

17 March 2021
Project: (200150)

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EXP

From

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RE: TOWN OF INNISFIL TRAFFIC CALMING STRATEGY – REVIEWS OF BEST PRACTICES AND EMERGING TECHNOLOGIES

This memorandum summarizes the findings of the review completed of traffic calming best practices and emerging technologies for the Town of Innisfil Traffic Calming Strategy.

Best Practices Review

The Project Team conducted an online search of traffic calming policies and guidelines published by Ontario municipalities to identify key and unique elements. The documents researched typically included criteria for justifying traffic calming installation, a toolkit of applicable measures, information pertaining to the public engagement process, and in certain cases, evaluation and monitoring provisions. Some documents also defined prioritization criteria to rank warranted locations for installation.

The following summarizes the commonalities and differences between the traffic calming policies and guidelines of the municipalities surrounding the Town of Innisfil in the Simcoe County area, and for municipalities in other parts of the province. The Town's existing policy is also summarized for comparison.

Municipalities within Simcoe County and Cities of Barrie and Orillia

Table 1 summarizes the key features of the published traffic calming policies and guidelines for the other lower-tier municipalities in Simcoe County and the cities of Barrie and Orillia.

Appendix A lists the typical/preferred traffic calming measures used in each jurisdiction.

All policies and guidelines researched focus the application of traffic calming measures on local and collector roadways primarily. Nearly all also outline typical public engagement practices including neighbourhood petitions, surveys, and public meetings. In most cases, a point system is used to prioritize locations for traffic calming plans, and many of the municipalities outline a methodology for removing measures. Limited information is provided

on the monitoring and evaluation of traffic calming installations. Some municipalities will undertake speed studies or new traffic counts after implementation for this purpose.

It is noted the Town of Bradford-West Gwillimbury traffic calming policy is limited to the installation of speed cushions.¹

Other Ontario Municipalities

Table 2 summarizes the key features of the published traffic calming policies and guidelines for select Ontario municipalities outside the Simcoe County area. These documents were reviewed to identify practices used outside the immediate vicinity with potential for application in the Town of Innisfil. The municipalities selected span a range of populations and land use settings (i.e., rural, urban, suburban), with most somewhat similar in size and context (i.e. part urban/part rural) as the Town and also experiencing growth pressures. **Appendix B** lists the typical/preferred traffic calming measures used in each jurisdiction. Most are generally adopted from the TAC *Canadian Guide to Traffic Calming*² (Guide).

All policies and guidelines researched feature an initial screening tool, with some including additional criteria such as collision history or percentage of cut-through traffic in the assessment. Like municipalities within the Simcoe County area, most use a point system to prioritize locations for traffic calming plans. The Town of Grimsby uses a multiple warrant system comprising seven criteria, in combination with a limited screening tool. Most also include evaluation and monitoring provisions, generally involving the completion of speed and traffic count studies between 6 and 18 months after installation. Criteria for the removal of traffic measures are provided in some policies and vary, with the City of Vaughan policy requiring installation for a minimum of five years before a traffic calming plan can be considered for removal.

Emerging Technologies

This section highlights emerging traffic calming measures used in other jurisdictions as identified in the TAC Guide and on-line references. The use of many of these measures is not common practice in Ontario today. As such, the provincial *Highway Traffic Act* and Ontario Traffic Manual (OTM) provide limited to no guidance on their application. While most would appear to pose no concern, further investigation may be required to confirm the legality of using some of the measures on Ontario roads.

TAC Canadian Guide to Traffic Calming

The TAC Guide identifies six emerging traffic calming technologies/measures for use in Canada. Guidance on their general application is provided below along with a photo. The Guide does not include design specifications for installation given their limited use by Canadian municipalities at present.

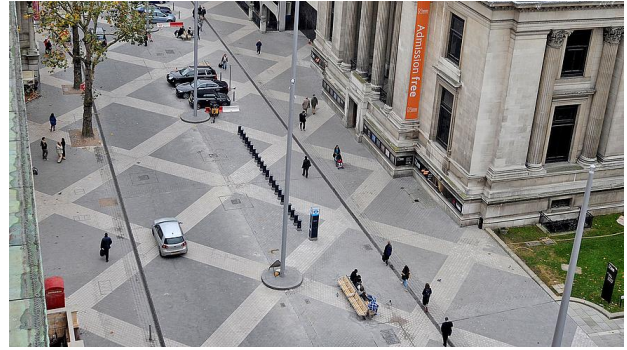
¹ The Town of Bradford-West Gwillimbury traffic calming policy was confirmed through a phone call with municipal staff on 23 February 2021.

² Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018.



Shared Spaces and Complete Streets

Shared spaces and complete streets are similar in their design intent but differ in application. While designing roads to accommodate all modes of travel beyond the motor vehicle is a fundamental premise of both approaches, the complete streets concept equally prioritizes all road users whereas the shared spaces philosophy places greater emphasis on cyclists and pedestrians.



Source: *Canadian Guide to Traffic Calming*

The TAC Guide describes shared spaces as “a design concept commonly used in Europe where the priority for users is shifted from vehicles towards cyclists and pedestrians, as they are free to cross anywhere. Often there are no pavement markings, traffic signals, signs, or barriers, which requires drivers to be more attentive. There may also be trees or street furniture in the roadway to act as deflections. This shared use roadway reduces vehicle speeds and encourages better public spaces for the community.”³ Within the Netherlands, shared spaces are known as *woonerf*, which translates to “*living street*”. In the United Kingdom, the concept is called a “*homes zone*”.

In the North American context, shared spaces are generally applicable on local and collector streets, with traffic volumes less than 15,000 vehicles per day, and/or in high pedestrian volume areas, including commercial areas. Advantages include a reduction in vehicle speeds and conflict points and an increase in pedestrian usage of the space. Disadvantages include a high implementation cost, substantial reconstruction of the roadway, and additional maintenance depending on surface materials.

As noted above, complete streets are typically designed to accommodate all users by dedicating space for each mode. This “space” can take the form of sidewalks for pedestrians and bike lanes for cyclists, for example. Traffic calming measures, such as curb extensions, may be included to reduce pedestrian crossing distances, particularly at intersections. “Road diets” are a common approach used to reconfigure a roadway and reallocate space to achieve complete streets objectives (for example, narrowing or eliminating general purpose travel lanes to install bike lanes).

³ Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018. p. 122



LED Pavement Markings

The TAC Guide indicates “LEDs can be used in pavement to create dynamic road marking. The linear strips of LEDs are coated in plastic and use induction power connections allowing them to be used in a variety of ways such as displaying an advisory speed limit for a curve. The use of LEDs is not limited to dark conditions since these active markings can be seen in daylight as well. Unlike pavement marking that displays only a fixed message, the LEDs can behave like a vehicle actuated signal, which is able to attract more attention from drivers.”⁴



Source: *Canadian Guide to Traffic Calming*

LED pavement markings are generally applicable on collector and arterial streets, in either urban or rural settings, regardless of traffic volumes. Advantages include no impacts to emergency vehicle response times or impact on roadway skid resistance. Disadvantages include potential damage from roadway maintenance vehicles (e.g., snow clearing trucks). Given their limited use to date and an absence of in-service studies, the durability of these markings remains unknown.

Optical Illusion Pavement Markings

The TAC Guide describes optical illusion pavement markings as “markings [that] use colours and shading to create an optical illusion in an attempt to influence drivers to reduce their speed.”⁵

Optical illusion pavement markings are generally applicable on urban and rural, local and collector streets with low speeds. Advantages include low implementation cost and no impact on emergency vehicles, snow plowing, and street sweeping. Disadvantages include reduced visibility (and effectiveness) from snow during winter months and the potential for driver confusion if surprised by the pavement markings. Optical illusion pavement markings require similar maintenance and upkeep as more traditional markings (e.g., edge lines, stop bars). The TAC Guide recommends their use in conjunction with other traffic calming measures.



Source: *Canadian Guide to Traffic Calming*

⁴ Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018. p. 124

⁵ Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018. p. 125



Rest-on-Red Signal Phasing

“The rest-on-red treatment involves programming an additional phase into signalized intersections where the red light is displayed on all approaches when there is no vehicular or pedestrian demand. The green light is only initiated when a vehicle or pedestrian activates the change either through advanced vehicular detection or pedestrian push button. The green change timing does not necessarily require vehicles to come to a complete stop. The purpose is to reduce vehicle speeds, and thereby, the severity of collisions.”⁶



Source: *Canadian Guide to Traffic Calming*

Rest on red signal phasing is generally applicable on collector and arterial streets, with a posted speed limit less than or equal to 50 km/h, in addition to localized intersections and signalized pedestrian crossings. Advantages include a reduction in vehicle speeds and conflict reductions of up to 45%. Disadvantages include increased vehicle delay, depending on the time of day in which the phasing is implemented.

The implementation of rest-on-red signal phasing requires modifications to the signal timing controller. Additional actuation infrastructure may also be necessary to ensure vehicles and pedestrians actuate the green/walk signal phase.

