HARBOURSIDE
Transportation Consultants

219 Waverley Rd, Suite 200
Dartmouth, NS, Canada B2X 2C3
Tel.: 902.405.4696
Fax: 902.405.4693
www.harboursideengineering.ca

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Project: 182055

Studioworks Int. Inc.
6156 Quinpool Road, 100
Halifax, Nova Scotia
B3L 1A3

Attention: Ronald V. Smith MRAIC, Architect
T: 902.429.3359
E: studio2ron@gmail.com

Re: Traffic Impact Assessment for Residential Development at 665 Old Sackville Road, Lwr. Sackville, NS

Mr. Smith,

Harbourside Transportation Consultants has completed a qualitative traffic impact assessment, as per Halifax Regional Municipality (HRM) requirements, to support the application for a proposed residential development located at 665 Old Sackville Road in Lower Sackville, Nova Scotia.

Study Area and Site Context

The proposed development site is located on the north side of Old Sackville Road, approximately 450 m southeast of the intersection of the Beaver Bank Connector and Old Sackville Road. The site context is illustrated in Figure 1. Access to the development will be provided via a driveway on Old Sackville Road.

Old Sackville Road is a minor collector roadway with a two-lane cross section and a posted speed limit of 50 km/hr. Sidewalk is provided on the south side of the roadway. There are two major intersections in the vicinity of the development including:

- Old Sackville Drive & Beaver Bank Connector – fully actuated traffic signal
- Old Sackville Drive & Downsview Drive/Walker Avenue – two way stop-control

Bus stops are located on Downsview Drive, approximately 350 metres west of the proposed driveway and the Metro Transit Sackville Terminal is located on Walker Avenue, approximately 600 metres from the proposed driveway. The Sackville Terminal includes a park-and-ride lot and services a total of 8 transit routes as of August 20, 2018. The routes include: 80-Sackville, 82-Millwood, 83-Springfield, 84-Glendale Express, 85-Downsview Express, 87-Glendale, 185-Metro Link Sackville and 400-Beaver Bank.

Description of Proposed Development

The proposed development will include three mid-rise residential buildings containing a total of 300 units. The development plan for the site is shown in Figure 2. The development plan includes a total of 445 vehicle parking spaces, including underground and surface parking and 263 bicycle parking spaces. The parking layout included on the development plan satisfies the parking requirements for the proposed development.

The number of proposed units has been limited to a combination 85 one-bedroom, 205 two-bedroom and 10 three-bedroom apartment units for a total of 300 apartments. This was based on the developer's market assessment, building size and a calculation of available amenity space. It is important to note that a total calculation of the maximum density possible on this site could include an additional 86 apartments using a similar unit mix or could exceed over one hundred additional units, if bachelor units were considered.

Figure 1: Site context

Access Review

The development will be accessed through a driveway on Old Sackville Road. The sight distance at the access point was reviewed to ensure the required sight distance is available. For minor collector roadways, the HRM Municipal Design Guidelines (2013) specifies the following sight distance requirements:

- Minimum stopping sight distance = 85 metres
- Minimum turning sight distance = as defined by the TAC *Geometric Design Guide for Canadian Roads*

The TAC *Geometric Design Guide for Canadian Roads* specifies the following sight distance requirements for a design speed of 50 km/h:

- Minimum stopping sight distance = 65 metres
- Minimum turning sight distance – left-turn from stop = 105 metres
- Minimum turning sight distance – right-turn from stop = 95 metres

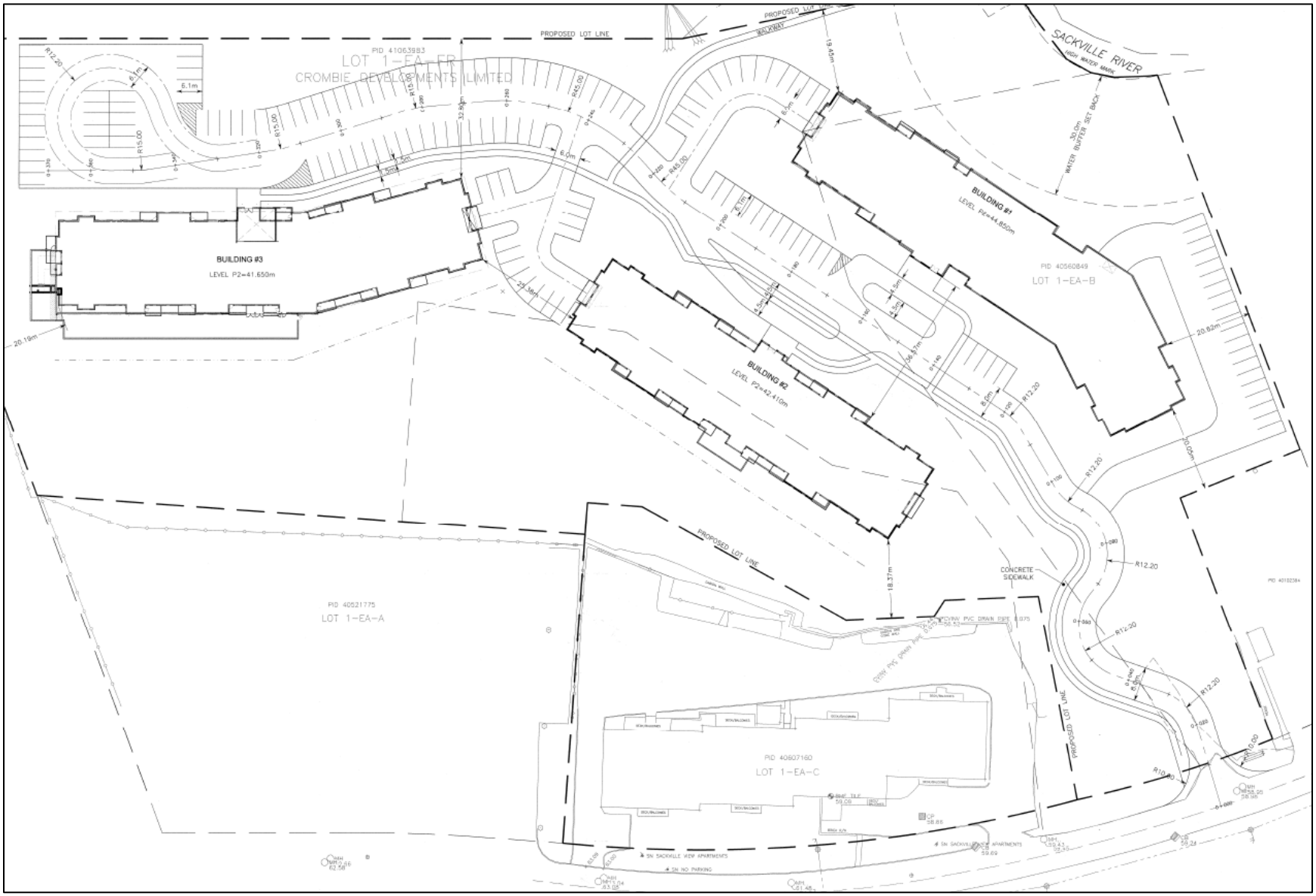


Figure 2: Development plan

Approximate measurements for the stopping and turning sight distance requirements are illustrated in Figure 3. The stopping sight distance requirement of 85 metres along Old Sackville Road is met in both directions. Existing trees and vegetation on the west side of the driveway limits the turning sight distance available looking to the right from the driveway. The Canada Post mailboxes located east of the driveway may limit the turning sight distance available looking to the left of the driveway. In order to meet turning sight distance requirements at the proposed driveway location, the departure sight triangles will need to be cleared of obstructions.

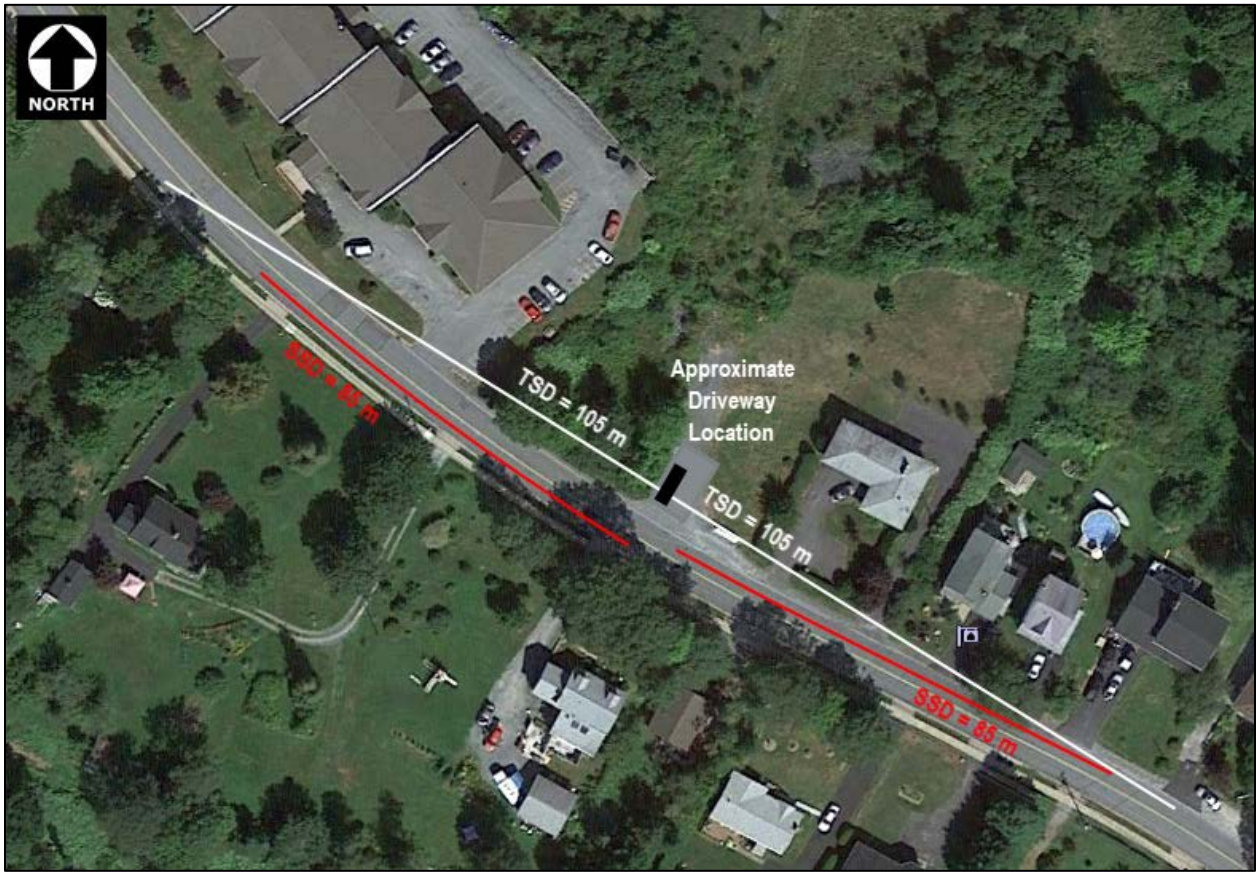


Figure 3: Approximate stopping and turning sight distance at the proposed driveway location

Trip Generation, Modal Split, Trip Distribution and Assignment

The vehicle trip generation estimates for the proposed development were quantified using trip generation rates obtained from the 10th edition of the *Trip Generation Manual* published by the Institute of Transportation Engineers (ITE). The vehicle trip estimates were adjusted to reflect trips made using non-auto transportation modes such as transit and active transportation. The *Integrated Mobility Plan* (IMP) set mode share targets for different areas of HRM include the Regional Centre, Inner Suburban and Outer Suburban areas. Sackville falls within the boundary of the Outer Suburban area, for which 2011 Census data indicated that 11 percent of trips were made using non-auto modes, including 9 percent of trips made using transit and 2 percent of trips made using active transportation.

