Quispamsis
Traffic Calming Policy

POLICY STATEMENT

Quispamsis receives complaints each year from the public regarding speeding, traffic short-cutting through residential neighbourhoods and concerns for the safety of more vulnerable road users such as pedestrians and cyclists.

In an effort to resolve traffic concerns raised by neighbourhood residents, Town staff looks to work in a consultative manner with area residents to help identify neighbourhood traffic problems and implement solutions that are both acceptable and appropriate for the residential street network. This policy document outlines procedures for initiating, reviewing, funding and implementing neighbourhood traffic management plans in residential neighbourhoods to address traffic safety concerns. The solutions may incorporate traditional traffic control techniques, temporary traffic control techniques or permanent physical 'traffic calming'.

This policy will apply to local roadways only in neighbourhoods of primarily residential land use. The policy and procedures contained within this document do not apply to arterial roadways or collector roadways. This will ensure the primary function of those roadways in the Town of Quispamsis to move traffic is maintained. Safety concerns on arterial roadways or collector roadways will be dealt with on a case-by-case basis outside of policy.

1) INTRODUCTION

This document presents a proposed Neighbourhood Traffic Calming policy for the town of Quispamsis.

The use of traffic calming measures can reduce the speed and volume of traffic to acceptable levels, as determined by accepted engineering guidelines, and restore the roadway to its intended function. Additional benefits are increased traffic safety and liveability of the neighbourhood through the reduction of vehicular and truck traffic, occurrence of excessive speeding, noise, vibration, air pollution and collisions, while providing a safer environment for pedestrians and cyclists.

The use of physical traffic calming measures such as traffic circles, speed humps, road narrowing, raised crosswalks, raised median islands, diverters and partial closures have been used throughout Europe and North America. In response to its growing popularity and use throughout Canada, the Transportation Association of Canada (TAC) in collaboration with the Canadian Institute of Transportation Engineers (ITE) published in 1998 the '*Canadian Guide to Neighbourhood Traffic Calming'*. It provides guidance for transportation professionals in Canada on the use, application and recommended design standards for various physical traffic calming measures. The guide was designed to ensure uniformity in application of traffic calming measures throughout Canada and to minimize liability and maximize safety. This policy is intended to define how and when the town of Quispamsis will apply material contained in the '*Canadian Guide to Neighbourhood Traffic Calming'*.

Town Engineering Staff has studied several programs in other communities and it is apparent from these studies that each community approaches Traffic Calming in a different way. The most prevalent technique among successful, long standing programs is a comprehensive approach that does not rely on any single solution or strategy.

2) GOALS

In an effort to address traffic concerns in neighbourhoods, the Quispamsis Neighbourhood Traffic Calming policy shall address the following goals:

Improve public safety.
Encourage roadways to function as intended.
Improve liveability of neighbourhoods

3) OBJECTIVES

Objectives to achieve the above goals will include:

Reduce excessive vehicle speeds
Discourage short-cutting traffic.
Minimize conflicts between road users.
Improve the neighbourhood environment

4) PRINCIPLES OF TRAFFIC CALMING

The '*Canadian Guide to Neighbourhood Traffic Calming'* outlines twelve (12) principles that should be applied when selecting and implementing traffic calming measures. This will ensure appropriate traffic calming measures are selected, that they are compatible with our community's needs and any potential negative impacts are minimized. While each situation is unique, the 'principles' of traffic calming are relevant to each situation. Application of these principles will maximize effectiveness of the traffic calming plans and help build community acceptance and support of the final traffic calming plans.

i) **Identify traffic problem(s).** It is important to identify the traffic problem(s) so the appropriate traffic calming measures are selected.
ii) **Quantify the problem.** To select the appropriate measures, it is important to quantify the extent of the problem. This requires gathering data by conducting traffic counts, vehicle classification counts, speed studies, license plate traces and collecting collision statistics. These studies will be conducted as per accepted Engineering practices.
iii) **Consider improvements to the arterial road network first.** There are options available to improve operations on the arterial road network (e.g. signal timing, lane designations). Prior to implementing traffic calming measures on residential roadways, where arterial road improvements are available, they will be considered.
iv) **Minimize impacts on adjacent residential roadways.** Prior to considering traffic calming measures for a particular roadway, any potential negative impact on adjacent roadways will be considered.
v) **Avoid restricting neighbourhood access.** Diverters, barriers and closures can restrict access for people who live or work on a particular roadway and have a significant impact on the delivery of emergency services, public transit, etc.
vi) **Use self-enforcing measures.** Traffic calming measures which maintain a 24-hour presence and do not require police enforcement to ensure compliance are preferable. The use of physical traffic calming measures will also ensure police resources are available for higher priority community concerns such as arterial roadways.
vii) **Target automobiles and trucks.** The purpose of traffic calming is to reduce the negative effects of motor vehicles while improving conditions for other road users. Traffic calming measures will be designed to permit cyclists and pedestrians to travel unaffected, while slowing down motor vehicles.
viii) **Maintain and minimize impacts on delivery of emergency services, public transit and other City services (e.g. waste collection, winter maintenance, roadway sweeping, school buses)** When selecting traffic calming measures, staff will strive to balance the needs of these services with slowing traffic on residential roadways.
ix) **Use cost-effective measures.** Recognizing the importance for fiscal responsibility, staff will focus on using cost-effective measures. This will ensure that funding can be allocated appropriately and prioritized for consideration in the budget process.
x) **Encourage public participation and community support.** Resident input and suggestion as to the cause of traffic problems, and possible solutions will be encouraged. An open, public process will ensure that residents concerns are heard and appropriate solutions are selected and implemented.
xi) **Support other town of Quispamsis strategic planning documents including the Municipal Plan, Zoning Bylaw and Traffic Bylaw.** This will ensure the selection and implementation of traffic calming measures complement other town planning policies.
xii) **Monitor and follow-up.** Comparable traffic volume, speed and collision data will be collected before and after implementation. In addition, resident, town and emergency services feedback will be solicited in an effort to measure the effectiveness of traffic calming measures.