Sectional Control

The TAC Guide defines “Section Control” or “Point-to-Point Control” as “a new approach to automated speed enforcement [that] operates by calculating the average speed of a vehicle between two points (usually 2-5 km or longer) on a section of roadway. The system will identify a vehicle at the entrance of the enforcement section and again when exiting using license plate recognition technology to calculate the average speed. Vehicles that are considered to be travelling too fast are fined and issued a speeding ticket.”⁷



Source: *Canadian Guide to Traffic Calming*

Sectional control is applicable on all roadways but is more effective on expressways/freeways due to the infrequent nature of entrance and exit points. Advantages include a reduction in vehicle speed, an increase in vehicle speed compliance, and a reduction in fatal or serious injury collisions. Disadvantages include a high implementation cost, difficulties with

⁶ Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018. p. 126

⁷ Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018. p. 127



enforcement including the legality of collecting information of road users (including non-violators), and privacy concerns.

Variable Speed Limits

Variable speed limit signs are “dynamic or adjustable road signs displaying variable statutory speed limits. Using a system of traffic, pavement, and visibility sensors to monitor real-time conditions on the route, an algorithm based on traffic engineering studies determines, if legally acceptable, the appropriate speed limit. Variable speed limits can also be set manually by an operator and should be established based on a traffic engineering study.”⁸ The speed limits can vary by location/space (e.g., specific road segments or lanes) or time of day (e.g., during school hours or school pick-up/drop-off periods).



Source: *Canadian Guide to Traffic Calming*

Variable speed limits are applicable across all roadways, all traffic volumes, urban and rural roadways, and in high pedestrian locations (e.g., school zones). Advantages include reduced vehicle operating speeds (both mean and variance), improved travel times through smoother traffic flow, and reduced collisions (both primary and secondary crashes during adverse weather conditions and congestion). Disadvantages include a medium to high installation cost, ongoing maintenance and operational costs, and the possible need for enforcement to encourage and promote compliance (if users do not believe the system is legitimate, compliance rates will be low).

Variable speed limits operate like the School Zone Maximum Speed When Flashing sign described in OTM Book 5 – Regulatory Signs.⁹ By using the prescribed signs and flashing beacons (Rb- A and Rb-106A), road authorities can establish variable speed limits on roads in school zones. A municipal by-law is required to designate a school zone and specify the times the signs are in effect.

“Smart” Traffic Calming Measures

The Project Team conducted an on-line literature search to identify other potential emerging traffic calming measures outside the list provided in the TAC Guide. The review focused primarily on countries known for more active/advanced road safety/traffic calming programs, including the United Kingdom and other European nations, Australia, and New Zealand.

The research found jurisdictions in other parts of the world are beginning to focus on the use of “smart” traffic calming measures. Unlike the primarily “static” measures listed in the TAC

⁸ Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018. p. 129

⁹ Ministry of Transportation, Ontario. *Ontario Traffic Manual Book 5: Regulatory Signs*. Queen’s Printer of Ontario. March 2000.

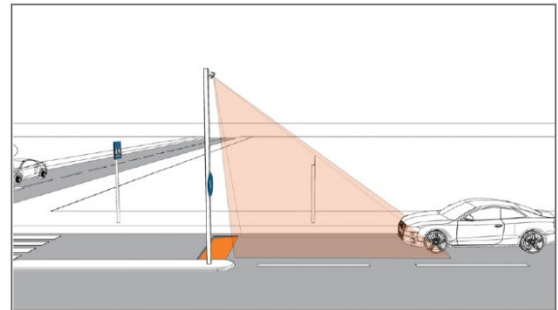


Guide, and commonly used by Ontario municipalities, these installations respond “dynamically” to changes in traffic volumes, weather conditions, and/or time of day.

Variable speed limits represent the current extent of “intelligent” traffic calming measures presented in the TAC Guide, enabling different speed limits to be set at different times of the day. The following subsections highlight other technologies being used to enhance existing traffic calming installations or provide additional options. These “smart” measures are capable of interpreting driver and/or pedestrian behaviour and creating a response depending on circumstances and context. It is noted many of these measures have not been applied in Ontario to date.

Actibump

The Actibump system is a modification of the existing speed hump, designed to activate only when vehicles are observed travelling faster than a prescribed speed threshold. When a speeding vehicle is observed by the radar device within the unit, the system activates a “hatch” in the roadway surface to lower the profile by a few centimetres. For non-speeders, the hatch remains level with the roadway surface. Transponders are available to permit emergency vehicles to pass the Actibump system at higher speeds without activating the “hatch”.



Source: EDEVA Actibump Technical Brochure

The system is currently installed in several cities in Sweden. A study completed in 2016 at one installation in Linköping, Sweden noted a 24% reduction in average vehicle speeds and a 10% increase in the number of vehicles yielding to vulnerable road users.¹⁰ Advantages include the ability to accommodate emergency vehicles, lower general traffic speeds, and operate during winter weather without impacting snow clearing operations. Disadvantages include a higher installation and maintenance cost as opposed to less intrusive traffic calming measures.

Smart Pedestrian Crossings

Smart pedestrian crossings include a range of technologies responding to pedestrian and vehicle actuation. These crossings can include LED pavement markings at curb cuts to signify pedestrian right-of-way or light actuated signs and poles to warn drivers of a pedestrian crossing the street.



Source: Smart Pedestrian Crossing at Villanueva de la Serena (STEPVIAL)

The illuminated signs are similar technology to Level 1 Type A and Level 2 Type B and C Pedestrian Crossover (PXO) installations in Ontario, which

¹⁰ Börefelt, Alexander et. al. *Evaluation of Actibump in Linköping, effect on speed and yielding behaviour*. 9 July 2016



include flashing beacons. The difference lies in how the device is actuated. Current PXO devices require pedestrian actuation to activate, whereas these newer technologies rely on detector loops and cameras to determine when a person is crossing the street. Once actuated, the signs and poles illuminate to warn drivers of the pedestrian crossing activity.

There are existing installations of these technologies in Finland and Estonia, but limited research is available on their advantages and disadvantages to date.

Automated Speed Enforcement

Bill 65 (*Safer School Zones Act*) amended the *Highway Traffic Act* in 2017 to enable the installation of Automated Speed Enforcement (ASE) devices in school zones and Community Safety Zones (CSZs) in Ontario. The technology uses a camera and speed measurement device to enforce speed limits in school zones.¹¹

Several municipalities in the province (primarily upper or single-tier jurisdictions in the Greater Toronto and Hamilton Area) have initiated ASE programs in the past year. While safety benefits are evident and a key motivator for deployment, financial implications (i.e., implementation costs, processing fees, fine revenue) have tended to be a primary consideration for jurisdictions contemplating ASE, especially for lower-tier municipalities.

Appendix C contains a report presented to Town of Whitby Council in December 2020 summarizing key aspects of ASE. **Appendix D** contains a report presented to Town of Bradford West Gwillimbury Traffic Committee in October 2020 summarizing key aspects of ASE in the Town.

Traffic Calming Measures in *Canadian Guide to Traffic Calming*

Appendix E provides a high-level summary of all traffic calming measures listed in the Guide, including the emerging technologies discussed above. The summary provides guidance on location applicability, and benefits and disbenefits of each measure across a variety of characteristics (e.g., speed reduction, conflict reduction, impacts on parking, etc.).

The current (2018) edition of the Guide features a broader range of traffic calming measures than the original (1998) version and provides contemporary guidance in their application and design. The updated Guide also contemplates the use of traffic calming measures on arterial roads unlike the previous edition.

¹¹ Spotlight on ASE. <https://www.aseontario.com/>



TABLE 1: TRAFFIC CALMING POLICIES AND GUIDELINES OF SIMCOE COUNTY MUNICIPALITIES AND CITIES OF BARRIE AND ORILLIA

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
<p>Innisfil (March 2018) (pop. 36,566)</p>	<ul style="list-style-type: none"> ▶ Road grade less than 5% ▶ Minimum block length of 120 metres ▶ Roadway not used by fixed-route transit ▶ 85th percentile vehicle speed greater than 15 km/h above speed limit ▶ Volume must be greater than 400 vehicles per day ▶ Must be a local road, minor collector roadway, or downtown commercial street ▶ Limited impacts to Emergency Services (determined through consultation) 	<ul style="list-style-type: none"> ▶ Not Specified 	<p>Point System</p> <ul style="list-style-type: none"> ▶ Highest points = highest priority ▶ Collector Road (52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ Volume ▶ Collision History ▶ Pedestrian Generators ▶ On-Road Cycling Facilities 	<ul style="list-style-type: none"> ▶ Town staff to monitor installation of temporary and permanent measures for a period of six months to one year after implementation ▶ Information report to be published by the Traffic Safety Advisory Committee (TSAC) 	<ul style="list-style-type: none"> ▶ Removal may be requested by a citizen, agency, or stakeholder(s). ▶ May be removed if 60% of study area residents, agencies, businesses and property owners support removal. Minimum response rate not defined. ▶ If removed, must wait three years to request a new traffic calming study.
<p>Bradford West Gwillimbury (Sept. 2015) (pop. 35,300)</p>	<ul style="list-style-type: none"> ▶ See Warrant 1 of Technical Process ▶ Policy limited to the installation of speed cushions 	<ul style="list-style-type: none"> ▶ Petition from residents (60% of affected homes must support speed cushions). Number of affected homes determined by Town staff. 	<p>Three Warrant System</p> <ul style="list-style-type: none"> ▶ Warrant 1: Petition ▶ Warrant 2: Safety Requirements (Presence of Sidewalks, Road Grade, Emergency Response Route, Minimal Impacts to Non-Motorized Uses) ▶ Warrant 3: Technical Requirements (Road Classification, Minimum Speed, 85th Percentile Speed, Traffic Volumes, Maximum Block Length) <p>Warrants 1, 2, and 3 must be met for Speed Cushion installation.</p>	<ul style="list-style-type: none"> ▶ Not Specified 	<ul style="list-style-type: none"> ▶ Not Specified



