



## LEA Consulting Ltd.

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February 8, 2015

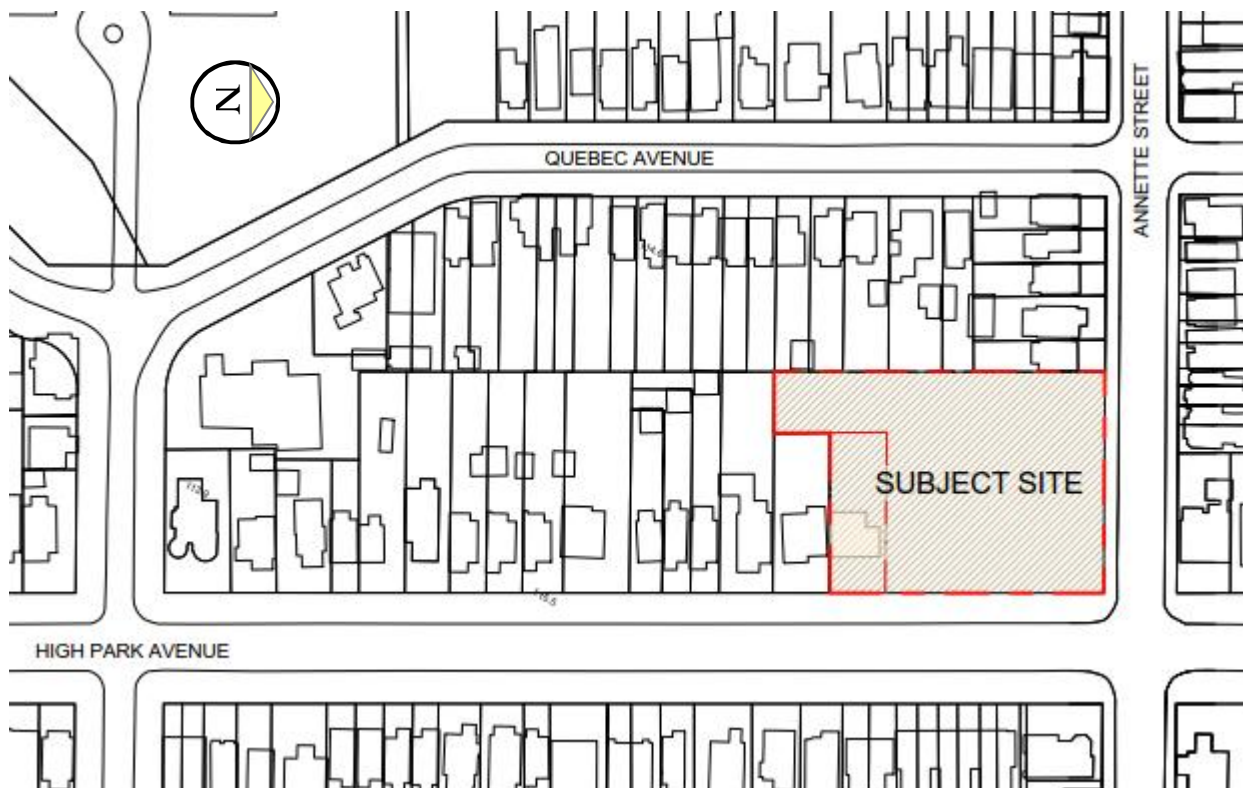
Our Ref.: 9751.200/260 High Park Ave

Chris Giamou  
Trac Developments Inc.  
c/o MCG Consultants  
500 Rathburn Road  
Etobicoke, Ontario M9C 3S8

### **Subject: 248-260 High Park Avenue, City of Toronto –Traffic Impact, Parking, and Loading Study**

Dear Mr. Giamou:

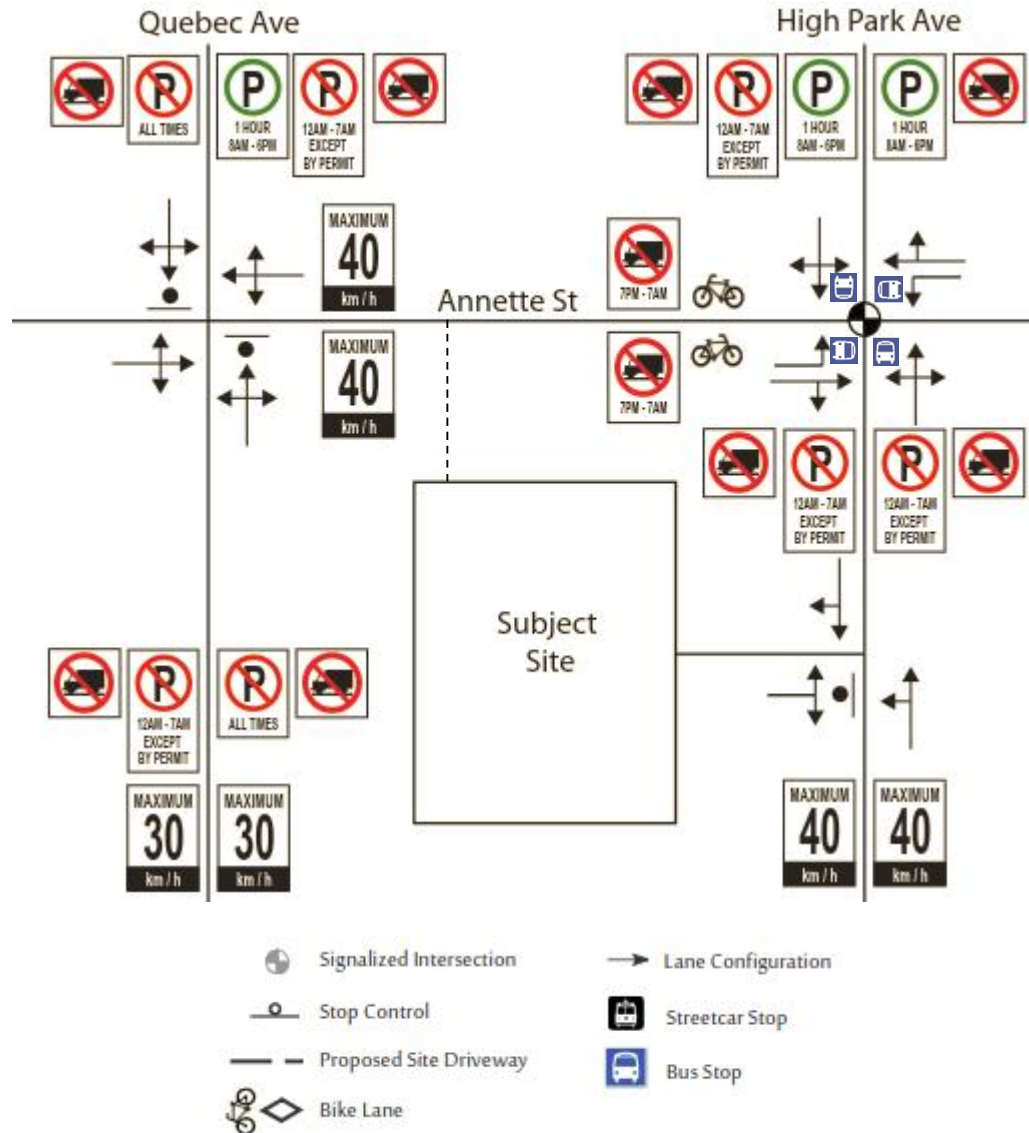
LEA Consulting Ltd. was retained by Trac Developments to conduct a traffic impact, parking, and loading study for the proposed residential development located at 248-260 High Park Avenue, located southwest of Annette Street and High Park Avenue in the City of Toronto. In accordance with the City's guidelines for a traffic impact study, this study will examine the existing road network, operations, and address trip generation. Furthermore, transit accessibility, parking requirements, and loading requirements for the proposed development will be investigated. **Figure 1** illustrates the subject site location.



**Figure 1: Subject Site (248-260 High Park Avenue)**

## Existing Road Network

The area surrounding the subject site is examined with regards to lane configuration, speed limits, cycling infrastructure, and transit stops, illustrated in **Figure 2**.



**Figure 2: Existing Lane Configuration**

The subject site is located in a residential area supplemented with bicycle lanes along Annette Street. Transit service is provided in front of the development along Annette Street and High Park Avenue.

### Transit Connectivity

To determine if the subject site area is supportive of a resident demographic consisting of lower rates of auto ownership, an assessment of adjacent transit routes was conducted, specifically the #26 Dupont and #30 Lambton TTC bus routes.

Route #26 Dupont operates daily, serving the eastbound-westbound directions at 16 minute service intervals during the weekday peak hours. The route provides access to the Wilson and Dufferin subway stations.

Route #30 Lambton operates daily, serving the northbound-southbound directions adjacent to the site at 20 minute intervals during the weekday peak hours. The route provides access to the High Park and Kipling subway stations.

Transit stop locations are displayed in **Figure 3**.



Figure 3: Transit Accessibility near Subject Site

### Existing Traffic Conditions

The proposed development converts the existing High Park Korean United Church building for residential uses and provides additions to the west and south sides. A total of 77 residential units is proposed. 92 resident and 15 visitor parking spaces will be provided below grade, accessible from Annette Street. Pedestrian access to the site is provided from High Park Avenue, with a side entrance from Annette Street. The proposed development's preliminary site plan is provided in **Figure 4**.



Source: Turner Fleischer Architects, Received February 8, 2016

### Figure 4: Preliminary Site Plan

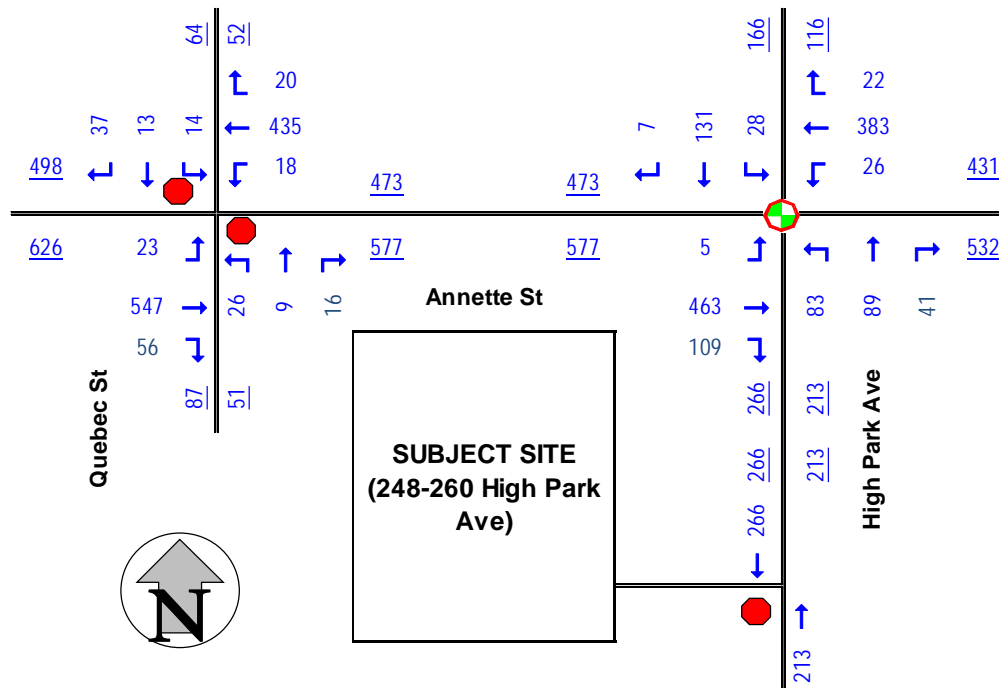
To determine existing traffic operations in the study area and trips at the existing church, surveys were conducted on Thursday, November 19, 2015 from 7:00 to 9:30 AM during the AM peak period, and from 4:30-6:30 PM during the PM peak period. **Table 1** summarizes the intersections studied. Raw traffic count data is appended to this report in **Appendix A**.

Intersection	Date of Survey	Source
Quebec Street / Annette Street	Thursday, November 19, 2015 (7:00-9:30 AM) (4:30-6:30 PM)	LEA Consulting Ltd.
High Park Avenue / Annette Street		
Church Access / High Park Street		

Table 1: Surveyed Intersections

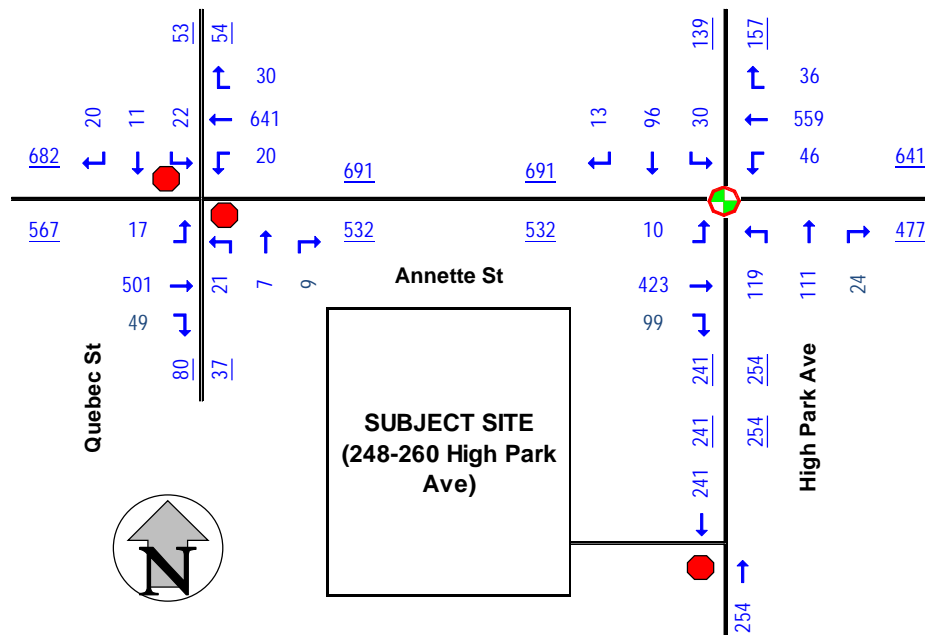


**Figure 5** and **6** shows the existing AM and PM peak hour volumes obtained from the survey, respectively.



**Figure 5: Existing AM Peak Hour Volumes**

During the AM peak hour, the highest traffic volumes were seen in the eastbound direction along Annette Street. It was noted during the traffic surveys that no trips to / from the existing church occurred during the survey AM study period.



