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Traffic Calming

POLICIES & PROCEDURES

Town of Collingwood

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1 Purpose

The purpose of this policy is to provide a systematic procedure for the initiation, investigation and implementation of traffic calming measures on roads within the Town of Collingwood. This policy and associated procedures also ensure that there is a formal process defined by which all candidate traffic calming sites and/or traffic calming requests can be evaluated against the same screening and criteria – thus ensuring a consistent approach throughout the Town.

2 Traffic Calming

2.1 DEFINITION

Traffic calming is the implementation of primarily physical measures that are intended to:

- reduce the negative impacts of motor vehicle use;
- alter driver behaviour; and
- improve conditions for non-motorized street users.

Traffic calming measures combined with education (speed display devices, targeted education campaigns regarding road safety, active and safe routes to school programs, etc.) and enforcement (police presence to ensure motorists are driving in accordance with the speed limit), can significantly improve the safety of neighbourhoods and roads.

2.2 OBJECTIVES

Local & Collector Roads

In context of the local and collector road systems within the Town, the specific objectives of traffic calming and this policy are to:

1. Increase the Safety of Neighbourhoods

   Through the use of physical measures to alter driver behaviour, traffic calming can improve safety on residential streets. The resulting reduction in travel speeds and potentially traffic volumes can create a safer environment for all road users, including active transportation users and area residents.

2. Improve the Livability of Neighbourhoods

   Traffic calming is intended to uphold and restore the livability and sense of community within neighbourhoods by minimizing the volume and speed of through traffic. As a result, negative impacts from traffic such as excessive noise, air pollution, visual presence of numerous vehicles and potential safety hazards are minimized. In addition, attractively designed traffic calming measures can enhance the aesthetics of a neighbourhood and improve streetscapes.

3. Restore Roads to their Intended Function

   The intended function of a local road is to accommodate low to moderate volumes of traffic travelling at low speeds in and out of neighbourhoods or from points of origin to the upper tier road system (i.e. collectors, arterials and highways). Local roads provide direct vehicle

access to residences that typically front onto these roads. Through traffic should generally be discouraged from using local roads, although it is acknowledged that some level of through traffic is acceptable.

Collector roads are intended to provide linkages between local roads and other collector and arterial roads. Operating speeds on collector roads are typically similar to those of local roads and typically less than those on arterials.

4. Maintain Access Routes for Emergency Services, Public Transit & Maintenance Services

   The potential impacts to emergency services have been considered in the development of these guidelines and will continue to be considered throughout the implementation of traffic calming measures. The needs of these services (i.e. quick and ready access to those in need) will be balanced against the need to slow and/or reduce traffic. In addition, these guidelines outline the process through which all potentially impacted services will have the opportunity to comment on any proposed plans before implementation.

5. Promote Public Participation & Community Support

   Traffic calming measures have a direct impact on neighbourhoods and the residents living in them. As such, an integral part of the process includes resident communication and feedback.

It is noted that traffic calming has the potential to disrupt traffic patterns and reduce the capacity of the local road system. As such, traffic calming measures should only be considered where objective safety concerns can be readily demonstrated.

With respect to collector roads, physical traffic calming applications may not be appropriate in many instances as such can compromise the primary function of the road. Staff will review collector roads on a site by site basis to establish whether a collector road or section thereof is an appropriate candidate for traffic calming measures.

Arterial Roads

While traffic calming typically targets local and select collector roads, some traffic calming measures can be considered on arterial roads - albeit measures on arterial roads are strictly related to addressing excessive speed, conflict between road users and inappropriate driver behavior. Traffic calming should not be used on arterial roads to restrict or divert traffic, in that by their very nature, they are intended to serve greater traffic volumes. Traffic calming on arterial roads requires a different approach than local and collector roads, as appropriate measures for use on arterial roads are limited (i.e. vertical and horizontal deflection measures are not appropriate).

2.3 ADVANTAGES & DISADVANTAGES

General advantages and disadvantages of traffic calming measures are outlined in Table 1.

Table 1: Traffic Calming - Advantages & Disadvantages

ADVANTAGES	DISADVANTAGES
▪ reduces vehicle speeds	▪ increases emergency vehicle response time
▪ reduces traffic volume	▪ reduces ease of access in and out of neighbourhoods
▪ discourages through traffic	▪ results in expensive solutions (time and resources)
▪ improves overall road safety	▪ diverts traffic onto neighbouring roads (i.e. moves the problem rather than solve it)
▪ improves neighbourhood livability	▪ increases maintenance time and costs (e.g. snow clearing, garbage pick-up)
▪ reduces conflicts between road users	▪ results in the implementation of measures some consider visually unattractive and/or cause increased noise pollution

2.4 OTHER CONSIDERATIONS

There are a number of other issues that must be considered in establishing a traffic calming policy to ensure that existing policies and standards as they pertain to the road network do not preclude or contradict the proposed traffic calming initiatives. Furthermore, existing services and operations must also be considered so as not to be negatively impacted.

Provincial Legislation/Municipal By-laws

Existing legislation and/or by-laws may impact the implementation of traffic calming in a community. While the Town has no control over Provincial legislation, modification to by-laws may be required to ensure that the traffic calming policy does not conflict with current and relevant by-laws in place.

