CITY OF CORNER BROOK

Index	Parking and Traffic		**Section**	Streets			
Title	Traffic Calming		**Policy Number**	**05-02-04**	**Authority**	Council	
Approval Date	July 15, 2024	**Effective Date**	July 15, 2024	**Revision Date**			

PURPOSE

This policy shall provide the City of Corner Brook with a standard process to manage public requests for traffic calming to ensure that a transparent approach and objective criteria are used to evaluate traffic calming needs throughout the City. The policy outlines the process for the initiation, assessment, development and implementation of traffic calming plans on city streets.

POLICY STATEMENT

Traffic calming requests will be managed through the five-stage traffic calming process outlined in the City of Corner Brook Transportation Study Process for Traffic Calming.

REFERENCES

City of Corner Brook Transportation Study Process for Traffic Calming (2024)

DETAILED ACTION REQUIRED

The *Process for Traffic Calming* was developed to manage requests for traffic calming in a transparent and consistent manner, where the need for traffic calming is established based on objective criteria. Available literature, guidelines and best practices were reviewed to guide the development of this process.

The process used to evaluate requests for traffic calming is organized in five stages and guides the entire project timeframe from initiation to post-implementation. Each stage is briefly described below and detailed steps are provided in the *Process for Traffic Calming.*

1. **Initiation and Assessment:** The purpose of the initiation stage is to confirm the nature and magnitude of the reported traffic issues and decide whether to proceed with the development of a traffic calming plan. In this stage, requests are received and undergo a screening process to determine eligibility, any eligible request are assessed based on a review of traffic volume and speed data to confirm the need for traffic calming. Requests that pass the assessment are ranked

to ensure the most severe issues are addressed first. Council approval and funding allocation is then required to proceed to the development stage.

2. **Development:** The purpose of the development stage is to create a traffic calming plan that addresses the identified traffic issues. This stage involves the development of traffic calming plans and the evaluation of alternatives to select a recommended traffic calming plan. The development of the traffic calming plan may include community engagement at the discretion of City staff and/or Council. The need for engagement and the scope of the process will be determined at the beginning of the development stage.
3. **Approval:** The purpose of the approval stage is to allow a review of the project information and proposed traffic calming plan by Council. Council approval is required to proceed with implementation.
4. **Implementation:** The purpose of the project implementation stage is to complete the detailed design and construction of the approved traffic calming plan.
5. **Evaluation:** The purpose of the evaluation stage is to monitor the effectiveness of the traffic calming plan in addressing the identified traffic issues, refine the installation as required and remove any measures that are not serving their intended purpose.

REFERENCE

Minute: 24-107

Regular Meeting July 15, 2024

Attachments

Schedule A

IN WITNESS WHEREOF, this policy is sealed with the Common Seal of the City of Corner Brook.

[redacted]

MAYOR

[redacted]

CITY CLERK

[redacted]

TRANSPORTATION STUDY

Process for Traffic Calming

Draft Report – Rev 1

24 May 2024

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Project No.:	242002
Project Name:	Corner Brook Transportation Study

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Revision	Submission Date	Notes
0	05 April 2024	Draft
1	24 May 2024	Draft Final

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1. INTRODUCTION

Neighbourhood traffic issues such as speeding, high traffic volumes usually because of shortcutting or through traffic, are a growing concern for many residents in the City of Corner Brook (the "City"). The City receives numerous concern each year from residents relating to neighbourhood traffic issues.

As part of the *Transportation Study* the City is developing the tools and policies required to better manage its transportation network. This includes the development of a *Traffic Calming Policy* to provide procedures and criteria for the initiation, investigation and implementation of traffic calming on neighbourhood streets. The intent of this document, the *Process for Traffic Calming*, is to supplement the *Traffic Calming Policy* document and ensure that a transparent approach and objective criteria are used to evaluate traffic calming needs and that safety concerns related to speeding and excessive volume are addressed in a fair and efficient manner.

