

James J. Copeland, P.Eng., RSP1
GRIFFIN transportation group inc.
30 Bonny View Drive
Fall River, NS B2T 1R2

January 30, 2025

Att: Sarah Karountzos
Oikos Management
169 Regency Park Drive, Suite 600
Halifax, NS B3S 1P4

RE: Addendum - Traffic Impact Statement - Proposed Development on Greenpark Close

1.0 INTRODUCTION

1.1 – Overview

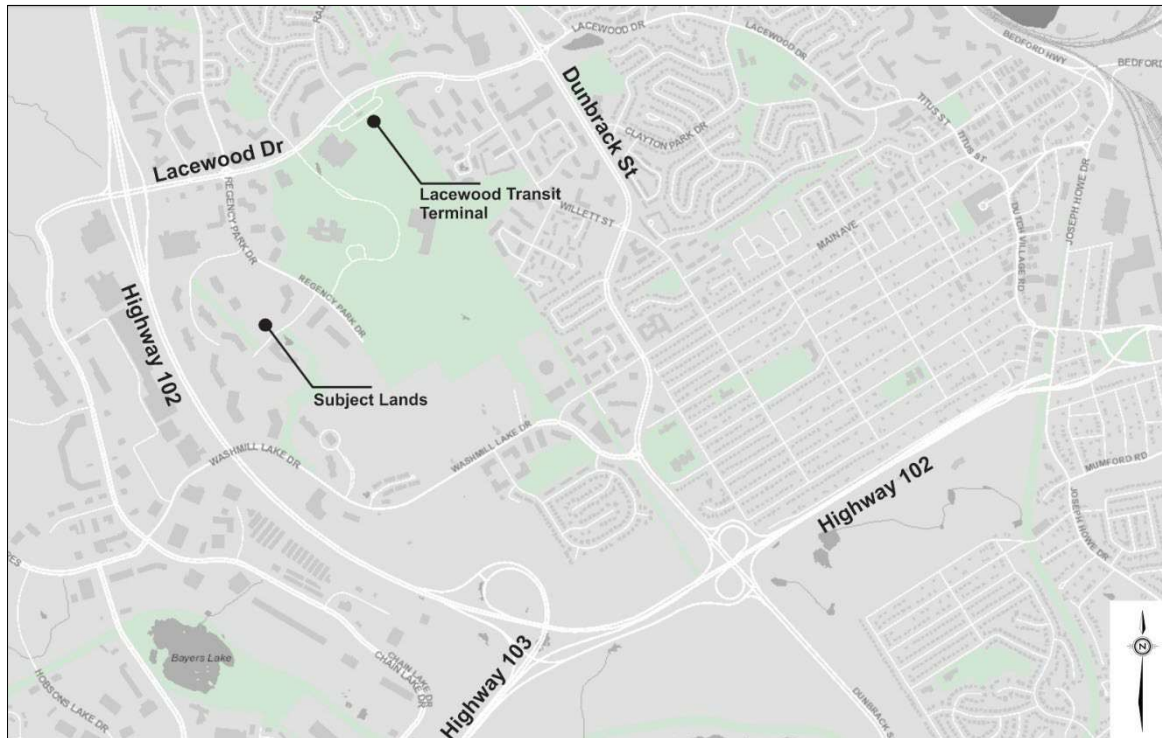
At the request of *Oikos Management (Oikos)*, the GRIFFIN transportation group inc. (GRIFFIN) has carried out a qualitative Stage 1 - Traffic Impact Assessment in support of a proposed planning amendment submission to Halifax Regional Municipality's (HRM) Planning Department. The subject property is located at civic #71 Greenpark Close (PID #41071991), is currently undeveloped, and has an area of about 4.3 acres. HRM Planning currently allows up to 90 residential units on this property which equates to a residential density of about 21 units/ acre. The location of these lands is contained in *Figure 1*.

The proponent is submitting a request to HRM to allow increased residential density on this property given the current market demand for residential units. The specific request is to amend the current zoning and land use to allow for up to 400 residential units on this property, which would yield a density of about 93 units/acre. The subject lands are located within the urban area of Clayton Park West, within HRM's Urban Service Area, and considered to be within the *Halifax Mainland Land Use By-Law Area*.

1.2 – Terms of Reference

Our qualitative Stage 1 traffic impact assessment of the proposed increase in allowable residential density on the civic #71 property 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 new developments 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).