Potential Liability

Liability resulting from the introduction of traffic calming measures on public roads has been a concern for many municipalities. Although these concerns continue to exist, experience has proven that the most effective means of reducing the potential for litigation is to establish and follow a set implementation procedure. This procedure should include an approved policy, a defined planning process, specific design guidelines and standards, a uniform approach to advise

road users through standard signs and markings, and a prudent maintenance program that addresses the additional attention required in traffic calmed areas. Although the implementation procedure may not completely eliminate potential liability, it is believed that the benefits associated with traffic calming far outweigh the risks involved.

It is further noted that there is potential liability in not calming traffic where study suggests that such should be considered.

Accessibility

Traffic calming measures should consider the needs of road users of all ages and abilities, and not impede or negatively impact their independence or safety.

Enforcement

While some traffic calming measures are self-enforcing, there are some measures that require initial and/or on-going police enforcement to ensure the desired impacts are realized (i.e. traffic calming measures that include regulatory signage such as prohibited turns, one-way street signs, etc.). Recognizing that enforcement is costly and police resources are limited, implementation of traffic calming measures requiring enforcement may not be as effective. Thus, a balance between required and self-enforcing measures should be established.

Emergency Services

The drawback in slowing down general traffic is the impact on emergency service response times. It is noted that traffic calming designs have progressed over the years to mitigate impacts to emergency service vehicles while still retaining the needed functionality to calm general traffic. The selection of traffic calming measures should take into consideration the Town's emergency response times and equipment to ensure appropriate measures are implemented.

Maintenance & Operations

Consultation with Town operations and maintenance staff is recommended to ensure traffic calming measures do not conflict with general road maintenance operations. Snow clearing/storage, street sweeping, pavement marking, drainage and damages due to road geometry changes are common concerns. Traffic calming measures have tangible impacts on maintenance needs and costs which must be considered over and above capital costs.

Modes of Transportation

Transit operations and active transportation must be considered in the application of traffic calming measures, recognizing that traffic calming is intended to enhance the safety of all road

users. Any traffic calming measure implemented on a transit route or cycling route must make accommodation for these modes of transportation.

Municipal/County Master Plans

Traffic calming policy and the implementation of traffic calming measures should be incorporated in other long-range plans and policies to ensure uniformity across the Town and County (where applicable).

3 Traffic Calming Measures

Traffic calming measures are typically classified into the follow categories:

- physical measures which relate to physical alterations to the road surface or geometry; or
- non-physical measure which relate to “soft” methods such as enforcement, pavement markings and signage.

3.1 PHYSICAL MEASURES

Physical measures include:

- speed humps (rounded raised areas placed across the roadway);
- speed cushions (variation of speed humps with gaps in the humps to accommodate emergency vehicles and busses);
- speed tables (flat-topped speed humps);
- rumble strips (raised bars/grooves closely spaced);
- textured crosswalks (patterned surface contrasting the adjacent roadway);
- raised intersections (flat raised areas covering entire intersections, with ramps on all approaches and often with brick or other textured materials on the flat section);
- traffic circles (raised island, placed in intersections, around which traffic circulates);
- roundabouts (larger than traffic circles and typically have raised splitter islands to channel approaching traffic to the right and are used on higher volume streets);
- chicanes (curb extensions that alternate from one side of the street to the other, forming S-shaped curves);
- chokers (curb extensions at midblock locations that narrow a street);
- curb radius reductions (reconstruction of an intersection corner to a smaller radius);
- realigned intersections (changes in alignment that convert T-intersections with straight approaches into curving streets that meet at right angles);
- neckdowns (curb extensions at intersections that reduce roadway width curb to curb);
- centre island narrowings (placement of a raised island located along the centerline of a street that narrows the travel lanes at that location);
- on-street parking (allowing vehicles to park adjacent and parallel to the curb); and

- gateways (a combination of traffic calming measures that identify a transition between rural and urban zones - ideal for arterial roads).

3.2 NON-PHYSICAL MEASURES

As previously noted, non-physical traffic calming measures are usually implemented through enforcement, signage and pavement markings. Such measures include:

- speed enforcement (police enforcement, particularly in school and community safety zones; can also include automated speed enforcement);
- pavement marking legends (painted speed limits on the pavement surface to remind drivers of the speed limits);
- transverse lane markings (transverse bars or chevron pavement markings on a travel lane);
- lane narrowing and shoulder widening through pavement marking; and
- dynamic speed displays (radar signs which indicate travel speeds).

It is noted that while stop signs are often employed as a means of traffic calming, such is not recommended. As per the *Ontario Traffic Manual Book 5 Regulatory Signs*, stop signs should not be used for speed control. Unwarranted stop signs increase vehicular speeds between stop signs (stop signs only affect speeds within approximately 40 metres of the stop sign), encourage rolling stops and ultimately, non-compliance. An excessive number of stop signs, particularly those that are not warranted, also breeds disrespect for stop signs and other traffic control devices.

3.3 TOWN OF COLLINGWOOD MEASURES

In consideration of the Town objectives in implementing traffic calming guidelines, and recognizing the combination of urban, semi-urban and rural roads within the Town's road network, the following traffic calming measures have been considered:

- police enforcement;
- automated speed enforcement;
- dynamic speed signs;
- lane narrowing via road markings;
- chicanes;
- curb radius reductions;
- curb extensions;
- traffic calming curbs;
- textured cross walks;
- speed humps;
- speed cushions;
- speed tables;
- centre median;
- traffic circles; and
- on-street parking.

Police Enforcement

Enforcement is defined as a police presence to monitor speeds and issue tickets for violation of the Highway Traffic Act. It is often used with other traffic calming devices to regulate behaviour and is proven to be quite effective in reducing travel speeds (provided the enforcement measures are consistent).