1.1. Definitions

For the purpose of this document, unless otherwise stated, the following definitions apply:

- **85th Percentile Speed/Operating Speed:** The speed at, or below which 85 precent of vehicle on a street are travelling. Considered the operating speed of a street.
- **95th Percentile Speed:** The speed at, or below which 95 precent of vehicle on a street are travelling.
- **Arterial:** a street with the primary function of moving traffic.
- **City:** The City of Corner Brook.
- **Collector:** a street on which traffic movement and land access are of similar importance.
- **Council:** City Council for the City of Corner Brook.
- **Local:** a street with the primary function of providing land access.
- **RNC:** Royal Newfoundland Constabulary
- **Street Classification:** The classification of a street by function in accordance with the City's street classification.
- **TAC:** Transportation Association of Canada
- **Traffic Calming:** a combination of primarily physical measures that reduce the negative effects of motor vehicle use, alter driver behaviour, and improve conditions for all street users.

1.2. What is Traffic Calming?

Traffic calming is a term used to describe the combination of primarily physical measures that are intended to reduce the impacts of motor vehicle traffic on streets and neighbourhoods and improve safety and comfort levels for pedestrians and bicyclists. Initiatives, such as education or enforcement actions, can also be used to supplement physical measures.

1.3. Why Use Traffic Calming?

Traffic calming is used to address neighbourhood traffic issues often identified by the community or residents of affected streets. Typically, the concerns are about motor vehicle speeds, shortcutting or through traffic and/or inappropriate driver behavior.

When vehicle speeds and/or volumes are considered to be inappropriate for the type of street, adjacent land use or pedestrian and bicycle activity, they can have a detrimental impact on the safety and livability of neighbourhoods. As a result of these traffic issues, residents feel that streets are not safe for pedestrians and bicyclists, particularly for children or seniors.

Traffic calming measures, when implemented properly, can increase the safety and livability of streets and neighbourhoods by:

- Reducing vehicle speeds;
- Decreasing traffic volumes by discouraging shortcutting or through traffic; and
- Reducing conflicts between street users.

However, traffic calming measures can also have potentially negative effects on the mobility of neighbourhood residents, maintenance activities and emergency vehicle response times. Traffic calming measures can unintentionally create new problems such as diverting traffic into an adjacent street or a different neighbourhood. Careful consideration is required when developing a traffic calming plan to determine the best combination of measure that will result in both a real and perceived improvement.

1.4. Where Traffic Calming is Considered

One of the main purposes of traffic calming is to restore neighbourhood streets to their intended function. This function is to provide a certain level of both mobility and access depending on the classification of the street and its role within the street network.

Streets in the City of Corner Brook are classified as arterial, collector or local. The classification and their role with respect to mobility and access are described below:

- **Arterial**: The primary function of an arterial street is to provide for the movement of traffic through the street network. Arterial streets are not intended to provide direct access to land.
- **Collector:** A collector street has two primary functions of equal importance: traffic movement and land access.
- **Local:** The primary function of a local street is to provide direct access to land.

Traffic calming is primarily considered on local and collector streets to reduce speed, volumes and conflicts between street users. While traffic calming can be considered on arterial streets, it is only recommended for the purpose of reducing speeds. Reducing volumes on arterial streets is inconsistent with their primary function to move traffic.

The *Process for Traffic Calming* focuses on neighbourhood streets and defines the types of streets that are suitable for traffic calming in the City. Traffic calming will only be considered on local and collector streets and not on arterial roadways. Further details on eligible criteria for local and collector streets are provided in Section 2.1.2.

1.5. Education and Enforcement

In addition to physical measures, effective traffic calming initiatives often include education and/or enforcement components. Education and enforcement (both manual and automated) are recognized as valid, and in some cases, preferred alternatives to physical measures. Enforcement and education techniques typically require no physical changes, are potentially less expensive and can be faster to implement. While consideration should certainly be given to enforcement and/or education programs, either stand-alone, or as the first step in an integrated solution, education and enforcement are not generally considered within the framework of the *Process for Traffic Calming* outlined herein. This is because police enforcement, to a large degree, is outside the City's control and because the effect of education and enforcement activities can be difficult to measure and track over time.

