LaSalle
Ontario, Canada

TRAFFIC CALMING POLICY

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1 Introduction

1.1 What is Traffic Calming?

Traffic calming is a collection of measures intended to improve conditions for users, including non-motorized street users of all ages and abilities, while travelling within LaSalle. Traffic calming measures include engineering, design, educational, and enforcement measures that can be used individually or together as a toolkit to help address traffic challenges such as high speeding and shortcutting traffic. Depending on the traffic concerns, the calming measures can be either passive behaviour changes or permanent physical infrastructure modifications.

1.2 Purpose

The purpose of this policy is to provide a framework for initiating, developing, assessing, implementing, and monitoring traffic calming measures for local and collector roads in the Town of LaSalle. The purpose of traffic calming is to address concerns about the behaviour of motor vehicle drivers and develop measures to mitigate the concerns resulting in safer roads for all modes of transportation. Creating a policy allows the Town 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.

1.3 Objective

The ultimate goal of traffic calming is to address the negative effects of motor vehicle use and driver behaviour. Most traffic calming measures address speeding, reckless driving, and conflicts between street users. The objective of implementing a traffic calming policy is to determine the best combination of measures that result in the greatest improvement in the quality of life and community safety at a reasonable cost.

2 Background

2.1 Street Classification

The Town of LaSalle's Official Plan includes three road classifications: local, collector, and arterial roads. A road's classification is an indication of its purpose and also the range of traffic volumes it can be expected to carry. The primary function and the purpose of the road should be maintained when considering the implementation of various traffic calming measures. Many traffic calming policies in the past have excluded arterial roads and restricted collector roads to only certain types of measures. However, with the 2018 update to the Transportation Association of Canada (TAC)/Institute of Transportation Engineers (ITE) manual, there are now traffic calming measures that are considered suitable for arterial roads.

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, it is important to carefully apply the right traffic calming measures to address the specific problem, based on the road classification.

2.2 Best Practices and Comparable Policies

Relevant best practices and comparable policies to the existing warrant from several other comparable municipalities in Ontario were considered. The review of four municipalities, the Town of Milton, the City of Windsor, City of London, and the Municipality of Leamington, is summarized in **Table 1** as they were the most relevant to the Town of LaSalle. In developing the policy for LaSalle, specific components of other municipal traffic calming policies were referenced.

Table 1: Comparable traffic calming policies of neighbouring municipalities

Criteria	Milton	Windsor	London	Leamington
Policy Document	"Traffic Calming Policy"	"Traffic Calming Policy"	"Traffic Calming Practices and Procedures for Existing Neighbourhoods"	"Short and Long Term Transportation Action Plans Update"
Year of Release	2011	2015	2019	2013
Eligible Streets	Local and collector roads within primarily residential neighbourhoods	Residential local or collector roads	Local, Primary and Secondary collector roads within residential areas	Local and collector roads
Traffic Calming Measures scope	- Vertical deflections - Horizontal deflections - Obstructions - Traffic regulations	- Vertical deflections - Horizontal deflections - Volume control measures - Traffic regulations - Signage	- Vertical deflections - Horizontal deflections - Obstructions - Passive and mitigating measures	- Vertical deflections - Horizontal deflections - Obstructions - Signage
Process Initiation	Residents with traffic related concerns submit their written request to investigate traffic calming within their neighbourhood to the Town	Residents, businesses or groups submit their concerns to the City's Public Works-Transportation Planning Division	Residents with traffic related concerns are instructed to submit their written request to investigate traffic calming within their neighbourhood to the City. Staff will then conduct a brief preliminary assessment to determine if the requested roadway meets the Initial Screening Criteria. A signed	A signed petition with a minimum of 25% support from the affected households OR A local Councillor to initiate following a public meeting OR A survey conducted by the Councillor must be submitted

