June 4, 2019

Ramar Developments
66 Temple Terrace
Lower Sackville, NS B4C 0A7
Attn: Chris Marchand

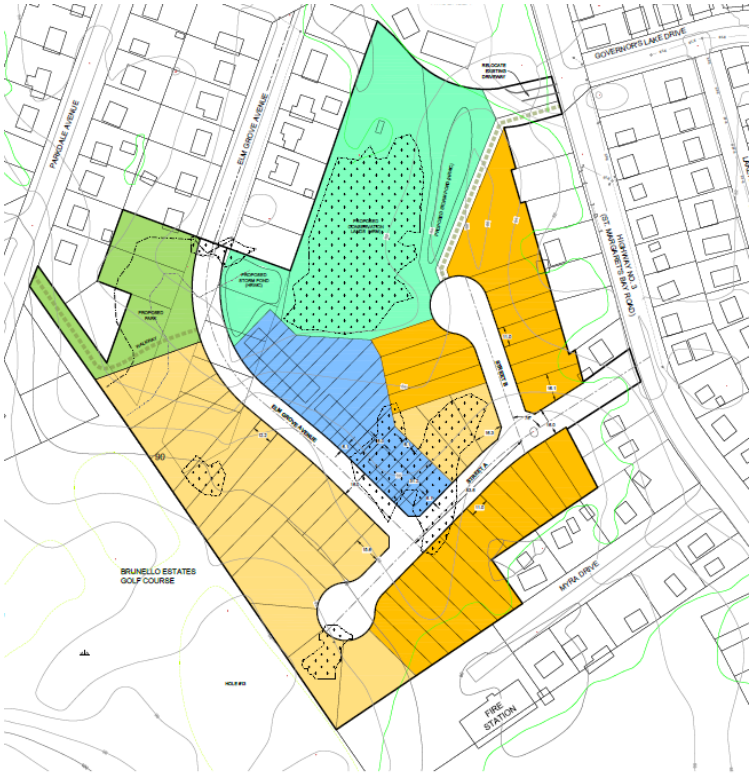
RE: Traffic Impact Statement for Elm Grove Residential Development, Timberlea, NS
DesignPoint Project #: 18-029

Introduction

Project Overview

A residential development is planned for the parcel PID 40143380 on St. Margaret's Bay Road. This existing property has an area of approximately 15 acres. The concept plan for the development includes a new connection to St. Margaret's Bay Road (near Myra Drive) and an extension to the existing Elm Grove Avenue.

The proposed development includes 46 new detached single-family homes and 20 new townhouse units, for a total of 66 new residential units. A site plan of the proposed development is shown to the right.



