

## Policy Statement

1. The 2010 Owen Sound Transportation Master Plan called for the establishment of a Traffic Calming Policy to “reduce high traffic speeds and decrease through traffic on local roads to acceptable levels to maintain the liveability of residential neighbourhoods, maintain access and mobility of all users of the road allowance, and improve safety for pedestrians and motorists.”

## Purpose

2. This policy has been developed to create a transparent, equitable and reproducible process for submitting, reviewing, approving and implementing traffic calming initiatives in residential areas.
3. The goals of this neighbourhood traffic calming policy are to develop an integrated set of objectives and procedures that will form a set of working guidelines to:
  - a. educate residents about traffic calming so they can make more informed decisions and understand the rationale behind the City’s decision-making process;
  - b. provide a policy that provides a practical and fair tool for evaluating speeding and traffic volume problems;
  - c. provide a reproducible process to address speeding and traffic safety complaints;
  - d. reduce the duplication of effort for City Staff in responding to resident traffic concerns;
  - e. educate residents on creating a safe and comfortable roadway environment for all users;
  - f. improve neighbourhood liveability by mitigating the impacts of vehicular speeds and high volumes on residential neighbourhood streets; and
  - g. Encourage public involvement in traffic calming activities.
4. This policy also provides the guidelines, procedure and criteria for initiating, investigating and implementing traffic calming measures within residential

neighbourhoods. The policy ensures that safety concerns related to speeding and excessive volume are handled fairly, transparently, and efficiently.

## Scope

5. This policy applies to the identification of operational issues on local and collector roadways within existing residential neighbourhoods. While similar problems may exist on higher-traffic volume roadways (i.e., arterial roads), the primary function of higher-class roads is to move traffic efficiently; to reduce the potential for pedestrian-vehicle conflict, they are typically equipped with a pedestrian corridor separated from the road by a boulevard. Therefore, traffic calming measure(s) that may be appropriate for use on urban residential roadways would not be suitable for use on arterial and high-volume roads.
6. This policy does not apply to arterial, Grey County or Ministry of Transportation of Ontario (MTO) roadways or anticipated future concerns.

## Definitions

7. For the purposes of this policy,

"Arterial road" means a high-volume urban road that conveys traffic from collector roads to highways and between urban centres. The City has classified its roads based on the annual average daily traffic (AADT) and posted speed limit. Within City limits, upper-tier (Grey County) and provincial (Ministry of Transportation of Ontario) roadways are generally considered Arterial roads; however, some City Roads are also classified as Arterial Roads;

"City" means the City of Owen Sound, and a reference to the City is a reference to the geographical area or The Corporation of the City of Owen Sound as the context requires;

"Collector road" means a moderate-capacity road that equally supports traffic movement between local and arterial roads and provides property access;

"Local road" means a road whose primary function is to provide access to the property bordering it. Local roads tend to have much lower traffic volumes as they are roads at the beginning or end of a trip rather than the route to travel longer distances;

"Municipal Act" means the *Municipal Act, 2001*, S.O. 2001, C. 25;

"Neighbourhood" means a mainly residential area designed as a comprehensive unit, typically containing various housing types, and may

include community services, amenities and parks that meet the needs of the local population.

"Pedestrian Generator" means a location where pedestrians originate from or travel to, such as but not limited to schools, parks, hospitals, recreational facilities, senior accommodations, commercial districts, and multi-family residential developments;

"Traffic Calming" means the combination of physical measures that reduce the adverse effects of motor vehicle use, affect driver behaviour and improve conditions for non-motorized road users; and

"Traffic Calming Petition" means a document circulated by the City to owners of property considered to be within the area affected by any proposed Traffic Calming measures.

## **Policy**

### **Timing**

8. Traffic calming requests should not be considered an instant fix. A considerable amount of public engagement and research effort goes into each study area to ensure that the proposed measures are appropriate, safe, effective, and supported by the affected stakeholders. Budgetary needs will often require Council approval, which has timeline implications as well.
9. Traffic counts may require several weeks and are dependent on the availability of staff and equipment as well as on traffic patterns. For example, traffic monitoring within a school zone must be undertaken during the school year rather than during summer break to ensure representative numbers.
10. Due to the research, mailouts and Council meetings involved, a reasonable timeline for the establishment of a preferred design is several months up to one (1) year. Projects proceeding to implementation may, depending on the complexity of the measures proposed, require the installation of temporary measures to trial the measures before they are installed with permanent materials. Temporary measures will remain in place for six (6) months to one (1) year for monitoring purposes prior to proceeding with permanent installations.
11. Post-installation, two (2) years of ongoing monitoring of the identified performance indicators must occur to allow traffic to acclimatize, at which time adjustments could be made if necessary.