The IMP set the target that by 2031, at least 14 percent of trips will be made using non-auto modes. The non-auto mode targets are that at least 10 percent of trips will be made using transit and at least 4 percent of trips will be made using active transportation.

The weekday morning (AM) and afternoon (PM) peak hours trip generation estimates for the proposed development assuming an Outer Suburban area mode share are summarized in Table 1. The proposed development is expected to generate 93 vehicle trips in the AM peak hour (24 trips in/69 trips out) and 114 vehicle trips in the PM peak hour (70 trips in/44 trips out).

Table 1: Trip generation estimates

Land Use[1]	Units		Trip Generation Rates[2]						Trips Generated[3]					
			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
ITE LUC 221 - Multifamily Housing (Mid-Rise)	300	Units	0.36	26%	74%	0.44	61%	39%	108	28	80	132	81	51
Total Vehicle Trips (vph)									**108**	**28**	**80**	**132**	**81**	**51**
Reduction for Non-Auto Modes (14 percent)									15	4	11	18	11	7
Adjusted Vehicle Trips (vph)									**93**	**24**	**69**	**114**	**70**	**44**

Notes:
1. Land use codes are from the Trip Generation Manual, 10th edition, Institute of Transportation Engineers, 2017.
2. Trip generation rates are in 'vehicles per hour per unit.'
3. Trips generated are in 'vehicles per hour'.

The trip distribution for the proposed development was developed based on travel patterns observed in traffic counts and local knowledge of the area. Trips in and out of the development were distributed to the study area road network using the trip distribution in Table 2. All vehicle trips in and out of the proposed development were assigned to the proposed driveway on Old Sackville Road.

Table 2: Trip distribution and assignment

Direction	Gateway	Distribution
North	Beaver Bank Connector	10%
	Downsview Drive	15%
South	Beaver Bank Connector	45%
	Walker Avenue	2%
East	Old Sackville Road	25%
West	Old Sackville Road	3%
Total		100%

The distribution and assignment of the vehicle trips estimates at the development driveway and the two study intersections are shown diagrammatically in Figure 4.

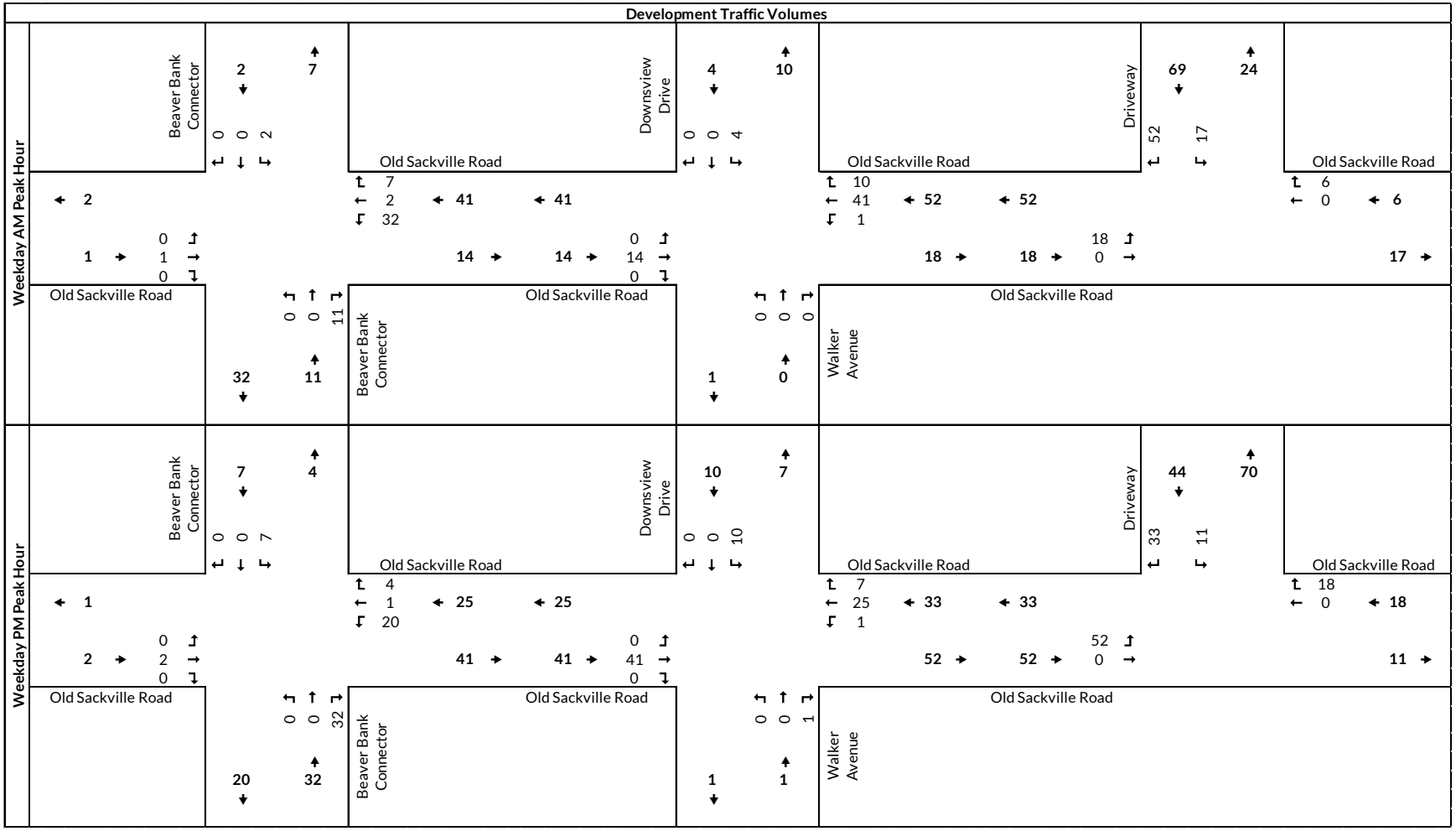


Figure 4:Development trip estimates

Intersection Performance Analysis

The performance of an intersection can be evaluated using a number of measures of effectiveness (MOEs), including level of service (LOS), delay, volume-to-capacity ratio (v/c) and vehicle queuing are the primary measures of effectiveness used in traffic analyses.

Level of service is a qualitative measure used to describe the level of performance of an intersection in terms of traffic movement. Level of service for intersections is defined in terms of delay, which is a measure of driver discomfort, frustration and increased travel time. The quality of traffic movement is divided into six levels ranging from 'A' to 'F', where level of service 'A' represents the best quality of traffic where the driver has the freedom to drive with free flow speed and level of service 'F' represents the worst quality of traffic where the level of congestion is considered unacceptable to most drivers. The level of service criteria for intersections (Table 3) are stated in terms of average control delay per vehicle.

The volume-to-capacity (v/c) ratio is a measure of how the peak hour traffic volume on an approach to an intersection compares to the theoretical maximum volume that could be accommodated on that intersection approach. As the v/c ratio approaches 1.0, the movement has reduced ability to accommodate any additional volume of traffic.

The 95th percentile queue (95th% queue) is the estimated length in metres of a queue of vehicles stopped on an intersection approach which is only exceeded five percent of the time. Since a stopped vehicle occupies approximately seven metres of queue length, a 95th% queue of 14 metres indicates that less than five times of out 100 the queue may exceed two vehicles on the approach. The 95th% queue is typically used to determine if sufficient vehicle storage is available to maintain efficient traffic flow.

Table 3: Level of service criteria at signalized and unsignalized intersections

Level of Service	Description	Signalized Intersection Delay	Unsignalized Intersection Delay
A	No congestion; most vehicles do not stop. **(Excellent)**	≤ 10 sec/veh	≤ 10 sec/veh
B	Very light congestion; some vehicles stop. **(Very Good)**	10-20 sec/veh	10-15 sec/veh
C	Light congestion; most vehicles stop. **(Good)**	20-35 sec/veh	15-25 sec/veh
D	Noticeable congestion; vehicles must sometimes wait through more than one red light. No long-standing queues are formed. **(Satisfactory)**	35-55 sec/veh	25-35 sec/veh
E	Congestion; vehicles must sometimes wait through more than one red light. Long-standing queues are formed. **(Unsatisfactory)**	55-80 sec/veh	35-50 sec/veh
F	Severe congestion; demand exceeds the capacity of the intersection. Delays considered unacceptable to most motorists. **(Unacceptable)**	≥ 80 sec/veh	≥ 50 sec/veh

The Synchro Studio (Version 10) software package was used to evaluate the performance of the two study intersections during the weekday AM and PM peak hours. The intersection was evaluated under existing conditions and future conditions with development to quantify the impact of the proposed development on the road network.

The following sections summarize the results of the intersection performance analysis. The traffic volumes used in each scenario are shown diagrammatically in Appendix A and the detailed Synchro reports for the analysis are included in Appendix B.

Existing Conditions: This scenario is an analysis of existing conditions throughout the study area. The traffic volumes for this scenario correspond to the peak one-hour period of traffic during weekday morning and evening peak periods observed in traffic counts.

Traffic counts were obtained from HRM, a recent count (2018) was available for the intersection of Old Sackville Road & Beaver Bank Connector and a 2012 count was available for the intersection of Old Sackville Road & Downsview Drive/Walker Avenue. The traffic volumes at the intersection of Old Sackville Road & Downsview Drive/Walker Avenue were balanced to according to the 2018 volumes at the intersection of Old Sackville Road & Beaver Bank Connector.

The results of the intersection capacity analysis are summarized in Table 4, including vehicle delay, level of service, volume-to-capacity ratio and 95th percentile queue lengths. The operations at each intersection under existing conditions are described below:

- Old Sackville Road & Beaver Bank Connector: The Synchro analysis shows that the signalized intersection experiences light congestion during both peak hours. While the overall intersection operates at acceptable levels of service during the peak hours, the westbound left movement (Old Sackville Road) operates at LOS F during both peak hours. The movement is over capacity during the PM peak hour.
- Old Sackville Road & Downsview Drive/Walker Avenue: The Synchro analysis shows that the unsignalized intersection experiences no congestion during the AM peak hour. During the PM peak hour, the intersection experiences severe congestion, operating at an unacceptable overall level of service (LOS F). The northbound movements (Walker Avenue) operate at LOS F and are over capacity.

While the Synchro analysis results show that individual movements experience longer delays at the intersection, the SimTraffic analysis results shows all movements at both intersections operating at acceptable levels of service during both peak hours. Different results are observed between the Synchro and SimTraffic analyses due to the different computation methods. The Synchro component of the software analyzes each intersection in isolation and the results are based on theoretical calculations, while the SimTraffic component analyzes the network as a whole and the results are based on a series of microscopic modeling runs of the entire network.

The SimTraffic analysis accounts for interactions between intersections, and the results are generally more realistic and representative of expected field conditions. In this instance, the SimTraffic analysis yields better results at the intersection of Old Sackville Road & Downsview Drive/Walker Avenue because

the analysis accounts for gaps in the traffic stream created by the adjacent traffic signal at the intersection of Old Sackville Road & Beaver Bank Connector. SimTraffic also provides more representative results of the variations in signal timings at the fully actuated traffic signal at the intersection of Old Sackville Road & Beaver Bank Connector by providing the average results for a number of simulations.

Future Conditions with Development: This scenario is an analysis of future conditions throughout the study area with the full build-out of the proposed development. The traffic volumes for this scenario reflect the existing traffic volumes from the previous scenario with the addition of the traffic volumes generated by the development (Figure 4).