Figure 1: Location of Subject Lands



Source: HRM GIS Maps

2.0 STUDY AREA AND SITE CONTEXT

2.1 – Roadway Layout Overview

The subject property has direct frontage along Greenpark Close – a local urban street that terminates as a cul-de-sac. Greenpark Close is generally aligned in an east-west direction, has a two-lane, two-way urban cross-section with an asphalt width of 8.5 m (4.25 m lanes), and a sidewalk provided along the south side. All traffic moving to/from Greenpark Close turns onto Regency Park Drive, a north-south Major Collector class street serving the local neighbourhood.

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

A local High School and several recreational facilities are located north and east of Greenpark Close. Weekday traffic demand and patterns along Regency Park Drive were observed to generally be influenced by vehicles moving to/from the High School.

In addition, HRM provides public transit service along Regency Park Drive via three (3) Routes including #137, #30A, and #30B. All routes service the existing bus stops located adjacent to the Regency Park Drive / Greenpark Close intersection - about 220 m away from the subject property.

2.2 – Other Travel Mode Options

The subject lands are situated in the Clayton Park West neighbourhood. Generally, this part of mainland Halifax 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. The area around Greenpark Close is well connected with pedestrian sidewalks and multi-use paths – particularly in the vicinity of the High School. Thus, the location of the proposed development appears to be well suited to meet HRM’s Integrated Mobility Plan (IMP) policy objectives.

Regency Park Drive appears to have an excessive asphalt width for a two-lane, two-way urban street. This creates a substantial amount of roadway space that could be repurposed to better accommodate active transportation modes – such as bike lanes or multi-use paths.

Public transit service is also provided along Regency Park Drive with stops located near the Greenpark Close intersection. These stops are located only a 220 m walking distance from the subject property - a distance that is well within HRM’s 500 m public transit catchment threshold. In addition, the Lacewood Transit Terminal is located about 1.1 km to the northeast and this Terminal offers travel via many transit routes throughout the Region. Although the Terminal is located beyond HRM’s acceptable 500 m walking distance threshold, the three existing transit routes serving Regency Park Drive offer a convenient alternative to walking.

3.0 THE PROPOSED DEVELOPMENT

3.1 - Overview

Currently, HRM Planning has approved future development on this property to allow up to 90 residential units. The proponent is requesting that this number be increased to 400 units, which would change the residential density from 21 units/acre to 93 units/acre. Therefore, our transportation assessment has only focused on the impacts associated with a future high-rise building on the civic #71 property containing up to 400 units. The impact assessment includes the following development assumptions:

- *Area Land Use:* assumes that this area continues to grow and density continues to increase. Thus, the future neighbourhood was assumed to be comprised of a dense urban area, as defined by ITE.
- *Building:* assumes one (1) high-rise building with at least 10 or more floors.
- *Parking:* assumes that vehicle parking will be provided underground and the parking supply conforms with HRM’s minimum parking goals. It was also assumed that adequate bicycle parking would be provided on-site.

- *Vehicle Access:* assumes that one new driveway connection is made to Greenpark Close, generally opposite civic #84, and utilizing the existing curb cut along the civic #71 frontage.

3.2 – Vehicle Access and Driver Visibility

Since this assessment is focused on a future increase in residential density on the civic #71 property, and no site layout concept plan has been prepared at this time, the exact location of a future driveway has not been identified. Therefore, GRIFFIN has not completed a sight distance assessment for the future site driveway. This important step will need to be completed should the proposed increase in density be approved. The requirement for a future driveway visibility assessment can be conditionally imposed by HRM should this project move forward.

3.3 – Intersection Corner Clearance to New Access

GRIFFIN carried out a review of the available intersection corner clearance distances in the vicinity of the subject property. The adjacent intersections were determined to be located greater than 30 m away from any future driveway along the civic #71 property frontage. Thus, corner clearance and interactions with adjacent intersections were not considered to be of concern.

3.4 – Off-Street Vehicle Parking

The future development of this property should strive to provide an off-street parking supply of less than one space per residential unit. This approach would be consistent with the minimum vehicle parking goals of HRM's Municipal Planning Strategy. Minimum parking supply rates promote the use of sustainable transportation modes other than single-occupant commuter vehicles. Since this property is located within a short 220 m walking distance to public transit service on Regency Park Drive, and there is good sidewalk connectivity throughout the neighbourhood, it appears to be a suitable candidate site for minimum parking supply rates.

It should also be noted that bicycle parking spaces are being planned as part of the new development.