**Figure 6: Existing PM Peak Hour Volumes**

During the PM peak hour, the highest traffic volumes were seen in the westbound direction along Annette Street. It was again noted that no trips to / from the existing church occurred during the PM study period.

### **Intersection Capacity Analyses**

To assess existing operations in the study area, capacity analysis for the study area was undertaken using Synchro version 8.0 based on the Highway Capacity Manual (2000) methodology adhering to the *City of Toronto Impact Study Guidelines, July 2013*. A summary of the existing traffic analysis results can be found in **Appendix B**.

**Table 2** below tabulates weekday AM and PM peak hour levels of service under existing traffic conditions for the Annette Street / High Park Avenue signalized intersection.

Intersection (Signalized)	Weekday AM Peak Hour								
	Overall			Movements of Interest					
	V/C	Delay (s)	LOS	Movement	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th
Annette St / High Park Ave	0.64	15.4	B	EBL	0.01	5.9	A	0.3	1.9
				EBT	0.62	12.0	B	45.4	90.7
				WBL	0.08	6.6	A	1.4	5.6
				WBT	0.43	9.1	A	28.1	55.1
				NBT	0.70	31.0	C	26.4	45.0
				SBT	0.46	23.7	C	20.6	34.3
Intersection (Signalized)	Weekday PM Peak Hour								
	Overall			Movements of Interest					
	V/C	Delay (s)	LOS	Movement	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th
Annette Ave / High Park Ave	0.67	16.3	B	EBL	0.03	6.8	A	0.6	2.8
				EBT	0.56	11.6	B	42.5	75.2
				WBL	0.13	7.7	A	2.9	8.5
				WBT	0.62	12.8	B	53.3	92.7
				NBT	0.76	33.2	C	32.6	#56.2
				SBT	0.36	21.8	C	15.5	28.5

**Table 2: Signalized Intersection Level of Service – AM & PM Peak Hour**

During both weekday AM and PM peak hours, levels of service were found to be acceptable for all movements with LOS 'C' or better. Low delays and volume/capacity (v/c) ratios of 0.76 or less were observed for all movements. The eastbound queue (50<sup>th</sup> percentile) of up to 45 metres during the AM peak hour is not expected to block the future site access proposed to be located on Annette Street.

**Table 3** below tabulates weekday AM and PM peak hour levels of service under existing traffic conditions for the Annette Street / Quebec Avenue unsignalized intersection.

Intersection (Unsignalized)	Movement of Interest	Weekday AM Peak Hour					
		Flow Rate (vph)	Capacity (vph)	Control Delay (s)	95th Queue (m)	V/C	LOS
Annette St / Quebec Ave	EB 1	26	915	0.7	0.7	0.03	A
	WB 1	20	761	0.7	0.6	0.03	A
	NB 1	57	83	113.4	24.8	0.69	F
	SB 1	71	155	46.7	16.1	0.46	E
Intersection (Unsignalized)	Movement of Interest	Weekday PM Peak Hour					
		Flow Rate (vph)	Capacity (vph)	Control Delay (s)	95th Queue (m)	V/C	LOS
Annette St / Quebec Ave	EB 1	19	763	0.7	0.6	0.02	A
	WB 1	22	927	0.6	0.6	0.02	A
	NB 1	40	85	80.9	15.1	0.47	F
	SB 1	57	100	80.6	20.2	0.57	F

**Table 3: Unsignalized Intersection Level of Service – AM & PM Peak Hour**

The north and southbound movements at the Annette Street / Quebec Avenue intersection are reported to be operating with LOS 'E' and 'F' during the AM and PM peak hours. It is however noted that short queue lengths and acceptable v/c ratios indicate that all movements are operating within capacity. Adjacent to the study area to the west, the signalized Annette Street / Clendenan Avenue intersection located 100 metres west will create traffic gaps during east-west red phases, allowing additional Quebec Avenue movements to be completed. As such, it is suggested that the delays reported in Synchro for the unsignalized Annette Street / Quebec intersection are an overestimate of actual traffic delays and is capable of supporting current traffic volumes.

### **Trip Generation**

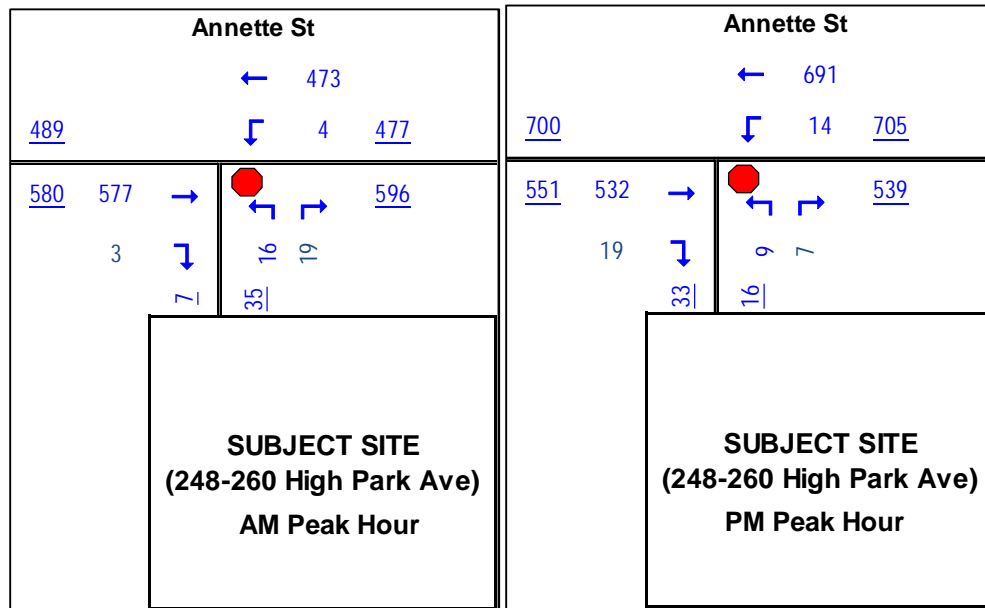
To estimate the number of vehicle trips generated by the proposed development, trip generation was calculated using rates derived from the Institute of Transportation Engineers (ITE) Handbook, 9<sup>th</sup> Edition. **Table 4** summarizes the trip generation findings.

Land Use			Weekday AM Peak Hour			Weekday PM Peak Hour		
ITE Code 230 (Condominium)	77 Units		Inbound	Outbound	Total	Inbound	Outbound	Total
		Trips/Unit	0.09	0.46	0.55	0.43	0.21	0.64
		Trips	7	35	42	33	16	49

**Table 4: ITE Trip Generation Summary for Proposed Development**

Overall, the proposed development is expected to generate 42 vehicle trips (7 inbound, 35 outbound) to the study area during the weekday AM peak hour, and 49 vehicle trips (33 inbound, 16 outbound) during the weekday PM Peak hour.

To assess how site traffic would interact with the Annette Street, a capacity analysis was conducted for the proposed site driveway. The proportion of site traffic heading/arriving to/from the east and west directions was based on the existing proportion of east-west traffic on Annette Street. Traffic with the proposed site driveway is illustrated in **Figure 7**.



**Figure 7: Site Traffic: AM and PM Peak Hour**

Traffic capacity analysis for the proposed site driveway is summarized in **Table 5**. Detailed results are provided in **Appendix C**.

Intersection (Unsignalized)	Movement of Interest	Weekday AM Peak Hour					
		Flow Rate (vph)	Capacity (vph)	Control Delay (s)	95th Queue (m)	V/C	LOS
Annette St / Site Driveway	WB 1	4	778	0.2	0.1	0.01	A
	NB 1	39	219	24.9	4.8	0.18	C
Intersection (Unsignalized)	Movement of Interest	Weekday PM Peak Hour					
		Flow Rate (vph)	Capacity (vph)	Control Delay (s)	95th Queue (m)	V/C	LOS
Annette St / Site Driveway	WB 1	16	926	0.4	0.4	0.02	A
	NB 1	17	178	27.3	2.4	0.10	D

**Table 5: Site Driveway Level of Service – AM & PM Peak Hour**

During both weekday AM and PM peak hours, levels of service were found to be acceptable for the westbound left and northbound left / right turning movements, with LOS 'D' or better. Low delays and volume/capacity (v/c) ratios of 0.18 or less were observed for all movements.

Based on the capacity analysis, operations with the proposed site driveway on Annette Street are expected to be acceptable. Upon review of the trips generated by the proposed site, traffic volumes for a development of this size are expected to be minimal. With reference to City of Toronto traffic impact study guidelines, the peak hour peak direction trips are predicted to be fewer than 100. Therefore a detailed traffic impact study is determined to be unnecessary for the proposed development.



## **Transit Ridership**

To estimate the transit ridership generated by the subject site, Transportation Tomorrow Survey (TTS) modal split data was obtained for home based work trips originating from the study area. TTS modal split data is provided in **Appendix D**. Based on the TTS data, a 44% auto mode and a 44% transit modal split exists for the study area. By referring to the auto trip rates in **Table 4**, the proportion of transit trips is derived, summarized in **Table 6**.

Trips	AM Peak			PM Peak		
	Inbound	Outbound	Total	Inbound	Outbound	Total
Transit (44% mode split)	3	17	20	15	8	23
Rate (Trips/Unit)	0.04	0.22	0.26	0.20	0.10	0.30

**Table 6: Transit Trips Generated By 59-71 Mutual Street**

A total of 20 transit trips (3 inbound, 17 outbound) and 23 transit trips (15 inbound, 8 outbound) are estimated for the AM and PM peak hours, respectively.

Existing TTC ridership data for the routes was obtained to assess if transit trips generated by the site could be supported by the routes. A summary of transit routes in the area, ridership levels, and capacity are summarized in **Table 7** and **Table 8** for the AM and PM peak hours, respectively.

Direction	Peak Hour	Frequency (veh/hr)	Peak Hour Average Load (riders/veh)	Vehicle Capacity (riders/veh)	Peak Hour Average Surplus (riders/veh)	Peak Hour Residual Capacity (riders/hr)
<b>#26 Dupont</b>						
EB	7:44 to 8:43	5	12	50	38	190
WB	7:33 to 8:32	5	14.3	50	35.7	179
<b>#30 Lambton</b>						
EB	7:35 to 8:34	3	29.7	50	20.3	61
WB	6:41 to 7:40	4	5.8	50	44.2	177

**Table 7: TTC Transit Ridership and Capacity – AM Peak Hour**

Based on the AM peak hour data, the #30 Lambton eastbound route was noted to have the lowest peak hour residual capacity of 61 riders.

Direction	Peak Hour	Frequency (veh/hr)	Peak Hour Average Load (riders/veh)	Vehicle Capacity (riders/veh)	Peak Hour Average Surplus (riders/veh)	Peak Hour Residual Capacity (riders/hr)
<b>#26 Dupont</b>						
EB	17:59 to 18:58	5	8.3	50	41.7	209
WB	17:41 to 18:40	6	6.6	50	43.4	260
<b>#30 Lambton</b>						
EB	17:31 to 18:30	4	9.5	50	40.5	162
WB	17:35 to 18:34	3	16.7	50	33.3	100

**Table 8: TTC Transit Ridership and Capacity – PM Peak Hour**

Based on the PM peak hour data, the #30 Lambton westbound route was noted to have the lowest peak hour residual capacity of 100 riders.

By comparing the capacity of each route in each direction with the transit trips generated, it is suggested that transit in the area can fully accommodate the site. TTC transit service is within walking distance of the subject site and residents can effectively utilize transit for day-to-day activities.

### **Active Transportation**

Within the subject site's vicinity, it was observed that Annette Street has a cycle path from Jane Street to the west, to Dundas Street to the east. As such, it is suggested that the neighbourhood the development is situated in is supportive of non-auto modes of transportation.

### **Parking Requirements – Automobile**

As part of the study, automobile parking requirements for the proposed development have to be calculated based on the unit mix. Based on our understanding, the governing zoning by-law for the subject site is the City of Toronto Zoning By-law 569-2013, All Other Areas. It is also noted that the site is located approximately 450 metres west of the Annette Street / Keele Street intersection, which is designated as Policy Area 4. **Table 5** summarizes the automobile parking requirements and provisions for the proposed development.

Use	Proposed Development Units	Zoning By-law 569-2013 (All Other Areas)		Proposed Parking Supply
		Parking Rate	Parking Supply	
Residential (Apartment)	41 one-bedroom	Minimum 0.9 parking spaces per dwelling unit	36 minimum	92
	26 two-bedroom	Minimum 1.0 parking spaces per dwelling unit	26 minimum	
	10 three-bedroom	Minimum 1.2 parking spaces per dwelling unit	12 minimum	
	<b>Total residential required:</b>		<b>74 minimum</b>	
Visitor (Apartment)	77 units	Minimum 0.2 parking spaces per dwelling unit	15 minimum	15
<b>Total</b>	<b>77 units</b>	--	<b>89 minimum</b>	<b>107</b>

**Table 9: Required Automobile Parking Supply**

By comparison, a proposed supply of 92 resident spaces exceeds By-law minimum requirements, while visitor parking is sufficient. In support of the proposed visitor parking supply, on-street parking is permitted on High Park Avenue in both directions (12:01-7:00 AM except by permit). Quebec Avenue on-street parking in the southbound direction, south of Annette Street, and parking in the northbound direction, north of Annette Street (12:01-7:00 AM except by permit) is also permitted. On-street parking availability as described in relation to the subject site's location is illustrated in **Figure 8**.



**Figure 8: On-Street Parking Availability Within 300 metres of Subject Site (248-260 High Park Ave)**

It is noted that the site's existing use as a church has historically generated large traffic and parking activity via the existing surface parking lot accessible from High Park Avenue during service hours. Additionally, on-street parking was utilized for the surface lot's overflow. With the site converted to 77 units of residential use, it is expected that on-street parking demand will decrease. As such, based on the availability of on-street parking, it is suggested that additional visitor parking can be accommodated off-site if required.

