street	49-storey mixed-use building (414 residential units and 480m^2 of ground floor retail)	Under Review
8	215 Church Street	Multi-storey mixed-use building (604 residential units and ground floor retail)	NOAC Issued
9	203 Jarvis Street	35-storey mixed-use building (222 residential units and 241 hotel rooms)	OMB Appeal

Trip Generation, Distribution and Assignment

The trip generation of the proposed development will be based on average proxy trip rates applied at similar developments during the weekday AM and PM peak periods as shown in **Table** 2.

Table 2: Residential Trip Rate Adopted for Background Developments

#	Address of Development	Residential Trip Rates Adopted for Background Developments					
		AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
1	60 Shuter Street	0.03	0.10	0.13	0.08	0.05	0.13
2	79 Shuter Street	0.04	0.11	0.15	0.08	0.05	0.13
3	60 Queen Street E	0.02	0.10	0.12	0.08	0.04	0.11
4	30 Mutual Street	0.03	0.10	0.13	0.08	0.05	0.13

5	59 Mutual Street	0.04	0.11	0.15	0.08	0.05	0.13
6	75 Mutual Street	Not Available					
7	139 Church Street	0.02	0.10	0.12	0.08	0.04	0.12
8	215 Church Street	0.04	0.11	0.15	0.08	0.05	0.13
9	203 Jarvis Street	0.01	0.05	0.06	0.04	0.03	0.07
Average Residential Trip Rates		**0.03**	**0.10**	**0.13**	**0.08**	**0.05**	**0.12**

The general trip distribution utilized will be based on a review of the latest 2016 Transportation Tomorrow Survey (TTS) data in the vicinity of the subject site. Trip assignment will be revised accordingly to reflect the configuration of the site access, turning restrictions and logical routings.

Future Traffic Scenarios

Future background and future total analysis for the aforementioned intersections within the study area will be over the horizon year of 2023.

Parking & Loading

The site is currently under the jurisdiction of the City of Toronto Zoning By-Law 569-2013, which will be reviewed for parking and loading requirements. If a parking reduction is proposed, appropriate analyses and justification will be provided to illustrate that the proposed parking supply will meet the projected parking demand.

Site Plan Review

Site plan review will also be undertaken to ensure the vehicular movements can be accommodated at the proposed loading bay, parking lots, drive aisles, garage ramps, etc.

Should you have any comments with our assumptions or have any concerns, please do not hesitate to contact me.

Thanks

Timothy Chin, MSc(Eng)
Intermediate Traffic Analyst

LEA Consulting Ltd.
625 Cochrane Drive, 9th Floor | Markham, ON | L3R 9R9
T: 905 470 0015, ext.322 | **E:** tchin@lea.ca
www.LEA.ca

APPENDIX B

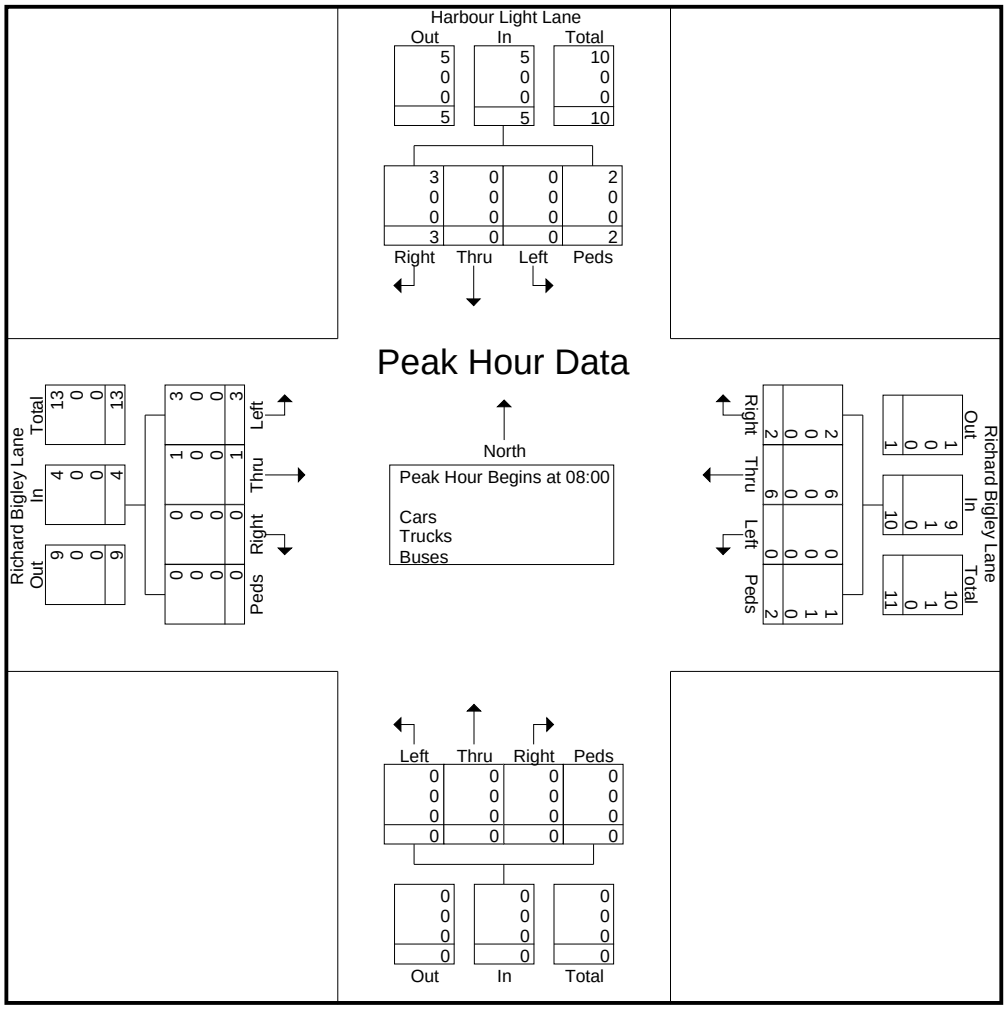
Turning Movement Counts (TMCs) and Signal Timing Plans

LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : HarbourLight&RichardBigley-AM
Site Code : 19178030
Start Date : 10/2/2018
Page No : 3

	Harbour Light Lane Southbound					Richard Bigley Lane Westbound					Northbound					Richard Bigley Lane Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	0	0	**1**	0	1	0	1	0	0	1	0	0	0	0	0	**2**	**1**	0	0	**3**	5
08:15	0	0	0	0	0	0	0	0	**1**	1	0	0	0	0	0	1	0	0	0	1	2
08:30	0	0	1	0	1	0	**3**	**1**	1	**5**	0	0	0	0	0	0	0	0	0	0	**6**
08:45	0	0	1	**2**	**3**	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	6
Total Volume	0	0	3	2	5	0	6	2	2	10	0	0	0	0	0	3	1	0	0	4	19
% App. Total	0	0	60	40		0	60	20	20		0	0	0	0		75	25	0	0		
PHF	.000	.000	.750	.250	.417	.000	.500	.500	.500	.500	.000	.000	.000	.000	.000	.375	.250	.000	.000	.333	.792
Cars	0	0	3	2	5	0	6	2	1	9	0	0	0	0	0	3	1	0	0	4	18
% Cars	0	0	100	100	100	0	100	100	50.0	90.0	0	0	0	0	0	100	100	0	0	100	94.7
Trucks	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
% Trucks	0	0	0	0	0	0	0	0	50.0	10.0	0	0	0	0	0	0	0	0	0	0	5.3
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

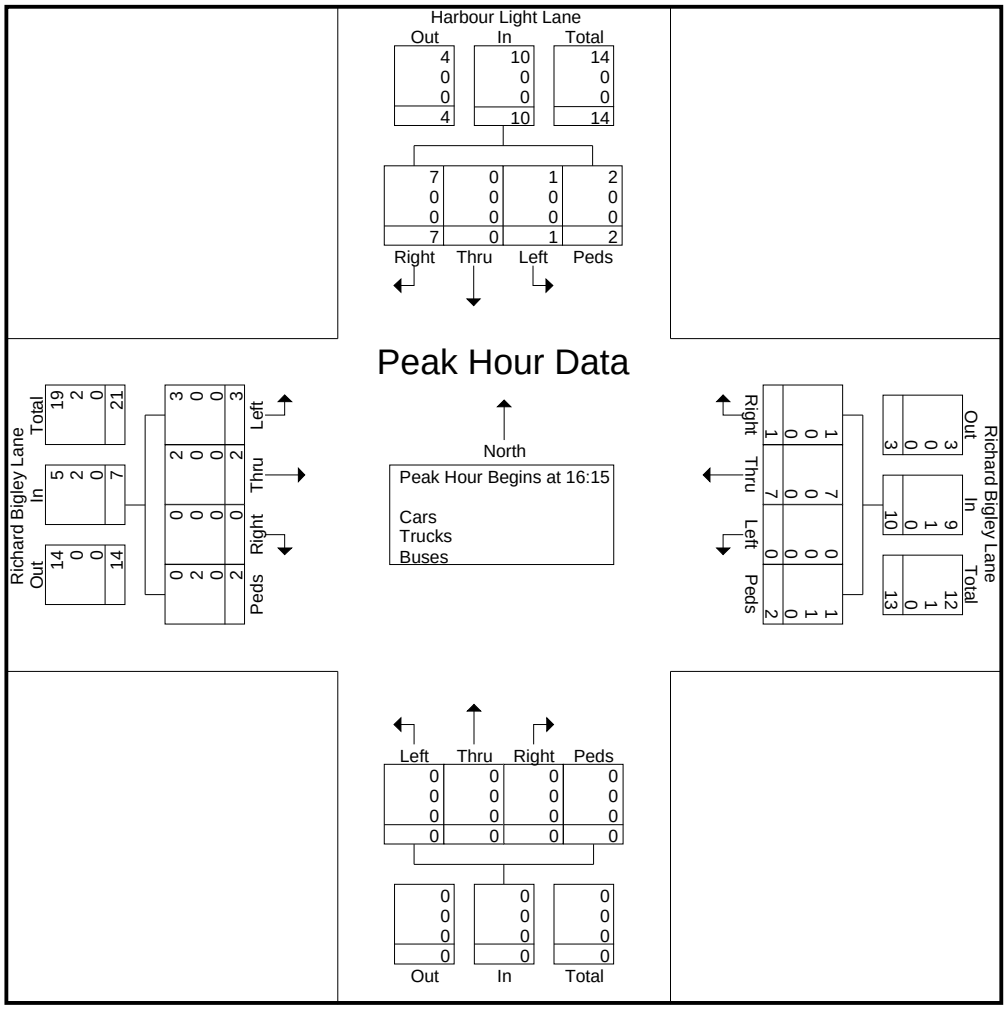


LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : HarbourLight&RichardBigley-PM
Site Code : 19178030
Start Date : 10/2/2018
Page No : 3

	Harbour Light Lane Southbound					Richard Bigley Lane Westbound					Northbound					Richard Bigley Lane Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	0	0	0	**2**	2	0	1	**1**	0	2	0	0	0	0	0	**2**	0	0	**1**	**3**	7
16:30	0	0	1	0	1	0	**3**	0	0	**3**	0	0	0	0	0	0	0	0	0	0	4
16:45	**1**	0	**3**	0	**4**	0	2	0	**1**	3	0	0	0	0	0	0	**2**	0	0	2	**9**
17:00	0	0	3	0	3	0	1	0	1	2	0	0	0	0	0	1	0	0	1	2	7
Total Volume	1	0	7	2	10	0	7	1	2	10	0	0	0	0	0	3	2	0	2	7	27
% App. Total	10	0	70	20		0	70	10	20		0	0	0	0		42.9	28.6	0	28.6		
PHF	.250	.000	.583	.250	.625	.000	.583	.250	.500	.833	.000	.000	.000	.000	.000	.375	.250	.000	.500	.583	.750
Cars	1	0	7	2	10	0	7	1	1	9	0	0	0	0	0	3	2	0	0	5	24
% Cars	100	0	100	100	100	0	100	100	50.0	90.0	0	0	0	0	0	100	100	0	0	71.4	88.9
Trucks	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	2	3
% Trucks	0	0	0	0	0	0	0	0	50.0	10.0	0	0	0	0	0	0	0	0	100	28.6	11.1
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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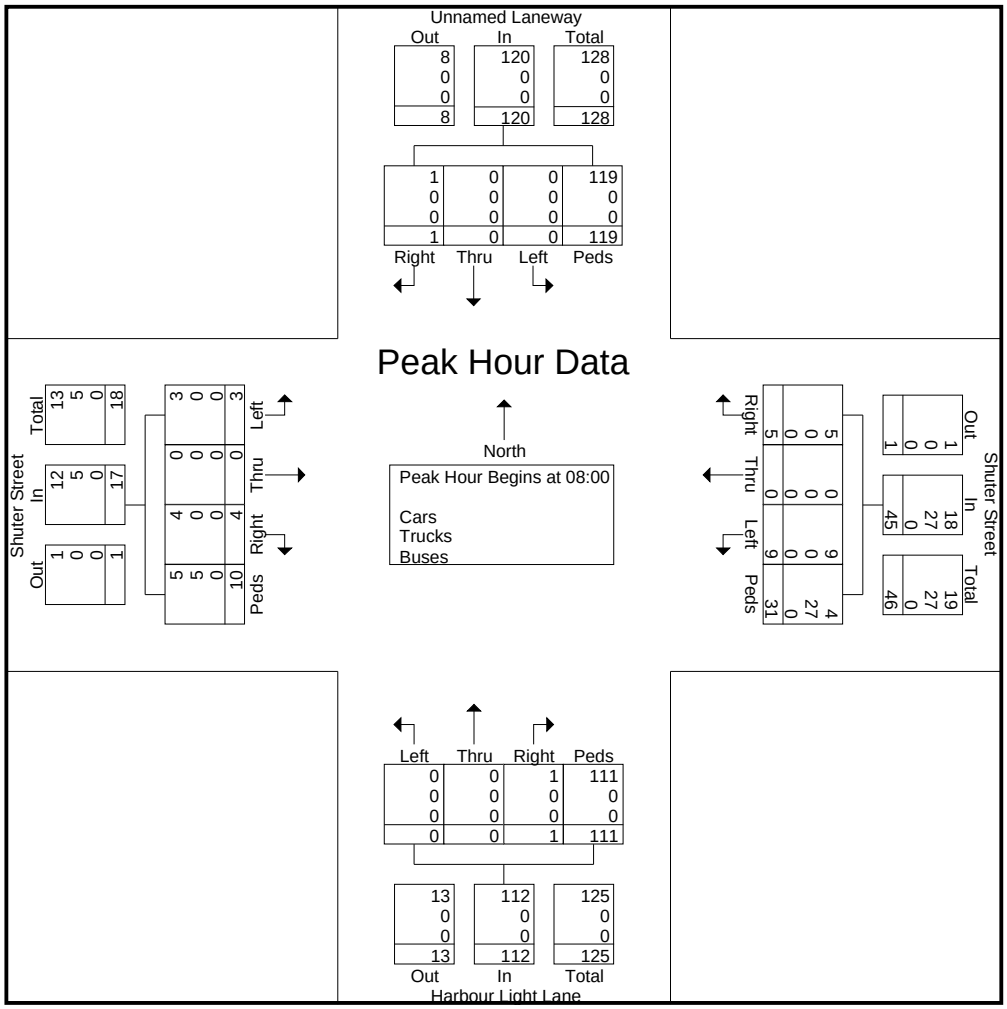
625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : HarbourLight&Shuter-AM
Site Code : 19178030
Start Date : 10/2/2018
Page No : 3

	Unnamed Laneway Southbound					Shuter Street Westbound					Harbour Light Lane Northbound					Shuter Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	0	0	0	21	21	0	0	1	5	6	0	0	**1**	29	30	**1**	0	1	**4**	**6**	63
08:15	0	0	0	26	26	**4**	0	1	7	12	0	0	0	24	24	1	0	0	2	3	65
08:30	0	0	0	34	34	1	0	1	7	9	0	0	0	25	25	0	0	1	2	3	71
08:45	0	0	**1**	**38**	**39**	4	0	**2**	**12**	**18**	0	0	0	**33**	**33**	1	0	**2**	2	5	**95**
Total Volume	0	0	1	119	120	9	0	5	31	45	0	0	1	111	112	3	0	4	10	17	294
% App. Total	0	0	0.8	99.2		20	0	11.1	68.9		0	0	0.9	99.1		17.6	0	23.5	58.8		
PHF	.000	.000	.250	.783	.769	.563	.000	.625	.646	.625	.000	.000	.250	.841	.848	.750	.000	.500	.625	.708	.774
Cars	0	0	1	119	120	9	0	5	4	18	0	0	1	111	112	3	0	4	5	12	262
% Cars	0	0	100	100	100	100	0	100	12.9	40.0	0	0	100	100	100	100	0	100	50.0	70.6	89.1
Trucks	0	0	0	0	0	0	0	0	27	27	0	0	0	0	0	0	0	0	5	5	32
% Trucks	0	0	0	0	0	0	0	0	87.1	60.0	0	0	0	0	0	0	0	0	50.0	29.4	10.9
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

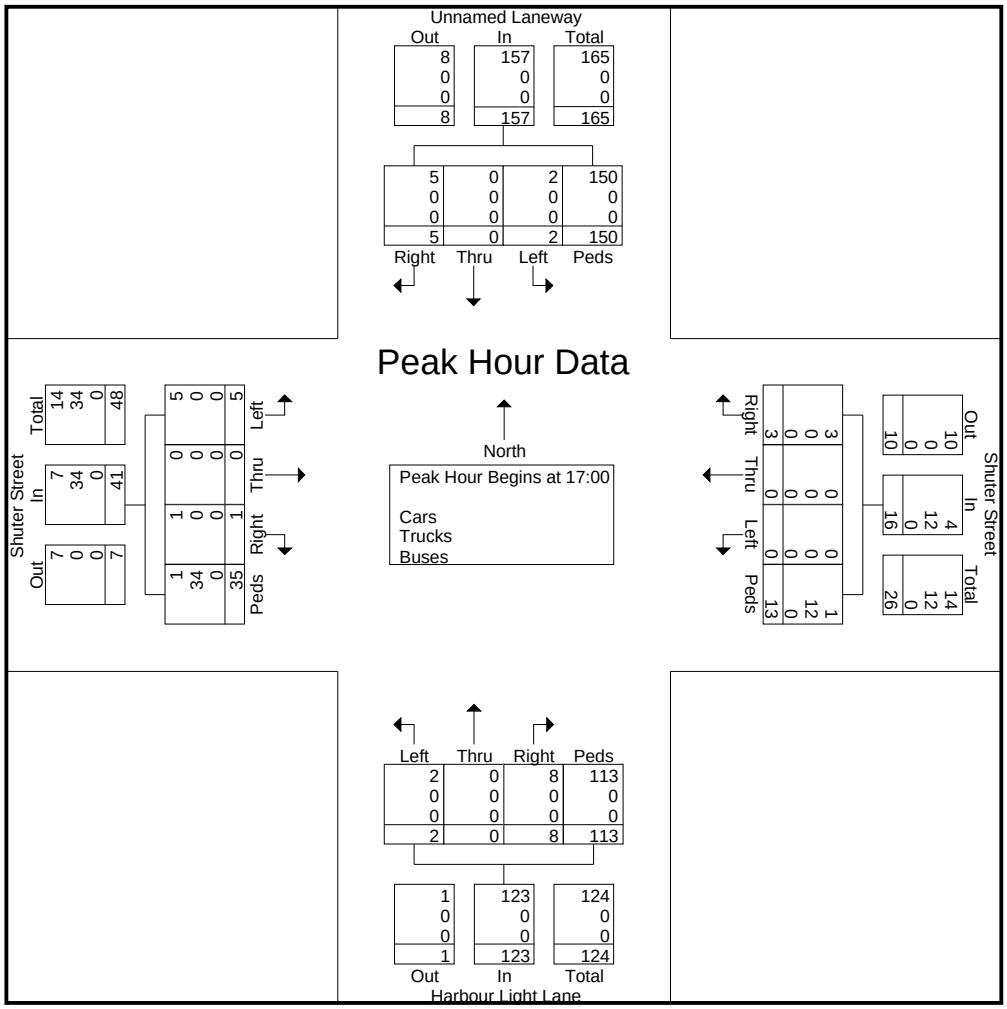


LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : HarbourLight&Shuter-PM
Site Code : 19178030
Start Date : 10/2/2018
Page No : 3

	Unnamed Laneway Southbound					Shuter Street Westbound					Harbour Light Lane Northbound					Shuter Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	**2**	0	0	41	43	0	0	1	1	2	**2**	0	**4**	22	28	**3**	0	**1**	5	9	82
17:15	0	0	**3**	**49**	**52**	0	0	0	4	4	0	0	2	**42**	**44**	1	0	0	8	9	**109**
17:30	0	0	1	31	32	0	0	0	3	3	0	0	1	27	28	1	0	0	**15**	**16**	79
17:45	0	0	1	29	30	0	0	**2**	**5**	**7**	0	0	1	22	23	0	0	0	7	7	67
Total Volume	2	0	5	150	157	0	0	3	13	16	2	0	8	113	123	5	0	1	35	41	337
% App. Total	1.3	0	3.2	95.5		0	0	18.8	81.2		1.6	0	6.5	91.9		12.2	0	2.4	85.4		
PHF	.250	.000	.417	.765	.755	.000	.000	.375	.650	.571	.250	.000	.500	.673	.699	.417	.000	.250	.583	.641	.773
Cars	2	0	5	150	157	0	0	3	1	4	2	0	8	113	123	5	0	1	1	7	291
% Cars	100	0	100	100	100	0	0	100	7.7	25.0	100	0	100	100	100	100	0	100	2.9	17.1	86.4
Trucks	0	0	0	0	0	0	0	0	12	12	0	0	0	0	0	0	0	0	34	34	46
% Trucks	0	0	0	0	0	0	0	0	92.3	75.0	0	0	0	0	0	0	0	0	97.1	82.9	13.6
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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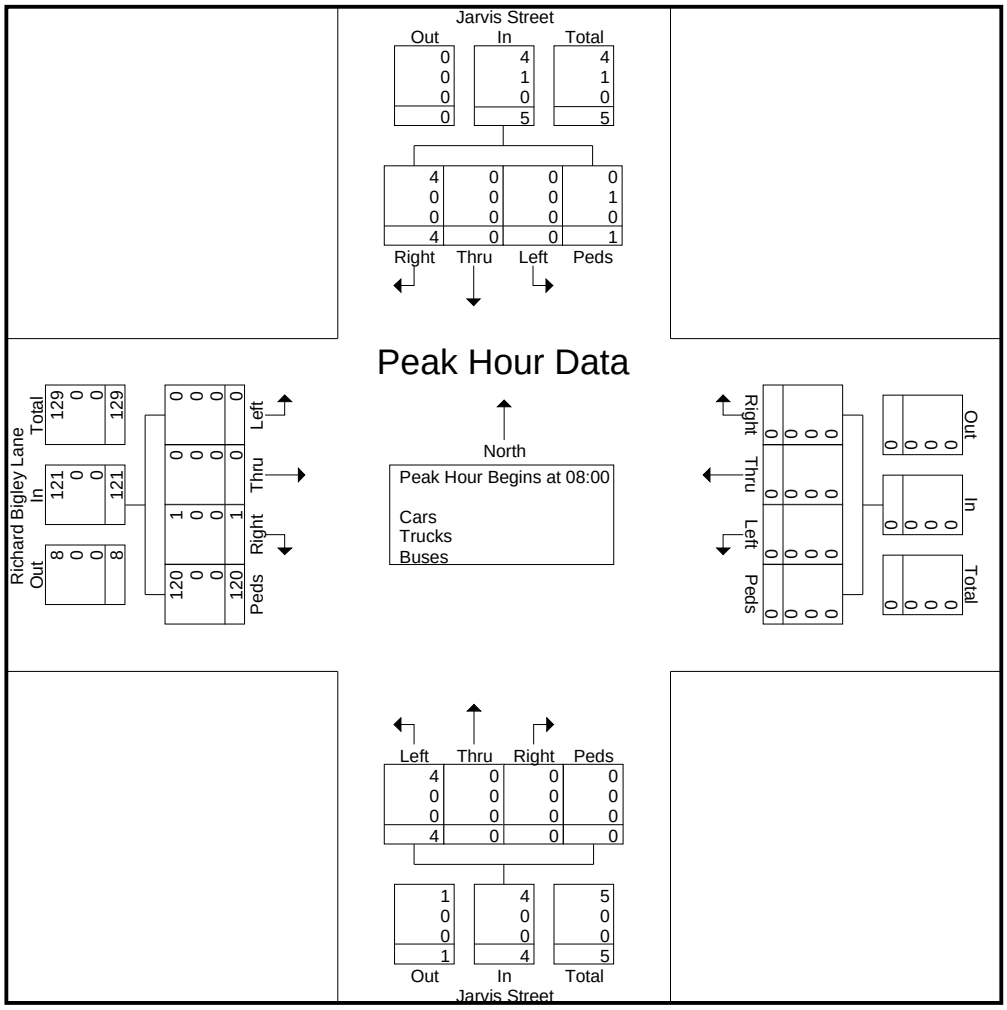
625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Jarvis&RichardBigley-AM
Site Code : 19178030
Start Date : 10/2/2018
Page No : 3

	Jarvis Street Southbound					Westbound					Jarvis Street Northbound					Richard Bigley Lane Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	19	19	20
08:15	0	0	0	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0	0	24	24	25
08:30	0	0	**2**	0	**2**	0	0	0	0	0	**2**	0	0	0	**2**	0	0	**1**	35	36	40
08:45	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	0	0	0	**42**	**42**	**45**
Total Volume	0	0	4	1	5	0	0	0	0	0	4	0	0	0	4	0	0	1	120	121	130
% App. Total	0	0	80	20		0	0	0	0		100	0	0	0		0	0	0.8	99.2		
PHF	.000	.000	.500	.250	.625	.000	.000	.000	.000	.000	.500	.000	.000	.000	.500	.000	.000	.250	.714	.720	.722
Cars	0	0	4	0	4	0	0	0	0	0	4	0	0	0	4	0	0	1	120	121	129
% Cars	0	0	100	0	80.0	0	0	0	0	0	100	0	0	0	100	0	0	100	100	100	99.2
Trucks	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Trucks	0	0	0	100	20.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

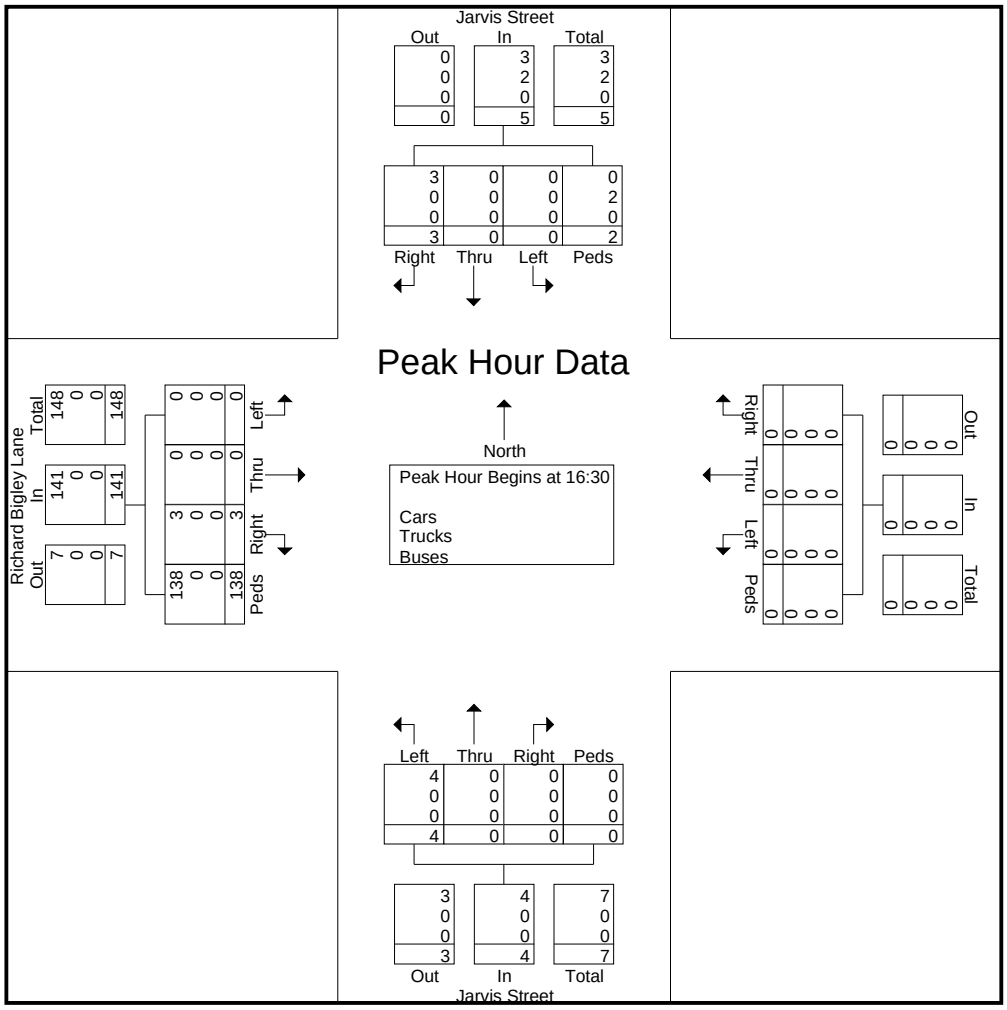


LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Jarvis&RichardBigley-PM
Site Code : 19178030
Start Date : 10/2/2018
Page No : 3

	Jarvis Street Southbound					Westbound					Jarvis Street Northbound					Richard Bigley Lane Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	0	0	1	**1**	**2**	0	0	0	0	0	**2**	0	0	0	**2**	0	0	0	**35**	35	**39**
16:45	0	0	**2**	0	2	0	0	0	0	0	0	0	0	0	0	0	0	**2**	35	**37**	39
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	33	33
17:15	0	0	0	1	1	0	0	0	0	0	2	0	0	0	2	0	0	1	35	36	39
Total Volume	0	0	3	2	5	0	0	0	0	0	4	0	0	0	4	0	0	3	138	141	150
% App. Total	0	0	60	40		0	0	0	0		100	0	0	0		0	0	2.1	97.9		
PHF	.000	.000	.375	.500	.625	.000	.000	.000	.000	.000	.500	.000	.000	.000	.500	.000	.000	.375	.986	.953	.962
Cars	0	0	3	0	3	0	0	0	0	0	4	0	0	0	4	0	0	3	138	141	148
% Cars	0	0	100	0	60.0	0	0	0	0	0	100	0	0	0	100	0	0	100	100	100	98.7
Trucks	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Trucks	0	0	0	100	40.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

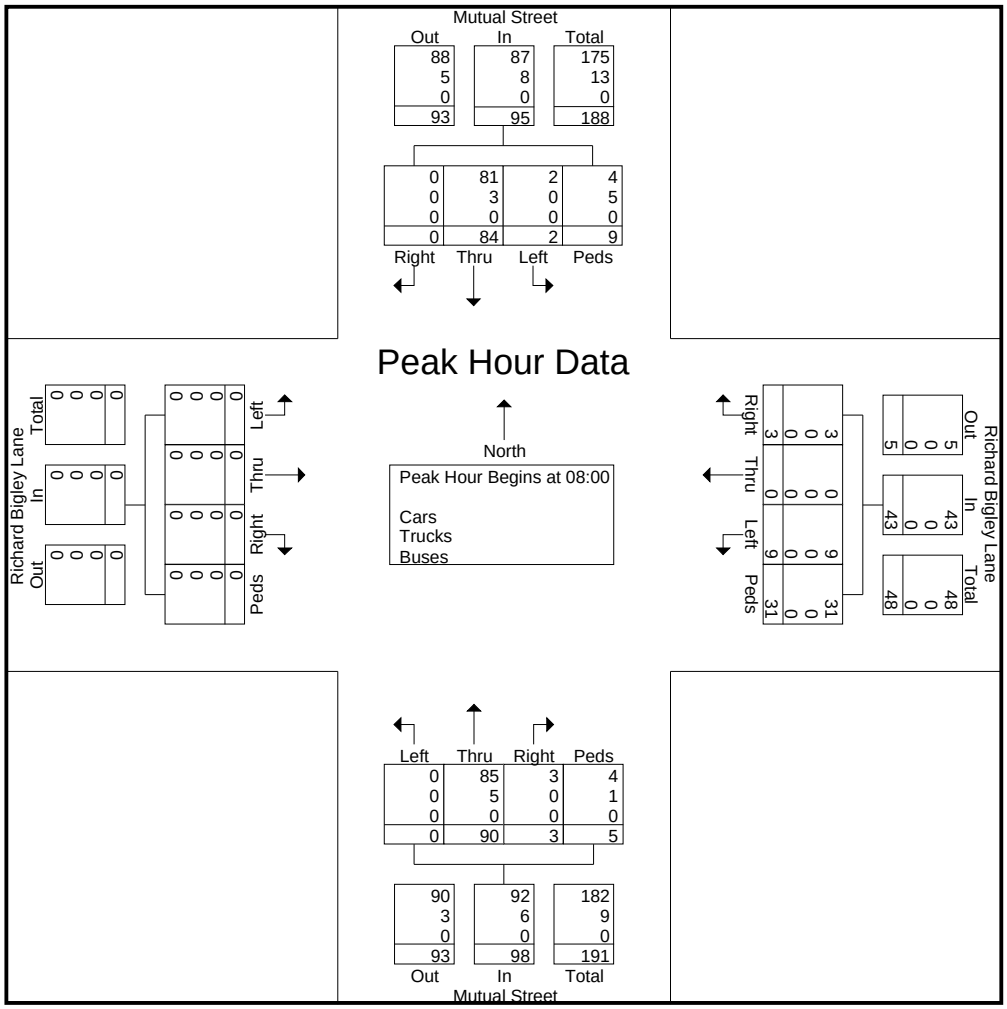


LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Mutual&RichardBigley-AM
Site Code : 19178030
Start Date : 10/2/2018
Page No : 3

	Mutual Street Southbound					Richard Bigley Lane Westbound					Mutual Street Northbound					Richard Bigley Lane Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	**1**	20	0	1	22	**4**	0	0	10	14	0	17	**2**	**2**	21	0	0	0	0	0	57
08:15	0	23	0	**3**	26	0	0	0	7	7	0	24	1	1	26	0	0	0	0	0	59
08:30	0	16	0	3	19	2	0	**2**	3	7	0	20	0	0	20	0	0	0	0	0	46
08:45	1	**25**	0	2	**28**	3	0	1	**11**	**15**	0	**29**	0	2	**31**	0	0	0	0	0	**74**
Total Volume	2	84	0	9	95	9	0	3	31	43	0	90	3	5	98	0	0	0	0	0	236
% App. Total	2.1	88.4	0	9.5		20.9	0	7	72.1		0	91.8	3.1	5.1		0	0	0	0		
PHF	.500	.840	.000	.750	.848	.563	.000	.375	.705	.717	.000	.776	.375	.625	.790	.000	.000	.000	.000	.000	.797
Cars	2	81	0	4	87	9	0	3	31	43	0	85	3	4	92	0	0	0	0	0	222
% Cars	100	96.4	0	44.4	91.6	100	0	100	100	100	0	94.4	100	80.0	93.9	0	0	0	0	0	94.1
Trucks	0	3	0	5	8	0	0	0	0	0	0	5	0	1	6	0	0	0	0	0	14
% Trucks	0	3.6	0	55.6	8.4	0	0	0	0	0	0	5.6	0	20.0	6.1	0	0	0	0	0	5.9
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

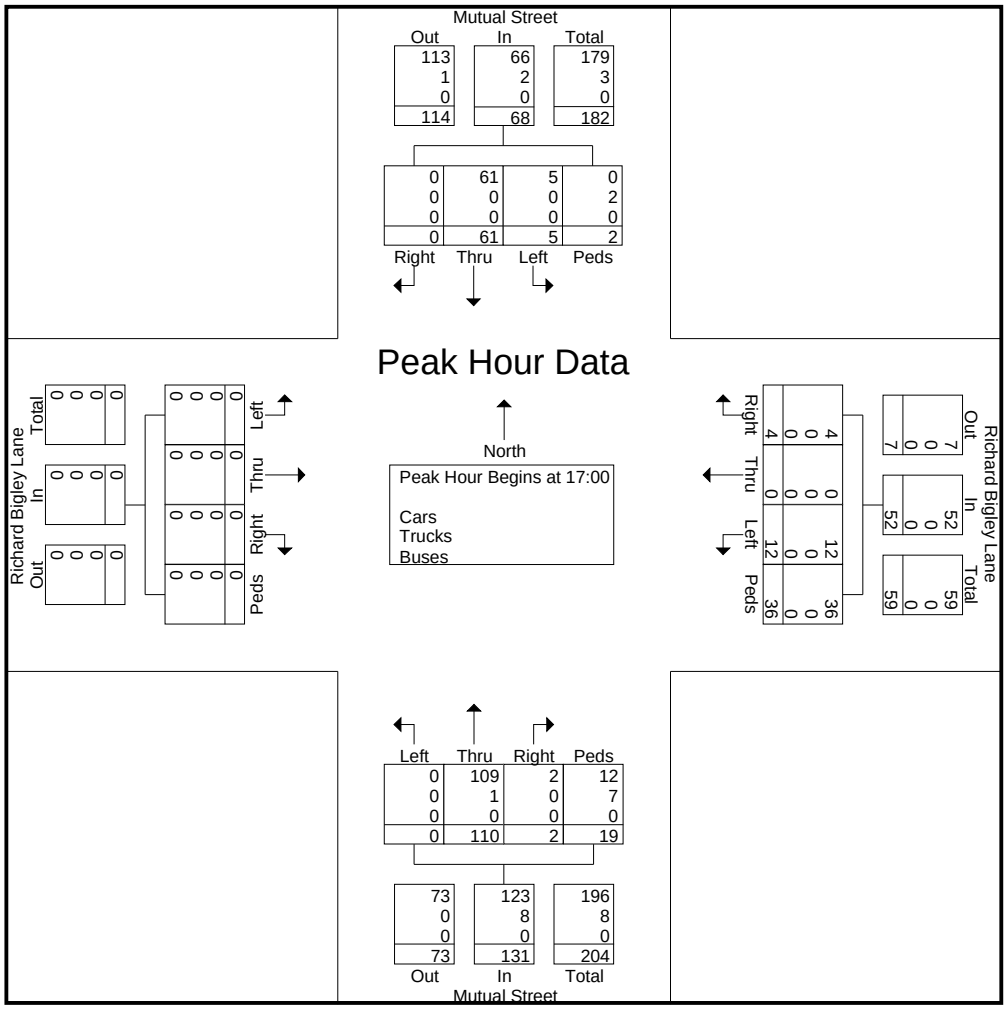


LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

File Name : Mutual&RichardBigley-PM
Site Code : 19178030
Start Date : 10/2/2018
Page No : 3

