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Fall River, NS B2T 1R2

May 15, 2018

Chris Boudreau, P.Eng.
Manager Engineering
Strum Consulting
Railside, 1355 Bedford Highway
Bedford, NS B4C 1C5

RE: A Traffic Impact Statement for the newly proposed Fall River South Development

Dear Mr. Boudreau:

INTRODUCTION

At the request of *Strum Consulting*, the GRIFFIN transportation group inc. has carried out a qualitative Stage 1 - Traffic Impact Assessment in support of the planning application process for a proposed residential development located on Ingram Drive (PID's #40844375, #40551277, #00472910, #00472902, and #40551558) in the community of Windsor Junction, Halifax Regional Municipality (HRM). The proposed development will be comprised of seven buildings containing 142 medium density residential units. This includes two low-rise buildings (120 total units), and five low-rise condominium/townhome buildings (22 total units).

In 2016, GRIFFIN had prepared a traffic impact statement for a then proposed mixed-use development on these same lands with vehicle access via Ingram Drive and Cobequid Road. The developer has changed both the land use types and vehicle access since then, and as such, GRIFFIN has prepared a new traffic impact statement to assess the new development now being contemplated – focused only a residential land use type with one access to Ingram Drive.

The subject lands measure about 29 acres and are generally bounded by the terminus of Ingram Drive, an active railway line to the south and the Highway 102 right-of-way to the east. Access to the development will be provided via an extension of Ingram Drive to the south by about 100m. These lands currently have a zoning designation of Residential Comprehensive Development District (RCDD) within the Land Use By-law Planning Districts 14 / 17 (i.e. Shubenacadie Lakes Land Use By-law area) and is within the HRM Water Service Area. The site context is generally illustrated in *Figure 1.*

Figure 1: Study Area and Site Context

STUDY AREA AND SITE CONEXT

As shown in *Figure 1*, the subject lands are currently undeveloped. Ingram Drive will serve as the only access to/from the proposed development which is generally aligned in a north-south direction with a two-lane, two-way rural open ditch cross-section. It is under the jurisdiction of the HRM and appears to function as a minor collector road through the existing Fall River Village / Perry Lake Estates subdivision.

The major service area is assumed to be located to the west in Lower Sackville. Therefore, the main travel route in and out of this southern portion of the Fall River Village / Perry Lake Estates subdivision for the majority of current and future residents is comprised of the Ingram Drive/Winley Drive/Windsor Junction Road/Cobequid Road route.

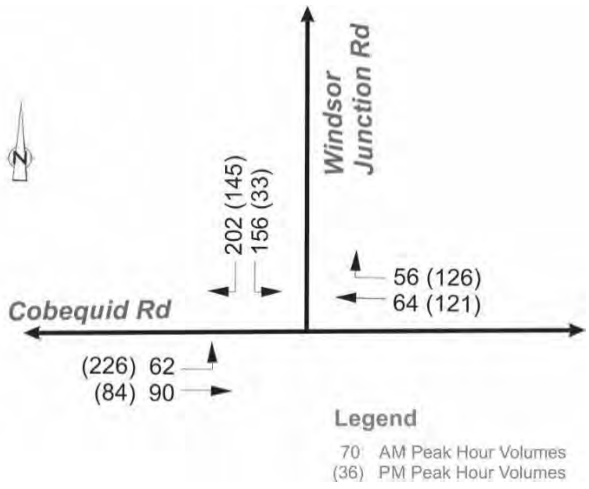
EXISTING TRAFFIC CONDITIONS

Since the proposed development will be comprised of new residential units and the surrounding road system experiences peak traffic demands during the typical commuter peak periods, it seemed reasonable to assume the highest overall study area volumes would occur during the weekday morning and afternoon peak periods. Therefore, these two peak times were selected and used in this assessment.

A site visit and data collection effort was carried out on Friday June 3rd, 2016 as part of the previous traffic impact assessment. The June 2016 data gathered at that time was used in this assessment

along with historical traffic volume data provided by HRM's Traffic Management group for the Cobequid Road/ Windsor Junction Road intersection. This intersection was selected due to its close proximity to the development, the expectation that it will accommodate the majority of the new site-generated traffic and due to the fact that it currently experiences the highest vehicle demand relative to any of the other near-by intersections. A summary of HRM's recorded 2014 peak hour traffic volumes at the Cobequid Road / Windsor Junction Road intersection is provided in *Figure 2*.

