Rothesay

Traffic Calming Guide

Version 1.0 February 2026

1.0 Introduction

When the average person thinks of traffic calming, they often think of speed bumps. Rothesay, like many of its other surrounding neighboring municipalities, receives several requests for speed bumps every year. Although speed bumps are the most well-known method of traffic calming in the public eye, they should be considered as a last resort. Issues with ongoing maintenance, plowing, emergency response, insurance claims for vehicle damage, noise, and overall public divisiveness outweigh any benefit that they provide. What the public may not realize is that Rothesay instead turns to other, more subtle approaches to traffic calming that are effective while being unnoticeable to the untrained eye. This policy will demonstrate the many traffic calming practices that are already employed in Rothesay and can be further applied to calm neighborhoods experiencing issues with speeding and traffic.

What is traffic calming, and why is it necessary? **Traffic calming is necessary for two reasons: to reduce speeding or to discourage motorists from using neighborhoods as a thoroughfare or shortcut.** It is the art of applying methods of either visual characteristics (most preferred), traffic controls, horizontal displacement, or vertical displacement (least preferred) to force motorists to slow down, resulting in neighborhood streets safe for motorists, cyclists, pedestrians, and playing children.

This policy was created as an aid to assist Rothesay's non-technical staff, committees, and council in understanding the theories involved in traffic calming, to understand the multiple options available for traffic calming and understand the process in assessing and implementing traffic calming in any given street or intersection.

2.0 Knowing Your Road Network

There are five different classifications of roads in Rothesay, varying from high-speed arterial highways to private lanes. Each type of roadway presents its own unique challenges for traffic control and calming. When assessing a roadway for traffic calming, the treatment applied will depend greatly on the type of roadway.

2.1 *Provincial Arterial/Collector Highways*

Route 1 and Route 111 are the two main arteries that fall under this category. Highway exits are also included under this category. These highways are owned and managed by the New Brunswick Department of Transportation and Infrastructure (NBDTI) and are high speed roadways designed to move large volumes of traffic. Traffic calming cannot be employed on these roads.