5) APPROACH

The Quispamsis Traffic calming Policy will focus on three kinds of possible solutions:

i) **Education** alerts people to ways they can help ease traffic problems, such as driving slower in residential areas, using alternative modes of transportation, and obeying all traffic and pedestrian laws.

ii) **Enforcement** enlists the help of the Rothesay Regional Police Force as well as Engineering and Works Staff to focus their efforts on the problem areas and increase community awareness of speeding problems.

iii) **Engineering** tools include a variety of traffic calming devices that can reduce speed, decrease volumes, and improve safety. For example, speed humps and traffic circles can be used to slow traffic, and curb extensions can reduce speeds and pedestrian crossing distances to increase safety.

The Neighborhood Traffic Calming Program is a process, rather than a fixed solution where all of these approaches are carefully considered when analyzing a residential neighborhood street for problems and potential traffic calming solutions. Residents also help identify specific neighborhood characteristics that should be taken into account when deciding what type of traffic calming is necessary. The town proposes to work closely with all interested citizens to find solutions that best serve the interests of the neighborhood and reduce the identified problem(s). Thus, ongoing communication and evaluation are essential to the success of the effort and will help ensure that neighborhood safety concerns are addressed in an effective and sustainable manner.

All eligible traffic calming projects will be wholly funded from General Capital Budget. This is in accord with what happens in the majority of other municipalities which have traffic calming programs. Traffic calming applications which do not meet eligibility criteria or where the majority of motorists speeding through a neighbourhood live in that neighbourhood, may be more appropriately considered for a local improvement program as a neighbourhood enhancement or street beautification project.

There are three distinct categories of the traffic calming program. The Program is designed to cover the full spectrum of measures by providing short, intermediate and long term solutions.

6) INITIATING TRAFFIC CALMING REQUESTS

Residents who have a traffic-related concern within their neighbourhood will submit in writing their request for a traffic review to the Town. The request, initiated by an individual or group of residents, may specify one or several residential or local roadways within a neighbourhood. Staff may recommend that adjacent residential roadways be included in the traffic review that will likely be impacted by traffic calming on the target roadway(s) within the neighbourhood. Staff will deal with requests on a first-come-first-serve basis.

This will require the applicants, who can be residents, neighbourhood groups or community associations to pick up an application form from the Engineering Department at the Town Hall or online at www.quispamsis.ca (Appendix A is a copy of this application form). The applicants provide the background information for the application which includes identification of issues (not solutions), a description of the area affected and information on any traffic strategies previously employed in the area. The completed application form should be returned to the Engineering Department.

The Town will review each application to determine the appropriate response. The person or group making the original request or complaint will be notified in writing by the Town of the action the Town intends to take regarding the request. Requests for traffic calming improvements will proceed to the evaluation phase to determine if all qualifying criteria are met. Locations which clearly do not meet traffic calming criteria will be reviewed by the Town for speed enforcement or other traffic engineering solutions.

If not already collected, relevant traffic data will be collected during the evaluation phase. The evaluation phase involves the collection of data including street classification, volume, speed, traffic crash history, and other relevant information. This information will be collected and evaluated by the Engineering Department.

A Neighborhood meeting is held to determine goals of the town's traffic calming program, initiate community education, initiate staff investigation of non-intrusive traffic calming measures, discuss options, hear residents concerns and form a Neighbourhood Traffic Committee.

One of the ways to help meet the goals of improving public safety in dealing with traffic complaints is to assure residents that the requests for traffic calming can be handled in a timely fashion. Accordingly, rather than waiting an interminable time to get an application reviewed, and when a traffic problem can be addressed using Level 1 Strategies as outline in this policy, the Town will notify the Neighborhood Traffic Committee and petition originator via letter. No further action is required for the Town to go ahead with Phase 1 Strategies for the area.

If the problem is to be addressed using Level 2 or 3 tools, the Town will require acknowledgement from affected residents before proceeding. Certain Level 2 and 3 tools require extensive design. In addition, a public meeting is held where the proposed traffic calming measure is presented to the neighborhood and questions are taken. Prior to this meeting, residents will receive a ballot with which to vote on the proposed measure.

7) STRATEGIES

The Neighborhood Traffic Calming Program is broken down into three different levels. Level 1 consists primarily of the first two "E's", education and enforcement. Level 2 involves a use of short term measures intended to examine effectiveness of more permanent solutions and to give residents an indication of the impact these permanent measures will have. Level Three involves the full implementation of the third "E", Engineering, and design and installation of traffic calming devices.

i) LEVEL 1 Strategies

Many neighborhood traffic safety concerns will be alleviated during Level 1. Level 1 strategies may not require extensive construction, yet could be effective means to reduce traffic impacts on neighborhood streets

a) **Speed Watch** - The Town of Quispamsis Engineering Department will set up a traffic monitoring station to record the speed of the vehicles, and where possible, the hour of the day the speeding infractions occur. This information will be forwarded to the Rothesay Regional Police to request placement of their readerboard/radar display to show the neighbours just how fast they are going. This helps to educate drivers, including neighborhood residents, of the posted speed limit. These types of programs are weather dependant as snow and ice do not permit placement of surface mounted units.

b) **Evaluate Existing Signage** – The Town of Quispamsis Engineering Department will follow up with an evaluation of the streets in question to ensure the streets are properly posted and to determine if any geometric or design issues may warrant consideration for reduction of the posted speed limit. Staff will also review pavement markings to determine if they need to be introduced, enhanced or refreshed. i.e. Stop Bars, crosswalks, painted lane narrowings.

c) **Educational Materials** – In conjunction with the Rothesay Regional Police Department, the Town staff will look to develop educational materials to be posted on the town's web page, incorporated into the town's newsletters or handed out to the residents on the residential street in question in an attempt to slow down traffic in the neighborhood.