### **Guidelines**

12. The following guidelines will be considered when investigating, reviewing and implementing traffic calming measures. These guidelines will consider the appropriate techniques, minimize potential adverse impacts, and maximize the effectiveness of traffic calming while building community acceptance and support for the final recommendations.
13. Traffic calming measures will:
  - a. be considered:
    - i. only after education, enforcement and traffic engineering efforts have failed to produce the desired results;
    - ii. when there is a demonstrated safety, speed or short-cutting traffic concern and acceptable alternative measures have been exhausted; and
    - iii. in context with surrounding pedestrian generators such as schools, playgrounds, recreation areas, multi-family housing and institutional uses.
  - b. include consideration as to the scale of the area to be studied; an area-wide plan should be considered if a road-specific plan would likely result in traffic displacement onto adjacent roads;
  - c. be predominantly restricted to two-lane roadways (one lane of through traffic in each direction) and a posted speed limit of no greater than 50 km/h;
  - d. not impede non-motorized, alternative modes of transportation and be designed to ensure pedestrian and cycling traffic is unaffected;
  - e. not impede emergency access, service vehicle (i.e. waste removal) or road maintenance access;
  - f. be implemented only after Public Works and Engineering Staff have investigated existing traffic conditions and received the necessary approvals, including budget and endorsement by Council; and
  - g. be monitored with follow-up studies completed to assess the effectiveness, and results communicated to the community and Committee/Council.

### **The Three E's**

14. The three Es must be explored before considering any new traffic calming measures. These are Education, Enforcement and Engineering, in that order.

- a. Education is best undertaken as a grassroots movement from within the neighbourhood to attempt to educate and gain buy-in on why one shouldn't speed through the area. Engineering staff will assist this process by encouraging and offering guidance for the residents to promote changes in driver behaviour, such as speed reductions within the community. This could include resident-led neighbourhood meetings, pamphlets, posters or door-to-door campaigns.
- b. Enforcement: if appropriate, Engineering will request or advise the residents to request assistance from the Owen Sound Police Services. A visible police presence can aid in modifying driver behaviour, but it tends to have a temporary and localized effect. It should be noted that resources limit enforcement, both in the context of officer availability and as the resulting fines are unlikely to cover the cost of the service. Enforcement could also include portable digital speed display signs, if available.
- c. Engineering: a thorough review of the road standards and geometry can be undertaken to determine if changes are appropriate, such as on-street parking, speed limits, sightlines, traffic control devices (signs and signals), pavement width, sidewalks, pedestrian crossings, and bike lanes.

### **Traffic Calming Request Process**

15. The following process will be used when proceeding with a request from the public for traffic calming. An established and formal process for investigating roads provides consistency and equality in determining whether traffic calming is warranted. Staff will continue to monitor the traffic patterns within the City and implement proactive measures if deemed appropriate; however, this policy provides a framework for addressing concerns from the community.
16. Initiation of the Request:
  - a. A requester must submit a written request to the City either electronically or in hard copy. Requesters must represent the majority opinion (minimum 50%+1) of an impacted group, such as a neighbourhood, school, community/business association or road. Requesters shall include the location, description of the concern and the suggested/requested solutions in the application.
  - b. The request will be logged and compared to recent or outstanding requests for a traffic investigation. If similar requests have been submitted, an investigation was completed, and passive measures were

implemented, the analysis will be reviewed to determine if the findings are still pertinent (maximum two-year-old traffic count data).

- i. If it is determined that the data is outdated, additional data will be collected.
  - ii. If it is determined that the scope of a previous investigation was adequate to address the problem and that the findings are still valid, a response will be prepared based on the conclusions of that inquiry.
  - iii. If it is determined that the scope of a previous investigation was inadequate to address the problem, the concern is new to the City, or passive measures are in place but are not found to be effective, then the process for consideration of a physical traffic calming measures review will be initiated.
- c. Staff will investigate the concerns and undertake traffic monitoring as resources and schedule permit. The extent and nature of any concerns will be assessed based on traffic engineering guidelines and best practices. Upon review of the results of the traffic monitoring, staff will determine if a traffic concern exists and convey a summary of the findings to the requester.
  - d. If there is no evidence of speeding or other significant traffic challenges (i.e. unexpected volume, complex traffic patterns, etc.) staff will advise the requester that no justification exists and the traffic calming request will be declined.
  - e. If evidence of a traffic concern exists that calming measures could resolve or mitigate, staff will review the proposed scope, nature and location as proposed by the requester. Staff will determine if the calming measures are appropriate, are likely to be helpful, and, do not pose a detriment operationally (i.e., do not impede drainage, snow removal, waste removal, decrease safety etc.). Staff will also assess the estimated cost implication of the proposed solution. Preference will be given to solutions that result in maximum benefit-for-cost over more expensive or elaborate proposals.
  - f. Once the preferred solution is determined, staff will provide the results to the requester and confirm whether they wish to pursue the proposal before circulating the Traffic Calming Petition.