The results of the intersection capacity analysis are summarized in Table 5, including vehicle delay, level of service, volume-to-capacity ratio and 95th percentile queue lengths. The operations at each intersection under future conditions with the development are described below:

- Old Sackville Road & Beaver Bank Connector: The Synchro analysis shows that the signalized intersection will continue to experience light congestion during both peak hours. The overall intersection will continue to operate at acceptable levels of service during the peak hours. Increases in average delay per vehicle at the intersection will be negligible during the AM peak hour (less than 1.0 second per vehicle) and operations for the westbound left movement (Old Sackville Road) will improve to LOS E due to actuated timings at the intersection. The development will result in minor increases in average delay per vehicle at the intersection during the PM peak hour (2.7 seconds per vehicle) and slightly impacts the performance of the westbound left movement (Old Sackville Road) which is over capacity under existing conditions.
- Old Sackville Road & Downsview Drive/Walker Avenue: The Synchro analysis shows that the unsignalized intersection will continue to experience no congestion during the AM peak hour. The development will not increase the average delay per vehicle at the intersection during the AM peak hour. During the PM peak hour, the intersection will continue to experiences severe congestion, operating at an unacceptable overall level of service (LOS F). The development will slightly impact the performance of the northbound movements (Walker Avenue) which are over capacity under existing conditions and deteriorate the performance of the southbound movements (Walker Avenue) to LOS E.

While the Synchro analysis results show that individual movements will experience longer delays at the intersection, the SimTraffic analysis continues to shows all movements at both intersections operating at acceptable levels of service during both peak hours. Increases in average delay per vehicle at the intersection of Old Sackville Road & Beaver Bank Connector will be negligible during the both peak hours (less than 1.5 second per vehicle). The development will result in minor increases in average delay per vehicle at the intersection of Old Sackville Road & Downsview Drive/Walker Avenue during the PM peak hour (3.0 seconds per vehicle).

As previously discussed, the SimTraffic analysis is considered to be more representative of expected field conditions. Therefore, the proposed development will not have an appreciable impact on traffic operations at the two study intersections**.** The additional traffic generated by the development will result in minor increases in average delay per vehicle at both intersections during the weekday peak hours.

Table 4: Intersection performance existing conditions

Existing Conditions		Weekday AM Peak Hour							Weekday PM Peak Hour						
Intersection		Synchro				SimTraffic			Synchro				SimTraffic		
		Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)	Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)
Old Sackville Road & Beaver Bank Connector		**21.8**	**C**			**11.4**	**B**		**26.3**	**C**			**17.1**	**B**	
Old Sackville Road	EB Left	35.3	D	0.79	77.7	31.2	C	53.8	24.8	C	0.41	48.2	31.3	C	31.6
	EB Through					33.0	C						30.0	C	
	EB Right					5.5	A						3.5	A	
	WB Left	85.5	F	0.88	46.1	31.6	C	30.7	92.8	F	1.01	116.5	43.2	D	77.6
	WB Through	18.1	B	0.17	16.6	25.0	C	16.7	29.0	C	0.50	64.7	28.6	C	48.4
	WB Right					2.1	A						3.9	A	
Beaver Bank Connector	NB Left	10.1	B	0.14	8.9	13.0	B	13.8	14.1	B	0.48	38.9	16.0	B	50.2
	NB Through	15.9	B	0.19	31.1	9.0	A	32.5	19.6	B	0.51	89.8	13.5	B	67.7
	NB Right	3.5	A	0.25	13.4	3.1	A	14.0	3.0	A	0.35	15.0	4.1	A	24.9
	SB Left	9.5	A	0.16	16.1	10.1	B	33.7	11.4	B	0.11	6.8	16.4	B	16.9
	SB Through	18.2	B	0.56	107.2	10.5	B	70.8	23.6	C	0.34	48.0	19.1	B	54.6
	SB Right	0.1	A	0.04	0.0	2.9	A	-	0.2	A	0.06	0.0	2.6	A	-
Old Sackville Road & Downsview Drive		**5.5**	**A**			**6.1**	**A**		**50.6**	**F**			**7.9**	**A**	
Old Sackville Road	EB Left	7.5	A	0.06	1.5	6.6	A	9.1	8.5	A	0.19	5.3	7.9	A	21.9
	EB Through	0.0	A	-	-	7.1	A	16.7	0.0	A	-	-	6.3	A	13.2
	EB Right	0.0	A	-	-	7.3	A		0.0	A	-	-	7.2	A	
	WB Left	7.5	A	0.01	0.0	2.7	A	4.9	7.5	A	0.00	0.0	2.9	A	8.9
	WB Through	0.0	A	-	-	0.4	A		0.0	A	-	-	1.6	A	
	WB Right	0.0	A	-	-	0.2	A		0.0	A	-	-	0.6	A	
Walker Avenue	NB Left	17.1	C	0.26	7.6	6.8	A	17.7	301.4	F	1.43	92.0	14.3	B	30.4
	NB Through					8.0	A						14.0	B	
	NB Right					3.8	A						7.9	A	
Downsview Drive	SB Left	11.7	B	0.19	5.3	6.6	A	17.0	25.9	D	0.65	35.0	16.0	C	43.3
	SB Through					8.5	A						16.5	C	
	SB Right					3.5	A						10.1	B	

Table 5: Intersection performance future conditions with development

Future Conditions with Development		Weekday AM Peak Hour							Weekday PM Peak Hour						
Intersection		Synchro				SimTraffic			Synchro				SimTraffic		
		Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)	Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)
Old Sackville Road & Beaver Bank Connector		**22.5**	**C**			**12.8**	**B**		**29.0**	**C**			**18.3**	**B**	
Old Sackville Road	EB Left	30.3	C	0.72	78.3	30.6	C	58.9	25.0	C	0.41	48.7	32.0	C	36.9
	EB Through					33.7	C						31.7	C	
	EB Right					6.2	A						4.0	A	
	WB Left	78.7	E	0.89	59.6	33.2	C	41.4	114.8	F	1.09	127.9	49.5	D	83.6
	WB Through	16.5	B	0.17	17.4	25.5	C	17.4	29.2	C	0.51	65.6	29.4	C	52.8
	WB Right					2.0	A						4.3	A	
Beaver Bank Connector	NB Left	11.3	B	0.15	8.9	14.6	B	14.3	14.1	B	0.48	38.9	16.4	B	52.8
	NB Through	17.5	B	0.20	31.1	10.2	B	34.2	19.6	B	0.51	90.3	13.9	B	69.4
	NB Right	3.6	A	0.27	13.7	3.1	A	10.5	3.0	A	0.38	15.6	4.1	A	16.3
	SB Left	10.6	B	0.17	16.4	11.2	B	33.4	11.6	B	0.13	7.9	15.4	B	15.5
	SB Through	20.2	C	0.58	107.2	12.0	B	73.7	23.6	C	0.34	48.0	19.6	B	54.5
	SB Right	0.1	A	0.04	0.0	2.7	A	-	0.2	A	0.06	0.0	2.7	A	-
Old Sackville Road & Downsview Drive		**5.5**	**A**			**5.9**	**A**		**66.7**	**F**			**10.9**	**B**	
Old Sackville Road	EB Left	7.7	A	0.07	1.5	6.7	A	12.2	8.6	A	0.20	5.3	8.2	A	23.4
	EB Through	0.0	A	-	-	7.1	A	20.3	0.0	A	-	-	6.2	A	22.4
	EB Right	0.0	A	-	-	7.6	A		0.0	A	-	-	7.4	A	
	WB Left	7.5	A	0.01	0.0	2.5	A	5.8	7.6	A	0.00	0.0	3.7	A	23.0
	WB Through	0.0	A	-	-	0.6	A		0.0	A	-	-	3.1	A	
	WB Right	0.0	A	-	-	0.3	A		0.0	A	-	-	1.6	A	
Walker Avenue	NB Left	19.0	C	0.29	9.1	7.1	A	19.0	420.7	F	1.69	104.9	22.3	C	38.8
	NB Through					8.6	A						20.0	C	
	NB Right					3.8	A						17.2	C	
Downsview Drive	SB Left	12.7	B	0.21	6.1	7.2	A	17.9	39.7	E	0.79	51.7	22.8	C	60.5
	SB Through					9.0	A						23.9	C	
	SB Right					3.5	A						17.6	C	

Conclusions and Recommendations

Harbourside Transportation Consultants has completed a traffic impact assessment, as per Halifax Regional Municipality (HRM) requirements, to support the development application for a proposed residential development located at 665 Old Sackville Road in Lower Sackville, Nova Scotia. The following conclusions were gathered from the traffic impact assessment:

- The proposed development will include three mid-rise residential buildings containing a total of 300 units. It is important to note that a total calculation of the maximum density possible on this site could include an additional 86 apartments using a similar unit mix. Therefore, the predictable development trip generation rate is substantially lower than would be anticipated for this site by almost 25%.
- The required stopping sight distance to the driveway is provided in both direction on Old Sackville Road. The departure sight triangles at the proposed driveway location will need to be cleared of obstructions in order to provide adequate turning sight distance.
- The vehicle trip generation estimates for the proposed development were quantified using trip generation rates obtained from the ITE Trip Generation Manual (10th edition). The vehicle trip estimates were adjusted to reflect trips made using non-auto transportation modes using the IMP mode share targets for the Outer Suburban area. The proposed development is expected to generate 93 vehicle trips in the AM peak hour (24 trips in/69 trips out) and 114 vehicle trips in the PM peak hour (70 trips in/44 trips out).
- The intersection analysis indicates that the proposed development will not have a significant impact on traffic operations at the intersections of Old Sackville Road & Beaver Bank Connector and Old Sackville Road & Downsview Drive/Walker Avenue**.** The new vehicle trips generated by the development will result in minor increases in average delay per vehicle at both intersections during the weekday peak hours.

If you have any questions or additional discussion, please feel free to contact the undersigned.

Regards,

[redacted]

Harbourside Transportation Consultants
Michael MacDonald, P. Eng.
Senior Transportation Engineer, Principal
P: 902.405.4655
E: mmacdonald@harboursideengineering.ca

Appendix A

Traffic Volumes

Existing Traffic Volumes
Weekday AM Peak Hour
Weekday PM Peak Hour
Beaver Bank Connector
Downsview Drive
Old Sackville Road
Walker Avenue
1083
350
33
957
93
113
131
56
39
18
28
42
105
175
175
118
17
56
12
85
25
91
230
346
89
103
192
384
384
131
43
297
200
63
25
10
1292
540
243
98
498
985
36
431
31
284
333
219
36
29
121
135
276
532
532
416
67
199
4
270
18
78
106
202
227
129
71
427
427
166
245
846
318
114
39
8
813
1409
111
161