d) **Specialized Enforcement** - The Rothesay Regional Police Department /Traffic Division will target their enforcement efforts utilizing the speed study results from Quispamsis Engineering Department.

e) **Enhanced Visibility** - The Public Works Department can abate vegetation that may be blocking visibility from vehicles, bicyclists and pedestrians.

f) **Neighborhood Pace Car Pledges** – members of the community demonstrate their willingness to follow rules of the road and become courteous drivers as an example to others.

g) **Neighborhood Association** – The town will request the residents of the affected subdivision to form a Neighbourhood Advisory Committee to assist in addressing traffic problems. Their role will be to disseminate information to surrounding neighbours, serve as point of first contact for information concerning the Traffic Calming Program, meeting with town or Police officials regarding the program or to discuss potential Level 1 educational approaches. This committee will also serve as contact should request evolve into a Level 2 or 3 Approach.

h) **StreetScape Projects** – some subdivisions may be suited for consideration of "streetscape" projects where the neighbourhood introduces increased landscape adjacent to the roadway, on-street parking, local art or community focus projects, or other innovative approaches to creating a neighbourhood friendly area.

If the these strategies fail to resolve the problem, then residents could apply for an engineering solution, namely the application of temporary engineered traffic calming strategies, as described in Level 2.

All Way Stop signs are NOT appropriate for traffic calming and will not be considered as a Level 1 strategy.

ii) LEVEL 2 — TEMPORARY TRAFFIC CALMING TREATMENTS

After Level 1 items have been implemented or if it is determined by the Town Engineer that additional Level 1 solutions are unnecessary or inappropriate, temporary traffic calming devices may be considered. Temporary traffic calming devices are available in a number of designs including speed tables, traffic circles, speed humps and speed cushions (see description Appendix B). They are rubber or composite devices in the same configuration as permanent traffic calming devices but are bolted to the ground and can be more easily installed and removed.

Temporary traffic calming devices serve the same function as permanent devices, and are useful when testing their effectiveness in reducing speeding and improving safety. They offer a chance for the neighborhood to determine if permanent devices are desired, and enable the Town to collect additional data to determine whether the street/neighborhood is a good candidate for permanent devices.

If, after a 6 month trial period the temporary physical installations have proven effective and desirable, Level 3 (permanent physical installations) may be considered.

a) Petition Process

For Level 2 Strategies, the street/neighborhood association will be involved in the review process where it will be required to see a majority of residents located within the project boundaries indicating that the majority of residents are in favor of the temporary installations. As with all applications, boundaries will be identified on a case by case basis and may include residents on other streets in the impacted area.

A public meeting is held where the proposed temporary traffic calming measure is presented to the neighborhood and questions are taken. Prior to and during this meeting, residents will receive a ballot with which to vote on the proposed temporary measure.

Area residents will cast their final votes on the traffic calming measure(s) during a one month period that begins the day of the final neighborhood meeting. At least 50% of the impact area's residents must vote in the final poll. Of that 50%, at least 2/3 of the votes must be in favor of the project for the project to advance to final construction.

Temporary devices are 100% funded by the Town if the impacted street meets the minimum criteria as established in this policy, and has been documented and sufficient funding is available.

b) Placement

Many physical constraints dictate the placement of temporary traffic calming treatments. Compared with permanent measures, more latitude exists for the use of temporary speed measures due to their placement during summer months only. Installation of temporary speed control devices begins in May each year and removal must take place prior to snowfall; therefore, all of the devices must be removed by November 1st each year. The following is a list of placement constraints:

- Curves
- Steep grades
- Driveway location
- At least 150m away from intersection

c) Alternate Temporary Measures

In order to address the concerns from residents, Council may look to implement temporary measures outside of the recommended Traffic Calming Policy such as All-Way Stops, alternate advisory signage or reduced speed limits.

The measures will only be considered after a formal motion of Council once Level 1 strategies have been in place for a minimum of 6 months. Prior to any decision of Council, Engineering staff will ensure Council is provided with data concerning vehicle speeds, volumes and accident history. Council will also be provided with the recommended warrants for any installation of alternate measures.

Any area where Council directs alternate temporary measures will not qualify for Level 2 or Level 3 approaches until such time as the alternate temporary measures have been removed.

iii) LEVEL 3 Permanent Traffic Calming Measures

After LEVEL 1 and 2 items have been implemented, Town staff will again revise collected data, and then compare it to the previously gathered information. Many neighborhoods should be able to resolve their traffic problems with Level I solutions. If Town staff or the residents still have concerns about traffic and the location meets the Town's guidelines, the location will be reviewed for possible installation of permanent physical devices.

Note, Level 2 can be bypassed with approval of the Council upon recommendation of the Town Engineer if the neighborhood so desires.

The various data collected will be summarized and analyzed to determine what traffic calming methods will be recommended for a Level 3 plan. Actual field data and conditions will be compared to the Quispamsis Neighbourhood Traffic Calming Policy Criteria. The Criteria values are presented in the following section. It is emphasized that many of these suggested limiting values must be carefully weighed in the context of their application to problems within the study area. Moreover, experience gained in the future may suggest changes in these values to better relate to problem definition.

Once a Level 3 implementation plan is developed, a public meeting is held where the proposed permanent traffic calming measures are presented to the neighborhood and questions are taken. Prior to and during this meeting, residents will receive a ballot with which to vote on the proposed permanent measures.

Area residents will cast their final votes on the traffic calming measure(s) during a one month period that begins the day of the final neighborhood meeting. At least 50% of the impact area's residents must vote in the final poll. Of that 50%, at least 2/3 of the votes must be in favor of the project for the project to advance to final construction.

If area wide support is demonstrated through the petition process, the Town will implement permanent Level 3 measures and will prepare, design, and build the improvements in accordance with the plan and budget allocations.