			petition with a minimum of 25% support for traffic calming measures must be submitted to the City before an area is considered for traffic calming	
Initial Screening Criteria	- Street length must be at least 150m - Posted speed limit must be 50km/h or lower - Must have a minimum of 500 Annual Average Daily Traffic (AADT) - All reasonable efforts have been made (including engineering, education, and enforcement tools)	- Street length must be at least 150m - Posted speed limit must be 50km/h or lower - Street has not been evaluated for traffic calming in the last 5 years	- Street length must be at least 300m - Posted speed limit must be 50km/h or lower - Must have a minimum of 500 Annual Average Daily Traffic (AADT) - No Previous efforts must have been made within the last 36 months - Road is primarily residential land use - Road provides obvious by-pass to a major intersection	- Street length must be at least 120m - The 85th percentile speed must be a minimum of 10km/h over the posted speed limit - If the 85th percentile speed is more than 15km/h over the posted speed limit, there is no minimum volume requirement - Must have 1,000-8,000 vehicles per day for local roads and 2,500-8,000 per day for collector roads - Must have continuous sidewalks on at least one side for local roads and both sides for collector roads
Initial Public Support	After initial screening criteria is met, a minimum of 51% of support is required From: the property owners with households with direct frontage or flankage onto the section of the affected roadway	After initial screening is met, a minimum of 60% of support is required From: properties in the petition area Timeline: within eight months	Signatures and addresses of at least ten (10) separate households on the street of concern.	After initial screening criteria is met, a minimum of 25% of support is required From: affected households

Warrant	Scoring or Ranking Description	Point based system Minimum points to qualify: - Local roads –35 points - Collector roads – 52 points	Point based system - Threshold of 30 points if passed the initial criteria. *Exceptions may be made by the City based on other project schedules, available funding sources, and other considerations*	Point based system Minimum points to qualify: - Neighbourhood Streets (Local roads) – 35 points - Neighbourhood Connectors (Collector roads) – 52 points	Point based system - No threshold is set, only used to prioritize projects - 4 subgroups worth 25 points each including: Speed, Volume, Collisions, Pedestrian and Bicycling Factors
	Speed	- Five points for every 2km/h that the 85th percentile speed is greater than 15km/h over the speed limit (max. points = 35)	- One point for every km/h that the 85th percentile speed is between 5-15 km/h over the posted speed limit, plus 2 points for every km/h from 15-25 km/h over posted speed limit using the average along the street (max. points = 30)	- Five points for every 2km/h that 85th percentile speed is greater than 10km/h over the speed limit (max points = 35) - Five points if a minimum of 5% of daily traffic exceeds posted speed by 15-20km/h (max. points = 5)	- Local Roads: Two points for each km/h that the 85th percentile spe9ied is above the minimum speed threshold (max points = 25) - Collector Roads: One point for each km/h that the 85th percentile speed is above the minimum speed threshold (max. points = 25)
	Volume	- Local Roads: Five points for every 1,500 AADT; - Collector Roads: 5 points for every 2,000 AADT (max. points = 20) - Five points if 25% or more short-cutting traffic; and additional 5 points for every 10% increment above 25% (max. points = 15)	- One point for every 150 AADT starting from zero (max. points = 25)	- Local Roads: Five points for every 1,500 AADT; - Collector Roads: 5 points for every 2,000 AADT (max. points = 20) - Five points if 25% or more short-cutting traffic; and additional 5 points for every 10% increment above 25% (max. points = 15)	- Local Roads: One point for every 100 vehicles of AADT (max: 25 points) - Collector Roads: One point for every 200 vehicles of AADT (max. points = 25)
	Collisions History	- One point for every two collisions/year in the last three years	- One point for each reducible	- One point for every two collisions/year in the last three years	- Five points for every preventable collision

		(max. points = 10)	collision/km in the last five years - Five points for each collision/km involving a vulnerable road user within the last five years (max points = 10)	(max. points = 10)	recorded in the last three years - Ten points for two or more preventable collisions recorded in the last three years OR - Ten points for every preventable collision recorded resulting in personal injury in the last three years (max. points = 25)
	Pedestrian/ Cyclists Generators	- Five points for each nearby pedestrian generator (school, playgrounds) - (max. points = 15)	- Five points for each other generator (park, senior's center, community centre) with a direct connection to the street - 7.5 points for each school along street; and - Five points for school walk routes in the area for schools near but not on street itself. (max points = 15) (max points = 10)	- Five points for each nearby pedestrian generator (school, playgrounds, community centres, libraries, retail centres, etc.) (max. points = 15)	- Five points for each pedestrian generator (e.g. park, school, senior centre, recreation centre, church, or other public institution) - Ten points for a signed bicycle route (max points = 25)
	Sidewalks	- Five points if the road does not have any sidewalk with evidence of pedestrian activity (max. points = 5)	- Five points if the road does not have a continuous sidewalk on at least one side (max. points = 5)	- Ten points if the road does not have any sidewalk with evidence of pedestrian activity - Five points for sidewalks on only one side (max. points = 10)	- Not Applicable (included in the initial criteria)