Advantages

- Effective in getting driver's attention.
- No impact to emergency vehicles and snow plows.
- Can be implemented immediately.
- Does not affect vehicle operations.

Disadvantages

- Dependent on available police resources.
- Does not provide for a continuous and consistent solution (i.e. not present for 24 hours per day and 7 days a week).
- Speed limit tolerance may vary with officer's discretion.

Estimated Cost

- Cost will vary.

Automated Speed Enforcement

Legislative changes within Ontario now permit the use of Automated Speed Enforcement (ASE) in school and community safety zones. These devices operate similar to the red-light camera system whereby vehicles operating above the speed limit within a school or community safety zone will be captured on camera. The image is reviewed by a provincial offences officer, the infraction confirmed and the ticket subsequently mailed to the vehicle owner.



This system can potentially provide a consistent presence which is not otherwise feasible through traditional police enforcement methods. However, ASE of this nature is still in its infancy in Ontario and is not yet widely employed (although implementation in cities outside of Ontario, such as Montreal, has been successful).

While ASE does exhibit potential as a successful traffic calming measure, the infancy of the legislation, high costs to implement and logistical complications surrounding an ASE program preclude it as a viable option for the Town at this time.

Advantages

- Noticeable reduction in speeds within enforced area.
- Impacts can be long term.
- Reduction in speed related collisions.
- Enforcement can be 24/7.

Disadvantages

- Motorists may divert to other roads to avoid area.
- Motorists may speed up after passing enforcement area.

Estimated Cost

- Varies with equipment and deployment
- City of Toronto estimated cost of $50,000 per unit (purchase, installation and maintenance).

Dynamic Speed Signs

Dynamic speed signs are portable or permanent radar activated signs that instantaneously display approaching speeds for individual vehicles. They can also be programmed to display appropriate messages (e.g. Too Fast or Slow Down). These devices create a sense of being monitored to the driver and provide an instant notification that the speed limit is being exceeded (if such is the case).



It is recommended that the Town require implementation of dynamic speed signs at sensitive locations (i.e. parks, school zones, school crossings, collector streets, etc.) as part of the approval process for greenfield subdivisions.

Permanent installations of dynamic speed signs can lose their effectiveness over time as drivers become accustomed to them and presence and message gets ignored. Notwithstanding, application in unique circumstances (at schools or near parks) is considered beneficial. The use of portable signs would allow the Town to position signs at varying locations throughout the Town on a short-term basis, thus providing the appropriate messaging to motorists with the intent of changing their driving behaviour.

Advantages

- Educational tool, good public relations, effective as a temporary speed reduction measure.
- Can help residents understand the actual speed of a vehicle vs perceived speed.
- No impact to emergency vehicle operations or road maintenance operations.

Disadvantages

- Relies on motorist to voluntarily comply, duration of effectiveness is limited, not accurate on two-lane roads (too much traffic).
- Requires regular maintenance and a source of power.
- Light pollution on residential streets.

Estimated Cost

- $8,000 for sign.
- $25,000-$35,000 for trailer.

Lane Narrowing Through Pavement Markings

This measure narrows the travel lanes to a minimum width of 3.0 metres through the use of pavement markings (centreline and edge lines). Reduced lane widths provide a feeling of constraint and should cause drivers to reduce their travel speed. Any remaining road width would be designated as shoulder.

Transverse markings could also be painted on the shoulders provided there is sufficient hard surface to accept such.



Advantages

- Provides additional space for shoulders, which may be used for other road users (particularly in absence of sidewalks).
- Low cost.
- No impact to emergency vehicles and snow plows.
- Can be readily implemented.
- Does not affect vehicle operations.

Disadvantages

- Lane narrowing reduces separation between oncoming vehicles.
- Pavement markings require maintenance and are not visible during winter months.

Estimated Cost

- $1000 to $2000 per km of pavement marking.

Chicanes

Chicanes have one or more alternating curb extensions that narrow a two-lane road to a one-lane road for a short distance. This results in a zigzag pattern while travelling down the street. Chicanes require drivers to slow down to travel around them.

A minimum of 3 chicanes should be considered per installation.



Advantages

- Increases motorist awareness.
- Reduces straight line of sight.
- Reduces motorist speeds.
- Discourages shortcutting.
- Opportunity for landscaping.

Disadvantages

- Removes on-street parking.
- Inattentive drivers may not abide by new centerline potentially impacting on-coming traffic.
- Disrupts service/delivery vehicles to find parking.
- Not recommended on bike routes.
- May affect emergency response times.
- Negative impact on snow plowing/removal - may require specialized vehicles depending on width.
- Negative impact on street sweeping operations.

Estimated Cost

- $15,000 to $50,000 (depending on size and number of chicanes, installation of bollards, signage and relocation of catch basins).

Curb Radius Reductions

Increased curb radii typically promote high-speed turning movements. Reducing the curb radius at one or more corners of an intersection will result in a reduction in the speed at which motorists are able to complete the right turn movement.

Curb radius reductions are often installed as part of an intersection improvement but can also be considered where new intersections are proposed. Curb radius reductions must consider requirements for Town operations (i.e. snow clearing, transit, etc.).



Advantages

- Slows right-turning vehicles.
- Reduces pedestrian crossing distance.
- Improves pedestrian visibility.