17. Determination of the Subject Area:

- a. Whether or not a property is considered within the impact area will be determined on a case-by-case basis based on distance or connectivity to the proposed traffic calming initiative.
- b. The traffic calming process will be determined based on the extent of the problem area for which the traffic calming review is proposed and the classification of the roadway within the City's road network. The size of the study area will also consider the potentially affected residents.
- c. The objective of determining the study area is to ensure that the intended level of service of the particular road classification is maintained. Three methods (levels) will be applied in classifying the impacted area and the type of traffic calming project:
  - i. Level 1 Traffic Calming (Local and Rural Collector Streets):  
If a traffic calming project is being considered on a local street, a comprehensive solution must include the adjacent streets and the subject street. Adjacent residential streets captive to the subject road must be included in the review to minimize potential impacts. Staff will investigate the subject street and surrounding area, and the study limits will be subsequently identified. A Level 1 traffic calming project will therefore focus on those residents on the subject street and any street influenced or defined by the study area. The study area for a Level 1 traffic calming project is expected to be larger than the study area for a Level 2 traffic calming project.
  - ii. Level 2 Traffic Calming (Collector Roadways):  
If a traffic calming project is being considered on a collector road, the study limits will include the subject road and its characteristics. City Staff will investigate the subject street, and the study limits will be subsequently identified. A Level 2 Traffic Calming project will focus on those residents on the subject road.
  - iii. Level 3 Traffic Calming (Arterial Roadways):  
Traffic calming will not be considered on arterial roadways. Significant capital investment is made towards constructing and maintaining arterial roads as their intended function is to move people and goods from one place to another efficiently and safely.

18. Traffic Calming Warrant Analysis:

- a. The City will consider traffic calming as a speed and volume management tool to maintain traffic conditions within acceptable ranges in areas of potential exposure, including pedestrian crossings,

residential streets, school zones and parks. Speed and volume thresholds have been established in recognition of the following:

- i. safety concerns increase significantly at higher speeds and volumes;
  - ii. there is a difference between road design speeds and posted speeds;
  - iii. variations in individual driver behaviour;
  - iv. the realities of enforcement/conviction of speeding marginally above posted speed limits;
  - v. technical requirements, including environmental aspects, road design;
  - vi. elements, and engineering practices; and
  - vii. higher traffic speeds and volumes increase exposure to conflicts.
- b. The following warrants are the basis for considering the traffic calming review process:
- i. Warrant 1 – 85<sup>th</sup> Percentile Speed:  
The 85th percentile speed exceeding 10-12 km/h of the posted speed limit for 40-60 km/h, respectively. In cases where observed speeds are severe and the volume of speeding vehicles is significant, a second warrant will be applied.
  - ii. Warrant 2 – High-end Speed:  
A minimum of 5% of daily traffic with speeds over 15-20 km/h of the posted speed limit for 40-60 km/h, respectively, for roads over 500 vehicles/day. For roads with less than 500 vehicles/day, at least 25 vehicles/day must exceed 15-20 km/h of the posted speed limit for 40-60 km/h respectively.
  - iii. Warrant 3 – Traffic Volumes:  
Local Road with traffic of more than 3,000 vehicles/day;  
Rural Collector Road more than 5,000 vehicles/day;  
Urban Collector Road more than 10,000 vehicles/day.
19. Local Improvement Process:
- a. If traffic calming is not warranted, residents can petition the municipality to implement the traffic calming measures under the Local Improvement provisions of the Municipal Act.
  - b. Under the Municipal Act, residents can petition the municipal government to upgrade a certain aspect of their neighbourhood, such as



the addition of sidewalks, streetlighting or, in this case, traffic calming measures, and the property owners benefitting from the improvement pay for the upgrades on a per-metre basis share between all affected properties. Per the Municipal Act, for the modification to be approved, two-thirds of affected property owners representing at least 50 per cent of the property values must agree to the upgrades. Requests under the Local Improvements provisions must also meet the sufficiency tests of the City.

20. Identification & Evaluation of Alternatives:

- a. The development or identification of alternatives depends on various factors, including severity, funding and the type of traffic-related concern. The use of historical and current data will be a benchmark for the evaluation process. The decision of which alternatives to use will be the project team's decision as they evaluate each device's effectiveness on speed, volume, or cut-through traffic. The evaluation process will begin by identifying the alternatives that are best suited for the roadway and neighbourhood.
- b. Alternative traffic calming measures will be considered and assessed based on the following criteria:
  - i. feasibility of implementation (property, grading, impact to utilities);
  - ii. anticipated effectiveness – enhanced safety for all road users, speed reduction, on-street parking;
  - iii. impact on emergency services, maintenance services, and transit; and
  - iv. overall cost.

21. Stakeholder Engagement:

- a. Developing an effective public involvement process is critical to the success of any traffic-calming project. Members of Council will also be involved.
- b. It is crucial to plan public involvement that balances the residents' need to influence the project plan with the jurisdiction's need for efficacy without negatively affecting the adjoining roadway system. Participation of community stakeholders in the traffic calming process will ensure the community's support for proposed traffic calming plans and measures.
- c. The consultation process for the selection of a preferred alternative will include the following steps:

- i. preliminary detailed operations review, including circulation of the problem and alternative solutions to affected agencies and departments (the City's Fire Services, Police Services, and Engineering Services). The City's development review team and the Accessibility Advisory Committee will also be invited to comment on the final design;
- ii. notice of public meeting advertised in local papers, on the City's website, and in flyers circulated to directly affected stakeholders two weeks prior to the public meetings.
- iii. public meeting including display boards or a live presentation that will describe the problem statement and data summary, concept plans for feasible alternatives, and preliminary evaluation of the options, including their costs and anticipated effectiveness. Public comments will be solicited.
- iv. Public vote on a recommended solution.
- d. The public and agencies can comment at any stage of the process. However, it is the intent of the preliminary circulation to agencies and departments to resolve fundamental issues before formally identifying a preferred alternative and presenting it to the public.
- e. Whether the responses are predominantly supportive or negative will provide the basis for the staff recommendation to Council.