Opportunities for Community Participation	Yes (survey and public meeting)	Yes (surveys and public meeting)	Yes (surveys and public meeting)	Yes (survey only)
Additional Community Support Approval Process	Yes - An additional survey round would be sent to community with proposed measures - A minimum of 25% of sent surveys must respond, and from this at least 60% must be in favour of plan	Yes - Once the traffic calming plan is developed, a public approval poll is sent to the properties in the poll area - A minimum of 50% of sent surveys must respond, and from this at least 60% must be in favour of plan	Yes - PIC & Public Input Notices will be circulated to all residents who have direct frontage or flankage of the street in question. PIC is to present the proposed Traffic Calming Measures and gain inputs. - A minimum of 51% of total surveys delivered must be returned to the City indicating they approve the future installation of the recommended traffic calming plan.	Not Specified
Emergency / Transit / Maintenance Approval or Involvement	Yes	Yes	Yes	Yes
Alternative / Flexible Measures, if Initial Screening Criteria is not Met	Yes - Staff will consider “front-line” mitigating measures such as driver feedback boards, Neighbourhood Speed	Yes - If the absence of sidewalks is an issue this can be sought through the Local Improvement Policy. Dangerous	Yes - Staff will consider “front-line” mitigating measures such as driver feedback boards, police enforcement, sign	Not Specified

	Watch programs, police enforcement, sign installation, pavement marking modifications	driving should be reported to Police or the Windsor Police Service Road Watch Program. Road safety concerns can be reported through the City of Windsor's 311 system.	installation and pavement marking modifications.	
Degree of Process Complexity	High	High	High	Low
Monitoring and Evaluation Methods	- Outcome study: 4-6 months following implementation - Town will take corrective actions if: through traffic on parallel streets has increased by 15% or more (with a minimum of 150 vehicles)	- Outcome study: 6-12 months following implementation - City may run the site through the warrant process again to see if it still has a need for calming - City may undertake further public meetings to discuss amendments to the project	- Traffic engineering staff will monitor the roadway to determine the effectiveness of the utilized measures and their impact on the surrounding road network - City will also assess if the plan has resulted in significant amounts of traffic diverting to adjacent, parallel streets	- Not Specified

2.3 TAC's Canadian Guide to Traffic Calming 2018

TAC and ITE jointly updated the 1998 Canadian Guide to Neighbourhood Traffic Calming and have published the Canadian Guide to Traffic Calming 2018 (CGTC). A group of professionals and associations contributed to the update to the 1998 Guide based on their experience from many more municipalities and current best practices. The CGTC is intended to be used as a national guideline, and the review of the CGTC is to assist LaSalle in developing its own policy and use it as a reference to educate elected officials and the general public. LaSalle's policy conforms to the guiding principles and follows the process recommended in the CGTC and much of its content is good background to the subject.

The following sections summarize relevant contents from TAC's 2018 Canadian Guide to Traffic Calming that are considered when developing a traffic calming plan.

2.3.1 Overview

Traffic calming is used to maintain the road's intended function while keeping the safety of all road users at the forefront. Two main causes that may elicit the need for traffic calming to be considered are excessive speeding and traffic short-cutting / infiltration. Depending on the cause of the issue, the location, and the desired results, the proposed measures should reflect the objective. Some traffic calming measures are more effective at controlling speed, for example, and others might be intended to deter traffic from using a particular street. There are various types of traffic calming measures but largely divided into physical measures that require alteration of physical attributes of the roadway and passive measures such as enforcement and educational/awareness programs.

Some traffic calming measures are more suitable in certain locations than others. In the past, traffic calming was designed and implemented primarily in residential neighbourhood areas as noted by the first edition of TAC/ITE's guide title of Canadian Guide to Neighbourhood Traffic Calming. The updated edition now takes into consideration not only local and collector roads but also arterials roads. This addition however includes provisions that the objective and the approach be different than local and collector roads to make sure that the function of arterial roads is not hindered. Restriction and diversion of traffic flow are not recommended on arterial roads. In addition, the area type (rural or urban) is an important factor to consider when choosing traffic calming measures.

One of the main objectives of traffic calming is to increase the safety of the road users. Decreasing the operating speed of vehicles and volume of traffic and heightening the awareness of other street users can reduce conflicts between road users. However, traffic calming measures require appropriate signage and pavement marking to ensure all users know how to use the road safely.

2.3.2 Factors Affecting Traffic Calming Planning

There are many factors for municipalities to consider when planning and implementing traffic calming policies to ensure they are effective. The factors outlined in the CGTC are: legislation and regulations, liability, accessibility, enforcement, emergency services, maintenance and operations, modes of transportation, and compatibility with municipal land use and transportation plans as shown in Table 2.

