

The Corporation of the City of Port Colborne

By-law No. _____

Being a By-law to Adopt the Traffic Calming Policy

Whereas Section 270(1) of the *Municipal Act, 2001*, requires that municipalities adopt policies regarding the manner in which the municipality will try to ensure that it is accountable to the public for its actions, and the manner in which the municipality will try to ensure that its actions are transparent to the public; and

Whereas at its meeting of March 12, 2024, the Council of The Corporation of the City of Port Colborne ("Council") approved the recommendations of Public Works Department Report No 2024-44, Subject: Traffic Calming Policy; and

Now therefore the Council of The Corporation of the City of Port Colborne enacts as follows:

- 1. That the policy and procedure respecting the Traffic Calming Policy in the City of Port Colborne appended hereto as Schedule "A" and made part of this By-law be approved.

Enacted and passed this _____ day of _____, 2024.

William C. Steele
Mayor

Saima Tufail
Acting City Clerk



PORT COLBORNE

TRAFFIC CALMING POLICY

City of Port Colborne

Purpose

The purpose of this policy is to provide a framework for initiating, developing, assessing, implementing, and monitoring traffic calming measures for laneway, local, and collector roads in the City of Port Colborne.

Traffic Calming Policy

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1.0 Introduction

1.1 Background

The population growth of the City of Port Colborne, which is the second among the municipalities within the Niagara Region, coupled with employment growth targets in Port Colborne and its adjacent municipalities has triggered excessive traffic volume on the City's road network. These excessive traffic volumes are creating traffic issues such, short-cutting, and speeding in many of the neighbourhoods within the City of Port Colborne.

The City is receiving numerous concerns each year from residents regarding speeding, excessive volumes, and overall neighbourhood safety. In an effort to address these concerns, staff will typically use the resources available to them such as signs, pavement marking and driver feedback boards.

1.2 What is Traffic Calming?

Traffic calming is defined as the combination of passive and physical measures that reduce the negative effects of motor vehicle use, alter driver behaviour and improve conditions for non-motorized street users. Traffic calming measures can be effective in addressing issues related to vehicle speed, excessive traffic volume and overall neighbourhood safety. Traffic calming measures combined with engineering, educational and enforcement tools, can significantly improve the liveability and safety of neighbourhoods.

1.3 Purpose

The purpose of this policy is to provide a framework for initiating, developing, assessing, implementing, and monitoring traffic calming measures for laneway, local and collector roads in the City of Port Colborne.

Creating safer streets for the benefit of all users by addressing issues regarding speeding and excessive traffic volumes.

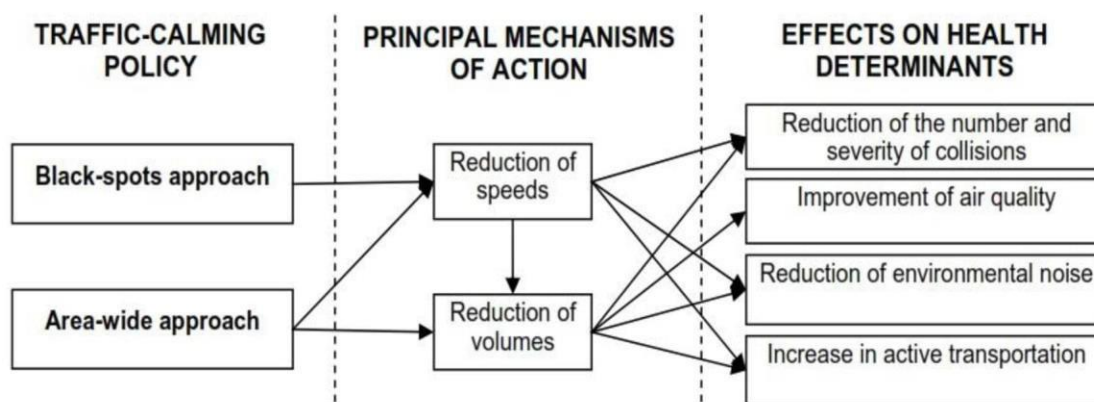
Also, the purpose of traffic calming is to restore streets to their desired function. This function is to provide both mobility and access, but in differing combinations, depending on the specific location, role and classification of the street.

Creating a policy allows the City Staff, members of Council and the public to agree on an approach and criteria that can be used objectively to respond to and prioritize requests.

1.4 Objectives

The primary objective of traffic calming is to ensure that drivers adopt a behaviour that is appropriate for the area, the type of street and its intended function, which will in turn improve conditions for other street users including pedestrians, and cyclists.

Some traffic calming measures are used to reduce excessive speeding while others may be used to reduce through traffic on local streets. Successful implementation of measures would help streets become less dependent on enforcement to ensure users adopt appropriate driving behaviour, as demonstrated within the diagram below.



Source: Salem Spitz, How Much is Too Much (Traffic), ITE Journal, May 1982

1.5 Road Classification and Appropriate Streets for Traffic Calming

The Schedule D of the City of Port Colborne Official Plan classifies the City roads into six categories: Laneway, Local Roads, Local Commercial or Industrial, Collector, Collector Commercial or Industrial, and Arterial.

Laneway, Local and collector roads are intended to provide access to properties or to connect local roads to arterial roads. These roads typically have lower volume and speed. Arterial roads are designed to efficiently move and distribute traffic across the network, including goods movement and emergency vehicles, and any traffic calming measures that interfere with this function would not be recommended. For these reasons, Laneways, Local Road and Collector Roads, that are not commercial or industrial, are considered as candidate roads for implementation of Traffic Calming Measures.

2.0 Background – Review of Documents

At the onset of the project, the 2018 TAC Canadian Guide to Traffic Calming and the Traffic Calming Policy documents from other similar size municipalities as part of best practices was reviewed.

2.1 2018 TAC Canadian Guide to Traffic Calming (CGTC)

The CGTC was reviewed, and the process recommended in the CGTC and much of its content is adopted as a background information in developing the City's Traffic Calming Policy. The CGTC can be used it as a reference to educate elected officials and the general public.

2.1.1 Factors Affecting Traffic Calming Planning

The CGTC identified the following factors that could affect the feasibility or effectiveness of a traffic calming plan.

- Legislation and Regulations: Any planned traffic calming should not conflict with the current legislation and relevant by-laws in place, at all levels of government.
- Liability: Developing a traffic calming policy is helpful to minimize potential liability for installation and impact of traffic calming that may arise from perceived conflict with other reference documents. For safety of all road users, a number of steps can be taken to minimize potential liability issues in the future: developing the policy and documenting the process which includes the design, implementation and maintenance of traffic calming measures. Support from the decision-makers would be easily made with a well-thought out process that considers all road users and affected the City staff.
- Accessibility: Traffic calming measures should consider road users of all ages and abilities that will allow them to be independent and safe.
- Enforcement: Understanding that enforcement resources are limited and that not all locations can be monitored at all times, consideration of various measures that are self-enforcing may have greater chance of success. However, these measures tend to include physical changes to the road characteristics, therefore a good balance between different types of traffic calming measures is important.
- Emergency Services: While slowing down daily vehicular traffic is the objective, this may have negative impacts on emergency services' response times. Over time, enhanced designs have been developed to minimize the impact on emergency service vehicles while still providing functionality to the general traffic. These design considerations are crucial when selecting traffic calming measures.
- Maintenance and Operations: Consultation with the maintenance and operations staff of the municipality throughout the process is important to ensure the

implementation of traffic calming measures do not conflict with their operations. Snow removal, pavement markings, damages due to roadway geometry changes are common concerns however, there may be other locally specific issues that may arise.

- Modes of Transportation: Active transportation and transit operations are important aspects to consider since the objective of traffic calming to enhance safety of all road users. Careful consideration of the measures and thorough consultation process can improve the road user's experience.
- Compatibility with Municipal Land Use and Transportation Plans: Incorporating traffic calming implementation throughout other long-range plans and policies confirms uniformity across the municipality and potentially within the region as well.

2.1.2 Guiding Principles

The CGTC identified the following as the guiding principles and general recommendations that recognize important aspects of the investigation and implementation of Traffic Calming process:

- Identify the source of the problem and quantify the extent of the problem through data collection or analysis.
- Consider first cost-effective options such as increased enforcement, education or community-led community road watch programs, installation of driver speed feedback boards, and/or better street signage.
- Consider widening the scope by studying an area-wide plan instead of a localized, street-specific plan that would likely result in displacement of traffic onto adjacent streets.
- Generally, traffic calming measures that are effective at all hours of the day and do not require the enforcement of officers are both preferred and supported.
- Verify that the intervention does not impede upon the accessibility of non-motorized modes of transportation such as pedestrians, cyclists, and wheelchairs.
- Ensure that all service providing vehicles including transit, police, fire, ambulance, garbage collection, snow plowing, and other emergency or service vehicles are able to handle the proposed infrastructure and calming measures.