Disadvantages

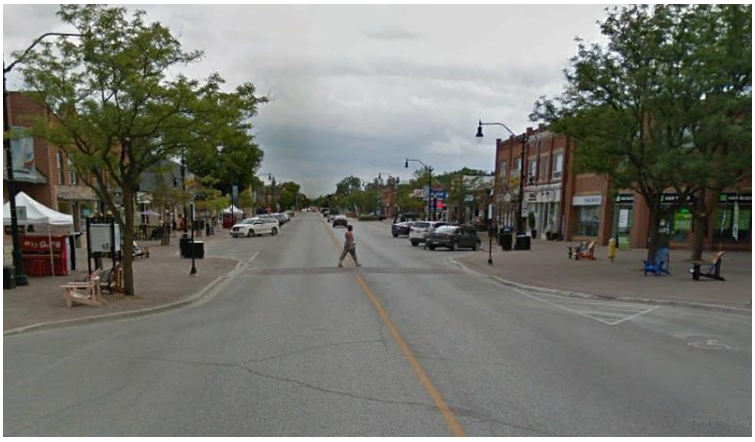
- Limited to locations where existing intersection geometry allows for reconstruction.
- Adverse effects on snow removal operations, emergency services (i.e. fire truck) and transit routes that require a right turn.

Estimated Cost

- $10,000 to $25,000 per corner.

Curb Extensions

Also known as “bump-outs”, curb extensions are horizontal extensions of a curb into a road, resulting in a narrower road section. Curb extensions provide high visibility of pedestrians about to cross the road, improve sight lines for pedestrians, result in shorter walking distances to cross the road and slow down motorists.



Advantages

- Interrupts straight line curbs and slows traffic.
- Intersection applications reduce turning radii to slow turning speed.
- Improves pedestrian safety.
- Mid-block applications do not impact emergency services.

Disadvantages

- Possible drainage issues.
- Reduces on-street parking.
- Large vehicles may need to cross centerline to negotiate turns.
- May negatively impact intersection operations through reduction of lane provision (i.e. eliminates exclusive right turn lane where such exist).
- May interrupt bike lanes.
- Intersection applications result in reduced turning radii which may have negative impact on emergency service vehicles and other large vehicles.
- Potential maintenance issues due to snow plow damage to curb.
- Increased snow removal costs (effective width of road can be significantly reduced during winter months without regular snow removal).
- Increases snow removal operation time.

Estimated Cost

- $5,000 to $20,000 each.

Traffic Calming Curbs

Traffic calming curbs are yellow concrete curbs which are placed on roads to provide temporary traffic calming through narrowing of the street. They can be placed so as to emulate a curb extension, median, chicane or traffic circle, or can be used to reduce a curb radius. Traffic calming curbs are intended as a temporary measure to field test the impact of a proposed measure prior to implementing the permanent solution.



Advantages

- Can be implemented quickly with relatively low initial capital cost.
- Allows jurisdiction to test traffic calming concepts prior to investing in permanent installation.
- Gauges community reaction on a concept prior to permanent installation.
- Depending on application, impact to emergency services is minimal.
- Designed so as to have no impact on existing drainage.
- Flexible for use in several applications.

Disadvantages

- Disadvantages will be similar to other traffic calming measures that the curbs are deployed to emulate (i.e. if creating a chicane, disadvantages similar to a chicane will be experienced).
- Winter use requires bolting curbs to asphalt which damages road surface.
- Increased snow removal costs to expose presence of curb (although this can be somewhat mitigated by fitting curbs with flexible delineators).
- Low relative aesthetic value.

Estimated Cost

- $750 to 1,000 per curb.
- Installation costs vary by application.

Textured Crosswalks

Textured crosswalks incorporate a textured and/or pattered surface which contrasts the adjacent roadway. Textured crosswalks are utilized to enhance visual identification of a traffic calmed area, emphasizing pedestrian priority. Priority locations include high pedestrian crossing locations (i.e. in downtown area, park and school locations as well as trail crossings).



Advantages

- Improves pedestrian safety.
- No impacts to emergency services or snow plowing operations.
- Enhanced roadway aesthetics.

Disadvantages

- May create additional noise.
- Traction or stability problems for seniors, disabled individuals, wheelchairs etc.
- Increased maintenance depending on base stability (maintenance to repair uneven transition between textured crosswalk and asphalt).

Estimated Cost

- $50 to $150 per m^2.

Speed Humps

Speed humps are defined as a raised area of the road which deflects both the wheels and frame of a traversing vehicle. Typically, speed humps are 80 mm high and 4.0 metres wide (in the direction of travel), and spaced 125 to 225 metres apart. Speed humps are used on residential streets and, in some instances, on collector roads.



Advantages

- Relatively cost-efficient.
- Easy to construct.
- Deters cut-through traffic.
- Reduces vehicle speeds.

Disadvantages

- Increases emergency vehicle response time.
- Possible noise from braking/ acceleration.
- Potential impacts to snow plows and trucks.
- Added wear and tear on vehicles over time (including snow plows).

Estimated Cost

- $2,000 to $3,000 each.

Speed Cushions

A speed cushion is a variation on a speed hump that can be straddled by large vehicles such as emergency vehicles and busses, but passenger vehicles are impacted in the same manner as a speed hump.



Advantages

- Relatively cost-efficient.
- Easy to construct.
- Deters cut-through traffic.
- Reduces vehicle speeds.
- Does not disrupt speed of emergency or transit vehicles.

Disadvantages

- Possible noise from braking/acceleration.
- Potential impacts to snow plows and trucks.
- Drivers may try to straddle the cushions on right side of road and impact bicycle lanes.
- Added wear and tear on vehicles over time.

Estimated Cost

- $4,000 for a set of 3.