Table 2: Factors to consider when planning traffic calming policies

Factors	Considerations
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 the installation and impact of traffic calming that may arise from perceived conflict with other reference documents. For the 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 town 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.

2.3.3 Guiding Principles

The guidelines indicated in **Table 3** should be taken into consideration before and during the implementation of a traffic calming intervention. These are general recommendations that recognize important aspects of the investigation and implementation process:

Table 3: Key guidelines to consider before, during, and after implementing traffic calming

#	Guidelines
1	Identify the source of the problem and quantify the extent of the problem through data collection or analysis
2	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
3	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
4	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
5	Verify that the intervention does not impede upon the accessibility of non-motorized modes of transportation such as pedestrians, cyclists, and wheelchairs
6	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
7	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
8	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

2.3.4 Traffic Calming Process and Procedure

CGTC includes a comprehensive process of potential steps to consider when developing a traffic calming plan. Understanding that each municipality has their own culture and concerns that they need to address, this process can be a model that municipalities can adapt to their needs. There are five main stages in the process: initiation, development, approval, implementation and evaluation.

1. Initiation

   A consistent and documented process is important to keep track of all requests. The initial process includes receiving and screening the traffic calming requests. This section has been expanded to include various types of initiation types such as external public requests but also internal checklist that may prompt a survey within an area. Initial criteria are recommended to use for the screening process. At the end of this stage, a problem definition, scope and the decision to proceed or not should be made.

2. **Development**
   More detailed project definition including data collection, stakeholders, list of alternative solutions are determined at this stage. Review and analysis of the problem statement to develop the plan for each of the project and finally determining the solution.
3. **Approval**
   For any traffic calming plans to go forward, approval from stakeholders, residents and the decision-makers is essential. At this stage, an overview of the problem statement and proposed solutions are reviewed to ensure that the objective is met. The community support is important as the initial request might not reflect the opinion of the majority affected. There is a potential for two stages of approval; one approval to agree on the need of traffic calming measure and second approval for the type of traffic calming measure to be implemented.
4. **Implementation**
   This stage is to complete detailed design according to the specific study area and to ensure the funding is available and finally, to construct the designed traffic calming measure.
5. **Evaluation**
   Monitoring and evaluation is required to ensure the initial objective is met and if it is not, reconsideration of how the implementation can be refined. Some traffic calming projects are intentionally temporary to evaluate their effectiveness before permanent investments are made. Traffic calming policies should outline the evaluation process that includes the evaluation criteria, the monitoring timeline, and outcomes.

2.3.5 Traffic Calming Measures

The CGTC updated the list of traffic calming measures that are deemed to be suitable for use within North America based on their effectiveness on traffic volume, speed, conflicts and neighbourhood environment. The list of measures recommended in **Section 4** for LaSalle are taken from this recognized list. Some measures that were included in the first edition have been removed based on the outdated practices and outcomes of their uses. In addition, new common operational and educational practices that can also be used as a traffic calming measure are added and a number of emerging technologies are introduced to broaden the options for available measures.

The measures are divided into the following categories: vertical deflection, horizontal deflection, roadway narrowing, surface treatment, pavement marking, access restriction, gateways, enforcement, education, shared space, emerging technologies and measures.

In selecting the most appropriate traffic calming for the problem statement and the study location, the Guide included two tables showing the applicability and the potential benefits and disbenefits of each traffic calming measures. Table 3.2 of the Guide outlines which of the measures are suitable for each location type: local/collector, urban arterial or rural arterial. Table 3.3 of the Guide shows what types of problems that the traffic calming measure can address and what types of implication it can potentially cause.