22. Public Input:

- a. Public input will be solicited on the recommended alternative. Engineering Services will send a mail-back survey to all households and businesses within the defined project area. The survey will ask the public's opinion on the preferred alternative and whether the project should proceed to implementation. A minimum of two weeks will be allowed, to permit sufficient time for response to the survey from all affected residents and agencies.
- b. The City is responsible for initiating, distributing and tabulating a Traffic Calming Petition to ensure consistency of the process by managing the collection of public input.
- c. The Traffic Calming Petition will focus on whether there is neighbourhood support for the requested traffic calming project.
- d. Greater than 50% of all property owners within the impact area must indicate their support by signing the Traffic Calming Petition before the traffic calming plan can be recommended to Council. Each property

address considered a stakeholder is entitled to one response, regardless of the number of people associated with that address. The signatures must come from households determined by City staff as directly impacted by the proposed traffic calming initiative.

- e. The following will occur, depending on the received responses:
  - i. A majority (>50%) of negative responses will cancel the proposed installation. The request will be removed from the Neighbourhood Traffic Calming request list.
  - ii. A majority (>50%) of positive responses will support the proposed installation. The installation will proceed to Council for budget approval.
  - iii. Where no responses are received, or the answers received are equally for and against the installation, the Operations Committee/City Council will deliberate on the proposed traffic calming initiative and whether the request will remain on the list.
- f. Projects proceeding to implementation will be prioritized and scheduled as resources exist. If the project must be deferred pending funding, the work will be budgeted as soon as possible, subject to the typical Budget Approval process.
- g. Projects not proceeding directly to implementation will include notification being sent to Owen Sound Police Services, advising them of the nature of the issue and optimal times to enforce it, if known.
- h. Large and complex proposals that cannot be budgeted or do not pass the warrant analysis can be directed through the Local Improvement process, in which the costs are attributed to the individual property owners deriving a benefit from the project. More extensive or complex proposals deemed of value to the public at large shall be added to the long-range capital program for future budget deliberations.

23. Approval by Council:

- a. The recommendation of the preferred solution will be presented to the Operations Committee to recommend the project to Council for final approval. A staff report will include the need and justification summary, the public consultation process, the detailed design, costing, and recommended timing for implementation.
- b. It is recommended that every roadway that warrants traffic calming and has a defined solution acceptable to the public and Council be incorporated into the capital budget.

24. Key Performance Indicators:

- a. To ensure the project has been effective, Engineering Services staff will periodically monitor the traffic in the project area over several years as may be deemed appropriate based on the scale and complexity of the installation. This information will be used in recommending similar measures in the future. In addition to conducting before and after speed studies, if appropriate, the City will conduct ancillary studies to assess if the traffic calming project has resulted in significant amounts of traffic diverting to adjacent, parallel streets.

25. Program Planning:

- a. Temporary measures will only be considered where it is recognized that the project is controversial or when the type of traffic calming measure being considered needs more post-implementation data to confidently gauge the effectiveness of the proposed action(s). Allow six (6) months to one (1) year of monitoring before implementing the measures with permanent materials.
- b. The traffic calming plan will be implemented in a staged approach. Passive measures will be implemented first. A program of monitoring will determine whether further steps are necessary. If further traffic calming is warranted, more restrictive measures will be installed. This implementation method will ensure that the level of traffic calming in a neighbourhood is reasonable.
- c. The number of traffic calming initiatives undertaken annually will depend on the number of requests received from the public, the funding allocated to the Operating and Capital Budgets for traffic calming projects, and the staff resources available. The list of approved projects will be maintained and updated annually. The implementation cost will vary depending on the types of traffic calming measures installed, the materials used, and the extent of their application. Where funding is limited, a phased project implementation plan will be considered.

26. Removal of Traffic Calming Measures

- a. The removal of traffic calming measures can only be directed by Council or through an equivalent Neighbourhood Traffic Calming process (request, monitoring, petition, construction/removal).
- b. Traffic Calming installations can only be requested to be removed after being in place for at least two (2) years. Two years is considered the minimum timeline to allow traffic patterns to normalize as motorists and other road users adjust to the new conditions.

- c. The process to have traffic calming device(s) removed permanently is as follows:
  - i. A citizen, agency and stakeholder may request that traffic calming devices on a subject street be removed.
  - ii. A petition will be undertaken, similar to the installation process. Engineering Services staff will outline a study area; a petition will be distributed to affected residents, agencies, and stakeholders. A minimum of 60% must then sign the petition supporting the removal.
  - iii. Staff will review the effectiveness and potential problems with the traffic calming removal and submit a formal report to Council.
  - iv. If recommended for removal and approved by Council, the affected residents, agencies, and stakeholders will share in the removal cost.
  - v. If removed, the area residents cannot request a traffic calming study for at least three (3) years.

