Lands of Garmar Investments Limited Traffic Impact Statement

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Prepared for

Mac Williams Engineering Limited

JRL consulting

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1.0 Introduction

1.1 Background

Mac Williams Engineering Limited is working on a proposal to develop a 4.1 acre property located at 1490 Main Road in Eastern Passage, Nova Scotia (PID 400044). Exhibit 1.1 shows the site in red in the context of the surrounding area in Eastern Passage.

Exhibit 1.1 – Lands of Garmar Investments Limited at 1490 Main Road in Eastern Passage, Nova Scotia



Source: Google Earth

The information provided for the proposed development shows two apartment buildings with 53 units each for a total of 106 apartments along with an 8,400 sqft Self Storage Facility with 20 units. The proposed site plan has 109 outdoor parking stalls for the apartment buildings and 12 stalls at the Self Storage Facility.

Access to the proposed development is shown through an existing right-of-way that connects to Main Road. There have been some discussions about access to the property through the existing Silvers Lane; however, this is a narrow, graveled private road that connects to Main Road very close to the intersection with Cow Bay Road and Shore Road.

Refer to Exhibit 1.2 for the survey plan and Exhibit 1.3 for the proposed site plan for the Lands of Garmar Investments Limited property at 1490 Main Road in Eastern Passage Nova Scotia as provided by Mac Williams Engineering Limited.

Exhibit 1.2 – Lands of Garmar Investments Limited Scotia Survey Plan

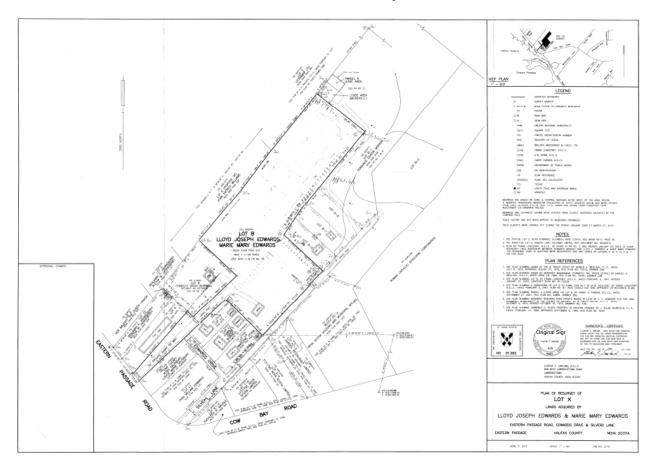
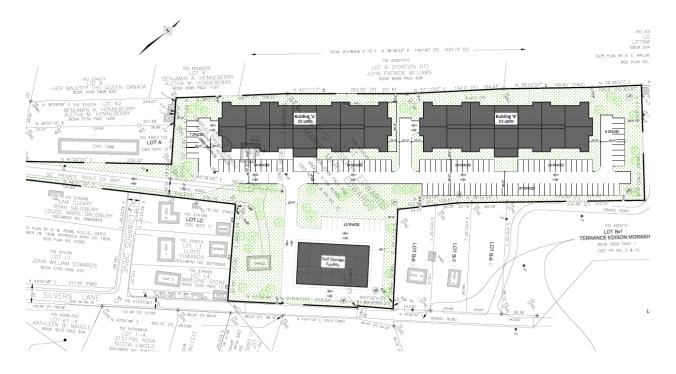


Exhibit 1.3 – Lands of Garmar Investments Limited Proposed Site Plan



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The property is currently zoned C2 (General Business) and it is located in the Eastern Passage/Cow Bay District. This zoning permits a number of commercial, residential and community uses for "as of right" development including Mini-Storage Warehouses and Multiple Unit Dwellings up to a maximum of 12 units per building including apartments.

A maximum lot coverage of 50% is permitted within a C2 zone and multiple buildings are also permitted on a single lot but these buildings cannot exceed a footprint of 7,500 square feet. The total area of the property is 4.108 acres or 178,945 square feet so 50% of this area is 89,472 square feet. If a building footprint of 6,000 sqft is assumed then the by-law would permit a total of 15 buildings (89,472/6,000). At 12 units per building this would equal a total of 180 residential apartment units on the property which is permitted by "as of right" development.

