

June 11, 2025

Nova Scotia Department of Public Works
Area Manager, Halifax East

Email: Alexander.MacDonald2@novascotia.ca

Dear Mr. MacDonald:

RE: 25-006 - Peddy's Brook Estates - Traffic Impact Statement

Background

DesignPoint Engineering & Surveying has been retained to complete the traffic impact statement (TIS) for a proposed residential development located in Devon, NS (PID 4135419). The development will consist of 100 modular homes in a land leased community. The TIS is in support of a concept application. The proposed site location is shown in Figure 1.

The proposed site is located just off Old Guysborough Road, approximately 600 metres west of Miller Road. A site plan is shown in Figure 2.

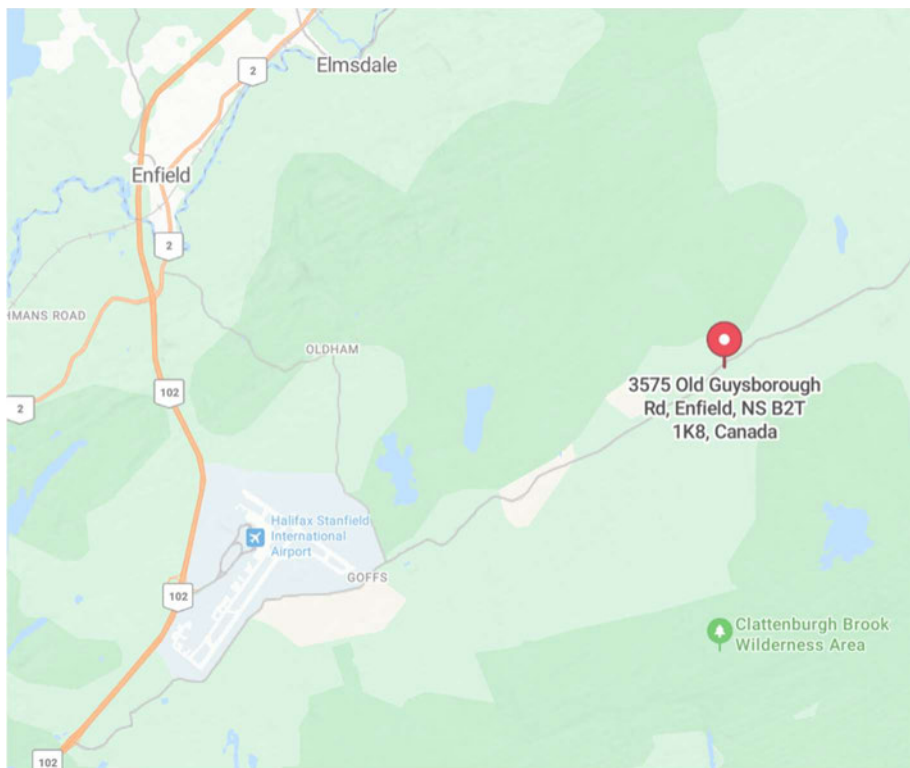


Figure 1 - Site Location

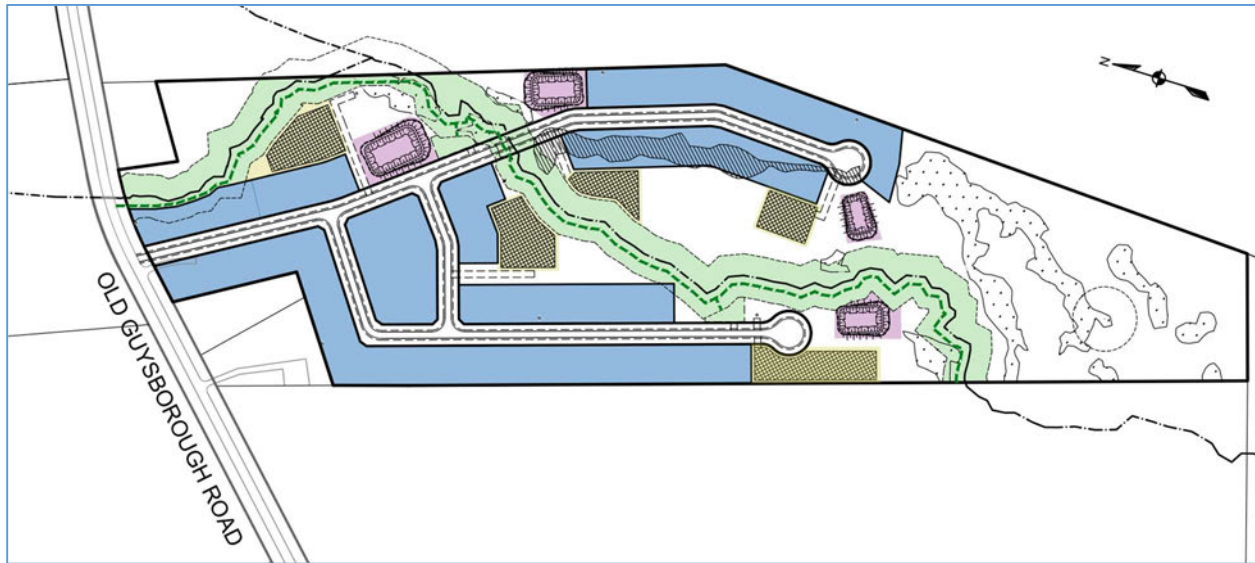


Figure 2-Site Plan

Study Area

Old Guysborough Road

The section of the Old Guysborough Road, near the site entrance, is a rural two-lane minor collector with a posted speed of 80 km/h near the community of Enfield, Nova Scotia.



Figure 3 - Old Guysborough Road

Existing Conditions

Traffic volume data for Old Guysborough Road, just west of Antrim Road, was provided by the Nova Scotia Department of Public Works (NSDPW) for the week of June 10 – 17, 2025. Based on this data, the average AM and PM weekday peak hour volume was 119 and 166 vph respectively.

The data was adjusted by a factor of 0.89 obtained from the NSDPW Average Group Factors document for the period 2012 – 2023. This indicates that traffic volumes in June are typically higher than the Average Annual Weekday traffic volume.

The AM and PM design peak hour volumes were **109** and **153 vph** respectively.

Site Traffic Generation

Site traffic generation was estimated using the ITE Trip Generation Manual, 11th edition. There was no land use code for Modular Homes. A Single Family Detached Dwelling land use code was used as per the scoping document.