### **Common Traffic Calming Techniques**

27. While most traffic calming measures have some effect on both volume and speed, they usually are classified according to their dominant effect, such as volume reduction or speed reduction. Outcomes from the implementation of physical measures may be both positive and negative. Some positive impacts include decreased noise and air pollution or increased safety through reduced conflicts between vehicles and non-vehicular users. Negative consequences may include local access restrictions, worsened response times for emergency services such as fire and ambulance, and maintenance problems such as snow removal and street sweeping.
28. All measures contemplated for use in the City will conform to the best practices described in the most recent edition of the Transportation Association of Canada's "Canadian Guide to Neighbourhood Traffic Calming."
29. The Canadian Guide to Neighbourhood Traffic Calming categorizes physical traffic calming measures into four categories: Vertical Deflection, Horizontal Deflection, Obstructions, and Signage. The following is a brief description of each of these categories.
30. Vertical Deflection:
  - a. Vertical acceleration forces cause this type of deflection; it generally reduces vehicle speeds because motorists slow to avoid unpleasant sensations when traversing the vertical measure. The primary effect of

vertical deflection devices is the reduction of vehicle speeds; however, it may have a minor impact on vehicle volume as some motorists will travel a different route to avoid them.

- b. Examples:
  - i. Speed hump
  - ii. Raised crosswalk
  - iii. Speed table
  - iv. Raised intersection

31. Horizontal Deflection:

- a. Lateral acceleration forces cause horizontal deflection through vehicle travel path changes. The impact on the level of accessibility to neighbourhoods determines the effectiveness of horizontal deflection devices. The more significant number of shifts in the horizontal alignment and turning movements required to travel from an origin to a destination will reduce vehicle volumes and discourage short-cutting. Some horizontal deflection measures will also reduce vehicle speeds and conflicts between vehicles and other modes of travel.
- b. The design aspects of the roadway influence a motorist's perception of the appropriate driving speed. One of the contributing factors to speeding is the relationship between the optical width of the street and the height of the vertical elements within or adjacent to the road allowance, such as trees, bollards, and buildings. Research indicates that vehicle speeds are slower in areas where the vertical elements are greater than the perceived width of the road, so the installation of vertical elements, either separately or in conjunction with other traffic calming measures, will increase their overall effectiveness. In addition to the calming effects of vertical elements within the road allowance, the installation of trees and bollards also improves aesthetics, improves liveability and the environment, makes the measures more evident, and provides an additional buffer between pedestrians and vehicles.
- c. Examples:
  - i. Chicanes
  - ii. Curb bump-outs
  - iii. Lane restrictions and Bollards
  - iv. Traffic Circles
  - v. Textured surfaces

vi. On-street parking

32. Obstructions:

- a. These measures create a barrier to reduce or eliminate traffic volumes depending upon the type and location of the obstruction. Although these measures may be the most effective in reducing traffic volumes, they are also the most controversial as they may severely restrict local access to residents, generate problems with traffic infiltrating other parallel routes or adjacent neighbourhoods, and impact Emergency Services. Most obstructions can be designed in a way that doesn't obstruct access to pedestrians, cyclists, transit, and emergency service providers. Depending on the location of the obstruction, there may be no reduction in speed. Examples of obstructions include directional closures, diverters and raised intersection channelization.
- b. Examples:
  - i. Directional or full road closures
  - ii. Right-in-right-out island
  - iii. Channelization
  - iv. Raised medians

33. Traffic Control Signage:

- a. The use of traffic control signs will only be used when necessary. The cumulative effect of fewer signs is improved aesthetics, reduced information overload ("sign clutter"), and greater compliance as the driver's perception is not dulled by an overwhelming number of signs.
- b. The Manual for Uniform Traffic Control Devices (MUTCD) provides the designer with general requirements for most signing applications, including islands, pedestrian crossings, object markers, lane lines, and warning signs. The Canadian Guide to Neighbourhood Traffic Calming also provides directions on the appropriate signage for specific traffic calming applications.
- c. Traffic calming measures may pose a hazard if they are traversed at speeds above their design speeds. Traffic calming measures will be appropriately treated and adequately signed to warn motorists.

34. Stop Signs

- a. As stop signs are primarily used to establish who has the right of way at an intersection, both the Ministry of Transportation's Ontario Traffic Manual (Book 5 - Regulatory Signs) (OTM) and the Transportation

Association of Canada's Geometric Design Guideline for Canadian Roads set out criteria that trigger a warrant for stop control at an intersection. These warrant criteria are based on sightlines, speed, collision history and traffic volumes.

- b. The OTM states the following about stop signs:

“The purpose of the stop sign is to clearly assign right-of-way between vehicles approaching an intersection from different directions when traffic signals are not warranted or not yet installed, and it has been determined that a yield sign is inadequate. The stop sign requires the driver to stop the vehicle before entering the intersection, yield to any traffic in or approaching the intersection and then proceed when safe to do so.

The introduction of stop sign control can reduce the frequency of certain types of collision (e.g. right-angle or turning), but also results in delays to motorists and may increase some other types of collision (e.g. rear-end). Stop signs should therefore not be used indiscriminately.

Stop signs are not intended to be used as speed control devices. Their usage should be limited to the control of right-of-way conflicts.

In general, stop signs should only be used where traffic engineering studies considering such factors as traffic speeds, traffic volumes, restricted sightlines and collision experience indicate that the use of Stop signs is warranted.”