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<p>Clearview (July 2019) (pop. 14,100)</p>	<ul style="list-style-type: none"> ▶ Must be a local or collector road under Township jurisdiction ▶ Minimum length of 150 metres 	<ul style="list-style-type: none"> ▶ Neighbourhood Petition (after Initial Screening and Data Assessment) (minimum 51% support from households with direct frontage for pursuing a Traffic Calming Plan (TCP)). Petition occurs only if the location meets the point threshold. ▶ Neighbourhood Survey (after development of TCP) (minimum 25% response rate, minimum 60% in support of proposed Traffic Calming Plan Design) ▶ Public Meeting (optional). Need determined based on comments/opinions provided in the Neighbourhood Petition and Neighbourhood Survey. 	<p>Point System (maximum 115 points)</p> <ul style="list-style-type: none"> ▶ Local Road (min. 35 points) ▶ Collector Road (min. 52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ Volume ▶ Short Cutting Traffic ▶ Collision History ▶ Sidewalks ▶ Pedestrian Generators ▶ Sight Lines ▶ Road Allowance Limitations <p>Input from Township agencies (e.g., emergency services, transit services)</p> <p>Neighbourhood consultation via comments provided in the petition.</p>	<ul style="list-style-type: none"> ▶ If a location fails to meet the minimum point threshold, or the Neighbourhood Petition and/or Neighbourhood Survey do not indicate support, residents will be notified and the investigation for traffic calming discontinued. Staff may continue to address resident concerns through more traditional mitigation measures (e.g., enforcement, radar speed boards, signage). Council can overrule the decision to discontinue the study are direct moving forward with a traffic calming measure or study ▶ New traffic volume and speed data collected no later than three months after installation 	<ul style="list-style-type: none"> ▶ Traffic calming measures may be removed at the request of residents provided that more than the level of support exists to remove them as was measured for installation (i.e., minimum 25% response rate, with over 60% of respondents supporting removal). Survey to be delivered to same residents as the Neighbourhood Survey. Traffic calming must be installed for a minimum of three months before considering removal. ▶ Request to remove one device, may result in all devices being removed ▶ If removed, must wait two years to request new plan

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Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
Essa (Sept. 2018) (pop. 21,000)	<ul style="list-style-type: none"> ▶ Must be a local or collector road under Township jurisdiction ▶ Minimum length of 150 metres 	<ul style="list-style-type: none"> ▶ Neighbourhood Petition (after Initial Screening and Data Assessment) (minimum 51% support from households with direct frontage for pursuing development of a Traffic Calming Plan). Petition occurs only if the location meets the point threshold ▶ Neighbourhood Survey (after development of TCP) (minimum 25% response rate, minimum 60% in support of proposed Traffic Calming Plan Design) ▶ Public Meeting (optional). Need determined based on comments/opinions provided in the Neighbourhood Petition and Neighbourhood Survey 	<p>Point System (maximum 115 points)</p> <ul style="list-style-type: none"> ▶ Local Road (35 points) ▶ Collector Road (52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ Volume ▶ Short Cutting Traffic ▶ Collision History ▶ Sidewalks ▶ Pedestrian Generators ▶ Sight Lines ▶ Road Allowance Limitations <p>Input from Township agencies (e.g., emergency services, transit services)</p>	<ul style="list-style-type: none"> ▶ If a location fails to meet the minimum point threshold, or the Neighbourhood Petition and/or Neighbourhood Survey do not indicate support, residents will be notified and the investigation for traffic calming discontinued. Staff may continue to address resident concerns through more traditional mitigation measures (e.g., enforcement, radar speed boards, signage). Council can overrule the decision to discontinue the study and direct moving forward with a traffic calming measure or study. ▶ New traffic volume and speed data collected no later than three months after installation 	<ul style="list-style-type: none"> ▶ Traffic calming measures may be removed at the request of residents provided that more than the level of support exists to remove them as was measured for installation (i.e., minimum 25% response rate, with over 60% of respondents supporting removal). Survey to be delivered to same residents as the Neighbourhood Survey. Traffic calming must be installed for a minimum of three months before considering removal. ▶ Request to remove one device, may result in all devices being removed ▶ If removed, must wait two years to request new plan



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Springwater (Feb. 2020) (pop. 19,100)	<ul style="list-style-type: none"> ▶ Must be a local or collector road under Township jurisdiction ▶ Minimum length of 150 metres ▶ Posted speed limit less than 50 km/h 	<ul style="list-style-type: none"> ▶ Neighbourhood Petition (after Initial Screening) (minimum 60% in support from households with direct frontage for pursuing development of a Traffic Calming Plan) ▶ Community Support Survey (after development of TCP) (minimum 25% response rate, minimum 60% in support of proposed Traffic Calming Plan Design) 	<p>Point System (maximum 110 points)</p> <ul style="list-style-type: none"> ▶ Local Road (min. 35 points) ▶ Collector Road (min. 52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ High Speed ▶ Volume ▶ Short Cutting Traffic ▶ Collision History ▶ Sidewalks ▶ Pedestrian Generators <p>Input from Township agencies (e.g., emergency services, transit services)</p>	<ul style="list-style-type: none"> ▶ If the Neighbourhood Petition does not indicate minimum support (60%), residents will be notified, and the investigation terminated ▶ If the location fails to meet the minimum point threshold, residents will be notified, and the investigation terminated. Staff may continue to address resident concerns through more traditional mitigation measures (e.g., enforcement, radar speed boards, signage). ▶ If the Community Support Survey does not yield minimum support for the proposed Traffic Calming Plan Design, the investigation will be terminated, and residents notified ▶ Post installation evaluation not specified 	<ul style="list-style-type: none"> ▶ Traffic calming measures may be removed at the request of residents provided that at least the same level of support exists to remove them as was measured for installation (i.e., minimum 25% response rate, with over 60% of respondents supporting removal). Survey to be delivered to same residents as the Community Support Survey. Traffic calming must be installed for a minimum of three months before considering removal. ▶ Request to remove one device, may result in all devices being removed ▶ If removed, must wait three years to request new plan

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Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
Wasaga Beach (No Date) (pop. 20,700)	<ul style="list-style-type: none"> ▶ Must be a local or collector road under Township jurisdiction ▶ Minimum length of 150 metres 	<ul style="list-style-type: none"> ▶ Neighbourhood Petition (after Initial Screening and Data Assessment)(minimum 51% support from households with direct frontage for pursuing development of a Traffic Calming Plan). Petition occurs only if the location meets the point threshold. ▶ Neighbourhood Survey (after development of a TCP) (minimum 25% response rate, minimum 60% in support of proposed Traffic Calming Plan Design) ▶ Public Meeting (optional). Need determined based on comments/ opinions provided in the Neighbourhood Petition and Neighbourhood Survey. 	<p>Point System (max. 110 points)</p> <ul style="list-style-type: none"> ▶ Local Road (min. 35 points) ▶ Collector Road (min. 52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ High Speed ▶ Volume ▶ Short Cutting Traffic ▶ Collision History ▶ Sidewalks ▶ Pedestrian Generators <p>Input from Township agencies (e.g., emergency services, transit services)</p>	<ul style="list-style-type: none"> ▶ If a location fails to meet the minimum point threshold, or the Neighbourhood Petition and/or Neighbourhood Survey does not indicate support, residents will be notified and the investigation for traffic calming will discontinue. Staff may continue to address resident concerns through more traditional mitigation measures (e.g., enforcement, radar speed boards, signage). Council can overrule the decision to discontinue the study and direct moving forward with a traffic calming measure or study. ▶ New traffic volume and speed data collected no later than three months after installation 	<ul style="list-style-type: none"> ▶ Traffic calming measures may be removed at the request of residents provided that more than the level of support exists to remove them as was measured for installation (i.e., minimum 25% response rate, with over 60% of respondents supporting removal). Survey to be delivered to same residents as the Neighbourhood Survey. Traffic calming must be installed for a minimum of three months before considering removal. ▶ Request to remove one device, may result in all devices being removed ▶ If removed, must wait two years to request new plan
Barrie (Jan. 2011) (pop. 141,400)	<ul style="list-style-type: none"> ▶ Road Grade <5% ▶ Street Length > 120 metres ▶ Sidewalks on at least one side of street ▶ 85th percentile speed > 10 km/h above speed limit ▶ AADT > 900 vehicles ▶ Not on transit route 	<ul style="list-style-type: none"> ▶ Not Specified 	<p>Point System</p> <ul style="list-style-type: none"> ▶ Highest points = highest priority <p>Criteria</p> <ul style="list-style-type: none"> ▶ Pedestrian Generators ▶ Speed ▶ Collision History ▶ AADT <p>Pre-Screening Criteria determines whether traffic calming measures are permanent or temporary.</p> <p>Temporary measures include speed cushions and radar speed boards.</p>	<ul style="list-style-type: none"> ▶ Not Specified 	<ul style="list-style-type: none"> ▶ Not Specified