Land Use	Code	Units	Variable	Trip Generation Rates ¹						Trips Generated			
				AM Peak			PM Peak			AM Peak		PM Peak	
				Rate	In	Out	Rate	In	Out	In	Out	In	Out
Single Family Homes	210	100.0	units	0.70	21%	79%	0.94	62%	38%	15	55	58	36
Total Estimated Site Generated Trips										70		94	
Notes:	1. Trip generation rates from ITE <i>Trip Generation Manual</i> , 11th Edition. 2. Single family home used instead of modular homes as per scoping document												

Trip Distribution and Assignment

Directional traffic volume data was not available from NSDPW. For existing volumes, it was assumed that the directional split would be 50-50. For the site generated trips, it was assumed that most trips (90%) would be to and from the west (Enfield, Airport, Highway 102). A summary of the peak hour traffic patterns are shown in Figures 4 and 5.



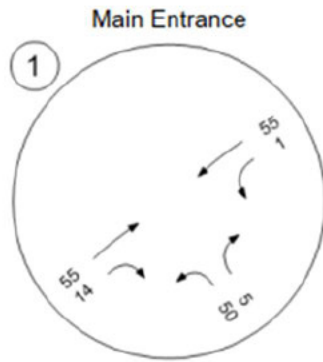


Figure 4 - AM Peak Hour Volumes

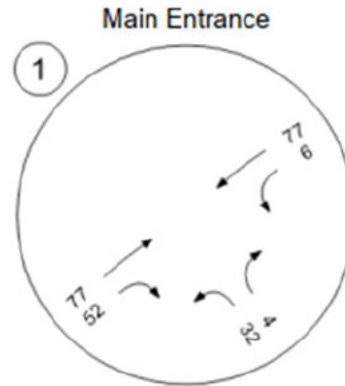


Figure 5 - PM Peak Hour Volumes

Analysis

The Highway Capacity Manual's (HCM) Level of Service (LOS) method is the most popular method to determine how well a transportation facility, typically an intersection, operates during a specified period. This is typically the weekday AM and PM peak hour periods.

The LOS method measures the average delay for a vehicle travelling through an intersection. Average delay is graded on a scale from A to F, with a LOS A associated with minimal delay, and LOS F associated with heavily congested conditions. Table 1 provides the HCM LOS criteria for unsignalized intersections.

Table 1 - HCM Method for Unsignalized Intersections

Level of Service	Average Control Delay (seconds per vehicle)
A	≤ 10
B	> 10 – 20
C	> 20 – 35
D	> 35 – 55
E	> 55 – 80
F	> 80

For this study, the NSDPW Traffic Impact Analysis Guidelines was applied to the main entrance intersection. It requires the proponent to identify:

- Intersection and approaches where the overall volume/capacity (v/c) ratio exceeds 0.90
- Intersection LOS exceeds a LOS D.

