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Att: Joe Nickerson
Sidewalk Real Estate Development
8 Queen Street
Dartmouth, NS B2Y 1E7

RE: A Traffic Impact Statement for a proposed development on Dundas Street

1.0 INTRODUCTION

1.1 – Overview

At the request of *Sidewalk Real Estate Development (Sidewalk)*, the GRIFFIN transportation group inc. (GRIFFIN) has carried out a qualitative Stage 1 - Traffic Impact Assessment in support of the planning application being submitted to Halifax Regional Municipality (HRM) for a new Mixed Use development on Dundas Street, in the community of Dartmouth, Halifax Regional Municipality (HRM). The subject lands are located on the west side of Dundas Street, between Ochterloney Street and Queen Street. The location of these lands is contained in *Figure 1*.

It is understood that the proponent's planning application includes four individual properties, PID's #00109116 (86 Ochterloney), #00109124 (43 Dundas), #40280703 (39 Dundas), and #00109157 (61 Queen). Currently, these properties contain three separate residential buildings as well as off-street surface parking for vehicles. The subject lands are located within the downtown area of Dartmouth, are within HRM's Urban Service Area, and considered to be within the *Regional Centre Land Use By-Law Area*. Currently, these properties have a Downtown Dartmouth (DD) zoning designation and appear to be utilized for residential purposes.

It is understood the proponent is submitting a planning application to HRM to obtain approval to construct a new Mixed Use building – generally on civics #39 and 43 Dundas Street. The existing buildings at #86 Ochterloney and # 61 Queen Street will remain; however, with upgrades to allow them to continue to be used for residential purposes.

Figure 1: Location of Subject Lands



Source: HRM GIS Maps

1.2 – Terms of Reference

Our qualitative Stage 1 traffic impact assessment of the proposed development is discussed in the following Sections. Throughout the completion of this assessment GRIFFIN has followed HRM traffic impact study guidelines as well as their Integrated Mobility Plan (IMP) policy for a new development in a dense urban area. In addition, GRIFFIN has applied the latest guiding principles published by the Institute of Transportation Engineers (ITE), and Transportation Association of Canada (TAC).

2.0 STUDY AREA AND SITE CONTEXT

2.1 – Roadway Layout Overview

The subject lands have direct frontage along Dundas Street, Ochterloney Street and Queen Street. Dundas Street is generally aligned in a north-south direction and has been classified by HRM as an urban local residential street. It has a two-lane, two-way urban cross-section, and on-street parking and pedestrian sidewalks on both sides of the street.

All surrounding streets have a regulatory speed limit of 50 km/h; however, the vehicle operating speeds are relatively low due to the grid street pattern, short distances between intersections, numerous stop-controlled intersections, and the presence of on-street parking.

2.2 – On-Street Parking

Currently, HRM permits on-street parking to occur on both sides of Dundas Street. The regulatory requirements allow for a maximum parking duration of 2 hours, Monday to Friday, during the 8am to 6pm time period.

2.3 – Other Travel Mode Options

The subject lands are situated in close proximity to the downtown area of Dartmouth. Generally, this part of HRM is very walkable and easily accessible for active modes of travel. There are numerous local businesses and services only a short distance away from the proposed development. Thus, the location of the proposed development is well suited to meet HRM’s IMP policy objectives. This area is well connected with pedestrian sidewalks on both sides of all streets. This includes a wider sidewalk facility running along Queen Street – a main downtown travel corridor. In addition, the Alderney Landing transit terminal and ferry terminal are located about 370 m to the west. This is considered to be a short walking distance and well within the HRM’s 500 m walking threshold for public transit catchment areas.

3.0 THE PROPOSED DEVELOPMENT

3.1 - Overview

The proposed new Mixed Use building will generally be constructed on civics #39 and #43 Dundas Street. Although the proposed planning application also includes the existing buildings at civic #61 Queen Street and civic #86 Ochterloney Street – no changes are proposed to their use or vehicle access. Therefore, our transportation impact assessment has only focused on the new Mixed Use building.