Route 1 (Mackay Highway) looking west

2.2 *Provincial-Municipal Collector/Local Highways*

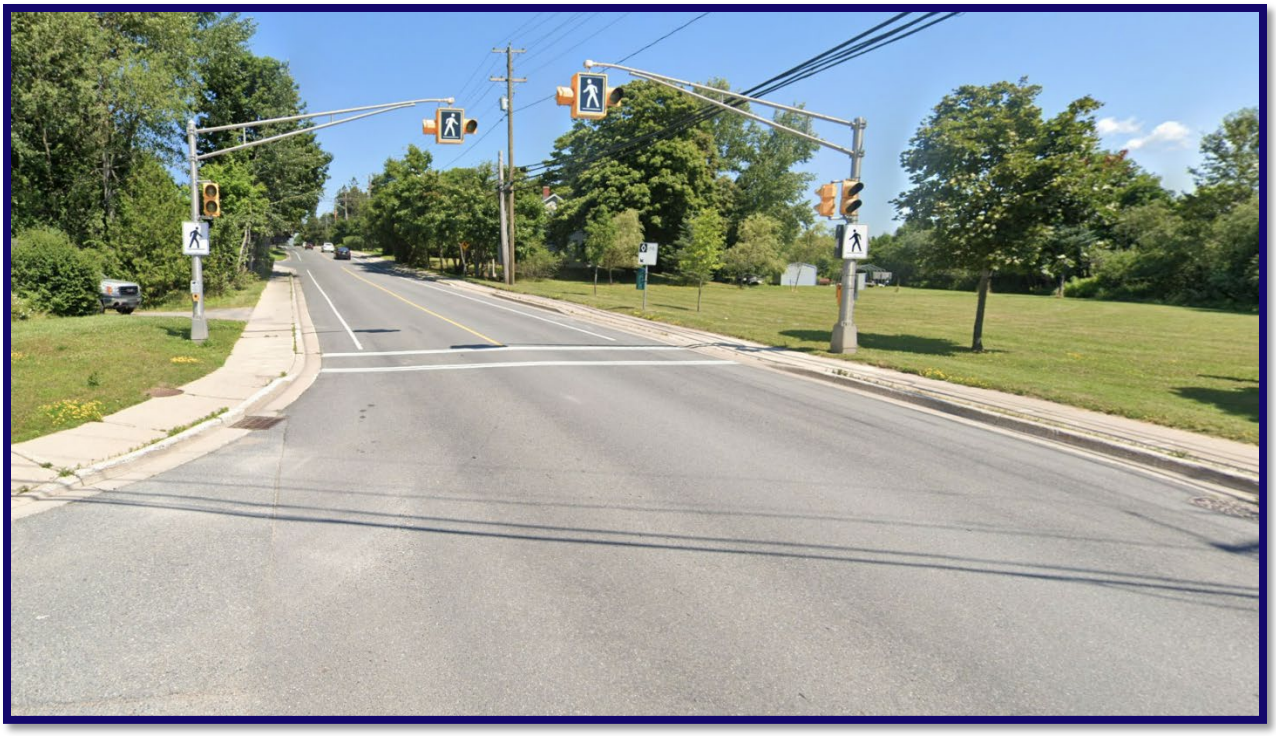
These roadways are main arteries through the town, that are a joint responsibility between the province and town as part of the Provincial-Municipal Highway Program (PMHP). The province and town have a joint agreement with respect to who is responsible for summer and winter maintenance, with Rothesay performing most of the maintenance on these highways. Examples include Route 100 (Rothesay Road and Hampton Road), Fox Farm Road, Campbell Drive, Route 860 (French Village Road), Southridge

Fox Farm Road

Road (NBDTI maintained), and a portion of Dolan Road. The purpose of these roadways is to carry large volumes of daily commuter traffic and deliveries, and route emergency traffic from the town's neighborhoods to the arterial and collector highways. Where these roads are considered to be provincial highways the potential options the Town can employ for traffic calming are limited, and have to be in line with methods recognized by NBDTI. Only minor, non-disruptive measures of traffic calming should be considered, as installing highly disruptive measures can cause issues with traffic congestion.

2.3 *Municipal Collectors*

Municipal Collectors are similar to Provincial-Municipal highways, with the exception that the roads are solely owned and maintained by the Town. Examples include Marr Road, Clark Road, Gondola Point Road, and Grove Avenue. Same as the Provincial-Municipal Highways, the role of this type of roadway is to move large volumes of traffic from the town's neighborhoods to the arterial and collector highways, and only minor non-disruptive measures of traffic calming should be employed.



Gondola Point Road at River Road

2.4 *Local Roads*

Most of Rothesay's road network consists of local roads, which can be generally characterized as local neighborhood streets. Besides a few exceptions, the speed limit on local roads in Rothesay is 40 km/h. It is these roads that are expected to be shared between motorists, pedestrians, and cyclists. Local roads are the type of roadway that receive the most requests and attention to traffic calming.

Iona Avenue

40 km/h is used as the speed limit on Rothesay's local road network as it provides a compromise between safety and providing a speed limit that is not too slow to the point where it is beyond the comfort of the driver. As discussed in section 3.2.1, drivers typically drive at the speed limit they feel is comfortable for the conditions presented by the road, not according to the speed limit sign. Setting a speed limit too low to a point where drivers feel uncomfortable going that slow will largely result in the speed limit being ignored. This also puts law enforcement in a tough spot, as they may feel less inclined to enforce a speed limit that is largely being ignored if it does not match the conditions of the roadway.