Future with Development Traffic Volumes

Appendix B

Synchro/SimTraffic Reports

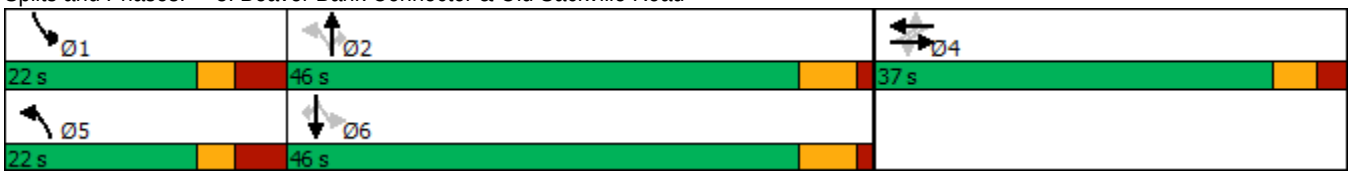
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	91	230	105	42	28	43	297	200	93	957	33
Future Volume (vph)	25	91	230	105	42	28	43	297	200	93	957	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	60.0		70.0	50.0		80.0
Storage Lanes	0		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.910			0.941				0.850			0.850
Flt Protected		0.996		0.950			0.950			0.950		
Satd. Flow (prot)	0	1707	0	1789	1772	0	1789	3579	1601	1789	3579	1601
Flt Permitted		0.974		0.287			0.205			0.528		
Satd. Flow (perm)	0	1669	0	541	1772	0	386	3579	1601	994	3579	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		97			30				217			104
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		156.8			93.2			249.7			277.2	
Travel Time (s)		11.3			6.7			18.0			20.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	27	99	250	114	46	30	47	323	217	101	1040	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	376	0	114	76	0	47	323	217	101	1040	36
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4			4			2		2	6		6
Total Split (s)	37.0	37.0		37.0	37.0		22.0	46.0	46.0	22.0	46.0	46.0
Total Lost Time (s)		6.0		6.0	6.0		7.0	6.0	6.0	7.0	6.0	6.0
Act Effct Green (s)		20.7		20.7	20.7		45.6	41.1	41.1	48.6	44.8	44.8
Actuated g/C Ratio		0.24		0.24	0.24		0.53	0.48	0.48	0.57	0.52	0.52
v/c Ratio		0.79		0.88	0.17		0.14	0.19	0.25	0.16	0.56	0.04
Control Delay		35.3		85.5	18.1		10.1	15.9	3.5	9.5	18.2	0.1
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		35.3		85.5	18.1		10.1	15.9	3.5	9.5	18.2	0.1
LOS		D		F	B		B	B	A	A	B	A
Approach Delay		35.3			58.6			10.9			16.9	
Approach LOS		D			E			B			B	
Stops (vph)		232		92	33		21	166	19	39	628	0
Fuel Used(l)		20		10	2		2	14	6	4	53	1
CO Emissions (g/hr)		367		184	43		34	268	106	74	980	16

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
NOx Emissions (g/hr)		71		36	8		7	52	21	14	189	3
VOC Emissions (g/hr)		85		42	10		8	62	25	17	226	4
Dilemma Vehicles (#)		0		0	0		0	0	0	0	0	0
Queue Length 50th (m)		44.5		18.5	6.1		2.9	16.5	0.0	6.4	67.5	0.0
Queue Length 95th (m)		77.7		#46.1	16.6		8.9	31.1	13.4	16.1	107.2	0.0
Internal Link Dist (m)		132.8			69.2			225.7			253.2	
Turn Bay Length (m)							60.0		70.0	50.0		80.0
Base Capacity (vph)		681		201	677		482	1717	881	742	1872	887
Starvation Cap Reductn		0		0	0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.55		0.57	0.11		0.10	0.19	0.25	0.14	0.56	0.04

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 85.7
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 21.8 Intersection LOS: C
Intersection Capacity Utilization 79.3% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Beaver Bank Connector & Old Sackville Road



Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	89	103	192	12	56	17	63	25	10	18	39	56
Future Vol, veh/h	89	103	192	12	56	17	63	25	10	18	39	56
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	112	209	13	61	18	68	27	11	20	42	61

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	79	0	0	112	0	0	559	516	217	421	402	70
Stage 1	-	-	-	-	-	-	411	411	-	96	96	-
Stage 2	-	-	-	-	-	-	148	105	-	325	306	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1519	-	-	1478	-	-	440	463	823	543	537	993
Stage 1	-	-	-	-	-	-	618	595	-	911	815	-
Stage 2	-	-	-	-	-	-	855	808	-	687	662	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1519	-	-	1478	-	-	365	430	823	482	498	993
Mov Cap-2 Maneuver	-	-	-	-	-	-	365	430	-	482	498	-
Stage 1	-	-	-	-	-	-	578	557	-	853	808	-
Stage 2	-	-	-	-	-	-	754	801	-	604	620	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	1.1	17.1	11.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	403	1519	-	-	1478	-	-	657
HCM Lane V/C Ratio	0.264	0.064	-	-	0.009	-	-	0.187
HCM Control Delay (s)	17.1	7.5	-	-	7.5	0	-	11.7
HCM Lane LOS	C	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	1	0.2	-	-	0	-	-	0.7

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	7:00	7:00	7:00	7:00	7:00	7:00	7:00
End Time	8:15	8:15	8:15	8:15	8:15	8:15	8:15
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2340	2224	2345	2224	2165	2205	2265
Vehs Exited	2332	2221	2328	2224	2179	2201	2267
Starting Vehs	29	35	28	38	38	25	31
Ending Vehs	37	38	45	38	24	29	29
Travel Distance (km)	1093	1025	1092	1025	1014	1033	1060
Travel Time (hr)	35.6	32.9	35.2	33.2	31.2	32.0	33.1
Total Delay (hr)	11.8	10.4	11.4	10.8	9.0	9.7	10.1
Total Stops	1451	1329	1411	1340	1165	1238	1312
Fuel Used (l)	102.9	96.1	102.4	96.9	93.1	95.4	99.2

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	7:00	7:00	7:00	7:00
End Time	8:15	8:15	8:15	8:15
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2281	2308	2312	2265
Vehs Exited	2283	2321	2304	2267
Starting Vehs	26	49	28	31
Ending Vehs	24	36	36	34
Travel Distance (km)	1064	1071	1075	1055
Travel Time (hr)	33.1	34.2	33.5	33.4
Total Delay (hr)	9.9	10.9	10.1	10.4
Total Stops	1313	1351	1306	1320
Fuel Used (l)	98.9	101.9	99.5	98.6

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	636	614	636	624	597	581	576
Vehs Exited	611	599	617	612	588	582	575
Starting Vehs	29	35	28	38	38	25	31
Ending Vehs	54	50	47	50	47	24	32
Travel Distance (km)	295	282	291	279	277	273	268
Travel Time (hr)	9.7	9.1	9.6	9.3	8.7	8.4	8.8
Total Delay (hr)	3.2	2.9	3.3	3.2	2.6	2.5	3.0
Total Stops	405	371	388	387	321	316	363
Fuel Used (l)	28.0	26.1	27.8	26.8	25.1	24.9	25.7

Interval #1 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	621	621	599	612
Vehs Exited	601	632	583	600
Starting Vehs	26	49	28	31
Ending Vehs	46	38	44	40
Travel Distance (km)	284	287	277	281
Travel Time (hr)	8.8	9.6	9.2	9.1
Total Delay (hr)	2.6	3.3	3.1	3.0
Total Stops	361	399	377	370
Fuel Used (l)	26.6	28.1	26.6	26.6

Interval #2 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	586	515	516	529	514	542	565
Vehs Exited	610	541	538	554	532	534	563
Starting Vehs	54	50	47	50	47	24	32
Ending Vehs	30	24	25	25	29	32	34
Travel Distance (km)	280	245	248	255	246	253	264
Travel Time (hr)	9.1	7.7	8.0	7.9	7.6	8.0	8.0
Total Delay (hr)	3.0	2.4	2.6	2.3	2.3	2.5	2.3
Total Stops	380	298	312	300	287	319	321
Fuel Used (l)	25.9	22.7	23.6	23.6	23.0	23.5	24.2

Interval #2 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	556	554	569	544
Vehs Exited	570	551	582	558
Starting Vehs	46	38	44	40
Ending Vehs	32	41	31	30
Travel Distance (km)	261	256	266	257
Travel Time (hr)	8.5	8.4	8.3	8.1
Total Delay (hr)	2.8	2.8	2.5	2.5
Total Stops	316	343	314	321
Fuel Used (l)	24.5	24.4	24.4	24.0

Interval #3 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	560	545	570	537	525	547	554
Vehs Exited	560	539	562	532	509	549	560
Starting Vehs	30	24	25	25	29	32	34
Ending Vehs	30	30	33	30	45	30	28
Travel Distance (km)	259	246	265	246	241	259	262
Travel Time (hr)	8.5	8.1	8.1	8.0	7.4	7.9	8.0
Total Delay (hr)	2.8	2.7	2.4	2.6	2.1	2.4	2.3
Total Stops	334	353	323	330	281	303	312
Fuel Used (l)	24.6	23.6	24.0	23.3	22.4	23.7	24.3

Interval #3 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	540	562	584	550
Vehs Exited	539	578	583	551
Starting Vehs	32	41	31	30
Ending Vehs	33	25	32	29
Travel Distance (km)	252	268	272	257
Travel Time (hr)	7.7	7.9	8.2	8.0
Total Delay (hr)	2.2	2.2	2.3	2.4
Total Stops	318	290	305	315
Fuel Used (l)	23.2	25.0	24.8	23.9

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	558	550	623	534	529	535	570
Vehs Exited	551	542	611	526	550	536	569
Starting Vehs	30	30	33	30	45	30	28
Ending Vehs	37	38	45	38	24	29	29
Travel Distance (km)	260	253	288	245	250	247	266
Travel Time (hr)	8.3	8.0	9.5	8.0	7.5	7.8	8.3
Total Delay (hr)	2.7	2.4	3.2	2.7	2.0	2.3	2.6
Total Stops	332	307	388	323	276	300	316
Fuel Used (l)	24.4	23.6	27.0	23.2	22.6	23.2	25.0

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	564	571	560	559
Vehs Exited	573	560	556	558
Starting Vehs	33	25	32	29
Ending Vehs	24	36	36	34
Travel Distance (km)	267	260	260	260
Travel Time (hr)	8.1	8.3	7.9	8.2
Total Delay (hr)	2.4	2.6	2.3	2.5
Total Stops	318	319	310	320
Fuel Used (l)	24.6	24.4	23.7	24.2

3: Beaver Bank Connector & Old Sackville Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.0
Denied Del/Veh (s)	0.3	0.4	0.3	0.0	0.0	0.0	3.2	0.2	3.2	2.5	0.2	2.5
Total Delay (hr)	0.2	0.8	0.4	0.9	0.3	0.0	0.1	0.7	0.2	0.3	2.8	0.0
Total Del/Veh (s)	31.2	33.0	5.5	31.6	25.0	2.1	13.0	9.0	3.1	10.1	10.5	2.9
Stop Delay (hr)	0.2	0.7	0.1	0.9	0.3	0.0	0.1	0.5	0.0	0.2	1.8	0.0
Stop Del/Veh (s)	26.4	26.4	1.8	29.5	22.1	0.4	10.6	6.6	0.3	6.5	6.6	0.0

3: Beaver Bank Connector & Old Sackville Road Performance by movement

Movement	All
Denied Delay (hr)	0.4
Denied Del/Veh (s)	0.7
Total Delay (hr)	6.8
Total Del/Veh (s)	11.4
Stop Delay (hr)	4.7
Stop Del/Veh (s)	7.9

6: Walker Avenue/Downsview Drive & Old Sackville Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Total Delay (hr)	0.2	0.2	0.4	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1
Total Del/Veh (s)	6.6	7.1	7.3	2.7	0.4	0.2	6.8	8.0	3.8	6.6	8.5	3.5
Stop Delay (hr)	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	2.1	2.0	3.4	0.8	0.0	0.0	4.6	4.0	3.1	4.1	4.4	2.8

6: Walker Avenue/Downsview Drive & Old Sackville Road Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.1
Total Delay (hr)	1.1
Total Del/Veh (s)	6.1
Stop Delay (hr)	0.5
Stop Del/Veh (s)	2.8

Total Network Performance

Denied Delay (hr)	0.4
Denied Del/Veh (s)	0.7
Total Delay (hr)	10.0
Total Del/Veh (s)	15.6
Stop Delay (hr)	5.8
Stop Del/Veh (s)	9.1

