

Staff Report 2020-0176

Meeting Date: June 30, 2020

Subject: Caledon Traffic Calming Strategy

Submitted By: Arash Olia, Manager, Transportation Engineering, Finance and Infrastructure Services

RECOMMENDATION

That the Caledon Traffic Calming Strategy report and the final technical report, attached as Schedule A to staff report 2020-0176, be approved;

That staff evaluate, design, and implement traffic calming requests as per the guidelines outlined in the Caledon Traffic Calming Strategy; and

That staff report back to Council by the end of 2021, regarding the results of the traffic calming strategy and implementation plan.

REPORT HIGHLIGHTS

- The proposed Caledon Traffic Calming Strategy provides a standardized and systematic procedure for the initiation, investigation, implementation, and monitoring of traffic calming measures within the Town of Caledon, where warranted;
- The Strategy enables the prioritization of multiple traffic calming requests; and
- The Strategy provides a context-sensitive approach for identification and selection of traffic calming measures that can be used based on the type of roadway (local or collector) and environment (urban and rural).

BACKGROUND

There has been an increase in public requests to investigate the need for traffic calming measures to reduce the adverse effects of motorized vehicle use, which include excessive speeding and cut-through traffic. Recommendations to address speeding and cut-through traffic are also included in the Town's Transportation Master Plan.

To this end, the Town has retained consulting services from CIMA with experience of the development of several national and municipal traffic calming policies and guidelines, including the Transportation Association of Canada (TAC), the City of Ottawa, and the Town of Ajax.

The Purpose of Traffic Calming Strategy

Traffic calming refers to the use of various traffic management measures for the explicit purpose of reducing traffic speeds, discouraging through traffic on roads that are not meant to provide such functions, and creating safer conditions for all users, especially cyclists and pedestrians. The Town currently addresses traffic calming requests on an ad hoc and independent basis. When a request is received, staff undertake a traffic study, develop options, and implement measures to address any issues identified. However, as the number of requests has increased over the past several years, it is prudent to establish a formal town-wide strategy and guidelines to ensure consistency in the analysis and application of traffic calming measures and prioritize requests to address budget constraints.

The purpose of the proposed Caledon Traffic Calming Strategy is to provide a standardized and systematic procedure for the initiation, investigation, prioritization, implementation and monitoring of traffic calming measures within residential areas and on connector roads within the Town of Caledon where warranted. Besides, it is critically important to have a transparent framework and process that allows the public to see how decisions are made. Currently, requests for traffic calming are addressed on an ad hoc basis.

In summary, the Caledon Traffic Calming Strategy intended to:

- Provide a standardized and established process to address concerns regarding speeding and safety;
- Address concerns in a method that is consistent, efficient, fair, transparent, and cost-effective;
- Enable the prioritization of multiple traffic calming requests;
- Determine what type of traffic calming measures can be used – where deemed appropriate – to improve safety for all road users in Caledon;
- Avoid adversely affecting operational costs and Emergency Services;
- Develop a reactive and proactive approach towards implementing traffic calming measures; and
- Achieve the “5E” approach to traffic safety: Engineering, Education, Enhancement, Enforcement, and Evaluation.

Jurisdictional Scan

To support the identification of elements within the Traffic Calming Strategy, a review of industry standards and best practices followed by 16 municipalities in Ontario and Canada was completed to identify the most common elements of the traffic calming process and develop a context-sensitive approach for the Town of Caledon.

The findings indicate the following:

- **Use of specific thresholds as part of a process.** All municipalities identified a set of values for specific elements of the roadway system. If characteristics of the location under review do not match those thresholds, the request for traffic calming is refused. The most common elements identified as part of the process are:
 - Grade;
 - Traffic volumes (vehicles per day);
 - Block length;
 - Speed;
 - Collision History; and
 - Presence of other roadway users (i.e., pedestrians and cyclists).

- **Use of a Scoring and Ranking System.** Most of the municipalities have implemented a scoring/ranking system to help them to prioritize sites with higher degrees of concerns as well as to efficiently allocate resources. Elements considered as part of the scoring and ranking process are:
 - Intensity of speeding;
 - Traffic volumes;
 - Road classification;
 - School zones or parks;
 - Number of collisions; and
 - land use context.

Public Engagement

As part of the development of the Traffic Calming Strategy, a robust engagement program, supported by best practice research, was undertaken. This engagement program was designed to generate conversation about speeding in Caledon and collect feedback on how speeding and traffic issues in communities across the Town should be addressed. Moreover, the engagement program was developed to ensure that residents, businesses, visitors, and other stakeholders were made aware of traffic calming efforts in Caledon and were provided with the opportunity to provide their feedback to influence the conversation.