While police enforcement of speed limits, for example, is undoubtedly effective at the time that enforcement activities are being conducted, continual/consistent enforcement is typically not a viable long term approach. It can be difficult and costly to constantly enforce speed limits and other traffic regulations solely through police patrols. In most communities, police services are unable to devote the resources needed to meet and sustain the level of enforcement required to address the myriad of traffic related issues that exist within a community. Traffic enforcement must also compete with other, often more pressing, and serious priorities requiring police attention. Initial enforcement with occasional follow-up visits will also help manage certain situations, however some traffic calming measures can reduce the need for police enforcement. Measures that calm traffic through vertical and horizontal deflection, for example, are typically considered self-enforcing as they generally do not require police presence to be effective. Conversely, measures such as access restrictions which divert, restrict or prohibit traffic and which rely solely on motorists obeying regulatory signs may require some initial and on-going police enforcement to ensure that the desired effects are achieved.

Generally, measures which rely on police enforcement may not be as effective over time as self-enforcing measures, unless automated enforcement techniques can be used. Measures that maintain a 24-hour presence and do not require police enforcement to be effective, are preferable. The use of automated speed enforcement, for which the Province is currently updating legislation, may soon provide another enforcement option to be considered.

Education and enforcement programs tend to be local and specific in nature and, as such, are often not well documented. Some examples of education programs are described in a National Highway Traffic Safety Administration report titled *"Countermeasures That Work: A Highway Safety Countermeasure Guide for State Highway Safety Offices".*

1.6. New Street or Subdivision Design

While this *Process for Traffic Calming* focuses on implementing traffic calming plans on existing streets to address existing problems, traffic calming measures should be incorporated in the design of new streets and subdivisions to encourage traffic-calmed neighborhoods and prevent or minimize future neighbourhood traffic issues. Introducing traffic calming measures into the design stage of new streets or subdivisions will improve the aesthetics of the subdivision, reduce speeds and through traffic volumes and provide, a safer and friendlier environment for pedestrians and bicyclists.

Certain traffic calming measures require specific right-of-way requirements, such as traffic circles, these traffic calming measured can easily be incorporated into new streets or subdivisions in the early design stages. Other traffic calming measures, such as raised crosswalks and chicanes, require considerations for storm water management since these traffic calming measures can extend across the width of a street or abut to the curb. Without proper consideration, these measures can prevent surface water run-off from getting to the catch basins and can result in flooding uphill of the traffic calming measure. When these types of traffic calming measures are incorporated into the design of new street or subdivisions, these problems can be averted by including the traffic calming measures in the storm water management design.

2. TRAFFIC CALMING PROCESS

The *Process for Traffic Calming* was developed to manage requests for traffic calming in a transparent and consistent manner, where the need for traffic calming is established based on objective criteria. Available literature, guidelines and best practices were reviewed to guide the development of this process.

The process used to evaluate requests for traffic calming is organized in five stages and guides the entire project timeframe from initiation to post-implementation. Each stage is briefly described below and detailed steps are provided in the following sections.

Stage 1 Initiation and Assessment: The purpose of the initiation stage is to confirm the nature and magnitude of the reported traffic issues and decide whether to proceed with the development of a traffic calming plan. In this stage, requests are received and undergo a screening process to determine eligibility, any eligible request are assessed based on a review of traffic volume and speed data to confirm the need for traffic calming. Requests that pass the assessment are ranked to ensure the most severe issues are addressed first. Council approval and funding allocation is then required to proceed to the development stage.

Stage 2 Development: The purpose of the development stage is to create a traffic calming plan that addresses the identified traffic issues. This stage involves the development of traffic calming plans and the evaluation of alternatives to select a recommended traffic calming plan. The development of the traffic calming plan may include community engagement at the discretion of City staff and/or Council. The need for engagement and the scope of the process will be determined at the beginning of the development stage.

Stage 3 Approval: The purpose of the approval stage is to allow a review of the project information and proposed traffic calming plan by Council. Council approval is required to proceed with implementation.

Stage 4 Implementation: The purpose of the project implementation stage is to complete the detailed design and construction of the approved traffic calming plan.

Stage 5 Evaluation: The purpose of the evaluation stage is to monitor the effectiveness of the traffic calming plan in addressing the identified traffic issues, refine the installation as required and remove any measures that are not serving their intended purpose.

2.1. Initiation and Assessment

2.1.1. Initiation

Requests to initiate a traffic calming assessment for a street can be made by:

- Residents who live on the street for which traffic calming measures are being requested;
- Councillor(s) on behalf of a resident or group of residents who live on the street or within the neighbourhood for which traffic calming measures are being requested; and
- Resident associations on behalf of residents who live on the street or within the neighbourhood for which traffic calming measures are being requested.