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<p>Orillia (No Date) (pop. 31,100)</p>	<ul style="list-style-type: none"> ▶ Must be a residential local or collector road ▶ Posted speed not greater than 50 km/h ▶ Minimum length of 150 metres ▶ AADT > 500 vehicles 	<ul style="list-style-type: none"> ▶ Petition (after Initial Screening) (>51% of households with direct frontage must support pursuing investigation) ▶ Public Meeting (after development of a TCP) (receive comments on the proposed Traffic Calming Plan) ▶ Community Support Survey (after development of a TCP, and Public Meeting) (minimum 25% response, minimum 60% support Plan) 	<p>Point System</p> <ul style="list-style-type: none"> ▶ Local Road (min. 35 points) ▶ Collector Road (min. 52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ Volume ▶ Traffic Generators ▶ Collision History ▶ Sidewalks ▶ Pedestrian Generators <p>Input from Fire, Transit, Police, etc. and Resident Input at a Public Meeting</p>	<ul style="list-style-type: none"> ▶ If the Petition does not indicate minimum support (>51%), residents will be notified, and the investigation terminated. Meeting the required support threshold will trigger a traffic calming investigation. ▶ If the traffic calming investigation indicates the location does not meet the minimum point thresholds, residents will be notified, and the investigation terminated. The location will not be eligible for re-evaluation for a period of three years after notification. Staff will continue to address resident concerns by means of more traditional mitigating measures (e.g., signage, enforcement, radar speed signs). ▶ If the Community Support Survey does not yield minimum support for the proposed Traffic Calming Plan Design, the investigation will be terminated, and residents notified ▶ Speed studies conducted four to six months after implementation 	<ul style="list-style-type: none"> ▶ Traffic calming measures may be removed at the request of residents provided that at least the same level of support exists to remove them as was measured for installation (i.e., minimum 25% response rate, with over 60% of respondents supporting removal). Survey to be delivered to same residents as the Community Support Survey. Traffic calming must be installed for a minimum of two years before considering removal. ▶ Request to remove one device, may result in all devices being removed ▶ If removed, must wait three years to request new plan



TABLE 2: TRAFFIC CALMING POLICIES AND GUIDELINES OF OTHER ONTARIO MUNICIPALITIES

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
Vaughan (Jun. 2010) (pop. 323,000)	<ul style="list-style-type: none"> ▶ Traffic calming not considered on collectors or arterials with a ROW > 26 metres ▶ Additional criteria depending on traffic calming measure to be installed 	<ul style="list-style-type: none"> ▶ Survey (75% response rate, 75% in support of pursuing study), number of affected homes determined by Town staff ▶ Community Meeting (after development of the TCP) (minimum 75% support through vote at meeting) 	<p>Warrants</p> <ul style="list-style-type: none"> ▶ Speed Humps/Raised Crosswalks ▶ Medians, Curb Extensions, Chicanes ▶ Raised Intersections, Roundabouts and/or Traffic Circles <p>Criteria</p> <ul style="list-style-type: none"> ▶ 85th Percentile Speed ▶ Speed Limit ▶ Traffic Volume ▶ Street Length ▶ Collision History ▶ Volume ▶ Traffic Generators ▶ Collision History ▶ Sidewalks ▶ Pedestrian Generators <p>Input from Fire, Transit, Police, etc. and Resident Input at a Public Meeting</p>	<ul style="list-style-type: none"> ▶ Engineering Services Department to complete evaluation between one to two years after installation. 	<ul style="list-style-type: none"> ▶ Cannot be removed for at least five years unless a health or safety issue is presented.
Caledon (May 2020) (pop. 66,500)	<ul style="list-style-type: none"> ▶ Road Grade less than 8% ▶ Road Length greater than 110 metres ▶ AADT greater than 750 vehicles ▶ Greater than six collisions over previous three years ▶ 85th percentile speed greater than 15 km/h above speed limit 	<ul style="list-style-type: none"> ▶ Not Specified (consultation completed during development of Traffic Calming Policy) 	<p>Point System (maximum 100 points)</p> <ul style="list-style-type: none"> ▶ Highest points = highest priority <p>Criteria</p> <ul style="list-style-type: none"> ▶ 85th Percentile Speeds ▶ Volumes ▶ Collisions ▶ Pedestrian Generators ▶ Bike Facilities or Routes ▶ Adjacent Land Uses ▶ Driveway Density (rural locations only) 	<ul style="list-style-type: none"> ▶ Town staff to complete speed study six months after installation 	<ul style="list-style-type: none"> ▶ Not Specified

TABLE 2: TRAFFIC CALMING POLICIES AND GUIDELINES OF OTHER ONTARIO MUNICIPALITIES

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
Halton Hills (2019) (pop. 61,100)	<ul style="list-style-type: none"> ▶ Must be a local or collector road under Town jurisdiction ▶ Minimum 30% cut-through traffic ▶ AADT greater than 1500 vehicles ▶ Operating speed greater than: <ul style="list-style-type: none"> • 10 km/h above posted speed limit on local and collectors with a school, playground or retirement centre; or • 15 km/h above posted speed limit on all other local and collectors (40 km/h or 50 km/h); or • 20 km/h above posted speed limit on all other local and collectors posted at 60 km/h 	<ul style="list-style-type: none"> ▶ Public Information Centre to receive input on Traffic Calming Plan design 	<p>Point System (maximum 100 points)</p> <ul style="list-style-type: none"> ▶ Highest points = highest priority <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ Volume ▶ Collisions ▶ Pedestrian Generators <p>The Traffic Calming Plan relies on non-intrusive traffic calming measures (community road watch program, radar message boards, enforcement, signage, pavement markings, education) for a period of six months.</p> <p>If the non-intrusive measures produce the desired results, the process is concluded.</p>	<ul style="list-style-type: none"> ▶ If the location does not meet Initial Screening criteria, the investigation will be terminated, and residents advised. ▶ Monitored after first year of installation 	Not Specified



TABLE 2: TRAFFIC CALMING POLICIES AND GUIDELINES OF OTHER ONTARIO MUNICIPALITIES

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
Milton (Mar. 2011) (pop. 110,100)	<ul style="list-style-type: none"> ▶ Must be a local or collector roadway under Town jurisdiction ▶ Posted speed limit not greater than 50 km/h ▶ Minimum segment length of 150 metres ▶ Minimum AADT of 500 vehicles 	<ul style="list-style-type: none"> ▶ Petition (after Initial Screening) (minimum 51% of households with direct frontage must support pursuing investigation) ▶ Public Open House (after development of the TCP) ▶ Survey (after development of the TCP, and Public Meeting) (minimum 25% response rate, minimum 60% support the proposed Traffic Calming Plan) 	<p>Point System</p> <ul style="list-style-type: none"> ▶ Local Road (35 points) ▶ Collector Road (52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ Volume ▶ Short Cutting Traffic ▶ Collisions ▶ Sidewalks ▶ Pedestrian Generators <p>Input from Emergency, Transit, and Maintenance Services</p>	<ul style="list-style-type: none"> ▶ If the Petition does not indicate minimum support (>51%), residents will be notified, and the investigation terminated. Meeting the required support threshold will trigger a traffic calming investigation. ▶ If the traffic calming investigation indicates the location does not meet the minimum point thresholds, residents will be notified, and the investigation terminated. The location will not be eligible for re-evaluation for a period of three years after notification. Staff will continue to address resident concerns by means of more traditional mitigating measures (e.g., signage, enforcement, radar speed signs). ▶ If the Community Support Survey does not yield minimum support for the proposed Traffic Calming Plan Design, the investigation will be terminated, and residents notified ▶ Conduct speed study four to six months after installation 	<ul style="list-style-type: none"> ▶ May be removed after two years if 60% of responses (minimum 25% response rate) support removal ▶ Request to remove one device, may result in all devices being removed ▶ If removed, must wait three years to request new plan