Intersection: 3: Beaver Bank Connector & Old Sackville Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	T	R	L	T	T
Maximum Queue (m)	69.2	37.7	25.4	16.0	38.1	25.7	28.1	52.3	85.0	73.0
Average Queue (m)	23.1	16.5	6.2	5.9	16.9	6.7	1.2	11.7	40.8	31.3
95th Queue (m)	53.8	30.7	16.7	13.8	32.5	18.8	14.0	33.7	70.8	60.6
Link Distance (m)	142.9	75.1	75.1		238.6	238.6			264.7	264.7
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)				60.0			70.0	50.0		
Storage Blk Time (%)								0	4	0
Queuing Penalty (veh)								0	3	0

Intersection: 6: Walker Avenue/Downsview Drive & Old Sackville Road

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	LTR	LTR	LTR
Maximum Queue (m)	13.2	29.1	9.0	20.4	21.0
Average Queue (m)	2.1	2.4	0.7	10.9	9.9
95th Queue (m)	9.1	16.7	4.9	17.7	17.0
Link Distance (m)		75.1	113.2	91.8	113.8
Upstream Blk Time (%)		0			
Queuing Penalty (veh)		0			
Storage Bay Dist (m)	40.0				
Storage Blk Time (%)		0			
Queuing Penalty (veh)		0			

Network Summary

Network wide Queuing Penalty: 4

Intersection: 3: Beaver Bank Connector & Old Sackville Road

Phase	1	2	4	5	6
Movement(s) Served	SBL	NBTL	EBWB	NBL	SBTL
Maximum Green (s)	15.0	40.0	31.0	15.0	40.0
Minimum Green (s)	7.0	7.0	7.0	7.0	7.0
Recall	None	Max	None	None	Max
Avg. Green (s)	8.4	42.9	16.4	7.6	46.3
g/C Ratio	-0.01	NA	NA	-0.01	NA
Cycles Skipped (%)	53	0	0	74	0
Cycles @ Minimum (%)	26	0	7	16	0
Cycles Maxed Out (%)	0	100	7	0	100
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

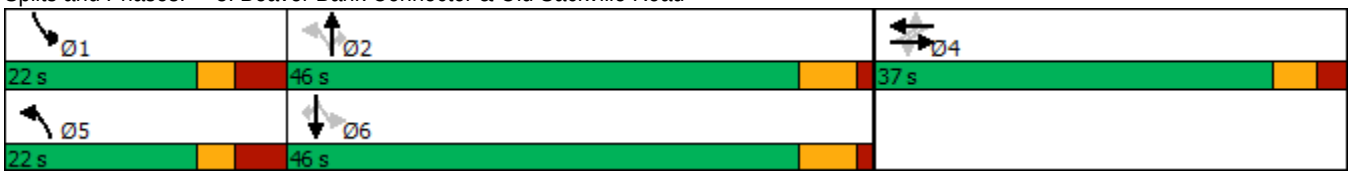
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	78	106	276	135	121	245	846	318	31	431	36
Future Volume (vph)	18	78	106	276	135	121	245	846	318	31	431	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	60.0		70.0	50.0		80.0
Storage Lanes	0		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.929			0.929				0.850			0.850
Flt Protected		0.995		0.950			0.950			0.950		
Satd. Flow (prot)	0	1741	0	1789	1750	0	1789	3579	1601	1789	3579	1601
Flt Permitted		0.953		0.529			0.376			0.278		
Satd. Flow (perm)	0	1667	0	996	1750	0	708	3579	1601	524	3579	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			44				346			104
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		156.8			93.2			249.7			277.2	
Travel Time (s)		11.3			6.7			18.0			20.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	20	85	115	300	147	132	266	920	346	34	468	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	220	0	300	279	0	266	920	346	34	468	39
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4			4			2		2	6		6
Total Split (s)	37.0	37.0		37.0	37.0		22.0	46.0	46.0	22.0	46.0	46.0
Total Lost Time (s)		6.0		6.0	6.0		7.0	6.0	6.0	7.0	6.0	6.0
Act Effct Green (s)		31.0		31.0	31.0		59.8	52.4	52.4	46.1	40.0	40.0
Actuated g/C Ratio		0.30		0.30	0.30		0.58	0.50	0.50	0.44	0.39	0.39
v/c Ratio		0.41		1.01	0.50		0.48	0.51	0.35	0.11	0.34	0.06
Control Delay		24.8		92.8	29.0		14.1	19.6	3.0	11.4	23.6	0.2
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		24.8		92.8	29.0		14.1	19.6	3.0	11.4	23.6	0.2
LOS		C		F	C		B	B	A	B	C	A
Approach Delay		24.8			62.1			14.9			21.1	
Approach LOS		C			E			B			C	
Stops (vph)		121		229	175		115	554	22	16	293	0
Fuel Used(l)		10		27	12		11	45	9	1	26	1
CO Emissions (g/hr)		178		508	222		206	841	163	27	479	18

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
NOx Emissions (g/hr)		34		98	43		40	162	31	5	92	3
VOC Emissions (g/hr)		41		117	51		47	194	38	6	110	4
Dilemma Vehicles (#)		0		0	0		0	0	0	0	0	0
Queue Length 50th (m)		26.5		~62.0	39.0		25.1	70.1	0.0	2.8	34.8	0.0
Queue Length 95th (m)		48.2		#116.5	64.7		38.9	89.8	15.0	6.8	48.0	0.0
Internal Link Dist (m)		132.8			69.2			225.7			253.2	
Turn Bay Length (m)							60.0		70.0	50.0		80.0
Base Capacity (vph)		535		297	553		563	1805	979	455	1379	681
Starvation Cap Reductn		0		0	0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.41		1.01	0.50		0.47	0.51	0.35	0.07	0.34	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 103.8			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 26.3		Intersection LOS: C	
Intersection Capacity Utilization 76.9%		ICU Level of Service D	
Analysis Period (min) 15			

~ 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: Beaver Bank Connector & Old Sackville Road



Intersection	
Int Delay, s/veh	50.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	227	129	71	4	199	67	114	39	8	29	36	219
Future Vol, veh/h	227	129	71	4	199	67	114	39	8	29	36	219
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	247	140	77	4	216	73	124	42	9	32	39	238

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	289	0	0	140	0	0	1072	970	179	921	895	253
Stage 1	-	-	-	-	-	-	673	673	-	261	261	-
Stage 2	-	-	-	-	-	-	399	297	-	660	634	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1273	-	-	1443	-	-	198	253	864	251	280	786
Stage 1	-	-	-	-	-	-	445	454	-	744	692	-
Stage 2	-	-	-	-	-	-	627	668	-	452	473	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1273	-	-	1443	-	-	~ 102	203	864	178	225	786
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 102	203	-	178	225	-
Stage 1	-	-	-	-	-	-	359	366	-	600	690	-
Stage 2	-	-	-	-	-	-	411	666	-	319	381	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.5	0.1	$ 301.4	25.9
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	122	1273	-	-	1443	-	-	472
HCM Lane V/C Ratio	1.434	0.194	-	-	0.003	-	-	0.654
HCM Control Delay (s)	$ 301.4	8.5	-	-	7.5	0	-	25.9
HCM Lane LOS	F	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	12.1	0.7	-	-	0	-	-	4.6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	4:45	4:45	4:45	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2899	2780	2879	2905	2738	2791	2710
Vehs Exited	2909	2790	2886	2912	2734	2792	2708
Starting Vehs	60	46	55	55	39	39	35
Ending Vehs	50	36	48	48	43	38	37
Travel Distance (km)	1319	1274	1312	1325	1247	1275	1233
Travel Time (hr)	49.2	44.6	46.7	48.5	44.9	46.2	42.8
Total Delay (hr)	20.0	16.5	17.7	19.2	17.2	18.0	15.6
Total Stops	2233	2008	2120	2081	1971	2035	1890
Fuel Used (l)	133.7	125.6	131.5	132.9	125.4	127.4	122.9

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2867	2824	2893	2828
Vehs Exited	2862	2846	2899	2833
Starting Vehs	36	56	39	44
Ending Vehs	41	34	33	39
Travel Distance (km)	1311	1290	1322	1291
Travel Time (hr)	46.8	45.6	48.1	46.3
Total Delay (hr)	17.8	17.1	18.8	17.8
Total Stops	2091	2006	2080	2051
Fuel Used (l)	130.0	129.5	132.4	129.1

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	810	747	786	789	734	709	719
Vehs Exited	812	747	780	772	710	714	704
Starting Vehs	60	46	55	55	39	39	35
Ending Vehs	58	46	61	72	63	34	50
Travel Distance (km)	366	339	358	356	327	323	330
Travel Time (hr)	14.8	12.1	13.1	13.7	12.0	11.3	11.1
Total Delay (hr)	6.7	4.5	5.2	5.8	4.8	4.2	3.8
Total Stops	692	559	607	588	560	495	488
Fuel Used (l)	39.2	33.5	36.4	36.0	33.5	32.0	32.2

Interval #1 Information Recording

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	798	774	784	766
Vehs Exited	779	789	773	758
Starting Vehs	36	56	39	44
Ending Vehs	55	41	50	51
Travel Distance (km)	359	354	357	347
Travel Time (hr)	13.3	13.0	14.0	12.8
Total Delay (hr)	5.4	5.2	6.0	5.2
Total Stops	613	569	602	578
Fuel Used (l)	36.1	36.3	36.4	35.2

Interval #2 Information Recording

Start Time	5:15
End Time	5:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	675	667	678	708	642	739	658
Vehs Exited	692	670	690	725	656	726	674
Starting Vehs	58	46	61	72	63	34	50
Ending Vehs	41	43	49	55	49	47	34
Travel Distance (km)	308	306	312	326	296	334	299
Travel Time (hr)	11.1	10.6	11.1	12.8	10.5	12.3	10.6
Total Delay (hr)	4.3	3.8	4.2	5.5	3.9	4.9	3.9
Total Stops	523	439	497	524	456	547	435
Fuel Used (l)	30.7	30.2	31.4	33.6	29.5	33.5	29.8

Interval #2 Information Recording

Start Time	5:15
End Time	5:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	688	664	693	681
Vehs Exited	710	656	707	691
Starting Vehs	55	41	50	51
Ending Vehs	33	49	36	43
Travel Distance (km)	318	299	318	312
Travel Time (hr)	11.3	10.1	11.6	11.2
Total Delay (hr)	4.2	3.5	4.5	4.3
Total Stops	511	452	494	487
Fuel Used (l)	31.5	29.1	32.0	31.1

Interval #3 Information Recording

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	719	694	670	714	689	706	673
Vehs Exited	710	688	679	724	677	707	669
Starting Vehs	41	43	49	55	49	47	34
Ending Vehs	50	49	40	45	61	46	38
Travel Distance (km)	324	317	307	331	314	325	307
Travel Time (hr)	12.3	11.0	10.3	11.3	11.3	12.1	10.8
Total Delay (hr)	5.1	4.0	3.5	4.0	4.4	5.0	4.0
Total Stops	545	499	438	514	488	537	473
Fuel Used (l)	32.9	31.0	29.7	32.8	31.7	32.5	30.8

Interval #3 Information Recording

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	679	674	695	691
Vehs Exited	669	686	685	689
Starting Vehs	33	49	36	43
Ending Vehs	43	37	46	44
Travel Distance (km)	311	313	314	316
Travel Time (hr)	10.4	10.8	10.8	11.1
Total Delay (hr)	3.4	4.0	3.8	4.1
Total Stops	426	480	470	486
Fuel Used (l)	30.1	31.5	30.7	31.4