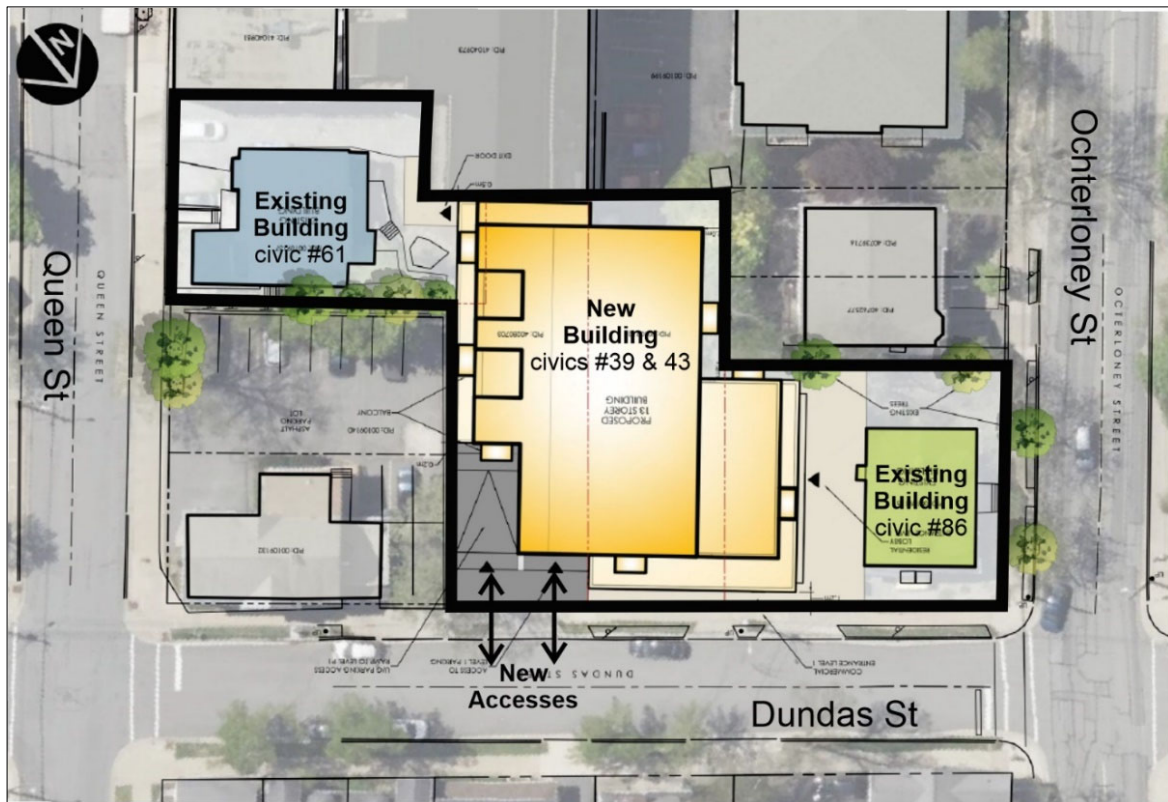
The proposed new Mixed Use building is expected to have a total of 13 levels, and be at least 12 floors above ground. The building will include two levels of underground parking, ground floor commercial space at street-level, plus up to 103 residential apartment-style units. The development details are provided in *Table 1*.

Table 1: Proposed New Building

Building Component	Type / Use of Space	Size
Levels P1 & 1	Underground Parking	32 vehicle spaces
Level 1 – Ground Floor	Commercial Space	1,700 ft ²
Levels 2 to 13	Residential Units	103 units

The proposed concept plan is shown in *Figure 2*, including a plan view layout and associated rendering of the Dundas Street frontage.

Figure 2: Proposed Site Layout



Source: ZZAP

3.2 – Vehicle Access and Driver Visibility

As shown in *Figure 2*, parking for new residents and patrons will be provided underground in the new building. Vehicles will access these parking spaces via Dundas Street, generally along the frontage of civic #39. It is understood that all other vehicle driveways along the civic #39 and #43 property frontages will be closed. Therefore, there is expected to be no increase in new driveways connecting to Dundas Street. The proposed consolidation of vehicle driveways follows good access management guidelines.

Typically, a driver sight distance review is carried out as part of the traffic impact assessment process to identify any driver sight distance or visibility limitations up and downstream of a new site access. Generally, the alignment of Dundas Street is straight and flat in the vicinity of the proposed access location and appears to offer good driver visibility.

The regulatory speed limit along Dundas Street is 50 km/h; however, it appeared difficult for drivers to achieve this speed due to the relatively short street length of only 75 m and the stop-control at both Queen and Ochterloney Streets. In conclusion, there appears to be sufficient stopping sight distances along Dundas Street to/from the proposed new vehicle accesses to meet TAC SSD design guidelines. Of course, this conclusion is based on the need to remove on-street parking spaces immediately adjacent to the proposed new driveway in order to maintain good sight lines.

The driver visibility observed during the field review is provided in *Figure 3*.