2.5 *Private Lanes*

There are 44 private lanes in Rothesay. Many of these lanes were grandfathered from the previous communities of Renforth, Wells, East Riverside-Kinghurst, the old Town of Rothesay and Fairvale. About half of these private lanes have historic maintenance agreements that have been grandfathered into Rothesay's Private Lanes Policy and traffic bylaw. As such, the Town provides plowing services and regrading of gravel on lanes with grandfathered maintenance agreements. It should be noted that while Rothesay still provides maintenance for some grandfathered lanes, **all** are still privately owned. The owners of these private lanes are responsible for the capital costs of upkeeping these private lanes. As such, any requests for traffic calming on a private lane should be referred to the owner of the private lane and will not be undertaken by Rothesay.

3.0 Assessing Existing Conditions

An email, phone call, or letter comes into Town Hall. A resident is frustrated about the number of speeding cars on their street and wants to know what the town will do about it. Town staff appreciate their concern and certainly want to help keep neighborhoods safe by keeping speeds at safe levels. **The first step in addressing a speed complaint is assessing existing conditions to determine if there is an issue, and if so, to what extent.**

3.1 *Data Collection*

Before any action can be taken, staff will need to assess the existing conditions of the street to determine the extent of the issue, or even **if there is an issue at all.** Rothesay has two methods of recording speed and traffic volumes and has a catalogue of historical data on most of its road network. The two types of devices Rothesay uses to analyze traffic speeds and volumes are:

Black Cat: This black box is mounted to a utility pole or signpost and is a radar device that measures traffic counts and speeds over two lanes of traffic. The device collects up to a week's worth of information and produces a detailed report outlining statistics like median, average, mode, speed distribution per percentile, traffic counts, and best time of the day to enforce speed violations.

Speed Radar Feedback Signs: These solar powered devices not only show drivers their speed as they drive past it, they also record the same traffic count and speed metrics that the Black Cat collects. The speed signs are further explained in *Section 4.0 Driver Education.*

In the event of a speed complaint, staff will install a data collection device to record data, usually for one to two weeks to record the speed of each vehicle passing by the device. Once complete, speed data is downloaded from the device for data analysis.

In the event that it is believed a local street is being used as a shortcut, traffic counts from the measurement devices will be compared with the number of users who should be using that street, and traffic patterns will be observed in the field to determine if there is an issue.

3.2 *Assessing Data*

In the event of a speed complaint, staff will first collect speed data to determine the median and 85th percentile speeds to determine if there is indeed a problem, and to what extent.

3.2.1 *What is the 85th Percentile Speed?*

Contrary to popular belief, most drivers do not decide their speed based on the speed limit alone, but rather on their comfort level or general 'feel' of the road. Drivers will intuitively drive at the speed in which they feel most comfortable, or what traffic engineers refer to as their "driver workload". This is factored by road geometry (e.g.: lane width, number of lanes, horizontal and vertical curve geometry), environment (e.g.: night driving, weather conditions), and roadside distraction levels (e.g.: driveways, signs, parking lots, buildings). [1]

The 85th percentile speed is the speed that 85% of drivers are travelling at or below. Research has proven that the gap in speed between the 15th percentile speed and the 85th percentile speed to be a narrow gap, usually in the range of 5-10 km/h. So based on the 'feel' that the road provides the driver, an overwhelming majority of drivers reach a collaborative consensus within a range of 5-10 km/h of what the speed *should* be. Setting a speed limit to the 85th percentile speed will result in a

speed limit that all drivers will be comfortable using. In the case of Canadian jurisdictions, speed limits are set in intervals of 10 kilometers per hour. To assign a speed limit, the 85th percentile speed is rounded to the nearest 10 km/h. While this certainly is not the only metric to define a speed limit, other factors such as school zones, geometry, sight distances, types of vehicular traffic, on-street parking, and concentrations of pedestrians play a role. [1]

It is important to note that Rothesay is not using the 85th percentile speed to set the speed limit, they have already been mandated in the traffic bylaw based on the conditions of each street. The 85th percentile speed statistic is being used to compare actual speed data to the set speed limit. In the case of most of Rothesay's local streets, we want the 85th percentile speed to align with the local street speed limit of 40 km/h, to align with the safety benefits that come with the 40 km/h speed limit.