JRL consulting inc. was retained by Mac Williams Engineering Limited to prepare a Traffic Impact Statement (TIS) to assess the potential traffic impacts of the proposed development of the Lands of Garmar Investments in Eastern Passage, Nova Scotia.

The purpose of a Traffic Impact Statement is to provide a high level overview of a proposed development including estimates of site-generated traffic along with an initial review of existing traffic counts in the general area of the proposed development. This information will form part of the initial application to HRM which will be reviewed by staff and council. A detailed traffic impact study in accordance with Halifax Regional Municipality's *Guidelines for the Preparation of Transportation Impact Studies* may be required if the project proceeds to the next phase of the Development Application process.

We are pleased to submit this report which summarizes our findings and provides the information required by HRM for review.

2.0 Existing Traffic Conditions

2.1 Description

The principal route affected by this proposed development are Main Road (Route 322) which is called Cow Bay Road east of Shore Road. Exhibit 2.1 summarizes HRM's Characteristics of Street Classes.

Exhibit 2.1 - HRM Characteristics of Street Classes

Characteristic	Arterial Street	Major Collector	Minor Collector	Local Industrial	Local Street
Traffic Service Function Land Access Function	First Consideration Limited Access with no parking	Traffic movement primary consideration, land access secondary consideration, some parking	Traffic movement of equal importance with land access, parking permitted	Traffic movement secondary consideration with land access primary consideration, parking permitted	Traffic movement secondary consideration with land access primary consideration, parking permitted
3. Range of design traffic average daily volume	More than 20,000	12,000 to 20,000 or more	Up to 12,000	Less than 3,000	Less than 3,000
4. Characteristics of traffic flow	Uninterrupted flow except at signals; w/ pedestrian overpass	Uninterrupted flow except at signals and crosswalks	Interrupted flow	Interrupted flow	Interrupted flow
5. Average running speed in off-peak conditions	50-70 km/hr	40-60 km/hr	30-50 km/hr	15-30 km/hr	15-30 km/hr
6. Vehicle types	All types	All types but trucks may be limited	All types with truck limitation	All types	Passenger and service vehicles, transit buses; large vehicles restricted
7. Connects to	Expressways, arterials, major collectors, minor collectors	Expressways, arterials, major collectors, minor collectors, some locals	Arterials, major collectors, minor collectors, locals	Some major collectors, minor collectors, locals	Some major collectors, minor collectors, locals

Source: HRM's Municipal Service Systems Design Guidelines

Main Road is a major collector also known as Route 322 that connects Cow Bay, Eastern Passage and Shearwater to Dartmouth and Halifax. It contains single family homes, commercial and industrial land uses. It has one lane in each direction and there is no on-street parking permitted. There are asphalt sidewalks on both sides of Main Road near the proposed development and the posted speed limit is 50 km/hr.

The Main Road at Shore Road at Cow Bay Road intersection is a three-leg signalized intersection. It contains a dedicated left-turn storage lane on the Cow Bay Road approach along with channelized right turn lanes for both the Main Road and Shore Road approaches.

Refer to Exhibit 2.2 for photos of the Study Area around the proposed development of the Lands of Garmar Investments located at 1490 Main Road in Eastern Passage, Nova Scotia.