	Mutual Street Southbound					Richard Bigley Lane Westbound					Mutual Street Northbound					Richard Bigley Lane Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	**2**	6	0	0	8	4	0	**2**	8	14	0	17	0	4	21	0	0	0	0	0	43
17:15	1	**26**	0	**1**	**28**	0	0	1	10	11	0	26	**1**	4	31	0	0	0	0	0	70
17:30	1	13	0	1	15	2	0	1	6	9	0	**34**	0	**7**	**41**	0	0	0	0	0	65
17:45	1	16	0	0	17	**6**	0	0	**12**	**18**	0	33	1	4	38	0	0	0	0	0	**73**
Total Volume	5	61	0	2	68	12	0	4	36	52	0	110	2	19	131	0	0	0	0	0	251
% App. Total	7.4	89.7	0	2.9		23.1	0	7.7	69.2		0	84	1.5	14.5		0	0	0	0		
PHF	.625	.587	.000	.500	.607	.500	.000	.500	.750	.722	.000	.809	.500	.679	.799	.000	.000	.000	.000	.000	.860
Cars	5	61	0	0	66	12	0	4	36	52	0	109	2	12	123	0	0	0	0	0	241
% Cars	100	100	0	0	97.1	100	0	100	100	100	0	99.1	100	63.2	93.9	0	0	0	0	0	96.0
Trucks	0	0	0	2	2	0	0	0	0	0	0	1	0	7	8	0	0	0	0	0	10
% Trucks	0	0	0	100	2.9	0	0	0	0	0	0	0.9	0	36.8	6.1	0	0	0	0	0	4.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 18224_Jarvis&Queen-AM
Site Code: 18224
Start Date: 11/02/2017

Turning Movement Peak Hour Data (8:30 AM)

Start Time	Jarvis Street Southbound						Queen Street East Westbound						Jarvis Street Northbound						Queen Street East Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
8:30 AM	17	214	1	0	30	232	20	187	0	0	36	207	8	154	0	0	56	162	12	56	0	0	37	68	669
8:45 AM	30	222	0	0	42	252	10	174	0	0	50	184	9	148	0	0	65	157	10	57	2	0	37	69	662
9:00 AM	21	206	0	0	30	227	11	175	0	0	33	186	6	141	0	0	44	147	10	71	0	0	44	81	641
9:15 AM	26	202	0	0	31	228	4	141	0	0	32	145	10	137	1	0	41	148	14	67	0	0	37	81	602
Total	94	844	1	0	133	939	45	677	0	0	151	722	33	580	1	0	206	614	46	251	2	0	155	299	2574
Approach %	10.0	89.9	0.1	0.0	-	-	6.2	93.8	0.0	0.0	-	-	5.4	94.5	0.2	0.0	-	-	15.4	83.9	0.7	0.0	-	-	-
Total %	3.7	32.8	0.0	0.0	-	36.5	1.7	26.3	0.0	0.0	-	28.0	1.3	22.5	0.0	0.0	-	23.9	1.8	9.8	0.1	0.0	-	11.6	-
PHF	0.783	0.950	0.250	0.000	-	0.932	0.563	0.905	0.000	0.000	-	0.872	0.825	0.942	0.250	0.000	-	0.948	0.821	0.884	0.250	0.000	-	0.923	0.962
Lights	89	814	1	0	-	904	41	631	0	0	-	672	30	561	1	0	-	592	45	212	2	0	-	259	2427
% Lights	94.7	96.4	100.0	-	-	96.3	91.1	93.2	-	-	-	93.1	90.9	96.7	100.0	-	-	96.4	97.8	84.5	100.0	-	-	86.6	94.3
Buses	0	7	0	0	-	7	0	29	0	0	-	29	1	3	0	0	-	4	0	25	0	0	-	25	65
% Buses	0.0	0.8	0.0	-	-	0.7	0.0	4.3	-	-	-	4.0	3.0	0.5	0.0	-	-	0.7	0.0	10.0	0.0	-	-	8.4	2.5
Trucks	3	12	0	0	-	15	3	4	0	0	-	7	1	15	0	0	-	16	0	6	0	0	-	6	44
% Trucks	3.2	1.4	0.0	-	-	1.6	6.7	0.6	-	-	-	1.0	3.0	2.6	0.0	-	-	2.6	0.0	2.4	0.0	-	-	2.0	1.7
Bicycles on Road	2	11	0	0	-	13	1	13	0	0	-	14	1	1	0	0	-	2	1	8	0	0	-	9	38
% Bicycles on Road	2.1	1.3	0.0	-	-	1.4	2.2	1.9	-	-	-	1.9	3.0	0.2	0.0	-	-	0.3	2.2	3.2	0.0	-	-	3.0	1.5
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.8	-	-	-	-	-	1.3	-	-	-	-	-	0.5	-	-	-	-	-	0.6	-	-
Pedestrians	-	-	-	-	132	-	-	-	-	-	149	-	-	-	-	-	205	-	-	-	-	-	154	-	-
% Pedestrians	-	-	-	-	99.2	-	-	-	-	-	98.7	-	-	-	-	-	99.5	-	-	-	-	-	99.4	-	-

LEA Consulting Ltd.
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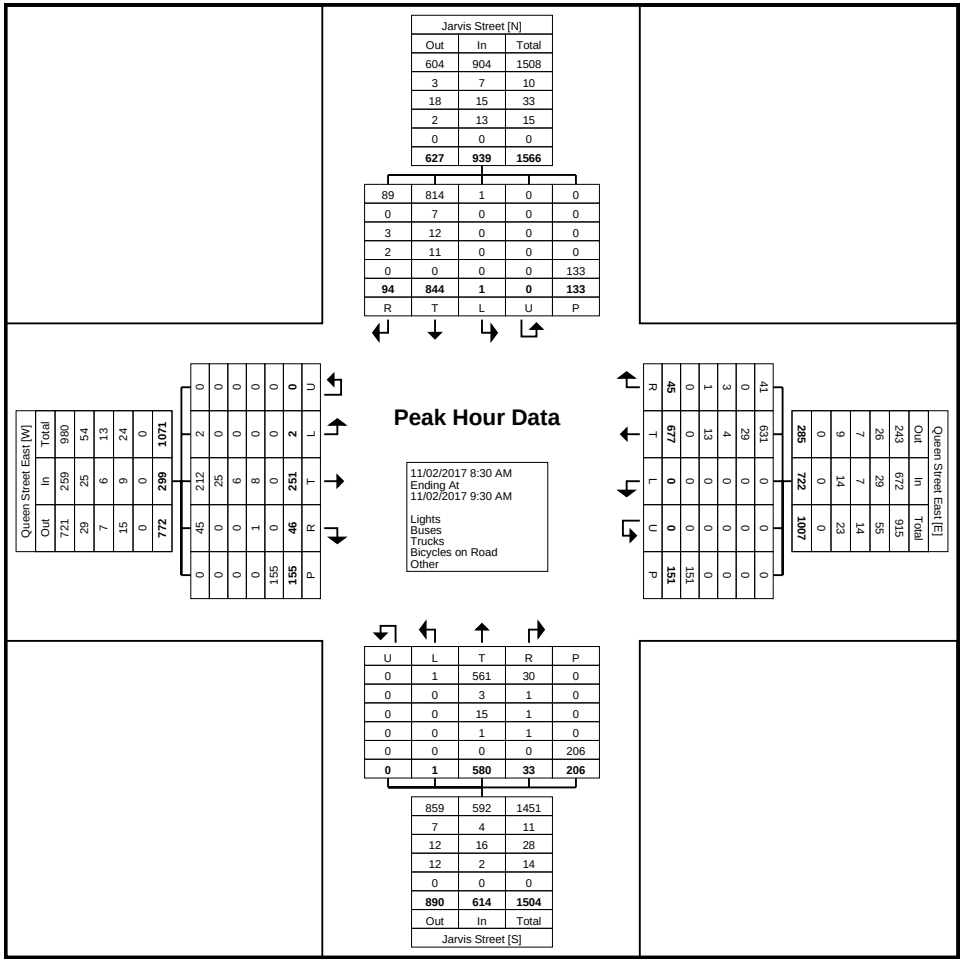


Turning Movement Peak Hour Data Plot (8:30 AM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 18224_Jarvis&Queen-PM
Site Code: 18224
Start Date: 11/02/2017

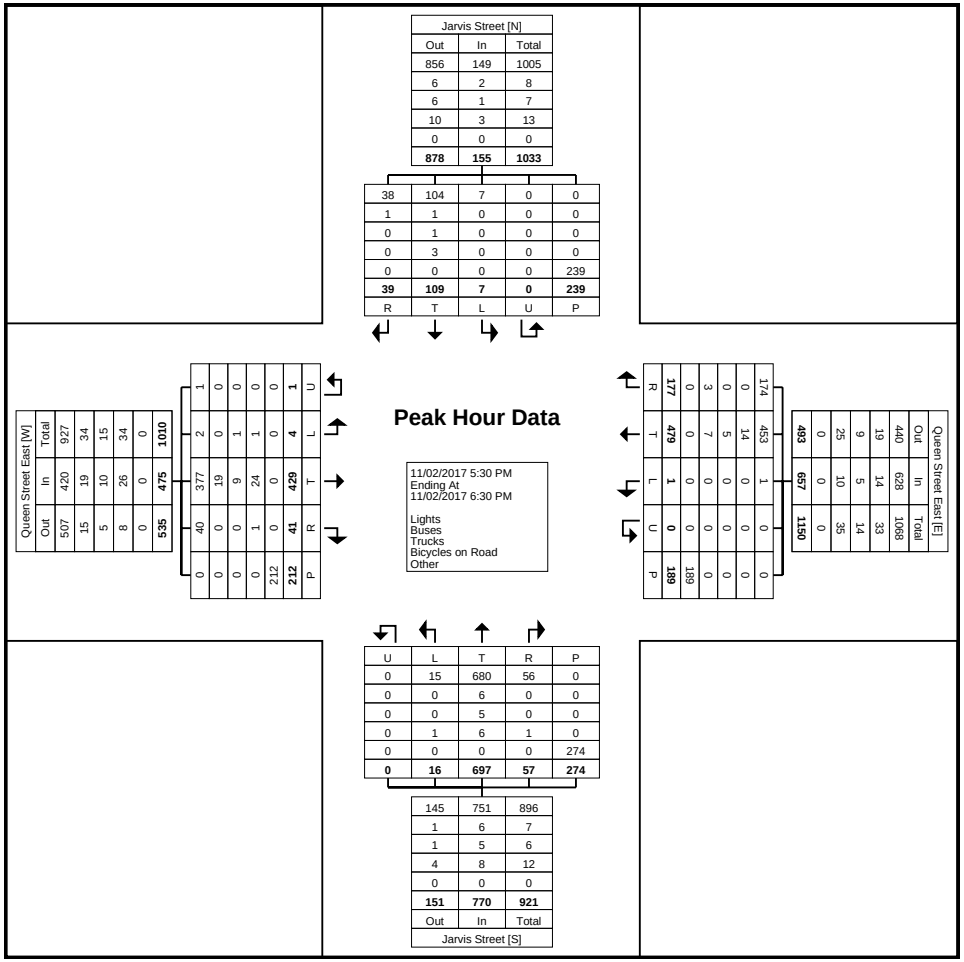
Turning Movement Peak Hour Data (5:30 PM)

Start Time	Jarvis Street Southbound						Queen Street East Westbound						Jarvis Street Northbound						Queen Street East Eastbound						
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Int. Total
5:30 PM	6	14	1	0	55	21	34	142	0	0	37	176	16	181	2	0	70	199	10	99	0	0	60	109	505
5:45 PM	8	18	3	0	74	29	45	92	1	0	42	138	15	161	1	0	72	177	7	82	1	1	51	91	435
6:00 PM	7	15	2	0	61	24	62	114	0	0	45	176	12	182	8	0	56	202	10	134	1	0	58	145	547
6:15 PM	18	62	1	0	49	81	36	131	0	0	65	167	14	173	5	0	76	192	14	114	2	0	43	130	570
Total	39	109	7	0	239	155	177	479	1	0	189	657	57	697	16	0	274	770	41	429	4	1	212	475	2057
Approach %	25.2	70.3	4.5	0.0	-	-	26.9	72.9	0.2	0.0	-	-	7.4	90.5	2.1	0.0	-	-	8.6	90.3	0.8	0.2	-	-	-
Total %	1.9	5.3	0.3	0.0	-	7.5	8.6	23.3	0.0	0.0	-	31.9	2.8	33.9	0.8	0.0	-	37.4	2.0	20.9	0.2	0.0	-	23.1	-
PHF	0.542	0.440	0.583	0.000	-	0.478	0.714	0.843	0.250	0.000	-	0.933	0.891	0.957	0.500	0.000	-	0.953	0.732	0.800	0.500	0.250	-	0.819	0.902
Lights	38	104	7	0	-	149	174	453	1	0	-	628	56	680	15	0	-	751	40	377	2	1	-	420	1948
% Lights	97.4	95.4	100.0	-	-	96.1	98.3	94.6	100.0	-	-	95.6	98.2	97.6	93.8	-	-	97.5	97.6	87.9	50.0	100.0	-	88.4	94.7
Buses	1	1	0	0	-	2	0	14	0	0	-	14	0	6	0	0	-	6	0	19	0	0	-	19	41
% Buses	2.6	0.9	0.0	-	-	1.3	0.0	2.9	0.0	-	-	2.1	0.0	0.9	0.0	-	-	0.8	0.0	4.4	0.0	0.0	-	4.0	2.0
Trucks	0	1	0	0	-	1	0	5	0	0	-	5	0	5	0	0	-	5	0	9	1	0	-	10	21
% Trucks	0.0	0.9	0.0	-	-	0.6	0.0	1.0	0.0	-	-	0.8	0.0	0.7	0.0	-	-	0.6	0.0	2.1	25.0	0.0	-	2.1	1.0
Bicycles on Road	0	3	0	0	-	3	3	7	0	0	-	10	1	6	1	0	-	8	1	24	1	0	-	26	47
% Bicycles on Road	0.0	2.8	0.0	-	-	1.9	1.7	1.5	0.0	-	-	1.5	1.8	0.9	6.3	-	-	1.0	2.4	5.6	25.0	0.0	-	5.5	2.3
Bicycles on Crosswalk	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	4	-	-	-	-	-	8	-	-
% Bicycles on Crosswalk	-	-	-	-	1.3	-	-	-	-	-	0.5	-	-	-	-	-	1.5	-	-	-	-	-	3.8	-	-
Pedestrians	-	-	-	-	236	-	-	-	-	-	188	-	-	-	-	-	270	-	-	-	-	-	204	-	-
% Pedestrians	-	-	-	-	98.7	-	-	-	-	-	99.5	-	-	-	-	-	98.5	-	-	-	-	-	96.2	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 18224_Jarvis&Queen-PM
Site Code: 18224
Start Date: 11/02/2017



Turning Movement Peak Hour Data Plot (5:30 PM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 18224_Jarvis&Shuter-AM
Site Code: 18224
Start Date: 11/02/2017

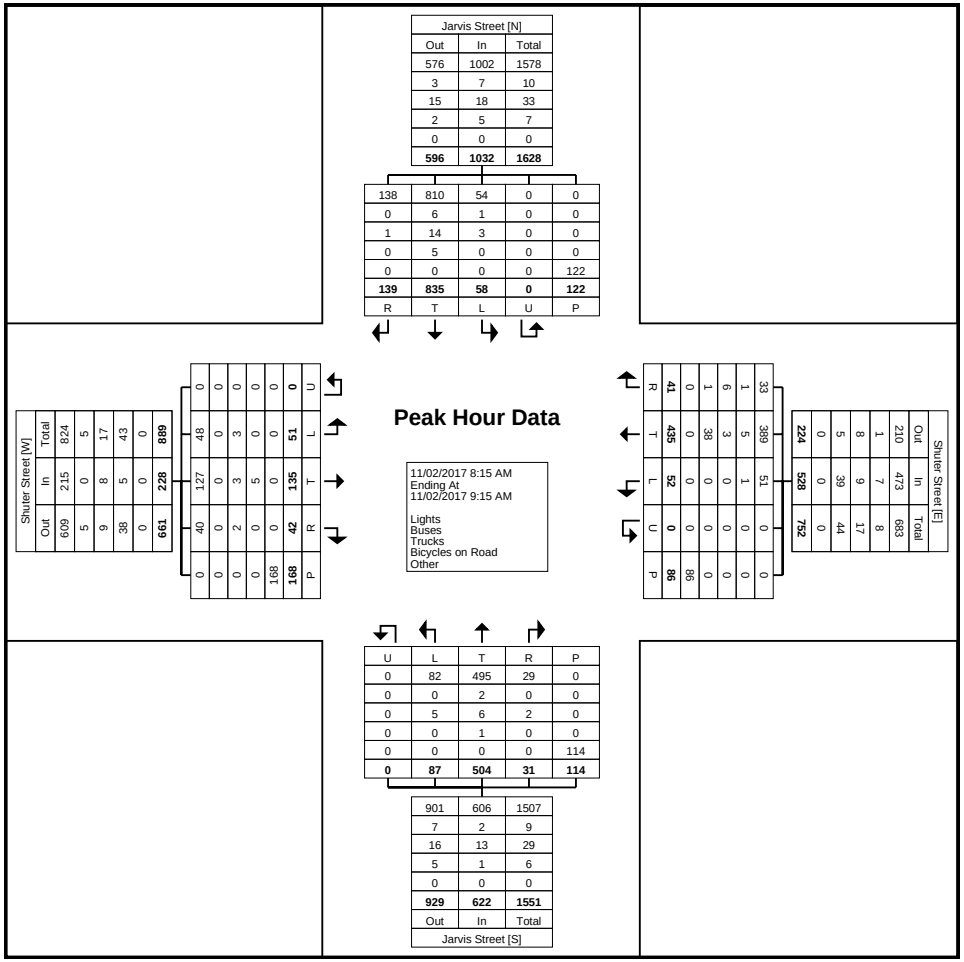
Turning Movement Peak Hour Data (8:15 AM)

Start Time	Jarvis Street Southbound						Shuter Street Westbound						Jarvis Street Northbound						Shuter Street Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
8:15 AM	25	213	8	0	33	246	11	120	15	0	15	146	7	121	20	0	19	148	7	40	11	0	36	58	598
8:30 AM	44	202	14	0	34	260	14	109	14	0	29	137	8	131	24	0	28	163	9	29	10	0	35	48	608
8:45 AM	43	220	13	0	30	276	5	100	15	0	26	120	8	128	21	0	42	157	9	32	18	0	49	59	612
9:00 AM	27	200	23	0	25	250	11	106	8	0	16	125	8	124	22	0	25	154	17	34	12	0	48	63	592
Total	139	835	58	0	122	1032	41	435	52	0	86	528	31	504	87	0	114	622	42	135	51	0	168	228	2410
Approach %	13.5	80.9	5.6	0.0	-	-	7.8	82.4	9.8	0.0	-	-	5.0	81.0	14.0	0.0	-	-	18.4	59.2	22.4	0.0	-	-	-
Total %	5.8	34.6	2.4	0.0	-	42.8	1.7	18.0	2.2	0.0	-	21.9	1.3	20.9	3.6	0.0	-	25.8	1.7	5.6	2.1	0.0	-	9.5	-
PHF	0.790	0.949	0.630	0.000	-	0.935	0.732	0.906	0.867	0.000	-	0.904	0.969	0.962	0.906	0.000	-	0.954	0.618	0.844	0.708	0.000	-	0.905	0.984
Lights	138	810	54	0	-	1002	33	389	51	0	-	473	29	495	82	0	-	606	40	127	48	0	-	215	2296
% Lights	99.3	97.0	93.1	-	-	97.1	80.5	89.4	98.1	-	-	89.6	93.5	98.2	94.3	-	-	97.4	95.2	94.1	94.1	-	-	94.3	95.3
Buses	0	6	1	0	-	7	1	5	1	0	-	7	0	2	0	0	-	2	0	0	0	0	-	0	16
% Buses	0.0	0.7	1.7	-	-	0.7	2.4	1.1	1.9	-	-	1.3	0.0	0.4	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.7
Trucks	1	14	3	0	-	18	6	3	0	0	-	9	2	6	5	0	-	13	2	3	3	0	-	8	48
% Trucks	0.7	1.7	5.2	-	-	1.7	14.6	0.7	0.0	-	-	1.7	6.5	1.2	5.7	-	-	2.1	4.8	2.2	5.9	-	-	3.5	2.0
Bicycles on Road	0	5	0	0	-	5	1	38	0	0	-	39	0	1	0	0	-	1	0	5	0	0	-	5	50
% Bicycles on Road	0.0	0.6	0.0	-	-	0.5	2.4	8.7	0.0	-	-	7.4	0.0	0.2	0.0	-	-	0.2	0.0	3.7	0.0	-	-	2.2	2.1
Bicycles on Crosswalk	-	-	-	-	4	-	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	3.3	-	-	-	-	-	4.7	-	-	-	-	-	0.0	-	-	-	-	-	0.6	-	-
Pedestrians	-	-	-	-	118	-	-	-	-	-	82	-	-	-	-	-	114	-	-	-	-	-	167	-	-
% Pedestrians	-	-	-	-	96.7	-	-	-	-	-	95.3	-	-	-	-	-	100.0	-	-	-	-	-	99.4	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 18224_Jarvis&Shuter-AM
Site Code: 18224
Start Date: 11/02/2017



Turning Movement Peak Hour Data Plot (8:15 AM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 18224_Jarvis&Shuter-PM
Site Code: 18224
Start Date: 11/02/2017

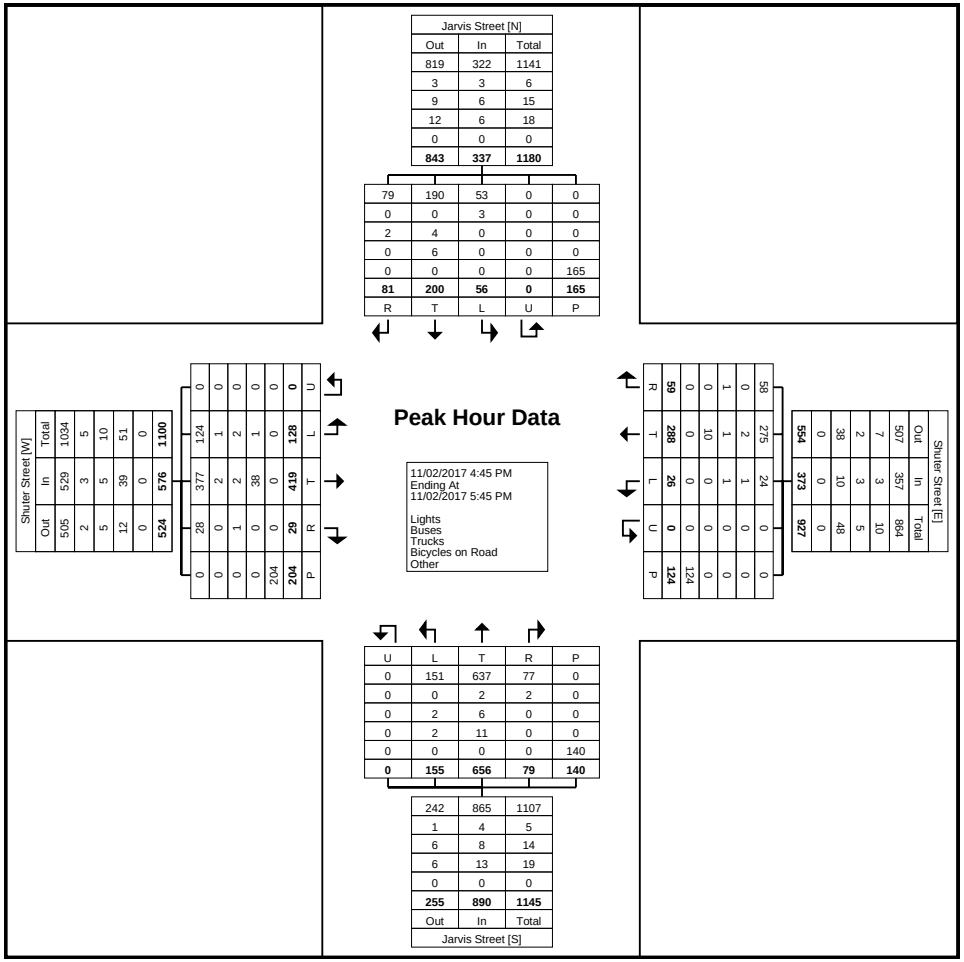
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Jarvis Street Southbound						Shuter Street Westbound						Jarvis Street Northbound						Shuter Street Eastbound						
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Int. Total
4:45 PM	9	44	13	0	35	66	10	74	8	0	29	92	26	149	41	0	37	216	10	105	29	0	49	144	518
5:00 PM	24	67	17	0	45	108	10	69	7	0	31	86	22	139	43	0	37	204	9	102	33	0	45	144	542
5:15 PM	23	60	14	0	35	97	22	71	5	0	29	98	18	191	29	0	28	238	6	108	29	0	59	143	576
5:30 PM	25	29	12	0	50	66	17	74	6	0	35	97	13	177	42	0	38	232	4	104	37	0	51	145	540
Total	81	200	56	0	165	337	59	288	26	0	124	373	79	656	155	0	140	890	29	419	128	0	204	576	2176
Approach %	24.0	59.3	16.6	0.0	-	-	15.8	77.2	7.0	0.0	-	-	8.9	73.7	17.4	0.0	-	-	5.0	72.7	22.2	0.0	-	-	-
Total %	3.7	9.2	2.6	0.0	-	15.5	2.7	13.2	1.2	0.0	-	17.1	3.6	30.1	7.1	0.0	-	40.9	1.3	19.3	5.9	0.0	-	26.5	-
PHF	0.810	0.746	0.824	0.000	-	0.780	0.670	0.973	0.813	0.000	-	0.952	0.760	0.859	0.901	0.000	-	0.935	0.725	0.970	0.865	0.000	-	0.993	0.944
Lights	79	190	53	0	-	322	58	275	24	0	-	357	77	637	151	0	-	865	28	377	124	0	-	529	2073
% Lights	97.5	95.0	94.6	-	-	95.5	98.3	95.5	92.3	-	-	95.7	97.5	97.1	97.4	-	-	97.2	96.6	90.0	96.9	-	-	91.8	95.3
Buses	0	0	3	0	-	3	0	2	1	0	-	3	2	2	0	0	-	4	0	2	1	0	-	3	13
% Buses	0.0	0.0	5.4	-	-	0.9	0.0	0.7	3.8	-	-	0.8	2.5	0.3	0.0	-	-	0.4	0.0	0.5	0.8	-	-	0.5	0.6
Trucks	2	4	0	0	-	6	1	1	1	0	-	3	0	6	2	0	-	8	1	2	2	0	-	5	22
% Trucks	2.5	2.0	0.0	-	-	1.8	1.7	0.3	3.8	-	-	0.8	0.0	0.9	1.3	-	-	0.9	3.4	0.5	1.6	-	-	0.9	1.0
Bicycles on Road	0	6	0	0	-	6	0	10	0	0	-	10	0	11	2	0	-	13	0	38	1	0	-	39	68
% Bicycles on Road	0.0	3.0	0.0	-	-	1.8	0.0	3.5	0.0	-	-	2.7	0.0	1.7	1.3	-	-	1.5	0.0	9.1	0.8	-	-	6.8	3.1
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	10	-	-
% Bicycles on Crosswalk	-	-	-	-	1.2	-	-	-	-	-	0.8	-	-	-	-	-	0.7	-	-	-	-	-	4.9	-	-
Pedestrians	-	-	-	-	163	-	-	-	-	-	123	-	-	-	-	-	139	-	-	-	-	-	194	-	-
% Pedestrians	-	-	-	-	98.8	-	-	-	-	-	99.2	-	-	-	-	-	99.3	-	-	-	-	-	95.1	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 akung@LEA.ca

Count Name: 18224_Jarvis&Shuter-PM
Site Code: 18224
Start Date: 11/02/2017



Turning Movement Peak Hour Data Plot (4:45 PM)

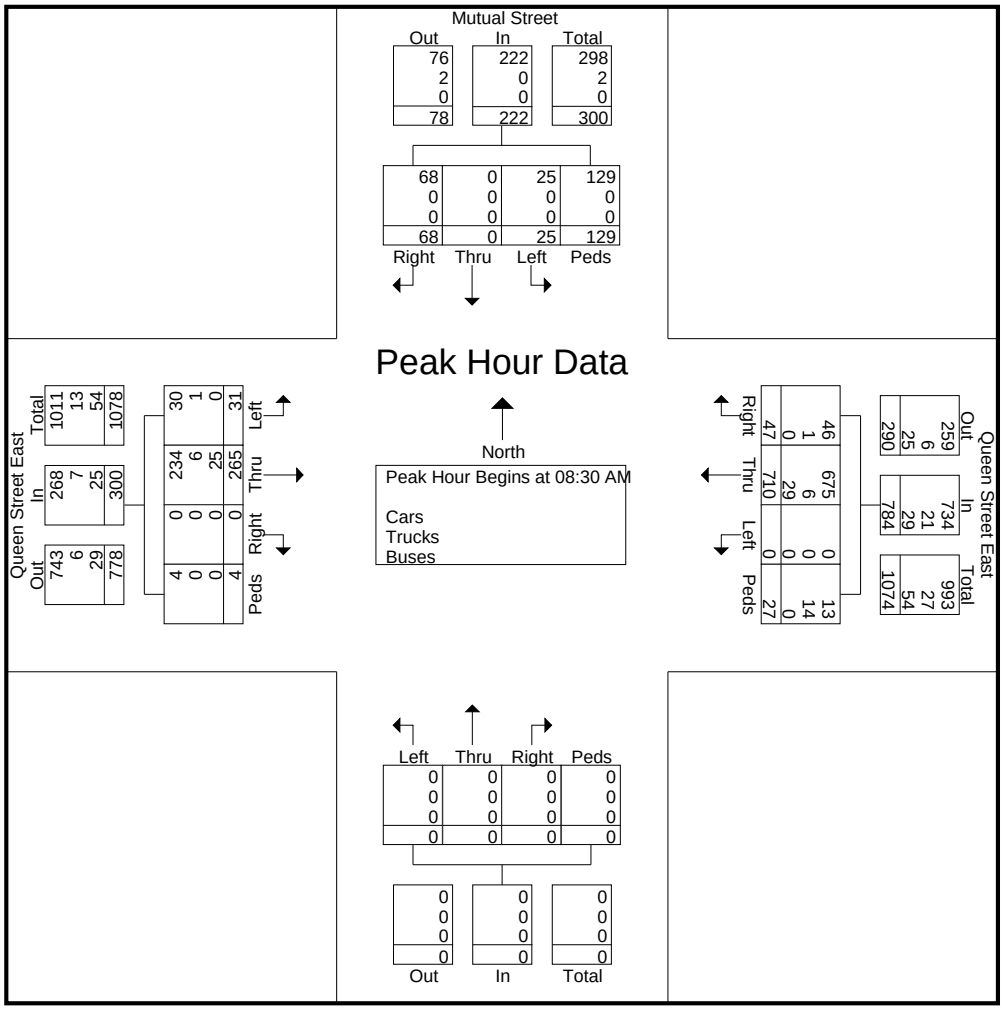
LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

Project No.: 18224
Location: Mutual St & Queen St E
Weather: Raining
Surveyor(s): Susan Cho

File Name : Mutual&Queen-AM
Site Code : 18224033
Start Date : 02/11/2017
Page No : 3

	Mutual Street Southbound					Queen Street East Westbound					Northbound					Queen Street East Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:30 AM																					
08:30 AM	7	0	15	27	49	0	**191**	11	3	205	0	0	0	0	0	5	60	0	0	65	319
08:45 AM	2	0	**21**	37	60	0	186	13	7	**206**	0	0	0	0	0	8	63	0	1	72	**338**
09:00 AM	**9**	0	15	24	48	0	177	**15**	**11**	203	0	0	0	0	0	**9**	**71**	0	**2**	**82**	333
09:15 AM	7	0	17	**41**	**65**	0	156	8	6	170	0	0	0	0	0	9	71	0	1	81	316
Total Volume	25	0	68	129	222	0	710	47	27	784	0	0	0	0	0	31	265	0	4	300	1306
% App. Total	11.3	0	30.6	58.1		0	90.6	6	3.4		0	0	0	0		10.3	88.3	0	1.3		
PHF	.694	.000	.810	.787	.854	.000	.929	.783	.614	.951	.000	.000	.000	.000	.000	.861	.933	.000	.500	.915	.966
Cars	25	0	68	129	222	0	675	46	13	734	0	0	0	0	0	30	234	0	4	268	1224
% Cars	100	0	100	100	100	0	95.1	97.9	48.1	93.6	0	0	0	0	0	96.8	88.3	0	100	89.3	93.7
Trucks	0	0	0	0	0	0	6	1	14	21	0	0	0	0	0	1	6	0	0	7	28
% Trucks	0	0	0	0	0	0	0.8	2.1	51.9	2.7	0	0	0	0	0	3.2	2.3	0	0	2.3	2.1
Buses	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	0	25	0	0	25	54
% Buses	0	0	0	0	0	0	4.1	0	0	3.7	0	0	0	0	0	0	9.4	0	0	8.3	4.1



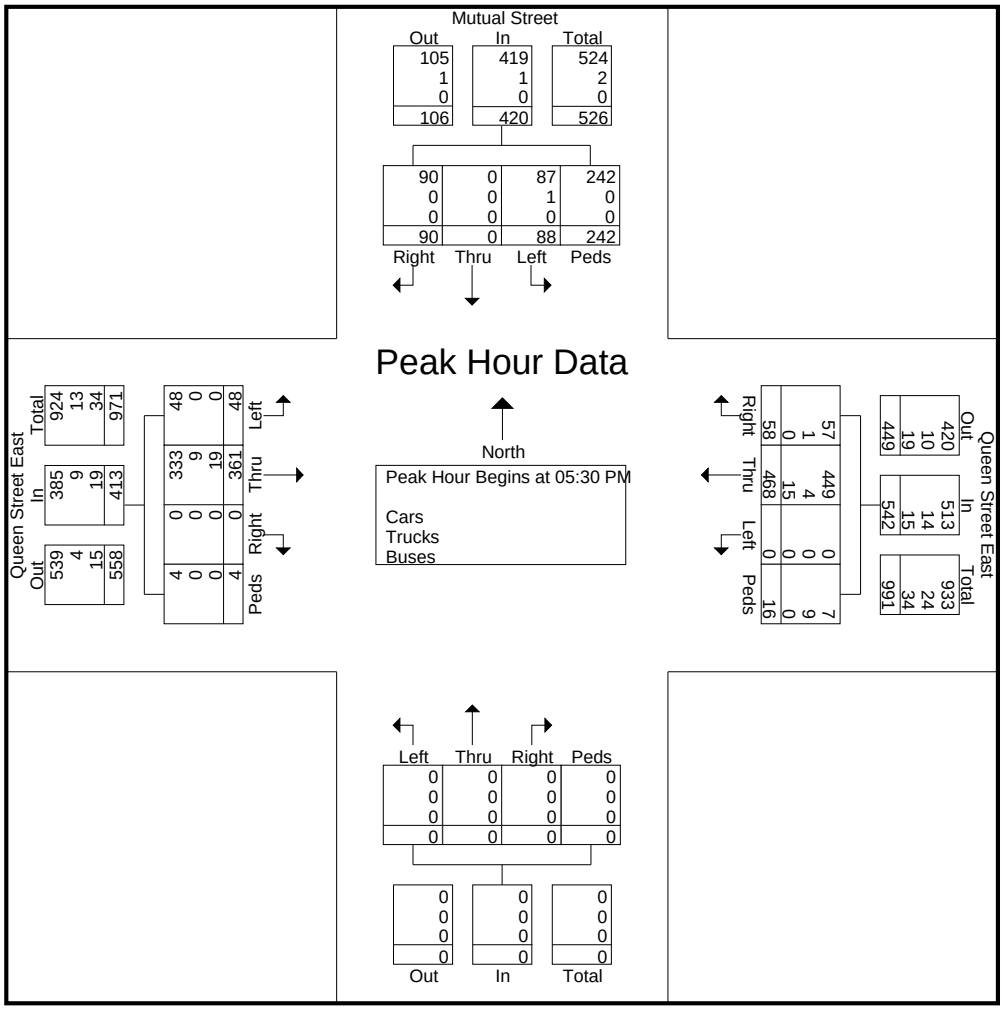
LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

Project No.: 18224
Location: Mutual St & Queen St E
Weather: Raining
Surveyor(s): Susan Cho

File Name : Mutual&Queen-PM
Site Code : 18224033
Start Date : 02/11/2017
Page No : 3

	Mutual Street Southbound					Queen Street East Westbound					Northbound					Queen Street East Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:30 PM																					
05:30 PM	17	0	24	58	99	0	**134**	16	5	**155**	0	0	0	0	0	12	83	0	**2**	97	351
05:45 PM	22	0	12	**69**	103	0	90	11	2	103	0	0	0	0	0	11	65	0	1	77	283
06:00 PM	**26**	0	20	53	99	0	112	13	**6**	131	0	0	0	0	0	**14**	**112**	0	1	**127**	357
06:15 PM	23	0	**34**	62	**119**	0	132	**18**	3	153	0	0	0	0	0	11	101	0	0	112	**384**
Total Volume	88	0	90	242	420	0	468	58	16	542	0	0	0	0	0	48	361	0	4	413	1375
% App. Total	21	0	21.4	57.6		0	86.3	10.7	3		0	0	0	0		11.6	87.4	0	1		
PHF	.846	.000	.662	.877	.882	.000	.873	.806	.667	.874	.000	.000	.000	.000	.000	.857	.806	.000	.500	.813	.895
Cars	87	0	90	242	419	0	449	57	7	513	0	0	0	0	0	48	333	0	4	385	1317
% Cars	98.9	0	100	100	99.8	0	95.9	98.3	43.8	94.6	0	0	0	0	0	100	92.2	0	100	93.2	95.8
Trucks	1	0	0	0	1	0	4	1	9	14	0	0	0	0	0	0	9	0	0	9	24
% Trucks	1.1	0	0	0	0.2	0	0.9	1.7	56.3	2.6	0	0	0	0	0	0	2.5	0	0	2.2	1.7
Buses	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	19	0	0	19	34
% Buses	0	0	0	0	0	0	3.2	0	0	2.8	0	0	0	0	0	0	5.3	0	0	4.6	2.5