Speed Tables

Speed tables are flat-topped asphalt or rubber mounds that cover the full width of the roadway. The ramps of the speed table are more gently sloped than speed humps and thus speed tables are less jarring than a standard speed hump and can allow larger vehicles (emergency vehicles, trucks, snow plows, etc.) to cross with reduced disruption. Supplementary text can be added to the pavement in advance of the speed table (i.e. SLOW DOWN).



Advantages

- Relatively cost-efficient.
- Easy to construct.
- Deters cut-through traffic.
- Reduces vehicle speeds.
- Lesser impacts to larger vehicles as compared to speed humps.

Disadvantages

- May delay emergency vehicle response times.
- Traffic may divert traffic to alternate routes.
- Possible noise created by braking/acceleration.
- Negative impacts to snow plows operations.
- Added wear and tear on vehicles over time.

Estimated Cost

- $3,000 to $5,000 each.
- $10,000 for a modular speed hump.

Centre Medians

A centre median is a raised island installed in the centre of a road to reduce the overall width of the travelled lanes. They help slow traffic without affecting the capacity of the road. Raised median islands can be combined with curb extensions and/or textured crosswalks to further improve pedestrian safety. This measure may be considered on both local and collector roads.



Advantages

- Provides refuge for pedestrians.
- Increases motorist awareness.
- Can be designed to prohibit left-turns thereby reducing cut-through traffic.
- No impact to snow removal or road maintenance operations.

Disadvantages

- May reduce on-street parking.
- Restricts driveway access.
- Speeds may increase due to lack of left turns.
- Additional maintenance if landscaped.
- Potential impact to emergency response operations (i.e. oncoming lane is not accessible for emergency vehicle use if needed).

Estimated Cost

- $4,000 for 2.0 x 5.0 metre median with no landscaping.

Traffic Circles

A traffic circle is a circular island about 3 to 6 metres in diameter, placed in the center of an intersection which requires vehicles to circulate in a counterclockwise direction. Typically used on low volume residential streets, traffic circles prevent motorists from speeding through the intersection by impeding the through movement. While existing intersections can be retrofitted to accommodate a traffic circle, it is recommended that the Town consider traffic circles in new subdivision developments.



Advantages

- Reduces speeds through intersections.
- Provides visual breaks.
- Reduces collisions.
- Provides landscaping opportunities.

Disadvantages

- Increased maintenance cost if landscaped.
- Possible removal of on-street parking.
- Learning curve for drivers when first installed.
- Additional right-of-way may be required (varies by location).
- Increased emergency response time.
- Minor impacts to snow plow operations (increased plowing time).

Estimated Cost

- $8,000 to $50,000 each
- Cost varies with retrofit vs new installations.
- Cost varies by design (traffic circle/button vs mini roundabout).

On-Street Parking

Apart from accommodating a need for additional parking, on-street parking can be used to reduce the roadway width available for vehicle movement by allowing vehicles to park adjacent and parallel to the curb, thus resulting in slower operating speeds. It also requires a greater level of awareness by passing motorists relating to vehicles entering/exiting parking stalls and people entering/exiting parked cars.



On-street parking further improves pedestrian safety by increasing the separation between the sidewalk and travel lane.

Advantages

- Speed reduction.
- Relatively cost-efficient.
- Deters cut-through traffic.

Disadvantages

- Parked vehicles may disrupt snow plowing/removal operations and street sweeping operations.
- May interrupt bike lanes.
- Lane narrowing reduces separation between oncoming vehicles.

Estimated Cost

- $1,000 to $5,000 per km (line painting and signage).

4 Traffic Calming Policy

4.1 CONSIDERATION FOR TRAFFIC CALMING

Traffic calming measures should:

- be considered only after education and enforcement efforts have failed to produce the desired results;
- be considered when there is a demonstrated safety or speed concern and acceptable alternative measures have been exhausted;
- be considered after focus is placed first on improvements to the arterial road network, such as signal timing optimization (thereby making those roads more appealing);
- be considered in new plans of subdivision where the absence of such measures is likely to result in speeding and/or related safety concerns;
- be predominantly restricted to two lane roads (one lane of through traffic in each direction);
- maintain reasonable automobile access to Town roads;
- only be installed after Town staff have investigated existing traffic conditions and the necessary approvals have been received; and
- be monitored with follow-up studies to assess their effectiveness, with the results communicated to the community and Council.

Traffic calming measures should not:

- impede emergency and transit services access unless alternate measures are agreed upon; or
- impede non-motorized, alternative modes of transportation such as walking and cycling.

4.2 GREEN FIELD DEVELOPMENT

It is noted that the traffic calming policy and associated process contained herein are intended to inform the implementation of traffic calming measures in existing areas or developments where conditions on the surrounding road network have evolved over time to the point that the intended function of the road network has been compromised. With respect to green field development, a traffic calming review should be conducted during draft plan design. The potential need for traffic calming measures will be discussed during pre-consultation, with the intent that a traffic calming plan (should such be deemed necessary) be submitted for review by

the Town. Upon review and assessment of the traffic calming plan, any traffic calming measures to be implemented will be added to the draft plan conditions for the respective development.

The traffic calming measures identified in Section 3.3 may also be considered for green field developments. Additionally, roundabouts can be considered within new developments, as may be appropriate. Roundabouts provide similar advantages to traffic circles; however, they are typically installed at higher volume intersections. Given the additional right-of-way typically required to construct a roundabout, the implementation of such is ideal in green field developments (i.e. where there are no constraints imposed by existing development).