### **Parking Requirements – Bicycle**

City of Toronto parking requirements also require bicycle parking facilities for developments. The proposed site is situated in Bicycle Zone 1 as per Toronto By-law 569-2013. Long term bicycle storage is proposed on the underground P1 floor of the building. Short term bicycle parking is provided on the ground floor at the east side of the building, adjacent to High Park Avenue. **Table 10** summarizes the bicycle long and short term requirements.

Use	Proposed Development	City of Toronto Zoning By-law 569-2013	Minimum Bicycle Spaces Required	Proposed Bicycle Supply
Residential	77 dwelling units	0.9 long term spaces / dwelling unit	70	70
		0.1 short term spaces / dwelling unit	8	8
		<b>Total</b>	<b>78</b>	<b>78</b>

**Table 10: Required Bicycle Parking Supply**

Based on the preliminary site plan, the proposed development provides sufficient long and short term bicycle parking spaces.

### **Loading Review**

Upon review of City of Toronto Zoning By-law 569-2013, it is noted that developments with dwelling units in the range of 31-399 units require one Type “G” loading space. The required and provided loading provisions are summarized in **Table 7**.

Use	Proposed Development	Zoning By-law Loading Supply	Proposed Loading Supply
Residential	77 dwelling units	1 Type “G”	1 Type “G”

**Table 11: Minimum Loading Supply**

By providing one Type ‘G’ loading space at the subject site, By-law requirements are fulfilled.

### **Conclusion**

Based on our review of the trips generated by the proposed site, traffic volumes for a development of this size are expected to be minimal, such that a detailed traffic impact study and associated capacity analysis is deemed to be unnecessary as per City of Toronto Traffic Impact Study guidelines. As a result of the low site related traffic volumes, operations of site related traffic interacting with the surrounding street network is expected to be acceptable.

The proposed residential automobile parking supply exceeds the minimum residential parking requirements as outlined in the City of Toronto Zoning By-law 569-2013 (All Other Areas). On-street parking is also noted to be permitted along High Park Avenue and Quebec Street, which can support any additional visitor parking demands. When considering the site’s proximity to transit and existing cycling infrastructure, it is suggested that the parking provisions are adequate.

Residential long and short term bicycle parking supply meets By-law rates. In regards to By-law loading requirements, the proposed Type ‘G’ loading space is acceptable for a building with 77 units.



If you have any additional questions or concerns, please feel free to contact me at 905-470-0015 ext. 322 or Kenneth Chan at ext. 292.

Yours truly,

A handwritten signature in black ink, appearing to be 'H. Chan', with a stylized flourish extending to the left.

Hugo Chan, P.Eng  
Transportation Engineer

:hc

cc: Kenneth Chan, LEA Consulting Ltd.

**APPENDIX A:**  
Existing Traffic Volumes

# LEA Consulting Ltd.

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

Project: 9751

File Name : MERGED-9751-High Park Avenue & Annette Street-AM

Location: Annette St & High Park Ave Site Code : 97510223

Weather: Clear Start Date : 11/19/2015

Surveyor(s): Gordana & Stefan Rakonjac Page No : 1

## Groups Printed- Cars - Trucks - Buses

	High Park Avenue Southbound					Annette Street Westbound					High Park Avenue Northbound					Annette 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
07:00	3	8	0	1	12	3	28	2	2	35	5	9	6	6	26	1	63	9	11	84	157
07:15	9	13	1	6	29	2	47	0	1	50	8	7	14	4	33	1	76	13	11	101	213
07:30	7	22	1	3	33	6	62	6	6	80	16	13	12	7	48	1	100	18	28	147	308
07:45	8	22	0	9	39	8	65	8	8	89	19	14	9	6	48	1	107	23	22	153	329
Total	27	65	2	19	113	19	202	16	17	254	48	43	41	23	155	4	346	63	72	485	1007
08:00	9	37	1	3	50	8	98	3	6	115	29	28	11	16	84	0	119	27	14	160	409
08:15	10	32	1	19	62	6	110	5	19	140	14	27	16	24	81	2	109	27	21	159	442
08:30	5	37	0	11	53	6	90	6	18	120	16	24	4	22	66	2	108	32	16	158	397
08:45	4	25	5	16	50	6	82	8	21	117	24	10	10	32	76	7	93	20	33	153	396
Total	28	131	7	49	215	26	380	22	64	492	83	89	41	94	307	11	429	106	84	630	1644
09:00	12	17	5	10	44	6	70	6	13	95	25	18	18	16	77	5	114	24	10	153	369
09:15	8	21	0	7	36	7	44	3	7	61	11	8	2	5	26	2	93	28	2	125	248
Grand Total	75	234	14	85	408	58	696	47	101	902	167	158	102	138	565	22	982	221	168	1393	3268
Apprch %	18.4	57.4	3.4	20.8		6.4	77.2	5.2	11.2		29.6	28	18.1	24.4		1.6	70.5	15.9	12.1		
Total %	2.3	7.2	0.4	2.6	12.5	1.8	21.3	1.4	3.1	27.6	5.1	4.8	3.1	4.2	17.3	0.7	30	6.8	5.1	42.6	
Cars	74	224	14	72	384	54	648	45	58	805	165	149	100	130	544	21	940	216	72	1249	2982
% Cars	98.7	95.7	100	84.7	94.1	93.1	93.1	95.7	57.4	89.2	98.8	94.3	98	94.2	96.3	95.5	95.7	97.7	42.9	89.7	91.2
Trucks	1	4	0	13	18	1	24	0	38	63	0	1	2	8	11	1	15	3	96	115	207
% Trucks	1.3	1.7	0	15.3	4.4	1.7	3.4	0	37.6	7	0	0.6	2	5.8	1.9	4.5	1.5	1.4	57.1	8.3	6.3
Buses	0	6	0	0	6	3	24	2	5	34	2	8	0	0	10	0	27	2	0	29	79
% Buses	0	2.6	0	0	1.5	5.2	3.4	4.3	5	3.8	1.2	5.1	0	0	1.8	0	2.7	0.9	0	2.1	2.4

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Project: 9751

Location: Annette St & High Park Ave

Weather: Clear

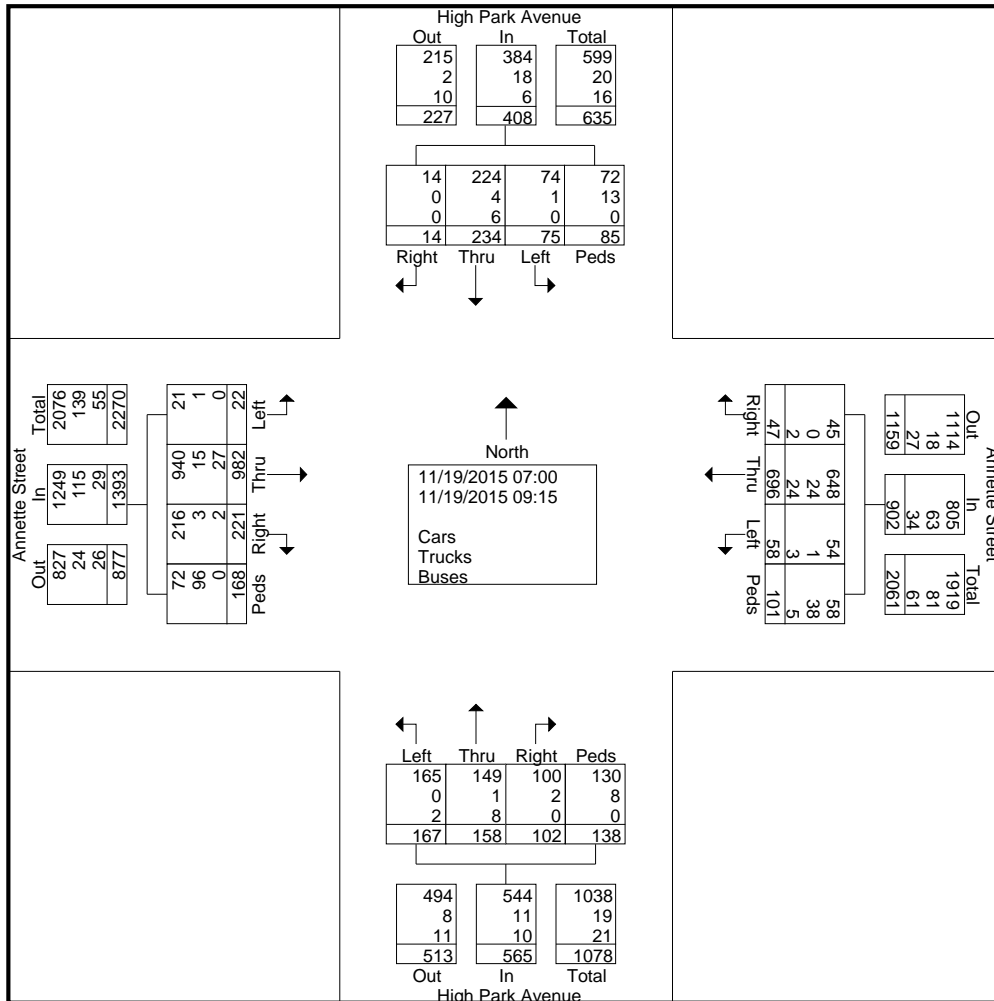
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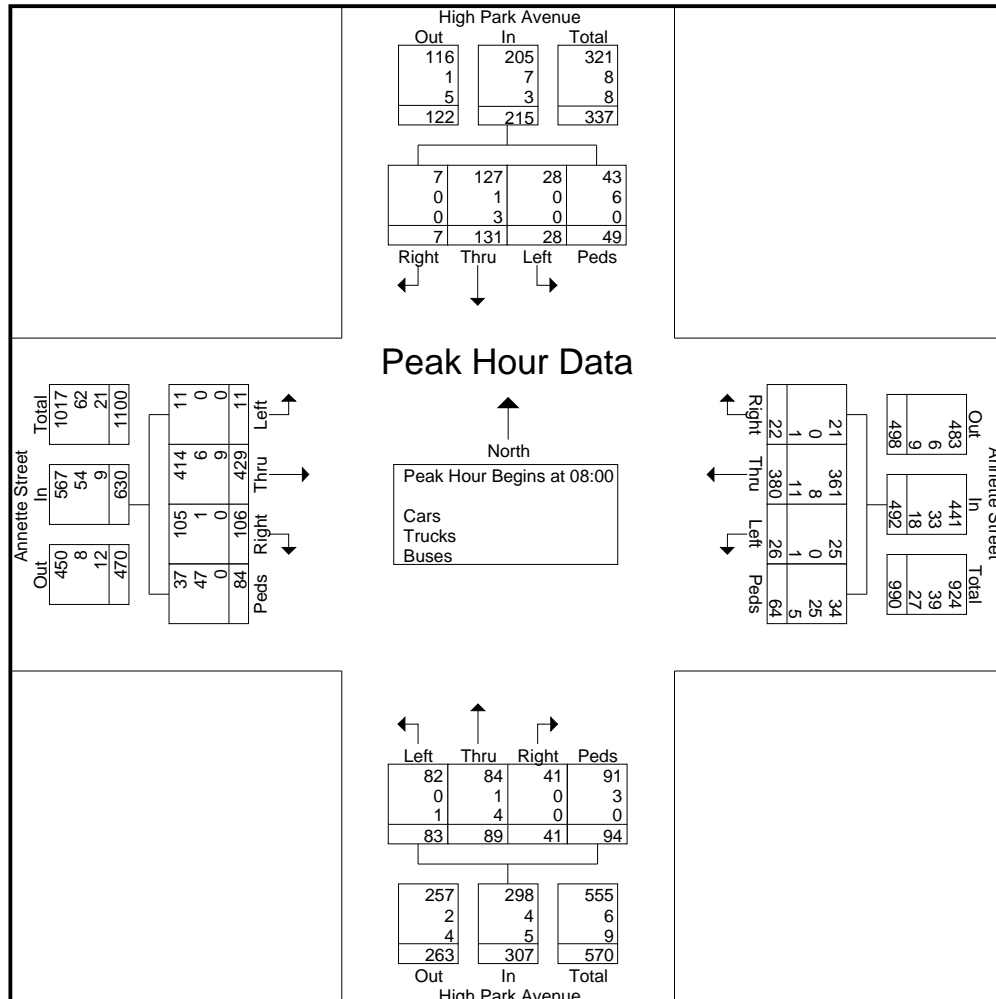
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Page No : 3

	High Park Avenue Southbound					Annette Street Westbound					High Park Avenue Northbound					Annette 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 09:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	9	37	1	3	50	8	98	3	6	115	29	28	11	16	84	0	119	27	14	160	409
08:15	10	32	1	19	62	6	110	5	19	140	14	27	16	24	81	2	109	27	21	159	442
08:30	5	37	0	11	53	6	90	6	18	120	16	24	4	22	66	2	108	32	16	158	397
08:45	4	25	5	16	50	6	82	8	21	117	24	10	10	32	76	7	93	20	33	153	396
Total Volume	28	131	7	49	215	26	380	22	64	492	83	89	41	94	307	11	429	106	84	630	1644
% App. Total	13	60.9	3.3	22.8		5.3	77.2	4.5	13		27	29	13.4	30.6		1.7	68.1	16.8	13.3		
PHF	.700	.885	.350	.645	.867	.813	.864	.688	.762	.879	.716	.795	.641	.734	.914	.393	.901	.828	.636	.984	.930
Cars	28	127	7	43	205	25	361	21	34	441	82	84	41	91	298	11	414	105	37	567	1511
% Cars	100	96.9	100	87.8	95.3	96.2	95.0	95.5	53.1	89.6	98.8	94.4	100	96.8	97.1	100	96.5	99.1	44.0	90.0	91.9
Trucks	0	1	0	6	7	0	8	0	25	33	0	1	0	3	4	0	6	1	47	54	98
% Trucks	0	0.8	0	12.2	3.3	0	2.1	0	39.1	6.7	0	1.1	0	3.2	1.3	0	1.4	0.9	56.0	8.6	6.0
Buses	0	3	0	0	3	1	11	1	5	18	1	4	0	0	5	0	9	0	0	9	35
% Buses	0	2.3	0	0	1.4	3.8	2.9	4.5	7.8	3.7	1.2	4.5	0	0	1.6	0	2.1	0	0	1.4	2.1