4.0 NEW SITE-GENERATED TRIPS

4.1 – Overview

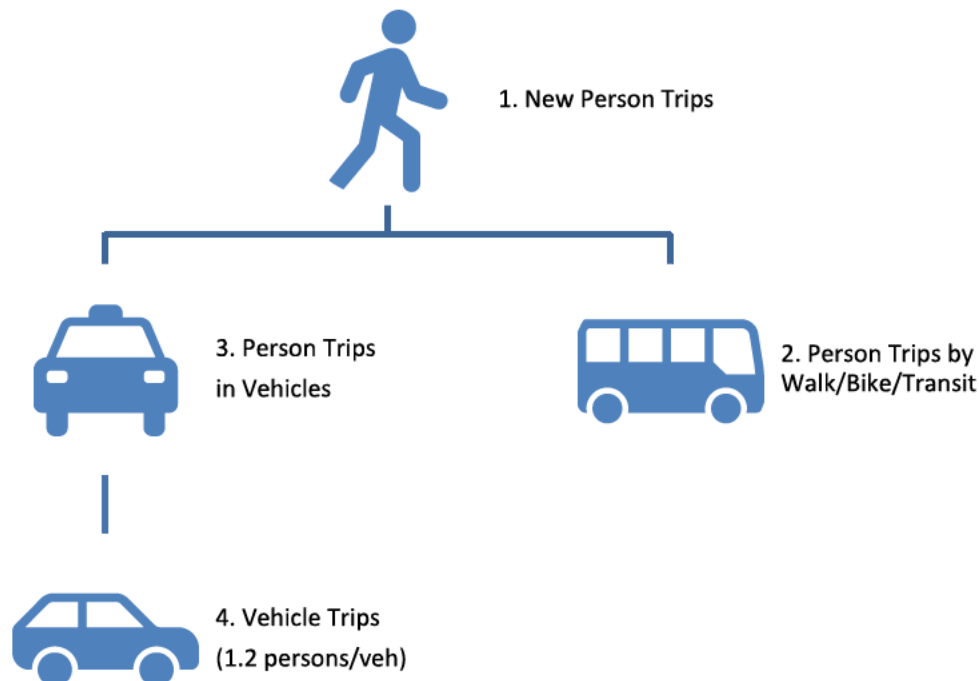
To assess the change in traffic volumes on the study area roads under future conditions, there was a need to determine the number of new vehicles added by the completion of a new 400-unit residential high-rise building. This is referred to as the trip generation calculation process. Typically, traffic engineers use trip generation rates published by the Institute of Transportation Engineers (ITE), in the most recent *Trip Generation Manual, 11th Edition* document.

This process begins with quantifying the number of new person trips expected to move in/out of the proposed development, then identify the estimated amount of travel by each travel mode. For the purposes of this impact assessment, GRIFFIN has divided the travel modes into two categories:

1. Travel via walking/biking/public transit (W/B/T), and
2. Travel via commuter cars.

GRIFFIN followed industry best practices and Institute of Transportation Engineers (ITE) recommended guidelines to quantify the amount of new person trips and then further break down these trips moving via the two aforementioned modal categories. The process applied to this review is generally illustrated in *Figure 2*.

Figure 2: Trip Generation Calculation Process



This area of the Clayton Park community is expected to continue to grow and become a more densely populated area in the future. Therefore, it appeared appropriate to utilize ITE’s published trip rates contained in their *Trip Generation Manual, 11th Edition, Volume 2* document, which contains rates that are consistent with dense urban areas. The ITE has assembled a reasonable number of research data gathered across North America to be able to quantify estimates for various travel modes moving to/from similar residential developments - including all person trips, as well as a breakdown of trips made by vehicle, walking, cycling, and public transit.

Using the ITE’s empirical multi-modal data also appears to follow the latest transportation guidelines and aligns with the HRM’s Integrated Mobility Plan (IMP) and their draft Mobility Analysis Guidelines.

4.2 – New Peak Hour Person Trips

GRIFFIN reviewed ITE’s Volume 2 document and concluded that a new 400-unit high-rise residential building (10+ floors) best matched ITE’s description for *Land Use Code 222 - Multifamily Housing (High-Rise) Not Close to Rail Transit* and the associated weekday AM and PM peak hour trip rates were applied to this assessment.

The detailed person trip generation calculations for a new residential building in a dense urban area are provided in *Table 1*.