4.3 COMMUNITY INVOLVEMENT

Restoring neighbourhood streets to their intended function and improving overall livability are the primary objectives of traffic calming. In order to achieve this goal, community involvement and support is paramount.

Communication with residents should occur at various stages throughout the process as the traffic calming plan is developed and implemented. Traffic calming plans should be developed with an understanding of current and historical traffic patterns within the area under investigation. For a traffic calming program to be successful, the community must support and be committed to the solution. The only means of gaining this commitment is to involve the residents by informing them of the study location being considered for traffic calming measures.

The benefit of community involvement is that it generates support for a traffic calming program and assists in the implementation of a plan without significant opposition upon completion. Community involvement also enhances the credibility of the traffic calming program, particularly when it is ultimately presented to Council for approval.

The review and implementation of traffic calming measures is a time consuming and expensive process requiring many resources. Without public support, the traffic calming measures intended to alleviate traffic concerns could be met with negative public opinion, potentially jeopardizing the outcome and positive impacts to affected neighbourhoods.

Neighbourhood support, enforcement, education of motorists, bicyclists and pedestrians, appropriate engineering applications and economics typically determine the success of any traffic calming endeavor. A cooperative partnership between the affected residents and the Town is essential to the success of the project.

4.4 CLASS ENVIRONMENTAL ASSESSMENT PROCESS

Traffic calming is currently exempt from the Ontario Environmental Assessment Act and is not an undertaking subject to the *Municipal Engineers Association Municipal Class Environmental*

Assessment (October 2000, as amended in 2007, 2011 & 2015). Under the proposed 2020 MEA Class EA Amendments, the implementation of traffic calming measures is to be a Schedule A+ undertaking. Schedule A+ projects are pre-approved, provided that the public is advised prior to implementation.

5 Traffic Calming Process

The following process will be used when proceeding with a request for traffic calming measures within the Town of Collingwood (corresponding flow chart is provided in Appendix A). An established and formal process for investigating roads provides consistency and equality in the determination of need and suitability of traffic calming measures.

5.1 STEP 1: TRAFFIC CALMING REQUEST

Residents with traffic related concerns are instructed to submit their written request, accompanied by a petition, to the Town to investigate traffic calming on their road or within their neighbourhood. Town staff will provide a copy of the petition to the proponent (refer to Appendix B). The purpose of the petition is to establish whether or not there is sufficient neighbourhood/local support for traffic calming measures prior to the Town initiating an investigation into the need for such measures on the subject road. The petition serves as a preliminary screening tool that will prevent unsupported traffic calming requests from being advanced.

The petition results must clearly demonstrate that a minimum of 51% of the dwelling units with direct frontage or flankage onto the candidate road or road section support the potential implementation of traffic calming measures, as defined by Town staff. Each dwelling unit is represented by one signature, regardless of the number of people in the unit. Failure to satisfy the minimum support threshold of 51% will result in termination of the investigation. Successful petitions (i.e. those that satisfy the required 51% support threshold) will trigger the screening by Town staff (Step 2).

5.2 STEP 2: TOWN SCREENING

Following an appropriate request for traffic calming consideration, Town staff will undertake a screening of the request and candidate road section considering road classification, traffic volumes, length, grade and actual travel speeds.

Initial Criteria

Initial screening criteria to determine eligibility for consideration for traffic calming measures have been established. With respect to the road or road section in question, it must:

- be a local road assumed and maintained by the Town of Collingwood;
- have a minimum annual average daily traffic (AADT) volume of 900 vehicles;

- have a minimum uncontrolled (i.e. no stop signs or traffic signals) length of 220 metres without being a dead-end road section or cul-de-sac;
- have a grade that does not exceed 6%; and
- not have been the subject of a previous speed study or traffic calming request within the past 5 years.

In addition, the following must also be satisfied:

- all reasonable efforts must have been made to address the concerns utilizing other means including education and enforcement tools; and
- zoning should be primarily residential in nature.

If the subject road or road section does not satisfy the above criteria, it will not be considered an appropriate candidate for traffic calming.

While the focus of traffic calming will be on local roads, Town staff may, at their discretion, review select collector roads for consideration provided that they also meet the above criteria and serve in excess of 2000 vehicles per day.

Speed Criteria

For locations meeting the initial screening criteria, a travel speed survey will be conducted to determine whether speeding is occurring through the study area. For vehicle speeds, it is not prudent to consider the highest speed at which motorists travel. Rather, the 85th percentile speed is typically considered, which is the speed at which 85% of the total traffic volume on a road is travelling at or below. The 85th percentile concept is based on the theory that the large majority of drivers:

- are reasonable and prudent;
- do not want to be involved in a motor vehicle accident; and
- desire to reach their destination in the shortest possible time.

Based on these assumptions, the 85th percentile speed (which represents the large majority) observed under good conditions (i.e. favourable weather and visibility) may be considered as the maximum safe speed for that location. The speed limit and 85th percentile speed should be relatively comparable - thus indicating that the function and physical characteristics of the road are properly communicated, understood and respected by motorists. Ideally, the 85th percentile speed should be ±10 km/h of the speed limit. Where the 85th percentile speed exceeds the posted speed by more than 10 km/h, it is an indication that intervention is required to reduce vehicle operating speeds. A lower tolerance may be applied in reduced speed zones and

community safety zones where stricter adherence to the speed limit is desired for obvious reasons.

In considering the need for traffic calming, the 85th percentile speed must exceed the posted speed limit by the values provided in Table 2.