The project team developed a variety of ways for participants to provide their ideas physically and through digital engagements using Social Pinpoint to provide comments on an interactive map and an online survey. Over 900 participants provided input, and several key insights were garnered from their feedback, including the following:

- Traffic calming in Caledon should ensure that drivers are obeying the posted speed limit using both physical changes to street design and traffic safety campaigns to improve community safety;

- Drivers speed for different reasons including a lack of enforcement, rushing, road design and social pressure;
- Different types of dangerous driving behavior can be found across Caledon including speeding throughout the Town, street racing on the Forks of the Credit Road, disobeying stop signs, tailgating, and speeding in school zones and near community spaces such as parks;
- Traffic calming initiatives such as speedbumps and flashing lights have helped remediate speeding issues. Some also mentioned unpaved roads as contributing to reduced speeds in some areas;
- The Town of Caledon should make traffic calming around school zones its top priority.

After comparing the results of the review against industry standards and best practices, as well as the community's input with Town Staff, the proposed Caledon Traffic Calming Strategy recommends that:

- The traffic calming review process should consider stand-alone requests (reactive) from residents and or members of Council, as well as locations identified as part of the capital and new development processes (proactive); and
- A Context-Sensitive approach to Traffic Calming should be applied during the development of the Traffic Calming Warrant Analysis to acknowledge the fact that there is no One-Size-fits-for-all traffic calming solutions that can be applied to all types of roadways for a variety of operational and public safety reasons.

Process Overview

Following these recommendations, a five-step Traffic Calming Warrant process was developed. The process can be initiated by an application from either member of the public (reactive) or Town staff as part of a proactive effort to identify "hot spot" areas in Caledon, which may benefit from traffic calming measures. The evaluation process for a potential traffic calming project is initiated when members of the public raise a concern (reactive), or a candidate location is identified via the proactive approach.

The process will commence through a series of structured stages until such time as either a traffic calming measure is implemented, or traffic calming is not warranted and deemed inappropriate for implementation, which is summarized below.

- **Step 1: Request for Traffic Calming**

When the process is initiated, a completed "Traffic Calming Application" should be received by staff. The application requires the applicant to describe the location where traffic calming measures are being requested and select the issues that most accurately describe the nature of the traffic concern. A new and well-structured online accessible

traffic calming request form is designed and available online at <https://Caledon.ca/trafficcalming>

Upon submission, the originator of the application and transportation staff receives a summary of the application. Staff will reach out to the resident confirming the receiving of the application. The form will be also integrated with Pingstreet, the Town's free mobile app so that residents can easily submit their traffic calming requests through their mobile devices. The form is also featured with a database to keep track of all requests on a GIS system to create a Heat Map so that hot spots across the Town can be viewed easily and graphically.

- **Step 2: Screening Process and Warrant Analysis**

Upon receiving a traffic calming request, staff will review the location to determine if the roadway meets the criteria for implementing traffic calming measures. The screening process sets requirements that must be met for a location to be eligible for traffic calming measures.

Screening criteria include:

- **Grade:** if the grade of the roadway is equal to or greater than the maximum threshold of 8%, the location will not be considered for the implementation of traffic calming measures, due to concerns and safety issues regarding traction in winter conditions.
- **Block Length:** if the distance between consecutive controlled intersections along the requested route is shorter than 110 m, the location will not be considered for the implementation of traffic calming measures.
- **Daily Traffic Volume:** if the average daily traffic (ADT) along the roadway section is less than 750 ADT for local roads and 1500 ADT for collector roads, the location will not be considered for implementation of traffic calming measures.
- **Speed:** the 85th percentile speed should be 15km/h over the posted speed limit, in order for locations to be considered for implementation of traffic calming measures. 85th Percentile is the speed that 85% of vehicles are observed to travel below that speed.
- **Collision Data:** If the number of qualifying collisions within the past three years is equal to or greater than the maximum threshold, the location should be considered for the implementation of traffic calming measures. The collision data threshold was determined to be 6 local roads and 11 for collector roads after reviewing a 3-year midblock collision dataset within the Town. Staff will consult and obtain the latest collision data from OPP.

As a part of the review, Town staff will complete a volume and speed study to determine 85th percentile speed, daily traffic volumes, and peak hour volumes present at the location

under review. If any of the screening criteria is not met, Town staff will send a response letter to the applicant indicating that, based on the data collected, the location is not considered to present a speeding concern and therefore is not eligible for traffic calming, and OPP will be advised to enhance enforcement at that location. Staff will keep the record, and the location and conditions will be revisited in 2 years for the reassessment or sooner if the conditions change.

- **Step 3: Evaluation of Application and Prioritization**

Applications that are warranted in step 2 and present a speeding issue that can be addressed by traffic calming measures will be evaluated based on the context-sensitive traffic calming criteria and prioritize according to points for each of the criteria below:

- Traffic Speed
- Traffic Volume
- Collision data
- Pedestrian Activities
- Cycling Activities
- Adjacent land Use (Urban Area)
- Driveway Density (Rural Area)

The total number of points (score) determines the ranks and priority of locations for implementing traffic calming measures. The appropriate measures will be selected based on the specific characteristics of the road segment.