8) CRITERIA

As previously noted, the demand for traffic calming can potentially exceed the supply of time and resources to complete all of them. Accordingly, the Municipality has developed selection criteria, using information provided by the applicant. In order for any application to be considered eligible it will need to pass the first set of criteria, using information from the Application Form and Data gathered by Town Engineering Staff.

When request are made for traffic calming measures, Quispamsis Engineering staff or a designee will conduct traffic counts on the identified residential streets to measure and document traffic volumes, speeds, and time periods when speeding may be more prevalent.

The process will involve study area determination, data collection and analyses. Data collection may consist of one or more areas such as:

Vehicular volume
Speeds
Cut through traffic (Origin-Destination study)
Crash rates
Road alignment and grade
Street or segment classification
Parking
Pedestrian activities
Bicyclist activities
Existing traffic calming measures/traffic control devices
Other physical conditions on roadway or street segment

Staff will also request any relevant traffic or accident data from the Rothesay Regional Police. This data is used to evaluate the residential street and score it according to the following Neighbourhood Traffic Calming Policy (NTCP) criteria.

9) CRITERIA SCORING FOR LOCAL ROADS

Traffic calming projects are selected from those with the highest rankings and meet the minimum threshold of **11 points**. In selecting projects, there are other factors to consider including the project size, cost, complexity, compatibility with other transportation projects, and budget availability.

		Points
Traffic Volume	500- 750 ADT	1
(ADT taken from speed	750- 1000	3
study)	1000 - 1250	5
	1250 - 1500	7
	1500+	8
Cut-through Volume	20%-30%	2
(From Arterial to Arterial	30%-40%	4
through the neighborhood)	40%-50%	6
	50% +	8
Traffic Speeds	0-5 km/h over posted speed	0
(85th Percentile of all	5-7	2
vehicles, both directions,	7-9	4
following Level 1 solutions)	9-10	6
	11	8
	12+	10
Accident History	0.5-1.0 accidents/year	1
(Reported collisions over 3	1.1-1.5	2
year period in study area)	1.6-2.0	3
	2.1-2.5	4
	2.6-3.0	5
	Over 3.0	6
Schools/Other Ped Generators	Within 0.5 – 1.0 Km	1
(Schools, Parks, Senior Housing)	Within 0.5 Km	2

Traffic calming requests with a preliminary scoring of less than 11 points should not be considered for Level 2 or 3 measures.

Once a request is made and the required survey results are returned, the identified residential street(s) is ranked for NTCP funding and the highest scoring streets become the town's top priorities for funding consideration by Council during the annual budget setting process. Those not selected will be notified, and applications will be kept for possible selection the following year. Once priorities are established for an upcoming budget year, there will be a meeting with the neighborhood to discuss the identified residential street location, potential traffic calming devices that may provide a solution, potential 'shifting' effect on other nearby streets, and potential cost and timing issues associated with installation of traffic calming devices.

10) OTHER CONSIDERATIONS

i) Streets Not Meeting Required Criteria

Should a street not meet required criteria and if the residents elect by ballot to continue to request to the town to have the Level 2 or Level 3 measures installed, Council will determine if funding is available accommodate the request. If approved by Council the costs of the design and construction will be shared by the Town and the residents as follows:

a. The Town will pay any initial costs up to, and including, $10,000.

b. 2. All costs over $10,000 will be shared on a frontage basis with the residents of the affected area. The residents' share of the costs will be collected in accordance with the Local Improvement Bylaw in effect at that time.

ii) Follow Up Study

A follow-up general study of the plan and its effectiveness will be completed within 6 months to a year following construction of the traffic calming measure(s). The Town reserves the right to remove any traffic calming measure that is potentially unsafe and impairs the public safety and welfare.

iii) Device Removal

Once installed, traffic calming devices will generally remain in place unless the town deems the installation unsafe or if residents petition Council for the removal. Should such cases arise, a procedure similar to that set out in the application section would be followed with respect to removal of the devices.

iv) Visual Impacts and Aesthetic Concerns

While some traffic calming devices can have favorable aesthetic impacts, others can be, by their nature, unsightly. Devices such as speed humps and chokers most often pose no opportunity for the incorporation of aesthetics and can actually have negative visual impacts. Virtually all Level 2 and 3 traffic calming actions require reflective devices, signs and striping which may negatively affect the aesthetics of a neighborhood. In most cases it will be recommended the town install a permanent device unless it meets minimum aesthetic design standards. These standards consist of installing colored concrete pavers, landscaping where feasible, and raised curbing.

v) Increased Maintenance Costs

Street maintenance costs will increase in a few areas. Landscaping associated with such devices as traffic circles, chokers, neckdowns, and slow points will require regular maintenance. Devices such as speed humps will have to be reinstalled each time a residential street is overlayed which will increase costs each hump. Street cleaning and snow removal will also be impacted in areas where traffic calming devices are used. The heavy nature of these maintenance vehicles and the requirement to have direct contact with the asphalt surface and this will be affected by the physical changes to the asphalt. Turning movements are also impacted again potentially delaying these types of operations.

vi) Effect on Emergency Vehicles Response Times

Any traffic calming tool that might be effective because it physically controls traffic will generally have a negative impact on several classes of emergency vehicles. The Town, as well as its residents and businesses, place a very high priority on minimizing emergency response times. Installation of most physical traffic calming tools can increase emergency response time. This is especially true for fire apparatus and ambulances. Because of the heavy weight of fire engines and the delicate instruments and patients within ambulances, these vehicles must slow when they encounter a hump, severe dip, or sharp curve. Creating humps, dips, and sharp curves is often precisely the objective being sought by many of the traffic calming tools. While these maneuvers will cause moderate discomfort and delay for normal passenger vehicles, they may cause a much greater concern for emergency response vehicles. Some studies have been done to quantify the effect of traffic calming devices on emergency response time.