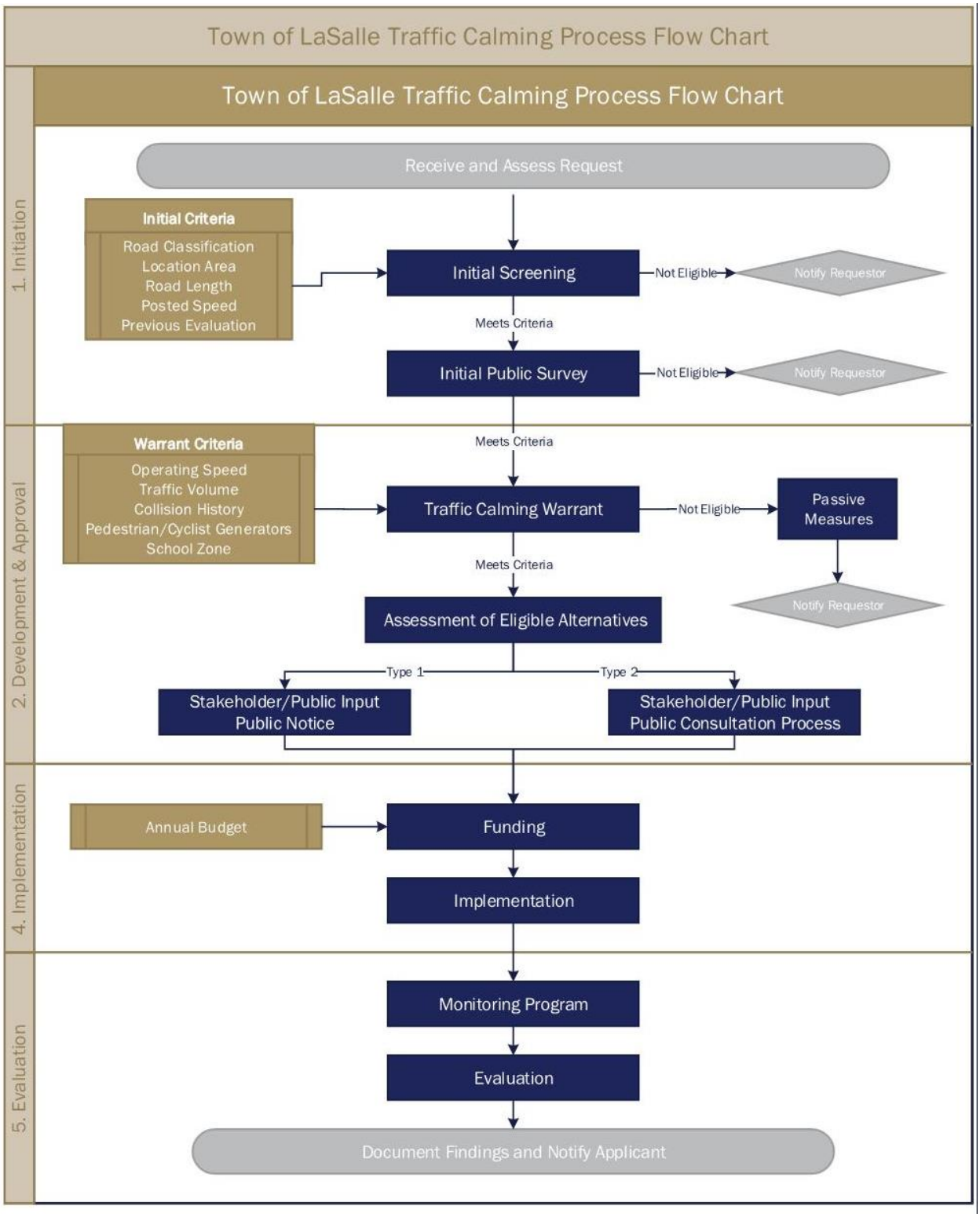
3 Town of LaSalle's Process

The review of other municipalities policies and the CGTC was used as the basis of developing the Town of LaSalle's process. The traffic calming process for the Town of LaSalle 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 alterative response. This process provides transparency and consistency for the Town staff and the public.

3.1 Traffic Calming Process Flow Chart

The flow chart in **Figure 1** shows the steps and sequence required to effectively manage any request. It shows the various decision points and possible outcomes and makes sure all necessary considerations have been taken into account. Each step is described in the remainder of this chapter.

Figure 1: LaSalle's traffic calming process flow chart



3.2 Initiation

The initiation stage starts when an official request has been submitted in writing to the Town Staff. The requestor can be any member of the public, Town staff, or an elected official. Once the request has been made, the initial screening and public survey 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.

3.2.1 Receive and Assess Request

All requests will be received in writing and managed by staff in one section of the Public Works Department for data management purposes. Having a formal request process provides an opportunity for the Town staff to gather the necessary information to decrease unnecessary administrative efforts. Once the request has been received, the Town staff will review the request and provide an update to the requestor within a 30-day review period.

3.2.2 Initial Screening Criteria

The initial screening criteria outlines the minimum requirements for a location to be eligible for traffic calming measures. These criteria are developed based on the review of nearby municipalities of similar size and TAC's Traffic Calming Manual.