TABLE 2: TRAFFIC CALMING POLICIES AND GUIDELINES OF OTHER ONTARIO MUNICIPALITIES

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
<p>Grimsby (Aug. 2016) (pop. 27,300)</p>	<ul style="list-style-type: none"> ▶ Must be a local or collector street under Town jurisdiction ▶ Minimum segment length of 250 metres ▶ Road grade less than 8% ▶ No previous request within previous five years 	<ul style="list-style-type: none"> ▶ Not Specified (Development of Traffic Calming Plan to be outsourced to traffic consultant) 	<p>Eight Warrants</p> <ul style="list-style-type: none"> ▶ Warrant 1: 85th percentile speed > 9 km/h above speed limit ▶ Warrant 2: > 5% of vehicles travel more than 15 km/h above speed limit ▶ Warrant 3: AADT > 1,500 vehicles (local street) or 4,500 (collector street) ▶ Warrant 4: Short cutting traffic is > 15% of total traffic (local street) or 40% of total traffic (collector street) ▶ Warrant 5: Pedestrian or cycling generators exist on the street ▶ Warrant 6: No sidewalk on at least one side of the street ▶ Warrant 7: Police reported more than 2.2 traffic collision per year based on previous three years ▶ Warrant 8: 85th percentile speed > 15 km/h above speed limit <p>A Traffic Calming Plan will be developed if:</p> <ul style="list-style-type: none"> a) A minimum of four warrants (Warrants 1 through 7) are met; or b) Warrant 8 is met, regardless of the results of Warrants 1 through 7. 	<ul style="list-style-type: none"> ▶ Not Specified (Development of Traffic Calming Plan to be outsourced to traffic consultant) 	<ul style="list-style-type: none"> ▶ Not Specified (Development of Traffic Calming Plan to be outsourced to traffic consultant)



Appendix A

Typical/Preferred Traffic Calming Measures of Simcoe County Municipalities and Cities of Barrie and Orillia



Traffic Calming Measure	MUNICIPALITY						
	Orillia	Barrie	Bradford West Gwillimbury	Wasaga Beach	Clearview	Essa	Springwater
VERTICAL DEFLECTION							
Raised Crosswalk	x	x	x	x	x	x	x
Raised Intersection	x	✓	x	x	x	x	x
Speed Cushion	✓	✓	✓	x	x	x	x
Speed Hump/Table	x	x	x	✓	✓	✓	✓
HORIZONTAL DEFLECTION							
One-Lane Chicane	✓	x	x	x	x	x	x
Two-Lane Chicane	x	x	x	x	x	x	x
Curb Radius Reduction	✓	✓	x	x	x	x	x
Lateral Shift	x	x	x	x	x	x	x
Speed Kidney	x	x	x	x	x	x	x
Traffic Circle/Traffic Button/Mini Roundabout	✓	✓	x	✓	✓	✓	x
ROADWAY NARROWING							
Curb Extension	✓	✓	x	✓	✓	✓	x
Lane Narrowing	x	x	x	✓	✓	✓	✓
On-Street Parking	✓	x	x	x	x	x	x
Raised Median Island	✓	✓	x	✓	✓	✓	✓
Road Diet	✓	x	x	x	x	x	x
Vertical Centreline Treatment	x	x	x	x	x	x	x
SURFACE TREATMENT							
Sidewalk Extension/Textured Crosswalk	✓	✓	x	x	x	x	x
Textured Pavement	x	x	x	x	x	x	x
Transverse Rumble Strips	x	x	x	x	x	x	x
PAVEMENT MARKINGS							
Converging Chevrons	x	x	x	x	x	x	x
Dragon Teeth	x	x	x	x	x	x	x
Full Length Transverse Bars	x	x	x	x	x	x	x
On-Road 'Sign' Pavement Markings	x	x	x	x	x	x	x
Peripheral Transverse Bars	x	x	x	x	x	x	x
ACCESS RESTRICTION							
Directional Closure	✓	x	x	x	x	x	x
Diverter	✓	x	x	x	x	x	x
Full Closure	✓	x	x	x	x	x	x
Intersection Channelization	✓	x	x	x	x	x	x
Raised Median Through Intersection	✓	x	x	x	x	x	x
RIRO Island	✓	x	x	x	x	x	x
GATEWAYS							
Gateways	x	x	x	x	x	x	x
ENFORCEMENT							
Aircraft/Drone Radar Enforcement	x	x	x	x	x	x	x
Fixed Speed Enforcement	x	x	x	✓	✓	✓	✓
Mobile Speed Enforcement	x	x	x	x	x	x	x
"Speed Watch" Program	x	x	x	x	x	x	x
EDUCATION							
Active and Safe Routes to School Program	x	x	x	x	x	x	x
Pace Car Program	x	x	x	x	x	x	x
Speed Display Devices	x	✓	x	✓	✓	✓	✓
Targeted Education Campaign	x	x	x	x	x	x	✓
Vehicle Activated Signs	x	x	x	x	x	x	x
SHARED SPACE							
Shared Space	x	x	x	x	x	x	x
OTHER							
Traffic Calmed Neighbourhood Sign	✓	x	x	x	x	x	x
Community Safety Zones	x	x	x	✓	✓	✓	x
Stop Signs	x	x	x	x	x	x	✓
Maintenance and Signage	x	x	x	x	x	x	✓

Appendix B

Typical/Preferred Traffic Calming Measures of Other Ontario Municipalities



Traffic Calming Measure	MUNICIPALITY			
	Vaughan	Halton Hills	Milton	Caledon
VERTICAL DEFLECTION				
Raised Crosswalk	✓	✓	✗	✓
Raised Intersection	✓	✓	✗	✗
Speed Cushion	✗	✓	✓	✓
Speed Hump/Table	✓	✓	✗	✓
HORIZONTAL DEFLECTION				
One-Lane Chicane	✓	✓	✓	✓
Two-Lane Chicane	✓	✓	✗	✓
Curb Radius Reduction	✗	✓	✓	✓
Lateral Shift	✗	✓	✗	✗
Speed Kidney	✗	✗	✗	✗
Traffic Circle/Traffic Button/Mini Roundabout	✓	✓	✓	✗
ROADWAY NARROWING				
Curb Extension	✓	✓	✓	✓
Lane Narrowing	✓	✓	✗	✓
On-Street Parking	✗	✗	✓	✗
Raised Median Island	✓	✓	✓	✓
Road Diet	✗	✗	✓	✗
Vertical Centreline Treatment	✓	✗	✗	✓
SURFACE TREATMENT				
Sidewalk Extension/Textured Crosswalk	✗	✗	✓	✓
Textured Pavement	✗	✗	✗	✓
Transverse Rumble Strips	✗	✗	✗	✗
PAVEMENT MARKINGS				
Converging Chevrons	✗	✗	✗	✓
Dragon Teeth	✗	✗	✗	✓
Full Length Transverse Bars	✗	✗	✗	✓
On-Road 'Sign' Pavement Markings	✗	✗	✗	✓
Peripheral Transverse Bars	✗	✗	✗	✓
ACCESS RESTRICTION				
Directional Closure	✗	✓	✓	✗
Diverter	✗	✓	✓	✗
Full Closure	✗	✓	✓	✗
Intersection Channelization	✗	✗	✓	✗
Raised Median Through Intersection	✗	✓	✓	✗
RIRO Island	✗	✗	✓	✗
GATEWAYS				
Gateways	✗	✗	✗	✗
ENFORCEMENT				
Aircraft/Drone Radar Enforcement	✗	✗	✗	✗
Fixed Speed Enforcement	✗	✗	✗	✓
Mobile Speed Enforcement	✗	✗	✗	✗
"Speed Watch" Program	✗	✗	✗	✓
EDUCATION				
Active and Safe Routes to School Program	✗	✗	✗	✗
Pace Car Program	✗	✗	✗	✗
Speed Display Devices	✗	✗	✗	✓
Targeted Education Campaign	✗	✗	✗	✗
Vehicle Activated Signs	✗	✗	✗	✓
SHARED SPACE				
Shared Space	✗	✗	✗	✗
OTHER				
Traffic Calmed Neighbourhood Sign	✗	✗	✓	✗
Community Safety Zones	✗	✗	✗	✓
Stop Signs	✗	✗	✗	✓
Signage	✓	✗	✗	✓

Appendix C

Town of Whitby Staff Report – Automated Speed Enforcement (ASE) Program



Town of Whitby Staff Report

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Report Title: Automated Speed Enforcement (ASE) Program

Report to: Committee of the Whole

Date of meeting: December 7, 2020

Report Number: PW 27-20

Department(s) Responsible:

Public Works Department

Submitted by:

Suzanne Beale, Commissioner, Public Works

Acknowledged by M. Gaskell, Chief Administrative Officer

For additional information, contact:

Tara Painchaud, Senior Manager,
Transportation Services, x4937

Dhaval Pandya, Program Manager,
Transportation Services x4945

1. Recommendation:

1. That Report PW 27-20 regarding Automated Speed Enforcement (ASE) be received for information.
2. That Council direct the Clerk to remove MD-5142 from the New and Unfinished Business (NUB) listing.