Table 2: 85th Percentile Speed Considerations

POSTED SPEED LIMIT	85TH PERCENTILE SPEED	EXCEEDANCE OF SPEED LIMIT
40 km/h	45 km/h	+5 km/h
50	60	+10
60	70	+10

If the observed 85th percentile travel speed exceeds the posted speed limit by the threshold noted in Table 2, the road section will be identified as a candidate for traffic calming measures and will proceed to Step 3. Road sections with 85th percentile travel speeds that do not exceed the noted thresholds will be disqualified from consideration.

Resident Notification

Following the screening process, the Town will inform the resident(s) in writing as to whether their location meets the screening criteria for implementation of traffic calming measures. For locations not meeting the screening criteria, investigation for traffic calming will cease and the location will be precluded from future traffic calming consideration for a period of 5 years.

5.3 STEP 3: DATA COLLECTION

If the requested location satisfies the petition requirements and screening criteria, additional data collection and analysis will commence. The collection of traffic data, as deemed necessary by Town staff, will serve to provide a better understanding of the current traffic conditions, inform the selection of appropriate traffic calming measures and prioritize locations for the implementation of traffic calming.

Staff will conduct/coordinate the necessary traffic studies to quantify and qualify the submitted traffic concerns. The data collected may include traffic volumes and composition (cars and trucks), collision records (for those that are attributed to excessive speeding), pedestrian activity and historical site-specific information. It is noted that traffic volumes and vehicle composition data can be gathered with the speed surveys conducted in Step 2.

5.4 STEP 4: PRELIMINARY DESIGN & REVIEW

Traffic Calming Measure

To identify potential traffic calming measures, a comprehensive review of the data collected in Step 3 will be conducted, supplemented by site visits, historical information, future maintenance and construction plans, as well as stakeholder feedback. Appropriate traffic calming measures will be determined based on the list of traffic calming measures outlined in Section 3.3. The traffic calming strategy could include one or more of the noted traffic calming techniques. The proposed traffic calming measures will be selected at the sole discretion of the Town, in accordance with the design guidelines outlined in the *Canadian Guide to Traffic Calming* and the judgment and experience of Town staff.

Initial Preliminary Design

Following selection of the traffic calming measure(s) to be implemented, Town staff will prepare preliminary design drawings illustrating the proposed solution.

Agency/Department Review

Staff will provide the preliminary design drawings to the relevant agencies and/or Town departments (e.g. emergency services, transit services, road operations, applicable Town advisory committees, etc.) for review and comment. As required, Town staff will work with the agencies/departments to modify the preliminary design to address concerns. If however, concerns cannot be appropriately mitigated to ensure support for the traffic calming measure, the traffic calming process will be discontinued for the road under investigation.

Final Preliminary Design

Further to the agency/department review and in keeping with the goals, objectives and principles set out in these guidelines, staff will finalize the preliminary traffic calming design. General consideration will be given to the various aspects of road design such as utility placement, landscaping, signage requirements and drainage with the purpose of establishing a cost estimate for implementation.

5.5 STEP 5: COMMUNITY NOTIFICATION

Using summarized comments from the submitted petition and preliminary information about the subject road and surrounding area, staff will define the limits for community notification, which may include surrounding roads and neighbourhoods. As a minimum, dwelling units with direct frontage onto the road to be investigated will be notified via direct mailings and/or email, in addition to each property whose side yard abuts the subject road section. Notifications will

include a description of the intended traffic calming strategy and its location. The noted information will also be posted on the Town website and social media platforms.

5.6 STEP 6: PRIORITIZATION

Prioritization Assessment

The prioritization assessment is a process that weighs and scores various attributes of a candidate road or road section with the intent of quantifying and prioritizing the urgency for traffic calming. A predetermined set of road attributes are assigned weighted points based on the severity of each individual attribute (e.g. 85th percentile speed, pedestrian volumes, etc.). The candidate road is reviewed and scored in context of these attributes. This process quantifies the conditions of the road and further provides a method of prioritizing each candidate location in terms of need. A basis for assessment has been prepared and is provided in Appendix C.

Locations will be prioritized based on the point system, with those locations with the highest points implemented first. If funding does not permit all locations to be implemented in one year, roads will be carried forward to the next year when they will then be re-prioritized to include any new locations. While the intent is to implement traffic calming measures according to the priority ranking, where funding does not permit all pending projects to be implemented, locations with a lower priority rank may be implemented ahead of higher ranking projects at the Town's discretion to ensure use of available funding is maximized.

Council Notification

During yearly budget deliberations, Town staff will propose one or more traffic calming projects to be implemented. Projects put forward will be based on the priority ranking. Where necessary, an amending By-law will be brought to Council for approval (ie. changes to regulatory signage, etc.).

5.7 STEP 7: FINAL DESIGN & IMPLEMENTATION

Final Design

In advance of implementation, detailed engineering drawings will be completed as necessary. These drawings will provide a high level of detail taking into consideration but not limited to the following:

- surface drainage;
- sub-base requirements (i.e. granular type and thickness);
- surface type (asphalt, concrete, decorative concrete);
- road grade;

- requirements for warning signs and pavement markings;
- sightlines and sight distances;
- driveway and intersection locations; and
- utility locations or relocations.

At this point, the feasibility and costing of the preferred traffic calming measures will be evaluated in detail. If, during the detailed design stage, limitations are identified which challenge the feasibility of the plan, alternatives will be considered. This may include alterations or a re-development of the preferred plan. If staff believe that the required modifications to create the detailed design result in a significantly different final design from that which was originally presented, staff may recommend additional agency/department reviews to inform the revision process.