- **Step 4: Selection of Available Traffic Calming Measures**

Based on the results of the evaluation and prioritization process, staff will review the list of available traffic calming measures as part of the Traffic Calming Toolbox to develop an incremental traffic calming treatment and determine the most appropriate measure based on the characteristics of the identified location, the feasibility of measures as well as field investigation.

The Town's Traffic Calming Toolbox was developed based on the content and recommendations of TAC's Canadian Guide to Traffic Calming and customized to address the Town's context-sensitive approach to traffic calming. The TAC Guide states that measures that do not require detailed engineering or which can be conducted as part of the standard operational and maintenance process can often proceed more expeditiously. This type of traffic calming measure includes enforcement, education, pavement marking and road diet, road narrowing, vertical centreline treatment, and vertical deflection.

- **Enforcement:** intend to modify driver behavior/speeding. Enforcing through OPP, using warranted All-Way Stop Controls, Automated Speed Enforcement (ASE), and designation of an area Community Safety Zone designation are

major measures under this category. Community Safety Zones help to change driver behaviour, including reducing speed and distracted driving and improving safety on certain sections of road where safety is of special concern. Community Safety Zones may include roadways near schools, daycare centres, playgrounds, parks, hospitals, senior citizen residences. Community Safety Zones is to indicate to the motorist that they are within a zone where fines have been increased through a special designation under the Highway Traffic Act. Automated speed enforcement (ASE) is a modern and newer tool used to help enforce speed limits in school zones and community safety zone. As per the Safer School Zone Act, ASE can only be installed within those areas.

- **Education:** Measures such as Speed Radar Signs and Variable Message Signs aim at informing drivers about their over speeding instantly.
- **Pavement Marking and Road Diet:** Pavement Markings follow the same basic principle as vertical deflections in that the driver is expected to lower vehicular speed to avoid unpleasant sensations when traversing the measure. However, vertical deflection measures effectively raise the vehicle when driven over, while Pavement marking generally does not cause vibration.
- **Road Narrowing:** intend to increase drivers' feeling of "confinement," resulting in reduced speeds.
- **Vertical Deflection:** cause a vertical upward movement of the vehicle, generally resulting in lowered vehicle speeds because motorists slow to avoid unpleasant sensations when traversing the measure.
- **Horizontal Deflection:** include measures such as roundabouts, chicanes, curb extensions, curb radius reduction, which causes a change in a road alignment and the path of a vehicle, and speed reduction accordingly. However, implementation of these types of measures due to their characteristics requires detailed engineering, capital works, land acquisition and is usually a lengthy process and, as such, should be considered as a part of road reconstruction of capital projects and EA studies.

Following the TAC Guide's recommendations and based on the restrictions imposed by the type of environment (urban and rural), as well as timing for implementation (road rehabilitation or reconstruction), the traffic calming measures presented in **Schedule A** were integrated as part of the Town of Caledon's Traffic Calming Toolbox.

Town staff will continue to obtain and take into account the input of Emergency Services and Road Operations when evaluating the need for traffic calming, as well as use sound engineering judgment when selecting a traffic calming measure. It is recommended that physical traffic calming measures be implemented every 150 m along a segment (based on its area of influence), Pavement Marking be implemented within 150 m of any form of traffic control, and Radar Speed Signs are installed near the middle of a segment. It is to be noted that the implementation of traffic calming measures is an incremental process,

and over-deployed measures can be as less efficient as less- deployed as it can create aggressive driving behaviour. It is therefore important to implement the right measure and monitor the condition before changing or adding additional measures. **Table 2** provides quantitative and qualitative guidelines to select potential major traffic calming measures for warranted locations. Prior to an implementation of a traffic calming measure, staff will conduct a site visit and field investigations to ensure that the measure will not negatively impacts the function of the road. For example, physical lane narrowing in rural and agricultural lands should be used with care and cautions to ensure that the road can still accommodate trucks and farm vehicles. It is also to be noted that implementation of horizontal traffic calming measures, due to their characteristics, requires detailed engineering, capital works, land acquisition and is usually a lengthy process and, as such, should be considered as a part of road reconstruction of capital projects and EA studies.