3.2.2 *What about the top 15%?*

There will always be outliers on the top and bottom ends of the speed spectrum, no matter the street, community, or how much traffic calming is in place. It is the role of law enforcement to crack down on frequent and dangerous speeders.

3.2.3 *Criteria for traffic calming implementation*

For speed-related complaints:

If it is determined that both the median speed is greater than or equal to the set speed limit, and the 85th percentile speed is determined to be rounded closer to the next 10 km/h interval, then the street will be considered for traffic calming. For example, speed radar devices are placed on two different maximum 40 km/h local streets called Street' A' and Street 'B'. The results on Street 'A' return a median speed of 37 km/h and an 85th percentile speed of 43 km/h. The results on Street 'B' return a median speed of 44 km/h and an 85th percentile speed of 48 km/h. In the case of street 'A', although the 85th percentile speed is greater than the speed limit, it rounds to a speed limit of 40 km/h, and any kind of traffic calming measures installed would yield marginal or no improvements in speed. For Street 'B', where the 85th percentile speed would round to a speed limit of 50 km/h and the median speed is greater than the speed limit, traffic calming measures may be warranted.

For volume/shortcutting related complaints:

In the event of consideration for traffic calming for traffic volume reduction on a local street, neighborhood, or section of a neighborhood, if the AADT* exceeds the following formula calculating theoretical number of trips per day on the street, neighborhood portion, or part of a neighborhood, the street will be considered for traffic calming:

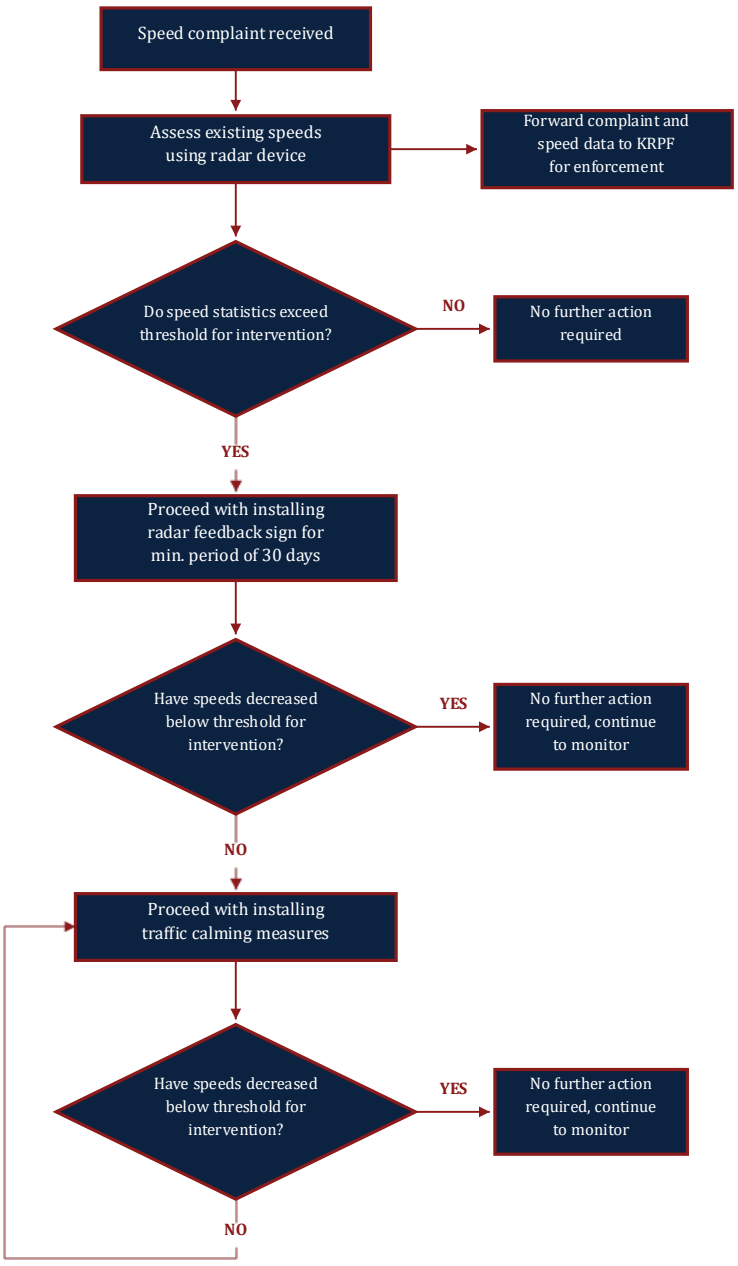
$$Theo.Volume = \#\ of\ residences\ \times 2.4\, persons/residence \times 2\, trips/day \times 1.5$$