# LEA Consulting Ltd.

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

Project: 9751

File Name : MERGED-9751-High Park Avenue & Annette Street-AM

Location: Annette St & High Park Ave

Site Code : 97510223

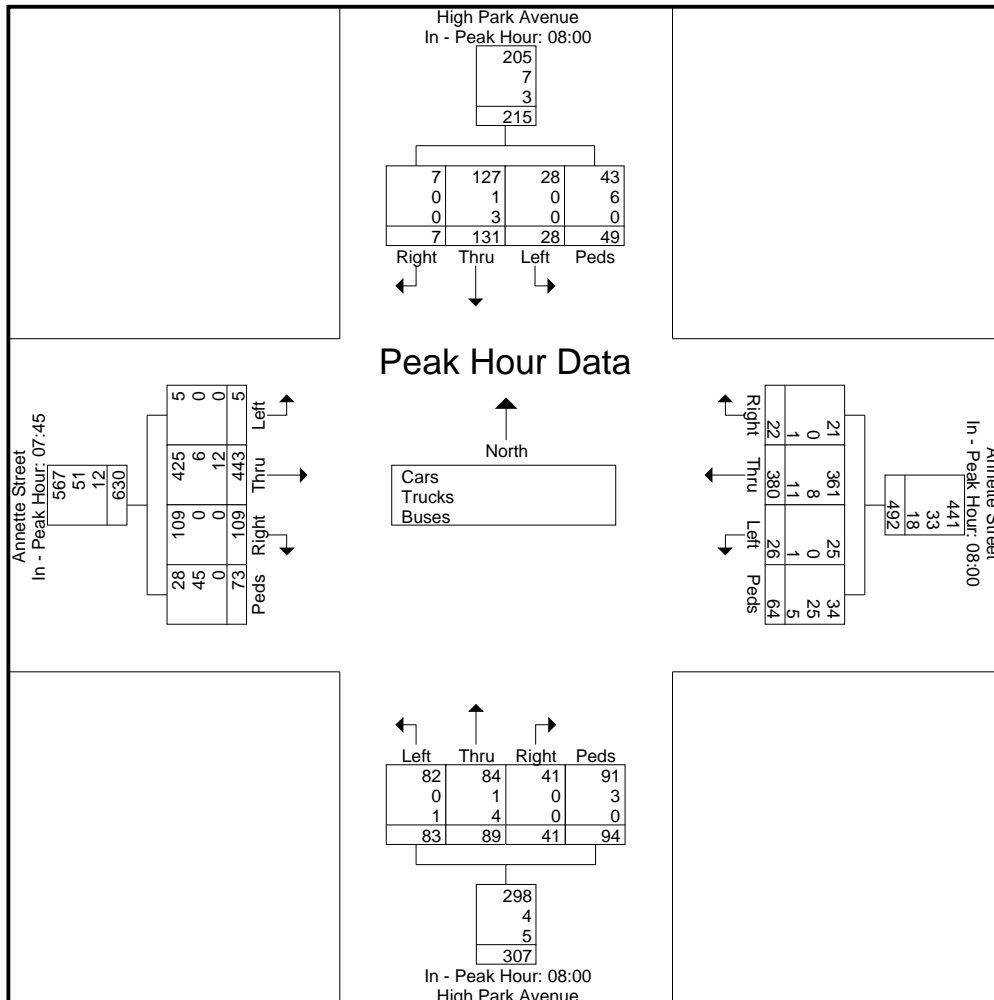
Weather: Clear

Start Date : 11/19/2015

Surveyor(s): Gordana & Stefan Rakonjac

Page No : 4

	High Park Avenue Southbound					Annette Street Westbound					High Park Avenue Northbound					Annette 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 09:15 - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	08:00					08:00					08:00					07:45					
+0 mins.	9	37	1	3	50	8	98	3	6	115	29	28	11	16	84	1	107	23	22	153	
+15 mins.	10	32	1	19	62	6	110	5	19	140	14	27	16	24	81	0	119	27	14	160	
+30 mins.	5	37	0	11	53	6	90	6	18	120	16	24	4	22	66	2	109	27	21	159	
+45 mins.	4	25	5	16	50	6	82	8	21	117	24	10	10	32	76	2	108	32	16	158	
Total Volume	28	131	7	49	215	26	380	22	64	492	83	89	41	94	307	5	443	109	73	630	
% App. Total	13	60.9	3.3	22.8		5.3	77.2	4.5	13		27	29	13.4	30.6		0.8	70.3	17.3	11.6		
PHF	.700	.885	.350	.645	.867	.813	.864	.688	.762	.879	.716	.795	.641	.734	.914	.625	.931	.852	.830	.984	
Cars	28	127	7	43	205	25	361	21	34	441	82	84	41	91	298	5	425	109	28	567	
% Cars	100	96.9	100	87.8	95.3	96.2	95	95.5	53.1	89.6	98.8	94.4	100	96.8	97.1	100	95.9	100	38.4	90	
Trucks	0	1	0	6	7	0	8	0	25	33	0	1	0	3	4	0	6	0	45	51	
% Trucks	0	0.8	0	12.2	3.3	0	2.1	0	39.1	6.7	0	1.1	0	3.2	1.3	0	1.4	0	61.6	8.1	
Buses	0	3	0	0	3	1	11	1	5	18	1	4	0	0	5	0	12	0	0	12	
% Buses	0	2.3	0	0	1.4	3.8	2.9	4.5	7.8	3.7	1.2	4.5	0	0	1.6	0	2.7	0	0	1.9	



# LEA Consulting Ltd.

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

Project: 9751

File Name : MERGED-9751-High Park Avenue & Annette Street-PM

Location: High Park Ave & Annette St Site Code : 97510223

Weather: Clear Start Date : 11/19/2015

Surveyor(s): Gordana & Stefan Rakonjac Page No : 1

## Groups Printed- Cars - Trucks - Buses

	High Park Avenue Southbound						Annette Street Westbound					High Park Avenue Northbound						Annette 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		
16:30	8	10	3	21	42		14	159	8	25	206		22	25	12	20	79		8	82	13	20	123		450		
16:45	7	19	1	6	33		9	115	12	17	153		20	28	6	16	70		3	83	22	7	115		371		
Total	15	29	4	27	75		23	274	20	42	359		42	53	18	36	149		11	165	35	27	238		821		
17:00	5	27	2	8	42		13	140	8	22	183		25	20	3	16	64		2	111	14	14	141		430		
17:15	7	25	3	10	45		10	145	8	18	181		30	30	7	9	76		6	73	19	13	111		413		
17:30	11	20	1	12	44		12	127	18	23	180		13	26	5	15	59		3	106	16	18	143		426		
17:45	7	24	7	10	48		7	127	10	23	167		40	31	5	9	85		1	104	34	5	144		444		
Total	30	96	13	40	179		42	539	44	86	711		108	107	20	49	284		12	394	83	50	539		1713		
18:00	12	18	4	5	39		9	129	14	24	176		36	24	7	11	78		2	112	25	13	152		445		
18:15	12	16	4	16	48		11	129	12	22	174		19	25	4	5	53		4	86	24	17	131		406		
Grand Total	69	159	25	88	341		85	1071	90	174	1420		205	209	49	101	564		29	757	167	107	1060		3385		
Apprch %	20.2	46.6	7.3	25.8			6	75.4	6.3	12.3			36.3	37.1	8.7	17.9			2.7	71.4	15.8	10.1					
Total %	2	4.7	0.7	2.6	10.1		2.5	31.6	2.7	5.1	41.9		6.1	6.2	1.4	3	16.7		0.9	22.4	4.9	3.2	31.3				
Cars	68	153	25	83	329		84	1046	89	95	1314		205	201	49	88	543		29	741	167	59	996		3182		
% Cars	98.6	96.2	100	94.3	96.5		98.8	97.7	98.9	54.6	92.5		100	96.2	100	87.1	96.3		100	97.9	100	55.1	94		94		
Trucks	0	0	0	5	5		1	14	1	79	95		0	1	0	13	14		0	5	0	48	53		167		
% Trucks	0	0	0	5.7	1.5		1.2	1.3	1.1	45.4	6.7		0	0.5	0	12.9	2.5		0	0.7	0	44.9	5		4.9		
Buses	1	6	0	0	7		0	11	0	0	11		0	7	0	0	7		0	11	0	0	11		36		
% Buses	1.4	3.8	0	0	2.1		0	1	0	0	0.8		0	3.3	0	0	1.2		0	1.5	0	0	1		1.1		