- Continue to monitor any traffic calming measures for six months or a year following implementation to analyze the effectiveness and success or to prepare a contingency plan in case the measure does not produce ideal results.
- Engage with all relevant stakeholders (community, emergency service staff, transit staff, traffic engineering, public works staff, Council, other organizations) in the investigation and implementation process to reflect the needs of multiple users and analyze the traffic calming measure through different lenses. This would maximize opportunities of consensus/participation and reduce the risk of other factors not being considered in time.

2.1.3 Traffic Calming Process and Procedure

The CGTC separates the traffic calming process into following five (5) stages as shown below:



The Initiation stage is triggered by a resident or member of Council request and begins the traffic calming process. If the request is made for a suitable roadway, the Development stage begins. This stage consists of a site visit and data collection, followed by a screening that usually includes minimum requirements for traffic volumes, 85th percentile vehicular operating speeds, and resident support. Where the screening is met, draft alternatives are devised and taken to the public for Approval. The final two (2) stages include Implementation of the traffic calming measure(s) and Evaluation of results to determine if further measures are required.

2.2 Best Practices and Comparable Policies

Relevant best practices and comparable policies to the existing warrant from several other comparable municipalities in the Province of Ontario were considered. The review of six municipalities, the City of Thorold, the Town of Bracebridge, the Town of Midland, the Town of Wasaga Beach, the Town of Lasalle, and the Town of Pelham, was undertaken as they were the most relevant to the City of Port Colborne and their data is summarized in Appendix A. In developing the policy for the City, specific components of other municipal traffic calming policies were referenced.

3.0 City of Port Colborne Traffic Calming Process

The review of the CGTC, and Traffic Calming Policies of other comparable municipalities, and the input from the City staff were used as the basis of developing the City of Port

Colborne Traffic Calming process. The traffic calming process for the City is intended to provide step by step guidance from the time of receiving a request to providing solutions to the concerns, whether the result is the implementation of a traffic calming measure or to provide an alternative response. This process provides transparency and consistency for the City staff, elected officials, and the public. Traffic Calming Process Flow Chart is included in Appendix B.

3.1 Initiation

The initiation stage starts when an official request has been submitted in writing to the City Staff from any member of the public or an elected official. All traffic calming requests will be received in writing and managed by staff in one section of the Public Works Department for data management purposes. Once the request has been made, the Initial Screening and Traffic Calming Warrant will be conducted to confirm the need for a traffic calming measure. This initial process is to evaluate and screen requests to minimize the required staff effort.

Once the request has been received, the City staff will review the request and provide an update to the requestor within a 30-day review period.

As part of the City's review, City staff will conduct a field investigation (e.g., speed or traffic volumes counts) to confirm the speeding or excessive traffic volumes issue. If the study results don't confirm that there is a speeding or excessive traffic volumes issue, the City's staff will advise the requestor and process will stop.

3.1.1 Initial Screening

The initial screening criteria outlines the minimum requirements for a location to be eligible for traffic calming measures. Based on the input review of CGTC, best practices from similar municipalities, and the input provided by the City staff, the criteria is presented in Table 3-1.

Table 3-1 – City of Colborne Initial Screening Criteria

Criteria	Requirement
Road Classification	<ul style="list-style-type: none"> Laneway, local road, and collector roads (not Collector commercial and industrial, and Arterial). Must not be designated an Emergency Services Route, Bus Route, or Truck Route.
Road Length	<ul style="list-style-type: none"> Street segment length must 200m in length minimum.
Road Gradient	<ul style="list-style-type: none"> Road grade must be less than 8% grade.
Traffic Volumes	<ul style="list-style-type: none"> The Average Daily Traffic (ADT) volume (over 24 hours) must be at least: <ul style="list-style-type: none"> 1,000 vehicles for a local street; and, 2,000 vehicles for a collector street
Posted Speed	<ul style="list-style-type: none"> The posted speed limit must be 60 km/h or less
Previously Evaluated or Permanent Installation Removed	<ul style="list-style-type: none"> A prior request has not been received within two (2) years or permanent traffic calming measures have not been removed from the subject street(s) in the last five (5) years

3.1.2 Data Collection

The collection of traffic data, as deemed necessary by City Engineering Staff, will serve to provide a better understanding of the current traffic conditions and to prioritize locations for traffic calming, if warranted. The data collected will pertain to vehicle volume, vehicle speed (85th percentile¹), collisions, origin/destination study if request relates to shortcutting traffic, and site-specific information.

The City staff should review the surrounding road characteristics to determine the study area. The limits of the study area should include the section of road that is considered to have similar operating characteristics to the location of the request.

3.1.3 Traffic Calming Warrant

Once collected and summarized, the data will be run through the traffic calming warrant to determine the need for traffic calming. In order to determine if traffic calming measures are warranted a minimum of four of the seven (4/7) traffic calming warrant criteria, as outlined below, must be satisfied. If warrant criteria seven has been met, then no other warrant criteria need to be satisfied.

¹ The 85th percentile speed is the speed at which 85 percent of traffic is travelling at or below.

1. The 85th percentile speed must be greater than 10 km/h over the posted speed limit.
2. More than 5% of the total traffic on the street must be travelling more than 15km/h over the posted speed limit.
3. The average daily traffic volume (over 24 hours) must be at least: 1,000 vehicles Average Daily Traffic (ADT) volume for a local street, and 2,000 vehicles Average Daily Traffic (ADT) volume for a collector street.
4. Through traffic must be more than:
 - I. 20% of the total volume of traffic on a local street; and,
 - II. 40% of the total volume of traffic on a collector street
5. Pedestrian or cyclist generators (playground, school, multi-use pathway crossing, official cycle route, transit hub, etc.) exist on street, or in the immediate area, that creates higher than average pedestrian/cyclist activity.
6. No continuous sidewalk on the street in question.
7. If the 85th percentile speed is 15km/h or more over the posted speed limit no other warrant needs to be met.

Should a location fail to meet the warrant requirements, Council and residents will be notified in writing. The investigation for traffic calming measures will discontinue and staff will not re-evaluate the street in question at least three years from the date the evaluation was completed.

When multiple projects are warranted for traffic calming measures implementation, the City will determine the prioritization of the projects based on a point system in which each category includes points to show severity. This will assist the City in cases where available budget doesn't permit the implementation of all projects in one fiscal year.

A point system is a commonly used practice in other jurisdictions to determine the severity of the identified issues based on various attributes. The weight assigned to each of the criteria is based on the concerns and issues that has been occurring within the City. The point system for each criterion is shown in Table 3-2 is considered in consultation with the City Staff.

Table 3-2 – Traffic Calming Project Ranking Criteria

Criteria	Requirement	Maximum Points
Operating Speed	<ul style="list-style-type: none"> 5 points for every 2km/h that the 85th percentile speed is greater than 10km/h over speed limit. 	35
Traffic Volume	<ul style="list-style-type: none"> 5 points for every 1,000 vehicles Average Daily Traffic (ADT) volume on a Local Road. 5 points for every 2,000 vehicles Average Daily Traffic (ADT) volume on a Collector Road 	20
Collision History	<ul style="list-style-type: none"> 1 point assigned for each speed related collision over last 3 years. 	5
Pedestrian/Cyclists Generators	<ul style="list-style-type: none"> 5 points for each pedestrian/cyclist generator within 250m radius. 	15
Sidewalks	<ul style="list-style-type: none"> 5 points if no continuous sidewalk on at least one side. 	5
School Zones	<ul style="list-style-type: none"> 5 points for every school with vicinity. 	20

3.2 Development

The purpose of the project development stage is to create a physical traffic calming plan that effectively addresses the identified issues. Once the respondents support has been confirmed, the required data is collected to assess the location against the warrant criteria and the process for selecting the appropriate traffic calming measure is followed.

The process involves the analysis and evaluation of potential solutions creating safer streets for the benefit of all users by addressing issues regarding speeding and excessive traffic volumes.