Table 4: LaSalle's initial screen criteria

Criterion	Requirement
Road Classification	Only **local** and **collector** roads are eligible
Location Area	Primarily residential area
Road Length	Street segment length **must exceed 200 metres** [1]
Posted Speed	Posted speed limit must be less than or equal to **50km/h**
Previous Evaluation	Specific roadway has not been considered within the last **12 months**.

[1] *Where the segment of the roadway is not interrupted by a stop sign, traffic signal or curve sharper than 30 degrees.*

3.2.3 Initial Public Survey

Before data collection occurs, a survey is circulated to the residents within the study corridor to confirm that there is a neighbourhood concern regarding traffic conditions. The Town will advise the residents in the subject area of the request and the process the Town will follow. A minimum response of 25% is required for the request to continue. 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 Town funds get spent where the residents are most concerned.

3.3 Development & Approval

Once the community 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 proposed traffic calming strategy needs to be accepted by the community and funding availability confirmed before implementation can take place.

3.3.1 Traffic Calming Warrant

Subsequent to the initial screening criteria, the operating conditions in the subject area are compared to a set of warrants, approved by the Town. The warrants are intended to help staff determine whether the conditions, as defined by the collected traffic data, indicate a problem that the Town should address. Also, the warrants allow various locations that have been requested to be prioritized when there is finite funding for improvements.

Data Collection

The data required for the warrant process are operating speed, annual average daily traffic (AADT), collision data, and a database of pedestrian/cyclist generators. A collaborative effort with other departments within the Town, and the police service is beneficial for organizing data storage and allocating proper budget. The sources of data required are shown in **Table 5**.

Table 5: Warrant criteria data source

Criterion	Data Source
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	LaSalle Police Service
Pedestrian/Cyclists Generators	Town's GIS database
School Zone	Town's GIS database

Town 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.

The warrant screening for the Town of LaSalle is based on a point system in which each category includes points to show severity. 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 Town. The minimum point total required to satisfy the warrants for traffic calming measures is 35 points. The point system for each criterion is shown in **Table 6**.

Table 6: Warrant screening requirements for LaSalle's traffic calming policy

Criterion	Requirement	Max Points
Operating Speed	One point for every km/h that the 85th percentile speed is between 1-15 km/h over the posted speed limit Two points for every km/h that the 85th percentile speed is between 15-25 km/h over posted speed limit (except for school zone specific speed limits)	30
Traffic Volume	Local Roads: Five points for every 1,000 AADT Collector Roads: Five points for every 2,000 AADT	30
Collision History	Two points for every collision, not involving vulnerable road uses, within the last 3 years Five points for every collision, involving vulnerable road uses, within the last 3 years	20
Pedestrian/Cyclists Generators	Places of pedestrian/cyclist generators: Playgrounds/park, senior's center, recreational/community centre, retail centres, libraries, Five points for every pedestrian/cyclist generator within the study area Five points for a walking trails and cycling routes	10
School Zone	Five points for every school within the study area	15

For locations that satisfy the initial criteria and received sufficient community support, but did not meet the warrant, will be considered for passive traffic calming measures discussed in **Section 4.1**. These measures are relatively low in cost, and often temporary, but can impact driver behaviour through education and awareness.

3.3.2 Assessment of Eligible 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.

Municipalities have found that physical measures, primarily vertical deflections measure have been the most effective at modifying driver behaviours. However, these treatments are usually the most expensive and often municipalities do not have sufficient capital budgets to fund all the projects that meet their warrants. In cases where locations that met the warrants have to wait several years for their improvements to be funded, these residents are unsatisfied and feel like their problem is not being addressed.

To avoid this problem, the Town of LaSalle will utilize two types of traffic calming treatments. Type 1 traffic calming measures are low cost but effective ways of changing driver behaviour. They generally consist of signs, pavement markings and temporary installations such as bollards that can change the feel of a road and reduce speeds. Type 2 traffic calming measures involve construction of curbs or humps which are higher in cost but may prove more effective.

Based on the annual budget and ranking of the locations based on their point totals, staff will recommend Type 1 and Type 2 treatments to make the most effective use of the available budget. Should there be enough capital funding to construct Type 2 traffic calming treatments at all the warranted locations, all locations will receive Type 2 treatments. In the event that there is not sufficient funding, 40% of the Capital funds will be allocated to Type 2 treatments based on the priority ranking. The remaining 60% will be allocated to Type 1 treatments by the remaining locations.