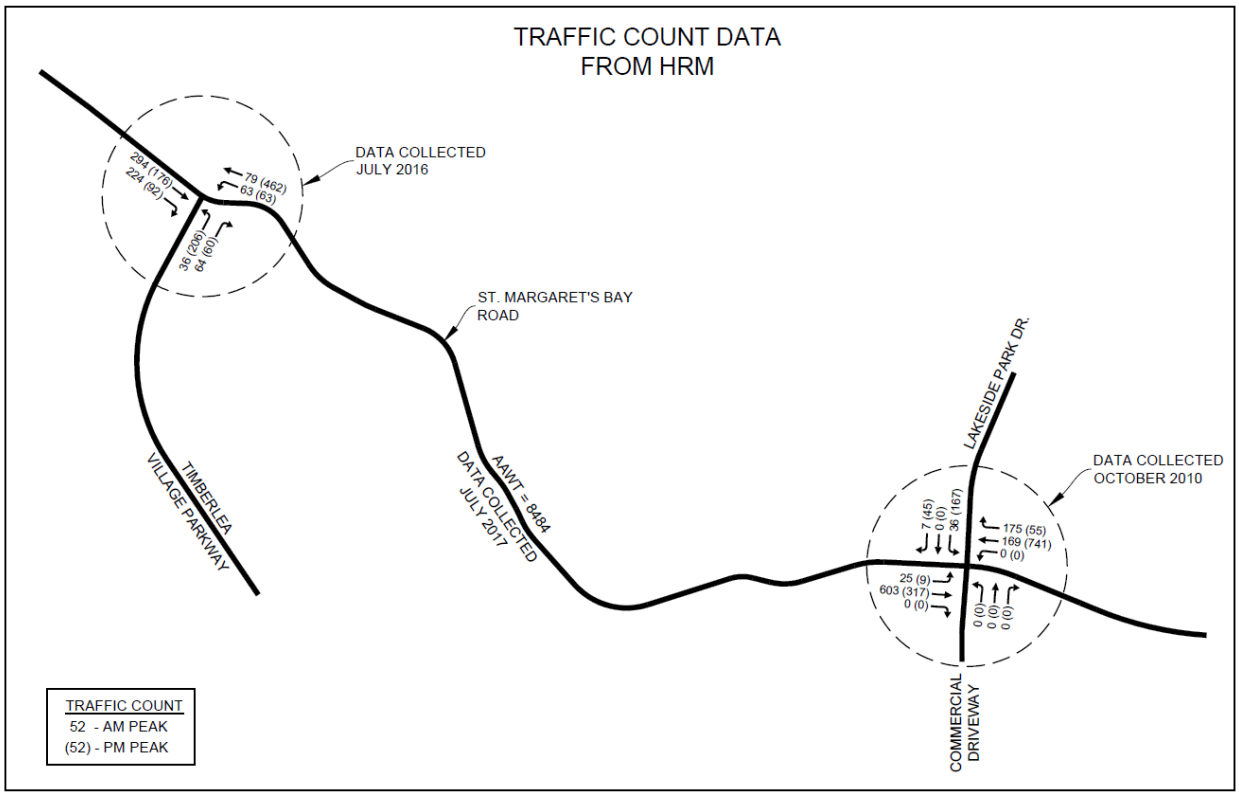
Existing Conditions

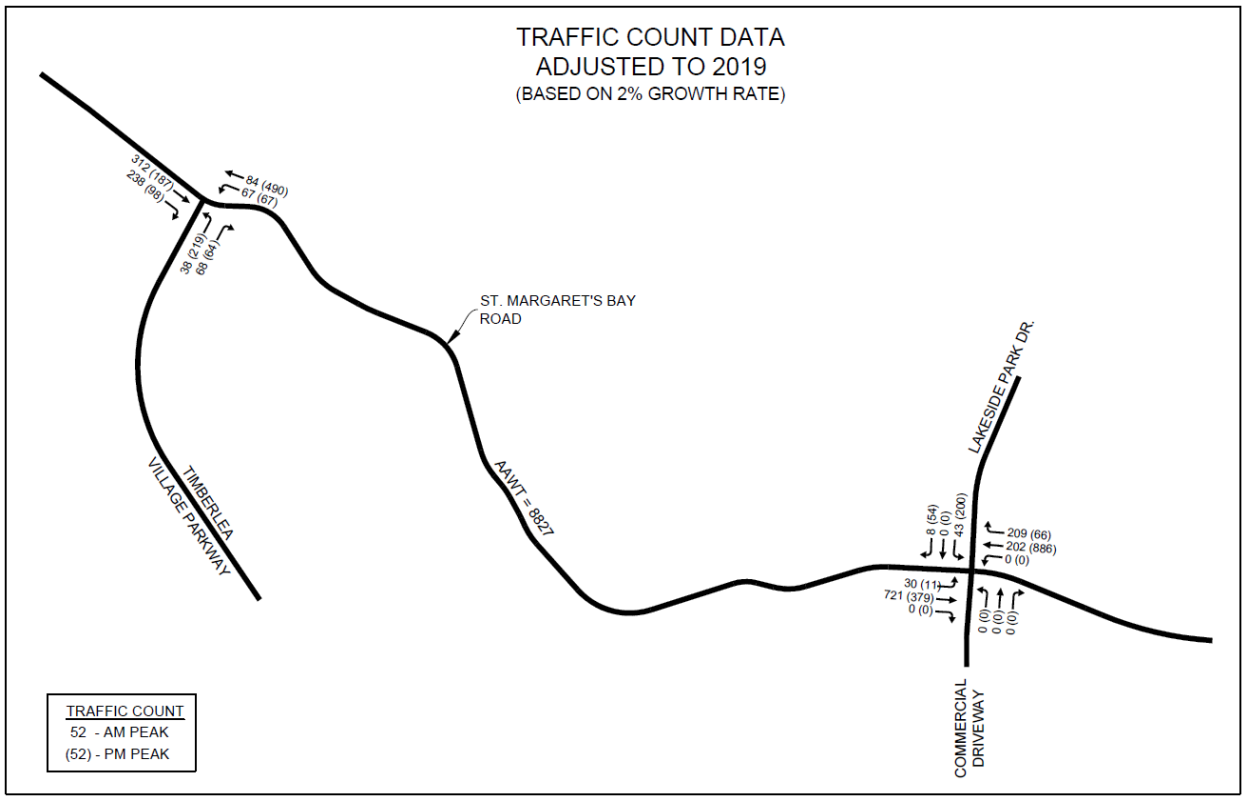
Study Area Road Network

The proposed development connects to St. Margaret's Bay Road near Myra Road, generally located between Brunello Subdivision (Timberlea Village Parkway) and Lakeside Industrial Park (Lakeside Park Drive). Lakeside Park Drive has the nearest signalized intersection. Timberlea Village Parkway offers a connection to the provincial Highway 103.

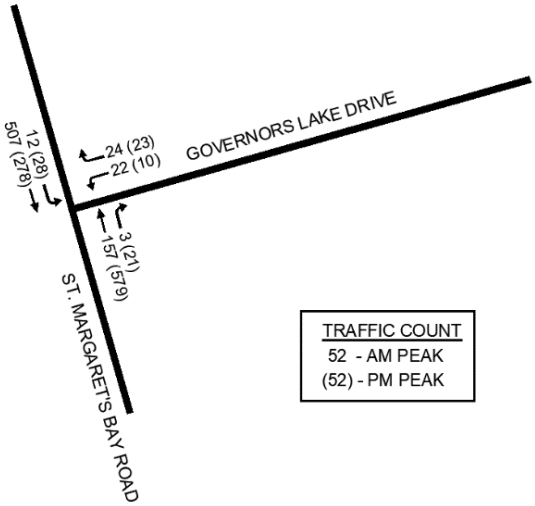
Existing Traffic Data

Existing traffic data was obtained from HRM for this project area. Turning movement counts data from July 2016 and October 2010 were available for the intersections of St. Margaret's Bay Road at Timberlea Village Parkway and Lakeside Park Drive, respectively. Two-way traffic volume data was available for St. Margaret's Bay Road between Timberlea Village Parkway and Lakeside Park Drive from July 2017. These volumes have been adjusted with a 2% annual growth rate to provide a reasonable estimate of 2019 volumes.


TRAFFIC COUNT DATA
FROM HRM
DATA COLLECTED
JULY 2016
294 (176)
224 (92)
79 (462)
63 (63)
36 (206)
64 (60)
ST. MARGARET'S BAY
ROAD
AAWT = 8484
DATA COLLECTED
JULY 2017
TIMBERLEA
VILLAGE PARKWAY
LAKESIDE PARK DR.
DATA COLLECTED
OCTOBER 2010
7 (45)
0 (0)
36 (167)
175 (55)
169 (741)
0 (0)
25 (9)
603 (317)
0 (0)
0 (0)
0 (0)
0 (0)
COMMERCIAL
DRIVEWAY
TRAFFIC COUNT
52 - AM PEAK
(52) - PM PEAK