3.2.1 Initial Public Survey

Before data collection occurs, a public survey² is circulated to the residents within the study corridor to confirm that there is a neighbourhood concern regarding traffic conditions. The City will advise the residents in the subject area of the request and the process the City will follow. In order for staff to proceed, an indication of support from at least 60% of the total households with direct frontage, or flankage, onto the section of roadway that has been

² Since the Initial Public Survey is a crucial step on which the traffic calming process depends, the City staff needs to circulate the survey and collate the survey data.

identified as the location for the potential implementation of traffic calming measures, as defined by City Engineering Staff, is required. Each household is represented by one survey.

The purpose of this step is to confirm that there are others concerned about the operating conditions, in addition to the requestor, to ensure staff time and City funds get spent where the residents are most concerned.

Should the resident survey not be met then Staff will update Council accordingly and notify the residents.

3.2.2 Assessment of Traffic Calming Alternatives

All requests that reach this stage of the process have passed the initial screening process and the residents have indicated their support towards addressing the problem.

There are two traffic calming treatments:

1. Type 1 traffic calming measures. Passive traffic calming measures are low cost but effective ways of changing driver behaviour. They generally include, but not limited to, stakeholder education, flexible signage, textured/stamped asphalt, on street parking, road watch program, targeted speed limit enforcement, dynamic speed display signs, pavement marking and speed legends.
2. Type 2 traffic calming measures. These involve construction of physical vertical and horizontal deflections.

Appendix C presents the permissible Type 1 and Type 2 Traffic Calming measures for consideration.

Based on the ranking of the locations¹ based on their point totals and the annual budget, staff will recommend Type 1 and/or Type 2 treatments to make the most effective use of the available budget and achieve the desired change in driver behaviour.

The point system outlined in Table 3-2 not only determines whether a location is warranted for traffic calming, but it is also used to rank its priority against other projects. The points allocated to the severity of the problem, or the characteristics of the environment will assist staff in determining a priority ranking of locations.

3.3 Approval

Once staff have developed a proposed traffic calming strategy, it is important to determine whether the affected community will support the plan. Similar to the neighbourhood

feedback from the initial survey, resident responses are necessary at this stage to measure their agreement with traffic calming and particularly the approach that will be taken.

Regardless of the types of measures determined for the location, the affected residents will be sent information about the proposed treatment, provided contact information for questions and surveyed to indicate whether they are in favour. This survey will also outline the required level of support for approval.

For Type 1 measures, the public will be consulted via notices and for Type 2 measures, the public will be consulted via notices and a public meeting will be held. A review period of 30-days is to be given for the residents to indicate their support. A minimum of 25% of sent surveys must respond, and from this at least 60% of total respondents must be in favour of the plan.

The residents of the subject area should be advised of the results of the community survey. If the threshold for support is met, the residents will be advised that their project will proceed for prioritization with other warranted projects. If the threshold is not met, the City will not entertain a new request for a neighbourhood traffic calming study on the subject street(s) for a period of at least two (2) years.

3.4 Implementation

Upon approval of Council, resident notification, and sufficient funding, traffic calming measures will be implemented. Residents will be notified of implementation timelines through the contact mailing list. Where feasible, staff may decide it is beneficial to phase in the traffic calming plan through the use of temporary or removable traffic calming measures such as pavement markings or flexible delineators. This will allow time to examine the impact of the measures and their effectiveness before committing funding to permanent treatments.

3.5 Evaluation

City Engineering Staff will monitor the roadway to determine the effectiveness of the utilized measures and their impact on the surrounding road network. This information will be used in recommending similar measures in the future.

The City will conduct before and after studies to assess if the traffic calming plan has resulted in reduction of operating speed or/and excessive traffic volumes in the project study area.

3.6 Removal of Permanent Traffic Calming Measures

Permanent Traffic calming measures may be removed, at the request of residents provided that at least 75% of the total households on the street in question agree to the removal via a resident petition³. The number of total households would be the same residents as was initially surveyed to gauge support for traffic calming. The traffic calming measures must be installed for at least two years before acquiring the necessary signatures on the resident petition. If permanent traffic calming measures are removed, the subject street must wait at least five years before requesting a new traffic calming measure; at this point the traffic calming review process would start over. This provision does not apply to non-physical traffic calming measures.

The City reserves the right to remove traffic calming measures if it determines that these are ineffective or unsafe, or if they have created a negative impact that cannot be corrected. Should this occur, the City will mail out notifications to the effected residents informing of its decision to remove the traffic calming measure(s).

4.0 Traffic Calming Measures

The proposed traffic calming measure(s) will be in accordance with the design guidelines outlined in the Canadian Guide to Traffic Calming.

Traffic calming measures included in this policy are selected to suit the geometrics and practices within the City of Port Colborne and include measures that have been implemented in nearby municipalities. The measures are categorized into Type 1 and Type 2 as discussed in Section 3.2.2.

³ The City staff should verify the validity of the petition before recommending removal of traffic calming measure.

APPENDIX A

Best Practices and Comparable Policies



Appendix A – Comparable traffic calming policies of Municipalities in Ontario

Criteria	City of Thorold	Town of Bracebridge	Town of Midland	Town of Wasaga Beach	Town of Lasalle	Town of Pelham
Document Name	City of Thorold Policy and Procedure Manual	Town of Bracebridge Traffic Calming Measures Manual	Town of Midland Traffic Calming Policy	Town of Wasaga Beach Traffic Calming Policy	Town of Lasalle Traffic Calming Policy	Neighbourhood Traffic Management (Policy #S801-02)
Document Year	2020	2020	2021	2022	2019	2020
Population	23,000	16,000	16,900	20,700	30,200	18,192
Eligible Roads	Laneway, Local & Collector	Local & Collector	Local & Collector	Local & Collector	Local & Collector	Local, collector and rural roads
Goals	<ul style="list-style-type: none">Guidelines for initiating, reviewing and implementing traffic calming measures.Address issues regarding <u>speeding</u> and <u>excessive traffic volumes</u>.	<ul style="list-style-type: none">Creating safer streets for the benefit of all users.Reducing the adverse effects of cut-through motor vehicle traffic on residential streets.Preserving the quality of life.	<ul style="list-style-type: none">Increase the safety of neighborhoods.Improve the livability of neighborhoods.Restore streets to their intended function.Preserve access and minimize impact to emergency services, public transit, and other maintenance services.Promote public participation and community support.	<ul style="list-style-type: none">Increase the Safety of Neighborhoods.Improve the livability of neighborhoods.Restore streets to their intended function.Maintain access routes for emergency services, public transit, and maintenance services.Promote public participation and community support.	<ul style="list-style-type: none">Address the negative effect of motor vehicle use and driver behavior.Address conflicts between road users.Implement a traffic calming policy to determine the best measures that result in the greatest improvement in the quality of life and community safety at a reasonable cost.	<ul style="list-style-type: none">Educate residents about traffic calming so they can make more informed decisions and also understand the rationale behind the Town's decision-making process.Providing a policy that Town officials and the general public are confident is an effective and fair tool in evaluating speeding and/or traffic volume problems.Provide a standard format for dealing in a consistent manner with complaints regarding speeding and traffic safety concerns.Reduce the workload and duplication of effort for Town staff in responding to resident traffic concerns.Educate people on how to create a safe and pleasant roadway environment for residents, motorists, cyclists, and pedestrians.Encourage public involvement in traffic calming activities.Educate residents on pedestrian and cyclist safety.
Traffic Calming Measure Categories	<ul style="list-style-type: none">Passive Traffic CalmingStakeholder Education, Pavement Markings/Material, Targeted Speed Limit Enforcement, On-Street Parking, Road Diet, Speed Display.Physical Traffic Calming<ul style="list-style-type: none">Physical Vertical Traffic Calming: Speed Cushion, Speed Hump, Speed Table, Raised Intersection, Raised Crosswalk	<ul style="list-style-type: none">Passive Traffic Calming Digital Radar Board, Turn Restrictions, Parking, Active Transportation Corridors.Physical Traffic Calming<ul style="list-style-type: none">Physical Vertical Traffic Calming: Raised Crosswalks, Raised Intersections, Speed Hump, Speed Table, Rumble Strips.Physical Horizontal Traffic Calming: Traffic Circle, Chicane, Choker, Centre Island Narrowing.	<ul style="list-style-type: none">Passive Traffic Calming Education, Community Entrance Signs, Textured Crosswalks, Target Speed Limit Enforcement, Radar Speed Display Sign, On Street Parking, Road Diet, Diagonal Parking, “Traffic Calmed Neighborhood” Signs, “Community Safety Zone” Sign, On-Road Messaging (Pavement Markings), Road Watch Program, Bicycle Boulevard.	<ul style="list-style-type: none">Speed Control Measures: Speed Bumps, Speed Humps, Speed Tables, Raised Intersections, Traffic Circles, Roundabouts, Chokers, Realigned Intersections, Neck Downs, Centre Island Narrowing.Volume Control Measures: Full or Partial Street Closures, Diagonal Diverters, Median Barriers, Forced Turn Islands.Non-Physical Measures (Passive): Speed Enforcement, Pavement Marking Legends, School Zones, Traverse Lane Markings, Lane	The Town of Lasalle breaks measure into two categories: Type 1 & Type 2 . Type 1 are measures that are effective and low cost. Type 2 are measures that are more costly and more effective. <ul style="list-style-type: none">Type 1 Traffic Calming Measures: Road Diet, Speed Display Devices, Lane Narrowing.Type 2 Traffic Calming Measures<ul style="list-style-type: none">Vertical Deflection:	The Town of Pelham broken the policy into two categories: <ul style="list-style-type: none">Passive Traffic Calming, i.e., line markings and/or signage. Passive modifications are intended to visually reduce effective lane width for a motorist and in most circumstances re-allocate some of road space to cyclists and on-street parking. These treatments have proven to be capable of reducing 85th percentile operating speeds by up to 5 km/h in other municipalities.