Interval #4 Information Recording

Start Time	5:45
End Time	6:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	695	672	745	694	673	637	660
Vehs Exited	695	685	737	691	691	645	661
Starting Vehs	50	49	40	45	61	46	38
Ending Vehs	50	36	48	48	43	38	37
Travel Distance (km)	321	310	335	313	310	292	298
Travel Time (hr)	11.0	11.0	12.2	10.7	11.0	10.5	10.4
Total Delay (hr)	4.0	4.1	4.8	3.8	4.1	4.0	3.8
Total Stops	473	511	578	455	467	456	494
Fuel Used (l)	31.0	30.9	33.9	30.4	30.7	29.4	30.1

Interval #4 Information Recording

Start Time	5:45
End Time	6:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	702	712	721	694
Vehs Exited	704	715	734	695
Starting Vehs	43	37	46	44
Ending Vehs	41	34	33	39
Travel Distance (km)	324	325	334	316
Travel Time (hr)	11.8	11.6	11.8	11.2
Total Delay (hr)	4.7	4.4	4.4	4.2
Total Stops	541	505	514	498
Fuel Used (l)	32.3	32.6	33.3	31.4

3: Beaver Bank Connector & Old Sackville Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	0.2	0.0	0.0	0.0	2.5	0.5	2.4	3.2	0.1	3.2
Total Delay (hr)	0.1	0.6	0.1	3.4	1.1	0.1	1.1	3.2	0.4	0.1	2.3	0.0
Total Del/Veh (s)	31.3	30.0	3.5	43.2	28.6	3.9	16.0	13.5	4.1	16.4	19.1	2.6
Stop Delay (hr)	0.1	0.5	0.0	3.2	0.9	0.1	0.8	2.2	0.0	0.1	1.8	0.0
Stop Del/Veh (s)	27.8	24.9	0.5	40.0	24.6	1.8	11.6	9.2	0.3	13.2	15.3	0.0

3: Beaver Bank Connector & Old Sackville Road Performance by movement

Movement	All
Denied Delay (hr)	0.6
Denied Del/Veh (s)	0.8
Total Delay (hr)	12.6
Total Del/Veh (s)	17.1
Stop Delay (hr)	9.8
Stop Del/Veh (s)	13.2

6: Walker Avenue/Downsview Drive & Old Sackville Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	0.2	0.2	0.2	0.3	0.2	0.4	0.3	0.3
Total Delay (hr)	0.5	0.2	0.1	0.0	0.1	0.0	0.5	0.2	0.0	0.1	0.2	0.6
Total Del/Veh (s)	7.9	6.3	7.2	2.9	1.6	0.6	14.3	14.0	7.9	16.0	16.5	10.1
Stop Delay (hr)	0.2	0.1	0.1	0.0	0.0	0.0	0.4	0.1	0.0	0.1	0.1	0.5
Stop Del/Veh (s)	2.8	1.6	3.0	0.7	0.2	0.1	11.7	9.8	6.9	12.9	11.9	8.6

6: Walker Avenue/Downsview Drive & Old Sackville Road Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.2
Total Delay (hr)	2.6
Total Del/Veh (s)	7.9
Stop Delay (hr)	1.6
Stop Del/Veh (s)	5.0

Total Network Performance

Denied Delay (hr)	0.6
Denied Del/Veh (s)	0.8
Total Delay (hr)	17.1
Total Del/Veh (s)	21.5
Stop Delay (hr)	11.8
Stop Del/Veh (s)	14.8

Intersection: 3: Beaver Bank Connector & Old Sackville Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	T	R	L	T	T
Maximum Queue (m)	45.7	77.7	66.2	56.9	78.5	75.1	45.4	32.0	61.6	50.0
Average Queue (m)	13.8	49.0	22.5	26.1	42.4	34.2	2.9	5.1	33.7	20.7
95th Queue (m)	31.6	77.6	48.4	50.2	67.7	61.6	24.9	16.9	54.6	42.8
Link Distance (m)	142.9	75.1	75.1		238.6	238.6			264.7	264.7
Upstream Blk Time (%)		2	0							
Queuing Penalty (veh)		6	0							
Storage Bay Dist (m)				60.0			70.0	50.0		
Storage Blk Time (%)				0	1	0	0	0	1	
Queuing Penalty (veh)				0	3	0	0	0	0	

Intersection: 6: Walker Avenue/Downsview Drive & Old Sackville Road

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	LTR	LTR	LTR
Maximum Queue (m)	25.9	28.0	15.2	39.7	56.6
Average Queue (m)	11.2	1.2	1.6	17.5	22.7
95th Queue (m)	21.9	13.2	8.9	30.4	43.3
Link Distance (m)		75.1	113.2	91.8	113.8
Upstream Blk Time (%)		0			
Queuing Penalty (veh)		0			
Storage Bay Dist (m)	40.0				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 10

Intersection: 3: Beaver Bank Connector & Old Sackville Road

Phase	1	2	4	5	6
Movement(s) Served	SBL	NBTL	EBWB	NBL	SBTL
Maximum Green (s)	15.0	40.0	31.0	15.0	40.0
Minimum Green (s)	7.0	7.0	7.0	7.0	7.0
Recall	None	Max	None	None	Max
Avg. Green (s)	7.4	53.1	27.3	11.6	40.8
g/C Ratio	-0.01	NA	NA	-0.01	NA
Cycles Skipped (%)	71	0	0	8	0
Cycles @ Minimum (%)	21	0	0	11	0
Cycles Maxed Out (%)	0	100	53	22	100
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

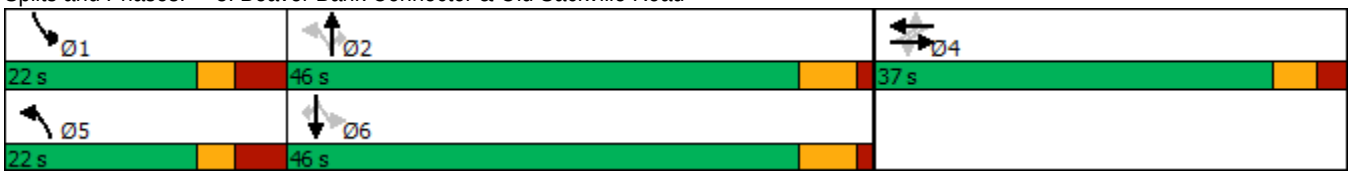
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	92	230	137	44	35	43	297	211	95	957	33
Future Volume (vph)	25	92	230	137	44	35	43	297	211	95	957	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	60.0		70.0	50.0		80.0
Storage Lanes	0		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.910			0.934				0.850			0.850
Flt Protected		0.996		0.950			0.950			0.950		
Satd. Flow (prot)	0	1707	0	1789	1759	0	1789	3579	1601	1789	3579	1601
Flt Permitted		0.974		0.328			0.196			0.527		
Satd. Flow (perm)	0	1669	0	618	1759	0	369	3579	1601	993	3579	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		96			38				229			104
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		156.8			93.2			249.7			277.2	
Travel Time (s)		11.3			6.7			18.0			20.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	27	100	250	149	48	38	47	323	229	103	1040	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	377	0	149	86	0	47	323	229	103	1040	36
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4			4			2		2	6		6
Total Split (s)	37.0	37.0		37.0	37.0		22.0	46.0	46.0	22.0	46.0	46.0
Total Lost Time (s)		6.0		6.0	6.0		7.0	6.0	6.0	7.0	6.0	6.0
Act Effct Green (s)		24.4		24.4	24.4		45.6	41.1	41.1	48.9	44.9	44.9
Actuated g/C Ratio		0.27		0.27	0.27		0.51	0.46	0.46	0.55	0.50	0.50
v/c Ratio		0.72		0.89	0.17		0.15	0.20	0.27	0.17	0.58	0.04
Control Delay		30.3		78.7	16.5		11.3	17.5	3.6	10.6	20.2	0.1
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		30.3		78.7	16.5		11.3	17.5	3.6	10.6	20.2	0.1
LOS		C		E	B		B	B	A	B	C	A
Approach Delay		30.3			55.9			11.7			18.8	
Approach LOS		C			E			B			B	
Stops (vph)		226		116	34		21	172	19	42	657	0
Fuel Used(l)		18		12	2		2	15	6	4	55	1
CO Emissions (g/hr)		341		225	46		35	277	112	78	1020	16

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
NOx Emissions (g/hr)		66		43	9		7	54	22	15	197	3
VOC Emissions (g/hr)		79		52	11		8	64	26	18	235	4
Dilemma Vehicles (#)		0		0	0		0	0	0	0	0	0
Queue Length 50th (m)		45.3		25.4	6.4		3.6	19.5	0.0	8.2	79.1	0.0
Queue Length 95th (m)		78.3		#59.6	17.4		8.9	31.1	13.7	16.4	107.2	0.0
Internal Link Dist (m)		132.8			69.2			225.7			253.2	
Turn Bay Length (m)							60.0		70.0	50.0		80.0
Base Capacity (vph)		656		220	650		455	1644	859	711	1795	855
Starvation Cap Reductn		0		0	0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.57		0.68	0.13		0.10	0.20	0.27	0.14	0.58	0.04

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 89.5
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 22.5 Intersection LOS: C
Intersection Capacity Utilization 81.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Beaver Bank Connector & Old Sackville Road



Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	89	117	192	13	97	27	63	25	10	22	39	56
Future Vol, veh/h	89	117	192	13	97	27	63	25	10	22	39	56
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	127	209	14	105	29	68	27	11	24	42	61

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	134	0	0	127	0	0	625	588	232	488	469	120
Stage 1	-	-	-	-	-	-	426	426	-	148	148	-
Stage 2	-	-	-	-	-	-	199	162	-	340	321	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1451	-	-	1459	-	-	397	421	807	490	492	931
Stage 1	-	-	-	-	-	-	606	586	-	855	775	-
Stage 2	-	-	-	-	-	-	803	764	-	675	652	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1451	-	-	1459	-	-	325	389	807	431	455	931
Mov Cap-2 Maneuver	-	-	-	-	-	-	325	389	-	431	455	-
Stage 1	-	-	-	-	-	-	565	547	-	798	767	-
Stage 2	-	-	-	-	-	-	702	756	-	591	608	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0.7	19	12.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	362	1451	-	-	1459	-	-	594
HCM Lane V/C Ratio	0.294	0.067	-	-	0.01	-	-	0.214
HCM Control Delay (s)	19	7.7	-	-	7.5	0	-	12.7
HCM Lane LOS	C	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	1.2	0.2	-	-	0	-	-	0.8

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	7:00	7:00	7:00	7:00	7:00	7:00	7:00
End Time	8:15	8:15	8:15	8:15	8:15	8:15	8:15
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2393	2367	2345	2290	2264	2276	2293
Vehs Exited	2385	2368	2353	2298	2274	2278	2290
Starting Vehs	29	38	49	45	30	26	34
Ending Vehs	37	37	41	37	20	24	37
Travel Distance (km)	1107	1099	1088	1052	1061	1056	1071
Travel Time (hr)	36.9	35.4	34.9	35.5	34.1	34.4	33.7
Total Delay (hr)	12.7	11.4	11.2	12.5	10.9	11.4	10.5
Total Stops	1478	1386	1373	1480	1276	1394	1330
Fuel Used (l)	105.8	103.0	102.4	101.4	98.0	100.1	100.2

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	7:00	7:00	7:00	7:00
End Time	8:15	8:15	8:15	8:15
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2363	2374	2335	2331
Vehs Exited	2362	2387	2329	2333
Starting Vehs	33	45	33	34
Ending Vehs	34	32	39	31
Travel Distance (km)	1103	1101	1085	1082
Travel Time (hr)	35.3	36.6	35.3	35.2
Total Delay (hr)	11.3	12.6	11.7	11.6
Total Stops	1379	1516	1424	1401
Fuel Used (l)	103.4	105.9	102.5	102.3