These studies show the following average delays to emergency vehicles for certain types of devices:

TYPE OF DEVICE	**AMBULANCES**	**FIRE TRUCKS**
Each Speed Hump	2.3-9.7 seconds	3-5 seconds
(Traditional Design)		
Each Traffic Circle	Not Available	1.3-10.7 seconds

The Town's Police, and Fire departments have indicated potential concerns these devices may have on response times. It is proposed the town's implementation process will require a representative from these protective services conduct an initial review of all proposed changes involving Level 2 and 3 options with the ability have input on any changes affecting critical access streets. This impact will have to be addressed for each area for which Level 2 and 3 traffic calming options are requested.

As an alternative, the policy also identifies a speed hump design that minimizes the impacts to emergency vehicle response. These humps use a grouping of speed cushions that allow wider wheelbase vehicles such as fire trucks to straddle the vertical deflection portion of the hump. These devices will also be considered as acceptable in the Traffic Calming Toolbox. More information on the modified humps is shown in Appendices B and C.

11) APPLICABLE TRAFFIC CALMING MEASURES

The "Canadian Guide to Neighbourhood Traffic Calming" identifies common measures, which are listed in Appendix C – Traffic Calming Measures Available for Consideration. In selecting traffic calming measures for the Town's toolbox, preference will be given to physical traffic calming measures over regulatory traffic control signing. Traffic calming measures will be selected, based on their intended benefits, specifically:

- Speed reduction – potential to reduce vehicles speeds along a roadway
- Volume reduction – potential to reduce through traffic on a roadway
- Conflict reduction – potential to reduce vehicle-vehicle conflicts, vehicle-pedestrian conflicts, etc

When selecting appropriate traffic calming measures, staff will make an effort to recommend a combination of measures. The recommendations will be assessed against the street information gathered and staff will evaluate potential effectiveness and then modifying, where justified, based on traffic data and resident feedback.

Quispamsis NTCP traffic calming devices that would be considered appropriate for use on residential streets include:

* Vertical Deflections
- Speed Humps on streets with slopes of less than 8%
- Speed Tables where pedestrian trail crossings occur
- Speed Cushions

*Horizontal Deflections
- Traffic Circles or Islands at uncontrolled intersections
- Curb Extensions (e.g. Bulb-outs) at intersections or mid-block

* Street Narrowing
- Chicanes, Chokers at intersections or mid-block

* Neighborhood Entrance Treatments
- Gateway treatments
- Related street-scaping (street furniture, lighting, landscaping, etc.)
- Raised or textured Crosswalks
- Center Medians

*** Stop signs are NOT recommended for permanent traffic calming or speed control (See below).**

12) TRAFFIC CALMING TOOLS *NOT RECOMMENDED* FOR USE IN THE PROGRAM

There are a few traffic calming tools that are not recommended to be included in the Traffic Calming Program toolbox. Generally, the tools that are in the toolbox offer more effective results in addressing the desired outcomes and have fewer negative impacts.

i) **Rumble strips** are series of pavement bumps that create a "rumble" effect as cars drive over them. They are often used to alert drivers as they approach tolls on toll-ways or stop signs on highways in isolated areas. Rumble strips are not effective as speed control devices and do little or nothing to discourage cut-through traffic. In addition, due to the noise they generate, they would be inappropriate to use within neighborhoods.

ii) **Children at Play Signs** are commonly requested in neighborhoods; however, they are not standard traffic control devices and have not been found to be effective in improving the safety of children. Residential areas commonly have children and the presence of signs does not change driving behavior in the neighborhood. One of the disadvantages of the Children at Play sign is that they can create false sense of security, which can increase the potential for accidents and injuries. If the safety of children is the major concern in a neighborhood or at a specific location, there are more effective tools that can be used to improve safety.

iii) **Stop signs** are not traffic calming devices. Studies have shown that stop signs that do not meet established criteria have a higher violation rate. Studies also show that vehicle speeds after the vehicle has passed through an unwarranted stop controlled intersection are as high, and occasionally higher, than without a stop sign, as motorists try to “make up” time lost at the stop sign. The acceleration and deceleration near stop signs generates noise and adversely affect air quality. Inappropriate use of stop signs also creates significant delay to emergency vehicles since they are required to nearly come to a stop to verify that the intersection is clear of vehicles prior to entering.

iv) **Diverters, street closures, and turn restrictions** are measures that alter the existing transportation circulation system. In developing a solution it is important not to shift the problem to another neighborhood. Turn restrictions and street closures can cause a tremendous amount of traffic diversion over a wide area. These types of measures have impacts that would need to be evaluated in a greater scope than just within a particular neighborhood. The impacts would include the environmental impacts due to changing the transportation circulation system. Many other cities have policies that ban or discourage street closures. For these reasons, diverters, closures and turn restrictions are not recommended for use as traffic calming measures, but rather should be evaluated as part of a larger area-wide study if their use is to be considered.

v) **Reduced Speed Zones** – Unless justified, lower speed limits do not improve safety and may in fact increase incidents of aggressive driver behavior. The principles of driver expectation suggest that if drivers do not recognize a particular speed limit as being reasonable, those limits will be ignored. They also place unrealistic demands on police resources for enforcement.

APPENDIX A

Town of Quispamsis Neighborhood Traffic Calming Program

NEIGHBORHOOD REQUEST FORM

Town of Quispamsis Neighborhood Traffic Calming Program

NEIGHBORHOOD REQUEST FORM Today's Date: _____

The purpose of this form is to enable a neighborhood to request a traffic study in accordance with the Town of Quispamsis's Neighborhood Traffic Calming Program (NTCP). The NTCP addresses traffic safety concerns, such as excessive vehicle speeds, non-local traffic and accidents. If you have such a concern, please fill out and submit this form including as much detail as possible and attach the names, addresses and signatures representing 50% of the households for the street(s) requesting action. For larger areas, contact the Engineering Department for a determination of the petition area.