Appendix A – Comparable traffic calming policies of Municipalities in Ontario

Criteria	City of Thorold	Town of Bracebridge	Town of Midland	Town of Wasaga Beach	Town of Lasalle	Town of Pelham
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Eligible Roads	Laneway, Local & Collector	Local & Collector	Local & Collector	Local & Collector	Local & Collector	Local, collector and rural roads
Goals	<ul style="list-style-type: none">Guidelines for initiating, reviewing and implementing traffic calming measures.Address issues regarding <u>speeding</u> and <u>excessive traffic volumes</u>.	<ul style="list-style-type: none">Creating safer streets for the benefit of all users.Reducing the adverse effects of cut-through motor vehicle traffic on residential streets.Preserving the quality of life.	<ul style="list-style-type: none">Increase the safety of neighborhoods.Improve the livability of neighborhoods.Restore streets to their intended function.Preserve access and minimize impact to emergency services, public transit, and other maintenance services.Promote public participation and community support.	<ul style="list-style-type: none">Increase the Safety of Neighborhoods.Improve the livability of neighborhoods.Restore streets to their intended function.Maintain access routes for emergency services, public transit, and maintenance services.Promote public participation and community support.	<ul style="list-style-type: none">Address the negative effect of motor vehicle use and driver behavior.Address conflicts between road users.Implement a traffic calming policy to determine the best measures that result in the greatest improvement in the quality of life and community safety at a reasonable cost.	<ul style="list-style-type: none">Educate residents about traffic calming so they can make more informed decisions and also understand the rationale behind the Town's decision-making process.Providing a policy that Town officials and the general public are confident is an effective and fair tool in evaluating speeding and/or traffic volume problems.Provide a standard format for dealing in a consistent manner with complaints regarding speeding and traffic safety concerns.Reduce the workload and duplication of effort for Town staff in responding to resident traffic concerns.Educate people on how to create a safe and pleasant roadway environment for residents, motorists, cyclists, and pedestrians.Encourage public involvement in traffic calming activities.Educate residents on pedestrian and cyclist safety.
Traffic Calming Measure Categories	<ul style="list-style-type: none">Passive Traffic CalmingStakeholder Education, Pavement Markings/Material, Targeted Speed Limit Enforcement, On-Street Parking, Road Diet, Speed Display.Physical Traffic Calming<ul style="list-style-type: none">Physical Vertical Traffic Calming: Speed Cushion, Speed Hump, Speed Table, Raised Intersection, Raised Crosswalk	<ul style="list-style-type: none">Passive Traffic Calming Digital Radar Board, Turn Restrictions, Parking, Active Transportation Corridors.Physical Traffic Calming<ul style="list-style-type: none">Physical Vertical Traffic Calming: Raised Crosswalks, Raised Intersections, Speed Hump, Speed Table, Rumble Strips.Physical Horizontal Traffic Calming: Traffic Circle, Chicane, Choker, Centre Island Narrowing.	<ul style="list-style-type: none">Passive Traffic Calming Education, Community Entrance Signs, Textured Crosswalks, Target Speed Limit Enforcement, Radar Speed Display Sign, On Street Parking, Road Diet, Diagonal Parking, “Traffic Calmed Neighborhood” Signs, “Community Safety Zone” Sign, On-Road Messaging (Pavement Markings), Road Watch Program, Bicycle Boulevard.	<ul style="list-style-type: none">Speed Control Measures: Speed Bumps, Speed Humps, Speed Tables, Raised Intersections, Traffic Circles, Roundabouts, Chokers, Realigned Intersections, Neck Downs, Centre Island Narrowing.Volume Control Measures: Full or Partial Street Closures, Diagonal Diverters, Median Barriers, Forced Turn Islands.Non-Physical Measures (Passive): Speed Enforcement, Pavement Marking Legends, School Zones, Traverse Lane Markings, Lane	The Town of Lasalle breaks measure into two categories: Type 1 & Type 2 . Type 1 are measures that are effective and low cost. Type 2 are measures that are more costly and more effective. <ul style="list-style-type: none">Type 1 Traffic Calming Measures: Road Diet, Speed Display Devices, Lane Narrowing.Type 2 Traffic Calming Measures<ul style="list-style-type: none">Vertical Deflection:	The Town of Pelham broken the policy into two categories: <ul style="list-style-type: none">Passive Traffic Calming, i.e., line markings and/or signage. Passive modifications are intended to visually reduce effective lane width for a motorist and in most circumstances re-allocate some of road space to cyclists and on-street parking. These treatments have proven to be capable of reducing 85th percentile operating speeds by up to 5 km/h in other municipalities.

Criteria	City of Thorold	Town of Bracebridge	Town of Midland	Town of Wasaga Beach	Town of Lasalle	Town of Pelham
	<ul style="list-style-type: none">- Physical Horizontal Traffic Calming: Curb Extension, Raised Center Median, Chicane.Physical Obstruction Traffic Calming: Directional Closures, Raised Median Through Intersection, Right-Ins/Right-Outs, Full Closure	Physical Obstruction Traffic Calming: Obstructions, Roadway Closure.	Physical Traffic Calming <ul style="list-style-type: none">- Physical Vertical Traffic Calming: Speed Cushion, Raised Intersection, Raised Crosswalk, Speed Table, Speed Hump, Speed Kidney.- Physical Horizontal Traffic Calming: Curb Extension, Curb Radius Reduction, Traffic Circle, Chicanes, Lateral Shift, Roundabout.- Physical Obstruction Traffic Calming: Directional Closure, Raised Median Through Intersection, Right-Ins/Right-Outs, Full Closure.	Narrowing and Shoulder Widening Through Pavement Marking, Radar Speed Display Signs, Community Safety Zones.	<p>Speed Hump, Speed Table, Speed Cushion.</p> <ul style="list-style-type: none">- Horizontal Deflection: Curb Extensions, Traffic Circle, Raised Median Island.- Access/Volume Control: Diverter, Raised Median Through Intersection, Directional Closure, Right-In/Right-Out.- Passive Measures: Location-Specific Enforcement, Resident Lawn Signs, Education Campaign, Traffic-Calmed Neighborhood.	<ul style="list-style-type: none">• Physical Traffic Calming, i.e., intrusive treatments that modify the shape and/or form of the travel lanes making it uncomfortable for drivers to attain high speeds. Physical traffic calming can be broken down into three categories: (1) vertical deflections; (2) horizontal deflections; and (3) physical obstructions.- Vertical traffic calming measures provide an obstruction that vehicles are able to travel over.- Horizontal traffic calming tries to prevent vehicles from traveling in a straight line at excessive speeds by using measures such as raised islands and curb extensions.- Physical obstructions involve a full or partial closure of the road
Process Steps	<ul style="list-style-type: none">• Initial Screening Criteria Determine Eligibility.• Process Initiation.• Resident Survey.• Traffic Calming Warrant.• Traffic Calming Plan.• Evaluation and Monitoring.• Approval and Implementation.	<ul style="list-style-type: none">• Initial Screening Criteria Determine Eligibility.• Request for Traffic Calming.• Review for Consistency.• Preliminary Traffic Calming Plan.• Notification of Area Residents.• Funding and Installation.• Evaluation.	<ul style="list-style-type: none">• Initial Screening Criteria Determine Eligibility.• Traffic Calming Neighborhood Petition.• Data Collection and Analysis.• Data Collection.• Point System Assessment System.• Traffic Calming Design Considerations.• Public Information Meeting Notice.• Public Information Meeting.• Recommend Final Plan to Council.• Resident Notification.• Implementation of Traffic Calming Measure.• Evaluation and Monitoring.	<ul style="list-style-type: none">• Initiate Traffic Calming Request.• Data Collection.• Data Assessment.• Neighborhood Petition / Survey.• Design Consideration and Community Feedback.• Finalize and Implement the Traffic Calming Plan.• Feedback Monitoring Evaluation.	<ul style="list-style-type: none">• Initial Screening Criteria: Determine Eligibility.• Initiation.• Development (alternative.• Approval (including Public consultation).• Implementation.• Evaluation.	<ul style="list-style-type: none">• Public Input.• Process Initiation and Pre-Screening.• Traffic Calming Ineligibility based on Pre-screening.• Traffic Calming Neighbourhood Petition.• Data Collection.• Point Assessment System.• Traffic Calming Design Considerations.• Comments from Emergency/Transit and Roads Operations.• Public Information Centre & Public Notice.• Resident Notification.• Finalize Preferred Traffic Calming Plan.• Implementation of Traffic Calming Measures.• Evaluation and Monitoring.• Removal of Traffic Calming Measures.• Special Provisions.
Process Initiation – List % of residents	Residents submit requests for traffic calming. The city conducts preliminary assessment to determine if the roadway meets the initial	Residents submit requests for traffic calming. Must have at least 75% support from affected households. Only one signature per household.	Residents submit requests for traffic calming. Needs support of at least 51% of affected residents. Over 51% then triggers the investigation.	Residents submit requests for traffic calming. Needs support of at least 51% of affected residents. Over 51% then triggers the investigation.	Residents submit requests for traffic calming. Requires 25% responses. Town will provide update within 30-day review window.	Before an area is considered for traffic calming a signed petition must be received by the Town