Table 1: Trip Generation for the Proposed Residential Development – Person Trips

	Size	Person Trip Rate	New Person Trips / Hour		
			In	Out	Total
AM Peak Hour					
Person Trips: ITE LUC 222 (Volume 2 – Dense Urban)	400 units	0.59/unit ^A	45 (19%)	191 (81%)	236
AM Peak Total Person Trips			45	191	236
PM Peak Hour					
Person Trips: ITE LUC 222 (Volume 2 – Dense Urban)	400 units	0.45/unit ^A	112 (62%)	68 (38%)	180
PM Peak Total Person Trips			112	68	180

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

Based on the results contained in *Table 1*, the proposed development is expected to generate the following new peak hour person trips:

- *Weekday AM Peak Hour:* 236 new person trips/hour (45 inbound and 191 outbound)
- *Weekday PM Peak Hour:* 180 new person trips/hour (112 inbound and 68 outbound)

These person trips are expected to predominantly move via public transit, walking, cycling and other small-wheeled devices, commuter cars as drivers and passengers, and ride-share services.

4.3 – Modal Breakdown of Peak Hour Person Trips

A breakdown of the modal share occurring during weekday peak hours was then prepared using ITE’s empirical data – also contained in their Trip Generation Volume 2 document.

In this second step, our trip making estimates focused on the number of person trips moving via walking/biking/transit modes and these calculations were based on published ITE person trips information contained in the Volume 2 document. These person trip values were then subtracted from the total person trips, quantified in the previous Section (*Table 1*). The remainder of the person trips were assumed to travel by vehicle as a driver or passenger. A summary of these calculations is provided in *Table 2*.

Table 2: Person Trips by Travel Mode

	Size	Person Trip Rate	New Person Trips / Hour		
			In	Out	Total
AM Peak Hour					
Total Person Trips (Table 1)			45	191	236
Walk/Bike/Transit Trips: ITE LUC 222 (Volume 2)	400 units	0.34/unit ^A	34 (25%)	102 (75%)	136
AM Peak – Person Trips by Vehicle			11	89	100
PM Peak Hour					
Total Person Trips (Table 1)			112	68	180
Walk/Bike/Transit Trips: ITE LUC 222 (Volume 2)	400 units	0.26/unit ^A	48 (46%)	56 (54%)	104
PM Peak – Person Trips by Vehicle			64	12	76

A – ITE's regression formula used to determine the per unit trip rate.

Based on ITE's empirical data for a new high-rise residential building in an urban area with good connectivity to HRM's public transit, we can expect about 55% to 60% of the person trips moving to/from the site to be comprised of the walking, biking, and public transit modes. Thus, a smaller portion of the site-generated person trips are expected to travel by vehicle, either as a driver, as a passenger (rideshare), or by hired drivers (i.e. taxi, Uber, etc.). Of course, for these estimates to be realized there is a need for increased and continuous investment in public transit services and additional active transportation facilities in the vicinity of the Lacewood Drive area of Halifax.

4.4 – New Peak Hour Vehicle Trips

The next step in the trip generation process involved the calculation of the number of new vehicles that will move in/out of the proposed development. GRIFFIN reviewed research data regarding the typical expected vehicle occupancy – or the number of persons that travel within a car during peak commuter times – and applied this information to this study. Generally, commuter vehicles contain an approximate average of 1.2 persons per vehicle during peak times of the day. This value has also been used by HRM in the past as part of regional transportation modelling efforts.

Applying a 1.2 persons/vehicle factor to the results in *Table 2* provides the following new vehicle estimates generated by the new development:

- *Weekday AM Peak Hour:* 83 new vehicle trips/hour (9 inbound and 74 outbound)
- *Weekday PM Peak Hour:* 63 new vehicle trips/hour (53 inbound and 10 outbound)

This volume of new vehicles equates to adding about one new vehicle to the study area roads and intersections every minute. Given the relatively low vehicle traffic demand generated by a new 400-unit development, there is not expected to be any measurable change in operations on the study area streets and intersections.

4.5 – Expected Distribution of New Trips

The mix of land uses throughout Clayton Park is comprised of mid and high-rise residential buildings, institutional uses (i.e. High School, HRM Library, etc.), multiple recreational facilities, and a variety of commercial businesses. There is good street connectivity and active transportation facilities provided throughout the neighbourhood. Thus, the movement of person-trips is expected to be well-served with continued investments by HRM in active transportation and public transit services.

