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Att: Ron & Einat Omessi
ROMS KAIG Spryfield Ltd.
43 Paper Mill Ln
Bedford, NS B4A 3W5

RE: A Traffic Impact Statement for a proposed development at #519 Cow Bay Road

1.0 INTRODUCTION

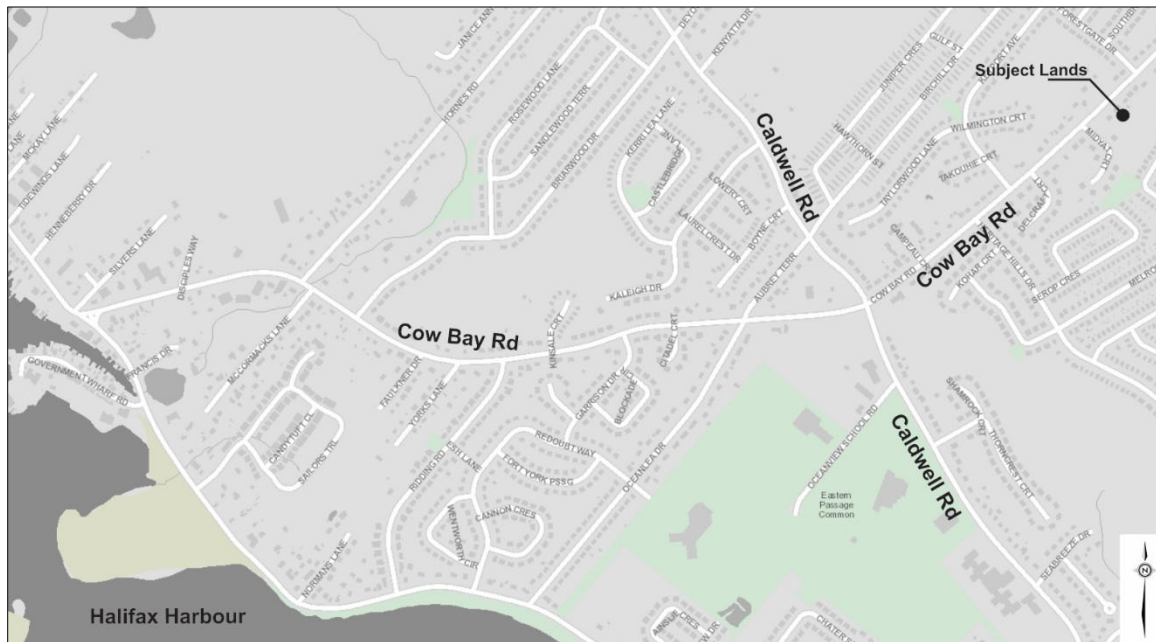
1.1 – Overview

At the request of *ROMS KAIG Spryfield Ltd. (ROMS KAIG)*, the GRIFFIN transportation group inc. has completed a qualitative Stage 1 traffic impact assessment in support of the planning approval process for a proposed re-development of civic #519 Cow Bay Road (PID #40082422), in the community of Eastern Passage, Halifax Regional Municipality (HRM). The subject lands are currently occupied by a detached dwelling unit (R1) and one accessory building. The property is generally located between Forestgate Drive and Midyat Court, on the south side of Cow Bay Road. The location of the subject property is shown in *Figure 1*.

This property measures about 0.52 acres in size and it appears to have a Two-unit Dwelling (R-2) zone designation within the *Eastern Passage / Cow Bay Land Use By-Law*. *ROMS KAIG* is proposing to replace the existing building structures with a new two-floor building that will contain up to 12 residential apartment-style units. The new residential building will be setback from the Cow Bay Road right-of-way by about 37m. A new off-street parking lot will be located between the street right-of-way and the new building and will contain up to 16 parking spaces.

The existing vehicle access is located near the northeast corner of the property. It will remain in the same location and continue to serve as the only driveway for the proposed new building and off-street parking area.

Figure 1: Existing Site Location



1.2 – Terms of Reference

The qualitative traffic impact assessment associated with the proposed development is discussed in the following Sections. Throughout the completion of this assessment GRIFFIN has followed HRM traffic impact study guidelines for a new development located in a suburban area, as well as Institute of Transportation Engineers (ITE), and Transportation Association of Canada (TAC) guiding principles.

2.0 STUDY AREA AND CURRENT TRAFFIC CONDITIONS

2.1 – Street Layout

Through the study area, Cow Bay Road is generally aligned in an east-west direction and forms the north boundary to the subject lands. It is considered to be one of the main commuter corridors in this area of the Municipality which connects area residents with the large employment areas in Dartmouth and Halifax.