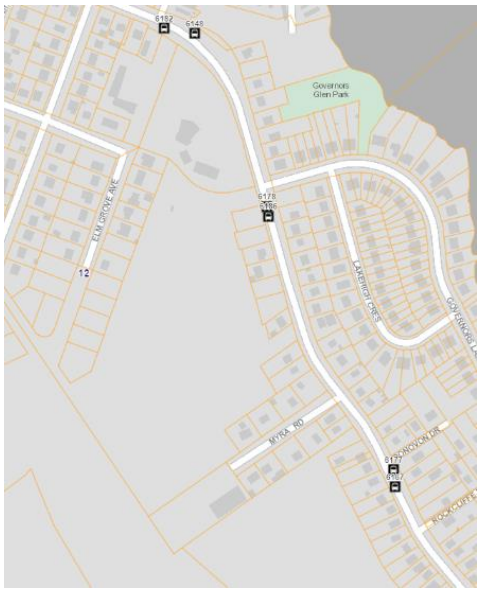

TRAFFIC COUNT DATA
ADJUSTED TO 2019
(BASED ON 2% GROWTH RATE)
312 (187)
238 (98)
84 (490)
67 (67)
38 (219)
68 (64)
ST. MARGARET'S BAY
ROAD
AAWT = 8827
TIMBERLEA
VILLAGE PARKWAY
LAKESIDE PARK DR.
8 (54)
0 (0)
43 (200)
209 (66)
202 (886)
0 (0)
30 (11)
721 (379)
0 (0)
0 (0)
0 (0)
0 (0)
COMMERCIAL
DRIVEWAY
TRAFFIC COUNT
52 - AM PEAK
(52) - PM PEAK

Additional traffic volume data counts were collected in the area of the proposed development at the intersection of St. Margaret's Bay Road and Governors Lake Drive. These results are shown below:



Active Transportation and Transit

There is existing curb and sidewalk located on the north side of St. Margaret's Bay Road, and gravel shoulders on the south side of the road. This section of St. Margaret's Bay Road has been identified on HRM's Active Transportation Priorities Plan for a future bikeway.



Halifax Transit has bus stops located to the north and south of the proposed road access. These bus stops have regular service by Route 21 "Timberlea" as well as peak weekday service by the express Route 123 "Timberlea Express".

Proposed Residential Development

Trip Generation

To determine the trip generation for the proposed development, rates were used based on the information provided in the *Institute for Transportation Engineer's Trip Generation Manual 10th Edition.* The following land use codes were used for the project trip generation:

- Land Use Code 210: **Single-Family Detached Housing**. The ITE Trip Generation Manual provides the following land use description, "Single-Family detached housing includes all single-family detached homes on individual lots. A typical site surveyed is a suburban subdivision."
- Land Use Code 220: **Multifamily Housing (Low-Rise)**. The ITE Trip Generation Manual provides the following land use description, "Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least here other dwelling units and that have one or two levels."

Based on these land uses, the following trip generation volumes were developed:

ITE Land Use	# Units	AM				PM			
		Trip Rate	In	Out	Total	Trip Rate	In	Out	Total
Single Unit Dwellings	46	0.76	26%	74%	35	1.00	64%	36%	46
			9	26			29	17	
Townhouse Dwellings	20	0.56	28%	72%	11	0.67	59%	41%	13
			3	8			8	5	
Total	**66**		**12**	**34**	**46**		**37**	**22**	**59**

Trip Distribution

The new trips associated with this residential development have been distributed based on the observed patterns at the intersection of St. Margaret's Bay Road and Governors Lake Drive. This is a reasonable assumption as the Governors Lake Drive intersection is in close proximity to the proposed roadway access and the split can be assumed to be similar. For the purposes of this study, we have assumed that all traffic generated by the residential development exits and enters the proposed development via the St. Margaret's Bay Road access, rather than via Elm Grove connection. This is a reasonable conservative assumption. The small volume of residents choosing to travel via Elm Grove/Parkdale Avenue may also be made up for with volume of existing residents living on Elm Grove Avenue who may choose to use this new access.

The distribution percentages used are as follows:

Direction	Via	AM Peak		PM Peak	
		Entering	Leaving	Entering	Leaving
North	St. Margaret's Bay Road	80%	50%	50%	70%
South	St. Margaret's Bay Road	20%	50%	50%	30%

Active Transportation and Transit

The proposed roadways are planned to be urban local roadways. As per HRM's Redbook standard these roadways will include sidewalk on one side of the road. Additional walkways have been proposed that would connect the 'Street B' cul-de-sac bulb to St. Margaret's Bay Road, as well as a walkway connection from the Elm Grove Avenue extension segment and Parkdale Avenue. This will offer convenient pedestrian access for residents to access the Transit stops on St. Margaret's Bay Road.