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	639	648	632	631	594	610	607
Vehs Exited	631	634	636	631	583	598	607
Starting Vehs	29	38	49	45	30	26	34
Ending Vehs	37	52	45	45	41	38	34
Travel Distance (km)	292	296	294	286	274	279	283
Travel Time (hr)	10.5	10.0	9.6	10.1	9.3	9.3	9.0
Total Delay (hr)	4.0	3.6	3.2	3.8	3.3	3.2	2.9
Total Stops	445	414	399	419	357	372	358
Fuel Used (l)	28.9	27.8	28.1	28.1	25.7	26.6	26.5

Interval #1 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	656	624	603	626
Vehs Exited	634	628	590	617
Starting Vehs	33	45	33	34
Ending Vehs	55	41	46	37
Travel Distance (km)	295	288	276	286
Travel Time (hr)	9.7	10.2	9.5	9.7
Total Delay (hr)	3.2	4.0	3.4	3.5
Total Stops	410	439	385	402
Fuel Used (l)	28.0	28.6	26.7	27.5

Interval #2 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	600	545	545	555	549	567	527
Vehs Exited	606	577	559	573	566	569	537
Starting Vehs	37	52	45	45	41	38	34
Ending Vehs	31	20	31	27	24	36	24
Travel Distance (km)	279	263	255	261	265	266	249
Travel Time (hr)	9.5	8.1	8.3	9.2	8.6	8.7	7.6
Total Delay (hr)	3.5	2.4	2.6	3.4	2.9	2.9	2.2
Total Stops	379	308	330	385	341	365	294
Fuel Used (l)	26.9	24.5	24.3	25.8	24.5	25.3	22.9

Interval #2 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	595	592	575	564
Vehs Exited	611	596	594	580
Starting Vehs	55	41	46	37
Ending Vehs	39	37	27	27
Travel Distance (km)	283	276	276	267
Travel Time (hr)	9.2	9.0	9.0	8.7
Total Delay (hr)	3.0	2.9	3.0	2.9
Total Stops	336	370	361	350
Fuel Used (l)	26.7	26.2	26.0	25.3

Interval #3 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	554	609	565	547	554	562	588
Vehs Exited	541	593	564	540	534	563	567
Starting Vehs	31	20	31	27	24	36	24
Ending Vehs	44	36	32	34	44	35	45
Travel Distance (km)	255	278	261	247	254	261	271
Travel Time (hr)	8.1	9.1	7.8	8.0	7.6	8.2	8.8
Total Delay (hr)	2.6	3.0	2.2	2.6	2.1	2.6	2.9
Total Stops	313	368	290	345	276	326	361
Fuel Used (l)	24.0	26.3	23.9	23.6	23.1	24.4	25.8

Interval #3 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	538	562	584	564
Vehs Exited	547	575	573	560
Starting Vehs	39	37	27	27
Ending Vehs	30	24	38	30
Travel Distance (km)	253	267	269	262
Travel Time (hr)	8.2	8.2	8.7	8.3
Total Delay (hr)	2.7	2.4	2.9	2.6
Total Stops	335	326	356	330
Fuel Used (l)	24.1	24.9	25.3	24.5

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	600	565	603	557	567	537	571
Vehs Exited	607	564	594	554	591	548	579
Starting Vehs	44	36	32	34	44	35	45
Ending Vehs	37	37	41	37	20	24	37
Travel Distance (km)	281	263	278	257	269	249	268
Travel Time (hr)	8.8	8.2	9.2	8.2	8.5	8.2	8.4
Total Delay (hr)	2.6	2.4	3.1	2.7	2.6	2.7	2.6
Total Stops	341	296	354	331	302	331	317
Fuel Used (l)	26.0	24.5	26.0	23.9	24.7	23.7	25.1

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	574	596	573	573
Vehs Exited	570	588	572	577
Starting Vehs	30	24	38	30
Ending Vehs	34	32	39	31
Travel Distance (km)	271	271	263	267
Travel Time (hr)	8.2	9.2	8.2	8.5
Total Delay (hr)	2.4	3.3	2.4	2.7
Total Stops	298	381	322	327
Fuel Used (l)	24.6	26.2	24.5	24.9

3: Beaver Bank Connector & Old Sackville Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.0
Denied Del/Veh (s)	0.3	0.4	0.3	0.0	0.0	0.0	3.3	0.2	3.2	2.6	0.2	2.6
Total Delay (hr)	0.2	0.9	0.4	1.3	0.3	0.0	0.2	0.9	0.2	0.3	3.2	0.0
Total Del/Veh (s)	30.6	33.7	6.2	33.2	25.5	2.0	14.6	10.2	3.1	11.2	12.0	2.7
Stop Delay (hr)	0.2	0.7	0.2	1.2	0.3	0.0	0.1	0.6	0.0	0.2	2.1	0.0
Stop Del/Veh (s)	25.9	27.2	2.4	30.9	22.6	0.3	12.3	7.7	0.3	7.3	7.9	0.0

3: Beaver Bank Connector & Old Sackville Road Performance by movement

Movement	All
Denied Delay (hr)	0.4
Denied Del/Veh (s)	0.7
Total Delay (hr)	7.9
Total Del/Veh (s)	12.8
Stop Delay (hr)	5.6
Stop Del/Veh (s)	9.2

6: Walker Avenue/Downsview Drive & Old Sackville Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Delay (hr)	0.2	0.2	0.4	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1
Total Del/Veh (s)	6.7	7.1	7.6	2.5	0.6	0.3	7.1	8.6	3.8	7.2	9.0	3.5
Stop Delay (hr)	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Stop Del/Veh (s)	2.3	2.0	3.6	0.6	0.0	0.0	4.9	4.7	3.1	4.7	4.9	2.9

6: Walker Avenue/Downsview Drive & Old Sackville Road Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.1
Total Delay (hr)	1.2
Total Del/Veh (s)	5.9
Stop Delay (hr)	0.6
Stop Del/Veh (s)	2.7

Total Network Performance

Denied Delay (hr)	0.4
Denied Del/Veh (s)	0.7
Total Delay (hr)	11.2
Total Del/Veh (s)	17.0
Stop Delay (hr)	6.8
Stop Del/Veh (s)	10.4

Intersection: 3: Beaver Bank Connector & Old Sackville Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	T	R	L	T	T
Maximum Queue (m)	83.1	47.8	25.6	17.7	39.4	25.3	25.3	49.6	89.1	74.2
Average Queue (m)	24.6	22.4	6.6	6.3	18.9	7.9	0.7	11.9	43.8	33.6
95th Queue (m)	58.9	41.4	17.4	14.3	34.2	20.1	10.5	33.4	73.7	61.6
Link Distance (m)	142.9	75.1	75.1		238.6	238.6			264.7	264.7
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)				60.0			70.0	50.0		
Storage Blk Time (%)								0	4	0
Queuing Penalty (veh)								0	4	0

Intersection: 6: Walker Avenue/Downsview Drive & Old Sackville Road

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	LTR	LTR	LTR
Maximum Queue (m)	19.9	44.8	11.3	24.6	21.2
Average Queue (m)	3.3	2.9	0.9	11.0	10.4
95th Queue (m)	12.2	20.3	5.8	19.0	17.9
Link Distance (m)		75.1	113.2	91.8	113.8
Upstream Blk Time (%)		0			
Queuing Penalty (veh)		0			
Storage Bay Dist (m)	40.0				
Storage Blk Time (%)		0			
Queuing Penalty (veh)		0			

Network Summary

Network wide Queuing Penalty: 5

Intersection: 3: Beaver Bank Connector & Old Sackville Road

Phase	1	2	4	5	6
Movement(s) Served	SBL	NBTL	EBWB	NBL	SBTL
Maximum Green (s)	15.0	40.0	31.0	15.0	40.0
Minimum Green (s)	7.0	7.0	7.0	7.0	7.0
Recall	None	Max	None	None	Max
Avg. Green (s)	8.3	43.0	18.9	7.5	46.4
g/C Ratio	-0.01	NA	NA	-0.01	NA
Cycles Skipped (%)	45	0	0	66	0
Cycles @ Minimum (%)	26	0	2	22	0
Cycles Maxed Out (%)	0	100	14	0	100
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	80	106	296	136	125	245	846	350	38	431	36
Future Volume (vph)	18	80	106	296	136	125	245	846	350	38	431	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	60.0		70.0	50.0		80.0
Storage Lanes	0		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt		0.930			0.928				0.850			0.850
Flt Protected		0.996		0.950			0.950			0.950		
Satd. Flow (prot)	0	1745	0	1789	1748	0	1789	3579	1601	1789	3579	1601
Flt Permitted		0.953		0.526			0.376			0.278		
Satd. Flow (perm)	0	1669	0	991	1748	0	708	3579	1601	524	3579	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52			45				380			104
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		156.8			93.2			249.7			277.2	
Travel Time (s)		11.3			6.7			18.0			20.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	20	87	115	322	148	136	266	920	380	41	468	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	222	0	322	284	0	266	920	380	41	468	39
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4			4			2		2	6		6
Total Split (s)	37.0	37.0		37.0	37.0		22.0	46.0	46.0	22.0	46.0	46.0
Total Lost Time (s)		6.0		6.0	6.0		7.0	6.0	6.0	7.0	6.0	6.0
Act Effct Green (s)		31.0		31.0	31.0		59.8	52.3	52.3	46.2	40.0	40.0
Actuated g/C Ratio		0.30		0.30	0.30		0.58	0.50	0.50	0.45	0.39	0.39
v/c Ratio		0.41		1.09	0.51		0.48	0.51	0.38	0.13	0.34	0.06
Control Delay		25.0		114.8	29.2		14.1	19.6	3.0	11.6	23.6	0.2
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		25.0		114.8	29.2		14.1	19.6	3.0	11.6	23.6	0.2
LOS		C		F	C		B	B	A	B	C	A
Approach Delay		25.0			74.7			14.7			21.0	
Approach LOS		C			E			B			C	
Stops (vph)		123		237	179		115	554	25	19	293	0
Fuel Used(l)		10		34	12		11	45	10	2	26	1
CO Emissions (g/hr)		181		634	227		206	842	180	33	479	18

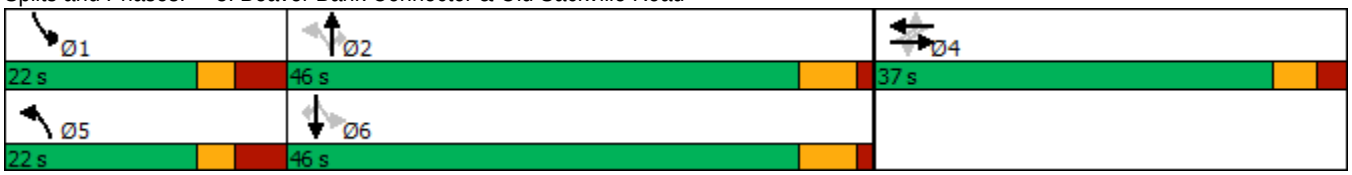
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
NOx Emissions (g/hr)		35		122	44		40	162	35	6	92	3
VOC Emissions (g/hr)		42		146	52		47	194	42	8	110	4
Dilemma Vehicles (#)		0		0	0		0	0	0	0	0	0
Queue Length 50th (m)		27.0		~73.9	39.8		25.1	70.1	0.0	3.4	34.8	0.0
Queue Length 95th (m)		48.7		#127.9	65.6		38.9	90.3	15.6	7.9	48.0	0.0
Internal Link Dist (m)		132.8			69.2			225.7			253.2	
Turn Bay Length (m)							60.0		70.0	50.0		80.0
Base Capacity (vph)		535		296	553		563	1803	995	455	1379	681
Starvation Cap Reductn		0		0	0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.41		1.09	0.51		0.47	0.51	0.38	0.09	0.34	0.06