Criteria	City of Thorold	Town of Bracebridge	Town of Midland	Town of Wasaga Beach	Town of Lasalle	Town of Pelham
	<ul style="list-style-type: none">- Physical Horizontal Traffic Calming: Curb Extension, Raised Center Median, Chicane.Physical Obstruction Traffic Calming: Directional Closures, Raised Median Through Intersection, Right-Ins/Right-Outs, Full Closure	Physical Obstruction Traffic Calming: Obstructions, Roadway Closure.	Physical Traffic Calming <ul style="list-style-type: none">- Physical Vertical Traffic Calming: Speed Cushion, Raised Intersection, Raised Crosswalk, Speed Table, Speed Hump, Speed Kidney.- Physical Horizontal Traffic Calming: Curb Extension, Curb Radius Reduction, Traffic Circle, Chicanes, Lateral Shift, Roundabout.- Physical Obstruction Traffic Calming: Directional Closure, Raised Median Through Intersection, Right-Ins/Right-Outs, Full Closure.	Narrowing and Shoulder Widening Through Pavement Marking, Radar Speed Display Signs, Community Safety Zones.	<p>Speed Hump, Speed Table, Speed Cushion.</p> <ul style="list-style-type: none">- Horizontal Deflection: Curb Extensions, Traffic Circle, Raised Median Island.- Access/Volume Control: Diverter, Raised Median Through Intersection, Directional Closure, Right-In/Right-Out.- Passive Measures: Location-Specific Enforcement, Resident Lawn Signs, Education Campaign, Traffic-Calmed Neighborhood.	<ul style="list-style-type: none">• Physical Traffic Calming, i.e., intrusive treatments that modify the shape and/or form of the travel lanes making it uncomfortable for drivers to attain high speeds. Physical traffic calming can be broken down into three categories: (1) vertical deflections; (2) horizontal deflections; and (3) physical obstructions.- Vertical traffic calming measures provide an obstruction that vehicles are able to travel over.- Horizontal traffic calming tries to prevent vehicles from traveling in a straight line at excessive speeds by using measures such as raised islands and curb extensions.- Physical obstructions involve a full or partial closure of the road
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Criteria	City of Thorold	Town of Bracebridge	Town of Midland	Town of Wasaga Beach	Town of Lasalle	Town of Pelham
	screen criteria. Needs support of at least 51% of affected residents. Over 51% then triggers the investigation.					showing a minimum of 25% support for traffic calming measures. If the petition does not show the required level of interest, the area will not qualify for traffic calming.
Initial Screening	Initial screening criteria includes: <ul style="list-style-type: none"> • Must be laneway, local or collector roadway. • Must be under the jurisdiction of the City of Thorold. • Zoning must be primarily residential. • Be a minimum of 150m long. • Over 500 vehicles per day. • Road grade must be less than 8% grade. • The posted speed limit must be under 50 km/h. • No traffic calming installed on the same street within last 5 years. 	Initial screening criteria includes: <ul style="list-style-type: none"> • Must not be designated an Emergency Services Route, Bus Route, or Truck Route. • Must be Local or Collector Road. • Collector Roads must have 75% residential. • Must take into consideration distance to driveways, manholes, fire hydrants, etc. • Only where a safe stopping sight distance can be provided. • Traffic calming measures will be monitored and evaluated for effectiveness. 	Initial screening criteria includes: <ul style="list-style-type: none"> • Must be a local or collector road. • Posted speed limit be 50km/h or less. • Requested location be a minimum of 150m in length. 	Initial screening criteria includes: <ul style="list-style-type: none"> • Must be a local or collector road. • Requested location be a minimum of 150m in length. • Efforts have been made to address concerns, including engineering, education, and enforcement tools. 	Initial screening criteria includes: <ul style="list-style-type: none"> • Only local and collector roads • Must be primarily a residential area. • Street segment must be 200m in length minimum. • Posted speed limit must be 50 km/h or less. • No traffic calming considered along roadway in last 12 months 	Initial screening criteria includes: <ul style="list-style-type: none"> • Is this a Local, Rural or Collector Road? • Is the AADT (annual average daily traffic) >1000. • Is the posted speed 50km/h? • Has the road been assumed? • Is the road section primarily residential? • Does the street provide an obvious bypass to a major intersection or road? • Is the section of road longer than 200m? • Have any previous efforts been made within the last 12 months?
Warrant (Yes/No) Data collection methods	If there is 51% support from the local residents and meets the initial screening process, the city will kick off the warrant process to determine if traffic calming is needed (must meet 4/7): <ul style="list-style-type: none"> • 85th percentile speed greater than 10km/h over posted speed limit. • More than 5% of traffic travelling more than 15% over posted speed limit. • AADT must be at least 2000 for local, 5000 for collector. • Through traffic must be more than 20% for local street, 40% for collector. • Pedestrian or cyclist generators exist in the vicinity. • No continuous sidewalk on subject street. • If the 85th percentile speeds are over 15 km/h over the posted speed limit, no other warrants need to be met. 	<ul style="list-style-type: none"> • <u>Speed Control Criteria</u> The 85th percentile speed on a residential street must be greater than 10 km/h over the posted speed limit. The 85th percentile speed is defined as the speed at or below which 85% of all vehicles are observed to travel under free-flowing conditions past a monitored point. • <u>Traffic Diversion Criteria</u> <ol style="list-style-type: none"> a) The Average Daily Traffic (ADT) volume on the street must exceed 700 trips per day. Since traffic counts can fluctuate by 10% or more on any given day, any study that results in a volume range between 630 to 700 trips per day may justify additional traffic analysis. b) At least 25% of the daily traffic on a residential street must be cut-through. c) Special consideration may be given to streets that do not meet the 700 trips per day criteria but have 100 trips or more during the peak hour, with 	<ul style="list-style-type: none"> • Vehicle volume count to determine 24-hour traffic. • Speed study to determine existing speed data. • Classification count to determine heavy vehicle traffic. • Collision data for the most recent three (3) years. • Study to quantify cut-through traffic, if necessary. • Existing roadway conditions (e.g., pavement condition, signing, marking). • Pedestrian activity. • Presence of sidewalks on one or both sides of the road. • Presence of special pedestrian generators such as schools, seniors' homes, playgrounds, etc. in the area. • History of traffic operations for the area within last 5 years 	The data collected may include: <ul style="list-style-type: none"> • traffic volumes and composition (cars and trucks). • vehicle speeds. • Collisions. • sight lines related to deficient horizontal and/or vertical alignment and stopping distance. • pedestrian activity, an origin/destination study (third party study), if the request relates to shortcutting traffic, and historical site-specific information. 	<ul style="list-style-type: none"> • Operating Speed - At the time of the request. • Traffic Volume - Annual traffic count program or request-specific counts if no suitable data is available (less than 5 years old). • Collision History. • Pedestrian/Cyclists Generators. • School Zone. 	<ul style="list-style-type: none"> • Vehicle volume counts determine 24-hour traffic. • Speed study to determine existing speed data. • Classification count to determine heavy vehicle traffic. • Collision data for the most recent three (3) years (if available) • Study to quantify cut-through traffic, if determined necessary by staff • Existing roadway conditions (e.g., pavement condition, signing, marking). • Pedestrian activity. • Presence of sidewalks on one or both sides of the road. • Presence of special pedestrian generators such as schools, seniors homes, playgrounds, etc. in the area.