Proposed Road Location

A new road has been proposed to access the proposed development that will connect to St. Margaret's Bay Road. This provides a separation of approximately 85 m to Myra Road towards the south, and approximately 160 m to Governors Lake Drive towards the north.

Based on HRM's road classification map, St. Margaret's Bay Road is classified as an Arterial Road and as such, HRM Design Standards indicates that intersections require a minimum separation of 500 m. It is our understanding that this does not reflect HRM's current vision for St. Margaret's Bay Road. This section of St. Margaret's Bay Road is serviced by transit and is identified as a desired bike route on Halifax's AT plan. With Halifax's Integrated Mobility Plan aiming to have more people choose modes of transportation beyond single occupancy vehicles, St. Margaret's Bay Road is poised to serve as more than just a transportation 'link' to facilitate high volumes and high-speed traffic, but also a place that road users choosing to walk or bike may feel more comfortable.

The proposed access is consistent with similar intersections in this area. There are a number of small residential roads in this area with intersection separations of less than 100 m. We believe that the intersection spacing is appropriate within this section of St. Margaret's Bay Road.

A sight distance review was completed on May 23, 2019 at the proposed road access location on St. Margaret's Bay Road (SMBR). This review followed NSTIR guidelines and used a driver eye height of 1.05 m and an object height of 0.15 m. The posted speed at this location is 50 km/h and so the review has been based on an operational speed of 60 km/h. The results of this review have been summarized in the following table:

Location	Direction	Average Approach Grade	Measured SSD	Required SSD (TAC)	Required SSD (NSTIR)	Adequate?
Proposed Road Access on SMBR	Northbound on SMBR (Outbound)	1%	130 m	85 m	82 m	Yes
	Southbound on SMBR (Inbound)	0%	295 m	85 m	83 m	Yes

Future Conditions Analysis

Overview of Volumes Added to Network

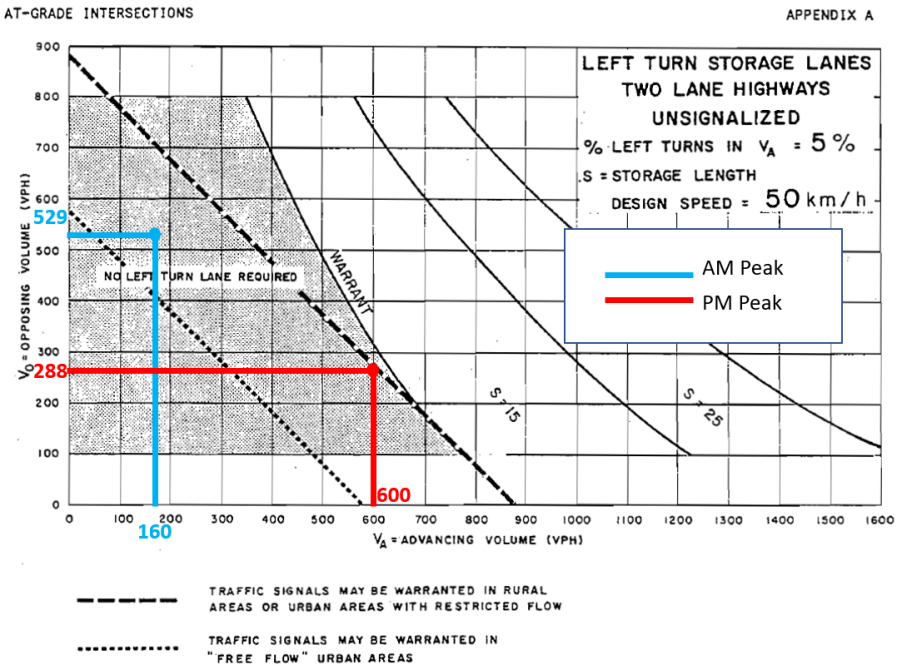
Based on the trip generation and distribution of these new trips. The additional traffic volumes added to the existing road network have been estimated as follows:

Direction	Via	AM Peak		PM Peak	
		Entering	Leaving	Entering	Leaving
North	St. Margaret's Bay Road	10	17	19	15
South	St. Margaret's Bay Road	2	17	19	7
Total		**12**	**34**	**37**	**22**

These volumes have been compared to those at the major intersections on St. Margaret's Bay Road at Timberlea Village Parkway and Lakeside Park Drive. The additional volumes are minimal relative to the existing volumes observed (3% or less in the peak direction).