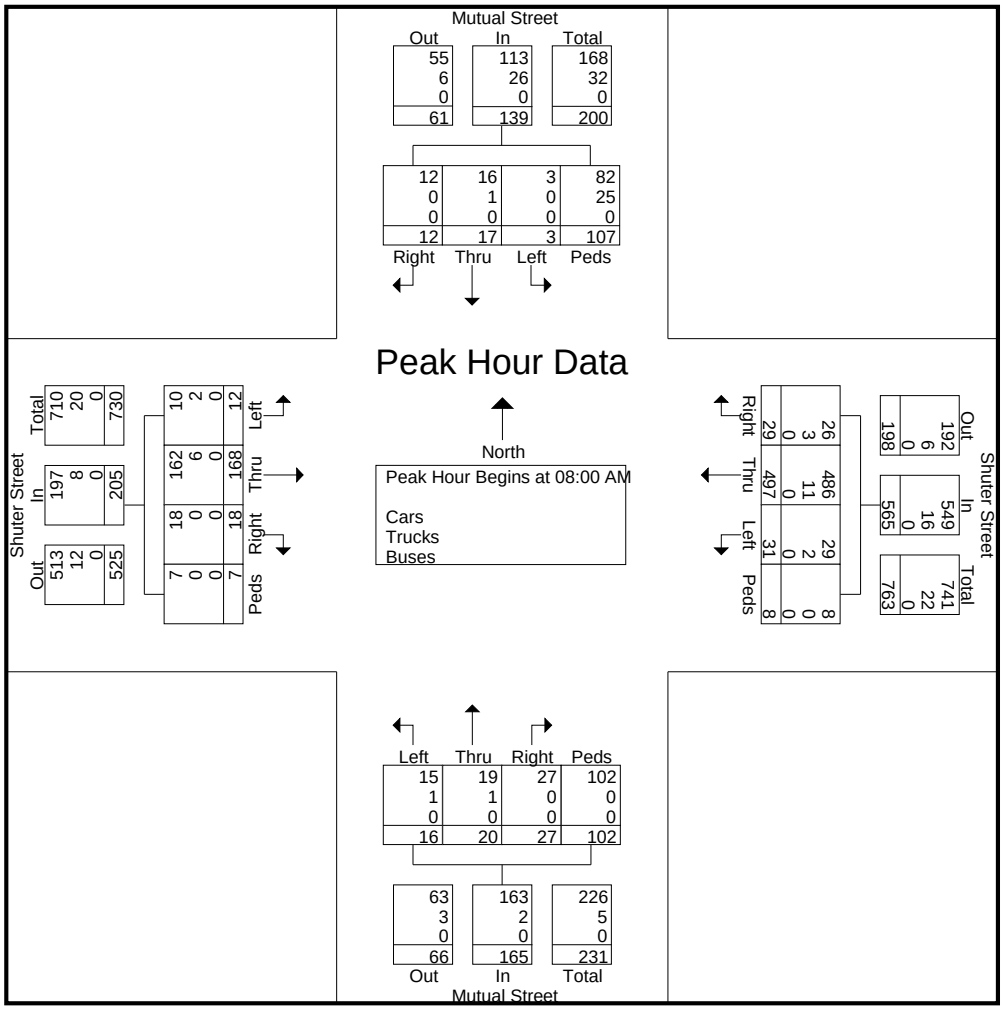
LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

Project No.: 18224
Location: Mutual St & Shuter St
Weather: Raining
Surveyor(s): Tevin Luu & Terence Zeng

File Name : Mutual&Shuter-MERGED-AM
Site Code : 18224026
Start Date : 02/11/2017
Page No : 3

	Mutual Street Southbound					Shuter Street Westbound					Mutual Street Northbound					Shuter Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	1	2	3	**32**	38	3	123	8	2	136	4	**7**	**9**	24	44	2	**49**	1	1	53	271
08:15 AM	0	**7**	**5**	28	**40**	7	**129**	**11**	2	**149**	2	2	5	29	38	2	41	5	2	50	277
08:30 AM	**2**	4	1	22	29	**12**	123	6	1	142	4	7	6	19	36	3	31	4	**3**	41	248
08:45 AM	0	4	3	25	32	9	122	4	**3**	138	**6**	4	7	**30**	**47**	**5**	47	**8**	1	**61**	**278**
Total Volume	3	17	12	107	139	31	497	29	8	565	16	20	27	102	165	12	168	18	7	205	1074
% App. Total	2.2	12.2	8.6	77		5.5	88	5.1	1.4		9.7	12.1	16.4	61.8		5.9	82	8.8	3.4		
PHF	.375	.607	.600	.836	.869	.646	.963	.659	.667	.948	.667	.714	.750	.850	.878	.600	.857	.563	.583	.840	.966
Cars	3	16	12	82	113	29	486	26	8	549	15	19	27	102	163	10	162	18	7	197	1022
% Cars	100	94.1	100	76.6	81.3	93.5	97.8	89.7	100	97.2	93.8	95.0	100	100	98.8	83.3	96.4	100	100	96.1	95.2
Trucks	0	1	0	25	26	2	11	3	0	16	1	1	0	0	2	2	6	0	0	8	52
% Trucks	0	5.9	0	23.4	18.7	6.5	2.2	10.3	0	2.8	6.3	5.0	0	0	1.2	16.7	3.6	0	0	3.9	4.8
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



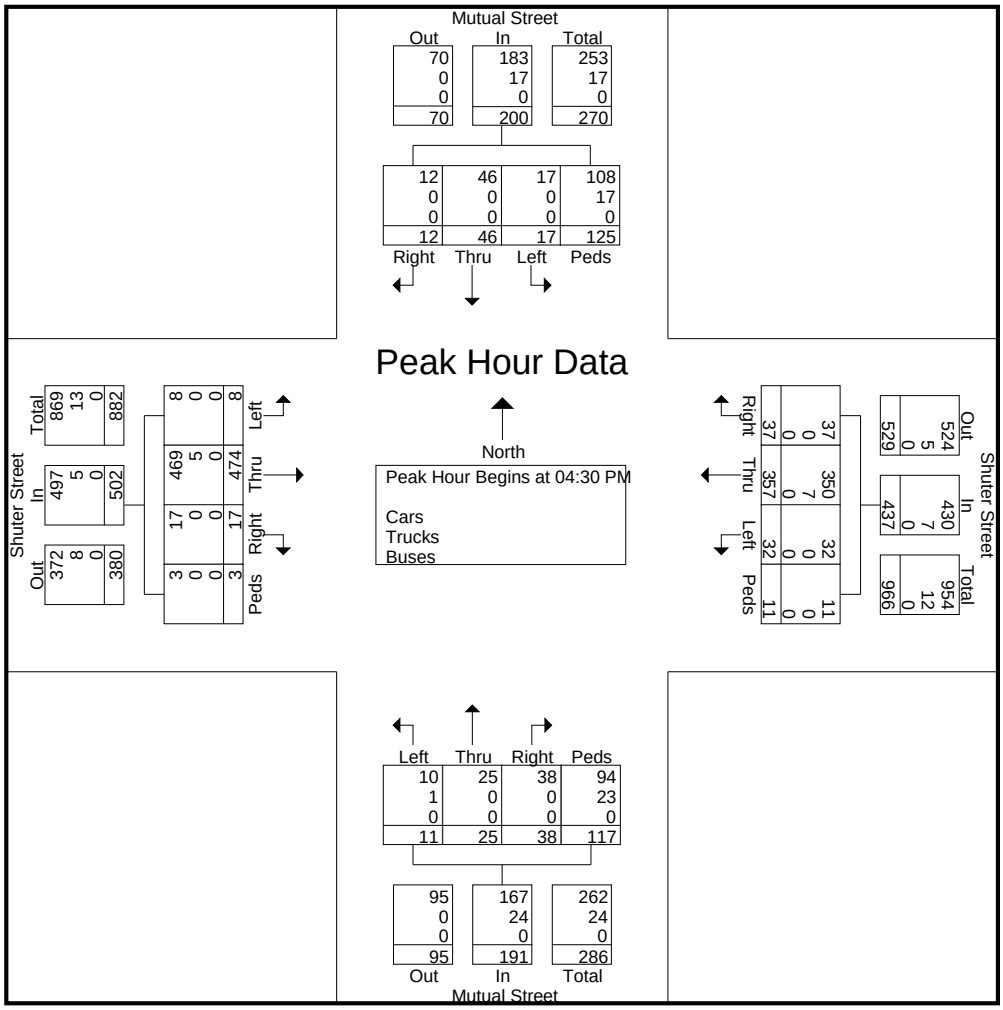
LEA CONSULTING LTD

625 Cochrane Drive 9th Floor
Markham, Ontario, L3R 9R9

Project No.: 18224
Location: Mutual St & Shuter St
Weather: Raining
Surveyor(s): Tevin Luu & Terence Zeng

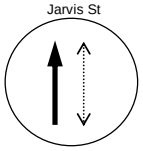
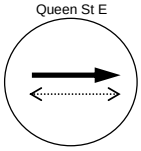
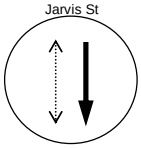
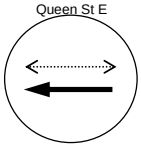
File Name : Mutual&Shuter-MERGED-PM
Site Code : 18224026
Start Date : 02/11/2017
Page No : 3

	Mutual Street Southbound					Shuter Street Westbound					Mutual Street Northbound					Shuter Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	3	6	**4**	29	42	4	87	10	**5**	106	**4**	6	8	**39**	**57**	**5**	119	1	**2**	127	332
04:45 PM	**6**	15	2	24	47	6	87	10	2	105	2	**9**	9	26	46	1	110	**10**	1	122	320
05:00 PM	2	**17**	3	**40**	**62**	9	**98**	**11**	3	**121**	4	4	9	23	40	0	**133**	2	0	**135**	**358**
05:15 PM	6	8	3	32	49	**13**	85	6	1	105	1	6	**12**	29	48	2	112	4	0	118	320
Total Volume	17	46	12	125	200	32	357	37	11	437	11	25	38	117	191	8	474	17	3	502	1330
% App. Total	8.5	23	6	62.5		7.3	81.7	8.5	2.5		5.8	13.1	19.9	61.3		1.6	94.4	3.4	0.6		
PHF	.708	.676	.750	.781	.806	.615	.911	.841	.550	.903	.688	.694	.792	.750	.838	.400	.891	.425	.375	.930	.929
Cars	17	46	12	108	183	32	350	37	11	430	10	25	38	94	167	8	469	17	3	497	1277
% Cars	100	100	100	86.4	91.5	100	98.0	100	100	98.4	90.9	100	100	80.3	87.4	100	98.9	100	100	99.0	96.0
Trucks	0	0	0	17	17	0	7	0	0	7	1	0	0	23	24	0	5	0	0	5	53
% Trucks	0	0	0	13.6	8.5	0	2.0	0	0	1.6	9.1	0	0	19.7	12.6	0	1.1	0	0	1.0	4.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



LOCATION:	**Jarvis St & Queen St E**	*DISTRICT:*	**Toronto & East York**
MODE/COMMENT:	**FXT**	*COMPUTER SYSTEM:*	**TransSuite**
TCS:	**6**	*CONTROLLER/CABINET TYPE:*	**Econolite ASC/3-2100 / TS2T1**
PREPARED/CHECKED BY:	***CIMA+/AD***	*CONFLICT FLASH:*	**Red & Red**
PREPARATION DATE:	**July 31, 2018**	*DESIGN WALK SPEED:*	**1.0m/s (FDW based on full crossing @ 1.2m/s)**
IMPLEMENTATION DATE:	**August 9, 2018**	*CHANNEL/DROP:*	**4024/2**
		CONTROLLER FIRMWARE:	**2.47.10**

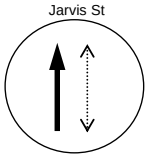
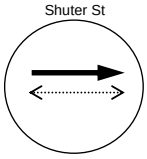
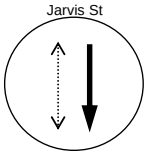
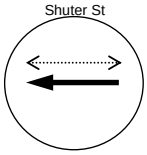
N

NEMA Phase		OFF All Other Times	AM 06:45-09:30 M-F	PM 15:30-18:15 M-F	NGHT 23:00-06:30 Daily	WKND 10:00-19:00 Sat & Sun	Phase Mode (Fixed/Demanded or Callable)	Remarks
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5		
	System Plan	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5		
1 NOT USED	WLK							Pedestrian Minimums: NSWK = 7 sec, NSFD = 13 sec EWWK = 7 sec, EWFD = 16 sec
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
2 Jarvis St 	WLK 7						Fixed	
	FDW 13							
	MIN 20							
	MAX1 32							
	AMB 3							
	ALR 3							
	SPLIT	38	44	48	38	38		
3 NOT USED	WLK							
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
4 Queen St E 	WLK 7						Fixed	
	FDW 16							
	MIN 23							
	MAX1 31							
	AMB 3							
	ALR 3							
	SPLIT	37	36	32	37	37		
5 NOT USED	WLK							
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
6 Jarvis St 	WLK 7						Fixed	
	FDW 13							
	MIN 20							
	MAX1 32							
	AMB 3							
	ALR 3							
	SPLIT	38	44	48	38	38		
7 NOT USED	WLK							
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
8 Queen St E 	WLK 7						Fixed	
	FDW 16							
	MIN 23							
	MAX1 31							
	AMB 3							
	ALR 3							
	SPLIT	37	36	32	37	37		
	CL	75	80	80	75	75		
	OF	41	25	47	47	49		

NOTES:

LOCATION:	**Jarvis St & Shuter St**	*DISTRICT:*	**Toronto & East York**
MODE/COMMENT:	**FXT**	*COMPUTER SYSTEM:*	**TransSuite**
TCS:	**7**	*CONTROLLER/CABINET TYPE:*	**Econolite ASC/3-2100 / TS2T1**
PREPARED/CHECKED BY:	***CIMA+ / SQ***	*CONFLICT FLASH:*	**Red & Red**
PREPARATION DATE:	**July 31, 2018**	*DESIGN WALK SPEED:*	**1.0m/s (FDW based on full crossing @ 1.2m/s)**
IMPLEMENTATION DATE:	**August 13, 2018**	*CHANNEL/DROP:*	**4024/3**

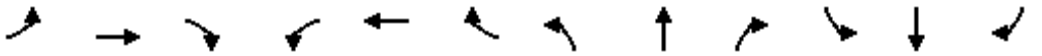
N ↑

NEMA Phase		OFF All Other Times	AM 06:30-09:30 M-F	PM 15:30-19:00 M-F	NGHT 23:00-06:30 Daily	WKND 10:00-19:00 Sat & Sun	Phase Mode (Fixed/Demanded or Callable)	Remarks
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5		
	System Plan	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5		
1 NOT USED	WLK							Pedestrian Minimums: NSWK = 7 sec, NSFD = 15 sec EWWK = 7 sec, EWFD = 17 sec
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
2 Jarvis St 	WLK 7						Fixed	
	FDW 15							
	MIN 22							
	MAX1 28							
	AMB 3							
	ALR 3							
	SPLIT	34	43	45	29	34		
3 NOT USED	WLK							
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
4 Shuter St 	WLK 7						Fixed	
	FDW 17							
	MIN 24							
	MAX1 30							
	AMB 4							
	ALR 2							
	SPLIT	36	33	31	31	36		
5 NOT USED	WLK							
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
6 Jarvis St 	WLK 7						Fixed	
	FDW 15							
	MIN 22							
	MAX1 28							
	AMB 3							
	ALR 3							
	SPLIT	34	43	45	29	34		
7 NOT USED	WLK							
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
8 Shuter St 	WLK 7							
	FDW 17							
	MIN 24							
	MAX1 30							
	AMB 4							
	ALR 2							
	SPLIT	36	33	31	31	36		
	CL	70	76	76	60	70		
	OF	56	19	60	35	58		

NOTES:

APPENDIX C

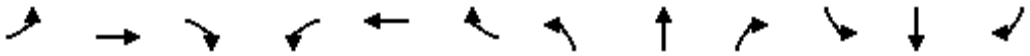
Existing Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	168	18	31	499	29	16	20	27	3	17	12
Future Volume (Veh/h)	12	168	18	31	499	29	16	20	27	3	17	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	12	173	19	32	514	30	16	21	28	3	18	12
Pedestrians		7			8			102			82	
Lane Width (m)		3.5			3.5			3.0			3.0	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			7			6	
Right turn flare (veh)									1			1
Median type		None			None							
Median storage veh)												
Upstream signal (m)					99							
pX, platoon unblocked	0.78						0.78	0.78		0.78	0.78	0.78
vC, conflicting volume	626			294			924	998	292	914	993	618
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	374			294			757	854	292	745	847	364
tC, single (s)	4.3			4.2			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			91	89	96	98	91	98
cM capacity (veh/h)	814			1142			182	191	694	187	192	499

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	204	576	65	33
Volume Left	12	32	16	3
Volume Right	19	30	28	12
cSH	814	1142	328	301
Volume to Capacity	0.01	0.03	0.20	0.11
Queue Length 95th (m)	0.3	0.7	5.5	2.8
Control Delay (s)	0.7	0.8	21.0	21.1
Lane LOS	A	A	C	C
Approach Delay (s)	0.7	0.8	21.0	21.1
Approach LOS			C	C

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	58.4%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	227	4	9	647	5	0	0	1	0	0	1
Future Volume (Veh/h)	3	227	4	9	647	5	0	0	1	0	0	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	3	232	4	9	660	5	0	0	1	0	0	1
Pedestrians		5			4			111			119	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			9			10	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					52							
pX, platoon unblocked	0.74						0.74	0.74		0.74	0.74	0.74
vC, conflicting volume	784			347			1038	1153	349	1044	1152	786
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	530			347			873	1030	349	883	1029	533
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	100	100	100
cM capacity (veh/h)	699			1113			156	141	634	153	141	366

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	239	674	1	1
Volume Left	3	9	0	0
Volume Right	4	5	1	1
cSH	699	1113	634	366
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.1	0.2	0.0	0.1
Control Delay (s)	0.2	0.2	10.7	14.9
Lane LOS	A	A	B	B
Approach Delay (s)	0.2	0.2	10.7	14.9
Approach LOS			B	B

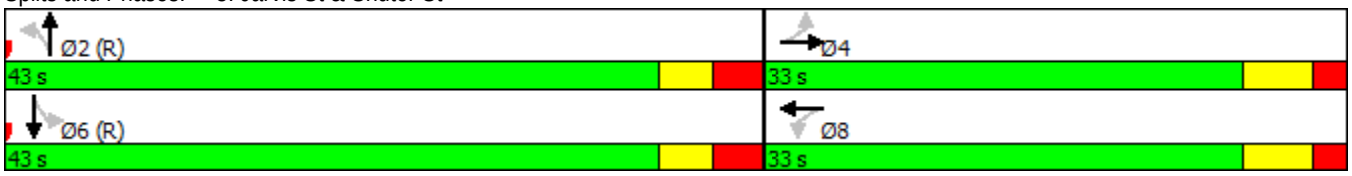
Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	55.6%	ICU Level of Service	B	
Analysis Period (min)	15			

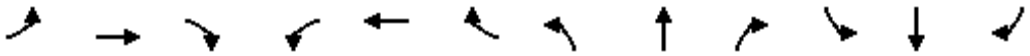
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	51	135	52	437	87	506	58	839
Future Volume (vph)	51	135	52	437	87	506	58	839
Lane Group Flow (vph)	52	181	53	488	0	637	0	1057
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Minimum Split (s)	30.0	30.0	30.0	30.0	28.0	28.0	28.0	28.0
Total Split (s)	33.0	33.0	33.0	33.0	43.0	43.0	43.0	43.0
Total Split (%)	43.4%	43.4%	43.4%	43.4%	56.6%	56.6%	56.6%	56.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	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								
Lead-Lag Optimize?								
v/c Ratio	0.37	0.31	0.16	0.82		0.61		0.57
Control Delay	26.9	16.6	17.7	34.8		16.5		14.0
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	26.9	16.6	17.7	34.8		16.5		14.0
Queue Length 50th (m)	5.4	15.6	5.0	61.1		32.0		34.5
Queue Length 95th (m)	15.7	30.1	12.5	#111.0		48.4		46.3
Internal Link Dist (m)		27.7		104.5		147.2		72.7
Turn Bay Length (m)	26.0		20.0					
Base Capacity (vph)	141	583	338	597		1047		1859
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.37	0.31	0.16	0.82		0.61		0.57

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 76
Offset: 19 (25%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

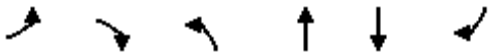
Splits and Phases: 3: Jarvis St & Shuter St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	135	42	52	437	41	87	506	31	58	839	139
Future Volume (vph)	51	135	42	52	437	41	87	506	31	58	839	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.91	
Frpb, ped/bikes	1.00	0.97		1.00	0.99			0.99			0.96	
Flpb, ped/bikes	0.96	1.00		0.92	1.00			0.99			1.00	
Frt	1.00	0.96		1.00	0.99			0.99			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1382	1546		1376	1610			3059			4229	
Flt Permitted	0.26	1.00		0.63	1.00			0.68			0.86	
Satd. Flow (perm)	382	1546		919	1610			2085			3665	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	52	138	43	53	446	42	89	516	32	59	856	142
RTOR Reduction (vph)	0	15	0	0	4	0	0	5	0	0	28	0
Lane Group Flow (vph)	52	166	0	53	484	0	0	632	0	0	1030	0
Confl. Peds. (#/hr)	122		114	114		122	168		86	86		168
Confl. Bikes (#/hr)			5			38			1			5
Heavy Vehicles (%)	5%	2%	4%	1%	1%	17%	5%	1%	6%	6%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	27.0	27.0		27.0	27.0			37.0			37.0	
Effective Green, g (s)	28.0	28.0		28.0	28.0			38.0			38.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37			0.50			0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	140	569		338	593			1042			1832	
v/s Ratio Prot		0.11			c0.30							
v/s Ratio Perm	0.14			0.06				c0.30			0.28	
v/c Ratio	0.37	0.29		0.16	0.82			0.61			0.56	
Uniform Delay, d1	17.6	17.0		16.1	21.7			13.6			13.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	7.4	1.3		1.0	11.8			2.6			1.3	
Delay (s)	25.0	18.3		17.1	33.4			16.3			14.5	
Level of Service	C	B		B	C			B			B	
Approach Delay (s)		19.8			31.8			16.3			14.5	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	4	623	935	4
Future Volume (Veh/h)	0	1	4	623	935	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	1	4	649	974	4
Pedestrians	120					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	10					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				46	171	
pX, platoon unblocked	0.90	0.95	0.95			
vC, conflicting volume	1428	447	1098			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	924	232	918			
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)	220	666	644			

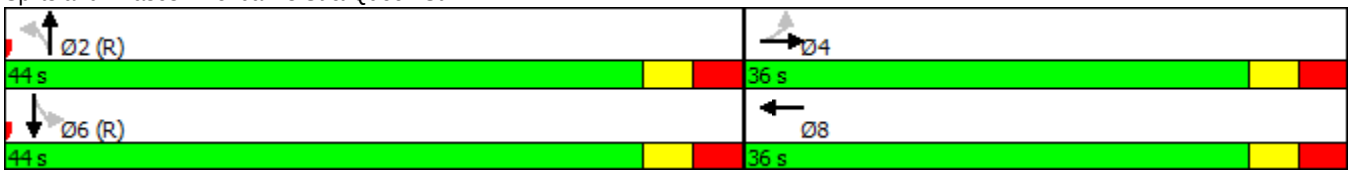
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	1	220	433	390	390	199
Volume Left	0	4	0	0	0	0
Volume Right	1	0	0	0	0	4
cSH	666	644	1700	1700	1700	1700
Volume to Capacity	0.00	0.01	0.25	0.23	0.23	0.12
Queue Length 95th (m)	0.0	0.1	0.0	0.0	0.0	0.0
Control Delay (s)	10.4	0.3	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	10.4	0.1		0.0		
Approach LOS	B					

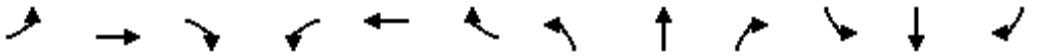
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	32.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	2	252	680	1	582	1	848
Future Volume (vph)	2	252	680	1	582	1	848
Lane Group Flow (vph)	0	313	755	0	641	0	982
Turn Type	Perm	NA	NA	Perm	NA	Perm	NA
Protected Phases		4	8		2		6
Permitted Phases	4			2		6	
Minimum Split (s)	29.0	29.0	29.0	26.0	26.0	26.0	26.0
Total Split (s)	36.0	36.0	36.0	44.0	44.0	44.0	44.0
Total Split (%)	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%
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
Total Lost Time (s)		5.0	5.0		5.0		5.0
Lead/Lag							
Lead-Lag Optimize?							
v/c Ratio		0.31	0.66		0.45		0.49
Control Delay		16.4	23.2		14.5		14.3
Queue Delay		0.0	0.0		0.0		0.0
Total Delay		16.4	23.2		14.5		14.3
Queue Length 50th (m)		15.2	47.8		31.3		33.5
Queue Length 95th (m)		24.6	66.4		44.4		44.1
Internal Link Dist (m)		74.2	106.7		44.0		21.7
Turn Bay Length (m)							
Base Capacity (vph)		994	1149		1427		2017
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		0.31	0.66		0.45		0.49

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 25 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Pretimed

Splits and Phases: 5: Jarvis St & Queen St E

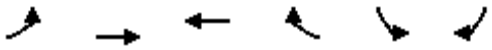




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	252	46	0	680	45	1	582	33	1	848	94
Future Volume (vph)	2	252	46	0	680	45	1	582	33	1	848	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.97			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.99			0.99			0.99	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		2647			2949			3058			4365	
Flt Permitted		0.95			1.00			0.95			0.94	
Satd. Flow (perm)		2519			2949			2918			4102	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	262	48	0	708	47	1	606	34	1	883	98
RTOR Reduction (vph)	0	18	0	0	6	0	0	5	0	0	17	0
Lane Group Flow (vph)	0	295	0	0	749	0	0	636	0	0	965	0
Confl. Peds. (#/hr)	133		206	206		133	155		151	151		155
Confl. Bikes (#/hr)			8			13			1			11
Heavy Vehicles (%)	0%	12%	0%	0%	4%	6%	0%	3%	6%	0%	2%	3%
Bus Blockages (#/hr)	0	19	0	0	13	0	0	0	0	0	0	1
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4						2			6		
Actuated Green, G (s)		30.0			30.0			38.0			38.0	
Effective Green, g (s)		31.0			31.0			39.0			39.0	
Actuated g/C Ratio		0.39			0.39			0.49			0.49	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		976			1142			1422			1999	
v/s Ratio Prot					c0.25							
v/s Ratio Perm		0.12						0.22			c0.24	
v/c Ratio		0.30			0.66			0.45			0.48	
Uniform Delay, d1		17.0			20.1			13.4			13.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.8			2.9			1.0			0.8	
Delay (s)		17.8			23.1			14.5			14.6	
Level of Service		B			C			B			B	
Approach Delay (s)		17.8			23.1			14.5			14.6	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	266	713	47	25	68
Future Volume (Veh/h)	31	266	713	47	25	68
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	32	274	735	48	26	70
Pedestrians		4	13		129	
Lane Width (m)		3.5	3.5		3.0	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	1		9	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			98			
pX, platoon unblocked	0.82				0.82	0.82
vC, conflicting volume	912				1102	524
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	460				691	0
tC, single (s)	4.2				7.0	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	96				90	91
cM capacity (veh/h)	816				260	809

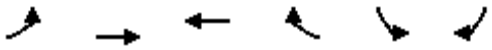
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	123	183	490	293	26	70
Volume Left	32	0	0	0	26	0
Volume Right	0	0	0	48	0	70
cSH	816	1700	1700	1700	260	809
Volume to Capacity	0.04	0.11	0.29	0.17	0.10	0.09
Queue Length 95th (m)	0.9	0.0	0.0	0.0	2.5	2.2
Control Delay (s)	2.8	0.0	0.0	0.0	20.4	9.9
Lane LOS	A				C	A
Approach Delay (s)	1.1		0.0		12.7	
Approach LOS					B	

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	3	90	3	2	84
Future Volume (Veh/h)	9	3	90	3	2	84
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	11	4	113	4	3	105
Pedestrians	31		4			4
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	261	150			148	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	261	150			148	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	710	876			1410	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	15	117	108
Volume Left	11	0	3
Volume Right	4	4	0
cSH	748	1700	1410
Volume to Capacity	0.02	0.07	0.00
Queue Length 95th (m)	0.5	0.0	0.0
Control Delay (s)	9.9	0.0	0.2
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	0.2
Approach LOS	A		

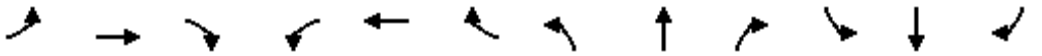
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	21.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	1	6	2	0	3
Future Volume (Veh/h)	3	1	6	2	0	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	4	1	8	3	0	4
Pedestrians			2		2	
Lane Width (m)			3.5		3.5	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	13				22	12
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				22	12
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1616				993	1073

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	5	11	4
Volume Left	4	0	0
Volume Right	0	3	4
cSH	1616	1700	1073
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	5.8	0.0	8.4
Lane LOS	A		A
Approach Delay (s)	5.8	0.0	8.4
Approach LOS			A

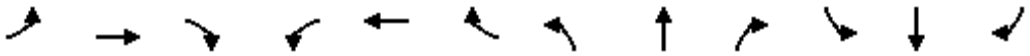
Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	14.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	476	17	32	358	37	11	25	38	17	46	12
Future Volume (Veh/h)	8	476	17	32	358	37	11	25	38	17	46	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	9	512	18	34	385	40	12	27	41	18	49	13
Pedestrians		3			11			94			108	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			8			9	
Right turn flare (veh)									1			1
Median type		None			None							
Median storage veh)												
Upstream signal (m)					99							
pX, platoon unblocked	0.91						0.91	0.91		0.91	0.91	0.91
vC, conflicting volume	533			624			1140	1234	626	1165	1223	516
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	434			624			1103	1207	626	1131	1195	415
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			87	80	91	82	64	98
cM capacity (veh/h)	941			893			92	135	447	98	137	530

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	539	459	80	80
Volume Left	9	34	12	18
Volume Right	18	40	41	13
cSH	941	893	220	146
Volume to Capacity	0.01	0.04	0.36	0.55
Queue Length 95th (m)	0.2	0.9	12.0	20.7
Control Delay (s)	0.3	1.1	30.5	55.9
Lane LOS	A	A	D	F
Approach Delay (s)	0.3	1.1	30.5	55.9
Approach LOS			D	F

Intersection Summary				
Average Delay	6.5			
Intersection Capacity Utilization	61.9%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	566	1	0	521	3	2	0	8	2	0	5
Future Volume (Veh/h)	5	566	1	0	521	3	2	0	8	2	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	5	602	1	0	554	3	2	0	9	2	0	5
Pedestrians		1			1			113			150	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			9			12	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					52							
pX, platoon unblocked	0.82						0.82	0.82		0.82	0.82	0.82
vC, conflicting volume	707			716			1287	1432	716	1328	1432	706
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	538			716			1242	1418	716	1291	1417	538
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			98	100	98	98	100	99
cM capacity (veh/h)	753			812			95	90	393	84	90	396

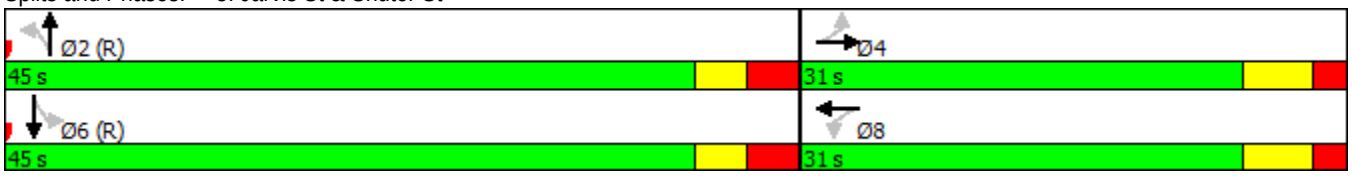
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	608	557	11	7
Volume Left	5	0	2	2
Volume Right	1	3	9	5
cSH	753	812	250	192
Volume to Capacity	0.01	0.00	0.04	0.04
Queue Length 95th (m)	0.2	0.0	1.0	0.9
Control Delay (s)	0.2	0.0	20.0	24.4
Lane LOS	A		C	C
Approach Delay (s)	0.2	0.0	20.0	24.4
Approach LOS			C	C

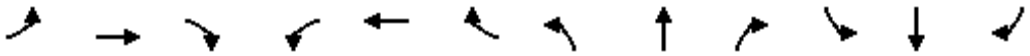
Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	47.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	128	421	26	289	155	659	56	201
Future Volume (vph)	128	421	26	289	155	659	56	201
Lane Group Flow (vph)	136	479	28	370	0	950	0	360
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Minimum Split (s)	30.0	30.0	30.0	30.0	28.0	28.0	28.0	28.0
Total Split (s)	31.0	31.0	31.0	31.0	45.0	45.0	45.0	45.0
Total Split (%)	40.8%	40.8%	40.8%	40.8%	59.2%	59.2%	59.2%	59.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	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								
Lead-Lag Optimize?								
v/c Ratio	0.74	0.84	0.24	0.67		0.53		0.33
Control Delay	48.6	38.8	24.4	27.6		12.7		8.8
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	48.6	38.8	24.4	27.6		12.7		8.8
Queue Length 50th (m)	16.9	61.9	2.8	42.8		29.4		10.7
Queue Length 95th (m)	#45.1	#112.6	9.5	71.4		40.0		18.8
Internal Link Dist (m)		27.7		104.5		148.1		72.7
Turn Bay Length (m)	26.0		20.0					
Base Capacity (vph)	185	568	117	551		1802		1084
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.74	0.84	0.24	0.67		0.53		0.33

Intersection Summary
Cycle Length: 76
Actuated Cycle Length: 76
Offset: 60 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

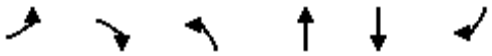
Splits and Phases: 3: Jarvis St & Shuter St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	421	29	26	289	59	155	659	79	56	201	81
Future Volume (vph)	128	421	29	26	289	59	155	659	79	56	201	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.97			0.98			0.91	
Flpb, ped/bikes	0.92	1.00		0.95	1.00			0.96			0.99	
Frt	1.00	0.99		1.00	0.97			0.99			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1370	1654		1347	1584			4243			2710	
Flt Permitted	0.38	1.00		0.24	1.00			0.79			0.73	
Satd. Flow (perm)	542	1654		343	1584			3396			1986	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	136	448	31	28	307	63	165	701	84	60	214	86
RTOR Reduction (vph)	0	3	0	0	10	0	0	15	0	0	39	0
Lane Group Flow (vph)	136	476	0	28	360	0	0	935	0	0	321	0
Confl. Peds. (#/hr)	165		140	140		165	204		124	124		204
Confl. Bikes (#/hr)			38			10			11			6
Heavy Vehicles (%)	2%	0%	3%	7%	1%	1%	1%	0%	2%	5%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.0	25.0		25.0	25.0			39.0			39.0	
Effective Green, g (s)	26.0	26.0		26.0	26.0			40.0			40.0	
Actuated g/C Ratio	0.34	0.34		0.34	0.34			0.53			0.53	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	185	565		117	541			1787			1045	
v/s Ratio Prot		c0.29			0.23							
v/s Ratio Perm	0.25			0.08				c0.28			0.16	
v/c Ratio	0.74	0.84		0.24	0.67			0.52			0.31	
Uniform Delay, d1	22.0	23.1		17.9	21.3			11.8			10.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	22.7	14.2		4.8	6.4			1.1			0.8	
Delay (s)	44.7	37.3		22.7	27.7			12.9			10.9	
Level of Service	D	D		C	C			B			B	
Approach Delay (s)		38.9			27.3			12.9			10.9	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	102.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	3	4	874	152	3
Future Volume (Veh/h)	0	3	4	874	152	3
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	3	4	971	169	3
Pedestrians	138				2	
Lane Width (m)	3.5				3.5	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	11				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				45	172	
pX, platoon unblocked						
vC, conflicting volume	642	224	310			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	642	224	310			
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	100			
cM capacity (veh/h)	363	698	1121			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	3	198	388	388	113	59
Volume Left	0	4	0	0	0	0
Volume Right	3	0	0	0	0	3
cSH	698	1121	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.23	0.23	0.07	0.03
Queue Length 95th (m)	0.1	0.1	0.0	0.0	0.0	0.0
Control Delay (s)	10.2	0.2	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	10.2	0.0			0.0	
Approach LOS	B					

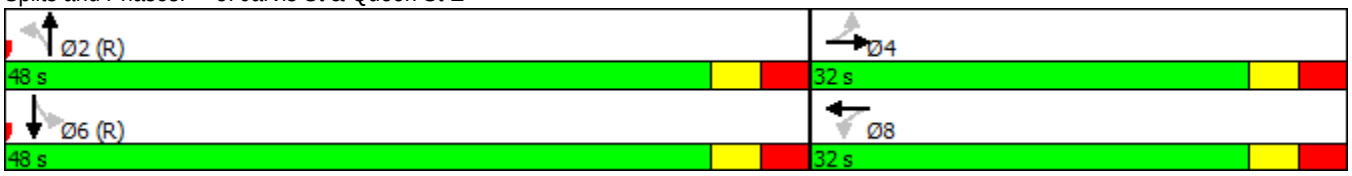
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	31.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	431	1	481	16	700	7	109
Future Volume (vph)	4	431	1	481	16	700	7	109
Lane Group Flow (vph)	0	529	0	732	0	859	0	172
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Minimum Split (s)	29.0	29.0	29.0	29.0	26.0	26.0	26.0	26.0
Total Split (s)	32.0	32.0	32.0	32.0	48.0	48.0	48.0	48.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
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								
Lead-Lag Optimize?								
v/c Ratio		0.58		0.80		0.54		0.12
Control Delay		24.4		29.8		13.5		8.5
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		24.4		29.8		13.5		8.5
Queue Length 50th (m)		33.4		48.2		41.0		5.6
Queue Length 95th (m)		49.0		#70.9		56.6		10.3
Internal Link Dist (m)		74.2		106.7		44.0		20.8
Turn Bay Length (m)								
Base Capacity (vph)		909		920		1577		1415
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		0.58		0.80		0.54		0.12

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 47 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