# LEA Consulting Ltd.

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

Project: 9751

Location: High Park Ave & Annette St

Weather: Clear

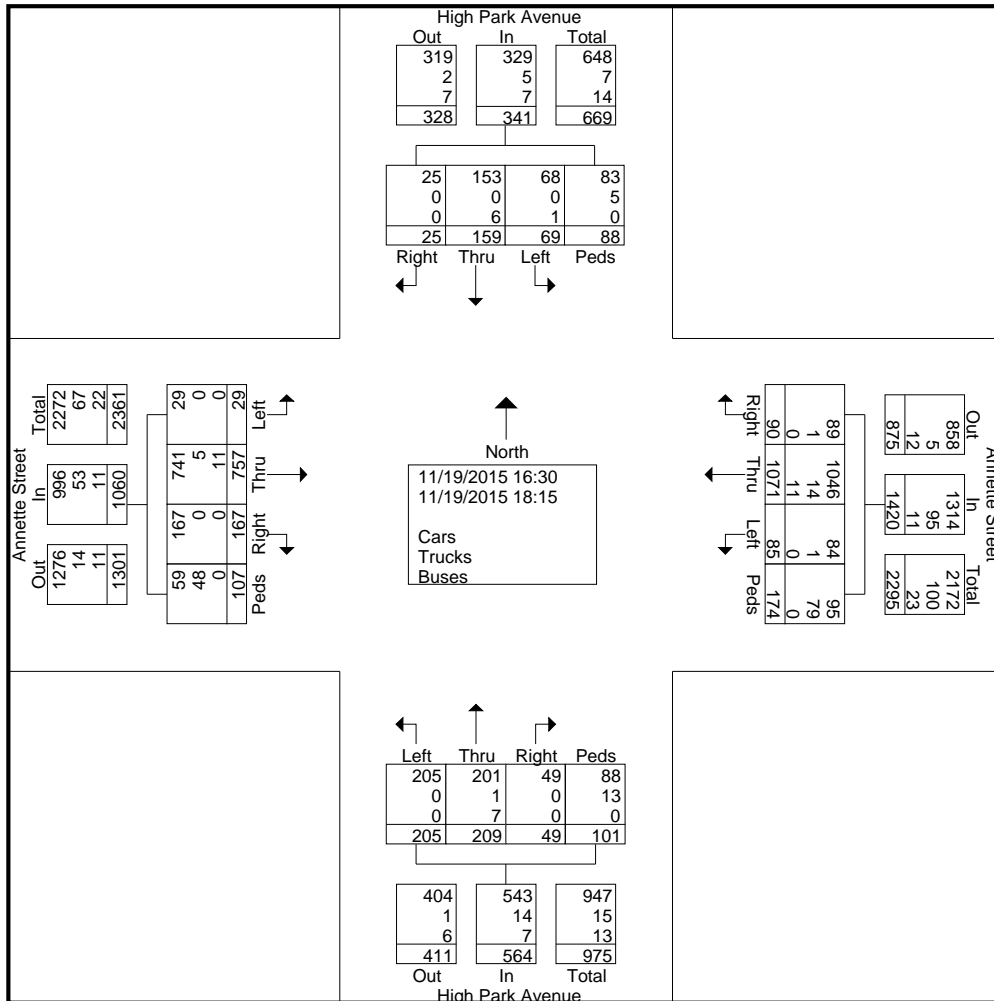
Surveyor(s): Gordana & Stefan Rakonjac

File Name : MERGED-9751-High Park Avenue & Annette Street-PM

Site Code : 97510223

Start Date : 11/19/2015

Page No : 2



# LEA Consulting Ltd.

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

Project: 9751

File Name : MERGED-9751-High Park Avenue & Annette Street-PM

Location: High Park Ave & Annette St

Site Code : 97510223

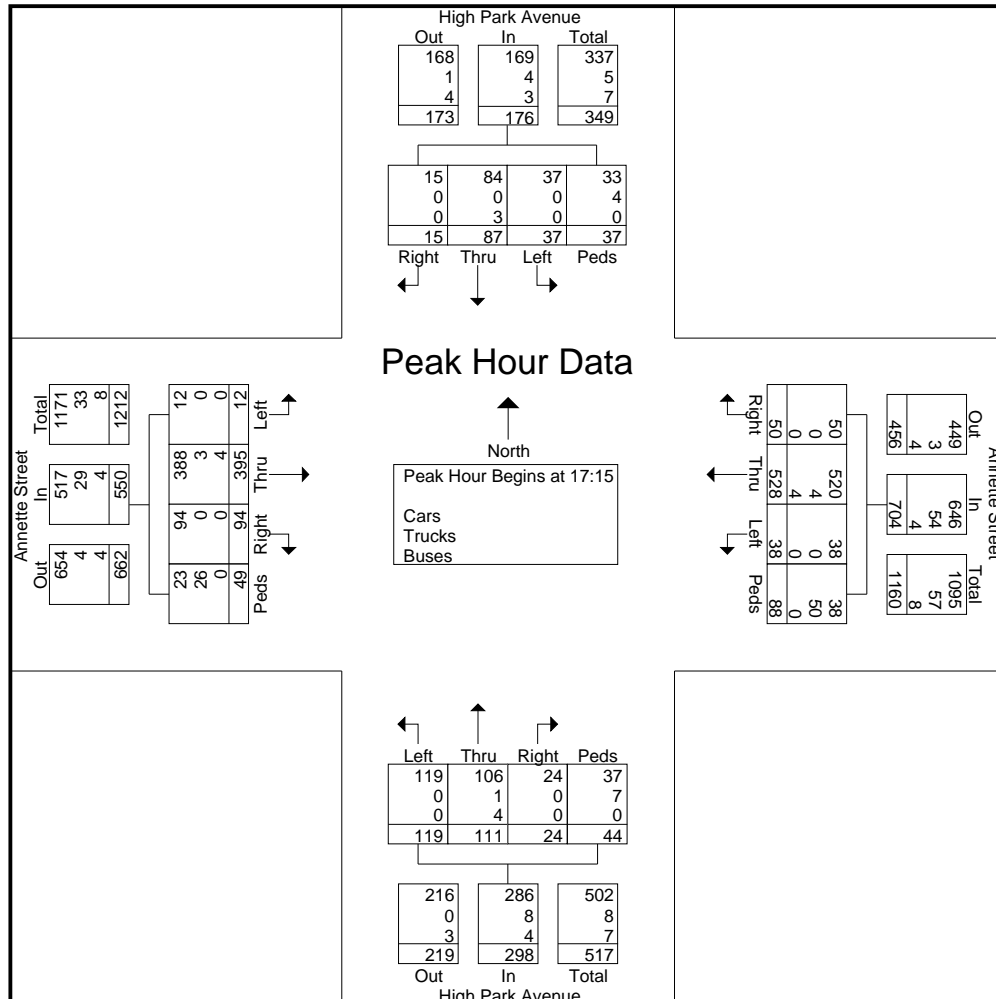
Weather: Clear

Start Date : 11/19/2015

Surveyor(s): Gordana & Stefan Rakonjac

Page No : 3

	High Park Avenue Southbound					Annette Street Westbound					High Park Avenue Northbound					Annette 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 16:30 to 18:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:15																					
17:15	7	25	3	10	45	10	145	8	18	181	30	30	7	9	76	6	73	19	13	111	413
17:30	11	20	1	12	44	12	127	18	23	180	13	26	5	15	59	3	106	16	18	143	426
17:45	7	24	7	10	48	7	127	10	23	167	40	31	5	9	85	1	104	34	5	144	444
18:00	12	18	4	5	39	9	129	14	24	176	36	24	7	11	78	2	112	25	13	152	445
Total Volume	37	87	15	37	176	38	528	50	88	704	119	111	24	44	298	12	395	94	49	550	1728
% App. Total	21	49.4	8.5	21		5.4	75	7.1	12.5		39.9	37.2	8.1	14.8		2.2	71.8	17.1	8.9		
PHF	.771	.870	.536	.771	.917	.792	.910	.694	.917	.972	.744	.895	.857	.733	.876	.500	.882	.691	.681	.905	.971
Cars	37	84	15	33	169	38	520	50	38	646	119	106	24	37	286	12	388	94	23	517	1618
% Cars	100	96.6	100	89.2	96.0	100	98.5	100	43.2	91.8	100	95.5	100	84.1	96.0	100	98.2	100	46.9	94.0	93.6
Trucks	0	0	0	4	4	0	4	0	50	54	0	1	0	7	8	0	3	0	26	29	95
% Trucks	0	0	0	10.8	2.3	0	0.8	0	56.8	7.7	0	0.9	0	15.9	2.7	0	0.8	0	53.1	5.3	5.5
Buses	0	3	0	0	3	0	4	0	0	4	0	4	0	0	4	0	4	0	0	4	15
% Buses	0	3.4	0	0	1.7	0	0.8	0	0	0.6	0	3.6	0	0	1.3	0	1.0	0	0	0.7	0.9



# LEA Consulting Ltd.

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

Project: 9751

File Name : MERGED-9751-High Park Avenue & Annette Street-PM

Location: High Park Ave & Annette St

Site Code : 97510223

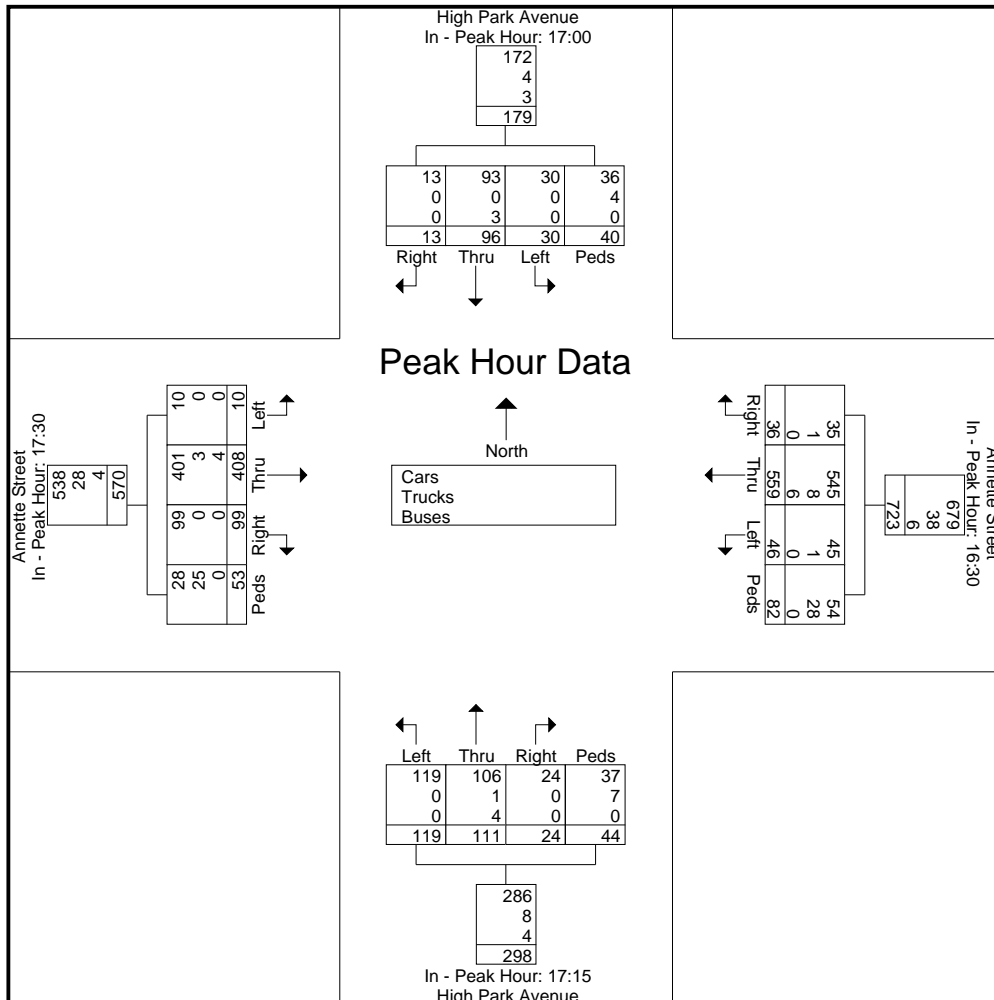
Weather: Clear

Start Date : 11/19/2015

Surveyor(s): Gordana & Stefan Rakonjac

Page No : 4

	High Park Avenue Southbound					Annette Street Westbound					High Park Avenue Northbound					Annette 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 16:30 to 18:15 - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	17:00					16:30					17:15					17:30					
+0 mins.	5	27	2	8	42	14	159	8	25	206	30	30	7	9	76	3	106	16	18	143	
+15 mins.	7	25	3	10	45	9	115	12	17	153	13	26	5	15	59	1	104	34	5	144	
+30 mins.	11	20	1	12	44	13	140	8	22	183	40	31	5	9	85	2	112	25	13	152	
+45 mins.	7	24	7	10	48	10	145	8	18	181	36	24	7	11	78	4	86	24	17	131	
Total Volume	30	96	13	40	179	46	559	36	82	723	119	111	24	44	298	10	408	99	53	570	
% App. Total	16.8	53.6	7.3	22.3		6.4	77.3	5	11.3		39.9	37.2	8.1	14.8		1.8	71.6	17.4	9.3		
PHF	.682	.889	.464	.833	.932	.821	.879	.750	.820	.877	.744	.895	.857	.733	.876	.625	.911	.728	.736	.938	
Cars	30	93	13	36	172	45	545	35	54	679	119	106	24	37	286	10	401	99	28	538	
% Cars	100	96.9	100	90	96.1	97.8	97.5	97.2	65.9	93.9	100	95.5	100	84.1	96	100	98.3	100	52.8	94.4	
Trucks	0	0	0	4	4	1	8	1	28	38	0	1	0	7	8	0	3	0	25	28	
% Trucks	0	0	0	10	2.2	2.2	1.4	2.8	34.1	5.3	0	0.9	0	15.9	2.7	0	0.7	0	47.2	4.9	
Buses	0	3	0	0	3	0	6	0	0	6	0	4	0	0	4	0	4	0	0	4	
% Buses	0	3.1	0	0	1.7	0	1.1	0	0	0.8	0	3.6	0	0	1.3	0	1	0	0	0.7	





# LEA Consulting Ltd.

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

Project: 9751

Location: Quebec Avenue & Annette Street

Weather: Clear

Surveyor(s): Guy Nason

File Name : 9751-Quebec Avenue & Annette Street-AM

Site Code : 97510103

Start Date : 11/19/2015

Page No : 1

## Groups Printed- Cars - Trucks - Buses

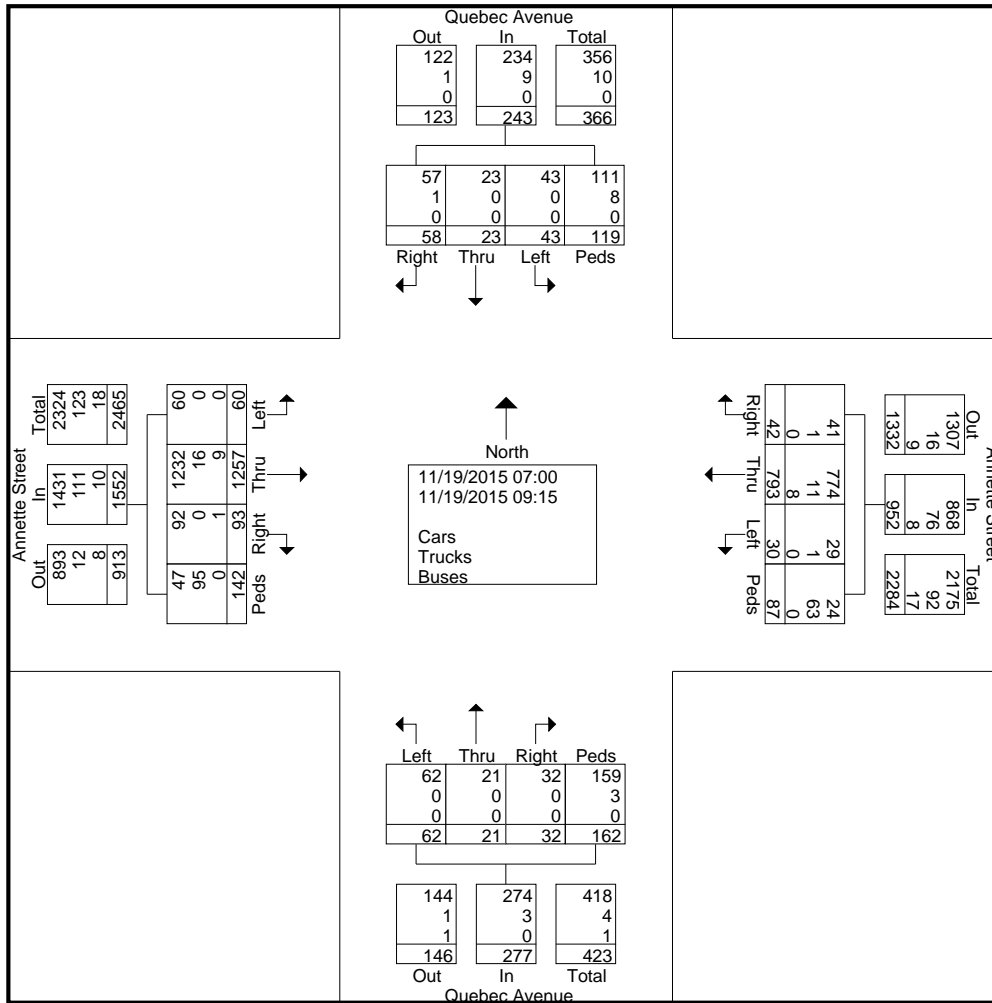
	Quebec Avenue Southbound					Annette Street Westbound					Quebec Avenue Northbound					Annette Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00	2	2	0	2	6	1	33	1	3	38	4	3	2	1	10	1	81	3	10	95	149
07:15	3	2	2	3	10	0	53	0	7	60	6	1	0	3	10	3	92	3	9	107	187
07:30	2	1	4	2	9	4	71	2	9	86	12	0	2	3	17	4	114	7	21	146	258
07:45	7	0	4	9	20	3	70	3	12	88	8	3	6	8	25	6	124	13	14	157	290
Total	14	5	10	16	45	8	227	6	31	272	30	7	10	15	62	14	411	26	54	505	884
08:00	5	1	10	14	30	8	109	3	11	131	7	6	0	19	32	3	144	13	17	177	370
08:15	3	5	3	14	25	6	116	5	22	149	5	0	2	38	45	4	142	17	17	180	399
08:30	4	4	10	24	42	3	100	3	9	115	10	3	9	19	41	7	160	15	25	207	405
08:45	2	3	14	25	44	1	110	9	4	124	4	0	5	38	47	9	119	11	14	153	368
Total	14	13	37	77	141	18	435	20	46	519	26	9	16	114	165	23	565	56	73	717	1542
09:00	9	3	6	11	29	3	81	9	8	101	2	3	1	27	33	18	146	8	12	184	347
09:15	6	2	5	15	28	1	50	7	2	60	4	2	5	6	17	5	135	3	3	146	251
Grand Total	43	23	58	119	243	30	793	42	87	952	62	21	32	162	277	60	1257	93	142	1552	3024
Apprch %	17.7	9.5	23.9	49		3.2	83.3	4.4	9.1		22.4	7.6	11.6	58.5		3.9	81	6	9.1		
Total %	1.4	0.8	1.9	3.9	8	1	26.2	1.4	2.9	31.5	2.1	0.7	1.1	5.4	9.2	2	41.6	3.1	4.7	51.3	
Cars	43	23	57	111	234	29	774	41	24	868	62	21	32	159	274	60	1232	92	47	1431	2807
% Cars	100	100	98.3	93.3	96.3	96.7	97.6	97.6	27.6	91.2	100	100	100	98.1	98.9	100	98	98.9	33.1	92.2	92.8
Trucks	0	0	1	8	9	1	11	1	63	76	0	0	0	3	3	0	16	0	95	111	199
% Trucks	0	0	1.7	6.7	3.7	3.3	1.4	2.4	72.4	8	0	0	0	1.9	1.1	0	1.3	0	66.9	7.2	6.6
Buses	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	9	1	0	10	18
% Buses	0	0	0	0	0	0	1	0	0	0.8	0	0	0	0	0	0	0.7	1.1	0	0.6	0.6