Auxiliary Turn Lane Assessment

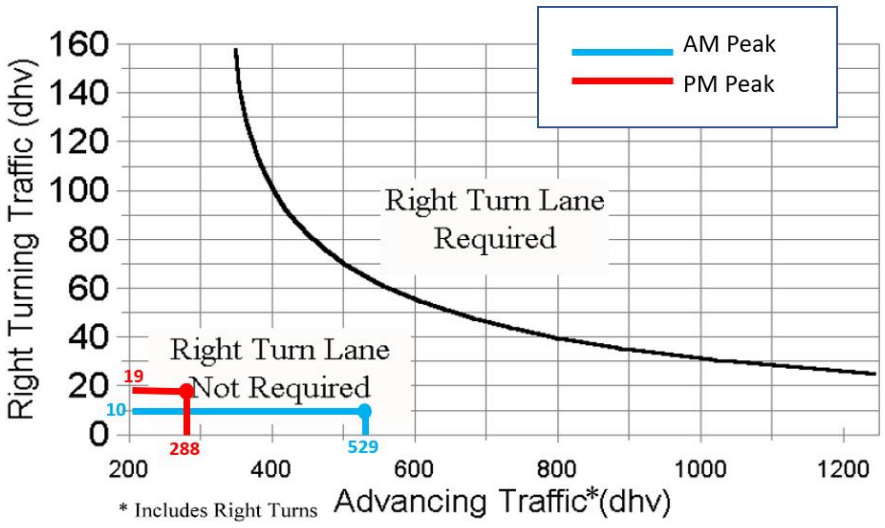
An auxiliary left turn lane analysis was completed for both AM and PM peak scenarios, based on the estimated trip generation and the traffic data collected at the intersection of St. Margaret's Bay Road and Governors Lake Drive. Neither of these scenarios warranted an auxiliary left turn lane. The PM scenario was close to the warrant but combined with a total percent of left turn being less than 5% of the advancing volume, it was determined this lane is not required. The left turn auxiliary lane warrant is shown on the following page:



A similar warrant analysis was conducted to determine if an auxiliary right turn lane is warranted to accommodate the trips generated by the residential development. Based on this analysis, the additional right turn lane is not warranted for either the AM or PM peak scenario, as shown below:

2-Lane Highway Right Turn Lane Warrant

=< 40 mph or 70 kph Posted Speed



Ohio Department of Transportation
State Highway Access Management Manual

Issued December 2001
Version 8-15-03 Page 44

Findings and Conclusions

Based on the analysis described above, the trips generated by this proposed residential development are relatively minor compared to the existing road volumes in the project area. St. Margaret's Bay Road experiences high traffic volumes during peak periods in the peak flow direction (inbound during the AM peak, outbound during the PM peak). The additional traffic loading associated with this development is not anticipated to have a major impact on these existing operations.

Thank you,
DesignPoint Engineering & Surveying Ltd.

Original Signed

Ellen Dalton, P.Eng.
Project Engineer & Principal

Enclosures:
Traffic volume counts for St. Margaret's Bay Road at Governors Lake Drive for May 27, 2019