Exhibit 2.2 – Study Area Photos



1490 Main Road - Entrance to Lands of Garmar Investments Limited



Main Road Northwest View at Entrance to Lands of Garmar Investments Limited



Main Road Southeast View at Entrance to Lands of Garmar Investments Limited



Main Road at Cow Bay Road at Shore Road Intersection Northeastbound View



Main Road at Cow Bay Road at Shore Road Intersection Southeastbound view



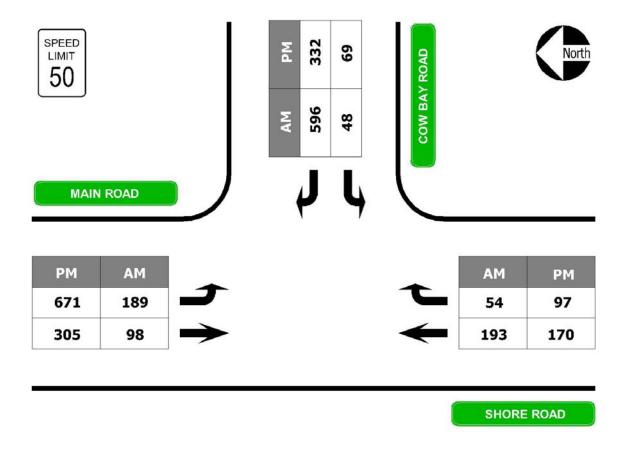
Silvers Lane (Adjacent to the Main Road at Cow Bay Road at Shore Road Intersection

2.2 Existing Traffic Volumes

We completed a site review of the proposed development and analyzed the existing transportation network in the general area. Main Road at Cow Bay Road at Shore Road is the key intersection near the proposed development.

HRM completed recent AM and PM peak hour manual turning movement counts at this intersection in 2010 and we added an annual background growth rate of 2% to estimate the current traffic at this intersection in 2013 as summarized in Exhibit 2.3.

Exhibit 2.3 – Main Road at Shore Road at Cow Bay Road Estimated Existing Traffic 2013



2.3 Existing Trip Distribution

HRM counts at the Main Road at Cow Bay Road at Shore Road intersection provide an accurate picture of current trip distribution in the study area and we expect that traffic generated by the proposed development at 1490 Main Road to follow similar patterns in the AM and PM peak hour periods with the majority of traffic heading towards Dartmouth and Halifax in the morning and then returning in the evening peak hour.

2.4 Transit and Pedestrians

The study area is serviced by Metro Transit through Route 60 Eastern Passage/Heritage Hills which runs every day with additional service during the AM and PM peak hour periods and also runs on holidays

There are asphalt sidewalks on both sides of Main Road within the area of the proposed development and we expect pedestrians will use these sidewalks in normal volumes for this area. There is a marked pedestrian crosswalk located just north of the proposed development.

2.5 Stopping Site Distance

As per the Transportation of Canada Geometric Design Guide for Canadian Roads, adequate stopping site distance "is essential for safe operation that the vehicle operator be able to see far enough ahead to stop if necessary. Conditions that would force a vehicle operator to stop are for example, an object on the roadway, a culvert washout or other fault in the roadway.

Adequate stopping site distance is required throughout the length of the roadway. Minimum stopping site distance is the sum of two distances namely:

Brake reaction distance

The distance travelled during the brake reaction time, that is the time that elapses from the instant an object, for which the driver decides to stop, comes into view to the instant the driver takes remedial action (contacts brake pedal).

• Braking distance

The distance travelled from the time that braking begins to the time the vehicle comes to a stop."

For a design speed of 50 km/h, the minimum stopping site distance is 65 m.

We reviewed stopping site distances to the north and south on Main Road at the proposed entrance to the development at 1490 Main Road during our site visit and found that the minimum distance of 65 m is exceeded both directions. Refer to Exhibit 2.2 for site photos at the proposed site access point.

3.0 Site Generated Traffic

3.1 Trip Generation

The proposed development shows two apartment buildings with 53 units each for a total of 106 apartments along with an 8,400 sqft Self Storage Facility with 20 units. As discussed in the Introduction on Page 4, as-of-right development of a total of 180 residential apartment units would be permitted in a C2 zone under the terms of Land Use Bylaw for Eastern Passage. We estimated trips generated by both the theoretical as-of-right development and the proposed development as shown on the proposed site plan for the Lands of Garmar Investments Limited at 1490 Main Road in Eastern Passage, Nova Scotia.

We completed trip generation estimates using equations provided in Institute for Transportation Engineer's Trip Generation Manual Seventh Edition.

We used the following ITE Land Use Code to assess site generated trips for the permitted as-of-right residential development:

ITE Land Use 220 Apartment

"Apartments are rental dwelling units that are located within the same building with at least three other dwelling units, for examples quadraplexes and all types of apartment buildings." The unit of measurement for average vehicle trip ends is dwelling units.