The existing AM and PM peak hour results are shown in Tables 2 and 3. The results indicate that the main entrance intersection operates within the NSPW guidelines.

Table 2- Total AM Peak Hour



AM Peak Hour (rev1)															
Intersection	LOS Criteria	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Intersection
Main Entrance	Vehicle Count		50		5					55	14	1	55		
	v/c		0.06		0.00					0.00	0.00	0.00	0.00		
	Delay (s)		9		9					0	0	7	0		3
	LOS		A		A					A	A	A	A		A
	95th% Queue (m)		2		2					0	0	0	0		

Table 3 - Total PM Peak Hour

PM Peak Hour (rev1)															
Intersection	LOS Criteria	Intersection Control	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Intersection
Main Entrance	Vehicle Count		32		4					77	52	6	77		
	v/c		0.04		0.00					0.00	0.00	0.00	0.00		
	Delay (s)		10		9					0	0	7	0		2
	LOS		A		A					A	A	A	A		A
	95th% Queue (m)		1		1					0	0	0	0		

Access Review

Stopping sight distance (SSD) is the minimum requirement for sight distances at driveways and intersections¹. It is the distance a vehicle takes to avoid encountering an obstacle at the relative speed. It is the combination of the distance travelled during the perception and reaction time, the time it takes a driver to determine the need to stop, and the braking distance, which is the distance travelled once the brakes are applied to when the vehicle comes to a stop.

Given the complex situations that drivers often encounter at intersections, it is desirable to provide more than the minimum stopping sight distance to enhance safety.

Intersection sight distance (ISD) is defined as the sight distance available from a point where vehicles are required to stop on the road, while drivers are looking left and right along the major road, before entering the intersection. NSDPW has advised that ISD is the minimum requirement for this study.

The Transportation Association of Canada Geometric Design Guide for Canadian Roads provides a minimum stopping and intersection sight distances for various design speeds. It was assumed that the design speed for Old Guysborough Road was 80 km/h which was the posted speed.

A site visit was carried out on March 4th, 2025, to measure SSD and ISD. The results are shown in Table 4.

¹ Source: TAC Geometric Design Guide

Table 4 - Sight Distance Observations

Approach	Design Speed (km/h)	Minimum SSD (m)	Minimum ISD for right turns	Minimum ISD for left turns	Measured Sight Distance
From the West	80	130	145	170	>200m
From the East					130-180m

The results indicate that a vehicle approaching the entrance from the west has adequate SSD and ISD. There is adequate SSD to a vehicle approaching the entrance from the east. The available ISD was inconclusive as it is dependent on several factors. The factors include the roadway geometry, the location of the roadway within the right-of-way, the exact location of the driveway, and vegetation within the roadway right-of-way

- The proposed driveway is located at the end of a horizontal curve. This restricts the sight distance for vehicles turning left from the driveway.
- The sight distance measurement assumed that the roadway was centered within the right-of-way. A shift one way or the other could influence the sight line
- The location of the driveway also influences sight lines. Shifting the driveway to the west improves the sight distance.
- Roadside vegetation also influences sight lines. During the sight visit (March 4th), there was very little foliage. This would change during the summer months.