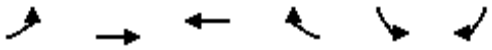
Splits and Phases: 5: Jarvis St & Queen St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	431	41	1	481	177	16	700	57	7	109	39
Future Volume (vph)	4	431	41	1	481	177	16	700	57	7	109	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
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		0.97			0.93			0.98			0.93	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.96			0.99			0.96	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		2810			2733			3078			2841	
Flt Permitted		0.95			0.95			0.95			0.92	
Satd. Flow (perm)		2669			2609			2921			2619	
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)	4	479	46	1	534	197	18	778	63	8	121	43
RTOR Reduction (vph)	0	9	0	0	40	0	0	7	0	0	8	0
Lane Group Flow (vph)	0	520	0	0	692	0	0	852	0	0	164	0
Confl. Peds. (#/hr)	239		274	274		239	212		189	189		212
Confl. Bikes (#/hr)			24			7			6			3
Heavy Vehicles (%)	25%	6%	0%	0%	3%	0%	0%	1%	0%	0%	1%	2%
Bus Blockages (#/hr)	0	19	0	0	13	0	0	0	1	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		26.0			26.0			42.0			42.0	
Effective Green, g (s)		27.0			27.0			43.0			43.0	
Actuated g/C Ratio		0.34			0.34			0.54			0.54	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		900			880			1570			1407	
v/s Ratio Prot												
v/s Ratio Perm		0.19			c0.27			c0.29			0.06	
v/c Ratio		0.58			0.79			0.54			0.12	
Uniform Delay, d1		21.8			23.9			12.1			9.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.7			7.0			1.4			0.2	
Delay (s)		24.5			30.9			13.4			9.3	
Level of Service		C			C			B			A	
Approach Delay (s)		24.5			30.9			13.4			9.3	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	48	362	470	58	88	90
Future Volume (Veh/h)	48	362	470	58	88	90
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)	53	402	522	64	98	100
Pedestrians		4	7		242	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	1		20	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			98			
pX, platoon unblocked						
vC, conflicting volume	828				1110	539
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	828				1110	539
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				35	75
cM capacity (veh/h)	653				151	394

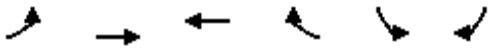
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	187	268	348	238	98	100
Volume Left	53	0	0	0	98	0
Volume Right	0	0	0	64	0	100
cSH	653	1700	1700	1700	151	394
Volume to Capacity	0.08	0.16	0.20	0.14	0.65	0.25
Queue Length 95th (m)	2.0	0.0	0.0	0.0	27.4	7.5
Control Delay (s)	3.8	0.0	0.0	0.0	65.1	17.2
Lane LOS	A				F	C
Approach Delay (s)	1.6		0.0		40.9	
Approach LOS					E	

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	4	110	2	5	61
Future Volume (Veh/h)	12	4	110	2	5	61
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	4	120	2	5	66
Pedestrians	36		12			2
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		1			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	245	159			158	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	245	159			158	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	716	864			1392	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	122	71
Volume Left	13	0	5
Volume Right	4	2	0
cSH	746	1700	1392
Volume to Capacity	0.02	0.07	0.00
Queue Length 95th (m)	0.5	0.0	0.1
Control Delay (s)	9.9	0.0	0.6
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	0.6
Approach LOS	A		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		



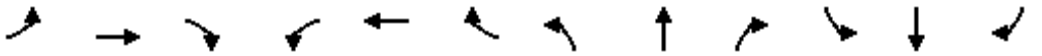
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	2	7	1	1	7
Future Volume (Veh/h)	3	2	7	1	1	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	4	3	9	1	1	9
Pedestrians		2	2			
Lane Width (m)		3.5	3.5			
Walking Speed (m/s)		1.2	1.2			
Percent Blockage		0	0			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	10				22	12
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	10				22	12
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1623				995	1073

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	7	10	10
Volume Left	4	0	1
Volume Right	0	1	9
cSH	1623	1700	1065
Volume to Capacity	0.00	0.01	0.01
Queue Length 95th (m)	0.1	0.0	0.2
Control Delay (s)	4.1	0.0	8.4
Lane LOS	A		A
Approach Delay (s)	4.1	0.0	8.4
Approach LOS			A

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	14.0%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX D

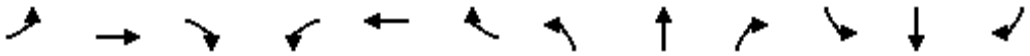
Future Background Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	214	18	61	521	36	16	24	107	17	21	19
Future Volume (Veh/h)	15	214	18	61	521	36	16	24	107	17	21	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	15	221	19	63	537	37	16	25	110	18	22	20
Pedestrians		7			8			102			82	
Lane Width (m)		3.5			3.5			3.0			3.0	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			7			6	
Right turn flare (veh)									1			1
Median type		None			None							
Median storage veh)												
Upstream signal (m)					99							
pX, platoon unblocked	0.72						0.72	0.72		0.72	0.72	0.72
vC, conflicting volume	656			342			1072	1144	340	1100	1136	644
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	327			342			905	1006	340	943	993	311
tC, single (s)	4.3			4.2			7.2	6.5	6.2	7.1	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.3			3.6	4.0	3.3	3.5	4.1	3.3
p0 queue free %	98			94			87	82	83	82	84	96
cM capacity (veh/h)	782			1091			122	139	652	101	141	495

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	255	637	151	60
Volume Left	15	63	16	18
Volume Right	19	37	110	20
cSH	782	1091	401	172
Volume to Capacity	0.02	0.06	0.38	0.35
Queue Length 95th (m)	0.4	1.4	13.1	11.0
Control Delay (s)	0.8	1.5	19.3	36.7
Lane LOS	A	A	C	E
Approach Delay (s)	0.8	1.5	19.3	36.7
Approach LOS			C	E

Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	71.5%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	357	8	11	690	8	10	0	6	6	0	7
Future Volume (Veh/h)	3	357	8	11	690	8	10	0	6	6	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	3	364	8	11	704	8	10	0	6	6	0	7
Pedestrians		5			4			111			119	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			9			10	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					52							
pX, platoon unblocked	0.68						0.68	0.68		0.68	0.68	0.68
vC, conflicting volume	831			483			1227	1338	483	1233	1338	832
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	510			483			1096	1260	483	1105	1260	512
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			90	100	99	94	100	98
cM capacity (veh/h)	651			992			99	94	533	98	94	344

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	375	723	16	13
Volume Left	3	11	10	6
Volume Right	8	8	6	7
cSH	651	992	142	159
Volume to Capacity	0.00	0.01	0.11	0.08
Queue Length 95th (m)	0.1	0.3	2.8	2.0
Control Delay (s)	0.1	0.3	33.5	29.7
Lane LOS	A	A	D	D
Approach Delay (s)	0.1	0.3	33.5	29.7
Approach LOS			D	D

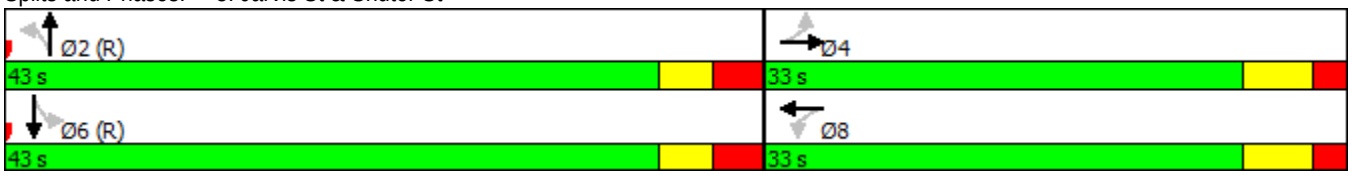
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

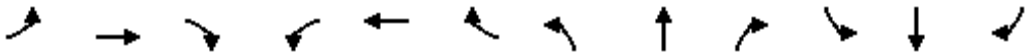
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	86	195	72	480	89	525	68	875
Future Volume (vph)	86	195	72	480	89	525	68	875
Lane Group Flow (vph)	88	294	73	552	0	674	0	1106
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Minimum Split (s)	30.0	30.0	30.0	30.0	28.0	28.0	28.0	28.0
Total Split (s)	33.0	33.0	33.0	33.0	43.0	43.0	43.0	43.0
Total Split (%)	43.4%	43.4%	43.4%	43.4%	56.6%	56.6%	56.6%	56.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	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								
Lead-Lag Optimize?								
v/c Ratio	0.86	0.51	0.28	0.94		0.66		0.61
Control Delay	87.6	20.0	20.5	50.7		17.9		14.7
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	87.6	20.0	20.5	50.7		17.9		14.7
Queue Length 50th (m)	11.4	27.9	7.2	74.0		35.1		37.4
Queue Length 95th (m)	#37.6	49.8	17.3	#135.0		53.4		50.1
Internal Link Dist (m)		27.7		104.5		147.2		72.7
Turn Bay Length (m)	26.0		20.0					
Base Capacity (vph)	102	576	264	586		1016		1822
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.86	0.51	0.28	0.94		0.66		0.61

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 76
Offset: 19 (25%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

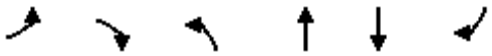
Splits and Phases: 3: Jarvis St & Shuter St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	195	93	72	480	61	89	525	46	68	875	141
Future Volume (vph)	86	195	93	72	480	61	89	525	46	68	875	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.91	
Frpb, ped/bikes	1.00	0.96		1.00	0.98			0.99			0.96	
Flpb, ped/bikes	0.96	1.00		0.93	1.00			0.99			1.00	
Frt	1.00	0.95		1.00	0.98			0.99			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1379	1502		1389	1577			3014			4225	
Flt Permitted	0.19	1.00		0.49	1.00			0.66			0.85	
Satd. Flow (perm)	279	1502		716	1577			2017			3592	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	88	199	95	73	490	62	91	536	47	69	893	144
RTOR Reduction (vph)	0	23	0	0	6	0	0	7	0	0	26	0
Lane Group Flow (vph)	88	271	0	73	546	0	0	667	0	0	1080	0
Confl. Peds. (#/hr)	122		114	114		122	168		86	86		168
Confl. Bikes (#/hr)			5			38			1			5
Heavy Vehicles (%)	6%	2%	5%	2%	2%	17%	6%	2%	6%	7%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	27.0	27.0		27.0	27.0			37.0			37.0	
Effective Green, g (s)	28.0	28.0		28.0	28.0			38.0			38.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37			0.50			0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	102	553		263	581			1008			1796	
v/s Ratio Prot		0.18			c0.35							
v/s Ratio Perm	0.32			0.10				c0.33			0.30	
v/c Ratio	0.86	0.49		0.28	0.94			0.66			0.60	
Uniform Delay, d1	22.2	18.5		16.9	23.2			14.2			13.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	57.5	3.1		2.6	25.2			3.4			1.5	
Delay (s)	79.7	21.6		19.5	48.4			17.6			15.1	
Level of Service	E	C		B	D			B			B	
Approach Delay (s)		35.0			45.0			17.6			15.1	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	115.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	5	5	661	1044	4
Future Volume (Veh/h)	0	5	5	661	1044	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	5	5	689	1088	4
Pedestrians	120					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	10					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				46	171	
pX, platoon unblocked	0.90	0.94	0.94			
vC, conflicting volume	1564	485	1212			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	997	228	1002			
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	99	99			
cM capacity (veh/h)	196	662	593			

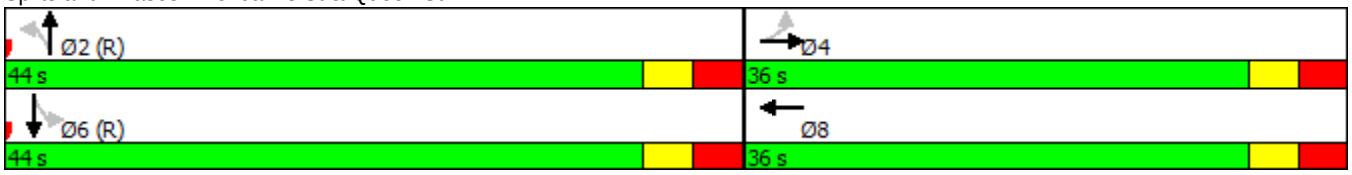
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	5	235	459	435	435	222
Volume Left	0	5	0	0	0	0
Volume Right	5	0	0	0	0	4
cSH	662	593	1700	1700	1700	1700
Volume to Capacity	0.01	0.01	0.27	0.26	0.26	0.13
Queue Length 95th (m)	0.2	0.2	0.0	0.0	0.0	0.0
Control Delay (s)	10.5	0.3	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	10.5	0.1		0.0		
Approach LOS	B					

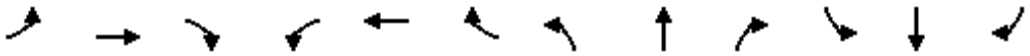
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	34.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	2	313	702	1	619	1	958
Future Volume (vph)	2	313	702	1	619	1	958
Lane Group Flow (vph)	0	385	780	0	680	0	1098
Turn Type	Perm	NA	NA	Perm	NA	Perm	NA
Protected Phases		4	8		2		6
Permitted Phases	4			2		6	
Minimum Split (s)	29.0	29.0	29.0	26.0	26.0	26.0	26.0
Total Split (s)	36.0	36.0	36.0	44.0	44.0	44.0	44.0
Total Split (%)	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%
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
Total Lost Time (s)		5.0	5.0		5.0		5.0
Lead/Lag							
Lead-Lag Optimize?							
v/c Ratio		0.39	0.69		0.48		0.54
Control Delay		17.7	24.0		14.9		15.1
Queue Delay		0.0	0.0		0.0		0.0
Total Delay		17.7	24.0		14.9		15.1
Queue Length 50th (m)		19.8	50.1		33.9		39.3
Queue Length 95th (m)		31.1	69.5		47.7		51.0
Internal Link Dist (m)		74.2	106.7		44.0		21.7
Turn Bay Length (m)							
Base Capacity (vph)		995	1138		1428		2021
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		0.39	0.69		0.48		0.54

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 25 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Pretimed

Splits and Phases: 5: Jarvis St & Queen St E

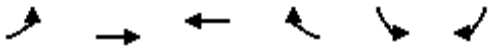




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	313	55	0	702	47	1	619	33	1	958	95
Future Volume (vph)	2	313	55	0	702	47	1	619	33	1	958	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.97			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.99			0.99			0.99	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		2651			2920			3062			4381	
Flt Permitted		0.95			1.00			0.95			0.94	
Satd. Flow (perm)		2524			2920			2921			4117	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	326	57	0	731	49	1	645	34	1	998	99
RTOR Reduction (vph)	0	17	0	0	6	0	0	5	0	0	15	0
Lane Group Flow (vph)	0	368	0	0	774	0	0	675	0	0	1083	0
Confl. Peds. (#/hr)	133		206	206		133	155		151	151		155
Confl. Bikes (#/hr)			8			13			1			11
Heavy Vehicles (%)	0%	12%	0%	0%	5%	7%	0%	3%	6%	0%	2%	3%
Bus Blockages (#/hr)	0	19	0	0	13	0	0	0	0	0	0	1
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4						2			6		
Actuated Green, G (s)		30.0			30.0			38.0			38.0	
Effective Green, g (s)		31.0			31.0			39.0			39.0	
Actuated g/C Ratio		0.39			0.39			0.49			0.49	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		978			1131			1423			2007	
v/s Ratio Prot					c0.27							
v/s Ratio Perm		0.15						0.23			c0.26	
v/c Ratio		0.38			0.68			0.47			0.54	
Uniform Delay, d1		17.6			20.4			13.7			14.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			3.4			1.1			1.0	
Delay (s)		18.7			23.8			14.8			15.3	
Level of Service		B			C			B			B	
Approach Delay (s)		18.7			23.8			14.8			15.3	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

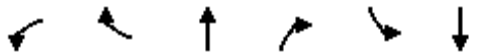
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	97	296	738	47	66	120
Future Volume (Veh/h)	97	296	738	47	66	120
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	100	305	761	48	68	124
Pedestrians		4	13		129	
Lane Width (m)		3.5	3.5		3.0	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	1		9	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			98			
pX, platoon unblocked	0.81				0.81	0.81
vC, conflicting volume	938				1280	538
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	456				877	0
tC, single (s)	4.2				7.0	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	88				62	84
cM capacity (veh/h)	808				177	795

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	202	203	507	302	68	124
Volume Left	100	0	0	0	68	0
Volume Right	0	0	0	48	0	124
cSH	808	1700	1700	1700	177	795
Volume to Capacity	0.12	0.12	0.30	0.18	0.38	0.16
Queue Length 95th (m)	3.2	0.0	0.0	0.0	12.7	4.2
Control Delay (s)	5.7	0.0	0.0	0.0	37.5	10.4
Lane LOS	A				E	B
Approach Delay (s)	2.8		0.0		20.0	
Approach LOS					C	

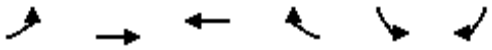
Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	18	3	168	6	2	189
Future Volume (Veh/h)	18	3	168	6	2	189
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	23	4	210	8	3	236
Pedestrians	31		4			4
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	491	249			249	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	491	249			249	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			100	
cM capacity (veh/h)	524	772			1295	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	27	218	239
Volume Left	23	0	3
Volume Right	4	8	0
cSH	550	1700	1295
Volume to Capacity	0.05	0.13	0.00
Queue Length 95th (m)	1.2	0.0	0.1
Control Delay (s)	11.9	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	11.9	0.0	0.1
Approach LOS	B		

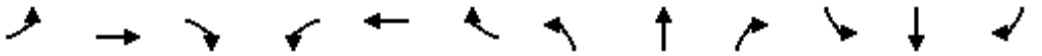
Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization		24.1%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	1	6	3	4	12
Future Volume (Veh/h)	6	1	6	3	4	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	8	1	8	4	5	15
Pedestrians			2		2	
Lane Width (m)			3.5		3.5	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	14				31	12
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	14				31	12
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1615				980	1073

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	9	12	20
Volume Left	8	0	5
Volume Right	0	4	15
cSH	1615	1700	1048
Volume to Capacity	0.00	0.01	0.02
Queue Length 95th (m)	0.1	0.0	0.4
Control Delay (s)	6.4	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	6.4	0.0	8.5
Approach LOS			A

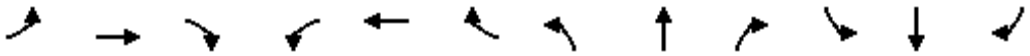
Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	513	38	73	393	47	11	30	101	30	71	12
Future Volume (Veh/h)	8	513	38	73	393	47	11	30	101	30	71	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	9	552	41	78	423	51	12	32	109	32	76	13
Pedestrians		3			11			94			108	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			8			9	
Right turn flare (veh)									1			1
Median type		None			None							
Median storage veh)												
Upstream signal (m)					99							
pX, platoon unblocked	0.85						0.85	0.85		0.85	0.85	0.85
vC, conflicting volume	582			687			1336	1422	678	1384	1418	560
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	416			687			1307	1408	678	1364	1403	389
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			91			52	64	74	25	16	97
cM capacity (veh/h)	892			847			25	90	418	43	91	511

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	602	552	153	121
Volume Left	9	78	12	32
Volume Right	41	51	109	13
cSH	892	847	195	76
Volume to Capacity	0.01	0.09	0.78	1.60
Queue Length 95th (m)	0.2	2.3	40.9	77.0
Control Delay (s)	0.3	2.4	69.0	415.0
Lane LOS	A	A	F	F
Approach Delay (s)	0.3	2.4	69.0	415.0
Approach LOS			F	F

Intersection Summary				
Average Delay	43.6			
Intersection Capacity Utilization	87.4%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	665	8	3	596	7	7	0	10	4	0	8
Future Volume (Veh/h)	10	665	8	3	596	7	7	0	10	4	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	11	707	9	3	634	7	7	0	11	4	0	9
Pedestrians		1			1			113			150	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			9			12	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					52							
pX, platoon unblocked	0.78						0.78	0.78		0.78	0.78	0.78
vC, conflicting volume	791			829			1500	1644	826	1539	1644	788
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	588			829			1500	1685	826	1550	1686	585
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			88	100	97	92	100	97
cM capacity (veh/h)	681			737			58	58	341	51	58	351

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	727	644	18	13
Volume Left	11	3	7	4
Volume Right	9	7	11	9
cSH	681	737	118	126
Volume to Capacity	0.02	0.00	0.15	0.10
Queue Length 95th (m)	0.4	0.1	4.0	2.6
Control Delay (s)	0.4	0.1	41.0	36.9
Lane LOS	A	A	E	E
Approach Delay (s)	0.4	0.1	41.0	36.9
Approach LOS			E	E

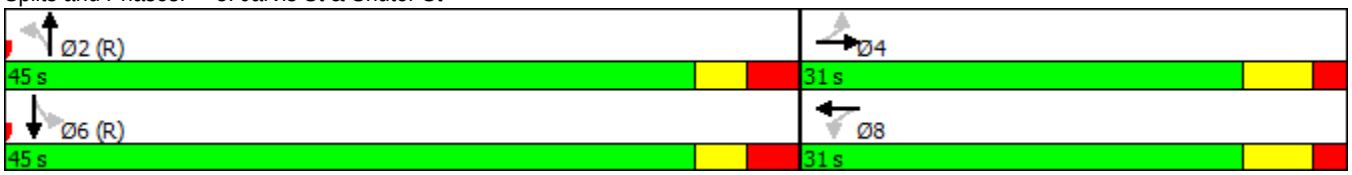
Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	57.6%	ICU Level of Service	B	
Analysis Period (min)	15			

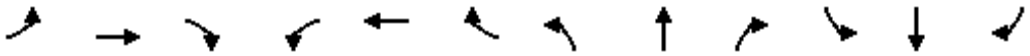
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	168	448	41	338	167	691	71	215
Future Volume (vph)	168	448	41	338	167	691	71	215
Lane Group Flow (vph)	179	546	44	433	0	1018	0	416
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Minimum Split (s)	30.0	30.0	30.0	30.0	28.0	28.0	28.0	28.0
Total Split (s)	31.0	31.0	31.0	31.0	45.0	45.0	45.0	45.0
Total Split (%)	40.8%	40.8%	40.8%	40.8%	59.2%	59.2%	59.2%	59.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	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								
Lead-Lag Optimize?								
v/c Ratio	1.21	0.98	0.56	0.79		0.58		0.42
Control Delay	169.6	61.5	52.0	34.0		13.4		10.4
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	169.6	61.5	52.0	34.0		13.4		10.4
Queue Length 50th (m)	~31.8	75.3	5.1	53.2		32.5		14.3
Queue Length 95th (m)	#67.7	#138.0	#20.5	#98.1		44.4		24.3
Internal Link Dist (m)		27.7		104.5		148.1		72.7
Turn Bay Length (m)	26.0		20.0					
Base Capacity (vph)	148	555	79	551		1755		1000
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	1.21	0.98	0.56	0.79		0.58		0.42

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 76
Offset: 60 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Pretimed
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

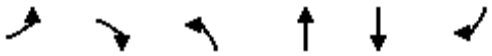
Splits and Phases: 3: Jarvis St & Shuter St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	448	65	41	338	69	167	691	99	71	215	104
Future Volume (vph)	168	448	65	41	338	69	167	691	99	71	215	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.97			0.98			0.90	
Flpb, ped/bikes	0.93	1.00		0.96	1.00			0.97			0.99	
Frt	1.00	0.98		1.00	0.97			0.98			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1388	1605		1347	1582			4193			2665	
Flt Permitted	0.30	1.00		0.16	1.00			0.78			0.68	
Satd. Flow (perm)	435	1605		232	1582			3301			1836	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	179	477	69	44	360	73	178	735	105	76	229	111
RTOR Reduction (vph)	0	7	0	0	10	0	0	18	0	0	33	0
Lane Group Flow (vph)	179	539	0	44	423	0	0	1000	0	0	383	0
Confl. Peds. (#/hr)	165		140	140		165	204		124	124		204
Confl. Bikes (#/hr)			38			10			11			6
Heavy Vehicles (%)	2%	1%	3%	8%	1%	2%	1%	1%	3%	5%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.0	25.0		25.0	25.0			39.0			39.0	
Effective Green, g (s)	26.0	26.0		26.0	26.0			40.0			40.0	
Actuated g/C Ratio	0.34	0.34		0.34	0.34			0.53			0.53	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	148	549		79	541			1737			966	
v/s Ratio Prot		0.34			0.27							
v/s Ratio Perm	c0.41			0.19				c0.30			0.21	
v/c Ratio	1.21	0.98		0.56	0.78			0.58			0.40	
Uniform Delay, d1	25.0	24.8		20.3	22.5			12.2			10.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	141.2	34.4		25.4	10.8			1.4			1.2	
Delay (s)	166.2	59.1		45.7	33.2			13.6			12.0	
Level of Service	F	E		D	C			B			B	
Approach Delay (s)		85.6			34.4			13.6			12.0	
Approach LOS		F			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	108.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	5	8	943	213	3
Future Volume (Veh/h)	0	5	8	943	213	3
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	6	9	1048	237	3
Pedestrians	138				2	
Lane Width (m)	3.5				3.5	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	11				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				45	172	
pX, platoon unblocked						
vC, conflicting volume	746	258	378			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	746	258	378			
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	99	99			
cM capacity (veh/h)	311	664	1058			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	6	219	419	419	158	82
Volume Left	0	9	0	0	0	0
Volume Right	6	0	0	0	0	3
cSH	664	1058	1700	1700	1700	1700
Volume to Capacity	0.01	0.01	0.25	0.25	0.09	0.05
Queue Length 95th (m)	0.2	0.2	0.0	0.0	0.0	0.0
Control Delay (s)	10.5	0.4	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	10.5	0.1			0.0	
Approach LOS	B					

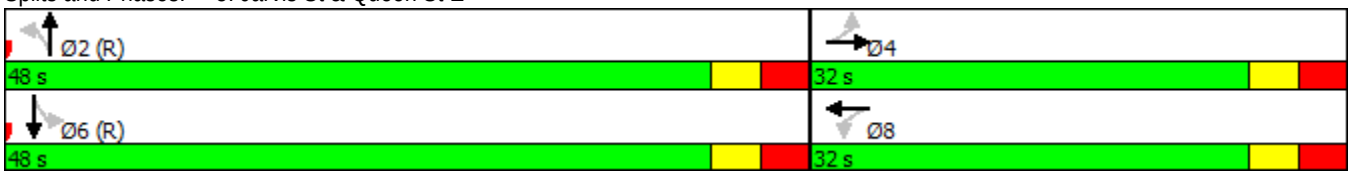
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		

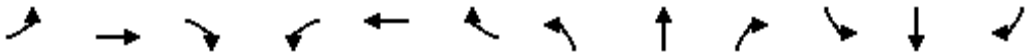
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	483	1	524	16	763	7	172
Future Volume (vph)	4	483	1	524	16	763	7	172
Lane Group Flow (vph)	0	587	0	786	0	929	0	246
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Minimum Split (s)	29.0	29.0	29.0	29.0	26.0	26.0	26.0	26.0
Total Split (s)	32.0	32.0	32.0	32.0	48.0	48.0	48.0	48.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
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								
Lead-Lag Optimize?								
v/c Ratio		0.65		0.86		0.59		0.17
Control Delay		26.0		35.0		14.4		9.2
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		26.0		35.0		14.4		9.2
Queue Length 50th (m)		38.4		54.6		46.4		8.7
Queue Length 95th (m)		55.5		#87.0		63.7		14.4
Internal Link Dist (m)		74.2		106.7		44.0		20.8
Turn Bay Length (m)								
Base Capacity (vph)		904		910		1564		1448
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		0.65		0.86		0.59		0.17

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 47 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Jarvis St & Queen St E

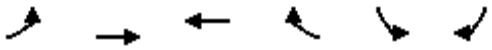




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	483	41	1	524	183	16	763	57	7	172	42
Future Volume (vph)	4	483	41	1	524	183	16	763	57	7	172	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
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		0.98			0.93			0.98			0.95	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.96			0.99			0.97	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		2796			2726			3060			2894	
Flt Permitted		0.95			0.95			0.95			0.93	
Satd. Flow (perm)		2656			2602			2900			2685	
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)	4	537	46	1	582	203	18	848	63	8	191	47
RTOR Reduction (vph)	0	8	0	0	33	0	0	6	0	0	6	0
Lane Group Flow (vph)	0	579	0	0	753	0	0	923	0	0	240	0
Confl. Peds. (#/hr)	239		274	274		239	212		189	189		212
Confl. Bikes (#/hr)			24			7			6			3
Heavy Vehicles (%)	25%	7%	0%	0%	4%	0%	0%	2%	0%	0%	2%	3%
Bus Blockages (#/hr)	0	19	0	0	13	0	0	0	1	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		26.0			26.0			42.0			42.0	
Effective Green, g (s)		27.0			27.0			43.0			43.0	
Actuated g/C Ratio		0.34			0.34			0.54			0.54	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		896			878			1558			1443	
v/s Ratio Prot												
v/s Ratio Perm		0.22			c0.29			c0.32			0.09	
v/c Ratio		0.65			0.86			0.59			0.17	
Uniform Delay, d1		22.5			24.7			12.6			9.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.6			10.6			1.7			0.2	
Delay (s)		26.0			35.3			14.2			9.6	
Level of Service		C			D			B			A	
Approach Delay (s)		26.0			35.3			14.2			9.6	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	100	381	495	79	120	129
Future Volume (Veh/h)	100	381	495	79	120	129
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)	111	423	550	88	133	143
Pedestrians		4	7		242	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	1		20	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			98			
pX, platoon unblocked						
vC, conflicting volume	880				1276	565
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	880				1276	565
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				0	62
cM capacity (veh/h)	624				105	379

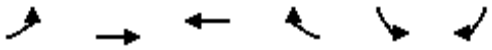
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	252	282	367	271	133	143
Volume Left	111	0	0	0	133	0
Volume Right	0	0	0	88	0	143
cSH	624	1700	1700	1700	105	379
Volume to Capacity	0.18	0.17	0.22	0.16	1.27	0.38
Queue Length 95th (m)	4.9	0.0	0.0	0.0	68.6	13.0
Control Delay (s)	6.6	0.0	0.0	0.0	251.6	20.1
Lane LOS	A				F	C
Approach Delay (s)	3.1		0.0		131.7	
Approach LOS					F	

Intersection Summary			
Average Delay	26.2		
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	18	4	194	9	5	130
Future Volume (Veh/h)	18	4	194	9	5	130
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	4	211	10	5	141
Pedestrians	36		12			2
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		1			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	415	254			257	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	415	254			257	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			100	
cM capacity (veh/h)	572	765			1281	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	24	221	146
Volume Left	20	0	5
Volume Right	4	10	0
cSH	597	1700	1281
Volume to Capacity	0.04	0.13	0.00
Queue Length 95th (m)	1.0	0.0	0.1
Control Delay (s)	11.3	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	11.3	0.0	0.3
Approach LOS	B		

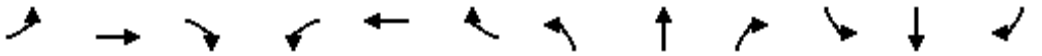
Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		23.6%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	2	7	5	3	13
Future Volume (Veh/h)	10	2	7	5	3	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	13	3	9	7	4	17
Pedestrians		2	2			
Lane Width (m)		3.5	3.5			
Walking Speed (m/s)		1.2	1.2			
Percent Blockage		0	0			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	16				44	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16				44	14
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1615				963	1069

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	16	16	21
Volume Left	13	0	4
Volume Right	0	7	17
cSH	1615	1700	1047
Volume to Capacity	0.01	0.01	0.02
Queue Length 95th (m)	0.2	0.0	0.5
Control Delay (s)	5.9	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	5.9	0.0	8.5
Approach LOS			A

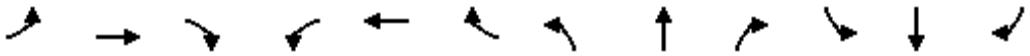
Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	513	38	73	393	47	11	30	101	30	71	12
Future Volume (Veh/h)	8	513	38	73	393	47	11	30	101	30	71	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	9	552	41	78	423	51	12	32	109	32	76	13
Pedestrians		3			11			94			108	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			8			9	
Right turn flare (veh)									1			1
Median type		None			None							
Median storage veh)												
Upstream signal (m)					99							
pX, platoon unblocked	0.88						0.88	0.88		0.88	0.88	0.88
vC, conflicting volume	582			687			1336	1422	678	1384	1418	560
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	458			687			1315	1412	678	1369	1406	433
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			91			58	66	74	28	19	97
cM capacity (veh/h)	895			847			28	93	418	44	94	503

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	602	552	153	121
Volume Left	9	78	12	32
Volume Right	41	51	109	13
cSH	895	847	206	79
Volume to Capacity	0.01	0.09	0.74	1.54
Queue Length 95th (m)	0.2	2.3	37.8	75.0
Control Delay (s)	0.3	2.4	60.8	386.1
Lane LOS	A	A	F	F
Approach Delay (s)	0.3	2.4	60.8	386.1
Approach LOS			F	F

Intersection Summary				
Average Delay	40.3			
Intersection Capacity Utilization	87.4%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	665	8	3	596	7	7	0	10	4	0	8
Future Volume (Veh/h)	10	665	8	3	596	7	7	0	10	4	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	11	707	9	3	634	7	7	0	11	4	0	9
Pedestrians		1			1			113			150	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			9			12	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					52							
pX, platoon unblocked	0.81						0.81	0.81		0.81	0.81	0.81
vC, conflicting volume	791			829			1500	1644	826	1539	1644	788
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	627			829			1500	1677	826	1548	1678	624
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			88	100	97	93	100	97
cM capacity (veh/h)	688			737			61	61	341	54	61	349

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	727	644	18	13
Volume Left	11	3	7	4
Volume Right	9	7	11	9
cSH	688	737	122	130
Volume to Capacity	0.02	0.00	0.15	0.10
Queue Length 95th (m)	0.4	0.1	3.8	2.5
Control Delay (s)	0.4	0.1	39.6	35.7
Lane LOS	A	A	E	E
Approach Delay (s)	0.4	0.1	39.6	35.7
Approach LOS			E	E

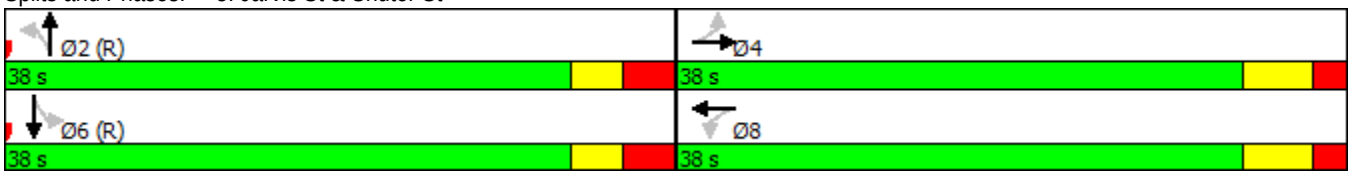
Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	57.6%	ICU Level of Service	B	
Analysis Period (min)	15			

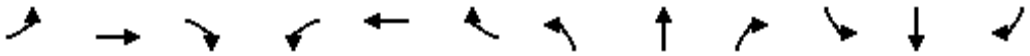
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	168	448	41	338	167	691	71	215
Future Volume (vph)	168	448	41	338	167	691	71	215
Lane Group Flow (vph)	179	546	44	433	0	1018	0	416
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Minimum Split (s)	30.0	30.0	30.0	30.0	28.0	28.0	28.0	28.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	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								
Lead-Lag Optimize?								
v/c Ratio	0.76	0.78	0.27	0.62		0.70		0.51
Control Delay	41.7	27.4	19.2	20.8		20.2		14.7
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	41.7	27.4	19.2	20.8		20.2		14.7
Queue Length 50th (m)	20.8	63.1	3.9	44.5		40.5		17.0
Queue Length 95th (m)	#54.2	#114.1	11.6	73.4		55.3		29.4
Internal Link Dist (m)		27.7		104.5		148.1		72.7
Turn Bay Length (m)	26.0		20.0					
Base Capacity (vph)	237	704	165	696		1445		820
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.76	0.78	0.27	0.62		0.70		0.51

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 76
Offset: 60 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

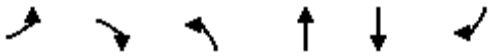
Splits and Phases: 3: Jarvis St & Shuter St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	448	65	41	338	69	167	691	99	71	215	104
Future Volume (vph)	168	448	65	41	338	69	167	691	99	71	215	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.97			0.98			0.90	
Flpb, ped/bikes	0.93	1.00		0.96	1.00			0.97			0.99	
Frt	1.00	0.98		1.00	0.97			0.98			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1382	1606		1341	1583			4196			2665	
Flt Permitted	0.38	1.00		0.27	1.00			0.78			0.66	
Satd. Flow (perm)	549	1606		380	1583			3287			1779	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	179	477	69	44	360	73	178	735	105	76	229	111
RTOR Reduction (vph)	0	7	0	0	10	0	0	19	0	0	49	0
Lane Group Flow (vph)	179	539	0	44	423	0	0	999	0	0	367	0
Confl. Peds. (#/hr)	165		140	140		165	204		124	124		204
Confl. Bikes (#/hr)			38			10			11			6
Heavy Vehicles (%)	2%	1%	3%	8%	1%	2%	1%	1%	3%	5%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.0	32.0		32.0	32.0			32.0			32.0	
Effective Green, g (s)	33.0	33.0		33.0	33.0			33.0			33.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.43			0.43	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	238	697		165	687			1427			772	
v/s Ratio Prot		c0.34			0.27							
v/s Ratio Perm	0.33			0.12				c0.30			0.21	
v/c Ratio	0.75	0.77		0.27	0.62			0.70			0.48	
Uniform Delay, d1	18.1	18.3		13.8	16.6			17.5			15.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	19.5	8.2		3.9	4.1			2.9			2.1	
Delay (s)	37.6	26.5		17.7	20.7			20.4			17.4	
Level of Service	D	C		B	C			C			B	
Approach Delay (s)		29.2			20.4			20.4			17.4	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	108.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	5	8	943	213	3
Future Volume (Veh/h)	0	5	8	943	213	3
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	6	9	1048	237	3
Pedestrians	138				2	
Lane Width (m)	3.5				3.5	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	11				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				45	172	
pX, platoon unblocked						
vC, conflicting volume	746	258	378			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	746	258	378			
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	99	99			
cM capacity (veh/h)	311	664	1058			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	6	219	419	419	158	82
Volume Left	0	9	0	0	0	0
Volume Right	6	0	0	0	0	3
cSH	664	1058	1700	1700	1700	1700
Volume to Capacity	0.01	0.01	0.25	0.25	0.09	0.05
Queue Length 95th (m)	0.2	0.2	0.0	0.0	0.0	0.0
Control Delay (s)	10.5	0.4	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	10.5	0.1			0.0	
Approach LOS	B					

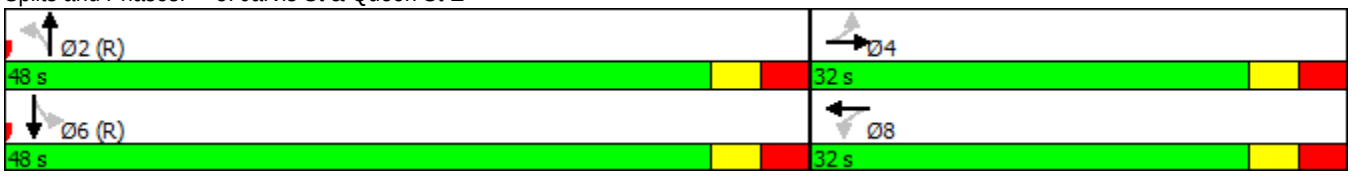
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		