After completing this form, please submit to:

Town of Quispamsis ATTN: Director of Engineering and Works
P.O.Box21085,
Quispamsis, NB, E2E 4Z4

Phone: (506) 849-5749, Fax: (506) 849-5799

1. Name of Neighborhood or organized group name:_____
_____
Contact Name: _____
Address: _____
_____
_____
Day Phone: _____
E-mail Address: _____

2. Please describe the concerns of the neighborhood, i.e. any traffic or safety issues. Use additional sheets as necessary.

_____
_____
_____

3. Please describe the specific location of concern, as well as the limits of your neighborhood and/or of area of concern. A sketch may be included and attached to this sheet.

_____
_____
_____

Level 1 measures must be considered before installing Level 2 or 3 devices like traffic circles and speed humps.

Town of Quispamsis Neighborhood Traffic Calming Program

4. Please provide the names and signatures of **at least** half of the households in the affected area who are requesting that a review of this neighborhood and location be performed for the Neighborhood Traffic Calming Program. Additional names are welcome and should be attached on an additional sheet.

Please note the main contact person. Use additional sheets as necessary.

We the undersigned are familiar with the Town of Quispamsis Traffic Calming Policy and understand the procedures. We hereby certify we reside within the area impacted and request the town undertake the necessary action to investigate and implement appropriate traffic calming measures in accordance with the town's traffic calming program.

Signature Printed Name Address Phone No. /E-mail(Optional)

1. _____
2. _____
3. _____
4. _____
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For Town use only
Date Received: _____

Appendix B

Temporary Measures of

Traffic Calming Available for Consideration

Speed Cushion

Level: 2 **Vertical Deflection**

Description: A speed cushion is an area of the roadway that is raised above the surface. A speed cushion deflects the wheels and frame of a passing vehicle. The design of speed cushions forces vehicles to slow down as they ride, with one or both sides of the car on the cushions. The design allows for wider axle vehicles, such as fire engines, ambulances, and school buses, to pass over the cushion without any wheel deflection. The purpose of a speed cushion is to selectively reduce the speed of passenger vehicles. The verticle deflection caused by the speed cushion is designed to produce an uncomfortable sensation for vehicle occupants travelling at speeds in excess of the design speed. As a level 2 traffic calming measure, a speed cushion would be temporarily placed in its position and would be made from rubber or a similar composite material.

Advantages:	**Disadvantages:**
A reduction in vehicle speeds in relation to cushion spacing: • 50 km/h with 125 metre cushion spacing; • 40 km/h with 80 metre cushion spacing; • 30 km/h with 60 metre cushion spacing.	• May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures; • Fire vehicles experience an 8 to 15 seconds delay per speed cushion.

Speed Hump

Level: 2 **Vertical Deflection**

Description: A speed hump is an area of the roadway that is raised above the surface. A speed hump deflects both the wheels and frame of a passing vehicle. A speed hump crosses the width of the street and all traffic experiences a deflection, not only those with narrower axles. The purpose of a speed hump is to reduce vehicle speeds. The verticle deflection caused by the speed hump is designed to produce an uncomfortable sensation for vehicle occupants travelling at speeds in excess of the design speed. As a level 2 traffic calming measure, a speed hump would be temporarily placed in its position and would be made from rubber or a similar composite material.

Advantages:	**Disadvantages:**
A reduction in vehicle speeds in relation to cushion spacing: • 50 km/h with 125 metre cushion spacing; • 40 km/h with 80 metre cushion spacing; • 30 km/h with 60 metre cushion spacing.	• May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures; • Fire vehicles experience an 8 to 15 seconds delay per speed cushion.

Speed Table

Level: 2 **Vertical Deflection**

Description: A speed table is an area of the roadway that is raised above the surface. A speed table spans the width of the street. They have a flat section in the middle, ramps on each end and are wider than speed humps. Speed tables can also be used as raised crosswalks. Speed tables are generally used at intersections, but may be used at mid-block pedestrian crossing areas. The purpose of the speed table is to help enforce the speed limit rather than significantly reduce the speed of vehicles. As a level 2 traffic calming measure, a speed table would be temporarily placed in its position and would be made from rubber or a similar composite material.

Advantages:	**Disadvantages:**
• May reduce speeds; • May reduce traffic volumes; • Less impact than speed humps on long vehicles; • Easier for bicyclists and pedestrians to cross.	• May increase noise (braking and acceleration); • May impact drainage; • May increase speeds between tables; • May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures.

Appendix C

Traffic Calming Measures Available for Consideration

Neighbourhood Meeting

Level: 1

Description: A neighbourhood meeting can be held at a time and location that is convenient for all residents to attend and to express their concerns. The meeting is to be used to clearly identify the issues of concern for their neighbourhood.

Advantages:	**Disadvantages:**
• Clearly identifies issues of concern; • Allows all residents to air their views; • Establishes clear lines of communication between town staff and residents.	• The meetings must be focused on specific topics and cannot be allowed to become a forum to address all of the town's problems; • Are potentially time consuming if the meetings are repetitious.

Neighbourhood Pace Car Program

Level: 1

Description: The Neighbourhood Pace Car Program is aimed at all drivers in the town. The driver of a vehicle would sign a pledge stating they will obey all speed limits, traffic signs and lights. The drivers would also stop at all pedestrian crosses, be courteous to bicyclists and other motorists, and reduce the usage of their vehicle by exploring alternative methods of transportation. The vehicle of the pledged driver would display a sticker or magnet that indicates their involvement in the Pace Car Program. The purpose of the Pace Car Program is to calm drivers, not to calm streets by setting an example for others to follow.

Advantages:	**Disadvantages:**
• May slow speeds of vehicles by setting an example for other to follow; • A hands on approach for citizens to "do their part".	• The Pace Car Program can not be enforced; • Integrity of the program relies on the drivers.

Speed Limit Signs and Pavement Messages

Level: 1

Description: Speed limit signs and pavement messages can be used to help remind motorists of the established speed limit for that street. In areas of changing speed limits these methods can be used to guide drivers in adjusting their speeds accordingly.