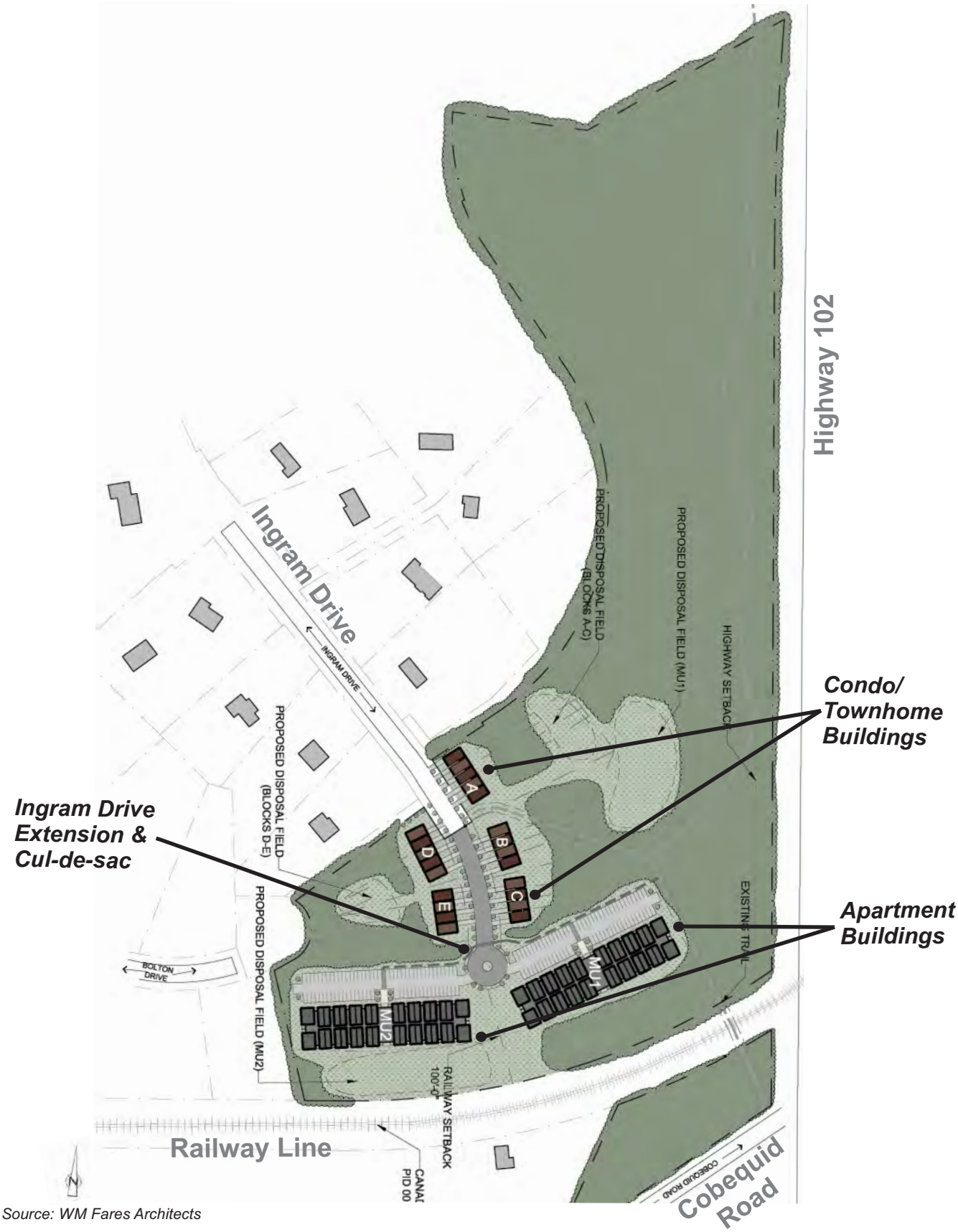
Figure 2: HRM's 2014 peak hour traffic volume data at the Cobequid Road / Windsor Junction Road Intersection



Considering the peak period volumes shown in *Figure 2* and the capacity provided by the two-lane, two-way roadways in the study area it appears there is residual capacity available in the Ingram Drive, Winley Drive, Windsor Junction Road and Cobequid Road corridors that can accommodate some future traffic growth.

SITE TRIP GENERATION

In order to assess the change in traffic volumes on the study area streets under future conditions, there was a need to estimate the number of new vehicles that would be entering and exiting the proposed development. This is referred to as the trip generation calculation process. Typically, traffic engineers use trip generation rates published by the Institute of Transportation Engineers (ITE) to forecast site-generated volumes for specific land use types, if deemed appropriate. As such, ITE's *Trip Generation, 9th Edition* document was used to identify the most appropriate land use type and trip rate for this study. As shown in the proposed site layout contained in *Figure 3* the residential units are planned to be medium-density and contained within seven separate low-rise buildings.



Source: WM Fares Architects

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Proposed Site Plan

Figure 3

Based on information that Strum provided from the developer, the following Table has been prepared to show the intended types of residential units within each building type along with the corresponding ITE land use code.