2. Highlights:

- The Highway Traffic Act (HTA) amendments that enable ASE deployments permit the road authority to implement Automated Speed Enforcement (ASE) on roadways within their jurisdiction.
- Based on the current Highway Traffic Act regulation (Section 128.5 of the HTA), the Town must initiate a School Zone By-law to implement an Automated Speed Enforcement Program in school zones.
- Community Safety Zones should be implemented on roads in the vicinity of community based facilities such as schools, community centres, parks, hospitals, retirement areas, or on roadway sections with continual high collision rates.

- On December 2, 2019 the Province passed the regulation which allows municipalities to operate an Automated Speed Enforcement program.
- Based on discussions with the Ontario Traffic Council ASE working group, it has been noted that the cost of ASE cannot be recovered without also designating school zones (ASE zone) as Community Safety Zones, otherwise the program is unsustainable.
- As a new initiative for Ontario, the capital and operating costs are estimates and would need to be monitored closely in the initial year of any program.
- As the revenue generated by the program is dependent on numerous factors, the anticipated revenue of the program cannot be estimated at this time.
- Town staff will continue to monitor the Region's program, as well as other municipalities and would report back to Council for any proposed implementation of ASE within the Town of Whitby.
- There is currently in the budget \$51,500 in 2020 to collect traffic data and consider potential costs associated with implementation of ASE. An additional \$100,000 is included in 2022 for potential implementation.

3. Background:

On May 30, 2017 the Legislative Assembly of Ontario passed Bill 65, Safer School Zones Act, which amended the Highway Traffic Act (HTA) to authorize the use of Automated Speed Enforcement (ASE, commonly referred to as "photo radar") in school zones and community safety zones on roadways with posted speed limits less than 80 kilometres per hour.

The HTA amendments that enable ASE deployments permit the road authority to implement ASE on roadways within their jurisdiction that meet the legislated criteria. It also provides a streamlined process for municipalities to participate in Ontario's Red-light Camera Program without the need for lengthy regulatory approval.

4. Discussion:

As per Bill 65, Safer School Zone Act and subsequent HTA amendments, ASE can only be implemented in school zones and in community safety zones where the speed limit is less than 80 km/h.

School Zones

Currently, the Town reduces the posted speed limits, from 50 km/h to 40 km/h, along the frontages of elementary schools located on locally owned roads within Whitby. Although signed as a school zone, through the use of warning signage, school zones are not formally by-lawed by the Town. Based on the current Highway Traffic Act regulation (Section 128.5 of the HTA), the Town must By-law

the School Zone in order to implement an Automated Speed Enforcement Program in school zones. An update to the Traffic By-law would be undertaken as part of any implementation of ASE within the Town.

Community Safety Zones (CSZ)

The Highway Traffic Act (HTA) delegates authority to Municipal Councils to designate a part of a highway under its jurisdiction as a Community Safety Zone.

- The HTA requires that the Community Safety Zones must be recognizable to the driver (by regulatory signs) as a special situation that warrants an increased awareness of community activity adjacent to the road right-of-way; thus, the need for an increased awareness for traffic safety.
- Areas of special concern include roads fronting or in the vicinity of elementary or secondary schools; major community parks and playgrounds; community centres; hospitals; and seniors residences.
- In a Community Safety Zone the fines for offences within the Highway Traffic Act (i.e. speeding, careless driving, etc.) may be doubled. Parking fines cannot be increased within a Community Safety Zone.
- The establishment of the new Community Safety Zones requires that the new roadway section is added to the existing Community Safety Zone Schedule in the Traffic By-Law and that the appropriate Community safety Zone signage need to be installed.
- There are currently nineteen (19) roadway sections designated as a Community Safety Zone within the Town of Whitby. Sixteen (16) CSZ's are on Town roads, two (2) on regional roads and one (1) is on a provincial road. The Community Safety Zones located on Town roads are on an arterial or a collector road and adjacent to a school and/or a major park or open space.
- The costs associated with the implementation of a Community Safety Zone (i.e. signage costs) have not been quantified as the number of signs is dependent on the length of the CSZ. In 2015, 11 CSZ's were implemented at an estimated cost of \$18,000.

Automated Speed Enforcement (ASE)

Town of Whitby Public Works staff, along with 26 other municipalities, have been participating in the province wide Automated Speed Enforcement working group initiated by the Ontario Traffic Council (OTC). This working group was set up in an effort to establish common operation principles for ASE across the province. The working group has had discussions on key issues such as school zones and community safety zones, site selection criteria, technology options (fixed vs. mobile), hours of operation, speed enforcement thresholds, anticipated impacts to court services, implementation costs, expected program revenues and initial

warning period. The group recommendations were provided to the Province for preparations of the required regulations.

On December 2, 2019 the Province passed the regulation which allows municipalities to operate an Automated Speed Enforcement program. As part of the regulation, the Province also established the requirement for the municipalities to implement a 90 day initial warning period in advance of all new ASE system deployment. With the passing of the regulation, a number of municipalities have started the process of implementing ASE programs including Toronto, Ottawa, the Region of Durham and the Town of Ajax. The Region of Durham has already deployed or is in the process of deploying ASE cameras at numerous locations throughout the Region. The Town of Ajax is expecting to implement the ASE program in January 2021. Within Whitby, the Region will be deploying mobile cameras on Anderson Street by Anderson Collegiate Vocational Institute and on Taunton Road by Sinclair Secondary School.

Automated Speed Enforcement Program

An ASE program is the use of a roadside speed measurement device and camera that can automatically detect the speed of a vehicle, compare it to a designated speed threshold, and take a photograph of the rear license plate, as necessary. This technology can be implemented as a fixed or mobile camera deployment. Images that are captured are stored locally on the device and an operator retrieves the images to deliver them to the processing centre.

In Ontario, the central processing centre for all ASE offences is located in the City of Toronto. At the processing centre, Provincial Offences Officers review the images, determine if a charge is to be laid, access the MTO vehicle ownership database and prepare necessary charging documents to be mailed to the courts as well as the registered owner of the vehicle. Table 1 includes requirement details.

Table 1: ASE Requirements

Required Agreements	Details
ASE technology provider	<ul style="list-style-type: none"> • Through a joint procurement process with the City of Toronto a preferred contractor has been identified, Redflex Traffic Systems (Canada) Limited. • Each municipality must enter into a separate agreement for the ASE services. • The agreement requires a multi-year commitment and establishes

Required Agreements	Details
	<p>a daily rate for each ASE device. It also identifies start-up costs and relocation costs for mobile units</p>
<p>Ontario Ministry of Transportation (MTO) to access their vehicle ownership database</p>	<ul style="list-style-type: none"> • MTO charges a per transaction fee every time the database is accessed by the Joint Processing Centre. • These fees are invoiced to the municipality on a quarterly basis.
<p>City of Toronto who operates the ASE Joint Processing Centre</p>	<ul style="list-style-type: none"> • The City of Toronto charges each municipality on a cost recovery basis. • The charge includes both a portion of fixed costs (for the facility, equipment, etc.) and per transaction costs.
Site Requirements	Details
<p>School Zones</p>	<ul style="list-style-type: none"> • Designate and sign school zones within the Town's Traffic By-law
<p>Community Safety Zones</p>	<ul style="list-style-type: none"> • Designate and sign Community Safety Zones within the Town's Traffic By-law
<p>Speed Limit</p>	<ul style="list-style-type: none"> • Posted speed limit of less than 80 km/h • The posted speed limit must be consistent. Roads currently with a flashing 40 km/h (Carnwith Drive and Garden Street) are not eligible for ASE.

Should the Town proceed with an Automated Speed Enforcement program, there are various considerations related to implementation.

- **Fixed versus Mobile Operations:** Mobile operation would allow for more locations but there would be additional costs associated with moving the cameras between locations. It is anticipated that moving the cameras regularly will allow for better value as a traffic calming initiative/tool as stationary cameras may not continue to capture speeding.
- **Hours of Operation:** There are many important factors that need to be considered before selecting the appropriate hours of operation, including the roadway characteristics and any influences by surrounding land uses.
- **Travel Speed Threshold:** The threshold at which a ticket is issued will impact number of tickets issued. If the threshold is too high it suggests that speeding is acceptable. The accuracy of the speed measurement component of each ASE device is tested annually to ensure precision.
- **Impacts on the court system:** Currently, all ASE offences in the Province are processed through courts as Provincial Offences Notices which require significant resources. The Town would rely on the Durham Region Courts to process charges.

It is important to note that in order to manage the workload of the court system, a number of municipalities throughout the province including the Region of Durham and Town of Ajax requested the Province to permit the use of Administrative Monetary Penalty System (AMPS) for automated speed enforcement offences. Transportation Services would support the use AMPS.