Advantages:	**Disadvantages:**
• Relatively inexpensive to install in areas of need; • Can be effective in reducing speeds of vehicles when paired with regular periods of enforcement.	• The effectiveness of speed limit signs and pavement messages is entirely dependent on the motorist's acceptance of the limit and the amount of enforcement.

Special Neighbourhood Signs

Level: 1

Description: Special neighbourhood signs will alert drivers to the fact that they are entering a traffic calming area.

Advantages:	**Disadvantages:**
• Alert drivers that they are entering a traffic calming area.	• Too many signs may have a negative aesthetic impact in the neighbourhood.

Higher Visibility Crosswalks

Level: 1

Description: Higher visibility crosswalks incorporate striped patterns into the walkway. The purpose of these crosswalks is to better define the crossing location for pedestrians and to reduce the number of pedestrian-vehicle conflicts.

Advantages:	**Disadvantages:**
• A more visible crossing area emphasizes the crosswalk area and the pedestrian's priority.	• May create a false sense of pedestrian security; • Requires more maintenance than traditional crosswalks.

Speed Wagon

Level: 1

Description: A speed wagon is a mobile, speed-monitoring display device that informs passing drivers of their present speed, in a large, visible manner. The speed limit of the particular street is posted on the speed wagon for motorists to see. The wagon is placed in an area of concern and used as an information service to make drivers aware of their speed.

Advantages:	**Disadvantages:**
• Education tool; • Useful in school zones and recreation areas where speed reduction is important; • Low cost; • Easily moved to locations of concern.	• Requires periodic enforcement; • Effective for a limited duration; • Requires personnel for the relocation of the wagon.

Speed Cushion

Level: 2 **Vertical Deflection**

Description: A speed cushion is an area of the roadway that is raised above the surface. A speed cushion deflects the wheels and frame of a passing vehicle. The design of speed cushions forces vehicles to slow down as they ride, with one or both sides of the car on the cushions. The design allows for wider axle vehicles, such as fire engines, ambulances, and school buses, to pass over the cushion without any wheel deflection. The purpose of a speed cushion is to selectively reduce the speed of passenger vehicles. The verticle deflection caused by the speed cushion is designed to produce an uncomfortable sensation for vehicle occupants travelling at speeds in excess of the design speed. As a level 2 traffic calming measure, a speed cushion would be temporarily placed in its position and would be made from rubber or a similar composite material.

Advantages:	**Disadvantages:**
A reduction in vehicle speeds in relation to cushion spacing: • 50 km/h with 125 metre cushion spacing; • 40 km/h with 80 metre cushion spacing; • 30 km/h with 60 metre cushion spacing.	• May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures; • Fire vehicles experience an 8 to 15 seconds delay per speed cushion.

Speed Hump

Level: 2 **Vertical Deflection**

Description: A speed hump is an area of the roadway that is raised above the surface. A speed hump deflects both the wheels and frame of a passing vehicle. A speed hump crosses the width of the street and all traffic experiences a deflection, not only those with narrower axles. The purpose of a speed hump is to reduce vehicle speeds. The verticle deflection caused by the speed hump is designed to produce an uncomfortable sensation for vehicle occupants travelling at speeds in excess of the design speed. As a level 2 traffic calming measure, a speed hump would be temporarily placed in its position and would be made from rubber or a similar composite material.

Advantages:	**Disadvantages:**
A reduction in vehicle speeds in relation to cushion spacing: • 50 km/h with 125 metre cushion spacing; • 40 km/h with 80 metre cushion spacing; • 30 km/h with 60 metre cushion spacing.	• May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures; • Fire vehicles experience an 8 to 15 seconds delay per speed cushion.

Speed Table

Level: 2 **Vertical Deflection**

Description: A speed table is an area of the roadway that is raised above the surface. A speed table spans the width of the street. They have a flat section in the middle, ramps on each end and are wider than speed humps. Speed tables can also be used as raised crosswalks. Speed tables are generally used at intersections, but may be used at mid-block pedestrian crossing areas. The purpose of the speed table is to help enforce the speed limit rather than significantly reduce the speed of vehicles. As a level 2 traffic calming measure, a speed table would be temporarily placed in its position and would be made from rubber or a similar composite material.

Advantages:	**Disadvantages:**
• May reduce speeds; • May reduce traffic volumes; • Less impact than speed humps on long vehicles; • Easier for bicyclists and pedestrians to cross.	• May increase noise (braking and acceleration); • May impact drainage; • May increase speeds between tables; • May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures.

Traffic Circle

Level: 3 **Horizontal Deflection**

Description: A traffic circle is a circular, raised island, which is placed in the middle of intersections. Traffic circles require vehicles to travel through the intersection in a counter-clockwise direction around the island. Traffic circles differ from roundabouts; the latter are larger, have raised median islands on all approaches. The purpose of a traffic circle is to reduce vehicle speeds and reduce vehicle-vehicle conflicts at intersections.

Advantages:	**Disadvantages:**
May reduce speeds: • A decrease in 85th percentile speeds from 59 km/h to 52 km/h (Richmond Hill, Ont.); May reduce traffic volume: • A reduction in traffic volume from 3900 veh/day to 3100 (Richmond Hill, Ont); May reduce number of collisions: • A reduction of 7.6 collisions/year at six intersections before traffic circles to 1.5 collisions/year after (North York, Ont).	• Left turns may be confusing; • May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures; • May direct traffic into unmarked crosswalk areas, increasing the potential for pedestrian-vehicle incidents; • Can restrict access to longer buses and trucks; • Can cause a delay of 1.3-10.7 seconds per traffic circle for fire vehicles (Portland, OR).

Gateway

Level: 3 **Horizontal Deflection**

Description: A gateway is a special entrance that will reduce the width of the street lane. Islands are often used to achieve the gateway for street entrances. Gateways are not to be confused for gates. The physical design of the gateway will depend on the existing conditions of the street. The purpose of the gateway is to reduce the speed of vehicles in the immediate area and the amount of potential cut-through traffic on the street.