- c. Overuse of stop signs reduces their effectiveness, and if installed where they are not justified, they are largely ignored by drivers who tend to speed up between or after stop signs. The slowing effect of a stop sign is typically limited to 100 metres before and after the stop sign.
- d. Research has revealed that a typical multi-way (3 or 4-way) stop location significantly impacts the environment. 657 kg of hydrocarbons, 8,760 kg of carbon monoxide, and 65,700 kg of carbon dioxide are released into the atmosphere annually at each three or four-way stop-controlled intersection. The additional gasoline consumption contributing to environmental degradation due to stop sign control is equivalent to 45,500 litres per year.
- e. Studies indicate that motorist compliance with unwarranted stop signs is rare, with only 8% coming to a complete stop, 59% coming to a rolling stop, 22% slowing down, and 11% completely disregarding the stop



sign. Therefore, stop signs are not recommended as an appropriate traffic calming device.

35. Radar Variable Message Boards:
  - a. Radar variable message boards are primarily an educational tool aimed at reducing vehicle speeds. Radar messaging boards display a motorist's speed and provide instant awareness and driver sensitivity to actual travel speeds.
  - b. Some municipalities are experimenting with permanent boards as an ongoing educational tool in increasing the awareness of vehicle speeds; they are also loaning portable units to neighbourhood organizations to help mitigate and track vehicle speeds within the neighbourhood area. The data collected from the participants using the radar signs may be forwarded to the local police for enforcement.

### **The Cost of Traffic Calming Measures**

36. Traffic calming costs can vary depending on the size of the area, the sensitivity of the issues surrounding the neighbourhood and the number of households. The decision to implement traffic calming must include consideration of the entire costs over its entire lifecycle, not just the cost of installation.
37. Capital Cost: A conservative starting cost for any traffic calming project would be \$10,000 and go up from there depending upon the type, number and magnitude of the device or devices used in the implementation stage of the traffic calming project. A method to minimize the potential costs is to use temporary measures to gauge the effectiveness of the traffic calming measure(s) before implementing the final solution.
38. Maintenance Costs: may vary depending upon the materials used and the maintenance schedule of the measure. Municipalities may use different lifecycle spans for various measures. However, it is reasonable to state that the lifecycle of vertical, horizontal, and obstruction measures would be similar to the lifecycle of pavement and curbing materials. The lifecycle would also depend on the traffic volume. The lifecycle of signage varies due to the quality of materials used. There will also be an associated cost for enforcement.
39. Replacement Costs: replacement costs would be similar to the construction and implementation costs. Construction costs (materials and labour) may rise over time, as would the replacement costs.

## Policy review

40. The Manager of Engineering will review this policy:
  - a. every five (5) years to ensure effectiveness and compliance with current business processes; or
  - a. sooner, if required, based on legislative changes.
41. The Manager of Engineering is authorized to make such administrative changes to this policy as appropriate to keep the policy current. Any revision to the policy's intent must be presented to Council for consideration.

## Related Information and Resources

### Internal

42. [Traffic By-law](#)

### External

43. [Canadian Guide to Neighbourhood Traffic Calming](#)
44. [Geometric Design Guidelines for Canadian Roads](#)
45. [Manual for Uniform Traffic Control Devices](#)
46. [Municipal Act, 2001](#)
47. [Ontario traffic manual \(Book 5 – Regulatory Signs\)](#)

## Appendices

48. Appendix 'A' – What is Not Traffic Calming
49. Appendix 'B' – Traffic Calming Measures

## Revision History

Authority	Date	Approval	Description of Amendment
Council	Click or tap to enter a date.	By-law	
Choose an item.	Click or tap to enter a date.	Choose an item.	
Choose an item.	Click or tap to enter a date.	Choose an item.	

## Appendix 'A' to Policy PRT001 – What is Not Traffic Calming

1. There are many misconceptions concerning methods that will reduce speeding issues. According to the Canadian Guide to Neighbourhood Traffic Calming, prepared by the Institute of Transportation Engineers (ITE) and the Transportation Association of Canada (TAC) and the Ontario Traffic Manual Book 5, the following examples are not to be used to calm traffic:
2. Unwarranted All-Way Stop
  - a. The sole purpose of stop signs is to designate the dominance between roads. Installing unnecessary stop signs:
    - i. Creates higher traffic speeds between stop signs as motorists attempt to recover "lost time" due to stopping. Studies have determined that the speed is only reduced for approximately 100 m on either side of the intersection.
    - ii. Results in poor compliance with stop signs due to driver frustration. This can increase the potential risk to pedestrians, especially children and seniors, as they would typically expect the motorist to stop, but not all will.
    - iii. Results in more frequent rear-end collisions caused by the low percentage of motorists who do come to a complete stop.
    - iv. Requires frequent police enforcement as motorists do not stop, a drain on staff resources.
    - v. Some motorists become conditioned to stopping at unwarranted all-way stop locations but then assume that at 2-way stop-controlled intersections, cross-traffic will stop. This creates a risk of the motorist pulling out in front of an opposing vehicle, resulting in a collision.
  - b. In light of the above, all-way stops should not be used to calm traffic. There are established criteria for all-way stop control based on the number of pedestrians and vehicles sharing an intersection, the collision history and visibility. When these criteria are followed, risks are minimized, and new safety concerns are not created. Numerous studies have been completed in North America that have validated all of the above findings.