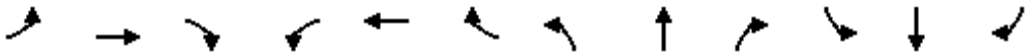
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	483	1	524	16	763	7	172
Future Volume (vph)	4	483	1	524	16	763	7	172
Lane Group Flow (vph)	0	587	0	786	0	929	0	246
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Minimum Split (s)	29.0	29.0	29.0	29.0	26.0	26.0	26.0	26.0
Total Split (s)	32.0	32.0	32.0	32.0	48.0	48.0	48.0	48.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
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								
Lead-Lag Optimize?								
v/c Ratio		0.65		0.86		0.59		0.17
Control Delay		26.0		35.0		14.4		9.2
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		26.0		35.0		14.4		9.2
Queue Length 50th (m)		38.4		54.6		46.4		8.7
Queue Length 95th (m)		55.5		#87.0		63.7		14.4
Internal Link Dist (m)		74.2		106.7		44.0		20.8
Turn Bay Length (m)								
Base Capacity (vph)		904		910		1564		1448
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		0.65		0.86		0.59		0.17

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 47 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Jarvis St & Queen St E

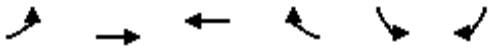




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	483	41	1	524	183	16	763	57	7	172	42
Future Volume (vph)	4	483	41	1	524	183	16	763	57	7	172	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
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		0.98			0.93			0.98			0.95	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.96			0.99			0.97	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		2796			2726			3060			2894	
Flt Permitted		0.95			0.95			0.95			0.93	
Satd. Flow (perm)		2656			2602			2900			2685	
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)	4	537	46	1	582	203	18	848	63	8	191	47
RTOR Reduction (vph)	0	8	0	0	33	0	0	6	0	0	6	0
Lane Group Flow (vph)	0	579	0	0	753	0	0	923	0	0	240	0
Confl. Peds. (#/hr)	239		274	274		239	212		189	189		212
Confl. Bikes (#/hr)			24			7			6			3
Heavy Vehicles (%)	25%	7%	0%	0%	4%	0%	0%	2%	0%	0%	2%	3%
Bus Blockages (#/hr)	0	19	0	0	13	0	0	0	1	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		26.0			26.0			42.0			42.0	
Effective Green, g (s)		27.0			27.0			43.0			43.0	
Actuated g/C Ratio		0.34			0.34			0.54			0.54	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		896			878			1558			1443	
v/s Ratio Prot												
v/s Ratio Perm		0.22			c0.29			c0.32			0.09	
v/c Ratio		0.65			0.86			0.59			0.17	
Uniform Delay, d1		22.5			24.7			12.6			9.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.6			10.6			1.7			0.2	
Delay (s)		26.0			35.3			14.2			9.6	
Level of Service		C			D			B			A	
Approach Delay (s)		26.0			35.3			14.2			9.6	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	100	381	495	79	120	129
Future Volume (Veh/h)	100	381	495	79	120	129
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)	111	423	550	88	133	143
Pedestrians		4	7		242	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	1		20	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			98			
pX, platoon unblocked						
vC, conflicting volume	880				1276	565
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	880				1276	565
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				0	62
cM capacity (veh/h)	624				105	379

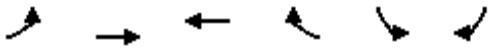
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	252	282	367	271	133	143
Volume Left	111	0	0	0	133	0
Volume Right	0	0	0	88	0	143
cSH	624	1700	1700	1700	105	379
Volume to Capacity	0.18	0.17	0.22	0.16	1.27	0.38
Queue Length 95th (m)	4.9	0.0	0.0	0.0	68.6	13.0
Control Delay (s)	6.6	0.0	0.0	0.0	251.6	20.1
Lane LOS	A				F	C
Approach Delay (s)	3.1		0.0		131.7	
Approach LOS					F	

Intersection Summary			
Average Delay	26.2		
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	18	4	194	9	5	130
Future Volume (Veh/h)	18	4	194	9	5	130
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	4	211	10	5	141
Pedestrians	36		12			2
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		1			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	415	254			257	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	415	254			257	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			100	
cM capacity (veh/h)	572	765			1281	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	24	221	146
Volume Left	20	0	5
Volume Right	4	10	0
cSH	597	1700	1281
Volume to Capacity	0.04	0.13	0.00
Queue Length 95th (m)	1.0	0.0	0.1
Control Delay (s)	11.3	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	11.3	0.0	0.3
Approach LOS	B		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	23.6%	ICU Level of Service	A
Analysis Period (min)	15		



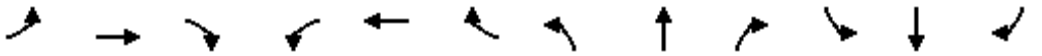
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	2	7	5	3	13
Future Volume (Veh/h)	10	2	7	5	3	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	13	3	9	7	4	17
Pedestrians		2	2			
Lane Width (m)		3.5	3.5			
Walking Speed (m/s)		1.2	1.2			
Percent Blockage		0	0			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	16				44	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16				44	14
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1615				963	1069

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	16	16	21
Volume Left	13	0	4
Volume Right	0	7	17
cSH	1615	1700	1047
Volume to Capacity	0.01	0.01	0.02
Queue Length 95th (m)	0.2	0.0	0.5
Control Delay (s)	5.9	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	5.9	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX E

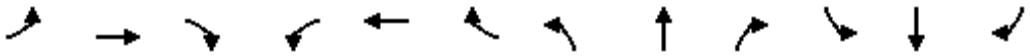
Future Total Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	214	20	61	521	36	17	24	107	17	24	19
Future Volume (Veh/h)	15	214	20	61	521	36	17	24	107	17	24	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	15	221	21	63	537	37	18	25	110	18	25	20
Pedestrians		7			8			102			82	
Lane Width (m)		3.5			3.5			3.0			3.0	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			7			6	
Right turn flare (veh)									1			1
Median type		None			None							
Median storage veh)												
Upstream signal (m)					99							
pX, platoon unblocked	0.72						0.72	0.72		0.72	0.72	0.72
vC, conflicting volume	656			344			1074	1146	342	1100	1138	644
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	327			344			909	1007	342	945	996	311
tC, single (s)	4.3			4.2			7.2	6.5	6.2	7.1	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.3			3.6	4.0	3.3	3.5	4.1	3.3
p0 queue free %	98			94			85	82	83	82	82	96
cM capacity (veh/h)	782			1089			119	139	651	101	140	495

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	257	637	153	63
Volume Left	15	63	18	18
Volume Right	21	37	110	20
cSH	782	1089	385	170
Volume to Capacity	0.02	0.06	0.40	0.37
Queue Length 95th (m)	0.4	1.4	14.1	12.0
Control Delay (s)	0.8	1.5	20.4	38.1
Lane LOS	A	A	C	E
Approach Delay (s)	0.8	1.5	20.4	38.1
Approach LOS			C	E

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	357	8	11	690	8	10	0	27	6	0	7
Future Volume (Veh/h)	3	357	8	11	690	8	10	0	27	6	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	3	364	8	11	704	8	10	0	28	6	0	7
Pedestrians		5			4			111			119	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			9			10	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					52							
pX, platoon unblocked	0.68						0.68	0.68		0.68	0.68	0.68
vC, conflicting volume	831			483			1227	1338	483	1255	1338	832
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	510			483			1096	1260	483	1138	1260	512
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			90	100	95	93	100	98
cM capacity (veh/h)	651			992			99	94	533	89	94	344

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	375	723	38	13
Volume Left	3	11	10	6
Volume Right	8	8	28	7
cSH	651	992	247	148
Volume to Capacity	0.00	0.01	0.15	0.09
Queue Length 95th (m)	0.1	0.3	4.1	2.2
Control Delay (s)	0.1	0.3	22.2	31.7
Lane LOS	A	A	C	D
Approach Delay (s)	0.1	0.3	22.2	31.7
Approach LOS			C	D

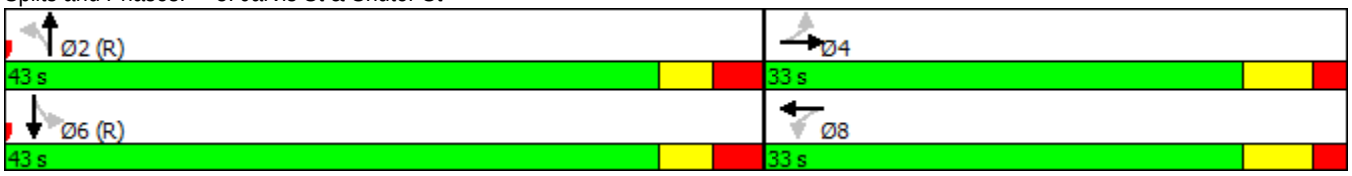
Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

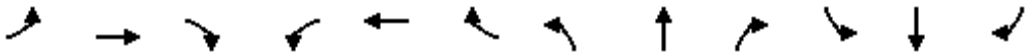
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	97	205	72	480	89	525	68	875
Future Volume (vph)	97	205	72	480	89	525	68	875
Lane Group Flow (vph)	99	304	73	552	0	674	0	1106
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Minimum Split (s)	30.0	30.0	30.0	30.0	28.0	28.0	28.0	28.0
Total Split (s)	33.0	33.0	33.0	33.0	43.0	43.0	43.0	43.0
Total Split (%)	43.4%	43.4%	43.4%	43.4%	56.6%	56.6%	56.6%	56.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	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								
Lead-Lag Optimize?								
v/c Ratio	0.97	0.53	0.28	0.94		0.66		0.61
Control Delay	113.1	20.6	20.7	50.7		17.9		14.7
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	113.1	20.6	20.7	50.7		17.9		14.7
Queue Length 50th (m)	13.6	29.5	7.2	74.0		35.1		37.4
Queue Length 95th (m)	#42.5	52.2	17.4	#135.0		53.4		50.1
Internal Link Dist (m)		27.7		104.5		147.2		72.7
Turn Bay Length (m)	26.0		20.0					
Base Capacity (vph)	102	576	257	586		1016		1822
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.97	0.53	0.28	0.94		0.66		0.61

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 76
Offset: 19 (25%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

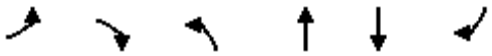
Splits and Phases: 3: Jarvis St & Shuter St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	205	93	72	480	61	89	525	46	68	875	141
Future Volume (vph)	97	205	93	72	480	61	89	525	46	68	875	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.91	
Frpb, ped/bikes	1.00	0.96		1.00	0.98			0.99			0.96	
Flpb, ped/bikes	0.96	1.00		0.94	1.00			0.99			1.00	
Frt	1.00	0.95		1.00	0.98			0.99			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1379	1507		1391	1577			3014			4225	
Flt Permitted	0.19	1.00		0.48	1.00			0.66			0.85	
Satd. Flow (perm)	279	1507		699	1577			2017			3592	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	99	209	95	73	490	62	91	536	47	69	893	144
RTOR Reduction (vph)	0	21	0	0	6	0	0	7	0	0	26	0
Lane Group Flow (vph)	99	283	0	73	546	0	0	667	0	0	1080	0
Confl. Peds. (#/hr)	122		114	114		122	168		86	86		168
Confl. Bikes (#/hr)			5			38			1			5
Heavy Vehicles (%)	6%	2%	5%	2%	2%	17%	6%	2%	6%	7%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	27.0	27.0		27.0	27.0			37.0			37.0	
Effective Green, g (s)	28.0	28.0		28.0	28.0			38.0			38.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37			0.50			0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	102	555		257	581			1008			1796	
v/s Ratio Prot		0.19			0.35							
v/s Ratio Perm	c0.35			0.10				c0.33			0.30	
v/c Ratio	0.97	0.51		0.28	0.94			0.66			0.60	
Uniform Delay, d1	23.6	18.7		16.9	23.2			14.2			13.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	81.4	3.3		2.8	25.2			3.4			1.5	
Delay (s)	105.0	22.0		19.7	48.4			17.6			15.1	
Level of Service	F	C		B	D			B			B	
Approach Delay (s)		42.4			45.0			17.6			15.1	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	115.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	16	7	661	1044	4
Future Volume (Veh/h)	0	16	7	661	1044	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	17	7	689	1088	4
Pedestrians	120					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	10					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				46	171	
pX, platoon unblocked	0.90	0.94	0.94			
vC, conflicting volume	1568	485	1212			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1000	228	1002			
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	97	99			
cM capacity (veh/h)	194	662	593			

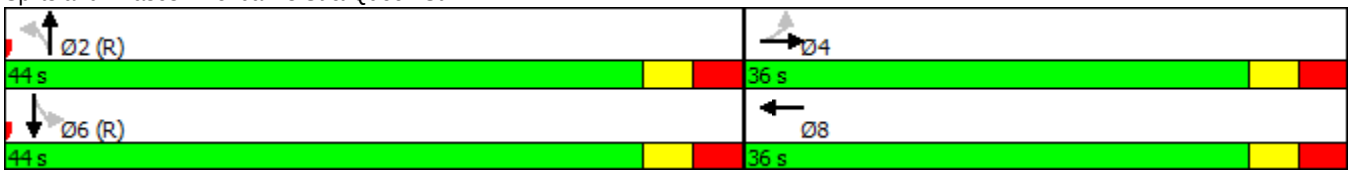
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	17	237	459	435	435	222
Volume Left	0	7	0	0	0	0
Volume Right	17	0	0	0	0	4
cSH	662	593	1700	1700	1700	1700
Volume to Capacity	0.03	0.01	0.27	0.26	0.26	0.13
Queue Length 95th (m)	0.6	0.3	0.0	0.0	0.0	0.0
Control Delay (s)	10.6	0.5	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	10.6	0.2		0.0		
Approach LOS	B					

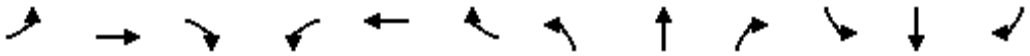
Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	35.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	2	313	703	1	621	1	969
Future Volume (vph)	2	313	703	1	621	1	969
Lane Group Flow (vph)	0	385	781	0	682	0	1109
Turn Type	Perm	NA	NA	Perm	NA	Perm	NA
Protected Phases		4	8		2		6
Permitted Phases	4			2		6	
Minimum Split (s)	29.0	29.0	29.0	26.0	26.0	26.0	26.0
Total Split (s)	36.0	36.0	36.0	44.0	44.0	44.0	44.0
Total Split (%)	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%
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
Total Lost Time (s)		5.0	5.0		5.0		5.0
Lead/Lag							
Lead-Lag Optimize?							
v/c Ratio		0.39	0.69		0.48		0.55
Control Delay		17.8	24.0		14.9		15.2
Queue Delay		0.0	0.0		0.0		0.0
Total Delay		17.8	24.0		14.9		15.2
Queue Length 50th (m)		19.9	50.1		34.1		39.8
Queue Length 95th (m)		31.1	69.6		47.8		51.7
Internal Link Dist (m)		74.2	106.7		44.0		21.7
Turn Bay Length (m)							
Base Capacity (vph)		994	1138		1429		2023
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		0.39	0.69		0.48		0.55

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 25 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Pretimed

Splits and Phases: 5: Jarvis St & Queen St E

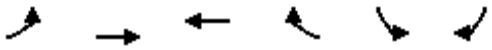




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	313	55	0	703	47	1	621	33	1	969	95
Future Volume (vph)	2	313	55	0	703	47	1	621	33	1	969	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.97			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.99			0.99			0.99	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		2651			2920			3062			4382	
Flt Permitted		0.95			1.00			0.95			0.94	
Satd. Flow (perm)		2524			2920			2921			4118	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	326	57	0	732	49	1	647	34	1	1009	99
RTOR Reduction (vph)	0	17	0	0	6	0	0	5	0	0	14	0
Lane Group Flow (vph)	0	368	0	0	775	0	0	677	0	0	1095	0
Confl. Peds. (#/hr)	133		206	206		133	155		151	151		155
Confl. Bikes (#/hr)			8			13			1			11
Heavy Vehicles (%)	0%	12%	0%	0%	5%	7%	0%	3%	6%	0%	2%	3%
Bus Blockages (#/hr)	0	19	0	0	13	0	0	0	0	0	0	1
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4						2			6		
Actuated Green, G (s)		30.0			30.0			38.0			38.0	
Effective Green, g (s)		31.0			31.0			39.0			39.0	
Actuated g/C Ratio		0.39			0.39			0.49			0.49	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		978			1131			1423			2007	
v/s Ratio Prot					c0.27							
v/s Ratio Perm		0.15						0.23			c0.27	
v/c Ratio		0.38			0.69			0.48			0.55	
Uniform Delay, d1		17.6			20.4			13.7			14.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			3.4			1.1			1.1	
Delay (s)		18.7			23.8			14.8			15.4	
Level of Service		B			C			B			B	
Approach Delay (s)		18.7			23.8			14.8			15.4	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	99	296	738	48	66	122
Future Volume (Veh/h)	99	296	738	48	66	122
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	102	305	761	49	68	126
Pedestrians		4	13		129	
Lane Width (m)		3.5	3.5		3.0	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	1		9	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			98			
pX, platoon unblocked	0.81				0.81	0.81
vC, conflicting volume	939				1284	538
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	456				881	0
tC, single (s)	4.2				7.0	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	87				61	84
cM capacity (veh/h)	807				175	795

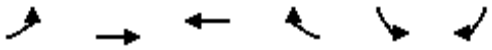
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	204	203	507	303	68	126
Volume Left	102	0	0	0	68	0
Volume Right	0	0	0	49	0	126
cSH	807	1700	1700	1700	175	795
Volume to Capacity	0.13	0.12	0.30	0.18	0.39	0.16
Queue Length 95th (m)	3.3	0.0	0.0	0.0	12.9	4.3
Control Delay (s)	5.7	0.0	0.0	0.0	38.0	10.4
Lane LOS	A				E	B
Approach Delay (s)	2.9		0.0		20.1	
Approach LOS					C	

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	4	168	9	7	189
Future Volume (Veh/h)	20	4	168	9	7	189
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	25	5	210	11	9	236
Pedestrians	31		4			4
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	504	250			252	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	504	250			252	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	99			99	
cM capacity (veh/h)	512	771			1292	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	30	221	245
Volume Left	25	0	9
Volume Right	5	11	0
cSH	542	1700	1292
Volume to Capacity	0.06	0.13	0.01
Queue Length 95th (m)	1.3	0.0	0.2
Control Delay (s)	12.0	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	12.0	0.0	0.3
Approach LOS	B		

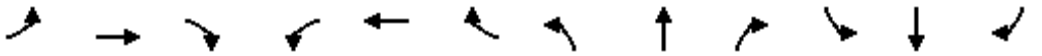
Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization		28.6%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	1	6	3	4	12
Future Volume (Veh/h)	6	1	6	3	4	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	8	1	8	4	5	15
Pedestrians			2		2	
Lane Width (m)			3.5		3.5	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	14				31	12
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	14				31	12
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1615				980	1073

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	9	12	20
Volume Left	8	0	5
Volume Right	0	4	15
cSH	1615	1700	1048
Volume to Capacity	0.00	0.01	0.02
Queue Length 95th (m)	0.1	0.0	0.4
Control Delay (s)	6.4	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	6.4	0.0	8.5
Approach LOS			A

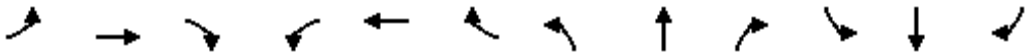
Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	513	38	78	393	47	11	31	101	30	72	12
Future Volume (Veh/h)	8	513	38	78	393	47	11	31	101	30	72	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	9	552	41	84	423	51	12	33	109	32	77	13
Pedestrians		3			11			94			108	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			8			9	
Right turn flare (veh)									1			1
Median type		None			None							
Median storage veh)												
Upstream signal (m)					99							
pX, platoon unblocked	0.84						0.84	0.84		0.84	0.84	0.84
vC, conflicting volume	582			687			1349	1434	678	1397	1430	560
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	407			687			1320	1422	678	1377	1416	380
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			90			41	62	74	20	12	97
cM capacity (veh/h)	891			847			20	87	418	40	87	513

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	602	558	154	122
Volume Left	9	84	12	32
Volume Right	41	51	109	13
cSH	891	847	162	72
Volume to Capacity	0.01	0.10	0.95	1.68
Queue Length 95th (m)	0.2	2.5	53.9	80.1
Control Delay (s)	0.3	2.6	113.6	456.2
Lane LOS	A	A	F	F
Approach Delay (s)	0.3	2.6	113.6	456.2
Approach LOS			F	F

Intersection Summary				
Average Delay	52.1			
Intersection Capacity Utilization	87.7%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	665	8	3	596	7	7	0	19	4	0	8
Future Volume (Veh/h)	10	665	8	3	596	7	7	0	19	4	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	11	707	9	3	634	7	7	0	20	4	0	9
Pedestrians		1			1			113			150	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			9			12	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					52							
pX, platoon unblocked	0.77						0.77	0.77		0.77	0.77	0.77
vC, conflicting volume	791			829			1500	1644	826	1548	1644	788
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	584			829			1500	1685	826	1562	1687	581
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			88	100	94	92	100	97
cM capacity (veh/h)	680			737			58	57	341	49	57	352

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	727	644	27	13
Volume Left	11	3	7	4
Volume Right	9	7	20	9
cSH	680	737	150	121
Volume to Capacity	0.02	0.00	0.18	0.11
Queue Length 95th (m)	0.4	0.1	4.8	2.7
Control Delay (s)	0.4	0.1	34.2	38.3
Lane LOS	A	A	D	E
Approach Delay (s)	0.4	0.1	34.2	38.3
Approach LOS			D	E

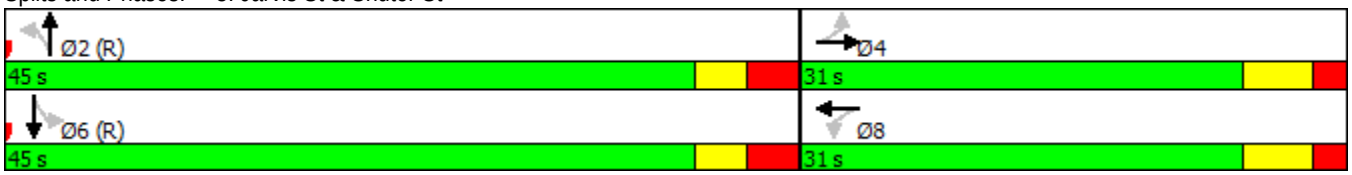
Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

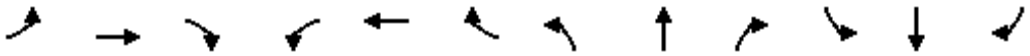
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	170	455	41	343	167	691	71	222
Future Volume (vph)	170	455	41	343	167	691	71	222
Lane Group Flow (vph)	181	553	44	438	0	1018	0	423
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Minimum Split (s)	30.0	30.0	30.0	30.0	28.0	28.0	28.0	28.0
Total Split (s)	31.0	31.0	31.0	31.0	45.0	45.0	45.0	45.0
Total Split (%)	40.8%	40.8%	40.8%	40.8%	59.2%	59.2%	59.2%	59.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	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								
Lead-Lag Optimize?								
v/c Ratio	1.24	1.00	0.59	0.80		0.58		0.42
Control Delay	181.1	64.7	56.8	34.8		13.4		10.6
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	181.1	64.7	56.8	34.8		13.4		10.6
Queue Length 50th (m)	~32.8	76.9	5.1	54.2		32.5		14.6
Queue Length 95th (m)	#69.1	#140.1	#21.1	#100.2		44.4		24.8
Internal Link Dist (m)		27.7		104.5		148.1		72.7
Turn Bay Length (m)	26.0		20.0					
Base Capacity (vph)	146	555	75	550		1754		1003
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	1.24	1.00	0.59	0.80		0.58		0.42

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 76
Offset: 60 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Pretimed
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

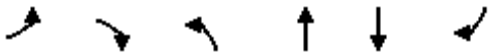
Splits and Phases: 3: Jarvis St & Shuter St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	455	65	41	343	69	167	691	99	71	222	104
Future Volume (vph)	170	455	65	41	343	69	167	691	99	71	222	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.97			0.98			0.90	
Flpb, ped/bikes	0.93	1.00		0.96	1.00			0.97			0.99	
Frt	1.00	0.98		1.00	0.97			0.98			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1389	1606		1348	1583			4195			2672	
Flt Permitted	0.29	1.00		0.16	1.00			0.78			0.68	
Satd. Flow (perm)	427	1606		220	1583			3294			1845	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	181	484	69	44	365	73	178	735	105	76	236	111
RTOR Reduction (vph)	0	7	0	0	9	0	0	18	0	0	33	0
Lane Group Flow (vph)	181	546	0	44	429	0	0	1000	0	0	390	0
Confl. Peds. (#/hr)	165		140	140		165	204		124	124		204
Confl. Bikes (#/hr)			38			10			11			6
Heavy Vehicles (%)	2%	1%	3%	8%	1%	2%	1%	1%	3%	5%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.0	25.0		25.0	25.0			39.0			39.0	
Effective Green, g (s)	26.0	26.0		26.0	26.0			40.0			40.0	
Actuated g/C Ratio	0.34	0.34		0.34	0.34			0.53			0.53	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	146	549		75	541			1733			971	
v/s Ratio Prot		0.34			0.27							
v/s Ratio Perm	c0.42			0.20				c0.30			0.21	
v/c Ratio	1.24	1.00		0.59	0.79			0.58			0.40	
Uniform Delay, d1	25.0	24.9		20.6	22.6			12.2			10.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	152.9	37.3		29.4	11.3			1.4			1.2	
Delay (s)	177.9	62.2		50.0	33.9			13.6			12.1	
Level of Service	F	E		D	C			B			B	
Approach Delay (s)		90.7			35.4			13.6			12.1	
Approach LOS		F			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	108.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	9	19	943	213	10
Future Volume (Veh/h)	0	9	19	943	213	10
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	10	21	1048	237	11
Pedestrians	138				2	
Lane Width (m)	3.5				3.5	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	11				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				45	172	
pX, platoon unblocked						
vC, conflicting volume	774	262	386			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774	262	386			
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	98	98			
cM capacity (veh/h)	295	660	1051			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	10	231	419	419	158	90
Volume Left	0	21	0	0	0	0
Volume Right	10	0	0	0	0	11
cSH	660	1051	1700	1700	1700	1700
Volume to Capacity	0.02	0.02	0.25	0.25	0.09	0.05
Queue Length 95th (m)	0.4	0.5	0.0	0.0	0.0	0.0
Control Delay (s)	10.5	0.9	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	10.5	0.2			0.0	
Approach LOS	B					

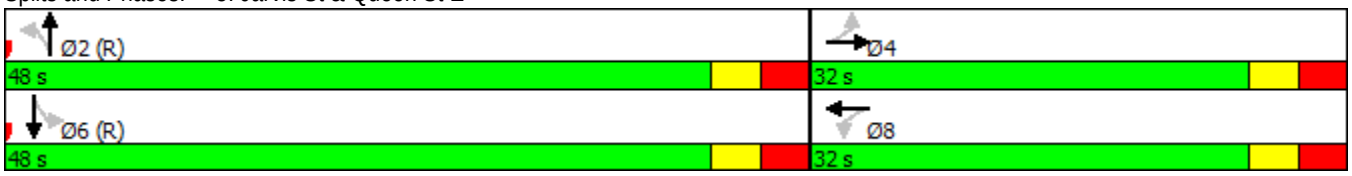
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

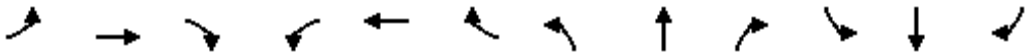
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	483	1	524	16	774	7	176
Future Volume (vph)	4	483	1	524	16	774	7	176
Lane Group Flow (vph)	0	587	0	786	0	941	0	251
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Minimum Split (s)	29.0	29.0	29.0	29.0	26.0	26.0	26.0	26.0
Total Split (s)	32.0	32.0	32.0	32.0	48.0	48.0	48.0	48.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
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								
Lead-Lag Optimize?								
v/c Ratio		0.65		0.86		0.60		0.17
Control Delay		26.0		35.1		14.5		9.3
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		26.0		35.1		14.5		9.3
Queue Length 50th (m)		38.4		54.7		47.3		8.9
Queue Length 95th (m)		55.5		#87.3		65.1		14.7
Internal Link Dist (m)		74.2		106.7		44.0		20.8
Turn Bay Length (m)								
Base Capacity (vph)		904		909		1564		1451
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		0.65		0.86		0.60		0.17

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 47 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Jarvis St & Queen St E

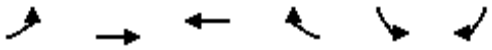




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	483	41	1	524	183	16	774	57	7	176	42
Future Volume (vph)	4	483	41	1	524	183	16	774	57	7	176	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
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		0.98			0.93			0.98			0.95	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.96			0.99			0.97	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		2796			2726			3061			2899	
Flt Permitted		0.95			0.95			0.95			0.93	
Satd. Flow (perm)		2656			2602			2901			2690	
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)	4	537	46	1	582	203	18	860	63	8	196	47
RTOR Reduction (vph)	0	8	0	0	32	0	0	6	0	0	6	0
Lane Group Flow (vph)	0	579	0	0	754	0	0	935	0	0	245	0
Confl. Peds. (#/hr)	239		274	274		239	212		189	189		212
Confl. Bikes (#/hr)			24			7			6			3
Heavy Vehicles (%)	25%	7%	0%	0%	4%	0%	0%	2%	0%	0%	2%	3%
Bus Blockages (#/hr)	0	19	0	0	13	0	0	0	1	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		26.0			26.0			42.0			42.0	
Effective Green, g (s)		27.0			27.0			43.0			43.0	
Actuated g/C Ratio		0.34			0.34			0.54			0.54	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		896			878			1559			1445	
v/s Ratio Prot												
v/s Ratio Perm		0.22			c0.29			c0.32			0.09	
v/c Ratio		0.65			0.86			0.60			0.17	
Uniform Delay, d1		22.5			24.7			12.6			9.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.6			10.7			1.7			0.3	
Delay (s)		26.0			35.4			14.3			9.7	
Level of Service		C			D			B			A	
Approach Delay (s)		26.0			35.4			14.3			9.7	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	103	381	495	79	120	130
Future Volume (Veh/h)	103	381	495	79	120	130
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)	114	423	550	88	133	144
Pedestrians		4	7		242	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	1		20	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			98			
pX, platoon unblocked						
vC, conflicting volume	880				1282	565
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	880				1282	565
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				0	62
cM capacity (veh/h)	624				103	379

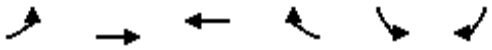
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	255	282	367	271	133	144
Volume Left	114	0	0	0	133	0
Volume Right	0	0	0	88	0	144
cSH	624	1700	1700	1700	103	379
Volume to Capacity	0.18	0.17	0.22	0.16	1.29	0.38
Queue Length 95th (m)	5.0	0.0	0.0	0.0	69.5	13.2
Control Delay (s)	6.7	0.0	0.0	0.0	260.0	20.2
Lane LOS	A				F	C
Approach Delay (s)	3.2		0.0		135.3	
Approach LOS					F	

Intersection Summary			
Average Delay	27.0		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	5	194	12	11	130
Future Volume (Veh/h)	19	5	194	12	11	130
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	5	211	13	12	141
Pedestrians	36		12			2
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		1			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	430	256			260	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	430	256			260	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			99	
cM capacity (veh/h)	558	764			1278	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	224	153
Volume Left	21	0	12
Volume Right	5	13	0
cSH	588	1700	1278
Volume to Capacity	0.04	0.13	0.01
Queue Length 95th (m)	1.1	0.0	0.2
Control Delay (s)	11.4	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	11.4	0.0	0.7
Approach LOS	B		

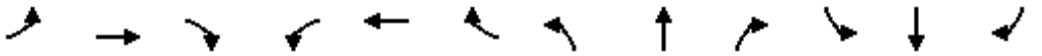
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	2	7	5	3	13
Future Volume (Veh/h)	10	2	7	5	3	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	13	3	9	7	4	17
Pedestrians		2	2			
Lane Width (m)		3.5	3.5			
Walking Speed (m/s)		1.2	1.2			
Percent Blockage		0	0			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	16				44	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16				44	14
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1615				963	1069

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	16	16	21
Volume Left	13	0	4
Volume Right	0	7	17
cSH	1615	1700	1047
Volume to Capacity	0.01	0.01	0.02
Queue Length 95th (m)	0.2	0.0	0.5
Control Delay (s)	5.9	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	5.9	0.0	8.5
Approach LOS			A

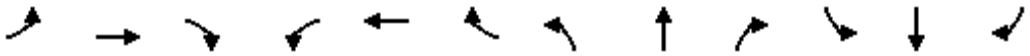
Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	513	38	78	393	47	11	31	101	30	72	12
Future Volume (Veh/h)	8	513	38	78	393	47	11	31	101	30	72	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	9	552	41	84	423	51	12	33	109	32	77	13
Pedestrians		3			11			94			108	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			8			9	
Right turn flare (veh)									1			1
Median type		None			None							
Median storage veh)												
Upstream signal (m)					99							
pX, platoon unblocked	0.88						0.88	0.88		0.88	0.88	0.88
vC, conflicting volume	582			687			1349	1434	678	1397	1430	560
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	451			687			1327	1425	678	1382	1419	425
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			90			50	63	74	24	15	97
cM capacity (veh/h)	895			847			24	90	418	42	91	504

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	602	558	154	122
Volume Left	9	84	12	32
Volume Right	41	51	109	13
cSH	895	847	192	76
Volume to Capacity	0.01	0.10	0.80	1.61
Queue Length 95th (m)	0.2	2.5	42.4	78.0
Control Delay (s)	0.3	2.6	72.5	422.8
Lane LOS	A	A	F	F
Approach Delay (s)	0.3	2.6	72.5	422.8
Approach LOS			F	F

Intersection Summary				
Average Delay	44.8			
Intersection Capacity Utilization	87.7%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	665	8	3	596	7	7	0	19	4	0	8
Future Volume (Veh/h)	10	665	8	3	596	7	7	0	19	4	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	11	707	9	3	634	7	7	0	20	4	0	9
Pedestrians		1			1			113			150	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			9			12	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					52							
pX, platoon unblocked	0.81						0.81	0.81		0.81	0.81	0.81
vC, conflicting volume	791			829			1500	1644	826	1548	1644	788
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	624			829			1500	1677	826	1559	1679	621
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			88	100	94	92	100	97
cM capacity (veh/h)	688			737			60	61	341	51	61	349

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	727	644	27	13
Volume Left	11	3	7	4
Volume Right	9	7	20	9
cSH	688	737	155	125
Volume to Capacity	0.02	0.00	0.17	0.10
Queue Length 95th (m)	0.4	0.1	4.6	2.6
Control Delay (s)	0.4	0.1	33.1	37.0
Lane LOS	A	A	D	E
Approach Delay (s)	0.4	0.1	33.1	37.0
Approach LOS			D	E

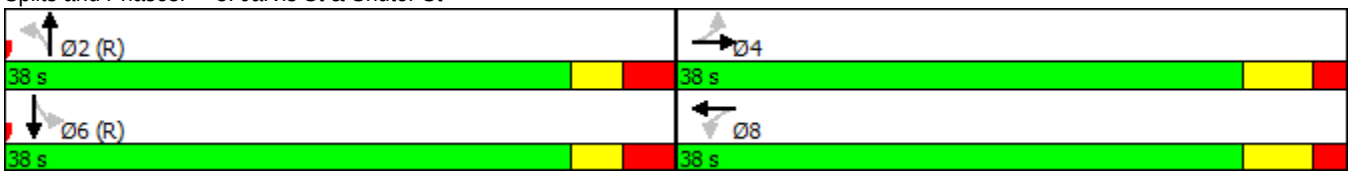
Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

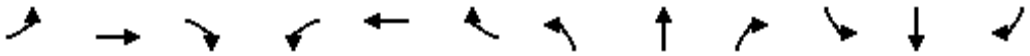
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	170	455	41	343	167	691	71	222
Future Volume (vph)	170	455	41	343	167	691	71	222
Lane Group Flow (vph)	181	553	44	438	0	1018	0	423
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Minimum Split (s)	30.0	30.0	30.0	30.0	28.0	28.0	28.0	28.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	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								
Lead-Lag Optimize?								
v/c Ratio	0.77	0.79	0.28	0.63		0.71		0.51
Control Delay	43.5	28.0	19.6	21.0		20.2		15.0
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	43.5	28.0	19.6	21.0		20.2		15.0
Queue Length 50th (m)	21.2	64.2	3.9	45.1		40.6		17.6
Queue Length 95th (m)	#55.5	#116.3	11.8	74.7		55.3		30.2
Internal Link Dist (m)		27.7		104.5		148.1		72.7
Turn Bay Length (m)	26.0		20.0					
Base Capacity (vph)	235	704	160	697		1442		823
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.77	0.79	0.28	0.63		0.71		0.51

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 76
Offset: 60 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

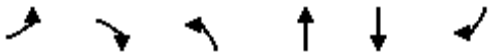
Splits and Phases: 3: Jarvis St & Shuter St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	455	65	41	343	69	167	691	99	71	222	104
Future Volume (vph)	170	455	65	41	343	69	167	691	99	71	222	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.97			0.98			0.90	
Flpb, ped/bikes	0.93	1.00		0.96	1.00			0.97			0.99	
Frt	1.00	0.98		1.00	0.97			0.98			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1383	1607		1343	1584			4198			2673	
Flt Permitted	0.37	1.00		0.26	1.00			0.77			0.66	
Satd. Flow (perm)	542	1607		371	1584			3279			1788	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	181	484	69	44	365	73	178	735	105	76	236	111
RTOR Reduction (vph)	0	7	0	0	10	0	0	19	0	0	47	0
Lane Group Flow (vph)	181	546	0	44	428	0	0	999	0	0	376	0
Confl. Peds. (#/hr)	165		140	140		165	204		124	124		204
Confl. Bikes (#/hr)			38			10			11			6
Heavy Vehicles (%)	2%	1%	3%	8%	1%	2%	1%	1%	3%	5%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.0	32.0		32.0	32.0			32.0			32.0	
Effective Green, g (s)	33.0	33.0		33.0	33.0			33.0			33.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.43			0.43	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	235	697		161	687			1423			776	
v/s Ratio Prot		c0.34			0.27							
v/s Ratio Perm	0.33			0.12				c0.30			0.21	
v/c Ratio	0.77	0.78		0.27	0.62			0.70			0.48	
Uniform Delay, d1	18.3	18.4		13.8	16.7			17.5			15.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	21.3	8.6		4.2	4.2			2.9			2.2	
Delay (s)	39.6	27.0		18.0	20.9			20.4			17.6	
Level of Service	D	C		B	C			C			B	
Approach Delay (s)		30.1			20.6			20.4			17.6	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	108.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	9	19	943	213	10
Future Volume (Veh/h)	0	9	19	943	213	10
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	10	21	1048	237	11
Pedestrians	138				2	
Lane Width (m)	3.5				3.5	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	11				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				45	172	
pX, platoon unblocked						
vC, conflicting volume	774	262	386			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774	262	386			
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	98	98			
cM capacity (veh/h)	295	660	1051			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	10	231	419	419	158	90
Volume Left	0	21	0	0	0	0
Volume Right	10	0	0	0	0	11
cSH	660	1051	1700	1700	1700	1700
Volume to Capacity	0.02	0.02	0.25	0.25	0.09	0.05
Queue Length 95th (m)	0.4	0.5	0.0	0.0	0.0	0.0
Control Delay (s)	10.5	0.9	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	10.5	0.2			0.0	
Approach LOS	B					