MANUAL TRAFFIC COUNTS

Intersection: St. Margaret's Bay Road & Governors Lake Drive, Timberlea

Date: May 27, 2019 Weather: Foggy/Overcast, 8°

Day of the week: Monday Data collected by: BAW/ALM/SDW

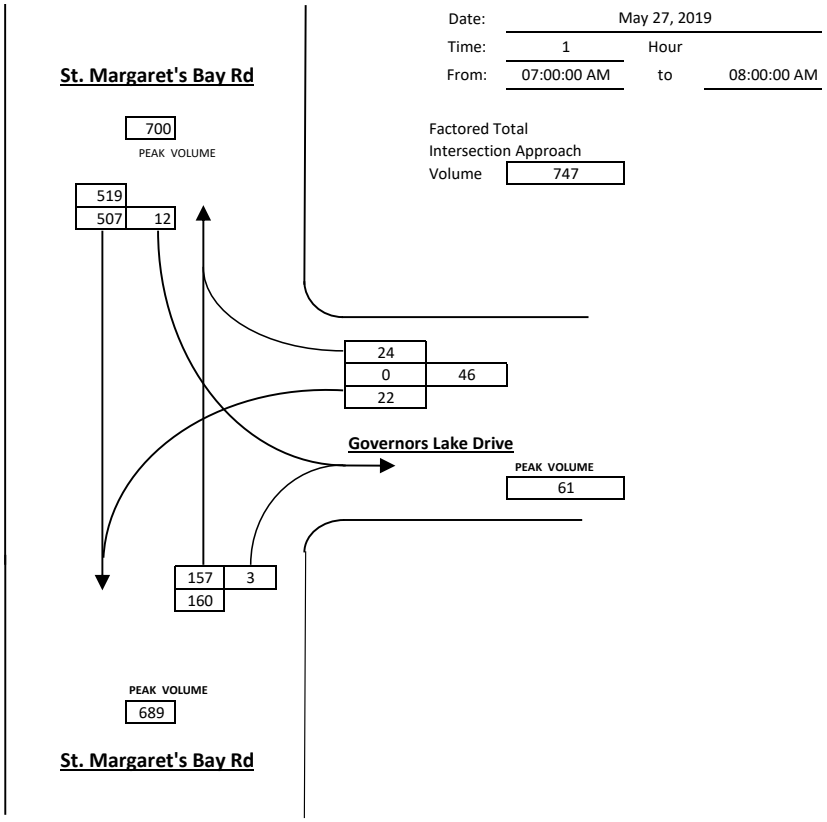
STREET:		Governors Lake Drive						St. Margaret's Bay Rd			St. Margaret's Bay Rd			
TIME:		FROM THE EAST						FROM THE NORTH			FROM THE SOUTH			TOTAL
15 MIN INTERVALS		L	S	R				L	S	R	L	S	R	
07:00 AM	07:15 AM	2	0	6				5	124			33	0	170
07:15 AM	07:30 AM	3	0	3				2	120			35	1	164
07:30 AM	07:45 AM	10	0	7				3	135			39	2	196
07:45 AM	08:00 AM	7	0	8				2	128			50	0	195
TOTAL		22	0	24				12	507	0	0	157	3	725
PEAK		46						519			160			
15 MIN PEAK		0						0			0			
PEAK HOUR FACTOR		0						0			0			
TWO WAY TOTALS		61						700			689			FACTOR
														1.03
														747