Figure 3: Driver Views Along Dundas Street



Looking South (toward Queen Street)



Looking North (toward Ochterloney Street)

3.3 – Intersection Corner Clearance to New Access

GRIFFIN carried out a review of the available intersection corner clearance distance between the nearest intersection and the proposed new driveway connecting to Dundas Street. The nearest intersection was identified to be Queen Street. The corner clearance distance from Queen Street

to the new driveway appears to meet the HRM By-Law requirement of 30 m. Since Dundas Street functions as – and is classified by HRM as – a local residential street, the TAC intersection corner clearance guidelines are notably reduced below HRM’s general 30 m requirement. Thus, the available corner clearance distance to the new driveway exceeds TAC minimum requirements for a local residential street.

4.0 NEW SITE-GENERATED TRIPS

4.1 – Overview

To assess the change in traffic volumes on the study area roads under future conditions, there was a need to determine the number of new vehicles added by the completion of the proposed Mixed Use building. 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 Manual, 11th Edition* document.

GRIFFIN reviewed the ITE’s latest documentation and identified the most suitable land use type as being *Mid-Rise Residential with Ground-Floor Commercial – Land Use Code 231*. Since the proposed development is in a dense urban downtown area, it appeared appropriate to utilize ITE’s published trip rates contained in their 11th Edition, Volume 2 document. The ITE has assembled a reasonable number of empirical studies to be able to quantify estimates for various modes, such as new person trips, vehicle trips, and so forth. This approach also appears to follow the latest transportation guidelines and aligns with the HRM’s Integrated Mobility Plan (IMP) and policy. The detailed trip generation calculations are provided in *Table 2*.

Table 2: Site Trip Generation for the Proposed Residential Development

	Size	Trip Rate	New Vehicle Trips / Hour		
			In	Out	Total
AM Peak Hour					
Person Trips: ITE LUC 231 (Volume 2 – Dense Urban)	103 units	0.77/unit ^A	19 (37%)	50 (63%)	79
Vehicle Trips: ITE LUC 231 (Volume 2 – Dense Urban)	103 units	0.20/unit ^A	8 (39%)	13 (61%)	21
AM Peak Total Vehicle Trips			8	13	21
PM Peak Hour					
Person Trips: ITE LUC 231 (Volume 2 – Dense Urban)	103 units	1.35/unit ^A	64 (46%)	75 (54%)	139
Vehicle Trips: ITE LUC 231 (Volume 2 – Dense Urban)	103 units	0.28/unit ^A	13 (44%)	16 (56%)	29
PM Peak Total Vehicle Trips			13	16	29

A – ITE’s average formula used to determine the per unit trip rate.

Based on the results contained in *Table 2*, the proposed development is expected to generate the following new peak hour vehicle trips:

- *Weekday AM Peak Hour*: 21 new vehicle trips/hour (8 inbound and 13 outbound)
- *Weekday PM Peak Hour*: 29 new vehicle trips/hour (13 inbound and 16 outbound)

This generally equates to adding one new vehicle trip every three minutes to the study area streets and intersections. It should also be noted that there are only 32 underground parking spaces and it is assumed the forecast new trips includes both the new vehicle trips moving in/out of the new driveway as well as the vehicle traffic utilizing on-street parking in the vicinity of the development.

Given the relatively low vehicle traffic demand generated by the proposed development, there is not expected to be any measurable change in operations on the study area streets and intersections. Most of the new trip-making is expected to occur via walking, biking, and transit and this is discussed in more detail in Section 4.3.

4.2 – Expected Distribution of New Vehicle Trips

The downtown area of Dartmouth is served by a street network that has a traditional grid network. Thus, the movement of vehicles is dispersed among the multiple travel options throughout the grid.

The highest concentration of new vehicle trips is expected to occur on Dundas Street. However, drivers will have the opportunity to travel north or south on Dundas Street, then east and/or west along Queen and Ochterloney Streets. In conclusion, the new vehicle trips will be dispersed among the many streets surrounding the proposed development and this situation is not expected to create any traffic operational issues or concerns.

4.3 – Other Travel Modes

As with any new development, all new trips moving to/from the site are considered to be person trips. These can then be broken down into trips made by car – commuter trips, taxis, ridesharing services and so forth – plus trips made by public transit, trips via walking and trips using a bicycle. For the purposes of our assessment we have elected to utilize the ITE trips rates for person trips and vehicle trips due to the increased number of supporting data and empirical information for similar developments in a more dense urban downtown area. We then assumed that the difference between the calculated person trips and vehicle trips would account for all other trips made by walking, biking, and public transit.

By using the ITE's modal trip rates in their 11th Edition Volume 2 document, GRIFFIN was able to identify a reasonably accurate forecast of the mode share percentages moving to/from the site. These are summarized in *Table 3*.