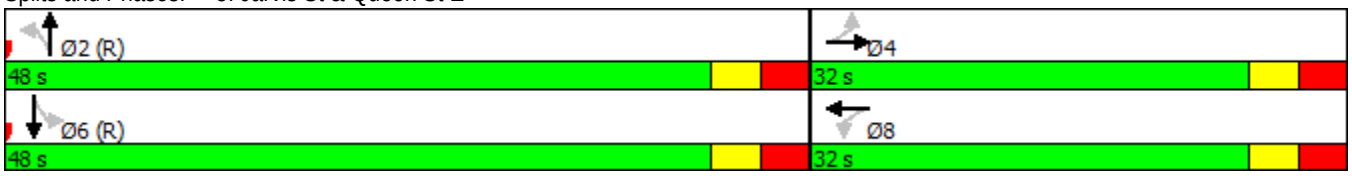
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

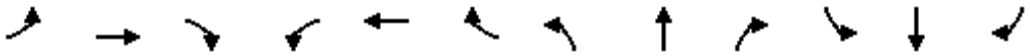
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	483	1	524	16	774	7	176
Future Volume (vph)	4	483	1	524	16	774	7	176
Lane Group Flow (vph)	0	587	0	786	0	941	0	251
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Minimum Split (s)	29.0	29.0	29.0	29.0	26.0	26.0	26.0	26.0
Total Split (s)	32.0	32.0	32.0	32.0	48.0	48.0	48.0	48.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
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								
Lead-Lag Optimize?								
v/c Ratio		0.65		0.86		0.60		0.17
Control Delay		26.0		35.1		14.5		9.3
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		26.0		35.1		14.5		9.3
Queue Length 50th (m)		38.4		54.7		47.3		8.9
Queue Length 95th (m)		55.5		#87.3		65.1		14.7
Internal Link Dist (m)		74.2		106.7		44.0		20.8
Turn Bay Length (m)								
Base Capacity (vph)		904		909		1564		1451
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		0.65		0.86		0.60		0.17

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 47 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Jarvis St & Queen St E

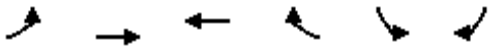




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	483	41	1	524	183	16	774	57	7	176	42
Future Volume (vph)	4	483	41	1	524	183	16	774	57	7	176	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
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		0.98			0.93			0.98			0.95	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.96			0.99			0.97	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		2796			2726			3061			2899	
Flt Permitted		0.95			0.95			0.95			0.93	
Satd. Flow (perm)		2656			2602			2901			2690	
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)	4	537	46	1	582	203	18	860	63	8	196	47
RTOR Reduction (vph)	0	8	0	0	32	0	0	6	0	0	6	0
Lane Group Flow (vph)	0	579	0	0	754	0	0	935	0	0	245	0
Confl. Peds. (#/hr)	239		274	274		239	212		189	189		212
Confl. Bikes (#/hr)			24			7			6			3
Heavy Vehicles (%)	25%	7%	0%	0%	4%	0%	0%	2%	0%	0%	2%	3%
Bus Blockages (#/hr)	0	19	0	0	13	0	0	0	1	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		26.0			26.0			42.0			42.0	
Effective Green, g (s)		27.0			27.0			43.0			43.0	
Actuated g/C Ratio		0.34			0.34			0.54			0.54	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		896			878			1559			1445	
v/s Ratio Prot												
v/s Ratio Perm		0.22			c0.29			c0.32			0.09	
v/c Ratio		0.65			0.86			0.60			0.17	
Uniform Delay, d1		22.5			24.7			12.6			9.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.6			10.7			1.7			0.3	
Delay (s)		26.0			35.4			14.3			9.7	
Level of Service		C			D			B			A	
Approach Delay (s)		26.0			35.4			14.3			9.7	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	103	381	495	79	120	130
Future Volume (Veh/h)	103	381	495	79	120	130
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)	114	423	550	88	133	144
Pedestrians		4	7		242	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	1		20	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			98			
pX, platoon unblocked						
vC, conflicting volume	880				1282	565
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	880				1282	565
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				0	62
cM capacity (veh/h)	624				103	379

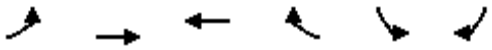
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	255	282	367	271	133	144
Volume Left	114	0	0	0	133	0
Volume Right	0	0	0	88	0	144
cSH	624	1700	1700	1700	103	379
Volume to Capacity	0.18	0.17	0.22	0.16	1.29	0.38
Queue Length 95th (m)	5.0	0.0	0.0	0.0	69.5	13.2
Control Delay (s)	6.7	0.0	0.0	0.0	260.0	20.2
Lane LOS	A				F	C
Approach Delay (s)	3.2		0.0		135.3	
Approach LOS					F	

Intersection Summary			
Average Delay	27.0		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	5	194	12	11	130
Future Volume (Veh/h)	19	5	194	12	11	130
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	5	211	13	12	141
Pedestrians	36		12			2
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		1			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	430	256			260	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	430	256			260	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			99	
cM capacity (veh/h)	558	764			1278	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	224	153
Volume Left	21	0	12
Volume Right	5	13	0
cSH	588	1700	1278
Volume to Capacity	0.04	0.13	0.01
Queue Length 95th (m)	1.1	0.0	0.2
Control Delay (s)	11.4	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	11.4	0.0	0.7
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	2	7	5	3	13
Future Volume (Veh/h)	10	2	7	5	3	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	13	3	9	7	4	17
Pedestrians		2	2			
Lane Width (m)		3.5	3.5			
Walking Speed (m/s)		1.2	1.2			
Percent Blockage		0	0			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	16				44	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16				44	14
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1615				963	1069

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	16	16	21
Volume Left	13	0	4
Volume Right	0	7	17
cSH	1615	1700	1047
Volume to Capacity	0.01	0.01	0.02
Queue Length 95th (m)	0.2	0.0	0.5
Control Delay (s)	5.9	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	5.9	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX F

Toronto Transit Commission (TTC) Ridership Data

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 141 DOWNTOWN/MT PLEASANT EXPRESS
ROUTING CODE(S): _0,
COUNT: 1045 ON 2012-JUN-29: M-F (FROM 08:01 TO 17:41)
STOP CARD: 15 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

NB CONTROL POINT: 23 MT PLEASANT AT EGLINTON AVE E

TORONTO TRANSIT COMMISSION

NORTHBOUND PERIOD 1: 08:01 TO 09:00

ROUTE STOP	LOCATION	STARTS	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
1	ADELAIDE ST W AT SIMCOE	0	0	0	0	1	0.0
2	ADELAIDE ST W AT UNIVERSITY	0	0	0	0	1	0.0
3	ADELAIDE ST W AT YORK ST	0	0	0	0	1	0.0
4	ADELAIDE ST W AT SHEPPARD ST	0	0	0	0	1	0.0
5	ADELAIDE ST E AT YONGE ST	0	0	0	0	1	0.0
6	ADELAIDE ST E AT CHURCH	0	0	0	0	1	0.0
7	JARVIS AT QUEEN ST E	0	0	0	0	1	0.0
8	JARVIS AT DUNDAS ST E	0	0	0	0	1	0.0
9	JARVIS AT CARLTON	0	0	0	0	1	0.0
10	JARVIS AT WELLESLEY	0	0	0	0	1	0.0
11	JARVIS AT MT PLEASANT	0	0	0	0	1	0.0
12	MT PLEASANT AT ELM	0	0	0	0	1	0.0
13	MT PLEASANT AT INGLEWOOD	0	0	0	0	1	0.0
14	MT PLEASANT AT ST CLAIR AVE E	0	0	0	0	1	0.0
15	MT PLEASANT AT HEATH	0	0	0	0	1	0.0
16	MT PLEASANT AT MOORE	0	0	0	0	1	0.0
17	MT PLEASANT AT CEMETERY N OF MOORE	0	0	0	0	1	0.0
18	MT PLEASANT AT MERTON	0	0	0	0	1	0.0
19	MT PLEASANT AT DAVISVILLE	0	1	0	1	1	1.0
20	MT PLEASANT AT BELSIZE	0	0	0	1	1	1.0
21	MT PLEASANT AT MANOR RD	0	0	0	1	1	1.0
22	MT PLEASANT AT SOUDAN	0	0	0	1	1	1.0
23	MT PLEASANT AT EGLINTON AVE E	0	0	1	0	1	0.0
24	MT PLEASANT AT EGLINTON AVE E	0	0	0	0	1	0.0
25	MT PLEASANT AT BROADWAY	0	0	0	0	1	0.0
26	ERSKINE AT MT PLEASANT	0	0	0	0	1	0.0
27	REDPATH AT ERSKINE	0	0	0	0	1	0.0
28	REDPATH AT BROADWAY	0	0	0	0	1	0.0
29	REDPATH AT ROEHAMPTON	0	0	0	0	1	0.0
30	REDPATH AT EGLINTON AVE E	0	0	0	0	1	0.0
TOTALS FOR PERIOD	PERIOD 1: 08:01 TO 09:00	0	1	1	4	30	0.1

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 141 DOWNTOWN/MT PLEASANT EXPRESS
ROUTING CODE(S): _0,
COUNT: 1045 ON 2012-JUN-29: M-F (FROM 08:01 TO 17:41)
STOP CARD: 15 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

NB CONTROL POINT: 23 MT PLEASANT AT EGLINTON AVE E

TORONTO TRANSIT COMMISSION

NORTHBOUND PERIOD 1: 08:01 TO 09:00

PERIOD RIDING INDEX =	0.1	(AVERAGE OCCUPANCY)
AVERAGE TRIP LENGTH =	4.0	STOPS
AVERAGE ONS/VEHICLE-STOP =	0.0	
AVERAGE ONS/TRIP =	1.0	

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 141 DOWNTOWN/MT PLEASANT EXPRESS
ROUTING CODE(S): _0,
COUNT: 1045 ON 2012-JUN-29: M-F (FROM 08:01 TO 17:41)
STOP CARD: 15 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

NB CONTROL POINT: 23 MT PLEASANT AT EGLINTON AVE E

TORONTO TRANSIT COMMISSION

NORTHBOUND PERIOD 3: 17:17 TO 18:16

ROUTE STOP	LOCATION	STARTS	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
1	ADELAIDE ST W AT SIMCOE	8	6	0	14	2	7.0
2	ADELAIDE ST W AT UNIVERSITY	0	1	0	15	2	7.5
3	ADELAIDE ST W AT YORK ST	0	1	0	16	2	8.0
4	ADELAIDE ST W AT SHEPPARD ST	0	3	0	19	2	9.5
5	ADELAIDE ST E AT YONGE ST	0	3	0	22	2	11.0
6	ADELAIDE ST E AT CHURCH	0	3	0	25	2	12.5
7	JARVIS AT QUEEN ST E	0	0	0	25	2	12.5
8	JARVIS AT DUNDAS ST E	0	0	0	25	2	12.5
9	JARVIS AT CARLTON	0	1	0	26	2	13.0
10	JARVIS AT WELLESLEY	0	0	0	26	2	13.0
11	JARVIS AT MT PLEASANT	0	0	0	26	2	13.0
12	MT PLEASANT AT ELM	0	0	0	26	2	13.0
13	MT PLEASANT AT INGLEWOOD	0	0	0	26	2	13.0
14	MT PLEASANT AT ST CLAIR AVE E	0	0	2	24	2	12.0
15	MT PLEASANT AT HEATH	0	0	0	24	2	12.0
16	MT PLEASANT AT MOORE	0	0	0	24	2	12.0
17	MT PLEASANT AT CEMETERY N OF MOORE	0	0	0	24	2	12.0
18	MT PLEASANT AT MERTON	0	0	4	20	2	10.0
19	MT PLEASANT AT DAVISVILLE	0	0	0	20	2	10.0
20	MT PLEASANT AT BELSIZE	0	0	0	20	2	10.0
21	MT PLEASANT AT MANOR RD	0	0	5	15	2	7.5
22	MT PLEASANT AT SOUDAN	0	0	0	15	2	7.5
23	MT PLEASANT AT EGLINTON AVE E	0	0	7	8	2	4.0
24	MT PLEASANT AT EGLINTON AVE E	0	0	0	8	2	4.0
25	MT PLEASANT AT BROADWAY	0	0	1	7	2	3.5
26	ERSKINE AT MT PLEASANT	0	0	4	3	2	1.5
27	REDPATH AT ERSKINE	0	0	2	1	2	0.5
28	REDPATH AT BROADWAY	0	0	0	1	2	0.5
29	REDPATH AT ROEHAMPTON	0	0	1	0	2	0.0
30	REDPATH AT EGLINTON AVE E	0	0	0	0	2	0.0
TOTALS FOR PERIOD	PERIOD 3: 17:17 TO 18:16	8	18	26	505	60	8.4

ROUTE: 141 DOWNTOWN/MT PLEASANT EXPRESS
ROUTING CODE(S): _0,
COUNT: 1045 ON 2012-JUN-29: M-F (FROM 08:01 TO 17:41)
STOP CARD: 15 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

NB CONTROL POINT: 23 MT PLEASANT AT EGLINTON AVE E

TORONTO TRANSIT COMMISSION

NORTHBOUND PERIOD 3: 17:17 TO 18:16

PERIOD RIDING INDEX =	8.4	(AVERAGE OCCUPANCY)
AVERAGE TRIP LENGTH =	28.1	STOPS
AVERAGE ONS/VEHICLE-STOP =	0.3	
AVERAGE ONS/TRIP =	9.0	

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 141 DOWNTOWN/MT PLEASANT EXPRESS
ROUTING CODE(S): _0,
COUNT: 1045 ON 2012-JUN-29: M-F (FROM 07:46 TO 16:36)
STOP CARD: 15 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

SB CONTROL POINT: 7 MT PLEASANT AT EGLINTON AVE E

TORONTO TRANSIT COMMISSION

SOUTHBOUND PERIOD 1: 07:46 TO 08:45

ROUTE STOP	LOCATION	STARTS	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
1	REDPATH AT EGLINTON AVE E	0	14	0	14	3	4.7
2	REDPATH AT ROEHAMPTON	0	3	0	17	3	5.7
3	REDPATH AT BROADWAY	0	2	0	19	3	6.3
4	REDPATH AT ERSKINE	0	8	0	27	3	9.0
5	ERSKINE AT MT PLEASANT	0	11	0	38	3	12.7
6	MT PLEASANT AT BROADWAY	0	4	0	42	3	14.0
7	MT PLEASANT AT EGLINTON AVE E	0	5	0	47	3	15.7
8	MT PLEASANT AT SOUDAN	0	3	0	50	3	16.7
9	MT PLEASANT AT MANOR RD	0	7	0	57	3	19.0
10	MT PLEASANT AT BELSIZE	0	2	0	59	3	19.7
11	MT PLEASANT AT DAVISVILLE	0	11	0	70	3	23.3
12	MT PLEASANT AT MERTON	0	6	0	76	3	25.3
13	MT PLEASANT AT CEMETERY N OF MOORE	0	0	0	76	3	25.3
14	MT PLEASANT AT MOORE	0	0	0	76	3	25.3
15	MT PLEASANT AT HEATH	0	0	0	76	3	25.3
16	MT PLEASANT AT ST CLAIR AVE E	0	3	0	79	3	26.3
17	MT PLEASANT AT ELM	0	0	0	79	3	26.3
18	JARVIS AT ISABELLA	0	0	7	72	3	24.0
19	JARVIS AT WELLESLEY	0	0	0	72	3	24.0
20	JARVIS AT CARLTON	0	0	2	70	3	23.3
21	JARVIS AT DUNDAS ST E	0	0	0	70	3	23.3
22	JARVIS AT QUEEN ST E	0	0	1	69	3	23.0
23	RICHMOND ST E AT JARVIS	0	0	3	66	3	22.0
24	RICHMOND ST E AT CHURCH	0	0	3	63	3	21.0
25	RICHMOND ST E AT VICTORIA	0	0	6	57	3	19.0
26	RICHMOND ST W AT YONGE ST	0	0	4	53	3	17.7
27	RICHMOND ST W AT BAY ST	0	0	16	37	3	12.3
28	RICHMOND ST W AT YORK ST	0	0	14	23	3	7.7
29	RICHMOND ST W AT SIMCOE	0	0	6	17	3	5.7
30	RICHMOND ST W AT JOHN	0	0	3	14	3	4.7
31	ADELAIDE ST W AT PETER	0	0	9	5	3	1.7
32	ADELAIDE ST W AT JOHN	0	0	2	3	3	1.0
33	ADELAIDE ST W AT SIMCOE	0	0	3	0	3	0.0
TOTALS FOR PERIOD	PERIOD 1: 07:46 TO 08:45	0	79	79	1593	99	16.1

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 141 DOWNTOWN/MT PLEASANT EXPRESS
ROUTING CODE(S): _0,
COUNT: 1045 ON 2012-JUN-29: M-F (FROM 07:46 TO 16:36)
STOP CARD: 15 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

SB CONTROL POINT: 7 MT PLEASANT AT EGLINTON AVE E

TORONTO TRANSIT COMMISSION

SOUTHBOUND PERIOD 1: 07:46 TO 08:45

PERIOD RIDING INDEX =	16.1	(AVERAGE OCCUPANCY)
AVERAGE TRIP LENGTH =	20.2	STOPS
AVERAGE ONS/VEHICLE-STOP =	0.8	
AVERAGE ONS/TRIP =	26.3	

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 141 DOWNTOWN/MT PLEASANT EXPRESS
ROUTING CODE(S): _0,
COUNT: 1045 ON 2012-JUN-29: M-F (FROM 07:46 TO 16:36)
STOP CARD: 15 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

SB CONTROL POINT: 7 MT PLEASANT AT EGLINTON AVE E

TORONTO TRANSIT COMMISSION

SOUTHBOUND PERIOD 3: 16:36 TO 17:35

ROUTE STOP	LOCATION	STARTS	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
24	RICHMOND ST E AT CHURCH	0	0	0	0	1	0.0
25	RICHMOND ST E AT VICTORIA	0	0	0	0	1	0.0
26	RICHMOND ST W AT YONGE ST	0	0	0	0	1	0.0
27	RICHMOND ST W AT BAY ST	0	2	0	2	1	2.0
28	RICHMOND ST W AT YORK ST	0	0	0	2	1	2.0
29	RICHMOND ST W AT SIMCOE	0	1	0	3	1	3.0
30	RICHMOND ST W AT JOHN	0	0	0	3	1	3.0
31	ADELAIDE ST W AT PETER	0	3	0	6	1	6.0
32	ADELAIDE ST W AT JOHN	0	2	0	8	1	8.0
33	ADELAIDE ST W AT SIMCOE	0	0	0	8	1	8.0
TOTALS FOR PERIOD	PERIOD 3: 16:36 TO 17:35	0	8	0	32	10	3.2

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 141 DOWNTOWN/MT PLEASANT EXPRESS
ROUTING CODE(S): _0,
COUNT: 1045 ON 2012-JUN-29: M-F (FROM 07:46 TO 16:36)
STOP CARD: 15 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

SB CONTROL POINT: 7 MT PLEASANT AT EGLINTON AVE E

TORONTO TRANSIT COMMISSION

SOUTHBOUND PERIOD 3: 16:36 TO 17:35

PERIOD RIDING INDEX =	3.2	(AVERAGE OCCUPANCY)
AVERAGE TRIP LENGTH =	4.0	STOPS
AVERAGE ONS/VEHICLE-STOP =	0.8	
AVERAGE ONS/TRIP =	8.0	

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 004

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:04 TO 17:55)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

EB CONTROL POINT: 67 QUEEN ST W AT YONGE ST

EASTBOUND PERIOD 1: 08:04 TO 09:03

ROUTE STOP	LOCATION	START	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
1	LOOP (LONG BRANCH) AT LAKESHORE BLVD W	0	119	0	119	7	17.0
2	LAKESHORE BLVD W AT 39TH	0	12	0	131	7	18.7
3	LAKESHORE BLVD W AT 37TH	0	6	0	137	7	19.6
4	LAKESHORE BLVD W AT LONG BRANCH	0	27	0	164	7	23.4
5	LAKESHORE BLVD W AT 31ST	0	27	4	187	7	26.7
6	LAKESHORE BLVD W AT 28TH	0	13	1	199	7	28.4
7	LAKESHORE BLVD W AT 27TH	0	23	3	219	7	31.3
8	LAKESHORE BLVD W AT 23RD	0	18	15	222	7	31.7
9	LAKESHORE BLVD W AT KIPLING	0	10	122	110	7	15.7
10	LAKESHORE BLVD W AT 15TH	0	13	1	122	7	17.4
11	LAKESHORE BLVD W AT 13TH	0	19	5	136	7	19.4
12	LAKESHORE BLVD W AT 10TH	0	25	2	159	7	22.7
13	LAKESHORE BLVD W AT 7TH	0	16	5	170	7	24.3
14	LAKESHORE BLVD W AT 5TH	0	18	1	187	7	26.7
15	LAKESHORE BLVD W AT 3RD	0	14	11	190	7	27.1
16	LAKESHORE BLVD W AT FIRST	0	13	5	198	7	28.3
17	LAKESHORE BLVD W AT ROYAL YORK	0	30	9	219	7	31.3
18	LAKESHORE BLVD W AT LAKE CRES	0	3	14	208	7	29.7
19	LAKESHORE BLVD W AT MILES	0	10	1	217	7	31.0
20	LAKESHORE BLVD W AT NORRIS	0	17	2	232	7	33.1
21	LAKESHORE BLVD W AT SUMMERHILL	0	14	4	242	7	34.6
22	LAKESHORE BLVD W AT MIMICO	0	16	10	248	7	35.4
23	LAKESHORE BLVD W AT SUPERIOR	0	12	1	259	7	37.0
24	LAKESHORE BLVD W AT BURLINGTON	0	36	3	292	7	41.7
25	LAKESHORE BLVD W AT LOUISA	0	10	1	301	7	43.0
26	LAKESHORE BLVD W AT LEGION RD	0	30	3	328	7	46.9
27	LAKESHORE BLVD W AT PARKLAWN	0	9	11	326	7	46.6
28	LAKESHORE BLVD W AT OPP 2155 (CHRISTIES)	0	5	3	328	7	46.9
29	LAKESHORE BLVD W AT AT 2095	0	34	2	360	7	51.4
30	LOOP (HUMBER) AT QUEENSWAY (1)	0	11	0	11	2	5.5
31	LOOP (HUMBER) AT QUEENSWAY	0	39	4	395	7	56.4
32	QUEENSWAY AT SOUTH KINGSWAY	0	6	5	407	9	45.2
33	QUEENSWAY AT WINDERMERE (1)	0	65	9	463	9	51.4
34	QUEENSWAY AT ELLIS (1)	0	10	1	472	9	52.4
35	QUEENSWAY AT COLBORNE LODGE DR(1)	0	1	0	473	9	52.6
36	QUEENSWAY AT PARKSIDE	0	10	1	482	9	53.6
37	QUEENSWAY AT GLENDALE	0	16	29	469	9	52.1
38	QUEENSWAY AT RONCESVALLES	0	76	109	436	13	33.5
39	QUEEN ST W AT WILSON	0	48	11	473	13	36.4
41	QUEEN ST W AT DOWLING	0	57	6	524	13	40.3

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:04 TO 17:55)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

EB CONTROL POINT: 67 QUEEN ST W AT YONGE ST

EASTBOUND PERIOD 1: 08:04 TO 09:03

ROUTE STOP	LOCATION	START	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
42	QUEEN ST W AT JAMESON	0	92	22	594	13	45.7
43	QUEEN ST W AT DUNN	0	78	1	671	13	51.6
45	QUEEN ST W AT BROCK	0	64	9	726	13	55.8
46	QUEEN ST W AT DUFFERIN	0	47	35	738	13	56.8
47	QUEEN ST W AT GLADSTONE	0	64	7	795	13	61.2
48	QUEEN ST W AT ABELL	0	24	0	819	13	63.0
49	QUEEN ST W AT DOVERCOURT	0	56	4	871	13	67.0
50	QUEEN ST W AT OSSINGTON AVE	0	47	30	888	13	68.3
51	QUEEN ST W AT SHAW	0	42	7	923	13	71.0
52	QUEEN ST W AT STRACHAN	0	46	8	961	13	73.9
54	QUEEN ST W AT NIAGARA	0	106	22	1045	13	80.4
56	QUEEN ST W AT TECUMSETH	0	35	6	1074	13	82.6
57	QUEEN ST W AT BATHURST ST	0	80	71	1083	13	83.3
59	QUEEN ST W AT AUGUSTA	0	36	21	1098	13	84.5
60	QUEEN ST W AT SPADINA AVE	0	54	103	1049	13	80.7
61	QUEEN ST W AT PETER	0	11	27	1033	13	79.5
62	QUEEN ST W AT JOHN	0	23	58	998	13	76.8
63	QUEEN ST W AT MCCAUL	0	12	23	987	14	70.5
64	QUEEN ST W AT UNIVERSITY AVE	0	61	299	749	14	53.5
65	QUEEN ST W AT YORK ST	0	9	76	682	14	48.7
66	QUEEN ST W AT BAY ST	0	19	170	531	14	37.9
67	QUEEN ST W AT YONGE ST	0	196	268	459	14	32.8
68	QUEEN ST E AT VICTORIA	0	100	44	515	14	36.8
69	QUEEN ST E AT CHURCH	0	24	44	495	14	35.4
70	QUEEN ST E AT JARVIS	0	6	49	452	14	32.3
71	QUEEN ST E AT SHERBOURNE	0	11	64	399	14	28.5
72	QUEEN ST E AT ONTARIO	0	5	26	378	14	27.0
73	QUEEN ST E AT PARLIAMENT	0	13	31	360	14	25.7
75	QUEEN ST E AT SACKVILLE	0	5	24	341	14	24.4
76	QUEEN ST E AT SUMACH	0	11	49	303	14	21.6
77	QUEEN ST E AT RIVER	0	5	23	285	14	20.4
78	QUEEN ST E AT CARROLL	0	1	28	258	14	18.4
79	QUEEN ST E AT BROADVIEW	0	22	39	241	14	17.2
80	QUEEN ST E AT SAULTER	0	3	7	237	13	18.2
81	QUEEN ST E AT EMPIRE	0	6	34	209	13	16.1
83	QUEEN ST E AT LOGAN	0	8	33	184	13	14.2
84	QUEEN ST E AT CARLAW	0	15	41	158	13	12.2
85	QUEEN ST E AT PAPE	0	7	14	151	13	11.6
86	QUEEN ST E AT CAROLINE	0	11	12	150	13	11.5
87	QUEEN ST E AT JONES	0	16	14	152	13	11.7

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:04 TO 17:55)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

EB CONTROL POINT: 67 QUEEN ST W AT YONGE ST

EASTBOUND PERIOD 1: 08:04 TO 09:03

ROUTE STOP	LOCATION	START	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
88	QUEEN ST E AT LESLIE	0	3	18	137	13	10.5
89	QUEEN ST E AT LAING	0	10	1	146	13	11.2
90	QUEEN ST E AT GREENWOOD	0	10	21	135	13	10.4
91	QUEEN ST E AT CONNAUGHT	0	3	28	110	13	8.5
92	QUEEN ST E AT WOODWARD	0	0	4	106	12	8.8
93	QUEEN ST E AT COXWELL	0	6	33	79	12	6.6
94	QUEEN ST E AT KINGSTON RD	0	8	30	57	12	4.8
95	QUEEN ST E AT SARAH ASHBRIDGE	0	8	14	51	7	7.3
96	QUEEN ST E AT WOODBINE AVE	0	4	4	51	7	7.3
97	QUEEN ST E AT KIPPEN DAVIE	0	0	4	47	7	6.7
98	QUEEN ST E AT WAVERLY	0	0	5	42	7	6.0
99	QUEEN ST E AT LEE	0	0	15	27	7	3.9
100	QUEEN ST E AT WINEVA	0	4	13	18	7	2.6
101	QUEEN ST E AT SCARBORO BEACH	0	1	1	18	7	2.6
103	QUEEN ST E AT MACLEAN	0	2	4	16	7	2.3
104	QUEEN ST E AT BEECH	0	0	5	11	7	1.6
105	QUEEN ST E AT SILVER BIRCH	0	0	0	11	7	1.6
106	QUEEN ST E AT NEVILLE PARK	0	0	6	5	7	0.7
107	QUEEN ST E AT NEVILLE PARK	0	0	5	0	7	0.0
TOTALS FOR PERIOD 1: 08:04 TO 09:03		0	2468	2468	35924	1013	35.5

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:04 TO 17:55)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

EB CONTROL POINT: 67 QUEEN ST W AT YONGE ST

EASTBOUND PERIOD 1: 08:04 TO 09:03

PERIOD RIDING INDEX	=	35.5	(AVERAGE OCCUPANCY)
AVERAGE TRIP LENGTH	=	14.6	STOPS
AVERAGE ONS/VEHICLE-STOP	=	2.4	
AVERAGE ONS/TRIP	=	176.3	

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:04 TO 17:55)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

EB CONTROL POINT: 67 QUEEN ST W AT YONGE ST

EASTBOUND PERIOD 2: 16:56 TO 17:55

ROUTE STOP	LOCATION	START	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
1	LOOP (LONG BRANCH) AT LAKESHORE BLVD W	0	55	0	55	5	11.0
2	LAKESHORE BLVD W AT 39TH	0	6	0	61	5	12.2
3	LAKESHORE BLVD W AT 37TH	0	5	1	65	5	13.0
4	LAKESHORE BLVD W AT LONG BRANCH	0	11	4	72	5	14.4
5	LAKESHORE BLVD W AT 31ST	0	18	2	88	5	17.6
6	LAKESHORE BLVD W AT 28TH	0	6	0	94	5	18.8
7	LAKESHORE BLVD W AT 27TH	0	8	0	102	5	20.4
8	LAKESHORE BLVD W AT 23RD	0	15	5	112	5	22.4
9	LAKESHORE BLVD W AT KIPLING	0	49	3	158	6	26.3
10	LAKESHORE BLVD W AT 15TH	0	6	1	163	6	27.2
11	LAKESHORE BLVD W AT 13TH	0	9	6	166	6	27.7
12	LAKESHORE BLVD W AT 10TH	0	4	4	166	6	27.7
13	LAKESHORE BLVD W AT 7TH	0	21	16	171	6	28.5
14	LAKESHORE BLVD W AT 5TH	0	19	13	177	6	29.5
15	LAKESHORE BLVD W AT 3RD	0	8	5	180	6	30.0
16	LAKESHORE BLVD W AT FIRST	0	14	5	189	6	31.5
17	LAKESHORE BLVD W AT ROYAL YORK	0	5	10	184	6	30.7
18	LAKESHORE BLVD W AT LAKE CRES	0	1	1	184	6	30.7
19	LAKESHORE BLVD W AT MILES	0	1	4	181	6	30.2
20	LAKESHORE BLVD W AT NORRIS	0	5	12	174	6	29.0
21	LAKESHORE BLVD W AT SUMMERHILL	0	1	6	169	6	28.2
22	LAKESHORE BLVD W AT MIMICO	0	5	15	159	6	26.5
23	LAKESHORE BLVD W AT SUPERIOR	0	1	20	140	6	23.3
24	LAKESHORE BLVD W AT BURLINGTON	0	13	15	138	6	23.0
25	LAKESHORE BLVD W AT LOUISA	0	8	6	140	6	23.3
26	LAKESHORE BLVD W AT LEGION RD	0	1	2	139	6	23.2
27	LAKESHORE BLVD W AT PARKLAWN	0	6	11	134	6	22.3
28	LAKESHORE BLVD W AT OPP 2155 (CHRISTIES)	0	3	2	135	6	22.5
29	LAKESHORE BLVD W AT AT 2095	0	5	4	136	6	22.7
30	LOOP (HUMBER) AT QUEENSWAY (1)	0	1	0	1	1	1.0
31	LOOP (HUMBER) AT QUEENSWAY	0	11	5	142	6	23.7
32	QUEENSWAY AT SOUTH KINGSWAY	0	3	0	146	7	20.9
33	QUEENSWAY AT WINDERMERE (1)	0	21	7	160	7	22.9
34	QUEENSWAY AT ELLIS (1)	0	5	0	165	7	23.6
35	QUEENSWAY AT COLBORNE LODGE DR(1)	0	6	0	171	7	24.4
36	QUEENSWAY AT PARKSIDE	0	6	4	173	7	24.7
37	QUEENSWAY AT GLENDALE	0	8	1	180	7	25.7
38	QUEENSWAY AT RONCESVALLES	0	43	29	194	10	19.4
39	QUEEN ST W AT WILSON	0	9	5	198	10	19.8
41	QUEEN ST W AT DOWLING	0	15	9	204	10	20.4

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:04 TO 17:55)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

EB CONTROL POINT: 67 QUEEN ST W AT YONGE ST

EASTBOUND PERIOD 2: 16:56 TO 17:55

ROUTE STOP	LOCATION	START	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
42	QUEEN ST W AT JAMESON	0	35	25	214	10	21.4
43	QUEEN ST W AT DUNN	0	25	5	234	10	23.4
45	QUEEN ST W AT BROCK	0	31	12	253	10	25.3
46	QUEEN ST W AT DUFFERIN	0	21	25	249	10	24.9
47	QUEEN ST W AT GLADSTONE	0	44	15	278	10	27.8
48	QUEEN ST W AT ABELL	0	7	5	280	10	28.0
49	QUEEN ST W AT DOVERCOURT	0	28	7	301	10	30.1
50	QUEEN ST W AT OSSINGTON AVE	0	31	14	318	10	31.8
51	QUEEN ST W AT SHAW	0	30	5	343	10	34.3
52	QUEEN ST W AT STRACHAN	0	20	9	354	11	32.2
54	QUEEN ST W AT NIAGARA	0	33	11	376	11	34.2
56	QUEEN ST W AT TECUMSETH	0	32	15	393	11	35.7
57	QUEEN ST W AT BATHURST ST	0	87	41	439	11	39.9
59	QUEEN ST W AT AUGUSTA	0	68	17	490	11	44.5
60	QUEEN ST W AT SPADINA AVE	0	155	44	601	11	54.6
61	QUEEN ST W AT PETER	0	51	14	638	11	58.0
62	QUEEN ST W AT JOHN	0	58	18	678	11	61.6
63	QUEEN ST W AT MCCAUL	0	23	22	679	11	61.7
64	QUEEN ST W AT UNIVERSITY AVE	0	96	198	577	11	52.5
65	QUEEN ST W AT YORK ST	0	47	28	596	11	54.2
66	QUEEN ST W AT BAY ST	0	96	41	651	11	59.2
67	QUEEN ST W AT YONGE ST	0	337	180	808	11	73.5
68	QUEEN ST E AT VICTORIA	0	49	16	841	11	76.5
69	QUEEN ST E AT CHURCH	0	45	23	863	11	78.5
70	QUEEN ST E AT JARVIS	0	23	43	843	11	76.6
71	QUEEN ST E AT SHERBOURNE	0	14	54	803	11	73.0
72	QUEEN ST E AT ONTARIO	0	5	42	766	11	69.6
73	QUEEN ST E AT PARLIAMENT	0	34	53	747	11	67.9
75	QUEEN ST E AT SACKVILLE	0	16	23	740	11	67.3
76	QUEEN ST E AT SUMACH	0	14	30	724	11	65.8
77	QUEEN ST E AT RIVER	0	9	24	709	11	64.5
78	QUEEN ST E AT CARROLL	0	29	22	716	11	65.1
79	QUEEN ST E AT BROADVIEW	0	46	60	702	11	63.8
80	QUEEN ST E AT SAULTER	0	4	21	685	9	76.1
81	QUEEN ST E AT EMPIRE	0	7	26	666	9	74.0
83	QUEEN ST E AT LOGAN	0	4	43	627	9	69.7
84	QUEEN ST E AT CARLAW	0	19	45	601	9	66.8
85	QUEEN ST E AT PAPE	0	5	46	560	9	62.2
86	QUEEN ST E AT CAROLINE	0	47	33	574	10	57.4
87	QUEEN ST E AT JONES	0	7	36	545	10	54.5

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:04 TO 17:55)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

EB CONTROL POINT: 67 QUEEN ST W AT YONGE ST

EASTBOUND PERIOD 2: 16:56 TO 17:55

ROUTE STOP	LOCATION	START	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
88	QUEEN ST E AT LESLIE	0	7	54	498	10	49.8
89	QUEEN ST E AT LAING	0	2	21	479	10	47.9
90	QUEEN ST E AT GREENWOOD	0	19	63	435	10	43.5
91	QUEEN ST E AT CONNAUGHT	0	1	21	415	9	46.1
92	QUEEN ST E AT WOODWARD	0	2	18	399	9	44.3
93	QUEEN ST E AT COXWELL	0	12	66	345	9	38.3
94	QUEEN ST E AT KINGSTON RD	0	42	117	270	9	30.0
95	QUEEN ST E AT SARAH ASHBRIDGE	0	5	20	255	6	42.5
96	QUEEN ST E AT WOODBINE AVE	0	3	29	229	6	38.2
97	QUEEN ST E AT KIPPEN DAVIE	0	2	16	215	6	35.8
98	QUEEN ST E AT WAVERLY	0	1	31	185	6	30.8
99	QUEEN ST E AT LEE	0	5	33	157	6	26.2
100	QUEEN ST E AT WINEVA	0	13	25	145	6	24.2
101	QUEEN ST E AT SCARBORO BEACH	0	0	27	118	6	19.7
103	QUEEN ST E AT MACLEAN	0	0	15	103	6	17.2
104	QUEEN ST E AT BEECH	0	0	33	70	6	11.7
105	QUEEN ST E AT SILVER BIRCH	0	1	25	46	6	7.7
106	QUEEN ST E AT NEVILLE PARK	0	0	36	10	6	1.7
107	QUEEN ST E AT NEVILLE PARK	0	0	10	0	6	0.0
TOTALS FOR PERIOD 2: 16:56 TO 17:55		0	2284	2284	32602	802	40.7