Community Notification

Notices detailing planned project timing will be distributed to residents prior to implementation, in the same manner as the previous notification. The notices will also be posted on the Town website and social media platforms.

Implementation

Following resident notification, traffic calming measures will be implemented. 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, curbs/barriers, planters or barrels. This will allow time to examine the impact of the measures and their effectiveness before implementing permanent treatments.

5.8 STEP 8: MONITOR & EVALUATE

Town staff may monitor the road 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 within the Town in the future.

Appendix A:
Traffic Calming Process

Traffic Calming Process

- Concerned resident/resident group contacts Town office with inquiry
- Town staff provide resident(s) with formal petition and instructions
- Town staff instruct resident(s) to submit formal written request with signed petition
- Petition must obtain 51% support from respondents directly affected by request

Reject Request

Proceed to Step 2

- Town staff perform initial cursory screening of road/road section
- If initial screening is satisfied, speed surveys conducted to establish 85th percentile speed
- Screening results are communicated to concerned resident(s)

Traffic Calming request gets rejected

The applicant(s) may issue another traffic calming request after 5 years have passed since initial request

Reject Request

Proceed to Step 3

Step 3: Data Collection

- Town staff initiate required data collection (e.g. volume, vehicle mix, pedestrian, etc.)
- Data collection is used for informing selection of appropriate traffic calming measures and establishing an overall priority rank

Traffic Calming request gets rejected

The applicant(s) may issue another traffic calming request after 5 years have passed since initial request

Step 4: Preliminary Design & Review

- Town staff identify traffic calming measures and prepare preliminary design
- Preliminary design is circulated to EMS, Transit and Operations for review and comment
- Preliminary design is revised/finalized to ensure support from EMS, Transit and Ops

Step 5: Community Notification

- Traffic calming strategy and preliminary design is shared with the local community

Step 6: Prioritization & Council Notification

- Prioritization assessment completed and location added to traffic calming project list
- Memo summarizing all ranked locations submitted to Council at time of budget
- Upon approval of funding, Town staff identify projects for implementation based on priority ranking and available funding for budget year

Step 7: Final Design & Implementation

- Upon confirmation of schedule, complete detailed design
- Notify residents of final design and implementation schedule
- Construct traffic calming measure(s)

Step 8: Monitor & Evaluate

- Evaluate project success 6 to 8 months after implementation

Appendix B:
Traffic Calming Petition

Petition for Traffic Calming

What is traffic calming?

Traffic calming is a general term for redesigning or retro-fitting existing streets to slow vehicle speeds. It uses physical design and other measures to improve safety for motorists, pedestrians and cyclists. It has become a tool to combat speeding and other unsafe behaviours of drivers in neighbourhoods and on local streets.

Traffic calming is successful at reducing vehicle speeds where the majority of traffic is driving inappropriately. It is not intended for locations where there is ongoing construction and changing traffic patterns, or where only a few motorists are speeding. OPP enforcement is the best solution in those cases.

What are the disadvantages of traffic calming?

Traffic calming can reduce the ease of access in and out of neighbourhoods and can increase emergency vehicle response times. For example, a speed bump or speed hump can add up to 10 seconds of delay per installation.

Traffic calming may also increase both noise and air pollution, as vehicles slow down in advance of an installation and speed up upon traversing it.

We, the undersigned, request a traffic calming evaluation on the street section detailed below.

Street:	
From:	To:
Description of concerns:	

Name (please print)	Street Address & Email Address	Phone	Signature
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

copy page as needed

Notes

1. A minimum of 51% of the dwelling units with direct frontage or flankage onto the candidate road or road section must support the potential implementation of traffic calming measures, as indicated by signatures.
2. Each dwelling unit is represented by one signature, regardless of the number of people in the unit.

3. Failure to satisfy the minimum support threshold of 51% will result in termination of the investigation.

Petition Organizer Contact Information
Name:
Address:
E-mail:
Phone:
Date:
Signature:

Please submit this petition to
Engineering Services Town of Collingwood PO Box 157 545 Tenth Line North Collingwood, ON L9Y 3Z5 705-445-1292 x4200 engineering@collingwood.ca

Appendix C:
Traffic Calming Prioritization

Traffic Calming Prioritization

Road Section:		**Prepared By:**	
Road Class:		**Prepared On:**	

Traffic Data

Feature	Criteria		Score
1. Speed	1 point	for every 1 km/h that the 85th percentile speed is greater than the posted speed limit	
2. Volume	1 point	for every 100 ADT beyond 1000 ADT for local road for every 200 ADT beyond 2000 ADT for collector road	
3. Collisions - vehicular only	1 point	for every collision atributed to excessive speeding over a 5 year period	
4. Collisions - pedestrian	5 points	for every collision attributed to excessive speeding involving a pedestrian over a 5 year period	

Road Characteristics

Feature	Criteria		Score
1. Community Safety Zone or School Zone	5 points	for a designated Community Safety Zone or School Zone	
	0 points	otherwise	
2. Sidewalks	2 points	for no sidewalks with evidence of pedestrian activity	
	0 points	otherwise	
3. Pedestrian Generators	2 points	for each nearby pedestrian generator such as a school, playground, community centre, library, retail centre, etc. (must have direct connection to subject roadway or be within the immediate area)	

Overall Assessment

Summary	Score
Traffic Calming Prioritization Score (summation of above feature scores)	