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Fall River, NS B2T 1R2

April 16, 2018

Mr. Tom Emodi
Principal
TEAL Architects and Planners Inc.
1101-1660 Hollis Street
Halifax, NS B3J 1V7

RE: A Traffic Impact Statement for Civic 216/218 Cobequid Road

Dear Mr. Emodi:

1.0 INTRODUCTION

At the request of *TEAL Architects and Planners Inc.* (TEAL), 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 mixed-use 4-story building to be located in the northeast corner of the Cobequid Road / Glendale Drive intersection, in the community of Lower Sackville, Halifax Regional Municipality (HRM). The proposed development will be comprised of the following:

Table 1: Summary of Development Changes

Civic	PID	Current	Proposed
#216/218	PID 00356899	2-storey building Zoning: C-2	4-storey Mixed-use Building: - 36 residential apartments - 3,090 ft ² of office space

The proposed development is located in the Sackville Land Use By-law area, within HRM's Urban Serviced Area and the site context is generally illustrated in *Figure 1*. Currently, there is an existing building on site that contains about 3,090 ft² of office space for about 5-6 employees as well as a few apartments located in the north half of the building. Vehicle access to the existing building is provided via a south driveway connecting to Cobequid Road between Glendale Drive and Malik Court.

Figure 1: Study Area and Site Context



This letter will focus on the traffic implications associated with the proposed development. The qualitative assessment process and the findings of this effort generally follow HRM's traffic impact study guidelines. However, since this letter forms part of the initial planning application process only a qualitative traffic impact assessment has been carried out at this time.

2.0 STUDY AREA STREETS

Glendale Drive is generally aligned in a north-south direction through the study area and has been classified by HRM as an arterial street and is therefore subject to access restrictions. It has a 4-lane cross-section south of Cobequid Road and a 2-lane cross-section to the north. Additional widening is provided at the signalized intersection in order to provide auxiliary turn lanes. Cobequid Road is generally aligned in an east-west direction and has been classified by HRM as a major collector street. It has a 5-lane cross-section across the frontage of the subject lands and will provide vehicle access to the proposed development. The street-level pictures contained in *Figure 2* provide an overview of the existing site context.

Figure 2: Existing Site Access



Looking east at Cobequid/Glendale intersection



Looking west at Cobequid/Malik intersection

A field review and site visit was carried out on Thursday September 21st, 2017. Driver sight lines were observed in the field in the general location of the proposed site access, from the perspective of a driver exiting the subject property onto Cobequid Road. There is approximately 220m of driver sight distance to the east and about 150m to the west. The available turning sight distance (TSD) in the critical direction to the west exceeds the Transportation Association of Canada (TAC) minimum design requirements for a 70 km/h operating speed.

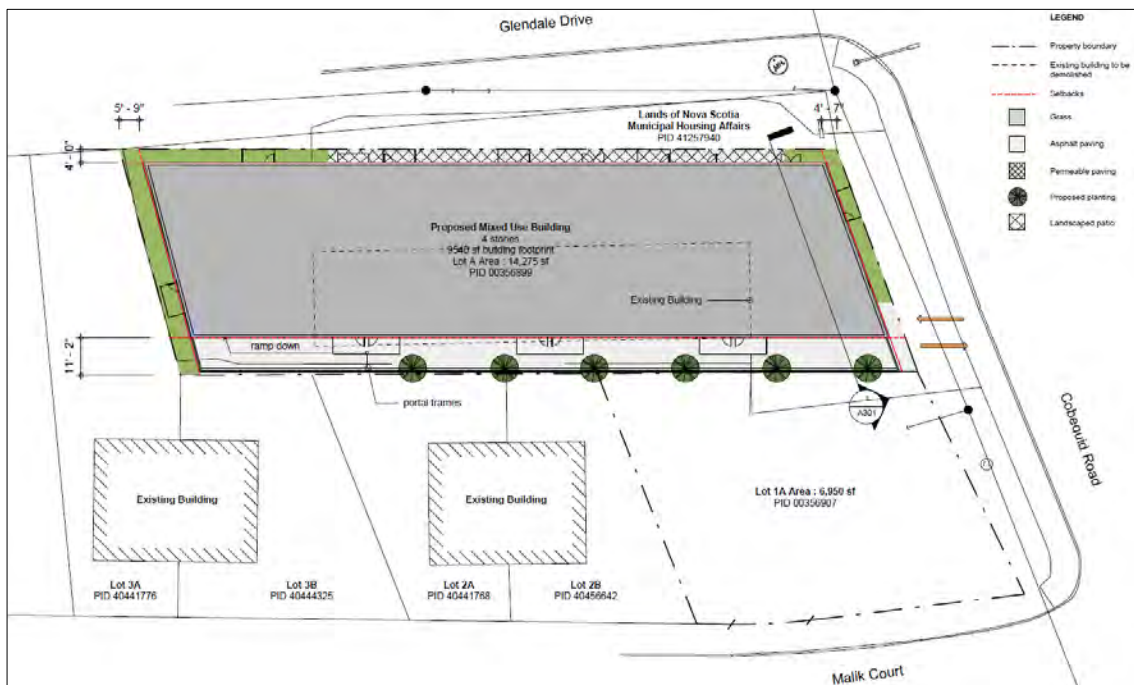
It should also be noted that the subject lands are well served by several Halifax Transit routes moving along Cobequid Road and Glendale Drive. In addition, the Cobequid Road Transit Terminal is located about 700m to the east. Although there is an existing pedestrian sidewalk along Cobequid Road, no sidewalk exists along the property frontage on the west side of Glendale where a transit bus stop is located.