In subsequent years, locations with Type 1 treatments will remain eligible for Type 2 treatments while in the monitoring program as discussed in Section 3.5.1. The monitoring program will further evaluate the effectiveness of the Type 1 treatments and provide updated data for the warrant score.

The point system outlined in Table 6 not only determines whether a location is warranted for traffic calming, but 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.

3.3.3 Stakeholder/Public Input

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 reaction is 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 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% 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.

3.4 Implementation

3.4.1 Traffic Calming Funding

Traffic Calming should have an annual envelope in the Town's Capital Budget with consistent and predictable funding. This allows staff and the public to have realistic expectations about the number of traffic calming projects that can be funded each year and how long it might take for new projects to receive funding. Each year, the traffic calming plan will be based on the available funds for the list of warranted locations.

3.4.2 Implementation

Once the budget envelope has been approved, the installation schedule can be developed for the construction season. This will include public notification, installation by staff, as well as contracted services as required.

3.5 Evaluation

3.5.1 Monitoring Program

It is important to monitor locations after traffic calming has been installed to confirm whether operating conditions have improved. This monitoring will provide data to confirm the effectiveness of each installation and these results may influence the proposed traffic calming plans for future years. The Town of Lasalle should collect follow up data at traffic calming installations for at least two years. The first year will determine the initial impact of the treatment but the second year is required to determine whether the impact is permanent.

3.5.2 Evaluation

It is also important for the residents to receive feedback on the performance of the traffic calming treatments. Often residents can form their own opinion about the effectiveness of the traffic calming but it important for them to see the statistical results from the data collected by staff.

4 Traffic Calming Measures

Traffic calming measures included in this policy are selected to suit the geometrics and practices within LaSalle and includes measures that have been implemented in nearby municipalities. The measures are categorized into Type 1 and Type 2 as discussed in Section 3.3.2. Type 1 measures include passive measures that can be achieved in shorter time period for a lower cost such as road narrowing, signage and education. Type 2 measures may require construction for physical geometric changes such as vertical and horizontal deflections.

4.1 Type 1 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 Town to address more requests with the given funding and resources. Type 1 traffic calming measures used in LaSalle are shown in **Table 7**.

Table 7: Type 1 traffic calming measures

Traffic Calming Measure Description	Example	Considerations
Road Diet Reconfiguration of a road by reducing the number of vehicle lanes to allocate the reclaimed space for other uses (sidewalks, bus lanes, bike lanes, parking)		- Reduces vehicle speeds and conflicts - May affect emergency vehicle response times due to added congestion
Speed Display Devices Interactive sign that displays vehicle speeds as oncoming motorists' approach		- Reduces speed and conflicts - If not enforced, drivers may become immune - An estimate of volume data can be collected
Lane Narrowing Using pavement marking to mark the designated roadway lane width to alert drivers of the appropriate road position. Bollards are often used as a physical eliminator to reinforce the lane width.		- Reduce speeds and heightened awareness - Opportunity to redistribute roadway right-of-way for other road users - No construction required

4.2 Type 2 Measures

Type 2 traffic calming measures typically result in more effective solutions as the physical changes to the road require the drivers to reduce their speed. The three categories of Type 2 measures are vertical deflection, horizontal deflection and access/volume control.

4.2.1 Vertical Deflection

Vertical deflections are physical obstructions for vehicles to traverse. The vertical height difference is designed to cause drivers that are driving above the speed limit discomfort to slow down. Certain drivers may reroute their travels to avoid these neighbourhood calming areas, achieving traffic diversion. Vertical deflections used in LaSalle are shown in **Table 8**.

Table 8: Vertical deflection traffic calming measures

Traffic Calming Measure Description	Example	Considerations
Speed Hump / Speed Table (intersection) Vertical deflection designed to accommodate the desired operating speed.		- Reduces speed and volumes - Affects emergency vehicle response times and transit routes
Speed Cushion A raised area on a road similar to a speed hump but does not cover the entire width allowing for large vehicles (bus, fire truck) to straddle the cushion without difficulty.		- Reduces vehicle speeds and volumes - May slightly affect emergency vehicle response times and transit routes but not as much as speed humps - Requires removal in the winter

4.2.2 Horizontal Deflection

Horizontal deflection traffic calming measures narrow the road to encourage vehicles to slow down and accommodate other roadway users. These types of measures are effective on roadways with straight geometry for extended length and at areas with high volume of pedestrians and cyclists. Horizontal deflections used in LaSalle are shown in **Table 9**.