In terms of vehicle traffic, the highest concentration of new vehicle trips added to the network is expected to occur on Greenpark Close and Regency Park Drive. As drivers move further away from the subject property they will have the choice to travel east or west along Lacewood Drive – further dispersing trips and diminishing the traffic impacts. 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.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 - Conclusions

The following conclusions were gleaned from the qualitative traffic impact assessment of the proposed increased density on the civic #71 Greenpark Close property:

- The land owners of civic #71 Greenpark Close have approval from HRM Planning to build up to 90 residential units on this property, which equates to a residential density of about 21 units/ acre. The proponent is submitting a request to HRM for a planning amendment that would allow an increase in residential density on this property from 90 units up to 400 units. Allowing this amendment to occur would help HRM provide additional housing units in the urban area, as well as help meet the strong market demand for these types of residential units.
- The Clayton Park West neighbourhood of HRM offers good mobility connectivity for several modes of travel. There is good connectivity for active modes in the immediate vicinity of the subject lands through the provision of sidewalks along both sides of Regency Park Drive and Lacewood Drive. Further, there is good connectivity to existing public transit services on Regency Park Drive. Public Transit stops are only a short 220 m walk from the subject property and a large transit terminal is only 1.1 km away.
- Following HRM's recently adopted Integrated Mobility Plan policy, GRIFFIN utilized ITE's person trip rates for a dense urban area. These rates were obtained from ITE's *11th Edition Trip Generation Manual, Volume 2* document and used to quantify the amount of new trip making generated by a future 400-unit high-rise residential building. The estimated person trips were broken down into new vehicle trips and new walking/biking/transit trips. The

majority of trip-making to/from a new high-rise residential development is expected to be comprised of the latter modes, walking/biking/transit. Further, the proposed high-rise residential development is expected to add up to **83 new vehicle trips/hour** (9 inbound and 74 outbound) during the weekday morning peak period, and **63 new vehicle trips/hour** (53 inbound and 10 outbound) during the weekday afternoon peak period.

- GRIFFIN expects there will be a marginal and acceptable level of traffic operational impact on the study area streets and intersections associated with a new 400-unit residential high-rise building. This conclusion is based on the fact there is a sufficient amount of residual capacity along the study area streets to accommodate up to one new vehicle trip every minute. Further, there is good access to active transportation facilities, good connectivity, and public transit service is located a short 220 m walking distance from the site. Having these convenient mobility choices will help incentivize a shift away from use of single-occupant vehicle trips.
- As this neighbourhood becomes more densely populated in the future, we can expect a reduction in vehicle trip-making relative to current trends. These mobility patterns are generally in line with HRM's goals contained within the Centre Plan and Integrated Mobility Plan policies. Of course, for these goals to be achieved, there is a need for increased and continuous investment in public transit services and additional active transportation facilities.

In summary, the number of new vehicle trips generated by the proposed increase in residential density at civic #71 is expected to 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. *Increased Residential Density:* That the proposed planning amendment for the civic #71 property be approved which would allow for increased residential density of up to 400 units. This recommendation is based on the assumption that these units are contained within a new high-rise building and the surrounding area becomes more densely populated.
2. *Investment in Mode Choices:* That the Municipality continue to invest in active transportation facilities and public transit which can support future growth and increased density in this neighbourhood. Examples of investments could include adding sidewalk or multi-use paths along both sides of Greenpark Close, repurposing the very wide vehicle lanes on Regency Park Drive for use by active transportation modes, and/or increasing public transit service frequency to offer improved service quality for this area.
3. *Active Transportation:* That HRM examine the merits of completing a Clayton Park neighbourhood active transportation needs assessment study. The goal of this study

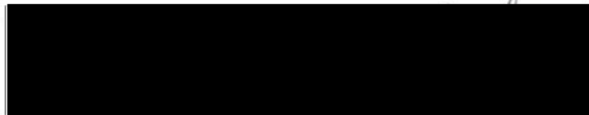
should be focused on establishing a long-term plan for implementing active transportation routes, facilities, and connectivity throughout the area. This work could identify locations and opportunities to utilize existing right-of-way that could be repurposed to offer sidewalks, trails, multi-use paths, and cycling facilities.

6.0 CLOSING

The findings flowing from this qualitative traffic impact statement indicate there are no issues or concerns with increasing the allowable residential density at civic #71 Greenpark Close. Providing more residential units, and increased residential density in an established community that is well served by active transportation facilities and public transit generally conforms with HRM's policies regarding housing and transportation mobility.

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,



James J. Copeland, P.Eng., RSP1

Managing Principal – Traffic & Road Safety Engineer
GRIFFIN transportation group inc.