- **Impact on the Processing Centre:** The Joint Processing Centre must have sufficient capacity to process the images that are captured during the hours of operation. As the ASE program is initiated and/or expanded in other municipalities, the processing centre will have to increase its capacity and resources.
- **Location(s) for Implementation:** Transportation Services staff would use available traffic data to identify school zones where speeding is a verified issue.

Cost of Automated Speed Enforcement

The estimated costs to implement ASE are based on information provided by the Region of Durham and Town of Ajax related to their existing or upcoming programs. Given that this is a new initiative for all municipalities in Ontario, costs are estimated and will need to be monitored closely in the initial year of the program.

Table 2 provides the preliminary estimates of the costs associated with the operation of a fixed or mobile camera. It should be noted that the hours of operation can be determined (increased or decreased) depending on the location and/or severity of speeding infractions and in turn this will increase or decrease the overall costs of the program.

Based on the discussions at the OTC ASE working group, it was noted that the cost of ASE cannot be recovered without designating school zones (ASE zone) as Community Safety Zones so that the fines would be doubled. Without the doubling of fines the program is unsustainable.

Table 2: Estimated Automated Speed Enforcement Program Costs

Item	Rate	Estimated Cost
Fixed Speed Camera	Lump some	\$32,000/year
Daily Rate for Mobile Speed Camera	\$85 per camera per day	\$31,025/year
Set up Cost	per set up	\$250
Moving Cost	per move	\$75
Advance Warning Signage	per location	\$1,000
MTO Vehicle Ownership Database Fees	per ticket	\$1
Joint processing Centre Fees	per ticket	\$20
Court processing Fees	per ticket	\$65

The costs related to vandalism have not been included. It is noted that frequent vandalism has resulted in additional costs in the Region of Durham and City of Toronto.

As the revenue generated by the program is directly proportional to the hours of operation per day and the number of speed violations, the exact revenue of the program cannot be estimated at this time.

Fines

On the offence notice (ticket) that is mailed to the owner of the motor vehicle, there is a total payable that consists of the set fine, which is based on the rate of speed over the speed limit, the victim fine surcharge and court costs. Set fines are

established by the Chief Judge of the Ontario Court of Justice and can be viewed on the Ontario Court of Justice web site. Separate set fines apply if the offence was committed in a Community Safety Zone – effectively the regular set fine is doubled. No demerit points will be issued by the Ministry of Transportation and no one's driving record will be impacted.

There is no Set Fine when a driver has exceeded the posted speed limit by 50 km/h or more. In these circumstances, a summons will be issued to the registered vehicle owner to appear before a Justice of the Peace.

Next Steps

- In 2021 Town staff will continue to monitor the implementation and lessons learned by other municipalities in Ontario who have deployed ASE in their respective jurisdictions. Staff will also consider any opportunities for efficiencies with the Region or other Durham Lakeshore municipalities.
- Public Works staff will consider site selection for implementation of ASE in Whitby and collect traffic data as necessary.
- Staff would report back to Council with an update on cost considerations and lessons learned from other municipalities and outline the details of potential Town of Whitby Automated Speed Enforcement Program for consideration including future Capital Budget requirements.
- Complete the appropriate amendments to the Traffic By-Law for the inclusion of the new School Zones and/or Community Safety Zones.
- There is currently in the budget \$51,500 in 2020 to collect traffic data and consider potential costs associated with implementation of ASE. An additional \$100,000 is included in 2022. The budget will be refined as needed.

5. Financial Considerations:

No financial impacts at this time.

6. Communication and Public Engagement:

N/A

7. Input from Departments/Sources:

Input received to date from the Region of Durham, Town of Ajax and Ontario Traffic Council's ASE working group has been considered.

8. Strategic Priorities:

The potential implementation of Automated Speed Enforcement Program will contribute to the following:

Council's Goals:

To continue the Whitby tradition of responsible financial management and respect for taxpayers; and to understand the importance of affordability and sustainability to a healthy, balanced community.

To ensure Whitby is clearly seen by all stakeholders to be business and investment friendly and supportive; and to continuously improve the customer experience and the effectiveness and efficiency of communications, service delivery and approvals.

To make our streets and neighbourhoods safer through innovative and best-practice design standards and traffic calming measures that reduce traffic speeds; to increase citizen involvement in building Complete Streets; to effectively manage parking on residential streets and in our downtowns; and to reduce the traffic impact of new developments on existing neighbourhoods.

Corporate Strategic Plan:

This report support the Corporate Strategic Priority 3: Customer: to provide a consistent, optimized and positive customer service experience. The report focuses on customer needs and service delivery.

Accessibility:

This Town report provides information in an accessible format and provides clear communication.

Sustainability:

This Report PW 27-20 compliment the Sustainability Vision that the Town of Whitby will be a healthy, sustainable and complete community. This is accomplished through improving traffic safety on the street and providing safer streets.

9. Attachments:

N/A

Appendix D

Town of Bradford West Gwillimbury Staff Report – Automated Speed Enforcement (ASE) Program



REPORT #: COM 2020 26
DATE: 29 Oct 2020
TO: Members of the Committee
SUBJECT: **Automated Speed Enforcement**
PREPARED BY: Paul Dubniak, Transportation Technologist

1. RECOMMENDATIONS:

That Report COM 2020 26, entitled “Automated Speed Enforcement” be received for information.

2. PREAMBLE:

At the September 2020 Traffic Committee meeting, the Committee requested additional information on the automated speed enforcement program currently underway in a number of GTA municipalities.

3. BASIC DATA PERTAINING TO THE MATTER:

Automated Speed Enforcement (ASE), an automated system that uses a camera and a speed measurement device to enforce speed limits in identified areas, is designed to work in tandem with other road safety measures, such as engineering activities, education initiatives and police enforcement, to help improve safety for people of all ages by:

- Increasing compliance of posted speed in designated areas (school)
- Altering driver behaviour
- Increasing public awareness about the critical need to slow down

With that in mind, in 2017, [Bill 65 – the Safer School Zones Act](#) amended the Highway Traffic Act (the Act) to introduce the use of ASE in school zones and community safety zones across the province. With the most recent Ontario Road Safety Annual Report from the Ministry of Transportation showing that the number of people killed in Ontario in speed-related collisions increased by 13 per cent from 2015 to 2016.

How ASE in Ontario Works

The Ontario program was developed in partnership with the MTO, municipal groups and transportation associations. ASE echoes the red light program in terms of data, collection and fines being issued.

The ASE system is comprised of three main parts:

1. A speed measurement component.
2. An image capture component that includes a data box with the posted speed limit, the speed of the vehicle, the location, the time of day, and other information.
3. A data processing/storage component. Along with a chain custody of that information.

If a vehicle exceeds the posted speed limit in an ASE-enforced area, the ASE system captures an image that is stored and reviewed by a provincial offences officer. The ticket, which contains a digitized copy of the image and an enlargement of the plate portion, is then mailed to the registered plate holder within 30 days of the offence, outlining [next steps](#) and the cost of the associated fine. Demerit points are not issued with an ASE ticket.

Fines and Penalties

Pay a ticket

If you receive a ticket in the mail, information on how to pay it will be included on the back. Options for payment and requesting a trial are also included – all specific to the municipality in which the offence occurred.

Early resolution or walk-in plea of guilty

If you receive a ticket, you also have the option of early resolution or a walk-in plea of guilty with information specific to the location where the offence occurred as set out in the offence notice or ticket.

Request a trial

If you want to challenge a ticket, you may request a trial.

Trial details

There will be no witnesses for the prosecution at a trial. Instead, the prosecutor will rely on the certified statement of the provincial offences officer, the certified proof of ownership and certified copies of the image or picture of the motor vehicle. This includes the data box as well as an enlargement of the plate portion.

The provincial offences officer who completes the certified statement or certifies the photographs can only be compelled to attend the trial if an application is made to the presiding judicial officer at the trial. The application would only be successful if you are able to show that the attendance of the provincial offences officer is necessary to ensure a fair trial but because the provincial offences officer sets forth all of his or her knowledge of the alleged offence in the certified statement it can be difficult to meet this test.

In addition, the certificate of accuracy for the speed measurement device proves that the speed measurement taken by the ASE system is accurate. A copy of the certificate may be provided as part of the disclosure of the prosecution's case or you, as the defendant, may be directed where to view it. You should note that the set fine indicated on the offence notice will

no longer apply if you are convicted at trial. Instead the penalties that will apply are outlined in the [Highway Traffic Act](#).

Program

To participate in the program an agreement must be signed with the vendor on record (Redflex), MTO to request licence plate/ownership information, and with the City of Toronto to lay charges on your behalf. The agreement with the City of Toronto is a result of the fact that Toronto currently operates the Joint Processing Centre (JPC) and issues ASE tickets on behalf of the partnering municipalities.

There is no set number of cameras as was recommended with the red light cameras. It would be the Town's operational decision, budget, capacity of your Courts etc. The shared JPC costs are primarily based on the number of charges issued. Camera costs are part of the vendor contract – the main items are an initial installation cost, a daily rate per camera and a redeployment cost.