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 103.8
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 29.0 Intersection LOS: C
Intersection Capacity Utilization 78.1% ICU Level of Service D
Analysis Period (min) 15

~ 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: Beaver Bank Connector & Old Sackville Road



Intersection	
Int Delay, s/veh	66.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	227	170	71	5	224	74	114	39	9	39	36	219
Future Vol, veh/h	227	170	71	5	224	74	114	39	9	39	36	219
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	247	185	77	5	243	80	124	42	10	42	39	238

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	323	0	0	185	0	0	1150	1051	224	998	972	283
Stage 1	-	-	-	-	-	-	718	718	-	293	293	-
Stage 2	-	-	-	-	-	-	432	333	-	705	679	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1237	-	-	1390	-	-	175	227	815	223	252	756
Stage 1	-	-	-	-	-	-	420	433	-	715	670	-
Stage 2	-	-	-	-	-	-	602	644	-	427	451	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1237	-	-	1390	-	-	~ 86	181	815	153	201	756
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 86	181	-	153	201	-
Stage 1	-	-	-	-	-	-	336	346	-	572	667	-
Stage 2	-	-	-	-	-	-	387	641	-	296	361	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.2	0.1	$ 420.7	39.7
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	104	1237	-	-	1390	-	-	406
HCM Lane V/C Ratio	1.693	0.199	-	-	0.004	-	-	0.787
HCM Control Delay (s)	$ 420.7	8.6	-	-	7.6	0	-	39.7
HCM Lane LOS	F	A	-	-	A	A	-	E
HCM 95th %tile Q(veh)	13.8	0.7	-	-	0	-	-	6.8

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	4:45	4:45	4:45	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2933	2937	2929	2843	2794	2798	2943
Vehs Exited	2949	2953	2894	2814	2825	2779	2930
Starting Vehs	50	60	44	40	57	37	37
Ending Vehs	34	44	79	69	26	56	50
Travel Distance (km)	1337	1331	1328	1287	1284	1267	1342
Travel Time (hr)	51.5	48.2	48.2	46.8	45.5	48.4	49.3
Total Delay (hr)	22.0	18.7	19.0	18.4	17.1	20.4	19.7
Total Stops	2219	2100	2131	1992	1953	2092	2123
Fuel Used (l)	136.7	133.5	132.6	129.6	127.1	129.5	135.1

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2860	2832	2802	2869
Vehs Exited	2848	2838	2789	2862
Starting Vehs	33	53	37	45
Ending Vehs	45	47	50	47
Travel Distance (km)	1304	1289	1272	1304
Travel Time (hr)	54.5	48.3	47.7	48.8
Total Delay (hr)	25.6	19.8	19.6	20.0
Total Stops	2125	2120	2044	2090
Fuel Used (l)	136.8	132.2	129.5	132.3

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	821	813	789	765	743	751	791
Vehs Exited	818	801	770	740	751	743	768
Starting Vehs	50	60	44	40	57	37	37
Ending Vehs	53	72	63	65	49	45	60
Travel Distance (km)	369	366	355	340	343	344	355
Travel Time (hr)	13.5	13.2	12.7	12.6	12.8	12.4	13.3
Total Delay (hr)	5.4	5.1	5.0	5.2	5.3	4.9	5.5
Total Stops	610	560	567	547	530	549	594
Fuel Used (l)	37.0	36.1	35.4	34.8	34.7	34.2	35.9

Interval #1 Information Recording

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	766	749	773	775
Vehs Exited	733	738	738	760
Starting Vehs	33	53	37	45
Ending Vehs	66	64	72	60
Travel Distance (km)	338	336	344	349
Travel Time (hr)	12.0	13.9	14.0	13.0
Total Delay (hr)	4.5	6.4	6.4	5.4
Total Stops	526	599	624	571
Fuel Used (l)	34.1	35.6	36.0	35.4

Interval #2 Information Recording

Start Time	5:15
End Time	5:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	733	688	683	683	664	700	668
Vehs Exited	744	717	700	717	665	700	683
Starting Vehs	53	72	63	65	49	45	60
Ending Vehs	42	43	46	31	48	45	45
Travel Distance (km)	337	318	319	322	304	316	313
Travel Time (hr)	13.0	12.0	11.1	11.5	10.3	11.9	10.8
Total Delay (hr)	5.5	4.9	4.1	4.3	3.5	4.9	3.9
Total Stops	542	495	459	448	441	527	474
Fuel Used (l)	34.2	32.4	31.5	32.2	29.5	32.5	30.5

Interval #2 Information Recording

Start Time	5:15
End Time	5:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	711	694	700	692
Vehs Exited	706	716	727	707
Starting Vehs	66	64	72	60
Ending Vehs	71	42	45	42
Travel Distance (km)	322	321	323	319
Travel Time (hr)	16.1	12.0	12.4	12.1
Total Delay (hr)	9.0	4.9	5.2	5.0
Total Stops	553	536	494	495
Fuel Used (l)	36.3	33.1	33.2	32.5

Interval #3 Information Recording

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	686	746	675	677	698	670	737
Vehs Exited	666	737	691	673	705	638	716
Starting Vehs	42	43	46	31	48	45	45
Ending Vehs	62	52	30	35	41	77	66
Travel Distance (km)	312	333	316	309	318	300	331
Travel Time (hr)	12.3	11.9	10.8	10.8	11.0	11.6	12.8
Total Delay (hr)	5.4	4.5	3.8	4.1	4.0	5.1	5.5
Total Stops	522	545	473	495	480	472	531
Fuel Used (l)	32.3	33.4	30.6	30.7	31.6	30.1	33.9

Interval #3 Information Recording

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	697	669	656	690
Vehs Exited	723	675	651	689
Starting Vehs	71	42	45	42
Ending Vehs	45	36	50	47
Travel Distance (km)	329	307	296	315
Travel Time (hr)	14.7	10.5	10.3	11.7
Total Delay (hr)	7.5	3.7	3.8	4.7
Total Stops	532	452	456	496
Fuel Used (l)	35.2	30.3	29.4	31.8

Interval #4 Information Recording

Start Time	5:45
End Time	6:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	693	690	782	718	689	677	747
Vehs Exited	721	698	733	684	704	698	763
Starting Vehs	62	52	30	35	41	77	66
Ending Vehs	34	44	79	69	26	56	50
Travel Distance (km)	319	314	338	316	319	308	344
Travel Time (hr)	12.6	11.2	13.6	11.9	11.3	12.4	12.3
Total Delay (hr)	5.6	4.2	6.1	4.9	4.3	5.5	4.7
Total Stops	545	500	632	502	502	544	524
Fuel Used (l)	33.2	31.6	35.0	31.8	31.2	32.7	34.7

Interval #4 Information Recording

Start Time	5:45
End Time	6:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	686	720	673	707
Vehs Exited	686	709	673	707
Starting Vehs	45	36	50	47
Ending Vehs	45	47	50	47
Travel Distance (km)	316	325	309	321
Travel Time (hr)	11.7	11.9	11.0	12.0
Total Delay (hr)	4.7	4.7	4.2	4.9
Total Stops	514	533	470	528
Fuel Used (l)	31.3	33.2	31.0	32.6

3: Beaver Bank Connector & Old Sackville Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	0.2	0.0	0.0	0.0	2.4	0.5	2.4	3.3	0.1	3.2
Total Delay (hr)	0.2	0.7	0.1	4.2	1.1	0.1	1.1	3.3	0.4	0.2	2.3	0.0
Total Del/Veh (s)	32.0	31.7	4.0	49.5	29.4	4.3	16.4	13.9	4.1	15.4	19.6	2.7
Stop Delay (hr)	0.1	0.6	0.0	3.9	1.0	0.1	0.8	2.2	0.0	0.1	1.9	0.0
Stop Del/Veh (s)	28.2	26.5	0.9	46.1	25.4	2.2	12.0	9.6	0.2	12.5	15.7	0.0

3: Beaver Bank Connector & Old Sackville Road Performance by movement

Movement	All
Denied Delay (hr)	0.6
Denied Del/Veh (s)	0.8
Total Delay (hr)	13.7
Total Del/Veh (s)	18.3
Stop Delay (hr)	10.8
Stop Del/Veh (s)	14.4

6: Walker Avenue/Downsview Drive & Old Sackville Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	0.3	0.3	0.2	0.2	0.3	0.5	0.7	0.6
Total Delay (hr)	0.5	0.3	0.1	0.0	0.2	0.0	0.7	0.2	0.0	0.2	0.2	1.0
Total Del/Veh (s)	8.2	6.2	7.4	3.7	3.1	1.6	22.3	20.0	17.2	22.8	23.9	17.6
Stop Delay (hr)	0.2	0.1	0.1	0.0	0.1	0.0	0.6	0.2	0.0	0.2	0.2	1.0
Stop Del/Veh (s)	3.2	1.7	3.1	1.2	1.3	0.9	19.8	15.9	16.2	19.9	19.5	16.6

6: Walker Avenue/Downsview Drive & Old Sackville Road Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.2
Total Delay (hr)	3.7
Total Del/Veh (s)	10.9
Stop Delay (hr)	2.7
Stop Del/Veh (s)	7.9

Total Network Performance

Denied Delay (hr)	0.7
Denied Del/Veh (s)	0.9
Total Delay (hr)	19.3
Total Del/Veh (s)	23.9
Stop Delay (hr)	13.9
Stop Del/Veh (s)	17.2

Intersection: 3: Beaver Bank Connector & Old Sackville Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	T	R	L	T	T
Maximum Queue (m)	51.4	78.5	71.8	62.2	80.1	68.1	27.9	23.1	58.1	51.3
Average Queue (m)	15.8	54.2	23.9	27.6	43.7	34.0	1.4	5.1	33.4	21.5
95th Queue (m)	36.9	83.6	52.8	52.8	69.4	59.6	16.3	15.5	54.5	44.1
Link Distance (m)	142.9	75.1	75.1		238.6	238.6			264.7	264.7
Upstream Blk Time (%)		6	0							
Queuing Penalty (veh)		16	1							
Storage Bay Dist (m)				60.0			70.0	50.0		
Storage Blk Time (%)				0	1	0	0	0	1	
Queuing Penalty (veh)				0	3	0	0	0	0	

Intersection: 6: Walker Avenue/Downsview Drive & Old Sackville Road

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	LTR	LTR	LTR
Maximum Queue (m)	30.3	34.5	39.4	49.3	70.7
Average Queue (m)	11.7	2.7	4.7	19.9	27.4
95th Queue (m)	23.4	22.4	23.0	38.8	60.5
Link Distance (m)		75.1	113.2	91.8	113.8
Upstream Blk Time (%)		0			1
Queuing Penalty (veh)		0			0
Storage Bay Dist (m)	40.0				
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Network Summary

Network wide Queuing Penalty: 22

Intersection: 3: Beaver Bank Connector & Old Sackville Road

Phase	1	2	4	5	6
Movement(s) Served	SBL	NBTL	EBWB	NBL	SBTL
Maximum Green (s)	15.0	40.0	31.0	15.0	40.0
Minimum Green (s)	7.0	7.0	7.0	7.0	7.0
Recall	None	Max	None	None	Max
Avg. Green (s)	8.0	52.5	28.2	11.4	41.0
g/C Ratio	-0.01	NA	NA	-0.01	NA
Cycles Skipped (%)	68	0	0	8	0
Cycles @ Minimum (%)	24	0	0	14	0
Cycles Maxed Out (%)	0	100	61	22	100
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0