# LEA Consulting Ltd.

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

Project: 9751  
Location: Quebec Avenue & Annette Street  
Weather: Clear  
Surveyor(s): Guy Nason

File Name : 9751-Quebec Avenue & Annette Street-AM  
Site Code : 97510103  
Start Date : 11/19/2015  
Page No : 2



# LEA Consulting Ltd.

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

Project: 9751

Location: Quebec Avenue & Annette Street

Weather: Clear

Surveyor(s): Guy Nason

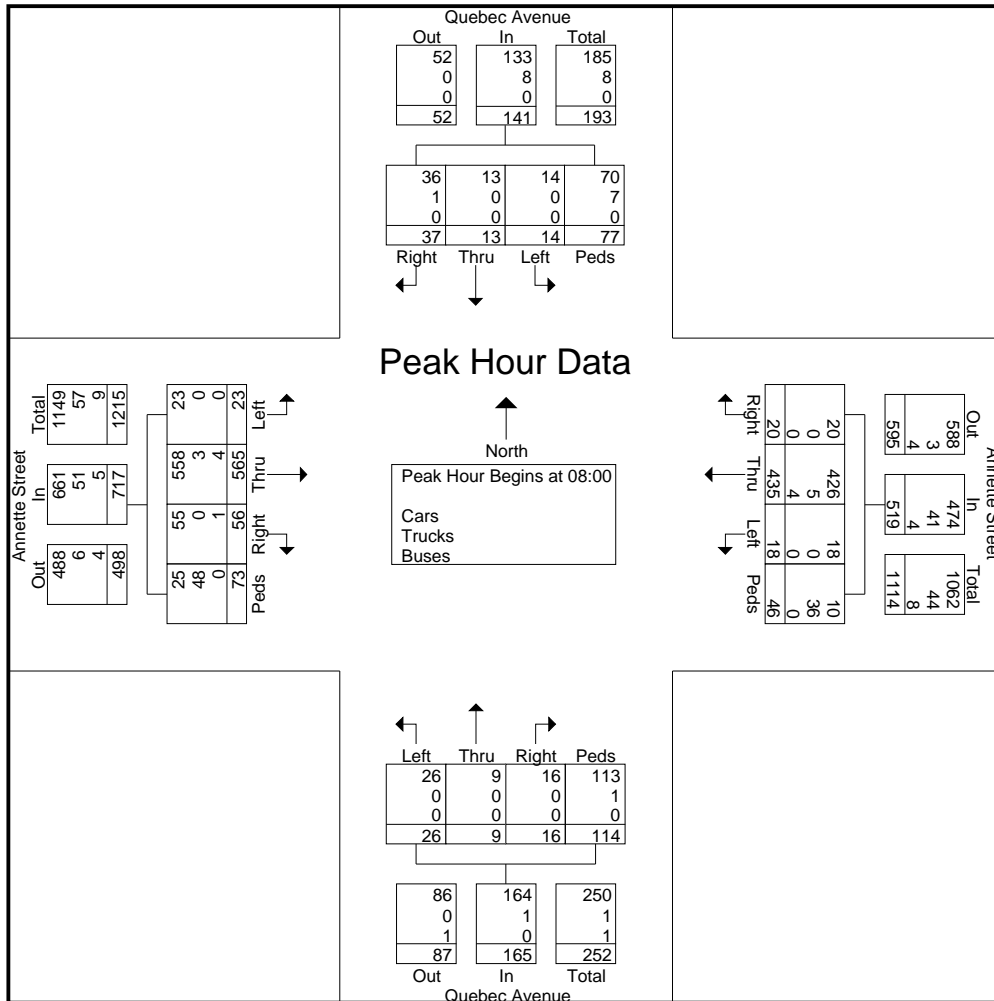
File Name : 9751-Quebec Avenue & Annette Street-AM

Site Code : 97510103

Start Date : 11/19/2015

Page No : 3

	Quebec Avenue Southbound					Annette Street Westbound					Quebec Avenue Northbound					Annette 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 09:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	5	1	10	14	30	8	109	3	11	131	7	6	0	19	32	3	144	13	17	177	370
08:15	3	5	3	14	25	6	116	5	22	149	5	0	2	38	45	4	142	17	17	180	399
08:30	4	4	10	24	42	3	100	3	9	115	10	3	9	19	41	7	160	15	25	207	405
08:45	2	3	14	25	44	1	110	9	4	124	4	0	5	38	47	9	119	11	14	153	368
Total Volume	14	13	37	77	141	18	435	20	46	519	26	9	16	114	165	23	565	56	73	717	1542
% App. Total	9.9	9.2	26.2	54.6		3.5	83.8	3.9	8.9		15.8	5.5	9.7	69.1		3.2	78.8	7.8	10.2		
PHF	.700	.650	.661	.770	.801	.563	.938	.556	.523	.871	.650	.375	.444	.750	.878	.639	.883	.824	.730	.866	.952
Cars	14	13	36	70	133	18	426	20	10	474	26	9	16	113	164	23	558	55	25	661	1432
% Cars	100	100	97.3	90.9	94.3	100	97.9	100	21.7	91.3	100	100	100	99.1	99.4	100	98.8	98.2	34.2	92.2	92.9
Trucks	0	0	1	7	8	0	5	0	36	41	0	0	0	1	1	0	3	0	48	51	101
% Trucks	0	0	2.7	9.1	5.7	0	1.1	0	78.3	7.9	0	0	0	0.9	0.6	0	0.5	0	65.8	7.1	6.5
Buses	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	1	0	5	9
% Buses	0	0	0	0	0	0	0.9	0	0	0.8	0	0	0	0	0	0	0.7	1.8	0	0.7	0.6



# LEA Consulting Ltd.

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

Project: 9751

Location: Quebec Avenue & Annette Street

Weather: Clear

Surveyor(s): Guy Nason

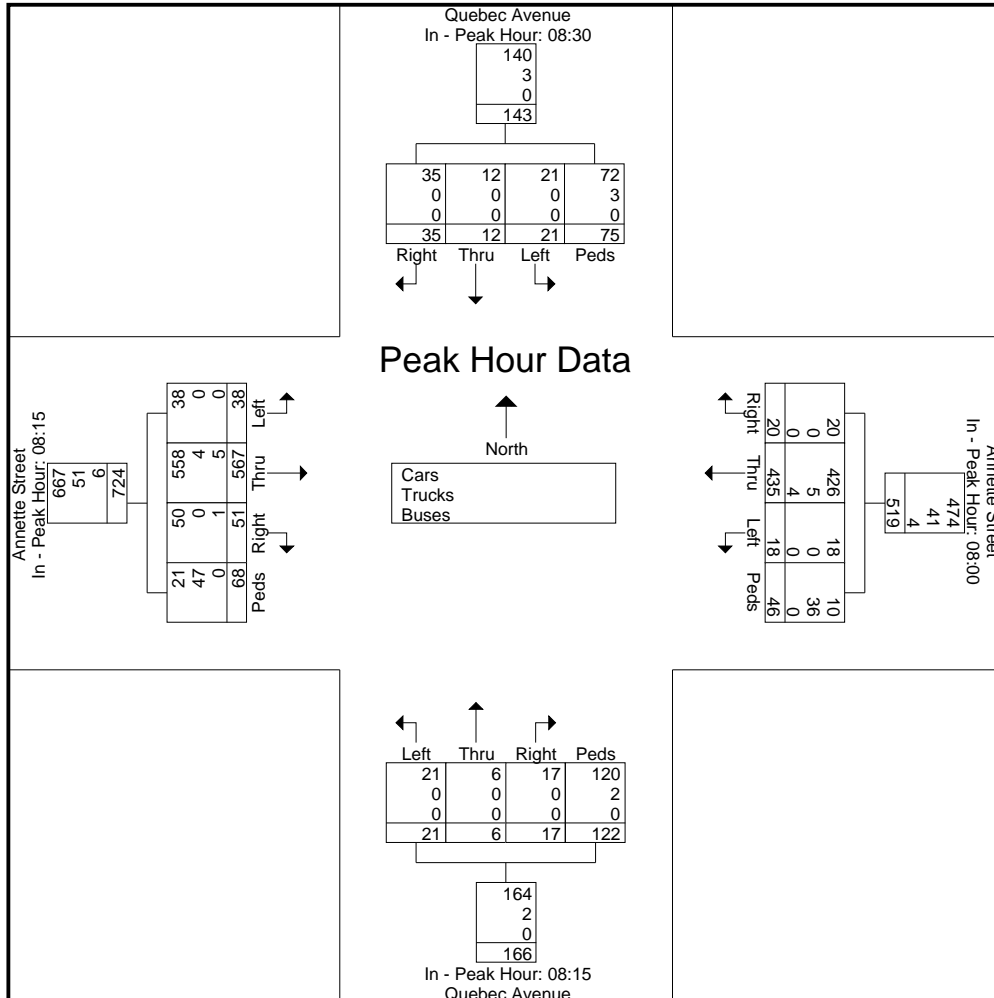
File Name : 9751-Quebec Avenue & Annette Street-AM

Site Code : 97510103

Start Date : 11/19/2015

Page No : 4

	Quebec Avenue Southbound					Annette Street Westbound					Quebec Avenue Northbound					Annette 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 09:15 - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	08:30					08:00					08:15					08:15					
+0 mins.	4	4	10	24	42	8	109	3	11	131	5	0	2	38	45	4	142	17	17	180	
+15 mins.	2	3	14	25	44	6	116	5	22	149	10	3	9	19	41	7	160	15	25	207	
+30 mins.	9	3	6	11	29	3	100	3	9	115	4	0	5	38	47	9	119	11	14	153	
+45 mins.	6	2	5	15	28	1	110	9	4	124	2	3	1	27	33	18	146	8	12	184	
Total Volume	21	12	35	75	143	18	435	20	46	519	21	6	17	122	166	38	567	51	68	724	
% App. Total	14.7	8.4	24.5	52.4		3.5	83.8	3.9	8.9		12.7	3.6	10.2	73.5		5.2	78.3	7	9.4		
PHF	.583	.750	.625	.750	.813	.563	.938	.556	.523	.871	.525	.500	.472	.803	.883	.528	.886	.750	.680	.874	
Cars	21	12	35	72	140	18	426	20	10	474	21	6	17	120	164	38	558	50	21	667	
% Cars	100	100	100	96	97.9	100	97.9	100	21.7	91.3	100	100	100	98.4	98.8	100	98.4	98	30.9	92.1	
Trucks	0	0	0	3	3	0	5	0	36	41	0	0	0	2	2	0	4	0	47	51	
% Trucks	0	0	0	4	2.1	0	1.1	0	78.3	7.9	0	0	0	1.6	1.2	0	0.7	0	69.1	7	
Buses	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	5	1	0	6	
% Buses	0	0	0	0	0	0	0.9	0	0	0.8	0	0	0	0	0	0	0.9	2	0	0.8	