Exhibit 3.1 – Estimated As-of-Right Site Generated Traffic Volumes with 180 Apartments

		AM PEAK			PM PEAK		
LAND USE	QUANTITY	TOTAL TRIPS	ENTER	EXIT	TOTAL	ENTER	EXIT
Apartment	100	148	25%	75%	113	63%	37%
	180		37	111		71	42
TOTAL		148	37	111	113	71	42

We used the following ITE Land Use Code to assess site generated trips for the proposed development:

ITE Land Use 220 Apartment

"Apartments are rental dwelling units that are located within the same building with at least three other dwelling units, for examples quadraplexes and all types of apartment buildings." The unit of measurement for average vehicle trip ends is dwelling units.

• ITE Land Use 151 Mini-Warehouse

"Mini-warehouses are buildings in which a number of storage units or vaults are rented for the storage of goods. They are typically referred to as "self-storage" facilities. Each unit is physically separated from other units and access is usually provided through and overhead door or other common access point." The unit of measurement for average vehicle trip ends is 1,000 Sqft Gross Floor Area.

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Exhibit 3.2 – Estimated Site Generated Traffic Volumes with Proposed Development

		AM PEAK				M PEAK			
LAND USE	QUANTITY	TOTAL TRIPS	ENTER	EXIT	TOTAL	ENTER	EXIT		
Apartment	106	87	25%	75%	71	63%	37%		
Apartment	100	87	22	65		45	26		
	8,400 sqft	t 1	59%	41%	2	51%	49%		
Mini-Warehouse			1	1		1	1		
TOTAL		88	23	66	71	45	26		

Traffic generated by the proposed self-storage facility will be minimal during the AM and PM hour periods. The proposed development of 106 apartment units in two buildings will create significantly less traffic than would be created by the theoretical "as-of-right" development of 180 apartments in 15 buildings (12 units per building). The variance is summarized below in Exhibit 3.3

Exhibit 3.3 – Variance between Proposed Development and the Potential As-of-Right Development

	AM PEAK			PM PEAK			
	TOTAL TRIPS	ENTER	EXIT	TOTAL	ENTER	EXIT	
TOTAL	-59	-14	-45	-42	-27	-16	

4.0 Conclusions and Recommendations

- This Traffic Impact Statement has provided a high level overview of the proposed development of the Lands of Garmar Investments at 1490 Main Road in Eastern Passage, Nova Scotia
- It includes an estimate of total new trips with theoretical "as-of-right" development of 180 apartments and the proposed development of 106 apartment units plus an 8,400 sqft Self Storage Facility with 20 units as well as an analysis of existing traffic volumes in the surrounding area.
- Based on ITE Trip Generation Rates, we estimate that the proposed development will generate net new traffic volumes of 88 vehicles in the AM peak hour and 71 vehicles in the PM peak hour.
- Our estimates of site generated traffic by the proposed development of 106 apartments and a selfstorage facility are less than our estimates for the potential "as-of-right" development of 180 apartments on this property located in a C2 zone by 59 vehicles in the AM peak hour and 42 vehicles in the PM peak hour.
- We do not recommend directing any traffic from the proposed development to the existing private Silvers Lane as this road is narrow, not constructed to HRM specifications and is located very close to the existing Main Road at Cow Bay and Shore Road intersection which will create conflicts with additional traffic entering and exiting Silvers Lane
- The location is well served by transit and we expect that actual trips generated may be less than those estimated by the ITE rates for an apartment building.
- New site generated traffic will most likely follow existing trip distribution patterns along Main Road and Cow Bay Road in the AM and PM peak hours.
- HRM may require that a detailed Traffic Impact Study be prepared if this project proceeds to properly
 assess the potential traffic impacts of the proposed development and to provide recommendations on
 how to introduce the traffic generated to the existing transportation network safely and efficiently.
- The traffic impact study would assess Level of Service (LOS) and Volume-to-Capacity Ratios at intersections within the defined study area and would also include traffic signal warrants, auxiliary turning lane warrants and traffic signal timing plan adjustments as required.