3.0 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 determine the number of net 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.

The trip generation calculation process for this project was based on the development information provided by TEAL. This included a site plan as shown in *Figure 3* as well as information regarding the uses and activity associated with the existing building. A summary of existing and future land use types and scale is contained in *Table 2*.

Figure 3: Proposed Development



Source: TEAL Architects and Planners

Table 2: Existing and Proposed Development Information

	Residential Apartments	General Office Space ^A
Existing Building	4 to 6 units (no amenities)	about 3,090 ft ² (existing tenant)
Proposed Building	36 units (plus amenities)	3,090 ft ² (existing tenant)
Net change	36 new apartment units^B	No Change

A – the developer's office space is currently located at 216/218 Cobequid Road and they will occupy the office space in the new building.

B – To remain conservative in the traffic forecasts the existing apartment units were not included in the net change calculation.

Based on information gathered during the field review it was observed that traffic currently moves in and out of the south site driveway, traffic that is associated with the existing building containing some apartments and the developer's office (about 3,090 ft²). Discussions with the client indicate their business employs 5-6 people and this was reinforced during the site review when 4 vehicles were observed in the existing parking lot. It is understood that the developer will occupy the same office space (3,090 ft²) in the new building and thus the vehicle trip generation associated with this land use type is not expected to change. Since the trip generation associated with the office space component is not changing from current to future, there is expected to be no new additional office-related traffic moving in and out of the site. Therefore, the trip generation review focused on the new traffic expected to be generated by the new residential component of the development only.

Given these conditions it was determined that the ITE trip generation rates for residential apartment units were appropriate. As such, ITE's *Trip Generation, 9th Edition* document was used to calculate the forecast site-generated trips for the site and these are summarized in *Table 3*.

Table 3: Net New Site Trip Generation for the Proposed Development

	Size	Trip Rate ^A	Vehicle Trips / Hour		
			In	Out	Total
AM Peak Hour					
Residential Apartment (LUC 220)	36 units	Avg: 0.51/unit	4 (20%)	14 (80%)	18
		Formula: 0.61/unit	4 (20%)	18 (80%)	22
Worst-Case New AM Peak Trips			4	18	22
PM Peak Hour					
Residential Apartment (LUC 220)	36 units	Avg: 0.62/unit	14 (65%)	8 (35%)	22
		Formula: 1.06/unit	25 (65%)	13 (35%)	38
Worst-Case New PM Peak Trips			25	13	38

A – Results for both the average rate and formula rate are shown. HRM requested that ITE's trip rate formula be used; however, the development is smaller than ITE's apartment building survey data used to develop their formula. Therefore, the formula-based results should be used with caution -particularly those for the PM peak hour.