To initiate the traffic calming process, the applicant must submit a standard application form to the City. The form requires the applicant to provide the following information: name, contact information, date of application, location/area of concern, traffic concern, time of day, day of week, season the concern occurs.

The "Traffic Calming Request Form" contained in **Appendix A** will be made available on the City website and in hard copy at City Hall.

2.1.2. Screening

Upon receiving a request, a screening process will be conducted to determine if the requested street is eligible for the consideration of traffic calming measures.

The *Process for Traffic Calming* applies to streets owned by the City that meet the following conditions:

- are classified as local streets or collector streets;
- are not multi-lane roads;
- are greater than 150 metres in length;
- where longitudinal grades do not exceed 8 percent on more than 50 percent of the street;
- have a posted speed limit not greater than 50 kilometres per hour;
- are within neighbourhoods that are primarily residential in character or contain school areas; and
- do not provide direct access to an emergency services building.

An eligible street based on the criteria above may not be considered for a traffic calming assessment in the event that:

- A request has been investigated within the last 5 years and did not qualify for traffic calming;
- A request has been investigated within the last 2 years and qualified for traffic calming but was rejected through a lack of community support; or
- Traffic calming measures were previously installed and removed within the last 10 years.

If a street is not eligible for traffic calming measures based on the eligibility criteria and conditions above or a similar request is already under review the process is completed and the applicant will be notified of the result.

A database of all traffic calming requests, documenting their approval/rejection throughout the entire process will be maintained by City staff to facilitate the review of subsequent requests for the same streets.

2.1.3. Assessment

If a request passes the initial screening process, an assessment will be conducted to confirm the presence of speeding, shortcutting and/or other driver behaviour problems and determine if the City should proceed with the development of a traffic calming plan. The assessment process ensures consistency in reviewing and responding to traffic calming requests.

2.1.3.1. Data Collection

Traffic data required for the assessment process and subsequent ranking will be collected. The data requirements are outlined in Table 1.

A site visit may be conducted to observe and document conditions. The time of day and day of week for the site visit should be consistent with the issues outlined in the application.

Table 1: Data Collection Requirements

Indicator	Indicator Data	Collection Method	Data Parameters
Vehicle Volumes	Average daily traffic volume (ADT)	Radar or Miovision	Minimum: 24 hours Preferable: 7 days Data must be collected within the last 3 years
Vehicle Speed	85th percentile speed 95th percentile speed	Radar	Minimum: 24 hours Preferable: 7 days Data must be collected within the last 3 years
Collisions	Collision statistics (fatal, injury, property damage only)	Obtain from Royal Newfoundland Constabulary	3 most recent years available prior to request
Pedestrian generators	Nearby facilities	Mapping tools, GIS database or site visit	-
Pedestrian and cycling facilities	Sidewalks on one or both sides Cycling route Direct connection to adjacent cycling infrastructure	GIS database or site visit	-

2.1.3.2. Quantify the Problem

The request will be assessed through a review of speed and volume data. Vehicle speed and/or volume issues will be quantified based on the following criteria and thresholds. The speed and volume thresholds were developed based on speed and traffic volume data collected by the City on local and collector streets.

Vehicle Speed: An operating speed which exceeds the desirable speed limit of a street is an indication of a speeding problem. The 85th percentile speed is considered the operating speed of a street. The 85th percentile speed is the speed at, or below which 85 precent of vehicle on a street are travelling.

If the 85th percentile speed exceeds the following thresholds, the street will be carried forward for ranking:

Speed Limit ≥50 km/h	>Posted Speed Limit
Speed Limit ≤40 km/h (not in school zone)	>45 km/h
School Zone	>30 km/h[1]

Vehicle Volume: Significant daily traffic volumes which exceed typical levels expected based on the function of the street can be an indication of through traffic. Streets where the average daily traffic volume exceeds the following thresholds will be carried forward for ranking:

Local	≥500 veh/day
Collector	≥2,000 veh/day
School Zone	No minimum volume required

The assessment criteria are summarized in Table 2. **To pass the assessment and be carried forward for ranking and the development of a traffic calming plan, the request must exceed either the speed or volume threshold**. For requests that do not pass the assessment process, the process is completed and the applicant will be notified of the result.