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:04 TO 17:55)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

EB CONTROL POINT: 67 QUEEN ST W AT YONGE ST

EASTBOUND PERIOD 2: 16:56 TO 17:55

PERIOD RIDING INDEX	=	40.7	(AVERAGE OCCUPANCY)
AVERAGE TRIP LENGTH	=	14.3	STOPS
AVERAGE ONS/VEHICLE-STOP	=	2.8	
AVERAGE ONS/TRIP	=	207.6	

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:17 TO 17:13)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

WB CONTROL POINT: 37 QUEEN ST E AT YONGE ST

WESTBOUND PERIOD 1: 08:17 TO 09:16

ROUTE STOP	LOCATION	START	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
1	QUEEN ST E AT NEVILLE PARK	0	41	0	41	8	5.1
2	QUEEN ST E AT SILVERBIRCH	0	19	0	60	8	7.5
3	QUEEN ST E AT SPRUCE HILL	0	50	0	110	8	13.8
4	QUEEN ST E AT GLEN MANOR	0	43	0	153	8	19.1
5	QUEEN ST E AT WINEVA	0	37	11	179	8	22.4
6	QUEEN ST E AT LEE	0	43	3	219	8	27.4
7	QUEEN ST E AT WAVERLY	0	35	2	252	8	31.5
8	QUEEN ST E AT ELMER	0	44	2	294	8	36.8
9	QUEEN ST E AT WOODBINE AVE	0	47	6	335	8	41.9
10	QUEEN ST E AT LOCKWOOD	0	15	0	350	8	43.8
11	QUEEN ST E AT KINGSTON RD	0	68	3	415	12	34.6
12	QUEEN ST E AT COXWELL	0	64	5	474	12	39.5
13	QUEEN ST E AT KENT	0	21	2	493	12	41.1
14	QUEEN ST E AT CONNAUGHT	0	42	5	530	15	35.3
15	QUEEN ST E AT GREENWOOD	0	53	2	581	15	38.7
16	QUEEN ST E AT ALTON	0	35	1	615	15	41.0
17	QUEEN ST E AT LESLIE	0	72	4	683	15	45.5
18	QUEEN ST E AT JONES	0	65	11	737	15	49.1
19	QUEEN ST E AT BROOKLYN	0	47	4	780	15	52.0
20	QUEEN ST E AT PAPE	0	44	3	821	15	54.7
21	QUEEN ST E AT CARLAW	0	65	15	871	15	58.1
22	QUEEN ST E AT LOGAN	0	41	6	906	15	60.4
23	QUEEN ST E AT EMPIRE	0	18	5	919	15	61.3
24	QUEEN ST E AT BOULTON	0	25	5	939	15	62.6
25	QUEEN ST E AT BROADVIEW	0	41	48	932	15	62.1
26	QUEEN ST E AT CARROLL	0	26	51	907	15	60.5
27	QUEEN ST E AT RIVER	0	7	4	910	15	60.7
28	QUEEN ST E AT SUMACH	0	23	13	920	15	61.3
29	QUEEN ST E AT SACKVILLE	0	18	9	929	15	61.9
31	QUEEN ST E AT PARLIAMENT	0	33	22	940	15	62.7
32	QUEEN ST E AT ONTARIO	0	28	1	967	15	64.5
33	QUEEN ST E AT SHERBOURNE	0	30	21	976	15	65.1
34	QUEEN ST E AT JARVIS	0	17	14	979	15	65.3
35	QUEEN ST E AT CHURCH	0	8	38	949	15	63.3
36	QUEEN ST E AT VICTORIA	0	11	93	867	15	57.8
37	QUEEN ST E AT YONGE ST	0	195	403	659	15	43.9
38	QUEEN ST W AT BAY ST	0	44	124	579	15	38.6
39	QUEEN ST W AT YORK ST	0	6	50	535	15	35.7
40	QUEEN ST W AT UNIVERSITY AVE	0	95	125	505	15	33.7
41	QUEEN ST W AT SIMCOE	0	5	12	498	15	33.2

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:17 TO 17:13)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

WB CONTROL POINT: 37 QUEEN ST E AT YONGE ST

WESTBOUND PERIOD 1: 08:17 TO 09:16

ROUTE STOP	LOCATION	START	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
42	QUEEN ST W AT MCCAUL	0	14	45	467	15	31.1
43	QUEEN ST W AT JOHN	0	9	29	447	14	31.9
44	QUEEN ST W AT SOHO	0	3	19	431	14	30.8
45	QUEEN ST W AT SPADINA AVE	0	30	136	325	14	23.2
46	QUEEN ST W AT AUGUSTA	0	9	23	311	14	22.2
48	QUEEN ST W AT BATHURST ST	0	19	67	263	14	18.8
49	QUEEN ST W AT PALMERSTON	0	4	12	255	14	18.2
51	QUEEN ST W AT CLAREMONT	0	18	18	255	14	18.2
53	QUEEN ST W AT STRACHAN	0	5	10	250	14	17.9
54	QUEEN ST W AT SHAW	0	2	15	237	14	16.9
55	QUEEN ST W AT OSSINGTON	0	22	51	208	14	14.9
56	QUEEN ST W AT DOVERCOURT	0	2	12	198	14	14.1
57	QUEEN ST W AT BEACONSFIELD	0	0	1	197	14	14.1
58	QUEEN ST W AT GLADSTONE	0	25	29	193	14	13.8
59	QUEEN ST W AT GWYNNE	0	2	7	188	14	13.4
60	QUEEN ST W AT BROCK	0	7	9	186	14	13.3
61	QUEEN ST W AT OHARA	0	8	9	185	14	13.2
62	QUEEN ST W AT LANSDOWNE	0	22	34	173	14	12.4
63	QUEEN ST W AT SORAUREN	0	3	14	162	14	11.6
65	QUEEN ST W AT TRILLER	0	2	1	163	14	11.6
66	QUEEN ST W AT RONCESVALLES AVE	0	39	56	146	14	10.4
67	QUEENSWAY AT GLENDALE	0	4	40	110	9	12.2
68	QUEENSWAY AT PARKSIDE	0	4	1	113	9	12.6
69	QUEENSWAY AT COLBORNE LODGE DR	0	0	0	113	9	12.6
70	QUEENSWAY AT ELLIS	0	1	1	113	9	12.6
71	QUEENSWAY AT WINDERMERE (1)	0	4	16	101	9	11.2
72	QUEENSWAY AT SOUTH KINGSWAY	0	0	0	101	9	11.2
73	LOOP (HUMBER) AT QUEENSWAY (2)	0	0	13	88	9	9.8
74	LOOP (HUMBER) AT QUEENSWAY	0	6	8	86	7	12.3
75	LAKESHORE BLVD W AT OPP 2095	0	1	2	85	7	12.1
76	LAKESHORE BLVD W AT AT 2155 (CHRISTIES)	0	1	0	86	7	12.3
77	LAKESHORE BLVD W AT PARKLAWN	0	3	4	85	7	12.1
78	LAKESHORE BLVD W AT LEGION RD	0	2	3	84	7	12.0
79	LAKESHORE BLVD W AT LOUISA	0	0	2	82	7	11.7
80	LAKESHORE BLVD W AT BURLINGTON	0	13	4	91	7	13.0
81	LAKESHORE BLVD W AT SUPERIOR	0	14	3	102	7	14.6
82	LAKESHORE BLVD W AT MIMICO	0	5	13	94	7	13.4
83	LAKESHORE BLVD W AT HILLSIDE	0	13	4	103	7	14.7
84	LAKESHORE BLVD W AT SYMONS	0	5	0	108	7	15.4
85	LAKESHORE BLVD W AT LAKE CRES	0	0	1	107	7	15.3

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:17 TO 17:13)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

WB CONTROL POINT: 37 QUEEN ST E AT YONGE ST

WESTBOUND PERIOD 1: 08:17 TO 09:16

ROUTE STOP	LOCATION	START	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
86	LAKESHORE BLVD W AT ROYAL YORK	0	14	6	115	7	16.4
87	LAKESHORE BLVD W AT FIRST	0	5	2	118	7	16.9
88	LAKESHORE BLVD W AT 3RD	0	2	0	120	7	17.1
89	LAKESHORE BLVD W AT 5TH	0	6	6	120	7	17.1
90	LAKESHORE BLVD W AT ISLINGTON	0	12	15	117	7	16.7
91	LAKESHORE BLVD W AT 10TH	0	6	2	121	7	17.3
92	LAKESHORE BLVD W AT 13TH	0	11	3	129	7	18.4
93	LAKESHORE BLVD W AT 15TH	0	0	10	119	7	17.0
94	LAKESHORE BLVD W AT KIPLING	0	30	50	99	7	14.1
95	LAKESHORE BLVD W AT 22ND	0	4	9	94	6	15.7
96	LAKESHORE BLVD W AT 26TH	0	3	5	92	6	15.3
97	LAKESHORE BLVD W AT 29TH	0	2	6	88	6	14.7
98	LAKESHORE BLVD W AT 30TH	0	1	16	73	6	12.2
99	LAKESHORE BLVD W AT LONG BRANCH	0	1	11	63	6	10.5
100	LAKESHORE BLVD W AT 37TH	0	0	10	53	6	8.8
101	LAKESHORE BLVD W AT 39TH	0	0	0	53	6	8.8
102	LOOP (LONG BRANCH) AT LAKESHORE BLVD W	0	0	53	0	6	0.0
TOTALS FOR PERIOD 1: 08:17 TO 09:16		0	2039	2039	33475	1074	31.2

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:17 TO 17:13)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

WB CONTROL POINT: 37 QUEEN ST E AT YONGE ST

WESTBOUND PERIOD 1: 08:17 TO 09:16

PERIOD RIDING INDEX	=	31.2	(AVERAGE OCCUPANCY)
AVERAGE TRIP LENGTH	=	16.4	STOPS
AVERAGE ONS/VEHICLE-STOP	=	1.9	
AVERAGE ONS/TRIP	=	135.9	

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:17 TO 17:13)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

WB CONTROL POINT: 37 QUEEN ST E AT YONGE ST

WESTBOUND PERIOD 2: 16:14 TO 17:13

ROUTE STOP	LOCATION	START	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
1	QUEEN ST E AT NEVILLE PARK	0	7	0	7	7	1.0
2	QUEEN ST E AT SILVERBIRCH	0	14	0	21	7	3.0
3	QUEEN ST E AT SPRUCE HILL	0	17	0	38	7	5.4
4	QUEEN ST E AT GLEN MANOR	0	21	0	59	7	8.4
5	QUEEN ST E AT WINEVA	0	23	4	78	7	11.1
6	QUEEN ST E AT LEE	0	38	2	114	7	16.3
7	QUEEN ST E AT WAVERLY	0	21	1	134	7	19.1
8	QUEEN ST E AT ELMER	0	9	2	141	7	20.1
9	QUEEN ST E AT WOODBINE AVE	0	7	8	140	7	20.0
10	QUEEN ST E AT LOCKWOOD	0	11	6	145	7	20.7
11	QUEEN ST E AT KINGSTON RD	0	15	6	154	9	17.1
12	QUEEN ST E AT COXWELL	0	43	20	177	9	19.7
13	QUEEN ST E AT KENT	0	13	3	187	9	20.8
14	QUEEN ST E AT CONNAUGHT	0	38	3	222	12	18.5
15	QUEEN ST E AT GREENWOOD	0	27	4	245	13	18.8
16	QUEEN ST E AT ALTON	0	10	4	251	13	19.3
17	QUEEN ST E AT LESLIE	0	26	10	267	13	20.5
18	QUEEN ST E AT JONES	0	33	4	296	13	22.8
19	QUEEN ST E AT BROOKLYN	0	15	6	305	13	23.5
20	QUEEN ST E AT PAPE	0	19	3	321	13	24.7
21	QUEEN ST E AT CARLAW	0	60	32	349	13	26.8
22	QUEEN ST E AT LOGAN	0	28	7	370	13	28.5
23	QUEEN ST E AT EMPIRE	0	22	10	382	13	29.4
24	QUEEN ST E AT BOULTON	0	13	65	330	13	25.4
25	QUEEN ST E AT BROADVIEW	0	42	29	343	12	28.6
26	QUEEN ST E AT CARROLL	0	21	7	357	12	29.8
27	QUEEN ST E AT RIVER	0	36	4	389	12	32.4
28	QUEEN ST E AT SUMACH	0	53	15	427	12	35.6
29	QUEEN ST E AT SACKVILLE	0	33	7	453	12	37.8
31	QUEEN ST E AT PARLIAMENT	0	51	19	485	12	40.4
32	QUEEN ST E AT ONTARIO	0	22	8	499	12	41.6
33	QUEEN ST E AT SHERBOURNE	0	45	19	525	12	43.8
34	QUEEN ST E AT JARVIS	0	30	19	536	12	44.7
35	QUEEN ST E AT CHURCH	0	40	16	560	12	46.7
36	QUEEN ST E AT VICTORIA	0	63	44	579	12	48.3
37	QUEEN ST E AT YONGE ST	0	299	216	662	12	55.2
38	QUEEN ST W AT BAY ST	0	191	26	827	12	68.9
39	QUEEN ST W AT YORK ST	0	59	12	874	12	72.8
40	QUEEN ST W AT UNIVERSITY AVE	0	135	45	964	12	80.3
41	QUEEN ST W AT SIMCOE	0	35	14	985	12	82.1

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:17 TO 17:13)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

WB CONTROL POINT: 37 QUEEN ST E AT YONGE ST

WESTBOUND PERIOD 2: 16:14 TO 17:13

ROUTE STOP	LOCATION	START	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
42	QUEEN ST W AT MCCAUL	0	25	18	992	12	82.7
43	QUEEN ST W AT JOHN	0	62	55	999	12	83.3
44	QUEEN ST W AT SOHO	0	23	37	985	12	82.1
45	QUEEN ST W AT SPADINA AVE	0	113	121	977	12	81.4
46	QUEEN ST W AT AUGUSTA	0	19	48	948	12	79.0
48	QUEEN ST W AT BATHURST ST	0	72	89	931	12	77.6
49	QUEEN ST W AT PALMERSTON	0	22	56	897	12	74.8
51	QUEEN ST W AT CLAREMONT	0	9	62	844	12	70.3
53	QUEEN ST W AT STRACHAN	0	16	54	806	12	67.2
54	QUEEN ST W AT SHAW	0	11	28	789	12	65.8
55	QUEEN ST W AT OSSINGTON	0	37	44	782	12	65.2
56	QUEEN ST W AT DOVERCOURT	0	16	45	753	12	62.8
57	QUEEN ST W AT BEACONSFIELD	0	5	44	714	12	59.5
58	QUEEN ST W AT GLADSTONE	0	57	151	620	12	51.7
59	QUEEN ST W AT GWYNNE	0	3	18	605	11	55.0
60	QUEEN ST W AT BROCK	0	13	56	562	11	51.1
61	QUEEN ST W AT OHARA	0	12	41	533	11	48.5
62	QUEEN ST W AT LANSDOWNE	0	29	86	476	11	43.3
63	QUEEN ST W AT SORAUREN	0	10	56	430	11	39.1
65	QUEEN ST W AT TRILLER	0	3	30	403	11	36.6
66	QUEEN ST W AT RONCESVALLES AVE	0	103	75	431	11	39.2
67	QUEENSWAY AT GLENDALE	0	10	17	424	10	42.4
68	QUEENSWAY AT PARKSIDE	0	0	9	415	10	41.5
69	QUEENSWAY AT COLBORNE LODGE DR	0	2	0	417	10	41.7
70	QUEENSWAY AT ELLIS	0	0	11	406	10	40.6
71	QUEENSWAY AT WINDERMERE (1)	0	9	62	353	10	35.3
72	QUEENSWAY AT SOUTH KINGSWAY	0	2	1	354	10	35.4
73	LOOP (HUMBER) AT QUEENSWAY (2)	0	0	52	302	10	30.2
74	LOOP (HUMBER) AT QUEENSWAY	0	15	21	296	6	49.3
75	LAKESHORE BLVD W AT OPP 2095	0	0	22	274	6	45.7
76	LAKESHORE BLVD W AT AT 2155 (CHRISTIES)	0	2	2	274	6	45.7
77	LAKESHORE BLVD W AT PARKLAWN	0	8	6	276	6	46.0
78	LAKESHORE BLVD W AT LEGION RD	0	1	17	260	6	43.3
79	LAKESHORE BLVD W AT LOUISA	0	6	10	256	6	42.7
80	LAKESHORE BLVD W AT BURLINGTON	0	6	24	238	6	39.7
81	LAKESHORE BLVD W AT SUPERIOR	0	10	28	220	6	36.7
82	LAKESHORE BLVD W AT MIMICO	0	11	17	214	6	35.7
83	LAKESHORE BLVD W AT HILLSIDE	0	6	15	205	6	34.2
84	LAKESHORE BLVD W AT SYMONS	0	2	3	204	6	34.0
85	LAKESHORE BLVD W AT LAKE CRES	0	1	4	201	6	33.5

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:17 TO 17:13)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

WB CONTROL POINT: 37 QUEEN ST E AT YONGE ST

WESTBOUND PERIOD 2: 16:14 TO 17:13

ROUTE STOP	LOCATION	START	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
86	LAKESHORE BLVD W AT ROYAL YORK	0	14	9	206	6	34.3
87	LAKESHORE BLVD W AT FIRST	0	7	9	204	6	34.0
88	LAKESHORE BLVD W AT 3RD	0	5	17	192	6	32.0
89	LAKESHORE BLVD W AT 5TH	0	6	21	177	6	29.5
90	LAKESHORE BLVD W AT ISLINGTON	0	14	23	168	6	28.0
91	LAKESHORE BLVD W AT 10TH	0	3	18	153	6	25.5
92	LAKESHORE BLVD W AT 13TH	0	4	19	138	6	23.0
93	LAKESHORE BLVD W AT 15TH	0	3	16	125	6	20.8
94	LAKESHORE BLVD W AT KIPLING	0	18	22	121	6	20.2
95	LAKESHORE BLVD W AT 22ND	0	11	19	113	5	22.6
96	LAKESHORE BLVD W AT 26TH	0	4	16	101	5	20.2
97	LAKESHORE BLVD W AT 29TH	0	3	7	97	5	19.4
98	LAKESHORE BLVD W AT 30TH	0	2	28	71	5	14.2
99	LAKESHORE BLVD W AT LONG BRANCH	0	2	14	59	5	11.8
100	LAKESHORE BLVD W AT 37TH	0	0	15	44	5	8.8
101	LAKESHORE BLVD W AT 39TH	0	0	4	40	5	8.0
102	LOOP (LONG BRANCH) AT LAKESHORE BLVD W	0	0	40	0	5	0.0
TOTALS FOR PERIOD 2: 16:14 TO 17:13		0	2532	2532	37273	912	40.9

ROUTE: 501 QUEEN
ROUTING CODE(S): _0, A0,
COUNT: 1103 ON FRI 2006-10-27 (FROM 08:17 TO 17:13)
STOP CARD: 16 COUNT COVERAGE: FULL
STOPS: 1 TO 299
COMMENTS: The majority of trips were short-turned due to heavy traffic (normal for this route).

TORONTO TRANSIT COMMISSION

WB CONTROL POINT: 37 QUEEN ST E AT YONGE ST

WESTBOUND PERIOD 2: 16:14 TO 17:13

PERIOD RIDING INDEX	=	40.9	(AVERAGE OCCUPANCY)
AVERAGE TRIP LENGTH	=	14.7	STOPS
AVERAGE ONS/VEHICLE-STOP	=	2.8	
AVERAGE ONS/TRIP	=	194.8	

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 502 DOWNTOWNER
ROUTING CODE(S): _0,
COUNT: 1044 ON 2014-NOV-10: M-F (FROM 08:21 TO 18:26)
STOP CARD: 16 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

TORONTO TRANSIT COMMISSION

EB CONTROL POINT: 28 QUEEN ST E AT CONNAUGHT

EASTBOUND PERIOD 1: 08:21 TO 09:20

ROUTE STOP	LOCATION	STARTS	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
1	MCCAUL AT STEPHANIE	0	3	0	3	5	0.6
2	MCCAUL AT QUEEN ST W	0	0	0	3	5	0.6
3	QUEEN ST W AT UNIVERSITY AVE	0	23	0	26	5	5.2
4	QUEEN ST W AT YORK ST	0	0	0	26	5	5.2
5	QUEEN ST W AT BAY ST	0	4	1	29	5	5.8
6	QUEEN ST W AT YONGE ST	0	49	1	77	5	15.4
7	QUEEN ST E AT VICTORIA	0	23	0	100	5	20.0
8	QUEEN ST E AT CHURCH	0	4	4	100	5	20.0
9	QUEEN ST E AT JARVIS	0	7	17	90	5	18.0
10	QUEEN ST E AT SHERBOURNE	0	7	11	86	5	17.2
11	QUEEN ST E AT ONTARIO	0	6	5	87	5	17.4
12	QUEEN ST E AT PARLIAMENT	0	1	0	88	5	17.6
13	QUEEN ST E AT SACKVILLE	0	0	9	79	5	15.8
14	QUEEN ST E AT SUMACH	0	1	18	62	5	12.4
15	QUEEN ST E AT RIVER	0	2	11	53	5	10.6
16	QUEEN ST E AT CARROLL	0	0	7	46	5	9.2
17	QUEEN ST E AT BROADVIEW	0	6	8	44	5	8.8
18	QUEEN ST E AT SAULTER	0	2	0	46	4	11.5
19	QUEEN ST E AT EMPIRE	0	1	4	43	4	10.8
20	QUEEN ST E AT LOGAN	0	5	4	44	4	11.0
21	QUEEN ST E AT CARLAW	0	4	9	39	4	9.8
22	QUEEN ST E AT PAPE	0	6	2	43	4	10.8
23	QUEEN ST E AT CAROLINE	0	1	3	41	4	10.3
24	QUEEN ST E AT JONES	0	4	1	44	4	11.0
25	QUEEN ST E AT LESLIE	0	5	3	46	4	11.5
26	QUEEN ST E AT LAING	0	0	0	46	4	11.5
27	QUEEN ST E AT GREENWOOD	0	3	2	47	4	11.8
28	QUEEN ST E AT CONNAUGHT	0	0	3	44	4	11.0
29	QUEEN ST E AT WOODWARD	0	2	1	45	4	11.3
30	QUEEN ST E AT COXWELL	0	5	9	41	4	10.3
31	QUEEN ST E AT KINGSTON RD (1)	0	4	4	41	4	10.3
32	KINGSTON RD AT DIXON	0	4	1	44	3	14.7
33	KINGSTON RD AT RAINSFORD	0	0	0	44	3	14.7
34	KINGSTON RD AT WOODBINE AVE	0	8	0	52	3	17.3
35	KINGSTON RD AT ELMER	0	0	0	52	3	17.3
36	KINGSTON RD AT WAVERLY	0	4	0	56	3	18.7
37	KINGSTON RD AT LEE	0	0	2	54	3	18.0
38	KINGSTON RD AT SOUTHWOOD	0	5	0	59	3	19.7
39	KINGSTON RD AT GLEN MANOR	0	0	12	47	3	15.7
40	KINGSTON RD AT BEECH	0	1	12	36	3	12.0

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 502 DOWNTOWNER
ROUTING CODE(S): _0,
COUNT: 1044 ON 2014-NOV-10: M-F (FROM 08:21 TO 18:26)
STOP CARD: 16 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

EB CONTROL POINT: 28 QUEEN ST E AT CONNAUGHT

TORONTO TRANSIT COMMISSION

EASTBOUND PERIOD 1: 08:21 TO 09:20

ROUTE STOP	LOCATION	STARTS	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
41	KINGSTON RD AT SCARBOROUGH	0	0	2	34	3	11.3
42	KINGSTON RD AT BINGHAM	0	0	0	34	3	11.3
43	KINGSTON RD AT VICTORIA PARK	0	0	32	2	3	0.7
44	LOOP AT BINGHAM	0	0	2	0	3	0.0
TOTALS FOR PERIOD	PERIOD 1: 08:21 TO 09:20	0	200	200	2123	180	11.8

ROUTE: 502 DOWNTOWNER
ROUTING CODE(S): _0,
COUNT: 1044 ON 2014-NOV-10: M-F (FROM 08:21 TO 18:26)
STOP CARD: 16 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

EB CONTROL POINT: 28 QUEEN ST E AT CONNAUGHT

TORONTO TRANSIT COMMISSION

EASTBOUND PERIOD 1: 08:21 TO 09:20

PERIOD RIDING INDEX =	11.8	(AVERAGE OCCUPANCY)
AVERAGE TRIP LENGTH =	10.6	STOPS
AVERAGE ONS/VEHICLE-STOP =	1.1	
AVERAGE ONS/TRIP =	40.0	

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 502 DOWNTOWNER
ROUTING CODE(S): _0,
COUNT: 1044 ON 2014-NOV-10: M-F (FROM 08:21 TO 18:26)
STOP CARD: 16 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

EB CONTROL POINT: 28 QUEEN ST E AT CONNAUGHT

TORONTO TRANSIT COMMISSION

EASTBOUND PERIOD 2: 17:31 TO 18:30

ROUTE STOP	LOCATION	STARTS	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
1	MCCAUL AT STEPHANIE	0	4	0	4	5	0.8
2	MCCAUL AT QUEEN ST W	0	12	0	16	5	3.2
3	QUEEN ST W AT UNIVERSITY AVE	0	52	0	68	5	13.6
4	QUEEN ST W AT YORK ST	0	32	0	100	5	20.0
5	QUEEN ST W AT BAY ST	0	33	1	132	5	26.4
6	QUEEN ST W AT YONGE ST	0	89	6	215	5	43.0
7	QUEEN ST E AT VICTORIA	0	20	0	235	5	47.0
8	QUEEN ST E AT CHURCH	0	13	3	245	5	49.0
9	QUEEN ST E AT JARVIS	0	9	3	251	5	50.2
10	QUEEN ST E AT SHERBOURNE	0	14	10	255	5	51.0
11	QUEEN ST E AT ONTARIO	0	2	7	250	5	50.0
12	QUEEN ST E AT PARLIAMENT	0	13	7	256	5	51.2
13	QUEEN ST E AT SACKVILLE	0	5	2	259	5	51.8
14	QUEEN ST E AT SUMACH	0	6	7	258	6	43.0
15	QUEEN ST E AT RIVER	0	3	5	256	6	42.7
16	QUEEN ST E AT CARROLL	0	8	7	257	6	42.8
17	QUEEN ST E AT BROADVIEW	0	25	23	259	6	43.2
18	QUEEN ST E AT SAULTER	0	2	11	250	6	41.7
19	QUEEN ST E AT EMPIRE	0	0	7	243	6	40.5
20	QUEEN ST E AT LOGAN	0	3	12	234	6	39.0
21	QUEEN ST E AT CARLAW	0	12	29	217	6	36.2
22	QUEEN ST E AT PAPE	0	1	14	204	6	34.0
23	QUEEN ST E AT CAROLINE	0	0	13	191	6	31.8
24	QUEEN ST E AT JONES	0	3	24	170	6	28.3
25	QUEEN ST E AT LESLIE	0	1	11	160	6	26.7
26	QUEEN ST E AT LAING	0	0	7	153	6	25.5
27	QUEEN ST E AT GREENWOOD	0	11	19	145	6	24.2
28	QUEEN ST E AT CONNAUGHT	0	3	8	140	6	23.3
29	QUEEN ST E AT WOODWARD	0	0	12	128	6	21.3
30	QUEEN ST E AT COXWELL	0	14	25	117	6	19.5
31	QUEEN ST E AT KINGSTON RD (1)	0	18	29	106	6	17.7
32	KINGSTON RD AT DIXON	0	0	16	90	6	15.0
33	KINGSTON RD AT RAINSFORD	0	0	8	82	6	13.7
34	KINGSTON RD AT WOODBINE AVE	0	0	7	75	6	12.5
35	KINGSTON RD AT ELMER	0	0	6	69	6	11.5
36	KINGSTON RD AT WAVERLY	0	0	14	55	6	9.2
37	KINGSTON RD AT LEE	0	1	11	45	6	7.5
38	KINGSTON RD AT SOUTHWOOD	0	13	7	51	6	8.5
39	KINGSTON RD AT GLEN MANOR	0	0	2	49	6	8.2
40	KINGSTON RD AT BEECH	0	0	10	39	6	6.5

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 502 DOWNTOWNER
ROUTING CODE(S): _0,
COUNT: 1044 ON 2014-NOV-10: M-F (FROM 08:21 TO 18:26)
STOP CARD: 16 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

EB CONTROL POINT: 28 QUEEN ST E AT CONNAUGHT

TORONTO TRANSIT COMMISSION

EASTBOUND PERIOD 2: 17:31 TO 18:30

ROUTE STOP	LOCATION	STARTS	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
41	KINGSTON RD AT SCARBOROUGH	0	0	11	28	6	4.7
42	KINGSTON RD AT BINGHAM	0	2	7	23	6	3.8
43	KINGSTON RD AT VICTORIA PARK	0	1	10	14	6	2.3
44	LOOP AT BINGHAM	0	0	14	0	6	0.0
TOTALS FOR PERIOD	PERIOD 2: 17:31 TO 18:30	0	425	425	6394	251	25.5

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 502 DOWNTOWNER
ROUTING CODE(S): _0,
COUNT: 1044 ON 2014-NOV-10: M-F (FROM 08:21 TO 18:26)
STOP CARD: 16 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

EB CONTROL POINT: 28 QUEEN ST E AT CONNAUGHT

TORONTO TRANSIT COMMISSION

EASTBOUND PERIOD 2: 17:31 TO 18:30

PERIOD RIDING INDEX =	25.5	(AVERAGE OCCUPANCY)
AVERAGE TRIP LENGTH =	15.0	STOPS
AVERAGE ONS/VEHICLE-STOP =	1.7	
AVERAGE ONS/TRIP =	70.8	

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 502 DOWNTOWNER
ROUTING CODE(S): _0,
COUNT: 1044 ON 2014-NOV-10: M-F (FROM 07:33 TO 18:04)
STOP CARD: 16 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

WB CONTROL POINT: 17 QUEEN ST E AT CONNAUGHT

TORONTO TRANSIT COMMISSION

WESTBOUND PERIOD 1: 07:33 TO 08:32

ROUTE STOP	LOCATION	STARTS	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
1	LOOP AT BINGHAM	0	90	0	90	5	18.0
2	BINGHAM AT KINGSTON RD	0	6	0	96	5	19.2
3	KINGSTON RD AT SCARBOROUGH	0	18	0	114	5	22.8
4	KINGSTON RD AT BEECH	0	15	1	128	5	25.6
5	KINGSTON RD AT MALVERN	0	12	33	107	5	21.4
6	KINGSTON RD AT WALTER	0	15	0	122	5	24.4
7	KINGSTON RD AT MAIN	0	14	3	133	5	26.6
8	KINGSTON RD AT LEE	0	6	1	138	5	27.6
9	KINGSTON RD AT BROOKSIDE	0	44	2	180	5	36.0
10	KINGSTON RD AT ELMER	0	15	0	195	5	39.0
11	KINGSTON RD AT WOODBINE AVE	0	11	4	202	5	40.4
12	KINGSTON RD AT COLUMBINE	0	5	0	207	5	41.4
13	KINGSTON RD AT DUNDAS ST E	0	7	1	213	5	42.6
14	KINGSTON RD AT QUEEN ST E	0	7	0	220	5	44.0
15	QUEEN ST E AT COXWELL	0	25	6	239	5	47.8
16	QUEEN ST E AT KENT	0	12	0	251	5	50.2
17	QUEEN ST E AT CONNAUGHT	0	10	2	259	5	51.8
18	QUEEN ST E AT GREENWOOD	0	12	0	271	5	54.2
19	QUEEN ST E AT ALTON	0	6	6	271	5	54.2
20	QUEEN ST E AT LESLIE	0	3	0	274	5	54.8
21	QUEEN ST E AT JONES	0	7	1	280	5	56.0
22	QUEEN ST E AT BROOKLYN	0	8	1	287	5	57.4
23	QUEEN ST E AT PAPE	0	8	1	294	5	58.8
24	QUEEN ST E AT CARLAW	0	24	2	316	5	63.2
25	QUEEN ST E AT LOGAN	0	7	4	319	5	63.8
26	QUEEN ST E AT EMPIRE	0	5	3	321	5	64.2
27	QUEEN ST E AT BOULTON	0	7	6	322	5	64.4
28	QUEEN ST E AT BROADVIEW	0	15	21	316	5	63.2
29	QUEEN ST E AT CARROLL	0	6	4	318	5	63.6
30	QUEEN ST E AT RIVER	0	2	3	317	5	63.4
31	QUEEN ST E AT SUMACH	0	2	4	315	5	63.0
32	QUEEN ST E AT SACKVILLE	0	2	1	316	5	63.2
33	QUEEN ST E AT PARLIAMENT	0	13	14	315	5	63.0
34	QUEEN ST E AT ONTARIO	0	12	3	324	5	64.8
35	QUEEN ST E AT SHERBOURNE	0	23	19	328	5	65.6
36	QUEEN ST E AT JARVIS	0	6	6	328	5	65.6
37	QUEEN ST E AT CHURCH	0	0	25	303	5	60.6
38	QUEEN ST E AT VICTORIA	0	1	72	232	5	46.4
39	QUEEN ST E AT YONGE ST	0	18	81	169	5	33.8
40	QUEEN ST W AT BAY ST	0	4	42	131	5	26.2

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 502 DOWNTOWNER
ROUTING CODE(S): _0,
COUNT: 1044 ON 2014-NOV-10: M-F (FROM 07:33 TO 18:04)
STOP CARD: 16 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

WB CONTROL POINT: 17 QUEEN ST E AT CONNAUGHT

TORONTO TRANSIT COMMISSION

WESTBOUND PERIOD 1: 07:33 TO 08:32

ROUTE STOP	LOCATION	STARTS	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
41	QUEEN ST W AT YORK ST	0	0	27	104	5	20.8
42	QUEEN ST W AT UNIVERSITY AVE	0	5	42	67	5	13.4
43	QUEEN ST W AT SIMCOE	0	0	12	55	5	11.0
44	QUEEN ST W AT MCCAUL	0	0	52	3	5	0.6
45	MCCAUL AT STEPHANIE	0	0	3	0	5	0.0
TOTALS FOR PERIOD	PERIOD 1: 07:33 TO 08:32	0	508	508	9790	225	43.5

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 502 DOWNTOWNER
ROUTING CODE(S): _0,
COUNT: 1044 ON 2014-NOV-10: M-F (FROM 07:33 TO 18:04)
STOP CARD: 16 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

TORONTO TRANSIT COMMISSION

WB CONTROL POINT: 17 QUEEN ST E AT CONNAUGHT

WESTBOUND PERIOD 1: 07:33 TO 08:32

PERIOD RIDING INDEX =	43.5	(AVERAGE OCCUPANCY)
AVERAGE TRIP LENGTH =	19.3	STOPS
AVERAGE ONS/VEHICLE-STOP =	2.3	
AVERAGE ONS/TRIP =	101.6	

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 502 DOWNTOWNER
ROUTING CODE(S): _0,
COUNT: 1044 ON 2014-NOV-10: M-F (FROM 07:33 TO 18:04)
STOP CARD: 16 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

TORONTO TRANSIT COMMISSION

WB CONTROL POINT: 17 QUEEN ST E AT CONNAUGHT

WESTBOUND PERIOD 2: 17:06 TO 18:05

ROUTE STOP	LOCATION	STARTS	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
1	LOOP AT BINGHAM	0	9	0	9	6	1.5
2	BINGHAM AT KINGSTON RD	0	2	0	11	6	1.8
3	KINGSTON RD AT SCARBOROUGH	0	5	0	16	6	2.7
4	KINGSTON RD AT BEECH	0	3	1	18	6	3.0
5	KINGSTON RD AT MALVERN	0	7	2	23	6	3.8
6	KINGSTON RD AT WALTER	0	0	0	23	6	3.8
7	KINGSTON RD AT MAIN	0	4	6	21	6	3.5
8	KINGSTON RD AT LEE	0	4	4	21	6	3.5
9	KINGSTON RD AT BROOKSIDE	0	2	0	23	6	3.8
10	KINGSTON RD AT ELMER	0	4	0	27	6	4.5
11	KINGSTON RD AT WOODBINE AVE	0	2	0	29	6	4.8
12	KINGSTON RD AT COLUMBINE	0	2	0	31	6	5.2
13	KINGSTON RD AT DUNDAS ST E	0	2	4	29	6	4.8
14	KINGSTON RD AT QUEEN ST E	0	0	3	26	6	4.3
15	QUEEN ST E AT COXWELL	0	11	3	34	6	5.7
16	QUEEN ST E AT KENT	0	1	0	35	6	5.8
17	QUEEN ST E AT CONNAUGHT	0	1	3	33	6	5.5
18	QUEEN ST E AT GREENWOOD	0	3	0	36	6	6.0
19	QUEEN ST E AT ALTON	0	0	0	36	6	6.0
20	QUEEN ST E AT LESLIE	0	2	0	38	6	6.3
21	QUEEN ST E AT JONES	0	3	4	37	6	6.2
22	QUEEN ST E AT BROOKLYN	0	3	1	39	6	6.5
23	QUEEN ST E AT PAPE	0	2	3	38	6	6.3
24	QUEEN ST E AT CARLAW	0	18	0	56	6	9.3
25	QUEEN ST E AT LOGAN	0	13	1	68	6	11.3
26	QUEEN ST E AT EMPIRE	0	2	0	70	6	11.7
27	QUEEN ST E AT BOULTON	0	0	2	68	6	11.3
28	QUEEN ST E AT BROADVIEW	0	10	13	65	6	10.8
29	QUEEN ST E AT CARROLL	0	0	3	62	5	12.4
30	QUEEN ST E AT RIVER	0	4	1	65	5	13.0
31	QUEEN ST E AT SUMACH	0	6	0	71	5	14.2
32	QUEEN ST E AT SACKVILLE	0	4	3	72	5	14.4
33	QUEEN ST E AT PARLIAMENT	0	7	2	77	5	15.4
34	QUEEN ST E AT ONTARIO	0	7	2	82	5	16.4
35	QUEEN ST E AT SHERBOURNE	0	5	5	82	5	16.4
36	QUEEN ST E AT JARVIS	0	4	3	83	5	16.6
37	QUEEN ST E AT CHURCH	0	7	4	86	5	17.2
38	QUEEN ST E AT VICTORIA	0	0	9	77	5	15.4
39	QUEEN ST E AT YONGE ST	0	22	39	60	5	12.0
40	QUEEN ST W AT BAY ST	0	17	2	75	5	15.0