Table 9: Horizontal deflection traffic calming measures

Traffic Calming Measure Description	Example	Considerations
Curb Extensions A horizontal intrusion of a curb into the roadway resulting in a narrow section of roadway.		- Reduces vehicle speeds and conflicts through shortening the crossing distance for pedestrians - Not compatible with bike lanes - Potential loss of on-street parking
Traffic Circle Form of intersection control requiring through traffic to manoeuvre around the centre island.		- Reduces speeds, volumes, and conflicts - Delays emergency vehicle response times - Not suitable for high pedestrian locations
Raised Median Island An elevated medium constructed on the centerline of a two-way roadway to reduce the overall width of the adjacent travel lanes		- Reduces speeds marginally - Reduces conflicts as pedestrians can take refuge on mediums - May restrict access to driveways - May reduce room for cyclists

4.2.3 Access/Volume Control

Access and volume control measures are intended to deter vehicles to make certain movements to prevent vehicles entering a roadway while allowing pedestrians and cyclists. These measures are typically used for locations with high volumes of short cutting traffic. Short cutting traffic is defined as vehicles using a road that was not intended to carry these vehicles based on its classification. Since these traffic measures may disrupt the connectivity of the overall transportation network, it is recommended when other traffic measures are deemed not effective, and with definitive neighbourhood support. Access and volume control measures used in LaSalle are shown in **Table 10**.

Table 10: Access/volume control traffic calming measures

Traffic Calming Measure Description	Example	Considerations
Diverter A raised barrier that lies diagonally across an intersection that forces traffic to turn and prevents it from proceeding through.		- Reduces volume significantly - Does not do much regarding speed - Not ideal for emergency vehicles
Raised Median Through Intersection Asphalt island located on the centerline of a two-way roadway through an intersection that prevents left turns and through traffic.		- Reduces volume by eliminating cut-through traffic - Restricts resident access - May restrict emergency vehicle access
Directional Closure Curb extension or vertical barrier extending to about the centerline of a roadway prohibiting one direction of traffic.		- Reduces speed, volumes, and conflicts through shortening the pedestrian crossing - Restricts resident access - May complicate street sweeping and snow removal

Right-In/ Right-Out Raised triangular island at an intersection which prevents left turns and through movements to and from the intersecting street or driveway		- Reduces conflict points and volumes - Restricts resident access - May complicate street sweeping and snow removal

4.3 Passive Measures

Locations that satisfied the initial criteria and gained sufficient however, did not meet the warrant, passive traffic calming measures are considered. These measures are relatively low in cost, and may be temporary, but the concerns may be resolved through modified driver behaviour from education and awareness. Many of the passive measures are the community-led initiatives; these initiatives are proposed and developed by local residents which typically result in higher engagement level. These initiatives do not require any changes to the road geometry or interfere with any operational work by the Town. The Town will work with the residents to review, approve, and monitor any passive measures to ensure safety for all users, and that potential impacts on municipal and traffic operations are identified and mitigated. Passive traffic calming measures that can be considered in LaSalle are shown in **Table 7**.

Table 11: Passive traffic calming measures

Traffic Calming Measure Description	Example	Considerations
Location-specific Enforcement Police enforcement in a specific area known for traffic and driving infringements		- Meant to warn drivers, increase education - Enforcement for speed reduction and awareness
Resident Lawn Signs Signs such as 'Please Slow Down' and 'Thank You for Slowing Down' signs to remind drivers to slow down		- Meant to communicate with the drivers that children and other vulnerable road users are in the area - Based on resident voluntary commitment

Traffic Calming Measure Description	Example	Considerations
Education Campaign To raise awareness of road safety issues to all road users. Presented information can include traffic calming procedure, proper use of the measures, traffic calmed locations, and preventative safety measures.		- Through workshops, pamphlets, and social media to raise awareness - Combine campaigns with information of law enforcements for greater impact - Can focus on different audience groups with various messages
Traffic-Calmed Neighbourhood Sign to notify motorists of traffic calming measures such as speed humps		- Meant to make motorists aware that they are entering a traffic-calmed zone - Usually combined with other measures

4.4 All-Way Stop Control

Municipalities are often faced with requests for all-way stop control as a means to address speeding concerns. However, traffic engineering standards including the Ontario Traffic Manual (OTM) clearly indicate that stop signs are means of controlling the right-of-way at intersections, and not a tool to address speeding. These standards include warrants for all-way stop control based on intersection volume and safety. Compliance at unwarranted stop signs has been found to be lower than warranted locations because drivers perceive that there was no reason to stop and often tried recover lost time.