Requests to reassess a street that did not pass the assessment will not be considered until:

- A minimum of 5 years from the date that the determination was made;
- Staff determines there have been significant changes to the street characteristics.

Table 2: Assessment Criteria

Criteria	Speed/Volume Indicator	School Zone	Local		Collector	
			≤40 km/h	≥50 km/h	≤40 km/h	≥50 km/h
Speed	85th percentile speed	>30 km/h[1]	>45 km/h	> speed limit	>45 km/h	> speed limit
Volume	Average daily traffic volume	N/A	≥ 500 veh/day		≥ 2,000 veh/day	
1. 85th percentile speed during school arrival and dismissal times.						

[1] For school zones, the 85th percentile speed during school arrival and dismissal times is considered.

2.1.4. Ranking

If a request passes the assessment and qualifies for the development of a traffic calming plan, the request will be ranked using a weighted point system. The point system considers various criteria including speed, volume, collisions, pedestrian activity, pedestrian and cycling facilities to measure the streets need for traffic calming and the severity of the need. The point system is outlined in Table 3.

The ranking process prioritizes the requests to ensure the most severe problems are addressed first when limited funding amounts are allocated for the implementation of traffic calming measures. The ranking considers a total score out of 100 points for each qualified request; a higher score indicates a higher priority.

Table 3: Ranking Criteria and Point Allocation for Traffic Calming Requests

Criteria	Measure	Point Allocation	Maximum Points
Vehicle Speed	85th percentile speed	Streets with a speed limit ≥50 km/h: 1 point for every 1 km/h that the 85th percentile speed exceeds the speed limit	20
		Streets with a speed limit ≤40 km/h: 1 point for every 1 km/h that the 85th percentile speed exceeds 45km/h	
		Streets within a school zone: 1 point for every 1 km/h that the 85th percentile speed exceeds 30km/h during school arrival and dismissal times	
	95th percentile speed	Streets with a speed limit ≥50 km/h: 5 points if the 95th percentile speed exceeds the speed limit +10 km/h 10 points if the 95th percentile speed exceeds the speed limit +20 km/h	10
		Streets with a speed limit ≤40 km/h: 5 points if the 95th percentile speed exceeds 55 km/h 5 points if the 95th percentile speed exceeds 65 km/h	
Vehicle Volume	Daily traffic volume	Local: 1 point for every 50 veh/day	25
		Collector: 1 point for every 250 veh/day above 1,000 veh/day	
Collisions	Number of Collisions	1 point per collision in the last 3 years	10
		1 additional point for each injury collision	
Pedestrian Generators	Nearby facilities	5 points for each school, park or playground within 500m of the project area	15
		1 point for each generator within 500m of the project area (community centre, seniors' facility, licensed child care centre, etc.)	
Pedestrian Facilities	Sidewalks	10 points for no sidewalks	10
		5 points for sidewalks on only one side	
		0 points for sidewalks on both sides	
Cycling Facilities	Cycling routes	10 points if the street is a suggested cycling route	10
		5 points if the street directly connects to a cycling route or trail	
		0 points if the street is not a cycling route or does not connect to a cycling route	
Total Points			100

All qualified streets will be included on a prioritized list, based on their ranking scores, for implementation as part of the annual Capital Works Program. The priority list for traffic calming provides City staff and Council with an up-to-date priority listing of streets that require attention to guide approval and funding allocation. The priority list is constantly updated as new requests are added and as requests are removed when they receive approval for funding.

2.1.5. Funding Allocation

In order for a traffic calming request to proceed to the development stage, it must obtain Council approval and be allocated funding. Funding should be allocated based on the prioritized list, with the following exceptions:

- Where there is an integration opportunity with a scheduled street upgrading project under the City's Capital Works Program, that project will take priority, regardless of its position on the prioritized list; or
- There are streets within close proximity to each other in a neighbourhood. Adjacent lower priority streets may be implemented with the higher priority street where there is potential cost savings to implement them together.

Scheduled street upgrading projects under the City's Capital Works Program that include a design component will be evaluated in accordance with the *Process for Traffic Calming* screening and assessment process. If they pass the assessment, traffic calming measures should be installed during the street upgrading project.