RIDING COUNT - 2. PASSENGER ACTIVITY BY STOP REPORT

Report: TRIPS_DM - 002
Version: 001

ROUTE: 502 DOWNTOWNER
ROUTING CODE(S): _0,
COUNT: 1044 ON 2014-NOV-10: M-F (FROM 07:33 TO 18:04)
STOP CARD: 16 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

WB CONTROL POINT: 17 QUEEN ST E AT CONNAUGHT

TORONTO TRANSIT COMMISSION

WESTBOUND PERIOD 2: 17:06 TO 18:05

ROUTE STOP	LOCATION	STARTS	ONS	OFFS	ACCUM.	VEHICLES	AVG. LOAD
41	QUEEN ST W AT YORK ST	0	15	5	85	5	17.0
42	QUEEN ST W AT UNIVERSITY AVE	0	14	14	85	5	17.0
43	QUEEN ST W AT SIMCOE	0	2	3	84	5	16.8
44	QUEEN ST W AT MCCAUL	0	0	74	10	5	2.0
45	MCCAUL AT STEPHANIE	0	0	10	0	5	0.0
TOTALS FOR PERIOD	PERIOD 2: 17:06 TO 18:05	0	229	229	2116	253	8.4

ROUTE: 502 DOWNTOWNER
ROUTING CODE(S): _0,
COUNT: 1044 ON 2014-NOV-10: M-F (FROM 07:33 TO 18:04)
STOP CARD: 16 COUNT COVERAGE/METHOD: FULL/HH
STOPS: 1 TO 299
COMMENTS:

WB CONTROL POINT: 17 QUEEN ST E AT CONNAUGHT

TORONTO TRANSIT COMMISSION

WESTBOUND PERIOD 2: 17:06 TO 18:05

PERIOD RIDING INDEX =	8.4	(AVERAGE OCCUPANCY)
AVERAGE TRIP LENGTH =	9.2	STOPS
AVERAGE ONS/VEHICLE-STOP =	0.9	
AVERAGE ONS/TRIP =	38.2	

APPENDIX G

TTS 2016 Modal Split Data

Wed Oct 10 2018 16:23:47 GMT-0400 (Eastern Daylight Time) - Run Time: 2025ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(24 25 36 37)
TblG:

Filters:
Start time of trip - start_time In 0700-0930
and
Trip purpose of origin - pu

Trip 2016
Table:

	1
Transit excluding GO rail	2196
Cycle	320
Auto driver	1092
GO rail only	19
Motorcycle	26
Auto passenger	33
School bus	12
Taxi passenger	12
Paid rideshare	76
Walk	4485

	AM OUT	
	Trips	%
Auto Driver	1118	14%
Auto Passenger	133	2%
Transit	2215	27%
Walk	4485	54%
Cycle	320	4%
Other	0	0%
Total	8271	101%

APPENDIX H

Proxy Site Parking Demand Survey

155 DUNDAS STREET EAST - RESIDENTIAL PARKING SUMMARY

9610.200

SURVEYOR: Wing Tsue
DATE: Wednesday August 31, 2016

Level	STALL #	TIME																				NOTES
		5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	1:00	
V - P1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	
	4	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	
	5	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	Handicap
	6	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	7	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	
	8	0	0	0	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	
B - P2	1	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	
	2	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	
	3	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6	1	1	0	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	
	12	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Handicap
	13	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
C - P3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	3	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	
	9	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	
	10	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	13	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	
	14	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	Handicap
	15	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	
	16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

D - P4	2	0	0	0	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1		
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	4	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1		
	5	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0		
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
	11	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1		
	12	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1		
	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Handicap	
	14	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1		
	15	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1		
	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
E -P5	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
	4	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1		
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
	8	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11	1	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0		
	12	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0		
	13	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	Handicap	
	14	1	1	1	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0		
	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	16	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total - Visitors	8	5	5	4	6	7	7	7	6	6	7	7	7	7	8	8	6	6	6	6	6	6		
Total - Residents	64	37	36	34	35	29	25	23	19	19	17	17	16	16	22	24	28	29	29	29	29	29		
TOTAL	**72**	42	41	38	41	36	32	30	25	25	24	24	23	23	30	32	34	35	35	35	35	35		

Bicycle Storage

Level	**Supply**	**TIME**																				**NOTES**
		5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	1:00	
P1	75	73	73	71	70	67	64	62	60	60	59	59	62	65	65	64	65	66	70	75	73	73	
TOTAL	**75**	73	73	71	70	67	64	62	60	60	59	59	62	65	65	64	65	66	70	75	73	73	

155 DUNDAS STREET EAST - RESIDENTIAL PARKING SUMMARY

9610.200

SURVEYOR: Wing Tsue
DATE: Thursday September 8, 2016

Level	STALL #	TIME																				NOTES
		5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	1:00	
V - P1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	4	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	
	5	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	Handicap
	6	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	1	1	
	7	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	0	
	8	1	1	1	1	0	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	
B - P2	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	3	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	1	
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	Handicap
	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	14	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	
	15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
C - P3	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	3	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	
	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	
	9	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	
	10	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Handicap
	15	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	
	16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

D - P4	2	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	
	5	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	
	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	12	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Handicap
	14	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	
	15	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
E -P5	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	
	7	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	10	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	
	11	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	13	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	Handicap
	14	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	
	15	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	
	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total - Visitors	8	6	6	8	8	7	8	8	7	8	7	6	5	6	5	6	6	7	6	5	5	5	
Total - Residents	64	38	38	39	38	33	29	27	25	25	23	23	24	24	27	30	31	35	35	35	36	36	
TOTAL	**72**	44	44	47	46	40	37	35	32	33	30	29	29	30	32	36	37	42	41	40	41	41	

Bicycle Storage

Level	Supply	TIME																				NOTES
		5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	1:00	
P1	75	76	74	73	71	68	66	66	65	64	63	63	62	65	67	70	72	73	747	5	76	76	
TOTAL	**75**	76	74	73	71	68	66	66	65	64	63	63	62	65	67	70	72	73	747	5	76	76	

155 DUNDAS STREET EAST - RESIDENTIAL PARKING SUMMARY

9610.200

SURVEYOR: Wing Tsue
DATE: Wednesday September 14, 2016

Level	STALL #	TIME																				NOTES
		5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	1:00	
V - P1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	
	2	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	1	0	1	1	
	3	1	0	0	1	1	1	1	0	1	1	1	1	0	0	1	1	0	1	1	1	1	
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	5	1	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	Handicap
	6	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	0	0	
	7	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	
	8	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B - P2	1	1	1	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1	1	1	
	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	
	4	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
	7	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	Handicap
	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
C - P3	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	
	8	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	
	9	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	
	10	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	
	11	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	
	12	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	
	13	1	1	0	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	
	14	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	Handicap
	15	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	
	16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	
	17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	

D - P4	2	0	0	0	1	1	1	1	0	0	0	1	1	0	1	1	1	1	1	1	1	1	
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	
	4	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	
	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	11	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	
	12	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	
	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Handicap
	14	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	
	15	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	
	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
E -P5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	4	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	
	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	
	11	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	13	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	Handicap
	14	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	
	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	16	1	1	1	1	1	1	0	0	0	0	0	1	1	0	0	1	1	1	1	1	1	
Total - Visitors	8	8	7	7	5	7	6	5	4	5	5	5	5	5	6	4	4	4	3	2	3	3	
Total - Residents	64	39	39	36	31	28	25	24	22	24	22	23	27	25	27	27	34	35	36	35	35	35	
TOTAL	**72**	47	46	43	36	35	31	29	26	29	27	28	32	30	33	31	38	39	39	37	38	38	

Bicycle Storage

Level	Supply	TIME																				NOTES
		5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	1:00	
P1	75	74	74	74	71	66	64	63	63	62	61	60	60	61	61	66	67	64	67	69	71	73	
TOTAL	**75**	74	74	74	71	66	64	63	63	62	61	60	60	61	61	66	67	64	67	69	71	73	

8 MERCER STREET - RESIDENTIAL PARKING SUMMARY

8761.200

SURVEYOR: Kenneth Lo
DATE: Thursday, February 11, 2016

Jeff Tang
Friday, February 13, 2016

Level	STALL #	TIME					NOTES	TIME					NOTES
		0:00	0:30	1:00	1:30	2:00		0:00	0:30	1:00	1:30	2:00	
P1 - Visitor	1	0	0	0	0	0	Handicap Spot	1	0	0	0	0	
	2	0	0	0	0	0		1	1	1	1	1	
	3	0	0	0	0	0		0	0	0	0	0	
	4	0	0	0	0	0	Dumpster Bins	1	1	1	1	1	
	5	0	0	0	0	0	Beaverhall Homes Only	1	1	1	1	1	
	6	0	0	0	0	0	Beaverhall Homes Only	1	1	1	1	1	
	7	0	0	0	0	0	Beaverhall Homes Only	1	1	1	1	1	
	8	0	0	0	0	0	Beaverhall Homes Only	0	0	0	0	0	
	9	1	1	1	1	1	Beaverhall Homes Only	1	1	1	1	1	
	10	0	0	0	0	0	Beaverhall Homes Only	0	0	0	0	0	
	11	1	1	1	1	1		1	1	1	1	1	
	12	0	0	0	0	0		1	1	1	1	1	
	13	1	1	1	1	1		1	1	0	0	0	
	14	1	0	0	0	0		1	1	0	0	0	
	15	0	0	0	0	0	taped off	0	0	0	0	0	
	16	0	0	0	0	0		1	1	1	1	1	
	17	1	1	1	1	1		0	0	0	0	0	
	18	1	1	1	1	1		1	1	1	1	1	
	19	0	1	1	1	1		1	1	1	1	1	
	20	1	1	1	1	1		1	1	1	1	1	
	21	0	0	0	0	0		1	1	1	1	1	
	22	1	1	1	1	1		1	1	1	1	1	
	23	1	1	1	1	1		1	1	1	1	1	
	24	1	1	1	1	1		0	0	0	0	0	
	25	1	1	1	1	1		1	1	1	1	1	
	26	1	1	1	1	1	CS	1	1	1	1	1	
	27	0	0	0	0	0	CS	1	1	1	1	1	
P2	1	0	0	0	0	0	Handicap Spot	0	0	0	0	0	
	2	0	0	0	0	0		0	0	0	0	0	
	3	0	0	0	0	0		0	0	0	0	0	
	4	0	0	0	0	0		0	0	0	0	0	
	5	0	0	0	0	0		0	0	0	0	0	
	6	0	0	0	0	0		0	0	0	0	0	
	7	0	0	0	0	0		0	0	0	0	0	
	8	0	0	0	0	0		0	0	0	0	0	
	9	0	0	0	0	0		0	0	0	0	0	
	10	0	0	0	0	0		0	0	0	0	0	
	11	0	0	0	0	0		0	0	0	0	0	
	12	0	0	0	0	0		0	0	0	0	0	
	13	0	0	0	0	0		0	0	0	0	0	
	14	0	0	0	0	0		0	0	0	0	0	
	15	0	0	0	0	0		0	0	0	0	0	
	16	0	0	0	0	0		0	0	0	0	0	
	17	0	0	0	0	0		0	0	0	0	0	
	18	0	0	0	0	0		0	0	0	0	0	
	19	0	0	0	0	0		0	0	0	0	0	
	20	0	0	0	0	0		0	0	0	0	0	
	21	0	0	0	0	0		0	0	0	0	0	
	22	0	0	0	0	0		0	0	0	0	0	
	23	0	0	0	0	0		0	0	0	0	0	
	24	0	0	0	0	0		0	0	0	0	0	

SURVEYOR: Kenneth Lo
DATE: Thursday January 14-Fri Jan 15th, 2016

Level	STALL #	0:00	0:30	1:00	1:30	2:00	2:30	3:00	NOTES		Resident Space	Resident Space Ever Occupied
P1 - Visitor												
P2	1	0	0	0	0	0	0	0	Conceirge said these stalls are for Visitors, although not marked as V		1	0
	2	0	0	0	0	0	0	0			1	0
	3	0	0	0	0	0	0	0			1	0
	4	0	0	0	0	0	0	0			1	0
	5	0	0	0	0	0	0	0			1	0
	6	0	0	0	0	0	0	0			1	0
	7	0	0	0	0	0	0	0			1	0
	8	0	0	0	0	0	0	0			1	0
	9	0	0	0	0	0	0	0			1	0
	10	0	0	0	0	0	0	0			1	0
	11	0	0	0	0	0	0	0			1	0
	12	0	0	0	0	0	0	0			1	0
	13	0	0	0	0	0	0	0			1	0
	14	0	0	0	0	0	0	0			1	0
	15	0	0	0	0	0	0	0			1	0
	16	0	0	0	0	0	0	0			1	0
	17	0	0	0	0	0	0	0			1	0
	18	0	0	0	0	0	0	0			1	0
	19	0	0	0	0	0	0	0			1	0
	20	0	0	0	0	0	0	0			1	0
	21	0	0	0	0	0	0	0			1	0
	22	0	0	0	0	0	0	0			1	0
	23	0	0	0	0	0	0	0			1	0
	24	0	0	0	0	0	0	0			1	0

8 MERCER STREET - RESIDENTIAL PARKING SUMMARY

8761.200

SURVEYOR: Kenneth Lo
DATE: Thursday, February 11, 2016

Level	STALL #	TIME 0:00	0:30	1:00	1:30	2:00	NOTES
	25	0	0	0	0	0	
	26	0	0	0	0	0	
	27	0	0	0	0	0	
	28	0	0	0	0	0	
	29	0	0	0	0	0	
	30	0	0	0	0	0	
	1	0	0	0	0	0	
	2	0	0	0	0	0	
	3	1	1	1	1	1	
	4	1	1	1	1	1	
	5	0	0	0	0	0	
	6	1	1	1	1	1	
	7	1	1	1	1	1	
	8	0	0	0	0	0	Handicap Spot
	9	1	1	1	1	1	
	10	1	1	1	1	1	
	11	1	1	1	1	1	
	12	1	1	1	1	1	
	13	0	0	0	0	0	
	14	0	0	0	0	0	
	15	1	1	1	1	1	
	16	1	1	1	1	1	
	17	0	0	0	0	0	
	18	0	0	0	0	0	
P3	19	1	1	1	1	1	
	20	1	1	1	1	1	
	21	1	1	1	1	1	
	22	1	1	1	1	1	
	23	1	1	1	1	1	
	24	1	1	1	1	1	
	25	1	1	1	1	1	
	26	1	1	1	1	1	
	27	1	1	1	1	1	
	28	1	1	1	1	1	
	29	1	1	1	1	1	
	30	0	0	0	0	0	
	31	1	1	1	0	0	
	32	0	0	0	0	0	
	33	0	0	0	0	0	
	34	1	1	1	1	1	
	35	1	1	1	1	1	
	36	0	0	0	0	0	
	37	1	1	1	1	1	
	1	1	1	1	1	1	
	2	1	1	1	1	1	
	3	0	0	0	0	0	
	4	1	1	1	1	1	
	5	0	0	0	0	0	
	6	1	1	1	1	1	
	7	1	1	1	1	1	
	8	0	0	0	0	0	Handicap Spot
	9	0	0	0	0	0	

Jeff Tang
Friday, February 13, 2016

TIME 0:00	0:30	1:00	1:30	2:00	NOTES
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
1	1	1	1	1	
0	0	0	0	0	
1	1	1	1	1	
0	0	0	0	0	
0	0	0	0	0	
1	1	1	1	1	
1	1	1	1	1	
0	0	0	0	0	
1	1	1	1	1	
1	1	1	1	1	
0	0	0	0	0	
1	1	1	1	1	
1	1	1	1	1	
1	1	0	0	0	
0	0	0	0	0	
1	1	1	1	1	
1	1	1	1	1	
0	0	0	0	0	
1	1	1	1	1	
1	1	1	1	1	
1	1	1	1	1	
1	1	1	1	1	
1	1	1	1	1	
1	1	1	1	1	
1	1	1	1	1	
1	1	1	1	1	
1	1	1	1	1	
1	1	1	1	1	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
1	1	1	1	1	
1	1	1	1	1	
0	0	0	0	0	
1	1	1	1	1	
1	1	1	1	1	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
1	1	1	1	1	
1	1	1	1	1	
0	0	0	0	0	
1	1	1	1	1	
1	1	1	1	1	
0	0	0	0	0	
0	0	0	0	0	

SURVEYOR: Kenneth Lo
DATE: Thursday January 14-Fri Jan 15th, 2016

Level	STALL #	0:00	0:30	1:00	1:30	2:00	2:30	3:00	NOTES		Resident Space	Resident Space Ever Occupied
	25	0	0	0	0	0	0	0			1	0
	26	0	0	0	0	0	0	0			1	0
	27	0	0	0	0	0	0	0			1	0
	28	0	0	0	0	0	0	0			1	0
	29	0	0	0	0	0	0	0			1	0
	30	0	0	0	0	0	0	0			1	0
	1	0	0	0	0	0	0	0			1	1
	2	0	0	0	0	0	0	0			1	0
	3	0	0	0	0	0	0	0			1	1
	4	0	0	0	0	0	0	0			1	1
	5	0	0	0	0	0	0	0			1	0
	6	0	0	0	0	0	0	0			1	1
	7	1	1	1	1	1	1	1			1	1
	8	0	0	0	0	0	0	0			1	0
	9	1	1	1	1	1	1	1			1	1
	10	0	0	0	0	0	0	0			1	1
	11	0	0	0	0	0	0	0			1	1
	12	1	1	1	1	1	1	1			1	1
	13	0	0	0	0	0	0	0			1	0
	14	0	0	0	0	0	0	0			1	0
	15	1	1	1	1	1	1	1			1	1
	16	1	1	1	1	1	1	1			1	1
	17	0	0	0	0	0	0	0			1	1
	18	0	0	0	0	0	0	0			1	0
P3	19	0	0	0	0	0	0	0			1	1
	20	1	1	1	1	1	1	1			1	1
	21	1	1	1	1	1	1	1			1	1
	22	0	0	0	0	0	0	0			1	1
	23	1	1	1	1	1	1	1			1	1
	24	1	1	1	1	1	1	1			1	1
	25	0	0	1	1	1	1	1			1	1
	26	0	0	0	0	0	0	0			1	1
	27	0	0	0	0	0	0	0			1	1
	28	1	1	1	1	1	1	1			1	1
	29	1	1	1	1	1	1	1			1	1
	30	1	1	1	1	1	1	1			1	1
	31	1	1	1	1	1	1	1			1	1
	32	0	0	0	0	0	0	0			1	0
	33	0	0	0	0	0	0	0			1	0
	34	1	1	1	1	1	1	1			1	1
	35	1	1	1	1	1	1	1			1	1
	36	0	0	0	0	0	0	0			1	0
	37	1	1	1	1	1	1	1	rked + motocycle		1	1
	1	1	1	1	1	1	1	1			1	1
	2	0	1	1	1	1	1	1			1	1
	3	0	0	0	0	0	0	0			1	0
	4	1	1	1	1	1	1	1			1	1
	5	0	0	0	0	0	0	0			1	0
	6	1	1	1	1	1	1	1			1	1
	7	1	1	1	1	1	1	1			1	1
	8	0	0	0	0	0	0	0			1	0
	9	0	0	0	0	0	0	0			1	0

8 MERCER STREET - RESIDENTIAL PARKING SUMMARY

8761.200

SURVEYOR: Kenneth Lo
DATE: Thursday, February 11, 2016

Jeff Tang
Friday, February 13, 2016

Level	STALL #	TIME					NOTES	TIME					NOTES
		0:00	0:30	1:00	1:30	2:00		0:00	0:30	1:00	1:30	2:00	
P4	10	0	0	0	0	0		1	1	1	1	1	
	11	0	0	0	0	0		1	1	1	1	1	
	12	1	1	1	1	1		1	1	1	1	1	
	13	1	1	1	1	1		1	1	1	1	1	
	14	0	0	0	0	0		0	0	0	0	0	
	15	1	1	1	1	1		0	0	0	0	0	
	16	1	1	1	1	1		1	1	1	1	1	
	17	1	1	1	1	1		1	1	1	1	1	
	18	1	1	1	1	1		1	1	1	1	1	
	19	0	0	0	0	0		0	0	0	0	0	
	20	1	1	1	1	1		1	1	1	1	1	
	21	0	0	0	0	0		0	0	0	0	0	
	22	1	1	1	1	1		1	1	1	1	1	
	23	1	1	1	1	1		1	1	1	1	1	
	24	1	1	1	1	1		1	1	1	1	1	
	25	1	1	1	1	1		1	1	1	1	1	
	26	0	0	0	0	0		1	1	1	1	1	
	27	0	0	0	0	0		1	0	0	0	0	
	28	1	1	1	1	1		1	1	1	1	1	
	29	0	0	0	0	0		0	0	0	0	0	
	30	1	1	1	1	1		1	1	1	1	1	
	31	1	1	1	1	1		1	1	1	1	1	
	32	1	1	1	1	1		1	1	1	1	1	
	33	0	0	0	0	0		0	0	0	0	0	
	34	1	1	1	1	1		1	1	1	1	1	
	35	0	0	0	0	0		0	0	0	0	0	
	36	1	1	1	1	1		1	1	1	1	1	
	37	1	1	1	1	1		1	1	1	1	1	
P5	1	1	1	1	1	1		1	1	1	1	1	
	2	1	1	1	1	1		1	1	1	1	1	
	3	1	1	1	1	1		1	1	1	1	1	
	4	0	0	0	0	0		0	0	0	0	0	
	5	1	1	1	1	1		1	1	1	1	1	
	6	0	0	0	0	0		0	0	0	0	0	
	7	1	1	1	1	1		1	1	1	1	1	
	8	0	0	0	0	0		0	0	0	0	0	
	9	1	1	1	1	1		1	1	1	1	1	
	10	1	1	1	1	1		1	1	1	1	1	
	11	1	1	1	1	1		1	1	1	1	1	
	12	1	1	1	1	1		1	1	1	1	1	
	13	1	1	1	1	1		1	1	1	1	1	
	14	0	0	0	0	0		0	0	0	0	0	
	15	1	1	1	1	1		1	1	1	1	1	
	16	1	1	1	1	1		1	1	1	1	1	
	17	1	1	1	1	1		1	0	0	0	0	
	18	1	1	1	1	1		0	0	0	1	1	
	19	1	1	1	1	1		1	1	1	1	1	
	20	1	1	1	1	1		1	1	1	1	1	
	21	1	1	1	1	1		1	1	1	1	1	
	22	1	1	1	1	1		1	1	1	1	1	
	23	1	1	1	1	1		1	1	1	1	1	
	24	1	1	1	1	1		1	1	1	1	1	

SURVEYOR: Kenneth Lo
DATE: Thursday January 14-Fri Jan 15th, 2016

Level	STALL #	0:00	0:30	1:00	1:30	2:00	2:30	3:00	NOTES		Resident Space	Resident Space Ever Occupied
P4	10	0	0	0	0	0	0	0			1	1
	11	0	0	0	0	0	0	0			1	1
	12	1	1	1	1	1	1	1			1	1
	13	1	1	1	1	1	1	1			1	1
	14	1	1	1	1	1	1	1			1	1
	15	1	1	1	1	1	1	1			1	1
	16	1	1	1	1	1	1	1			1	1
	17	1	1	1	1	1	1	1			1	1
	18	1	1	1	1	1	1	1			1	1
	19	0	0	0	0	0	0	0			1	0
	20	1	1	1	1	1	1	1			1	1
	21	0	0	0	0	0	0	0			1	0
	22	1	1	1	1	1	1	1			1	1
	23	1	1	1	1	1	1	1			1	1
	24	1	1	1	1	1	1	1			1	1
	25	1	1	1	1	1	1	1			1	1
	26	1	1	1	1	1	1	1			1	1
	27	0	0	0	0	0	0	0			1	1
	28	1	1	1	1	1	1	1			1	1
	29	0	0	0	0	0	0	0			1	0
	30	1	1	1	1	1	1	1			1	1
	31	1	1	1	1	1	1	1			1	1
	32	1	1	1	1	1	1	1			1	1
	33	0	0	0	0	0	0	0			1	0
	34	1	1	1	1	1	1	1			1	1
	35	1	1	1	1	1	1	1			1	1
	36	1	1	1	1	1	1	1			1	1
	37	1	1	1	1	1	1	1			1	1
P5	1	1	1	1	1	1	1	1			1	1
	2	1	1	1	1	1	1	1			1	1
	3	1	1	1	1	1	1	1			1	1
	4	0	0	0	0	0	0	0			1	0
	5	1	1	1	1	1	1	1			1	1
	6	0	0	0	0	0	0	0			1	0
	7	1	1	1	1	1	1	1			1	1
	8	0	0	0	0	0	0	0			1	0
	9	0	0	0	0	0	0	0			1	1
	10	1	1	1	1	1	1	1			1	1
	11	0	0	0	0	1	1	1			1	1
	12	1	1	1	1	1	1	1			1	1
	13	1	1	1	1	1	1	1			1	1
	14	0	0	0	0	0	0	0			1	0
	15	1	1	1	1	1	1	1			1	1
	16	1	1	1	1	1	1	1			1	1
	17	1	1	1	1	1	1	1			1	1
	18	1	1	1	1	1	1	1			1	1
	19	1	1	1	1	1	1	1			1	1
	20	1	1	1	1	1	1	1			1	1
	21	1	1	1	1	1	1	1			1	1
	22	1	1	1	1	1	1	1			1	1
	23	1	1	1	1	1	1	1			1	1
	24	1	1	1	1	1	1	1			1	1

8 MERCER STREET - RESIDENTIAL PARKING SUMMARY

8761.200

SURVEYOR: Kenneth Lo
DATE: Thursday, February 11, 2016

Level	STALL #	TIME 0:00	0:30	1:00	1:30	2:00	NOTES
	25	1	1	1	1	1	
	26	0	0	0	0	0	
	27	1	1	1	1	1	
	28	1	1	1	1	1	
	29	0	0	0	0	0	
	30	1	1	1	1	1	
	31	0	0	0	0	0	
TOTAL	162	84	84	84	83	83	Includes P1 - Visitor Parking
sidential To	135	72	72	72	71	71	Excluding P1 - Visitor Parking

Jeff Tang
Friday, February 13, 2016

TIME 0:00	0:30	1:00	1:30	2:00	NOTES
1	1	1	1	1	
0	0	0	0	0	
1	1	1	1	1	
1	1	1	1	1	
0	0	0	0	0	
0	0	0	0	0	
1	1	1	1	1	
91	88	85	86	86	
70	68	67	68	68	

SURVEYOR: Kenneth Lo
DATE: Thursday January 14-Fri Jan 15th, 2016

Level	STALL #	0:00	0:30	1:00	1:30	2:00	2:30	3:00	NOTES		Resident Space	Resident Space Ever Occupied
	25	1	1	1	1	1	1	1			1	1
	26	0	0	0	0	0	0	0			1	0
	27	1	1	1	1	1	1	1			1	1
	28	1	1	1	1	1	1	1			1	1
	29	0	0	0	0	0	0	0			1	0
	30	0	0	0	0	0	0	0			1	1
	31	1	1	1	1	1	1	1			1	1
TOTAL	105	63	64	65	65	66	66	66			135	82

APPENDIX I

Functional Design Review

NOTE:
AN ON-SITE TRAINED STAFF MEMBER WILL BE AVAILABLE TO MANOEUVRE BINS FOR THE COLLECTION DRIVER AND ALSO ACT AS A FLAGMAN WHEN THE TRUCK IS REVERSING.

LOT 1, REGISTERED PLAN 10A

PART 3, PLAN 63R-2726
DEDICATED BY BY-LAW 55-84,
INST. No. CT644092

RICHARD BIGLEY LANE

MUTUAL STREET

QUEEN STREET EAST

EXISTING ON-STREET PARKING

EXISTING ON-STREET PARKING

GARAGE

HABO (NAME (LANE

Chain Link Fence

Concrete Curb

Concrete Sidewalk

Curb Cut

R=10.9

R=17.0

R=9.5

R=14.6

DASHED LINE OF BUILDING ABOVE AT SECOND FLOOR

OPTIONAL COMMUNITY SPACE/RETAIL

STAGING AREA 31.0m²

GARBAGE AND RECYCLING 134.08SM

BULK STORAGE 11.22SM

MOVING ROOM 11.29SM

"G/B" LOADING 13.00x4.00x6.10 MIN.

20 SHORT-TERM BICYCLE PARKING SPACES

RETAIL 1 165.23SM

RESIDENTIAL LOBBY

MAIL ROOM

INTAKE

CACF

RETAIL 2 77.89SM

CANADA POST ACCESS

EXHAUST

3M @ 7.2%

OH DOOR

UP

DN

2 STOREY CONCRETE BLOCK ADDITION

2 STOREY BRICK & FRAME ADDITION

No. 108
3 STOREY
BRICK
BUILDING
DS=85.91

LOT 5

Corner On Line

Corner 0.13W On Line N (WIT)

Corner 0.09W (BA,P1&M)

Corner 0.07W

Corner 0.06N 0.24W (WIT)

Corner 0.06S SIAMESE CONNECTION

Corner 0.08S

Corner 0.09 (P1,BA&Set

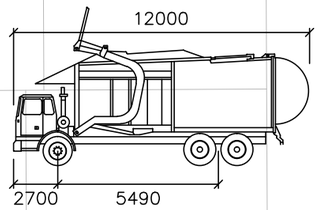
EXISTING ENTRANCES (TYP.)

0.30ø

0.20ø

Interlock

APPROXIMATE LOCATION OF EXISTING CURB AND PAVEMENT MARKINGS PER AERIAL PHOTO



GARBAGE TO mm

Width	: 2400
Track	: 2400
Lock to Lock Time	: 6.0
Steering Angle	: 27.1

LEGEND
- RESIDENTIAL/RETAIL ACCESS
- FIRE EXIT
- VEHICULAR ACCESS
- PROPERTY LINE
- DASHED LINE OF U/G PARKING GARAGE
- +86.0m FINISHED FLOOR ELEVATION

LEA Consulting Ltd.
Consulting Engineers and Planners
www.LEA.ca

N

Project No. 19178-220

Date DEC. 18, 2018

90-109 QUEEN STREET EAST
TORONTO ONTARIO

2 0 2 4 6m
1:200

GROUND FLOOR
LOADING REVIEW
CITY GARBAGE TRUCK
ENTRY PATH

Drawing No. 001

DRAWING NAME: F:\19178\Drafting\19178WF002C-GRND.dwg

NOTE:
AN ON-SITE TRAINED STAFF MEMBER WILL BE AVAILABLE TO MANOEUVRE BINS FOR THE COLLECTION DRIVER AND ALSO ACT AS A FLAGMAN WHEN THE TRUCK IS REVERSING.

LOT 1, REGISTERED PLAN 10A

PART 3, PLAN 63R-2726
DEDICATED BY BY-LAW 55-84,
INST. No. CT644092

RICHARD BIGLEY LANE

QUEEN STREET EAST

MUTUAL STREET

EXISTING ON-STREET PARKING

EXISTING ON-STREET PARKING

Curb Cut

Concrete Sidewalk

Concrete Curb

Concrete

Chain Link Fence

GARAGE

CRW

UPLS

R=17.5

R=11.6

R=9.6

R=16.0

Corner 0.13W On Line N (WIT)

Corner 0.09W (BA,P1&M)

Corner 0.07W

Corner 0.06N 0.24W (WIT)

Corner 0.06S

Corner 0.08S

Corner On Line

DASHED LINE OF BUILDING ABOVE AT SECOND FLOOR

OH DOOR

EXHAUST

3M @ 7.2%

OPTIONAL COMMUNITY SPACE/RETAIL

STAGING AREA 31.0m²

GARBAGE AND RECYCLING 134.08SM

BULK STORAGE 11.22SM

MOVING ROOM 11.29SM

"G/B" LOADING 13.00x4.00x6.10 MIN.

20 SHORT-TERM BICYCLE PARKING SPACES

RETAIL 1 165.23SM

RESIDENTIAL LOBBY

MAIL ROOM

INTAKE

CACF

RETAIL 2 77.89SM

CANADA POST ACCESS

EXISTING ENTRANCES (TYP.)

0.30ø

0.20ø

Interlock

2 STOREY CONCRETE BLOCK ADDITION

2 STOREY BRICK & FRAME ADDITION

BLOCK B

LOT 5

No. 108
3 STOREY
BRICK
BUILDING
DS=85.91

12000

2700 5490

GARBAGE TO mm

Width	: 2400
Track	: 2400
Lock to Lock Time	: 6.0
Steering Angle	: 27.1

LEGEND
- RESIDENTIAL/RETAIL ACCESS
- FIRE EXIT
- VEHICULAR ACCESS
- PROPERTY LINE
- DASHED LINE OF U/G PARKING GARAGE
- FINISHED FLOOR ELEVATION

APPROXIMATE LOCATION OF EXISTING CURB AND PAVEMENT MARKINGS PER AERIAL PHOTO

LEA Consulting Ltd.
Consulting Engineers and Planners
www.LEA.ca

N

Project No.
19178-220

Date
DEC. 18, 2018

90-109 QUEEN STREET EAST
TORONTO ONTARIO

2 0 2 4 6m
1:200

GROUND FLOOR
LOADING REVIEW
CITY GARBAGE TRUCK
EXIT PATH

Drawing No.
002

DRAWING NAME: F:\19178\Drafting\19178WF002C-GRND.dwg

NOTE:
AN ON-SITE TRAINED STAFF MEMBER WILL BE AVAILABLE TO MANOEUVRE BINS FOR THE COLLECTION DRIVER AND ALSO ACT AS A FLAGMAN WHEN THE TRUCK IS REVERSING.

LOT 1, REGISTERED PLAN 10A
PART 3, PLAN 63R-2726
DEDICATED BY BY-LAW 55-84,
INST. No. CT644092

RICHARD BIGLEY LANE

MUTUAL STREET

QUEEN STREET EAST

EXISTING ON-STREET PARKING

EXISTING ON-STREET PARKING

GARAGE

Curb Cut

Concrete Sidewalk

Concrete Curb

Chain Link Fence

Concrete

CB

TP

Corner 0.13W On Line N (WIT)

Corner 0.09W (BA,P1&M)

Corner 0.07W

Corner 0.06N 0.24W (WIT)

Corner 0.06S

Corner On Line

UPLS

BP

GP

GW

WV

DN

UP

OH DOOR

EXHAUST

3M @ 7.2%

OPTIONAL COMMUNITY SPACE/RETAIL
+86.5m

STAGING AREA
31.0m²

GARBAGE AND RECYCLING
134.08SM

+87.0m

BULK STORAGE
11.22SM

MOVING ROOM
11.29SM

"G/B" LOADING
13.00x4.00x6.10 MIN.

20 SHORT-TERM BICYCLE PARKING SPACES

RETAIL 1
165.23SM
+86.0m

RESIDENTIAL LOBBY
+86.0m

MAIL ROOM

INTAKE

CACF

RETAIL 2
77.89SM
+86.0m

CANADA POST ACCESS

SIAMESE CONNECTION

EXISTING ENTRANCES (TYP.)

0.30ø

0.20ø

Interlock

PA

FH

APPROXIMATE LOCATION OF EXISTING CURB AND PAVEMENT MARKINGS PER AERIAL PHOTO

UNDERLINE OF PARKING GARAGE BELOW

2 STOREY CONCRETE BLOCK ADDITION

2 STOREY BRICK & FRAME ADDITION

BLOCK B

10000

800 6500

MSU	mm
Width	: 2600
Track	: 2600
Lock to Lock Time	: 6.0
Steering Angle	: 40.1

LEGEND
- RESIDENTIAL/RETAIL ACCESS
- FIRE EXIT
- VEHICULAR ACCESS
- PROPERTY LINE
- DASHED LINE OF U/G PARKING GARAGE
- +86.0m FINISHED FLOOR ELEVATION

LOT 5

No. 108
3 STOREY
BRICK
BUILDING
DS=85.91

N

Project No.	19178-220
Date	DEC. 18, 2018

LEA Consulting Ltd.
Consulting Engineers and Planners
www.LEA.ca

90-109 QUEEN STREET EAST
TORONTO ONTARIO

2 0 2 4 6m
1:200

GROUND FLOOR
LOADING REVIEW
MOVING/ DELIVERY TRUCK
ENTRY PATH

Drawing No.
003

DRAWING NAME: F:\19178\Drafting\19178WF002C-GRND.dwg

NOTE:
AN ON-SITE TRAINED STAFF MEMBER WILL BE AVAILABLE TO MANOEUVRE BINS FOR THE COLLECTION DRIVER AND ALSO ACT AS A FLAGMAN WHEN THE TRUCK IS REVERSING.

LOT 1, REGISTERED PLAN 10A
PART 3, PLAN 63R-2726
DEDICATED BY BY-LAW 55-84,
INST. No. CT644092

RICHARD BIGLEY LANE

MUTUAL STREET

QUEEN STREET EAST

EXISTING ON-STREET PARKING

EXISTING ON-STREET PARKING

APPROXIMATE LOCATION OF EXISTING CURB AND PAVEMENT MARKINGS PER AERIAL PHOTO

OPTIONAL COMMUNITY SPACE/RETAIL

STAGING AREA 31.0m²

"G/B" LOADING 13.00x4.00x6.10 MIN.

GARBAGE AND RECYCLING 134.08SM

BULK STORAGE 11.22SM

MOVING ROOM 11.29SM

RETAIL 1 165.23SM

RESIDENTIAL LOBBY

MAIL ROOM

INTAKE

CACF

RETAIL 2 77.89SM

20 SHORT-TERM BICYCLE PARKING SPACES

CANADA POST ACCESS

DASHED LINE OF BUILDING ABOVE AT SECOND FLOOR

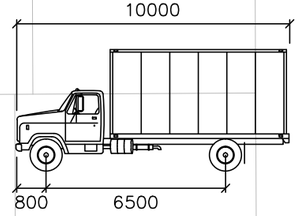
EXHAUST

3M @ 7.2%

2 STOREY CONCRETE BLOCK ADDITION

2 STOREY BRICK & FRAME ADDITION

No. 108
3 STOREY
BRICK
BUILDING
DS=85.91



MSU	mm
Width	: 2600
Track	: 2600
Lock to Lock Time	: 6.0
Steering Angle	: 40.1

LEGEND
RESIDENTIAL/RETAIL ACCESS
FIRE EXIT
VEHICULAR ACCESS
PROPERTY LINE
DASHED LINE OF U/G PARKING GARAGE
FINISHED FLOOR ELEVATION

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90-109 QUEEN STREET EAST
TORONTO ONTARIO

2 0 2 4 6m
1:200

GROUND FLOOR
LOADING REVIEW
MOVING/ DELIVERY TRUCK
EXIT PATH

Drawing No. 004

DRAWING NAME: F:\19178\Drafting\19178WF002C-GRND.dwg