Cow Bay Road has a two-lane, two-way semi-urban cross-section. The south side of the street has an urban cross section, including a marked bike lane, curb and gutter to manage drainage, and a concrete pedestrian sidewalk. The north side of the street has a rural cross-section that includes a gravel shoulder and open ditches to manage drainage. The Cow Bay Road pavement in the vicinity of the subject property measures about 7.5 m wide, including a narrow 1.2 m bicycle lane.

2.2 - Existing Traffic Volume Review

GRIFFIN completed a site visit on Tuesday October 4th, 2022 to observe existing traffic conditions in the vicinity of the subject property. At this time, GRIFFIN also installed an automatic traffic recording (ATR) unit to gather hourly traffic counts and vehicle speeds along Cow Bay Road, immediately east of the subject property. Data were gathered over a 32-hour time period for both travel directions, including the weekday AM and PM peak travel periods. It should be noted that schools located near the study area were open and operational at this time and the observed traffic conditions were considered to be representative of typical conditions. A summary of the weekday peak hour volumes traveling along Cow Bay Road in the vicinity of the subject property is provided in *Table 1*.

Table 1: Summary of Cow Bay Road Peak Hour Traffic Volumes – October 2022

	Eastbound (outbound)	Westbound (inbound)	Total Volume (two-way)
Weekday AM Peak Hour	180 vph	313 vph	493 vph
Weekday PM Peak Hour	287 vph	271 vph	558 vph

vph – vehicles per hour

The weekday peak hourly flow along Cow Bay Road near the civic #519 driveway was observed to be between 490 vehicles / hour (vph) and 560 vph. Hourly traffic flows of this magnitude equate to approximately 5,000-6,000 vehicles / day (vpd).

Although the Transportation Association of Canada (TAC) does not provide guidance with respect to the absolute maximum capacity of streets, they provide typical volumes expected for several roadway classification types. The latest TAC geometric design guidelines suggest that collector streets typically accommodate up to 8,000 vpd and minor arterial streets typically accommodate up to 20,000 vpd. Again, these are guidelines for typical volumes and the expected maximum capacity values would be higher.

In conclusion, the observed weekday demand of 5,000-6,000 vpd is well below the expected capacity of a collector street and significantly below that of a minor arterial street. This suggests there is a substantial amount of residual capacity in the Cow Bay Road corridor to accommodate future traffic growth.

2.3 - Vehicle Operating Speed Data

GRIFFIN's ATR unit also recorded vehicle operating speeds along Cow Bay Road. These speed recordings were assembled and an 85th percentile vehicle speed was calculated. This value has

been identified as a reasonable “design” speed that is used by many road agencies across North America to set regulatory speed limits on roadways.

The calculated 85th percentile vehicle operating speed on Cow Bay Road was determined to be about 62 km/h. As such, 60 km/h was chosen as the design speed for the sight distance assessment that is discussed later in Section 3.3. It should be noted that the regulatory posted speed limit is 50 km/h.

2.4 – Pedestrian and Active Transportation Facilities

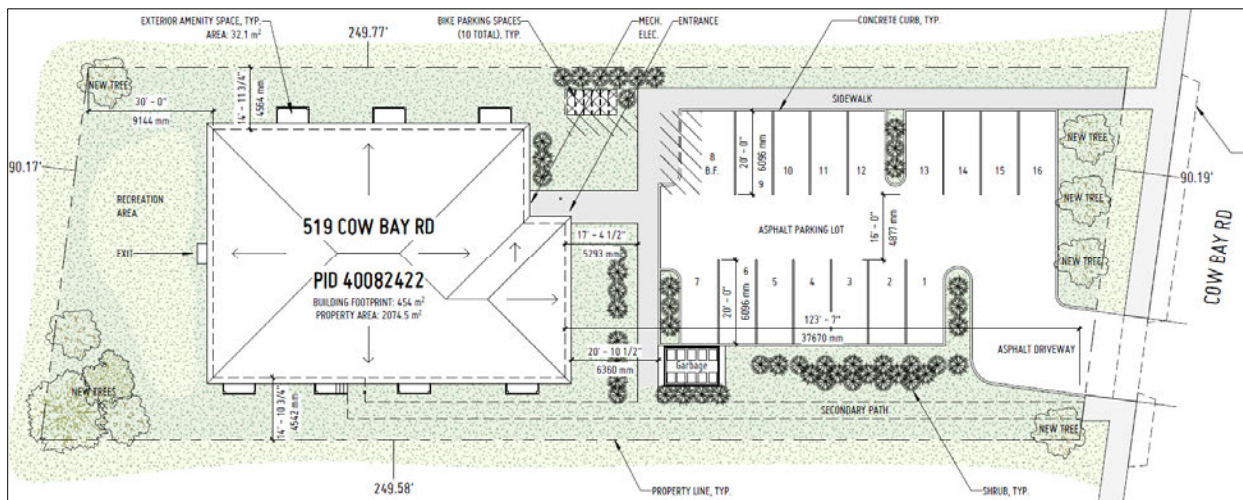
Pedestrian sidewalks are provided along the south side of Cow Bay Road and across the frontage of the subject property. A marked and signed pedestrian crosswalk is also located about 80 m to the east, accommodating pedestrian movements across the Cow Bay Road corridor. Therefore, the future residents within the proposed development have access to good pedestrian connectivity and access to public transit bus stops.