3. 40 km/h (or less) Speed Zone
  - a. Psychology shows that motorists travel at a speed they feel comfortable based on the environment they are driving through, regardless of the posted speed limit.
  - b. Compliance with an artificially reduced speed is only achieved with consistent and visible police enforcement, a resource which is not typically available.
  - c. Collisions, when they occur, can be more significant due to the differences in speed between vehicles.
  - d. Artificially reduced speed limits often increase the severity of speeding infractions, as motorists will continue to drive to what they perceive as the threshold of safety.
  - e. Pedestrians may perceive the roadway as safer due to the reduced speed limit. This false sense of security may lead pedestrians crossing the road not to be as cautious as they would be otherwise.
4. 'Children at Play' Sign or Pedestrian Crossing Sign
  - a. Many signs in residential areas installed to 'warn' people of normal conditions fail to improve safety.
  - b. Warning signs can be practical tools if used sparingly and only to warn motorists of uncommon hazards that are not apparent to motorists. Unfortunately, these signs are widely misused. Whereas they are meant for warnings of upcoming hazards, such as uncontrolled-access playground zones or trail crossings, they are not meant for continuous stretches of road where children may or may not exist.
  - c. The sign often referred to as 'Children at Play' is actually 'Playground Ahead,' intended to warn of an upcoming playground zone. Inappropriate use of these signs can give parents a false sense of security since motorists often disregard these signs.
  - d. Children playing in the streets, while commonplace, is dangerous and prohibited by the Highway Traffic Act.
  - e. Since children live on nearly every residential block, 'Children at Play' signs would need to be placed on every roadway.
  - f. Residential blocks with no signs might imply that no children live there, so exceeding the posted speed limit is acceptable.

## 5. Speed Limit Sign

- a. Additional signage and adjusting the posted speed limit of a roadway are not considered traffic calming measures.
- b. The posted speed limits for roadways are typically established based on recognized engineering criteria related to the roadway design.
- c. Posted speed limits which do not match the characteristics of the roadway frustrate motorists and tend to increase the severity and prevalence of speeding infractions and foster aggressive driving habits. Speed concerns often exist primarily due to assigned speed limits that neither reflect the design speed nor the operating conditions of the roadway. Significant discrepancies between posted speed limits and operating speeds can create a false sense of security for all road users, including pedestrians, and places an additional enforcement burden on the Police.
- d. Reducing posted speed limits without changing the characteristics of the roadway to encourage reduced speeds has been shown to have a minimal impact on vehicle operating speeds.
- e. Posted speed limits should be implemented consistently to maintain credibility and compliance when the posted speed limit is appropriately applied. Reduced speed limits seem to provide the most significant result in situations when they are self-enforcing.
- f. Superfluous signage adds to sign proliferation, which can worsen the safety hazard due to the visual distraction of the driver.

## 6. Rumble Strip

- a. A Rumble Strip is a raised pavement section that can be closely spaced along a roadway at regular intervals. Rumble strips are a road safety feature to warn inattentive motorists of potential danger. As the motorist travels over the rumble strips, the vehicle experiences noise and vibration to alert the motorist.
- b. They are often installed along the outside lane of high-speed roadways to alert motorists that may begin to veer from the travelled lane to the shoulder.
- c. Rumble strips can also be installed across the travel lane when unusual conditions exist, such as an isolated four-way stop-controlled intersection in a rural area. A motorist may grow accustomed to travelling at a certain speed and otherwise may not expect to stop; the purpose of the rumble strip is to alert the driver.

- d. Rumble strips should not be used as traffic calming measures. These measures become less effective as the motorists become accustomed to them. Rumble strips also increase noise levels for nearby residents and commonly require additional maintenance.

## 7. Speed Bumps

- a. These measures should not be confused with speed humps. Speed bumps are vertical obstructions often found in privately-owned parking lots (shopping centres, schools, condominium complexes, parks, etc.). Speed bumps typically measure between 75 mm and 100 mm in height and 3 m in length and are often designed for a design speed much lower than a typically posted speed limit along a public roadway.
- b. Speed bumps are mainly used in parking lots and driveways for commercial and industrial buildings, multi-residential complexes such as townhouses and apartment buildings, and plazas, and are designed for a much lower speed (generally used where speed limits are 10-20 km/h) than the posted speed limit along a public roadway
- c. Speed bumps used for traffic calming are proven to be more detrimental than helpful because they cause unnecessary noise (due to the bump but also deceleration/acceleration engine noise) and increase speeds between bumps as motorists feel like they have to "make up" the time they perceive they lost stopping for the bumps.
- d. Speed bumps are unsafe for motorcycles and cyclists whose tires do not navigate the bumps as well as other vehicles.
- e. Traffic calming measures should be designed and implemented with the purpose that vehicles will be able to travel comfortably at the posted speed limit. In contrast, speed bumps require vehicles to travel much slower to attain a comfortable speed. The necessary braking and slow speeds can create a safety hazard, possibly causing rear-end collisions.

## Appendix 'B' to Policy PRT001 – Traffic Calming Measures

1. The City's preference for traffic calming measures will focus on passive measures as they are typically lower in cost and have a lower operational impact. As such, this policy will describe only passive measures; for descriptions of Physical measures, please refer to the Canadian Guide to Neighbourhood Traffic Calming from the Transportation Association of Canada.