Figure 7 - View to the East



Figure 6 - View to the West

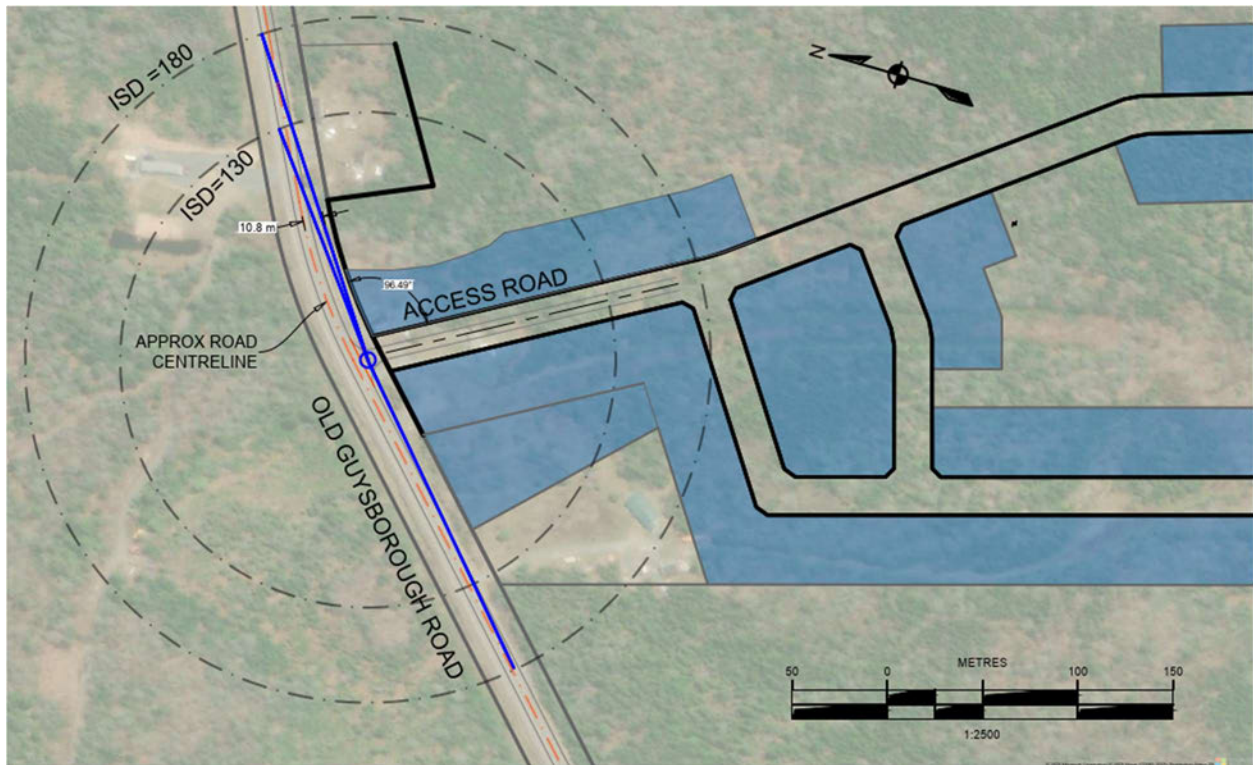


Figure 8 - Sight Lines

Mitigation Measures

Signals

Signals are not warranted for the Main Entrance as the side street volumes do not meet the minimum threshold as outlined by the Transportation Association of Canada's (TAC) Canadian Signal Warrant Matrix Procedure.

Left Turn Lane Warrants

A left turn warrant was completed for the main entrance using the warrants outlined in the Ministry of Transportation Ontario (MTO) Geometric Design Standards for Ontario Highways. For this analysis, we assumed that the PM peak hour was the critical period.

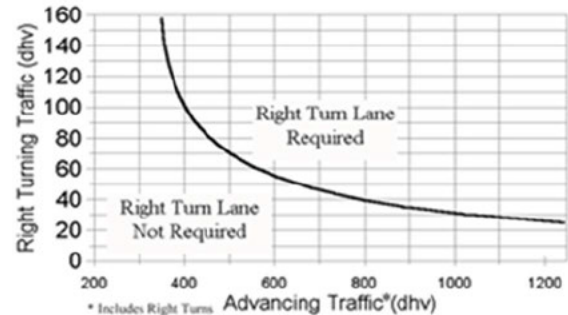
A left turn is not warranted at the Main Entrance as the approaching volume (80 vph) does not meet the minimum required by the warrant (225 vph +/-).

Right Turn Lane Warrants

A Right Turn Lane warrant was carried out using the Ohio Department of Transportation State Highway Access Management Manual. For this analysis, we assumed that the PM peak hour was the critical period.

A right turn lane is not warranted as the advancing volume (80 vph) does not meet the minimum (350 vph +\) required by the warrant.

2-Lane Highway Right Turn Lane Warrant
=< 40 mph or 70 kph Posted Speed



Summary

- DesignPoint Engineering and Surveying has been engaged to prepare the traffic impact statement for a proposed residential development at Civic 3375 Old Guysborough Road.
- The development will consist of 100 modular homes in a land leased community.
- The proposed development is expected to generate 70 and 94 AM and PM peak hour trips respectively.
- The main entrance and the existing street network can accommodate the traffic generated by the site. No mitigation measures are required.
- An access review identified a potential sight distance issue with vehicles approaching the main entrance from the east. It is recommended that:
 - the existing roadway and driveway geometry be re-confirmed by topographic survey during detailed design,
 - pending the findings of the topographic survey, the vegetation within the right-of-way be removed, and
 - the intersection sight distance be re-measured.

Closing

We appreciate your help in confirming the scope of work for this traffic impact statement. If you have any questions on the contents of this report, please do not hesitate to contact me directly.

Thank you,
DesignPoint Engineering & Surveying Ltd.



Paul. V. Burgess, M.Eng., P.Eng
Senior Transportation Engineer

cc Ashley Blissett, P.Eng., Halifax Regional Municipality