For the project creation there was a one-time start-up cost of approx. \$900,000 which was shared equally among 9 partners (\$100,000 each). Each new agency that joins the program will pay into this start up cost and a credit issued to existing members. It is difficult to estimate annual costs without projected charge volume as the costs are mostly proportionate based on charge volume. For example, if you are estimating 5,000 charges per year and all municipalities who intend to join by 2021 have done so, the Town would be looking at approx. \$50,000 per year for the JPC portion of the contract. The JPC group is looking for a permanent facility which may see the costs increase.

There are two options on camera systems, semi-fixed and mobile. Semi-fixed require some civil work as the housing is permanent (pad, electrical, etc) but the camera can move to other semi-fixed sites. The average cost of a semi-fixed base is \$34,000 (Only Ottawa and Waterloo so far). Mobile units are all self-contained (battery operated). The vendor is responsible for moving/rotating the cameras. The cameras themselves have an annual cost of approx. \$35,000. The vendor would move the camera upon municipal request. Initial costs to prep the site and calibrate is \$255. If the cameras were to be moved to a location that has already has the cameras, the charge is \$75. The municipality is responsible for all signage. Once the agreements are signed, the cameras are on road within 60 days.

Two additional factors that would need to be addressed should the Committee/Council chose to start an ASE program:

1. Ability for the courts to handle a potential case increases
2. Any agreements to where paid fine revenues would come back to the Town

For Committee consideration, the following are several traffic counts from Community Safety Zones completed in 2020 and 2018, specifically noting the volume of traffic 16+ km/h over the limit for a period of 1 week:

Colborne at Marie of the Incarnation (2020) – 726 (7% of weekly volume)

Maple Grove between Collings and Fred C. Cook (2020) – 123 (3% of weekly volume)

Miller Park between West Park and Sutherland (2020) – 1,756 (6% of weekly volume)

Northgate between Longview and Fox Run (2020) – 986 (4% of weekly volume)

Fletcher at Fred C. Cook (2018) – 2,032 (9% of weekly volume)

West Park south of Fairside (2018) – 789 (3% of weekly volume)

4. EFFECT ON TOWN FINANCES:

While there are no costs associated with the recommendation of this report, should the Committee wish to join the program an approximate cost (as of writing) is as follows.

Initial program cost - \$90,000 estimate depended on amount of early adopters.

Annual JPC cost - \$50,000 (assuming 5,000 fines)

Annual Camera costs - \$38,000 (mobile unit, moving every month to a new location)

Total Year 1 - \$178,000 + moving costs per location.

5. ATTACHMENTS:

None.

6. APPROVALS:

Joe Coleman, Manager of Transportation
Terry Foran, Director of Community Services

Approved - 21 Oct 2020
Approved - 26 Oct 2020

Appendix E

Traffic Calming Measures in TAC *Canadian Guide Traffic Calming Guide*



POTENTIAL TRAFFIC CALMING MEASURES

Measure	Location Applicability			Potential Benefits				Potential Disbenefits					
	Local/Collector	Urban Arterial	Rural Arterial	Speed Reduction	Volume Reduction	Conflict Reduction	Environment	Local Access	Emergency Response	Active Transportation	Enforcement	Parking	Maintenance
VERTICAL DEFLECTION (SECTION 3.2)													
Raised Crosswalk	✓	✗	✗	■	□	□	□	○	○	○	○	○	○
Raised Intersection	✓	✗	✗	■	□	□	□	○	○	○	○	○	○
Speed Cushion	✓	✗	✗	■	■	■	■	○	○	○	○	○	○
Speed Hump/ Table	✓	✗	✗	■	■	■	■	○	●	○	○	○	○
HORIZONTAL DEFLECTION (SECTION 3.3)													
Chicane (One-Lane, Two-Lane)	✓	✗	✗	■	■	■	■	○	○	○	○	●	○
Curb Radius Reduction	✓	▲	✗	□	□	□	□	○	○	○	○	○	○
Lateral Shift	✓	▲	✗	□	□	□	□	○	○	○	○	○	○
Speed Kidney	✓	✗	✗	■	□	□	■	○	○	○	○	○	○
Traffic Circle/Traffic Button/Mini-Roundabout	✓	✗	▲	■	□	■	■	○	○	○	○	○	○
ROADWAY NARROWING (SECTION 3.4)													
Curb Extension	✓	✓	✗	□	□	□	■	○	○	○	○	●	●
Lane Narrowing	✓	▲	✗	□	□	□	□	○	○	○	○	○	○
On-Street Parking	✓	▲	✗	□	□	□	■	○	○	○	○	○	○
Raised Median Island	✓	▲	✓	□	□	□	□	○	○	○	○	○	○
Road Diet	✓	✓	✗	■	□	■	■	○	○	○	○	○	○
Vertical Centreline Treatment	✓	✗	✓	□	□	□	□	○	○	○	○	○	○
SURFACE TREATMENT (SECTION 3.5)													
Sidewalk Extension/ Textured Crosswalk	✓	▲	✗	□	□	□	□	○	○	○	○	○	●
Textured Pavement	✓	✗	✗	□	□	□	■	○	○	○	○	○	●
Transverse Rumble Strips	▲	✗	✓	□	□	□	□	○	○	○	○	○	○
PAVEMENT MARKINGS (SECTION 3.6)													
Converging Chevrons	✓	▲	✓	■	□	□	□	○	○	○	○	○	○
Dragon Teeth	✓	▲	✓	□	□	□	□	○	○	○	○	○	○
Full-Lane Transverse Bars	✓	▲	✓	■	□	□	□	○	○	○	○	○	○
On-Road 'Sign' Pavement Markings	✓	✓	✓	■	□	□	□	○	○	○	○	○	○
Peripheral Transverse Bars	✓	▲	✓	■	□	□	□	○	○	○	○	○	○
ACCESS RESTRICTION (SECTION 3.7)													
Directional Closure	✓	✗	✗	■	■	□	□	○	○	○	○	○	○
Diverter	✓	✗	✗	□	■	□	□	●	○	○	○	○	○
Full Closure	✓	✗	✗	□	■	■	■	●	●	○	○	○	○
Intersection Channelization	✓	▲	✗	□	■	□	□	●	○	○	○	○	○
Raised Median Through Intersection	✓	▲	✗	□	■	□	□	●	○	○	○	○	○
Right-in/Right-out Island	✓	▲	✗	□	■	□	□	○	○	○	○	○	○
GATEWAYS (SECTION 3.8)													
Gateways	✓	✓	✓	■	□	□	■	○	○	○	○	○	●
ENFORCEMENT (SECTION 3.9)													
Aircraft / Drone Radar Enforcement	✗	✗	✓	□	□	□	□	○	○	○	●	○	●

POTENTIAL TRAFFIC CALMING MEASURES

Measure	Location Applicability			Potential Benefits				Potential Disbenefits						
	Local/Collector	Urban Arterial	Rural Arterial	Speed Reduction	Volume Reduction	Conflict Reduction	Environment	Local Access	Emergency Response	Active Transportation	Enforcement	Parking	Maintenance	
Fixed Speed Enforcement	x	✓	✓	■	□	□	□	○	○	○	●	○	●	
Mobile Speed Enforcement	✓	✓	✓	■	□	□	□	○	○	○	●	○	○	
"Speed Watch" Program	✓	✓	x	■	□	□	□	○	○	○	●	○	○	
EDUCATION (SECTION 3.10)														
"Active and Safe Routes to School" Program	✓	x	x	□	□	□	□	○	○	○	○	○	○	
Pace Car Program	✓	▲	▲	□	□	□	□	○	○	○	○	○	○	
Speed Display Devices	✓	✓	✓	■	□	□	□	○	○	○	●	○	●	
Targeted Education Campaign	✓	✓	✓	□	□	□	□	○	○	○	○	○	○	
Vehicle Activated Signs (VAS)	✓	✓	✓	■	□	■	□	○	○	○	○	○	●	
SHARED SPACE (SECTION 3.11)														
Shared Space	✓	▲	x	■	□	■	■	○	○	○	○	●	●	
EMERGING TECHNOLOGIES AND MEASURES (SECTION 3.12)														
LED Pavement Markings	x	▲	▲	□	□	■	□	○	○	○	○	○	○	
Optical Illusion Pavement Markings	▲	x	▲	■	□	□	□	○	○	○	○	○	○	
Rest-on-Red Signal Phasing	x	▲	▲	■	□	■	□	○	○	○	○	○	○	
Section Control	x	▲	▲	■	□	■	□	○	○	○	●	○	○	
Variable Speed Limits	▲	▲	▲	■	□	■	■	○	○	○	○	○	○	
LEGEND	✓	Applicable		■	Substantial Benefits			●	Substantial Disbenefits					
	▲	Use with Caution		■	Minor Benefits			○	Moderate Disbenefits					
	x	Not Appropriate		□	No Benefits or Limited Data			○	No Disbenefit or Limited Data Available					