In summary, the number of expected vehicles moving in and out of the site during the weekday peak hours was calculated to be higher when using ITE's regression formula relative to the average rate. Despite the needed caution in the use of ITE's formula rate when applied to small developments, these volumes were carried forward for assessment purposes to provide a worst-case scenario. As such, the proposed mixed-use building is expected to generate 22 net new trips/hour (4 inbound and 18 outbound) during the weekday morning peak period and 38 net new trips/hour (25 inbound and 13 outbound) during the weekday afternoon peak period.

4.0 QUALITATIVE TRAFFIC OPERATIONAL ASSESSMENT

The increase in traffic volumes associated with the proposed development generally equates to about one new vehicle trip added to the road system every two minutes during peak times of the day. The vehicle trips moving in and out of the development will further be divided along the study area road corridors including Cobequid Road (both east and west) and Glendale Drive (north and south). As such, the increase in traffic on the study area roads and intersections is expected to be marginal and considered low. The typical volume fluctuation experienced on both Cobequid Road and Glendale Drive from one day to the next will exceed the number of new trips generated by the proposed development.

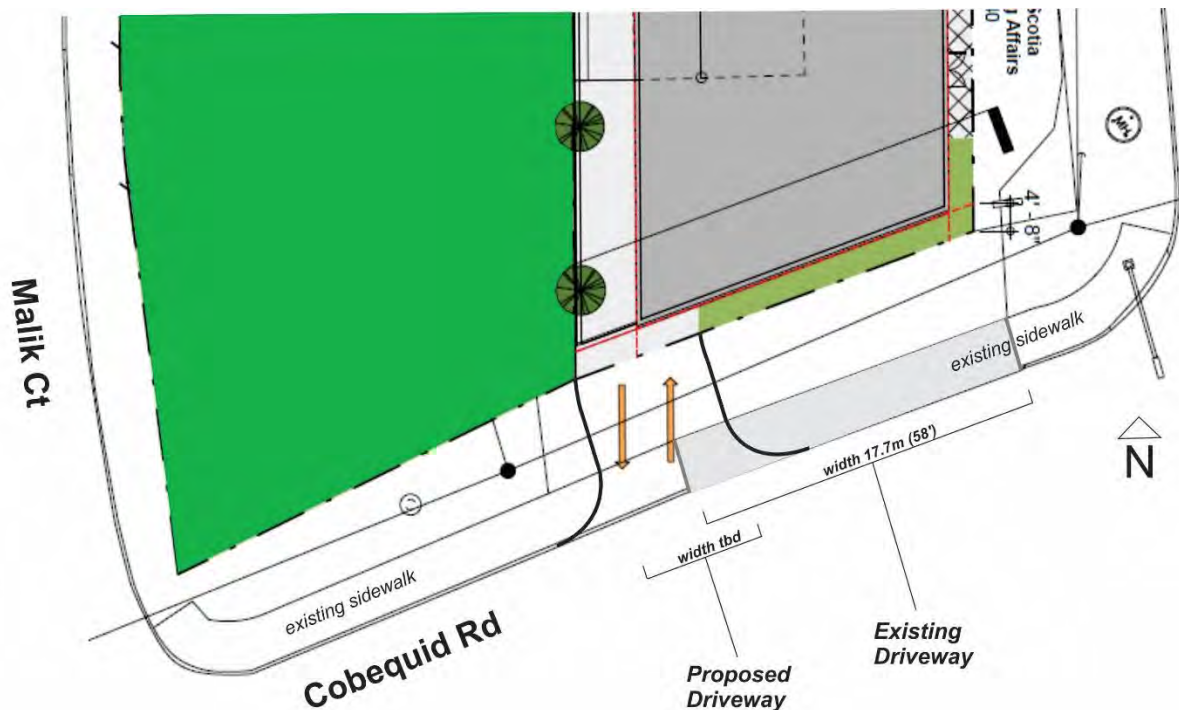
The existing lane configuration on Cobequid Road in the vicinity of the proposed site access is 5-lanes wide and is comprised of two westbound travel lanes, two eastbound travel lanes and a centre left turn lane. Qualitatively, Cobequid Road appears to offer sufficient road capacity for the new site-generated traffic given the following:

- *Inbound traffic entering the site:* Eastbound left turns from Cobequid Road can be made from the refuge offered by the existing exclusive eastbound left turn lane, while westbound right turns will have minimal interruption to westbound flows due to the fact that traffic has two travel lanes to maneuver around slowing/turning vehicles.
- *Outbound traffic exiting the site:* Given the relatively low volume exiting the site during peak times (eg. 18 vph during the AM peak hour) the one outbound driveway lane is not expected to create any on-site queueing concerns. It is expected that the close proximity of the two adjacent traffic signals (i.e. Glendale to the east, Freer-Zinc to the west) will create a sufficient number of gaps in the east-west traffic streams to accommodate the relatively low increase in new site-generated traffic (i.e. an average of one gap will be required every two minutes). In addition, the relocation of the site driveway further away from the Glendale traffic signal will improve upon current conditions for left-turning drivers exiting the site and weaving across the Cobequid Road lanes – including those drivers destined to the south on Glendale Drive.

5.0 COBEQUID ROAD SITE ACCESS

Currently, vehicles enter/exit the site using a wide and open driveway opening on the south side of the property which connects to Cobequid Road. There is very little corner clearance between the existing access and the Cobequid Road / Glendale Drive signalized intersection. The current driveway has an opening that measures about 17.7m (58') wide which promotes high speed, low angle turns and provides very little positive guidance to drivers using the driveway. *Figure 5* below shows the existing access relative to the proposed south access.

Figure 5: Changes to the Site Access



As shown in *Figure 5*, the proposed driveway connecting to Cobequid Road will offer the following operational improvements:

- Provide a much narrower throat width and result in lower and more consistent turning speeds relative to current conditions. In addition, this design will significantly reduce the likelihood of low angle vehicle entry/exits to Cobequid Road and the Cobequid/Glendale intersection – vehicle movements that increase road safety risks.
- Noticeably increases the corner clearance between the access and the signalized intersection. Relative to current conditions, the proposed location will reduce the likelihood of operational issues on Cobequid Road associated with slowing and turning vehicles as well as drivers attempting to move diagonally towards Glendale Drive south.

6.0 FINDINGS & CONCLUSIONS

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

- The existing building on site contains some apartment units and an office space. The existing vehicle access connects to Cobequid Road. It is understood that the Developer occupies the existing office space (5-6 employees) and they will continue occupy the same size office space in the proposed building (5-6 employees).
- The new site-generated vehicle trips associated with the proposed development were calculated using ITE's regression formula providing a worst-case scenario. The new vehicle trips are only associated with the 36 new apartment units and these are expected to generate 22 net new trips/hour (4 inbound and 18 outbound) during the weekday morning peak period and 38 net new trips/hour (25 inbound and 13 outbound) during the weekday afternoon peak period.
- The increase in traffic volumes associated with the proposed development generally equates to about one new vehicle trip added to the road system every two minutes during peak times of the day. The impact on existing traffic is expected to be marginal, and considered low, and the change in volume will be less than the fluctuation of traffic volumes within the Cobequid Road corridor from day to day.
- The proposed south vehicle access will connect to Cobequid Road, will have a more narrow throat width and be shifted as far to the east as possible – increasing the corner clearance. These proposed changes noticeably reduce the road safety risks associated with the existing access and will improve traffic operations and positive guidance for drivers moving in and out of the proposed development.

In summary, the proposed mixed-use development is expected to have a negligible and acceptable level of impact on the traffic operating conditions along Cobequid Road and the adjacent signalized intersection – assuming the proposed south access changes are implemented prior to the opening of the proposed building.

The following recommendations are required to accommodate the traffic-related impacts associated with the proposed changes to 216/218 Cobequid Road:

- That changes related to the proposed new south access occur early in the construction phase of this development to ensure that the operational concerns associated with the existing wide and open access are reduced. In addition, the design of the re-configured south access should follow HRM and Transportation Association of Canada (TAC) geometric design guidelines. The re-configured south access must also accommodate an appropriate design vehicle such as a garbage truck, delivery truck, etc.

- That a sidewalk be installed along the west side of Glendale Drive to provide pedestrian connectivity between the existing sidewalk on Cobequid Road and the existing Transit stop.
- That all signs and pavement markings associated with the site access be reviewed and the necessary changes be implemented such that they are consistent with TAC's Manual of Uniform Traffic Control Devices for Canada (MUTCDC).

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.