*AADT: Annual Average Daily Traffic: The volume of traffic on a given section of roadway on an average day

If a neighborhood is either is a cul-de-sac, only has one entry/exit point, or in no way could possibly be used as a shortcut or bypass of a collector road, the neighborhood will not be considered for traffic calming for the purpose of traffic volume reduction.

3.3 *Assessment and Implementation Procedure*

The procedure in the following flow chart shall be used to carry out the implementation of speed monitoring and traffic calming implementation, from complaint to monitoring to finish product:



4.0 Driver Education

If the speed data reveals that the speed statistics are only slightly above the criteria for intervention, the issue can likely be resolved using the speed feedback radar signs. The signs provide a reminder to drivers that they are exceeding the speed limit, reminding them to slow down. This encourages a new habit of slowing down in the area of the sign. After a period of using the speed radar feedback sign, new driver habits will be established with lower speeds in place.

Speed feedback radar sign on Grove Avenue

Speed data produced by the sign will provide an indication to whether speeds are improving throughout the sign's implementation. If at the end of the sign implementation, speeds are not found to have improved, staff will proceed to installing traffic calming measures.

5.0 Traffic calming measures

If the speed radar signs prove to be ineffective, we can move onto applying traffic calming measures. The measure applied will depend on the classification of roadway and will be decided by the Town Engineer or their designate based on engineering judgement.

The order in which traffic calming measures are implemented is as follows:

1. Visual Characteristics
2. Traffic Controls
3. Horizontal Displacement
4. Vertical Displacement

Rothesay has selected this order of implementation as this is the order in which traffic calming is least to most noticeable to the untrained eye, and in order of least hazardous to most hazardous to drivers.

5.1 *Visual Characteristics*

The following traffic calming methods use visual characteristics as a method to reduce speeds. These are Rothesay's preferred method of traffic calming as they are effective, while the general public does not realize they are indeed traffic calming measures.

5.1.1 *Lane Narrowing – Pavement Reduction*

Lane narrowing is the practice of physically narrowing the pavement width of a local street via construction. The result is lanes so narrow that the driver feels a "funneling" effect and feels the need to slow down. For this method, lanes should not be reduced more than the TAC minimally accepted design guideline of 3.0m. [3] The lane narrowing practice should also be accompanied with the addition of a sidewalk or pedestrian pathway, as there will no longer be sufficient width in the street to accommodate pedestrians and cyclists.

Application: Local Roads

Pros: Very effective and consistent calming the whole length of the section

Cons: High cost, involves relocating curbs, sidewalk, and drainage structures

Lane Narrowing at Eriskay Drive and Iona Avenue

5.1.2 *Lane Narrowing – Painted Lanes*

Similar to pavement reduction, but less destructive is the practice of using traffic markings to create narrowing illusion. This practice in Rothesay usually consists of adding a bike lane to an existing street, reducing the width available in the driving lanes and producing a space for active transportation. This practice serves two purposes: to create a narrowing effect for drivers, causing them to slow down, and to create a dedicated space for active transportation. The picture to the right is an example of an active painted transportation lane on Sprucewood Avenue.