Table 1: Types of Proposed Residential Units

Buildings	Unit Type Being Built	ITE's Land Use Type
Buildings A to E	Low-rise condominium / townhomes (22 units)	LU Code 231: Condominium/Townhouse – Low-rise
Buildings MU1 and MU2	Low-rise rental apartments (120 units)	LU Code 220: Apartment – General

A summary of the AM and PM peak hour site-generated trips is provided in *Table 2*. The calculation results suggest the proposed medium-density residential development is expected to generate a total of 78 trips/hour (17 inbound and 61 outbound) during the weekday morning peak period and 101 trips/hour (65 inbound and 36 outbound) during the weekday afternoon peak period. This generally equates to an average of about one vehicle trip every minute during the morning peak and less than two vehicle trips every minute during the afternoon peak.

Table 2: Site Trip Generation for the Proposed Residential Development (vehicles/hour)

	Size	Trip Rate	New Vehicle Trips / Hour		
			In	Out	Total
AM Peak Hour					
Condominium/Townhome – Low-rise (231)	22 units	0.67/unit[A]	4 (25%)	11 (75%)	15
Apartment – General (220)	120 Units	0.53/unit[B]	13 (20%)	50 (80%)	63
AM Peak Total Trips			**17**	**61**	**78**
PM Peak Hour					
Condominium/Townhome – Low-rise (231)	22 units	0.78/unit[A]	10 (58%)	7 (42%)	17
Apartment – General (220)	120 Units	0.70/unit[B]	55 (65%)	29 (35%)	84
PM Peak Total Trips			**65**	**36**	**101**

A – ITE's average rate used. No regression formula provided for PM peak, likely due to the limited number of studies.
B – ITE's regression formula used.

TRAFFIC IMPACTS ON SURROUNDING STREETS

The qualitative assessment of the current peak hour traffic demands at the near-by Cobequid Road / Windsor Junction Road intersection was carried out based on the assumption that the majority of the site-generated trips will move to/from the Cobequid Road corridor. As discussed earlier in this letter the peak period traffic volumes observed using this intersection appear to be below the capacity for this type of suburban/rural facility and there were minimal delay times observed during the field review.

In addition, the forecast site-generated traffic associated with the proposed 142 residential units is expected to generate about one vehicle trip every minute during the morning peak and less than two vehicle trips every minute during the afternoon peak. Based on the findings of the field review observations it is expected that these new vehicle trips can be accommodated along the Ingram Drive, Winley Drive, Windsor Junction Road corridors as well as at the Cobequid Road / Windsor Junction Road intersection with only a marginal impact on traffic operations. Since this is only a qualitative Stage 1 impact assessment, no analytical capacity calculations have been carried out at this time.

FINDINGS & CONCLUSIONS

The following conclusions were gleaned from the qualitative traffic impact assessment of the proposed residential development:

- The proposed mixed-use development will be comprised of 142 medium-density residential units contained within 7 buildings. These include two 3-story buildings with 60 units each which will be built and marketed as rental apartments, plus five condominium/townhome buildings with 4-5 units each. Using appropriate trip rates for these types of residential units referenced from ITE's trip generation document, the proposed development is expected to generate 78 trips/hour (17 inbound and 61 outbound) during the weekday morning peak period and 101 trips/hour (65 inbound and 36 outbound) during the weekday afternoon peak period.
- The qualitative traffic operational assessment suggests there is residual capacity on the study area street system for some traffic growth and it appears the new traffic volumes generated by the proposed development are expected to only have a marginal impact on traffic operations.

In summary, the traffic generated by the proposed residential development is expected to have an acceptable level of impact on the traffic operating conditions along Ingram Drive, Winley Drive, Windsor Junction Road and the Windsor Junction Road/Cobequid Road intersection. Based on this assessment the following steps are recommended:

- That the design of the Ingram Drive extension and the site accesses to the proposed parking areas contained in the proposed development follow Transportation Association of Canada (TAC) and HRM design guidelines contained in the most recent edition of their Municipal Design Guidelines document. As part of the design process all new signage and pavement markings should be designed and installed in accordance with the most recent version of the *Manual of Uniform Traffic Control Devices for Canada* (MUTCDC).
- That HRM By-law requirements, including requirements for corner clearance and sight triangles are met to ensure both approaching and departing driver sightlines are maintained throughout the planning, design and construction phases of this project. This would include all driveway connections with public roads/streets, property accesses, and active transportation crossings.

CLOSING

The findings flowing from this qualitative traffic impact statement indicate the new site-generated trips associated with a proposed 142-unit medium density residential development are expected to have an acceptable level of impact on the study area streets and intersections. I would be happy to provide you with additional information or clarification regarding these matters and can be reached anytime by phone at (902) 266-9436 or by email at jcopeland@griffininc.ca.

Sincerely,

Originally Signed

James J. Copeland, P.Eng.
Managing Principal – Traffic & Road Safety Engineer
GRIFFIN transportation group inc.