# LEA Consulting Ltd.

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

Project: 9751

Location: Quebec Avenue & Annette Street

Weather: Clear

Surveyor(s): Guy Nason

File Name : 9751-Quebec Avenue & Annette Street-PM

Site Code : 97510103

Start Date : 11/19/2015

Page No : 1

## Groups Printed- Cars - Trucks - Buses

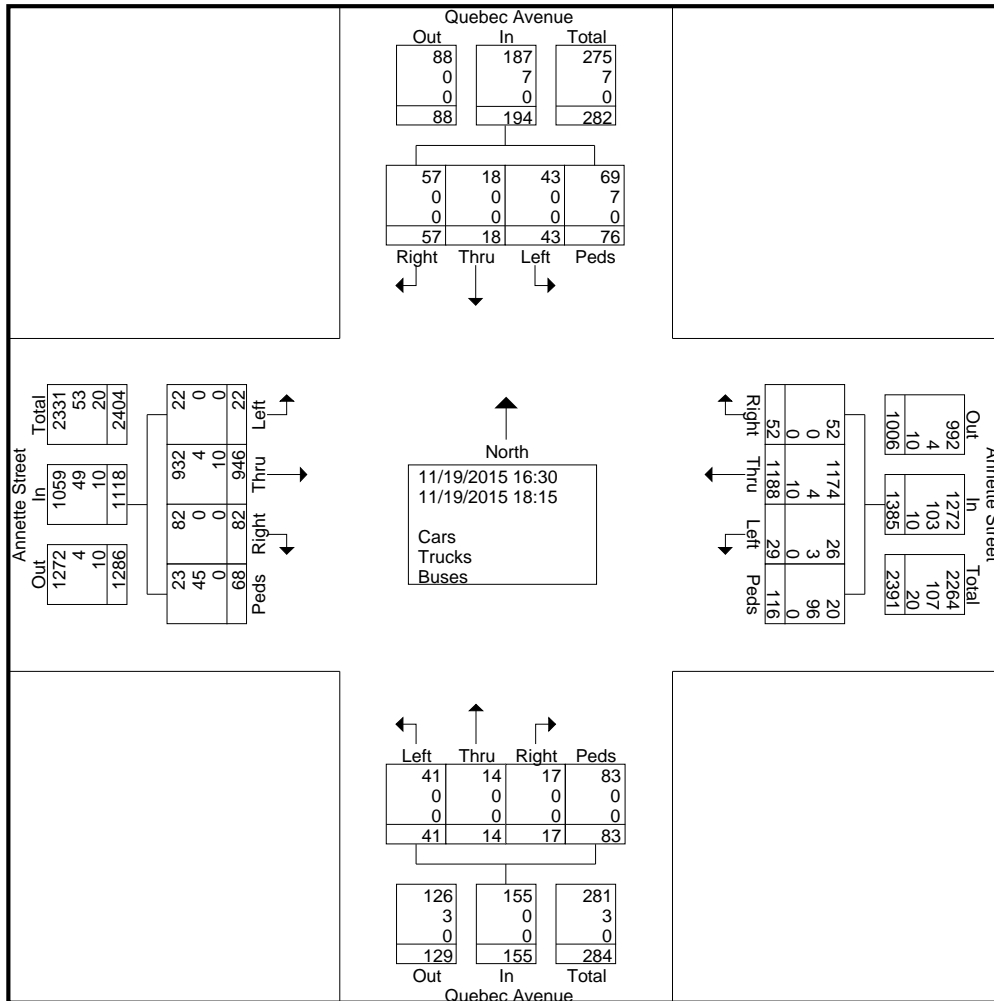
	Quebec Avenue Southbound					Annette Street Westbound					Quebec Avenue Northbound					Annette Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
16:30	5	2	5	19	31	3	171	4	13	191	3	1	1	12	17	2	94	6	11	113	352
16:45	5	0	6	12	23	1	128	4	13	146	5	2	4	6	17	1	106	7	8	122	308
Total	10	2	11	31	54	4	299	8	26	337	8	3	5	18	34	3	200	13	19	235	660
17:00	4	6	4	11	25	3	143	6	15	167	8	1	3	15	27	1	123	12	7	143	362
17:15	8	3	5	11	27	5	153	9	16	183	7	2	3	9	21	2	102	9	9	122	353
17:30	4	0	10	2	16	5	142	6	14	167	0	1	0	14	15	6	130	16	14	166	364
17:45	5	2	6	4	17	8	153	12	15	188	6	3	3	9	21	4	141	8	7	160	386
Total	21	11	25	28	85	21	591	33	60	705	21	7	9	47	84	13	496	45	37	591	1465
18:00	5	3	14	8	30	2	158	3	18	181	7	1	0	6	14	5	143	16	7	171	396
18:15	7	2	7	9	25	2	140	8	12	162	5	3	3	12	23	1	107	8	5	121	331
Grand Total	43	18	57	76	194	29	1188	52	116	1385	41	14	17	83	155	22	946	82	68	1118	2852
Apprch %	22.2	9.3	29.4	39.2		2.1	85.8	3.8	8.4		26.5	9	11	53.5		2	84.6	7.3	6.1		
Total %	1.5	0.6	2	2.7	6.8	1	41.7	1.8	4.1	48.6	1.4	0.5	0.6	2.9	5.4	0.8	33.2	2.9	2.4	39.2	
Cars	43	18	57	69	187	26	1174	52	20	1272	41	14	17	83	155	22	932	82	23	1059	2673
% Cars	100	100	100	90.8	96.4	89.7	98.8	100	17.2	91.8	100	100	100	100	100	100	98.5	100	33.8	94.7	93.7
Trucks	0	0	0	7	7	3	4	0	96	103	0	0	0	0	0	0	4	0	45	49	159
% Trucks	0	0	0	9.2	3.6	10.3	0.3	0	82.8	7.4	0	0	0	0	0	0	0.4	0	66.2	4.4	5.6
Buses	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	10	0	0	10	20
% Buses	0	0	0	0	0	0	0.8	0	0	0.7	0	0	0	0	0	0	1.1	0	0	0.9	0.7

# LEA Consulting Ltd.

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

Project: 9751  
Location: Quebec Avenue & Annette Street  
Weather: Clear  
Surveyor(s): Guy Nason

File Name : 9751-Quebec Avenue & Annette Street-PM  
Site Code : 97510103  
Start Date : 11/19/2015  
Page No : 2



# LEA Consulting Ltd.

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

Project: 9751

Location: Quebec Avenue & Annette Street

Weather: Clear

Surveyor(s): Guy Nason

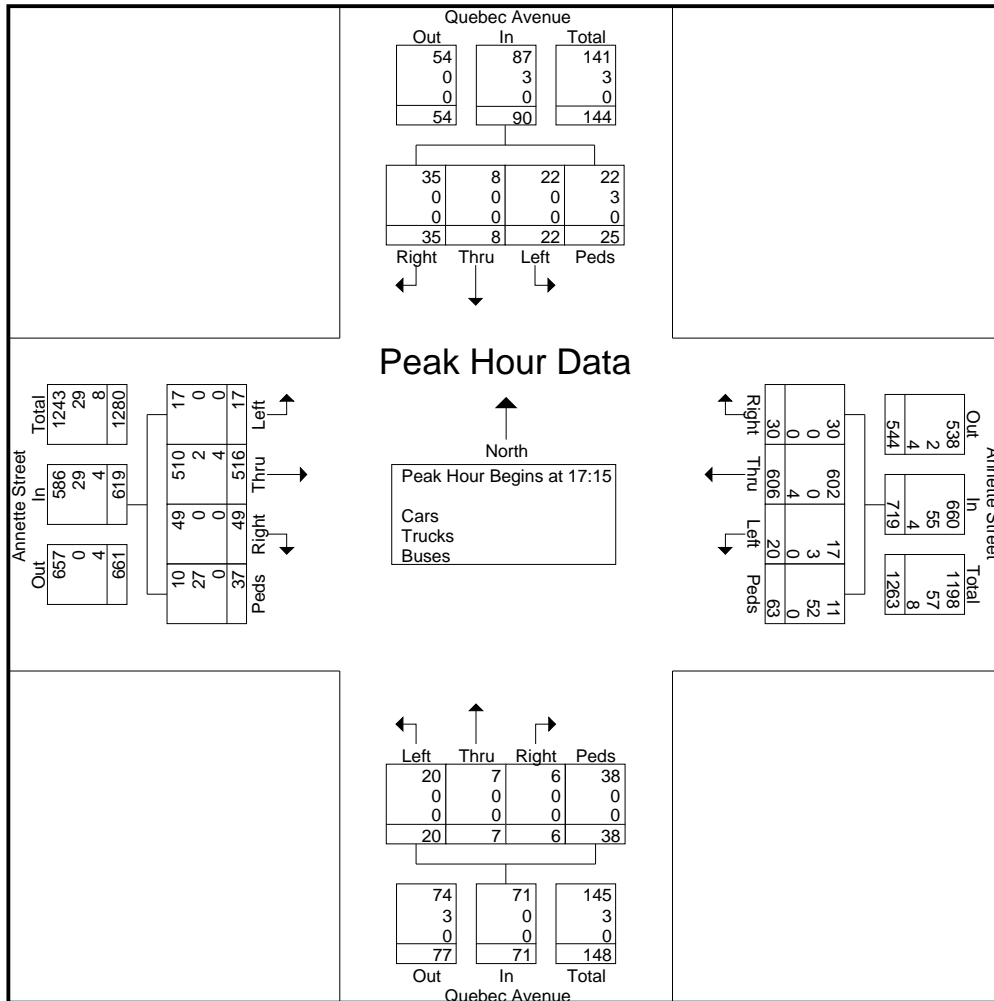
File Name : 9751-Quebec Avenue & Annette Street-PM

Site Code : 97510103

Start Date : 11/19/2015

Page No : 3

	Quebec Avenue Southbound					Annette Street Westbound					Quebec Avenue Northbound					Annette 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 16:30 to 18:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:15																					
17:15	8	3	5	11	27	5	153	9	16	183	7	2	3	9	21	2	102	9	9	122	353
17:30	4	0	10	2	16	5	142	6	14	167	0	1	0	14	15	6	130	16	14	166	364
17:45	5	2	6	4	17	8	153	12	15	188	6	3	3	9	21	4	141	8	7	160	386
18:00	5	3	14	8	30	2	158	3	18	181	7	1	0	6	14	5	143	16	7	171	396
Total Volume	22	8	35	25	90	20	606	30	63	719	20	7	6	38	71	17	516	49	37	619	1499
% App. Total	24.4	8.9	38.9	27.8		2.8	84.3	4.2	8.8		28.2	9.9	8.5	53.5		2.7	83.4	7.9	6		
PHF	.688	.667	.625	.568	.750	.625	.959	.625	.875	.956	.714	.583	.500	.679	.845	.708	.902	.766	.661	.905	.946
Cars	22	8	35	22	87	17	602	30	11	660	20	7	6	38	71	17	510	49	10	586	1404
% Cars	100	100	100	88.0	96.7	85.0	99.3	100	17.5	91.8	100	100	100	100	100	100	98.8	100	27.0	94.7	93.7
Trucks	0	0	0	3	3	3	0	0	52	55	0	0	0	0	0	0	2	0	27	29	87
% Trucks	0	0	0	12.0	3.3	15.0	0	0	82.5	7.6	0	0	0	0	0	0	0.4	0	73.0	4.7	5.8
Buses	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	8
% Buses	0	0	0	0	0	0	0.7	0	0	0.6	0	0	0	0	0	0	0.8	0	0	0.6	0.5



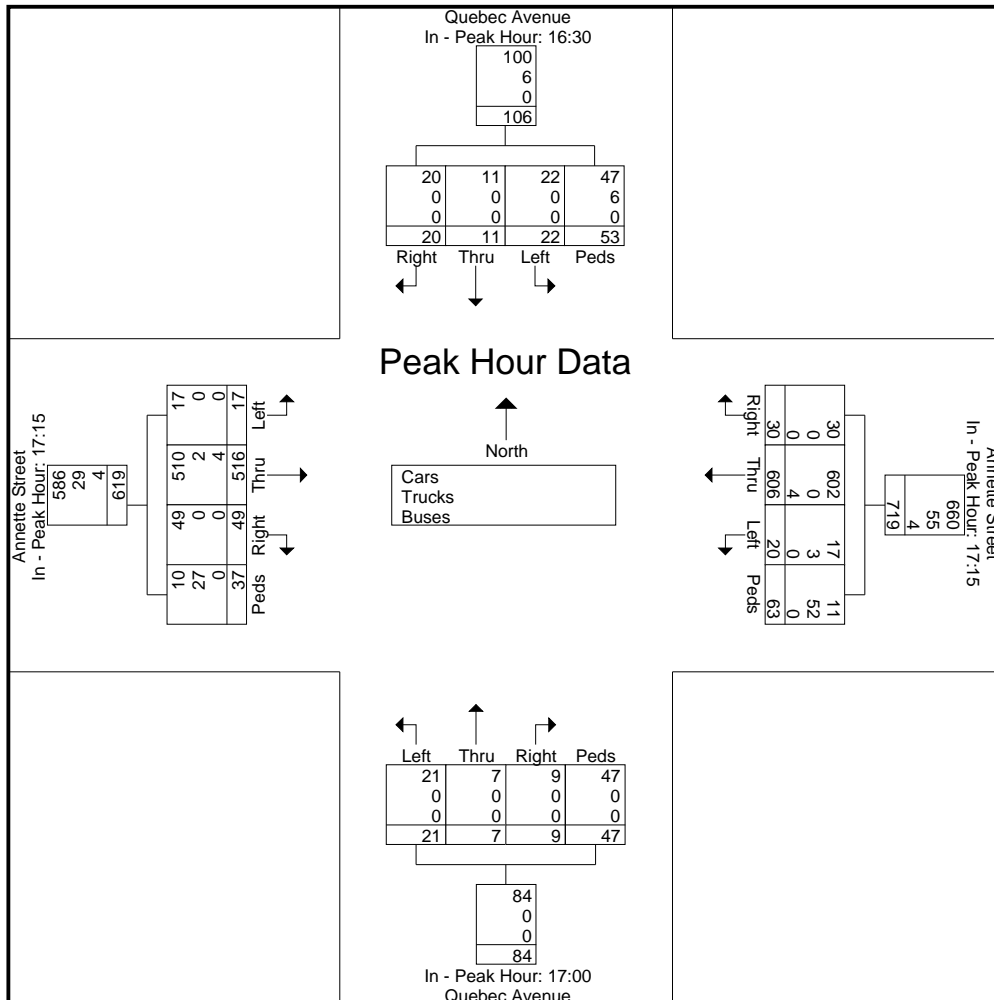


625 Cochrane Drive, 9th Floor  
Markham, ON, L3R 9R9

Project: 9751  
Location: Quebec Avenue & Annette Street  
Weather: Clear  
Surveyor(s): Guy Nason

File Name : 9751-Quebec Avenue & Annette Street-PM  
Site Code : 97510103  
Start Date : 11/19/2015  
Page No : 4

	Quebec Avenue Southbound						Annette Street Westbound					Quebec Avenue Northbound					Annette 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 16:30 to 18:15 - Peak 1 of 1																						
Peak Hour for Each Approach Begins at:																						
	16:30					17:15					17:00					17:15						
+0 mins.	5	2	5	19	31	5	153	9	16	183	8	1	3	15	27	2	102	9	9	122		
+15 mins.	5	0	6	12	23	5	142	6	14	167	7	2	3	9	21	6	130	16	14	166		
+30 mins.	4	6	4	11	25	8	153	12	15	188	0	1	0	14	15	4	141	8	7	160		
+45 mins.	8	3	5	11	27	2	158	3	18	181	6	3	3	9	21	5	143	16	7	171		
Total Volume	22	11	20	53	106	20	606	30	63	719	21	7	9	47	84	17	516	49	37	619		
% App. Total	20.8	10.4	18.9	50		2.8	84.3	4.2	8.8		25	8.3	10.7	56		2.7	83.4	7.9	6			
PHF	.688	.458	.833	.697	.855	.625	.959	.625	.875	.956	.656	.583	.750	.783	.778	.708	.902	.766	.661	.905		
Cars	22	11	20	47	100	17	602	30	11	660	21	7	9	47	84	17	510	49	10	586		
% Cars	100	100	100	88.7	94.3	85	99.3	100	17.5	91.8	100	100	100	100	100	100	98.8	100	27	94.7		
Trucks	0	0	0	6	6	3	0	0	52	55	0	0	0	0	0	0	2	0	27	29		
% Trucks	0	0	0	11.3	5.7	15	0	0	82.5	7.6	0	0	0	0	0	0	0.4	0	73	4.7		
Buses	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4		
% Buses	0	0	0	0	0	0	0.7	0	0	0.6	0	0	0	0	0	0	0.8	0	0	0.6		