Criteria	City of Thorold	Town of Bracebridge	Town of Midland	Town of Wasaga Beach	Town of Lasalle	Town of Pelham
		at least 40% of those cut-through. The method the Town will utilize to calculate cut-through traffic will be based on normal peak hour volume to daily volumes increases of 10%, a normal acceptable industry standard. The data will be collected on suspected cut-through roadways as well as surrounding non-suspect roads. The ratio difference between the suspect and non-suspect roads, minus 10% will be deemed the percentage of cut-through traffic. The Town has a Traffic Calming Measures Evaluation Checklist.				
Point system	<ul style="list-style-type: none">• Speed (60 points max.) – 4 points for every 1 km/h that the 85th percentile speeds are over the posted limit.• Volume (10 points max.) – 1 point for evert 100 vehicles (local roads). 1 point for every 200 vehicles (collector).• Collision History (5 points max.) – 1 point assigned for each speed related collision over last 3 years.• Pedestrian Generators (15 points max.) – 5 points for each pedestrian generator within 250m radius.• Sidewalks (5 points max.) – 5 points if no continuous sidewalk on at least one side.	<ul style="list-style-type: none">• Speed (0-35 points) – 5 points for every 2km/h that the 85th percentile speed is greater than 10km/h over speed limit.• High Speeds (0-5 points) – 5 points if minimum of 5% of daily traffic exceed speed limit by 15-20 km/h.• Volume (0-20 points) – 5 points for every 1500 ADT (Local). 5 points for every 3000 ADT (Minor Collector). 5 points for every 5000 ADT (Major Collector).• Cut-Through Traffic (0-15 points) – 5 points for every 20% cut through traffic volume. Additional 5 points for every 10% increase above additional 20%.• Collision Data (0to10 points) – 1 point for every 2 collisions over 3-year historical data.• Sidewalks (0to10 points) – 10 points for sidewalk on both sides, 5 points for sidewalk on one side and 0 points for no sidewalk. Active transportation facilities count as sidewalks when adjacent to roadway or create links.• Pedestrian Hubs (0to15 points) – 5 points for each pedestrian facility within vicinity.	Minimum point values for each road class: <ul style="list-style-type: none">• Local Road – Minimum of 35 points.• Collector Road – Minimum of 52 points. <u>Point system breakdown:</u> <ul style="list-style-type: none">• Speed (30 points max.) – 1 point for every 1 km/h over posted speed (85th percentile speeds). 2 points for every km/h that the 85th percentile speed is between 15-25 km/h over posted speed.• Volume (20 points max.) – 5 points for every 1000 AADT (Local). 5 points for every 2000 AADT (Collector).• Collision (20 points max.) – 2 points for every collision not involving vulnerable road users within past 3 years. 5 points for every collision involving vulnerable road user withing past 3 years.• Pedestrian/Cycling Generators (15 points max) – 5 points for every pedestrian-oriented facility. 5 points for a signed bicycle route or walking trail.• Sidewalks (15 points max.) – 10 points if road has no sidewalks with evidence of pedestrian	Minimum point values for each road class: <ul style="list-style-type: none">• Local Road – Minimum of 35 points.• Collector Road – Minimum of 52 points. <u>Point system breakdown:</u> <ul style="list-style-type: none">• Speed (0-35 points) – 5 points 2 km/h that the 85th percentile speed is greater than 10 km/h over speed limit.• Volume (0-20 points) – 5 points for every 500 AADT (Local). 5 points for every 1000 AADT (Collector).• Short Cutting Traffic (0-15 points) – 5 points if 25% or more shortcutting traffic. Additional 5 points for every 10% increment above 25%• Collision (0-10 points) – 1 point for every collision within the past 3 years.• Pedestrian Generators (0-15 points) – 5 points for every pedestrian-oriented facility nearby.• Sidewalks (0-5 points) – 5 points for no sidewalk with evidence of pedestrian activity.• Sightlines (0-10 points) – 0 points for excellent sightlines. 5 points	Minimum points to satisfy is 35 points. <ul style="list-style-type: none">• Operating Speed (30 points max.) – 1 point for every km/h that he 85th percentile speed between 1-15km/h over posted speed limit. 2 points for every km/h the 8th percentile speed is between 15-25 km/h over posted speed limit (except for school zone specific speed limits).• Traffic Volume (30 points max.) – 5 points for every 1000 AADT (Local). 5 points for every 2000 ADT (Collector).• Collision History (20 points max.) - 2 points for every collision not involving vulnerable road users within the past 3 years. 5 points for every collision involving vulnerable road user withing past 3 years.• Pedestrian/Cyclists Generators (10 points max.) – 5 points for every pedestrian/cyclist generator within vicinity. 5 points for walking trails and cycling routes.• School Zone (15 points max.) – 5 points for every school with vicinity.	Minimum point values for each road class: <ul style="list-style-type: none">• Local Road – Minimum of 35 points.• Collector Road – Minimum of 52 points. <u>Point system breakdown:</u> <ul style="list-style-type: none">• Speed (0-35 points) – 5 points 2 km/h that the 85th percentile speed is greater than 10 km/h over speed limit.• High Speed (0-5 points) – 5 points if minimum of 5% of daily traffic exceeds posted speed by 15-20 km/hr.• Volume (0-20 points) – Local Roadways: 5 points for every 1,500 ADT Collector Roadways: 5 points for every 2,000 ADT.• Short Cutting Traffic (0-15 points) – 5 points if 25% or more shortcutting traffic. Additional 5 points for every 10% increment above 25%.• Collision (0-10 points) – 1 point for every collision within the past 3 years.• Pedestrian Generators (0-15 points) – 5 points for every pedestrian-oriented facility nearby.• Sidewalks (0-10 points) – 10 points for no sidewalks with evidence of

Criteria	City of Thorold	Town of Bracebridge	Town of Midland	Town of Wasaga Beach	Town of Lasalle	Town of Pelham
			activity. 1 point if road was no sidewalk and no sign of pedestrian activity. 5 points if road has one or two sidewalks. <ul style="list-style-type: none">• Driveways (10 points max.) – 5 points for every 100m if the driveway density exceeds 5 driveways per 100m per side.	for impaired sightlines. 10 points for very poor sightlines. <ul style="list-style-type: none">• Road Allowance Limitations Paved Width <6m (0-5 points) – 5 points for limited paved surface and/or boulevard width.		pedestrian activity, 5 points for sidewalks on only one side. <ul style="list-style-type: none">• Pedestrian Generators (0-15 points) – 5 points for each nearby* pedestrian generator such as a school, playground, community centre, libraries, retail centres, etc.
Alternative Measures if Screening Criteria is not met	Council and residents notified. Traffic calming measures will not be looked at for 3 years from date of evaluation.	N/A	Locations that fail to meet are not eligible for re-evaluation for the three years unless advised otherwise by town staff.	Locations that fail to meet will result in termination of the investigation. If it does meet the requirements and the town wants to proceed, needs 60% acceptance from residents, with a minimum of 25% surveys filled out and returned to the town.		Traffic calming measures will be considered when there is a demonstrated safety, speed or short-cutting traffic concern and acceptable alternative measures have been exhausted.
Monitoring and Evaluation Methods	Staff look at effectiveness and impact on roadway. Look at passive measures first, then recommend physical measures.	Prepare annual report to evaluate effectiveness of traffic calming measure. In some cases, recommendations can be made to modify the measure.	Staff look at effectiveness and impact on roadway by conducting before and after speed studies 4-6 months after installation. If a nearby street experiences an increase of 15% due to implementation of traffic calming, town will explore remedies.	Staff look at effectiveness and impact on roadway within 3 months after it was installed. This includes studying traffic volumes and speed.	Staff look at effectiveness and impact on roadway within 2 years of installation. The first year determines the initial impact. The second year determines if the impact of the measure is permanent.	Engineering staff will monitor the roadway to determine the effectiveness of the utilized measures and their impact on the surrounding road network. This information will be used in recommending similar measures in the future. In addition to conducting before and after speed studies the Town will conduct studies to assess if the traffic calming plan has resulted in significant amounts of traffic diverting to adjacent, parallel streets in some cases. These after studies will be compared with the Town's 'before' studies to determine the change in traffic volume.
Traffic Calming Removal Process	Comes at the request of the residents. Must have a minimum support of 75% of total households and must be installed for minimum of 2 years.	Comes at the request of the residents. Must have a minimum support of 75%.	Comes at the request of the residents and must be installed for a minimum of 2 years. Must wait 3 years before requesting new traffic calming.	Comes at the request of the residents. Must have a minimum support of 60% of total households with a minimum of 25% surveys returned to the city. Must be installed for at least 3 months. If removed, have to wait 2 years before requesting new traffic calming measures.	N/A	Traffic calming measures must be installed for at least 2 years before starting the process of removing them. A minimum of twenty-five (25) percent of property owners within the impact area must indicate their approval by signing the Traffic Calming Removal Request.