### Passive Measures

2. Passive traffic calming measures do not require the construction of physical modifications to the roadway. Passive traffic calming is often lower in cost and avoids constructing a permanent change to the roadway. Due to their impacts on overall road geometry and drainage, Physical (vertical and horizontal) traffic calming measures will only be considered by the City when the passive measures have not alleviated the neighbourhood concerns or the City determines the need for their installation.
3. Passive traffic calming measures include education, targeted speed limit enforcement, radar trailer placement, dynamic speed display signs, and speed legends.
4. Education
  - a. Activities that change people's perceptions and help alter driver behaviour are preferred. Meetings and workshops with neighbours and the City can help implement and direct traffic calming applications. Most traffic problems are a result of human behaviour. Residents can play a big part in spreading the information through grassroots community outreach.
  - b. Advantages:
    - i. Flexible in the duration of meetings, workshops, etc.
    - ii. Inexpensive compared to other alternatives
  - c. Disadvantages:
    - i. Difficult to measure the effectiveness
    - ii. May take time to be effective
    - iii. Potential challenge in spurring citizen participation

## 5. Targeted Speed Limit Enforcement

- a. The Owen Sound Police Services (OSPS) may be able to provide targeted speed limit enforcement in response to identified operational issues. Targeted speed limit enforcement aims to make drivers more aware of their speed within an area. This measure typically only provides a temporary benefit, as speed limit enforcement is not available on an ongoing basis.
- b. The Owen Sound Police Services (OSPS) has a non-emergency contact number to allow citizens to provide feedback on traffic safety issues. With the public and police working together, Owen Sound becomes a safer place for everyone. Speeding and other traffic issues may be reported to the OSPS via telephone at 519-376-1234, via email at [info@owensoundpolice.com](mailto:info@owensoundpolice.com) or in person at the headquarters at 922 2nd Avenue West.
- c. Advantages:
  - i. Does not require time for design
  - ii. Does not slow emergency vehicles
  - iii. Effective in reducing speeds in a short timeframe
- d. Disadvantages:
  - i. Effectiveness may be temporary
  - ii. Expensive to maintain a continued program of enforcement
  - iii. Fines lower than enforcement cost
  - iv. Time and resources constrained

## 6. Electronic Speed Display

- a. A dynamic speed display sign, either permanently installed or trailer-mounted, uses a radar detection system activated by speeding vehicles. Real-time speeds are relayed to drivers and flash when vehicle speeds exceed the posted speed limit.
- b. When a vehicle is travelling within the speed limit, the sign does not show the vehicle's speed, and the sign remains blank.
- c. When a vehicle is speeding, the radar system detects the speed and the sign displays flashing lights, the speed limit, and a message to slow down.
- d. Advantages:



- i. Relatively inexpensive
- ii. Does not require time for design
- iii. Does not slow emergency vehicles
- iv. Effective in reducing speeds in a short timeframe
- v. Effective public education and awareness tool
- e. Disadvantages:
  - i. Requires power source
  - ii. Requires staff for set-up and removal
  - iii. Only effective for one direction of travel
  - iv. Long-term effectiveness is uncertain
  - v. Subject to vandalism

## 7. Community Entrance Signs

- a. The "Drive Slowly... Think of Us" type of sign is purely informational and, as such, is intended to serve as a reminder to motorists that they are entering a residential area where the residents are concerned about the safety and integrity of the neighbourhood.
- b. As the overuse of any traffic control device or sign creates visual distraction and has a negative effect on motorist behaviour, additional signage should be minimized.
- c. The placement of community entrance signs shall be administered using the following principles:
  - i. Its installation shall be limited to the entrances of residential neighbourhoods immediately off Collector and Arterial roadways where the neighbourhood experiences a degree of non-residential through traffic.
  - ii. The sign is meant to serve as a reminder for motorists to "turn off highway-driving mode" and to be aware that they are entering a residential area where reduced speeds are required to negotiate around vehicles entering and exiting driveways as well as the potential for pedestrians and children on or adjacent to the roadway.

## **Other Passive Mitigation Techniques that could be considered in complex projects**

8. The following measures have higher capital costs and, therefore, would typically be reserved for higher traffic volume projects and those to be funded as a streetscaping or Local Improvement capital project.
9. Textured Coloured Pavement
  - a. Textured pavement can be used alone as a traffic calming measure or in combination with other physical measures. Drivers typically slow down when crossing textured pavement due to vibration created by the pavement surface. However, this also generates considerable noise that may disadvantage neighbours. Coloured pavement zones may help signal a change, prompting the motorist to pay attention to a hazard zone or slow down.
10. Road Diet
  - a. A road diet refers to using pavement markings to make the travelled portion of the road appear narrower without changing its physical dimensions. This may or may not include bicycle lanes or parking lanes. Passive speed control measures such as pavement markings attempt to change the fundamental sensory information available to motorists to influence their speed behaviour. By adding markings to the road, motorists' perceptions can be distorted, creating the illusion that they are driving faster than they really are or that it isn't "safe" or comfortable to drive faster, persuading drivers to slow down.