Table 3: New Site-Generation Trips – Mode Share

Mode / Trip Type	AM Peak Hour	AM Peak Hour	PM Peak Hour	PM Peak Hour
	New Trips	Percent	New Trips	Percent
New Person Trips ^A	79 trips/hour	100%	139 trips/hour	100%
New Vehicle Trips ^A	21 trips/hour	27%	29 trips/hour	21%
New Walk / Bike / Transit Tips	58 trips/hour	73%	110 trips/hour	79%

A – Trips calculated using ITE rates contained in the 11th Edition, Volume 2 document.

In conclusion, the majority of new trips generated by the proposed Mixed Use development are forecast to occur via the walking, biking, and public transit modes. The HRM provides good connectivity for active modes in the immediate vicinity of the subject lands through the provision of sidewalks along both sides of Dundas, Ochterloney and Queen Streets. Further, there is good connectivity to existing public transit services on Ochterloney Street. The Alderney Landing transit terminal and ferry terminal are located only a 370 m walk from the proposed development. As such, the proposed development is strategically situation in an urban downtown area that is considered to be walkable and well connected to various travel mode options – reducing the need and propensity for residents and patrons to travel by commuter car.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 - Conclusions

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

- The proponent is submitting a planning application for an assembly of properties in downtown Dartmouth that includes civic #86 Ochterloney, civic #43 Dundas, civic #39 Dundas, and civic #61 Queen. Currently, these properties contain three separate residential buildings as well as off-street surface parking for vehicles. The proposed new Mixed Use building on civics #39 and #43 is expected to have a total of 13 levels, and be at least 12 floors above ground. The building will include two levels of underground parking, 1,700 ft² of ground-floor commercial space at street-level, plus up to 103 residential apartment-style units.
- Following HRM’s recently adopted Integrated Mobility Plan policy, GRIFFIN utilized ITE’s person trip rates in a dense urban area contained in their *11th Edition Trip Generation Manual, Volume 2* document to quantify the amount of new trip making generated by the proposed Mixed Use building. The estimated person trips were broken down into new vehicle trips and new walking/biking/transit trips. In summary, the proposed Mixed Use building is expected to add up to **21 new vehicle trips/hour** (8 inbound and 13 outbound)

during the weekday morning peak period, and **29 new vehicle trips/hour** (13 inbound and 16 outbound) during the weekday afternoon peak period.

- GRIFFIN expects there will be little to no traffic operational impact on the study area streets and intersections associated with the completion of the proposed Mixed Use building. This conclusion is based on the fact there is a considerable amount of residual capacity along the study area streets and at the adjacent intersections to accommodate up to one new vehicle trip every three minutes. Further, there is good active transportation facilities and connectivity – particularly to the Alderney Landing Transit and Ferry terminal located only a 370 m away from the proposed development.

In summary, the number of new vehicle trips generated by the proposed Mixed Use development will have a minor and marginal impact on the study area streets and intersections.

5.2 – Recommendations

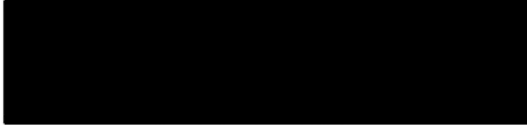
Based on the findings of this qualitative review the following steps are recommended:

1. *Vehicle Access*: That the geometric design of the proposed new driveway follow the latest Transportation Association of Canada (TAC) and HRM design guidelines contained in the most recent edition of their Municipal Design Guidelines document. This includes the accommodation of an appropriate design vehicle (i.e. garbage truck or emergency vehicle) – should HRM deem this necessary during the geometric design stage of the project. No changes in stop-control and no new auxiliary turn lanes will be required at any of the study area intersections.
2. *By-Law Requirements*: That the municipal By-laws/Policy requirements for corner clearance, sight triangles, and driver visibility are met to ensure acceptable traffic operations are maintained throughout the planning, design, and construction phases of this project.
3. *On-Street Parking and Curb Space*: Currently, HRM permits on-street parking to occur on both sides of Dundas Street. The regulatory requirements allow for a maximum of 2 hours, Monday to Friday, from 8am to 6pm. Although several driveways will be consolidated into one new driveway along the west side of the street, GRIFFIN recommends that a no parking zone be implemented on either side of the new driveway to maintain good driver visibility. Further, HRM should give consideration to eliminating all on-street parking along the west side of the street and restrict this space for use by short-duration loading/unloading to accommodate food deliveries, parcel deliveries, ridesharing services, etc. to support the proposed new building and its occupants.
4. *Signs and Pavement Markings*: Should any new or changed signs and/or pavement markings be installed, that they follow the latest guidelines contained in TAC's Manual of Uniform Traffic Control Devices for Canada (MUTCDC) document.

6.0 CLOSING

The findings flowing from this qualitative traffic impact statement suggest the new vehicle trips generated by a proposed Mixed Use development is expected to have a negligible impact on the traffic operational performance of 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,



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