Sprucewood Avenue painted bike lane

Application: Local Roads, Collector Roads

Pros: Consistent calming the whole length of the section, the addition of active transportation space is considered a benefit, low cost

Cons: less effective than lane narrowing by pavement reduction

5.1.3 *Curb extensions*

Curb extensions are used at intersections or mid-block pedestrian crosswalks. Their purpose is to create a "sinched-in" section by extending the curb line into the roadway. For crosswalks, this increases the likelihood that the driver will stop as it moves the pedestrian toward the center of the driver's field of view. It also creates a shorter crossing distance for the pedestrian. For the driver, the "sinching-in" effect creates an illusion that the road is narrowing and causes them to slow down as they pass through the extension. Curb extensions are often used in conjunction with on street parking areas, as they provide distinct stop and start points for on-street parking, and the extensions help the pedestrians extend past the parked cars into the field of view of the crosswalk. [2]

Application: Local Roads, Collector Roads

Pros: Great for improving safety at pedestrian crossings and on-street parking

Cons: relocation of curb lines and added drainage structures required

Curb extensions on Church Avenue

5.1.4 *Raised Medians*

Raised medians usually consist of a curbed concrete island with grass or landscaping features in the centre. Medians provide a narrowing illusion to drivers, and act as a refuge for pedestrians where a crosswalk crosses through the median. The centre refuge allows pedestrians to only have to focus on crossing one direction of traffic at a time, and providing a space for pedestrians to rest, regroup, and focus on crossing the next direction of traffic. [2]

Raised Medians on Hampton Road

Application: Local Roads, Collector Roads

Pros: Great for improving safety at pedestrian crossings, creates narrowing illusion and a space for landscaping

Cons: Can make snow removal difficult, tall plants or features in the island can obstruct motorists' views

5.1.5 *Tree Canopy*

Having a robust and low–hanging tree canopy can create the same narrowing effect on drivers that lane narrowing presents. The downside to establishing a tree canopy on a street is it takes decades to establish. [2]

Tree Canopy on Rothesay Road

Application: Local Roads, Collector Roads

Pros: Low cost and usually naturally occurring if trees already exist along the roadway

Cons: Takes decades to establish an effective tree cover, can do damage to oversize loads that extend into the canopy

5.2 *Traffic Controls*

5.2.1 *All way stops*

All way stops are a great way to improve intersection safety and slow down traffic on long straightaway sections of local street. They may be applied at any intersection along the straightaway. The all-way stop must be signed with stop signs at all approaches and equipped with an "ALL-WAYS" tab below the sign indicating that the stop is an all-way stop. Painted stop bars and stop ahead signs are recommended on straightaway sections to provide the driver with warning that the stop is ahead where it may not be inherently obvious that a stop sign is ahead. All-way stops are also known to reduce the potential for 'T-bone' collisions at intersections and increase the likelihood of motorists stopping for pedestrians at the intersection. [3]

All-way stop at Joshua Street/Simone Street Intersection

Application: Local Roads

Pros: Improves safety at intersections

Cons: Effective, but long straightway sections may need all-way stops every 200-300m to keep speeds in check for the entire section

5.2.2 *Limited access*

Limiting access is a method of using physical barriers, landscaping, or traffic controls to limit access onto a local street with the intent of reducing traffic volume. It is also used as a tool to prevent traffic from shortcutting through a neighborhood. Access limitation can be partial to one direction, or a full closure. The access limitation should not impose any major impedance to emergency response times. [2]

Application: Local Roads

Pros: Effective for traffic volume reduction and preventing shortcutting through neighborhoods.