3.0 THE PROPOSED DEVELOPMENT

3.1 – Overview

The proposed new building will contain up to 12 new apartment-style residential units. The location of the new building and off-street parking area is contained in *Figure 2*.

Figure 2: Proposed Site Layout



Source: Jarsky Architects

3.2 – Proposed Site Driveway Visibility

A driver sight distance review was carried out at the existing driveway location. As shown in *Figure 2* this driveway location will remain in place and serve the proposed development. The visibility review applied the guidelines contained in the latest Transportation Association of Canada's (TAC) Geometric Design Guide for Canadian Roads document (2017) as well as the Nova Scotia Department of Transportation's field measurement best practices. At this early stage of the planning process only the minimum visibility requirement was assessed for drivers approaching the access. This is referred to as stopping sight distance (SSD). The provision of adequate SSD for vehicles traveling on the main roadway ensures drivers have sufficient forward visibility to identify a hazard in the roadway, and if needed, bring their vehicle to a stop. A summary of the SSD assessment is provided in *Table 2*.

Table 2: Existing Driveway Stopping Sight Distance Measurements (60 km/h)

Measurement Location	Travel Direction	Available SSD	TAC Required SSD		Does Available Exceed Required?
			Base ^A	Slope Adjusted	
1. Existing Civic #519 Access (as shown in <i>Figure 3</i>)	Eastbound (outbound)	87.5 m	85 m	87 m (-3%) ^B	Yes
	Westbound (inbound)	>120 m	85 m	80 m (+3%) ^B	Yes

A – 2017 TAC Chapter 2, Table 2.5.2

B – An estimate of the actual slope along Cow Bay Road on the approaches to the new access.

The field measurements were recorded by GRIFFIN using a driver eye height of 1.05 m and an object/hazard height of 0.60 m. The 0.60 m object was placed at the approximate centre of the existing driveway. As noted in earlier in Section 2.3 a 60 km/h design speed was applied to the visibility review.

The results in *Table 2* suggest that the existing civic #519 access location provides sufficient stopping sight distance along Cow Bay Road, in both directions. Therefore, this is a suitable location and can serve the proposed development.

The driver visibility along Cow Bay Road from the perspective of the existing civic #519 driveway is shown in *Figure 3*.

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Figure 3: Driver Views Along Cow Bay Road at #519 Access



Looking East along Cow Bay Road, towards Eastern Passage.



Looking West along Cow Bay Road, towards Lawrencetown.

4.0 VEHICLE TRIP GENERATION

To assess the change in traffic volumes on the study area streets under future conditions, there was a need to determine the number of new vehicles added by the completion of 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), in the most recent *Trip Generation, 11th Edition* document. Based on information provided by the client, a two-floor building containing a total of 12 apartment-style units will replace the existing single-family dwelling and accessory building.

GRIFFIN reviewed the relevant ITE trip generation information and two candidate land use types were identified, including:

- *Single-Family Attached Housing – ITE Land Use Code 215*: This is a new land use category created in the latest 11th Edition document. ITE describes this land use as one that includes any single-family housing unit that shares a wall with an adjoining dwelling unit. Their empirical data considers developments with an average size of about 135 units.
- *Multifamily Housing (Low-rise) – ITE Land Use Code 220*: With the creation of the LUC 215 category in the 11th Edition document the regression formulas for LUC 220 were updated and resulted in a notable difference. This land use definition includes apartments, town homes and condominiums located within the same building and has two and three levels. However, their empirical data for LUC considers developments with an average size of about 240 units.

A more thorough review of the empirical data plots, regression formulas, and average trip rates for these two land use types suggests the most applicable and appropriate land use type was LUC 215. Further, the average trip rate produced higher vehicle trip forecasts than the regression formulas. The trip generation calculation results based on this approach for the proposed 12-unit development are summarized in *Table 3*.