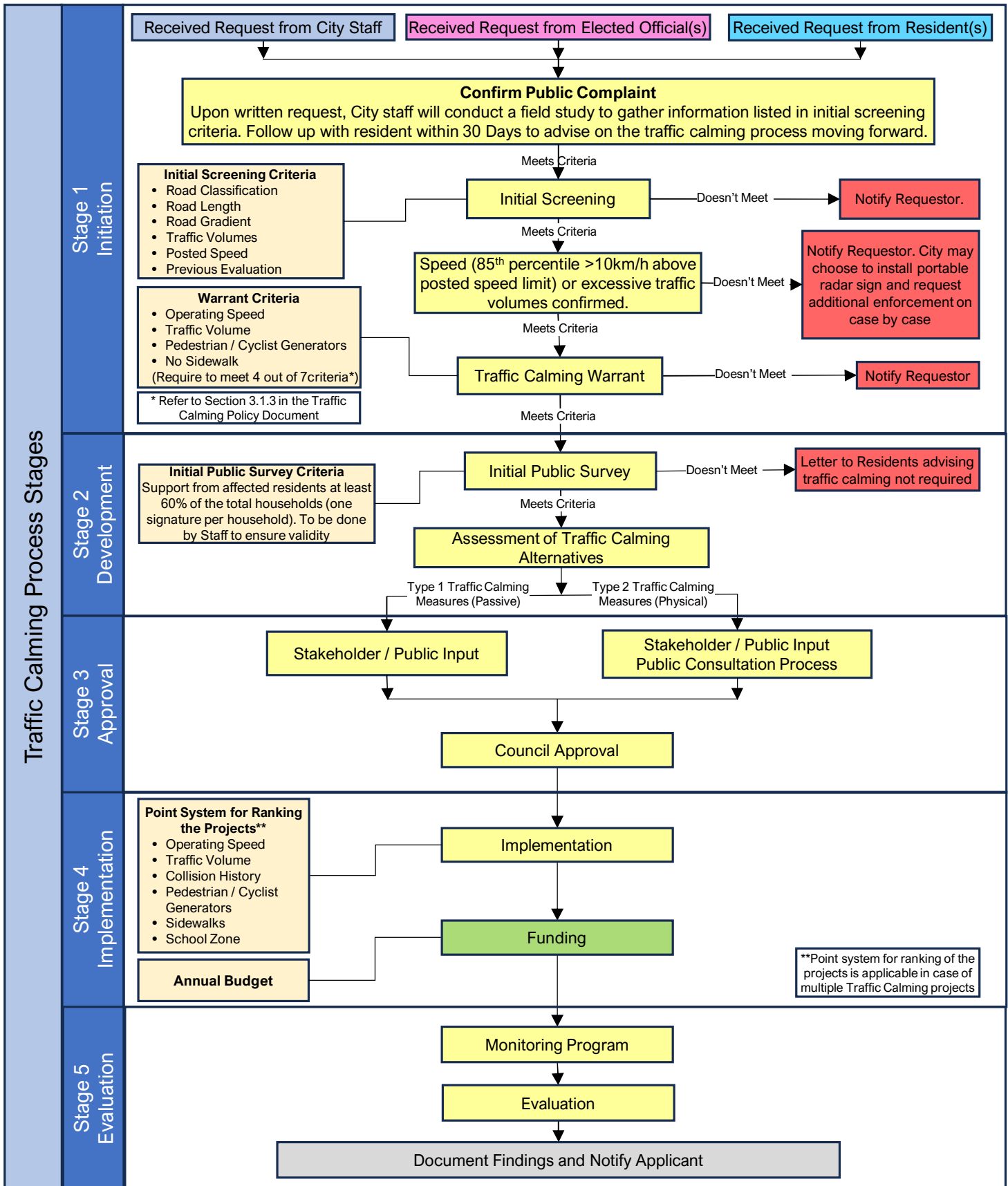
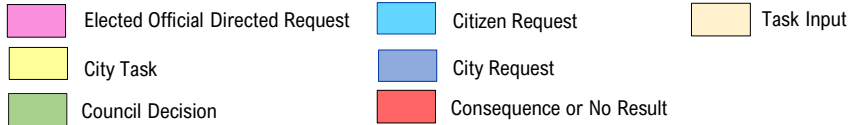
APPENDIX B

Traffic Calming Process Flow Chart



City of Port Colborne – Traffic Calming Process Flow Chart

Legend:



APPENDIX C

Detailed Traffic Calming Measures under Type 1 and Type 2



Type 1 Measures (Passive Traffic Calming Measures)

Type 1 traffic calming measures are effective methods to address concerns through less-intrusive road changes when permanent physical road geometry changes are not possible or recommended. These passive measures are typically lower in implementation cost and have a shorter turnaround time for the evaluation period, allowing the City to address more requests with the given funding and resources.

Stakeholder Education

Activities that change people's perceptions and help alter driver behaviour are most preferred. Meetings and workshops with neighbours and the City can help implement and direct traffic calming applications. Most traffic problems are a result of human behaviour. Through outreach programs and Neighbourhood watch programs such as community safety zone and the Active and Safe Routes to School program, residents can play a big part in spreading the information.



Flexible Sign

In-road flexible signs are signs installed in the centre of the road, between opposing traffic lanes and are designed to withstand impacts from, and avert damage to, vehicles if struck by collapsing and rebounding.

In-road flexible signs have a narrowing effect on the lane or roadway which can give drivers the perception of the need to slow down. They also serve as supplemental signage to existing roadside signs.



The signs do not represent a controlled crossing opportunity for pedestrians. The signs can be installed on local and collector roads with two-way traffic flow.

Textured Pavement

Textured pavement or stamped asphalt can be used alone as a traffic calming measure or in combination with other physical measures. Drivers typically slow down when crossing textured pavement due to vibration created by the pavement surface.



Targeted Speed Limit Enforcement

The City, through the Niagara Region Police, can provide targeted speed limit enforcement in response to identified operational issues. Targeted speed limit enforcement purpose is to make drivers more aware of their speed within a residential area. This measure typically only provides a temporary benefit, since speed limit enforcement is not available on a regular, on-going basis.

Speed Display

A dynamic speed display sign performs the same function as a radar trailer but is meant to be installed as a permanent device. Real-time speeds are relayed to drivers and flash when vehicle speeds exceed the posted speed limit. Dynamic speed display signs are typically placed in on a street for a period of 1 week.



On Street Parking

All roads within residential areas are built wide enough to allow on street parking on at least one side of the road. Area residents often create the opportunity to speed by introducing No Parking zones. Eliminating parked vehicles from your street significantly increases the width of the road and will increase the speed of neighbourhood traffic. There have been studies done in North America which have shown the introduction of “No Parking Zones” increased the speed of traffic by 20%.



If a speeding problem is identified on your street the City may consider asking residents to consider on street parking as a low cost way to address the problem.