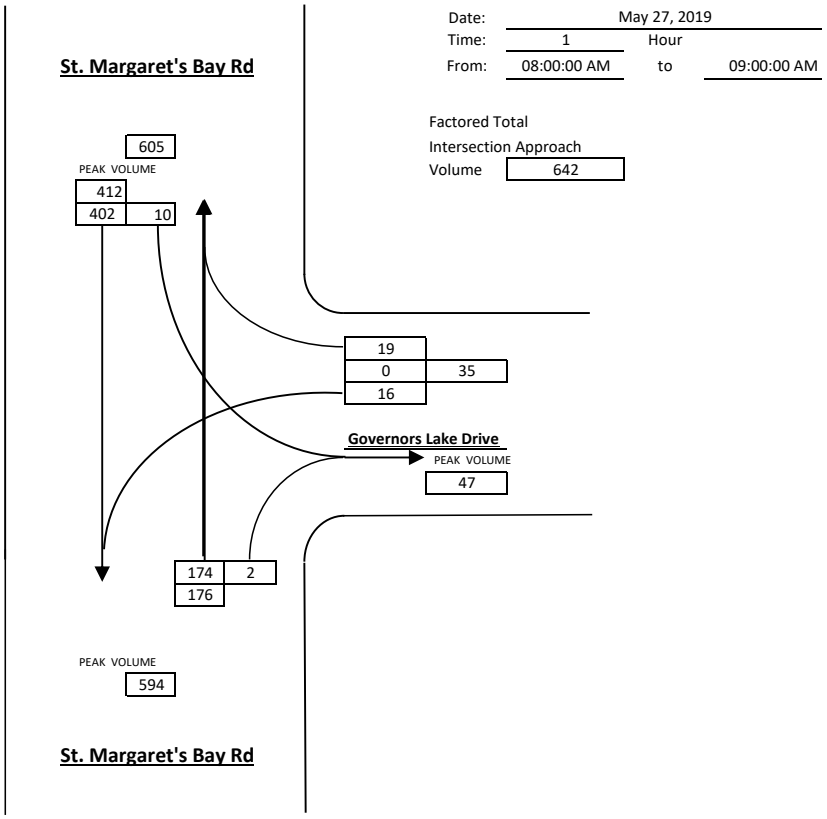
DAY	DATE	MONTH	YEAR
TUES.	5	JULY	2016

TIME:		FROM THE EAST						FROM THE NORTH			FROM THE SOUTH			TOTAL
15 MIN INTERVALS		L	S	R				L	S	R	L	S	R	
08:00 AM	08:15 AM	6	0	10				2	119			50	0	187
08:15 AM	08:30 AM	4	0	5				2	127			43	1	182
08:30 AM	08:45 AM	4	0	2				4	91			30	0	131
08:45 AM	09:00 AM	2	0	2				2	65			51	1	123
TOTAL		16	0	19				10	402	0	0	174	2	623
PEAK		35			0			412			176			
15 MIN PEAK		0			0			0			0			
PEAK HOUR FACTOR		0			0			0			0			
TWO WAY TOTALS		47			0			605			594			FACTOR
														1.03
														642

Vehicular Graphic Summary Sheet

Intersection: St. Margaret's Bay Road & Governors Lake Drive, Timberlea





MANUAL TRAFFIC COUNTS

Intersection: St. Margaret's Bay Road & Governors Lake Drive, Timberlea

Date: May 27, 2019 Weather: Foggy/Overcast, 8°

Day of the week: Monday Data collected by: BAW/ALM/SDW

STREET:		Governors Lake Drive						St. Margaret's Bay Rd			St. Margaret's Bay Rd			
TIME:		FROM THE EAST						FROM THE NORTH			FROM THE SOUTH			TOTAL
15 MIN INTERVALS		L	S	R				L	S	R	L	S	R	
04:00 PM	04:15 PM	2	0	5				2	66			148	3	226
04:15 PM	04:30 PM	0	0	5				4	63			170	4	246
04:30 PM	04:45 PM	2	0	3				4	67			170	4	250
04:45 PM	05:00 PM	3	0	5				6	57			147	6	224
TOTAL		7	0	18				16	253	0	0	635	17	946
PEAK			25						269			652		
15 MIN PEAK			0						0			0		
PEAK HOUR FACTOR			0						0			0		
TWO WAY TOTALS			58						922			912		FACTOR
														1.03
														974

DAY	DATE	MONTH	YEAR
TUES.	5	JULY	2016

TIME:		FROM THE EAST						FROM THE NORTH			FROM THE SOUTH			TOTAL
15 MIN INTERVALS		L	S	R				L	S	R	L	S	R	
05:00 PM	05:15 PM	2	0	12				7	70			169	6	266
05:15 PM	05:30 PM	1	0	6				11	73			169	4	264
05:30 PM	05:45 PM	4	0	1				6	72			115	6	204
05:45 PM	06:00 PM	3	0	4				4	63			126	5	205
TOTAL		10	0	23				28	278	0	0	579	21	939
PEAK			33			0			306			600		
15 MIN PEAK			0			0			0			0		
PEAK HOUR FACTOR			0			0			0			0		
TWO WAY TOTALS			82			0			908			888		FACTOR
														1.03
														967

Vehicular Graphic Summary Sheet

Intersection: St. Margaret's Bay Road & Governors Lake Drive, Timberlea