## **APPENDIX B:**

Synchro - Existing Traffic

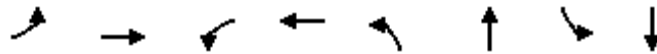
AM Peak Hour

PM Peak Hour

## Queues

### 3: High Park & Annette

2/8/2016



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	LT	RT	LT	RT		TH		TH
Volume (vph)	5	463	26	383	83	89	28	131
Lane Group Flow (vph)	6	635	29	450	0	237	0	185
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	14.0	14.0	14.0	14.0	13.0	13.0	13.0	13.0
Minimum Split (s)	34.0	34.0	34.0	34.0	27.0	27.0	27.0	27.0
Total Split (s)	43.0	43.0	43.0	43.0	27.0	27.0	27.0	27.0
Total Split (%)	61.4%	61.4%	61.4%	61.4%	38.6%	38.6%	38.6%	38.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0		6.0		6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	C-Min	C-Min	Min	Min	Min	Min
v/c Ratio	0.01	0.62	0.08	0.43		0.71		0.46
Control Delay	7.6	13.2	8.3	10.1		34.3		25.6
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	7.6	13.2	8.3	10.1		34.3		25.6
Queue Length 50th (m)	0.3	45.4	1.4	28.1		26.4		20.6
Queue Length 95th (m)	1.9	90.7	5.6	55.1		45.0		34.3
Internal Link Dist (m)		112.6		147.5		174.5		118.3
Turn Bay Length (m)	25.0		25.0					
Base Capacity (vph)	506	1019	355	1048		417		507
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	0.01	0.62	0.08	0.43		0.57		0.36

#### Intersection Summary

Cycle Length: 70

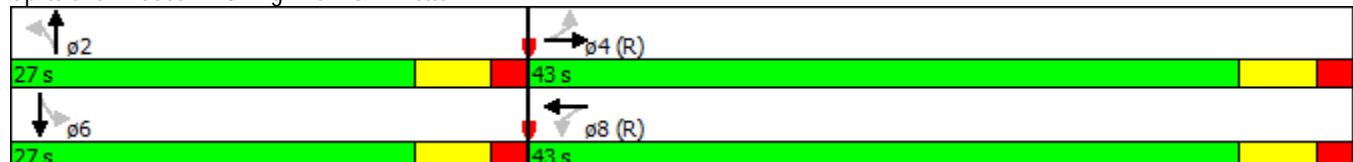
Actuated Cycle Length: 70

Offset: 27 (39%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated




















Splits and Phases: 3: High Park & Annette



# HCM Signalized Intersection Capacity Analysis

## 3: High Park & Annette

















2/8/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	463	109	26	383	22	83	89	41	28	131	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.99			0.98			0.99	
Flpb, ped/bikes	0.97	1.00		0.96	1.00			0.96			0.99	
Frt	1.00	0.97		1.00	0.99			0.97			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1769	1709		1751	1772			1680			1823	
Flt Permitted	0.46	1.00		0.33	1.00			0.79			0.92	
Satd. Flow (perm)	856	1709		600	1772			1349			1685	
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)	6	514	121	29	426	24	92	99	46	31	146	8
RTOR Reduction (vph)	0	11	0	0	2	0	0	14	0	0	2	0
Lane Group Flow (vph)	6	624	0	29	448	0	0	223	0	0	183	0
Confl. Peds. (#/hr)	49		94	94		49	84		64	64		84
Confl. Bikes (#/hr)			45			25			3			6
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	1%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	12	12	0	12	12	5	5	5	3	3	3
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)	41.4	41.4		41.4	41.4			16.6			16.6	
Effective Green, g (s)	41.4	41.4		41.4	41.4			16.6			16.6	
Actuated g/C Ratio	0.59	0.59		0.59	0.59			0.24			0.24	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	506	1010		354	1048			319			399	
v/s Ratio Prot		c0.37			0.25							
v/s Ratio Perm	0.01			0.05				c0.17			0.11	
v/c Ratio	0.01	0.62		0.08	0.43			0.70			0.46	
Uniform Delay, d1	5.9	9.2		6.1	7.8			24.4			22.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.0	2.8		0.5	1.3			6.6			0.8	
Delay (s)	5.9	12.0		6.6	9.1			31.0			23.7	
Level of Service	A	B		A	A			C			C	
Approach Delay (s)		12.0			8.9			31.0			23.7	
Approach LOS		B			A			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			15.4			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			66.5%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 6: Annette

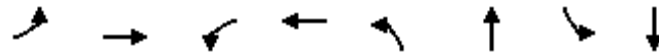
2/8/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	547	56	18	435	20	26	9	16	14	13	37
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	26	608	62	20	483	22	29	10	18	16	14	41
Pedestrians		73			46			114			77	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		6			4			10			7	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					137							
pX, platoon unblocked	0.88						0.88	0.88		0.88	0.88	0.88
vC, conflicting volume	583			784			1460	1427	799	1370	1447	644
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	452			784			1454	1416	799	1352	1439	523
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 %	97			97			47	90	95	79	85	90
cM capacity (veh/h)	915			761			55	97	337	75	94	423
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	696	526	57	71								
Volume Left	26	20	29	16								
Volume Right	62	22	18	41								
cSH	915	761	83	155								
Volume to Capacity	0.03	0.03	0.69	0.46								
Queue Length 95th (m)	0.7	0.6	24.8	16.1								
Control Delay (s)	0.7	0.7	113.4	46.7								
Lane LOS	A	A	F	E								
Approach Delay (s)	0.7	0.7	113.4	46.7								
Approach LOS			F	E								
Intersection Summary												
Average Delay			7.9									
Intersection Capacity Utilization			61.2%		ICU Level of Service				B			
Analysis Period (min)			15									

## Queues

### 3: High Park & Annette

2/8/2016



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	←	→	←	→	←	→	←	→
Volume (vph)	10	423	46	559	119	111	30	96
Lane Group Flow (vph)	11	580	51	661	0	282	0	154
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	14.0	14.0	14.0	14.0	13.0	13.0	13.0	13.0
Minimum Split (s)	34.0	34.0	34.0	34.0	27.0	27.0	27.0	27.0
Total Split (s)	43.0	43.0	43.0	43.0	27.0	27.0	27.0	27.0
Total Split (%)	61.4%	61.4%	61.4%	61.4%	38.6%	38.6%	38.6%	38.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0		6.0		6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	C-Min	C-Min	Min	Min	Min	Min
v/c Ratio	0.03	0.56	0.13	0.63		0.76		0.36
Control Delay	8.4	12.4	9.3	14.1		37.3		22.0
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	8.4	12.4	9.3	14.1		37.3		22.0
Queue Length 50th (m)	0.6	42.5	2.9	53.3		32.6		15.5
Queue Length 95th (m)	2.8	75.2	8.5	92.7		#56.2		28.5
Internal Link Dist (m)		112.6		147.5		174.5		118.3
Turn Bay Length (m)	25.0		25.0					
Base Capacity (vph)	320	1036	381	1058		430		494
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	0.03	0.56	0.13	0.62		0.66		0.31

#### Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 27 (39%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

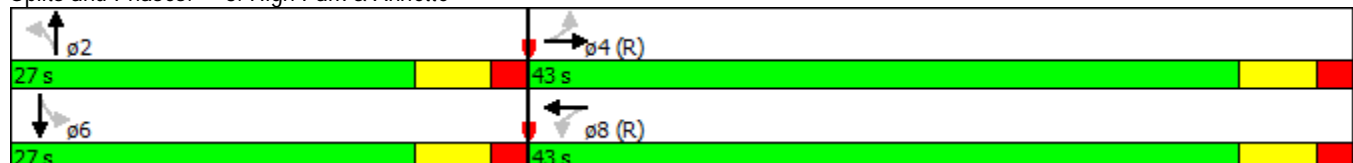
Natural Cycle: 65

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



















Splits and Phases: 3: High Park & Annette



# HCM Signalized Intersection Capacity Analysis

## 3: High Park & Annette

















2/8/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	423	99	46	559	36	119	111	24	30	96	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.99			0.98			0.99	
Flpb, ped/bikes	0.98	1.00		0.98	1.00			0.97			0.98	
Frt	1.00	0.97		1.00	0.99			0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1796	1791		1787	1845			1731			1806	
Flt Permitted	0.30	1.00		0.35	1.00			0.80			0.89	
Satd. Flow (perm)	559	1791		666	1845			1411			1620	
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)	11	470	110	51	621	40	132	123	27	33	107	14
RTOR Reduction (vph)	0	11	0	0	3	0	0	6	0	0	5	0
Lane Group Flow (vph)	11	569	0	51	658	0	0	276	0	0	149	0
Confl. Peds. (#/hr)	40		44	44		40	53		82	82		53
Confl. Bikes (#/hr)			26			50			7			4
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	4	4	0	4	4	4	4	4	3	3	3
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)	40.0	40.0		40.0	40.0			18.0			18.0	
Effective Green, g (s)	40.0	40.0		40.0	40.0			18.0			18.0	
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.26			0.26	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	319	1023		380	1054			362			416	
v/s Ratio Prot		0.32			c0.36							
v/s Ratio Perm	0.02			0.08				c0.20			0.09	
v/c Ratio	0.03	0.56		0.13	0.62			0.76			0.36	
Uniform Delay, d1	6.6	9.4		7.0	10.0			24.0			21.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.2	2.2		0.7	2.8			9.2			0.5	
Delay (s)	6.8	11.6		7.7	12.8			33.2			21.8	
Level of Service	A	B		A	B			C			C	
Approach Delay (s)		11.5			12.4			33.2			21.8	
Approach LOS		B			B			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			16.3			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			69.3%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 6: Quebec St & Annette

2/8/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	501	49	20	641	30	21	7	9	22	11	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.95	0.95	0.90	0.95	0.95	0.90	0.95	0.95	0.90	0.95	0.95
Hourly flow rate (vph)	19	527	52	22	675	32	23	7	9	24	12	21
Pedestrians		37			63			47			53	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		3			5			4			5	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					137							
pX, platoon unblocked	0.76						0.76	0.76		0.76	0.76	0.76
vC, conflicting volume	759			626			1437	1442	663	1455	1452	781
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	527			626			1417	1423	663	1441	1437	555
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			98			63	92	98	61	87	94
cM capacity (veh/h)	763			927			63	91	422	63	89	377
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	598	729	40	57								
Volume Left	19	22	23	24								
Volume Right	52	32	9	21								
cSH	763	927	85	100								
Volume to Capacity	0.02	0.02	0.47	0.57								
Queue Length 95th (m)	0.6	0.6	15.1	20.2								
Control Delay (s)	0.7	0.6	80.9	80.6								
Lane LOS	A	A	F	F								
Approach Delay (s)	0.7	0.6	80.9	80.6								
Approach LOS			F	F								
Intersection Summary												
Average Delay			6.1									
Intersection Capacity Utilization			63.3%		ICU Level of Service				B			
Analysis Period (min)			15									



## **APPENDIX C:**

Synchro - Site Driveway











AM Peak Hour

PM Peak Hour

# HCM Unsignalized Intersection Capacity Analysis

## 10: Site Driveway & Annette










2/8/2016

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations					 	
Volume (veh/h)	577	3	4	473	16	19
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)	641	3	4	526	18	21
Pedestrians					114	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.2	
Percent Blockage					10	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				70		
pX, platoon unblocked					0.87	
vC, conflicting volume			758		1291	757
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			758		1259	757
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		88	94
cM capacity (veh/h)			778		148	371
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	644	530	39			
Volume Left	0	4	18			
Volume Right	3	0	21			
cSH	1700	778	219			
Volume to Capacity	0.38	0.01	0.18			
Queue Length 95th (m)	0.0	0.1	4.8			
Control Delay (s)	0.0	0.2	24.9			
Lane LOS		A	C			
Approach Delay (s)	0.0	0.2	24.9			
Approach LOS			C			
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		40.6%	ICU Level of Service	A		
Analysis Period (min)		15				

# HCM Unsignalized Intersection Capacity Analysis

## 9: Site Driveway & Annette

2/8/2016

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	532	19	14	691	9	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.90	0.95	0.90	0.95
Hourly flow rate (vph)	560	20	16	727	10	7
Pedestrians					47	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.2	
Percent Blockage					4	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				71		
pX, platoon unblocked					0.76	
vC, conflicting volume			627		1375	617
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			627		1336	617
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		92	98
cM capacity (veh/h)			926		122	474
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	580	743	17			
Volume Left	0	16	10			
Volume Right	20	0	7			
cSH	1700	926	178			
Volume to Capacity	0.34	0.02	0.10			
Queue Length 95th (m)	0.0	0.4	2.4			
Control Delay (s)	0.0	0.4	27.3			
Lane LOS		A	D			
Approach Delay (s)	0.0	0.4	27.3			
Approach LOS			D			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			57.6%	ICU Level of Service		B
Analysis Period (min)			15			

**APPENDIX D:**  
TTS Data – Modal Split

USER : Vivian Leung - LEA  
 DATE : Dec 8 2015 (12:00:51)  
 DATA : 2011 TTS V1.0 Trips  
 FILTER 1 : trip\_purp => Home-Based Work  
 FILTER 2 : start\_time => 600-900  
 FILTER 4 : gta06\_orig => 117                      118                      126  
 ROW : mode\_prime  
 COLUMN : gta06\_orig

	Planning District				% Split	
	117	118	126	sum	Auto	Transit
Walk	42	15	124	181		
GO rail only	0	21	0	21		
Auto passenger	66	78	79	223		
Transit excluding GO rail	677	289	550	1516		44%
Cycle	30	84	80	194		
Taxi passenger	0	0	15	15		
Auto driver	428	380	472	1280	44%	
				3430		