Road Watch Program

The Road Watch Program is a community initiative that gives residents and visitors an opportunity to report dangerous and aggressive drivers to the road authority. Within the City of Port Colborne, the Road Watch Program can be introduced at higher priority locations.



Road Diet

A road diet refers to using pavement markings to make the travel portion of the road narrower, typically introducing bike lanes and or parking lanes. Passive speed control measures such as pavement markings attempt to change the fundamental sensory information available to drivers to influence their speed behaviour. By adding markings to the road, drivers' perceptions can be distorted creating the illusion that they are driving faster than they really are, persuading drivers to slow down. Additionally, the new road markings can serve as a warning sign; because these pavement patterns are mostly unfamiliar to road users, they violate driver expectancy causing motorists to decelerate.

Type 2 Measures (Physical Traffic Calming Measures)

Physical traffic calming can be broken down into three categories: vertical deflections, horizontal deflections and physical obstructions.

Vertical traffic calming measures provide an obstruction that vehicles are able to travel over. The change in pavement height (and sometimes pavement materials) can cause discomfort to the occupants of vehicles that are exceeding the design speed of the traffic calming measure.

Horizontal traffic calming measures tries to prevent vehicles from traveling in a straight line at excessive speeds by using measures such as raised islands and curb extensions.

Physical obstructions involve a full or partial closure of the road.

Vertical traffic calming measures

It should be noted that most vertical traffic calming measures are not preferred along roadways that are emergency vehicle routes or transit routes. To reduce the chances of potential liability issues,

vertical traffic calming measures should be signed and marked in accordance with reference material provided by the Institute of Transportation Engineers (ITE) and the Transportation Association of Canada (TAC) as provided within the Canadian Guide to Traffic Calming - Second Edition, published in February 2018.

Vertical traffic calming measures typically perform better when they are installed in a series, as opposed to a single isolated measure. The deceleration and acceleration of a vehicle, while negotiating a series of vertical traffic calming measures, is dependent on the number and spacing of the installations.

The implementation of vertical traffic calming measures can result in some traffic diverting onto parallel streets. This essentially moves the cut-through problem instead of solving it. Consideration should be placed on the concept of improving the overall neighbourhood (not just improving the street).

Vertical traffic calming measures include speed humps, speed cushions, speed tables, raised crosswalks, and raised intersections.

Speed Cushion

A common vertical traffic calming measure used is speed cushions, which are small speed humps designed to slow passenger vehicles, but are typically designed so that the wheelbase of emergency vehicles straddle the speed cushion. The wider wheelbase on emergency vehicles allows them to pass over the speed cushion without slowing down. Another technique is to use a split speed hump design with 'knock-down' post in the middle. The separation between speed cushions is designed with enough space for emergency vehicles to avoid touching the speed cushions and thus not having to slow down.



Speed Hump

Speed humps are raised areas of pavement which are rounded on top and placed cross the entire street. The height and length of the speed hump determines how fast it can be navigated without causing discomfort to the driver. Discomfort increases as the speed of the vehicle traveling over the hump increases.



Speed Table

Speed tables are flat-topped speed humps. Speed tables are typically long enough for the entire wheelbase of a passenger car to rest on the flat top. Their long flat fields give speed tables higher design speeds than speed humps. The brick or other textured materials are usually used on the flat top to improve the appearance of speed tables, draw attention to them, reduce speed, and may enhance safety. Like speed humps, discomfort increases as the speed of the vehicle traveling over the hump increases. Speed tables are good for locations where low speeds are desired, but a somewhat smooth ride is needed for larger vehicles.



Raised Intersection

Raised intersections can be used as a traffic calming measure while also alerting drivers to the potential for pedestrians or vehicles at an intersection. The flat top is provided throughout the entire intersection.



Raised Crosswalk

Raised crosswalks have a similar shape to a speed table, but the flat top contains a striped pedestrian crosswalk. These measures should be elevated to a height that matches the adjacent sidewalk, so that the raised crosswalk is flush with the curb or top of sidewalk elevation at each end. Raised crosswalks must be installed with the appropriate sidewalk transitions on both sides.



Horizontal traffic calming measures

Horizontal traffic calming measures incorporate raised islands and curb extensions to prevent vehicles from traveling in a straight line at excessive speeds. Vehicles either slow down while maneuvering around the horizontal obstacle, or slow down due to the physical perception of a narrower roadway. To reduce the chances of potential liability issues, horizontal traffic calming measures should be signed and marked in accordance with reference material provided by the Institute of Transportation Engineers (ITE) and the Neighbourhood Traffic Calming (TAC).

The implementation of horizontal traffic calming measures can result in some traffic diverting onto parallel streets. This essentially moves the problem instead of solving the problem. Consideration should be placed on the concept of improving the Neighbourhood (not just improving the street).

Horizontal traffic calming measures include curb extension, raised center medians, chicanes, neighbourhood traffic circles, roundabouts, and lateral shifts.

Curb Extension

Curb extensions (intersection and/or midblock) improve pedestrian safety by: reducing the distance that pedestrians must travel to cross a roadway; improving the visibility of pedestrians for approaching motorists; and improving the visibility of approaching vehicles for pedestrians. Curb extensions are sometimes referred to as narrowing or bulb-outs. They can be used at intersections and at midblock locations and can be used alone or in combination with a median island. In addition to their pedestrian safety benefits, curb extensions on one or both sides of the roadway also help to reduce vehicle speeds.



Raised Center Island Median

Raised median islands are another common measure, which are constructed on a two-way roadway to reduce the overall width of the adjacent travel lanes. These measures can also act as a pedestrian refuge and can be installed in combination with curb extensions. An important consideration when determining the feasibility of a raised median is adequate road width, including adequate travel lane width on either side of the median island to accommodate snow clearing efforts, as well as ensuring adequate sightlines can be maintained should vegetation be planted in the raised median. There are also ongoing operating costs associated with sustaining vegetation in the raised median islands.



Chicane

Chicanes are curb extensions that alternate from one side of the street to the other, creating S-shaped travel patterns. Raised landscaped islands or delineators are usually provided at both ends of a chicane in order to enhance the drivers awareness of the need for a lateral shift.

Along a section of roadway that contains a chicane, off-street parallel parking may be restricted along property frontages due to curb and gutter.



Physical Obstruction Traffic Calming:

Physical obstructions are the most severe traffic calming tool and are only used when it is determined a vertical or a horizontal measure won't address the identified problem. The primary purpose of physical obstructions is to eliminating short-cutting traffic by stopping specific vehicle movements. It is important to note that physical obstructions are intended to deter motor vehicle traffic only and not to obstruct bicycle or pedestrian traffic. These types of measures are typically implemented at intersections but may also be applied at some mid-block locations.

Obstructions range from those that have a relatively minor impact on vehicular access to those that severely restrict access such as a road closure. It is important to remember once the vehicle restricted movement is in place area residents have to live with it every day.

Directional Closures

Directional closures are created using a curb extension or other barrier that extends into the roadway, approximately as far as the centerline. This device obstructs one side of the roadway and effectively prohibits vehicles travelling in that direction from entering.

Directional closures are especially useful for controlling non-compliance of one-way road sections and are compatible with other modes such as bicycles.

At all directional closures, bicycles are permitted to travel in both directions through the unobstructed side of the road; however, some directional closures have a pathway built through the device specifically for bicycles. Since their purpose is to prevent short-cutting traffic, directional closures are applicable for use on neighbourhood streets and minor Connectors, at their intersection with Connectors and arterials.



Raised Median through Intersection

These devices may be used on the centerlines of neighbourhood and Connector roadways to prevent left-turn and through movements to and from intersecting streets. This type of device is especially effective at preventing short-cutting and through traffic while providing some secondary pedestrian safety benefits.



Rights-In/Rights Out

Right-in/right-out islands are raised triangular islands located on an intersection approach to limit the side street to right turn in and out movements. Similar to a raised median through an intersection, this device is used primarily to restrict movements to and from an intersection roadway.

Right-in/right out islands may be considered only for use in locations where neighbourhood residential streets intersect another roadway of any class. The island needs to be designed properly or vehicles will drive left around it.



Full Closure

A full closure is a barrier extending the entire width of a roadway, which obstructs all motor vehicle traffic along the roadway. A closure can change a four-way intersection to a three-way intersection, or a three-way intersection into a non-intersection. Gaps can be provided for cyclists, and they are typically passable by emergency vehicles. The purpose of a full closure is to eliminate short-cutting or through traffic.