Table 2: Incremental Traffic Calming Measures Guidelines

ID	Measure	Appropriate Locations	Considerations
1	Reduced Uncontrolled Block length using Stop Signs	<ul style="list-style-type: none"> • Block Length is more than 300 metre; • 85% percentile speed is more than 15km/h above the posted speed limit • Rural and urbanized area; • Local and Collector Roads; 	<ul style="list-style-type: none"> • Stop sign control shall be warranted as per the Town's policy as well as OTM Book 5 guidelines.
2	Community Safety Zone Designation	<ul style="list-style-type: none"> • Near schools, daycare centres, playgrounds, parks, hospitals, senior citizen or collision prone areas within a community. • Rural and Urban area; • Local and Collector Roads. 	<ul style="list-style-type: none"> • OTM Book 5 has highlighted appropriate locations. • Hamlets and Villages, subject to meeting conditions are appropriate locations.
3	Automated Speed Enforcement	<ul style="list-style-type: none"> • Shall be used in Community Safety Zones and School Zones 	<ul style="list-style-type: none"> • Relatively high cost to implement. • Impact to the court system • It can not be used in other locations as per the Safer School Zone Act.
4	Pavement Marking and Road Diet	<ul style="list-style-type: none"> • 85% percentile speed is between 15km/h to 20km/h above the posted speed limit; • Rural and Urban areas; 	<ul style="list-style-type: none"> • It is recommended at locations where pavement width is more than 9.0 metre

		<ul style="list-style-type: none"> Local and Collector Roads; 	
5	Speed Radar Signs	<ul style="list-style-type: none"> 85% percentile speed is more than 15km/h above the posted speed limit; Rural and Urban areas; Local and Collector Roads; Maximum 4 lanes Average Daily Traffic is more than 2,000. 	<ul style="list-style-type: none"> It is recommended to be installed in pedestrian centric and sensitive areas such as school zones, community centers, and major residential and industrial collector roads.
6	Speed Cushions	<ul style="list-style-type: none"> The speed limit is 50km/h or less; 85% percentile is more than 15km/h above the posted speed limit; Urban and rural areas; 2 lanes Local and minor collector roads; Average Daily Traffic is between 1,000 to 5,000. 	<ul style="list-style-type: none"> It is recommended at locations within Parks, schools and community centres entrances, or at locations where previous methods are not feasible; Not recommended at areas with limited sight distance; Should be consulted with emergency services before implementation.
7	Vertical Centreline Treatment	<ul style="list-style-type: none"> The speed limit is 60km/h or less; 85% percentile speed is more than 20km/h above the posted speed limit; Urban areas and rural residential areas (with care); Local Roads and collector roads; 2 lanes roads. 	<p>Not recommended on:</p> <ul style="list-style-type: none"> Multi-lane roadways; If ADT is more than 1000, parking is allowed on both sides and pavement width is 10 metre or less; If pavement width is more than 11 metre; Agricultural lands in the area – continuing to accommodate large/wide agricultural equipment
8	Speed humps	<ul style="list-style-type: none"> The speed limit is 50km/h or less; 85% percentile is more than 20km/h above the posted speed limit; Urban and rural area; 	<ul style="list-style-type: none"> It is recommended at locations within Parks, schools and community centres entrances, or at locations where previous methods are not feasible;

		<ul style="list-style-type: none"> • 2 lanes Local roads (one lane in each direction) • Average Daily Traffic is more than 1,000 to 5,000. 	<ul style="list-style-type: none"> • Not recommended at areas with limited sight distance; • Should be consulted with emergency services before implementation.
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• **Step 5: Implementation and Monitoring**

Once the traffic calming plan has been warranted and prioritized against other requests, the project will be put forward in priority sequence to proceed with the installation. As a part of the process, staff will circle back and consult with OPP and consider their recommendations before implementations.

Town staff will revisit the conditions and conduct a traffic study six months after the completion of a traffic calming project to assess the effectiveness of measures. If the study shows that the 85th percentile speed has been lowered to below 15 km/h over the speed limit, it indicates the selected measure was effective.

If the study shows that the 85th percentile speed has not been lowered to below 15 km/h over the speed limit, staff will evaluate whether the design should be enhanced or consideration for incremental traffic calming measures.

Another speed study will be conducted after six months of implementing any changes to the design. If still not effective, the need for targeted speed enforcement will be considered. The results of these studies will also be sent to OPP for enforcement, and as a long-term solution, the issues should be reviewed during reconstruction and capital work projects.

NEXT STEPS

Transportation staff will initiate, investigate, implement, and monitor requests as per the guidelines outlined in the Caledon Traffic Calming Strategy and will report back to Council in 2021. Staff will also continue working with Corporate Communications on communication plan including social massaging of the new process to keep our residents informed.

FINANCIAL IMPLICATIONS

The cost associated with implementations of traffic calming measures will be funded from the 2019 and 2020 Traffic Calming capital projects (capital project #19-120 and capital project #20-019 respectively) funded by tax.

COUNCIL WORK PLAN

Not applicable, subject matter is not relevant to the Council Work Plan.

ATTACHMENTS

Schedule A: Caledon Traffic Calming Strategy Technical Report