Cons: Can increase emergency response times

Access Limitation on Strong Court/Gondola Point Rd

Access Limitation at Markton Drive/Woodland Avenue

5.2.3 *Roundabouts*

A roundabout is a type of three or four-leg intersection that contains a circular centre island with a truck apron and splitter islands in the centre of each approach to deflect incoming traffic tangentially toward the direction of traffic. The splitter islands provide a refuge space for pedestrians, allowing them to only have to focus on crossing one direction of traffic at a time. Splitter islands guide entering traffic so that it enters at a tangent. The benefit of the tangential entry is the significantly reduced chance of damage, bodily injury, or death in the event of a collision, as opposed to 90-degree ("T-bone") collisions which are among the most lethal types of collision. The truck apron, which usually consists of a semi-mountable curb, and textured/coloured concrete apron alongside the island, provides additional turning width for large vehicles with larger tires. Should the vehicle require a larger turning radius the back tires of the vehicle can mount the semi-mountable curb and use the apron, while the curb cannot be mounted for smaller vehicles. In design, the roundabout diameter is designed so that the maximum speed an errant vehicle can physically navigate the curvature of the circle and islands is no more than a defined speed limit, usually 40-50km/h. [2] Roundabouts have yet to be used in practice in Rothesay.

Example Roundabout in Hampton, NB

Application: Local and Collector Roads

Pros: Effective at moving traffic through intersections with high turning volumes, odd approach angles, safer than 90-degree intersections.

Cons: Large footprint area, often require property acquisition to expand existing rights-of-way

5.2.4 *Traffic Circle*

Traffic Circles are a retrofit of an existing three or four leg intersection, by inserting a raised circular island in the middle of the intersection, allowing traffic to go in a right-turn, counterclockwise only direction around the island. What makes a traffic circle different than a roundabout is the fact that the existing curb lines do not change and there are no splitter islands in the approaches. [2] Traffic circles have yet to be used in practice in Rothesay.

Example traffic circle in Fredericton, NB

Application: Local Roads

Pros: Causes vehicles to deflect as they navigate the intersection thus slowing them down.

Cons: where they do not have the guidance of the splitter islands, errant vehicles may still choose to turn left instead of going around the central island

5.3 *Horizontal Deflection*

5.3.1 *Horizontal curvature – New Construction*

Cognizant of the recent concern for speed in neighborhoods, staff are now requiring that new developments incorporate elements of horizontal curvature in their roadway designs. Having significant elements of horizontal curvature in a street design requires traffic to slow down to navigate the curves, eliminating the need to ever implement traffic calming devices. [2]

Golf Club Court

Bel-Air Avenue

5.4 *Vertical Displacement*

5.4.1 *Transverse Rumble Strip*

A transverse rumble strip uses milled grooves or a textured surface such as unit pavers to provide an audible warning and roughness to the driving surface. The textured surface can be used as a crosswalk to highlight the prominence of the crossing. [2]

Application: Local Roads

Pros: Textured surface is less of a hazard to vehicles than speed humps, can be used in conjunction with a crosswalk.

Cons: high maintenance commitment and cost, especially if using unit pavers as the textured surface

Rumble Strips on James Renforth Drive

6.0 Closing

Traffic calming is not a one-size-fits-all solution. Rothesay's approach prioritizes subtle, effective measures that integrate seamlessly into the community's streetscape, preserving the character of neighborhoods while enhancing safety for all road users. By understanding the classification of roads, assessing existing conditions, and applying appropriate calming strategies—Rothesay ensures that traffic calming is results oriented and consistent in application.

7.0 References

[1] Institute of Transportation Engineers, "Setting Speed Limits," 2025. [Online]. Available: https://www.ite.org/technical-resources/topics/speed-management-for-safety/setting-speed-limits/.

[2] Transportation Association of Canada, Canadian Guide to Traffic Calming, Ottawa, ON: Transportation Association of Canada, February 2018.

[3] Transportation Association of Canada, Manual of Uniform Traffic Control Devices for Canada - Fifth Edition, Ottawa, ON: Transportation Association of Canada, January 2014.