Advantages:	**Disadvantages:**
• Reduces pedestrian crossing distance; • Reduces speeds in the immediate area; • May eliminate cut-through traffic; • Allows signs to be placed in favourable sight lines for motorists; • May create landscaping space.	• Can impede access for emergency and service vehicles; • May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures; • Low speed of turning vehicles may impede traffic flow on arterial roadways; • High installation cost; • Increased maintenance.

Choker

Level: 3 **Horizontal Deflection**

Description: A choker is a physical narrowing of the driving lanes in the mid-block area. The widening of boulevards or sidewalks can form a choker. On-street parking can create the same effect as a choker. Chokers are normally used on local streets and are not used in areas of extensive parking. Chokers differ from "bulb-outs" because they are not placed at intersections but at mid-block areas. The purpose of a choker is to reduce the speed of passing vehicles.

Advantages:	**Disadvantages:**
• May reduce speeds due to narrowing of lane; • May reduce traffic volumes; • Chokers are self-enforcing.	• May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures; • May impact drainage; • Should not be placed on the crest of a hill; • May reduce available curbside parking.

Bulb-Out

Level: 3 **Horizontal Deflection**

Description: A bulb-out is a realigned curb that reduces the street width at an intersection. The result of a bulb-out is a widening of the street corners. This helps improve pedestrian access and also helps define neighbourhood entrances. If the bulb-outs are placed in a series, they can create a parking bay. The purpose of a bulb-out is to create a safer pedestrian crossing area by decreasing the crossing distance, improving pedestrian visibility and to reduce vehicle speeds.

Advantages:	**Disadvantages:**
• Can reduce pedestrian crossing distance; • May reduce vehicle speeds; • May reduce traffic volumes; • Bulb-outs are self-enforcing; • May improve site lines and visibility for pedestrians.	• May impact drainage; • May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures; • May impact bicycle accommodations; • May impact parking; • Increased plow damage to grass, trees and curb extensions.

Chicane

Level: 3 **Horizontal Deflection**

Description: A chicane is a series of curb extensions on alternating sides of the roadway. Chicanes narrow the roadway and require drivers to steer from one side of the road to the other and can be used for one and two lane applications. At least three curb extensions are used to form chicane. The purpose of a chicane is to discourage cut-through traffic and to reduce the speed of vehicles on the roadway.

Advantages:	**Disadvantages:**
May reduce speeds: • One-lane chicane - a speed reduction to 25 km/h (Seattle, WA); • Two-lane chicane – a speed reduction to 47 km/h (Seattle, WA); May reduce volume: • One-lane chicane – a reduction from 1900 veh/day to 1000 veh/day (Seattle, WA); • Two-lane chicane – a reduction from 1150 veh/day to 900 veh/day (Nepean, Ont.); • May reduce traffic noise due to decreased speed; • Landscaping of chicane can improve appearance of the street.	• Likely to impact drainage; • May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures; • Not appropriate for high volume streets; • Not appropriate for intersections; • Cannot sustain on street parking; • May cause problems during winter.

Central Island

Level: 3 **Horizontal Deflection**

Description: A central island is a raised median that is constructed on the centreline of a two-way road. A central island reduces a section of the street to a narrower lane. The purpose of a central island is to reduce the speed of vehicles and to reduce the number of pedestrian-vehicle conflicts. The effectiveness of a central island can be increased when a combination of the median and curb extensions are used before and after the median islands.

Advantages:	**Disadvantages:**
May reduce speeds: • A 3km/h reduction in vehicle speeds due to island (Anne Arundel County, MD); • An 8 km/h reduction in vehicle speeds when combined with curb extensions (Anne Arundel County, MD); • Central Islands are self-enforcing; • Allow pedestrians to cross half of the street at a time. • May prevent vehicles from performing U-Turns;	• May restrict access to driveways from one lane; • May increase snow removal costs (Edmonton, AB); • May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures; • May increase speeds if mid-block left-turn movements are not possible.

Speed Hump

Level: 3 **Vertical Deflection**

Description: A speed hump is an area of the roadway that is raised above the surface. A speed hump deflects both the wheels and frame of a passing vehicle. A speed hump crosses the width of the street and all traffic experiences a deflection, not only those with narrower axles. The purpose of a speed hump is to reduce vehicle speeds. The verticle deflection caused by the speed hump is designed to produce an uncomfortable sensation for vehicle occupants travelling at speeds in excess of the design speed. As a level 3 traffic calming measure, a speed hump would be permanently placed in its position using asphalt.

Advantages:	**Disadvantages:**
A reduction in vehicle speeds in relation to cushion spacing: • 50 km/h with 125 metre cushion spacing; • 40 km/h with 80 metre cushion spacing; • 30 km/h with 60 metre cushion spacing.	• May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures; • Fire vehicles experience an 8 to 15 seconds delay per speed cushion.

Speed Table

Level: 3 **Vertical Deflection**

Description: A speed table is an area of the roadway that is raised above the surface. A speed table spans the width of the street. They have a flat section in the middle, ramps on each end and are wider than speed humps. Speed tables can also be used as raised crosswalks. Speed tables are generally used at intersections, but may be used at mid-block pedestrian crossing areas. The purpose of the speed table is to help enforce the speed limit rather than significantly reduce the speed of vehicles. As a level 3 traffic calming measure, a speed table would be permanently placed in its position using asphalt.

Advantages:	**Disadvantages:**
• May reduce speeds; • May reduce traffic volumes; • Less impact than speed humps on long vehicles; • Easier for bicyclists and pedestrians to cross.	• May increase noise (braking and acceleration); • May impact drainage; • May increase speeds between tables; • May cause an inadvertent diversion and increase of traffic to surrounding streets lacking traffic calming measures.