Table 3: Site Trip Generation for the Proposed Residential Development

	Size	Trip Rate	New Vehicle Trips / Hour		
			In	Out	Total
AM Peak Hour					
Single-Family Attached Housing (ITE Code 215)	12 Units	0.48/unit ^A	2 (31%)	4 (69%)	6
AM Peak Total Trips ^B			2	4	6
PM Peak Hour					
Single-Family Attached Housing (ITE Code 215)	12 Units	0.57/unit ^A	4 (57%)	3 (43%)	7
PM Peak Total Trips ^B			4	3	7

A – ITE's average trip rate used.

B – New trips equal total site trips, no discounts for pass-by traffic applied.

The results contained in *Table 3* suggest the proposed development is expected to generate up to 6 trips/hour (2 inbound and 4 outbound) during the weekday morning peak hour and 7 trips/hour (4 inbound and 3 outbound) during the weekday afternoon peak hour. This generally equates to an average increase of about one additional vehicle trip added to the study area streets every eight to ten minutes during the peak times of the day. Traffic volume increases of this magnitude are considered to be very small, manageable, and will have a negligible impact on traffic operations.

5.0 VEHICLE PARKING

The parking information provided by the proponent indicates all new off-street parking will be provided above ground, between the Cow Bay Road right-of-way and the new building. A total of 16 vehicle parking stalls are proposed. The only access to this new parking will be provided via the existing driveway connecting to Cow Bay Road.

This amount of off-street parking supply is slightly higher than one space per residential unit and appears to be generally consistent with the minimum vehicle parking goals of HRM's Municipal Planning Strategy. Minimum parking supply rates help promote the use of sustainable transportation modes other than single-occupant commuter vehicles. Since this proposed development is located along a transit route it is suitable to provide minimum parking supply rates.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 – Conclusions

The following conclusions were gleaned from the qualitative Stage 1 traffic impact assessment of the proposed 12-unit residential development:

- The civic #519 property contains a detached dwelling unit (R1) and one accessory building. The property measures about 0.52 acres and currently has a Two-unit Dwelling (R-2) zone designation.
- The proponent is proposing to remove the detached dwelling unit and accessory building and replace it with a two-floor multi-unit building that will contain up to 12 apartment-style units. A development of this magnitude is expected to generate up to **6 trips/hour** (2 inbound and 4 outbound) during the weekday morning peak period and **7 trips/hour** (4 inbound and 3 outbound) during the weekday afternoon peak period.
- The existing vehicle driveway will also serve the proposed development, is located in the northeast corner of the property, and connects to the south side of Cow Bay Road. Our driver visibility review was completed at the existing driveway location following TAC guidelines and NSDPW field measurement procedures. The stopping sight distance (SSD) at the new site access location was assessed and appears to meet TAC minimum SSD requirements for the expected operating speeds. The regulatory speed limit along Cow Bay Road is 50 km/h.
- Our qualitative traffic operational assessment suggests the new site-generated peak hour trips will have a small and negligible impact on the study area streets and intersections. The increase in new vehicle trips was estimated to add - on average - about one vehicle every eight to ten minutes during peak times. As such, there is expected to be sufficient residual capacity along the Cow Bay Road corridor to accommodate the expected increase in traffic associated with the proposed development.

6.2 – Recommendations

Based on the findings of this qualitative review the following steps are recommended:

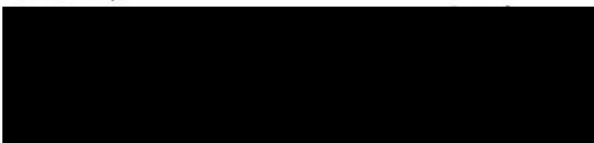
1. *Design Vehicle:* That an engineering review be carried out to ensure the proposed vehicle access and its alignment with the parking area can accommodate an appropriate design vehicle (eg. a garbage truck and/or a fire truck). The site design – including the driveway and parking areas – will need to follow the latest HRM and Transportation Association of Canada (TAC) geometric design guidelines.
2. *By-Law Requirements:* That all municipal By-law/Policy requirements for corner clearance, sight triangles and driver visibility are met to ensure driver sight distances to/from the proposed driveway are maintained throughout the design, construction, and final opening phases of this project.
3. *Signs and Pavement Markings:* All new or changed signs and/or pavement markings along the study area roads and within intersections should follow the latest guidelines contained in TAC's Manual of Uniform Traffic Control Devices for Canada (MUTCDC) document.

7.0 CLOSING

The findings flowing from this qualitative traffic impact statement suggest the expected new vehicle trips generated by the proposed 12-unit residential development is expected to have a negligible impact on the existing traffic operations on the adjacent 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,



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GRIFFIN transportation group inc.