2.2. Development

2.2.1. Develop Problem Statement and Define Project Area

A problem statement will be developed to detail the project scope and the specifics of the traffic issues that need to be addressed by the traffic calming plan. The problem statement should clearly identify the objectives of the traffic calming plan, these objectives will be used later in the process to monitor and evaluate the effectiveness of the plan after implementation.

The limits of the project area for the traffic calming plan will be defined. Typically, the limits of a project will include the candidate street; however, depending on the problem statement it may also comprise the surrounding neighbourhood streets that will likely be impacted by modifications on the subject street. Where a potential negative impact to adjacent streets within the neighbourhood is identified (i.e. a diversion of traffic to parallel streets), these streets will be included in the review and considered affected streets regardless of whether they meet the minimum criteria.

Initial support from residents of the affected area may be required at this stage depending on the level of community engagement for the project, community engagement is discussed in Section 2.5.

2.2.2. Develop Traffic Calming Plan Alternatives

Traffic calming measures that target the issues identified in the problem statement and are suitable for the type of street under consideration will be selected from the toolbox provided in Section 3. The measures will be used to develop a traffic calming plan for the entire project area, multiples alternatives combining more than one measure will be developed. The alternative plans should be developed in sufficient detail to enable an assessment of feasibility and the development of preliminary cost estimates. The number of alternatives developed will depend on the problem statement and local context.

Affected internal and/or external stakeholders may be consulted as required to identify potential issues/concerns regarding impacts on their operations. Stakeholders can include, but are not limited to: emergency services, RNC, Corner Brook Transit, the City's Public Works Department and the School Board's Transportation Division.

2.2.3. Select Recommended Traffic Calming Plan

The traffic calming plans will be evaluated using criteria that consider:

- Positive effects or benefits resulting from the proposed plan (i.e. ability to address the identified issues);
- Negative effects of disbenefits associated with the proposed plan (i.e. property impacts, impacts to internal stakeholders); and
- Capital and operating costs of the proposed plan.

The alternative that offers the best overall benefits with the fewest impacts and/or lower cost will be identified as the recommended solution. The recommended plan will then be circulated to appropriate internal/external stakeholders for approval. The plan may be modified to address any concerns raised by stakeholders. The plan may also be circulated to the public at this stage depending on the level of community engagement for the project, community engagement is discussed in Section 2.5.

2.2.4. Final Approval

Once the preferred traffic calming plan is finalized, a recommendation report will be provided to Council for final approval. Council approval is required for a request to proceed to the implementation stage.

2.3. Implementation

Once the traffic calming plan has been approved by Council, the project will proceed to the detailed design, tender and construction phases. Throughout this stage, documentation supporting the implementation of the traffic calming plan should be issued to any identified stakeholders and/or the public at large.

2.4. Evaluation

2.4.1. Monitoring and Evaluate

After implementation, the traffic calming plan should be monitored and evaluated to ensure the traffic calming measures are achieving the desired objectives without causing unnecessary impacts on residents.

Beginning no earlier than 1 month and no later than 12 months. following the implementation of the traffic calming measures, traffic volume and speed data will be collected and reviewed against the initial data in order to determine the effectiveness of the traffic calming measures. Any resident concerns regarding the traffic calming measures following the implementation should be documented to be reviewed at this stage.

If the post-implementation data collection results indicate a vehicle volume and/or speed reduction has been achieved (depending on the problem statement, refer to Section 2.2.1 for details), no further action is required and the process is completed.

2.4.2. Refine

If post-implementation data collection results indicate a vehicle volume and/or speed reduction was not achieved (depending on the problem statement), the traffic calming plan should be reviewed to consider additional measures or modifications to the installed measures. Any changes to the traffic calming plan should be documented to guide the development of future plans. If there are no additional appropriate measures identified, staff may contact the RNC to discuss potential enforcement alternatives if deemed appropriate, and the process is complete.

2.4.3. Removals

The City may order the removal of any traffic calming measures if, in their opinion, the installation of such measures resulted in an unforeseen operational or safety issue not identified through the development of the traffic calming plan.

A request to remove traffic calming measures installed on street as a result of this process may be made by a resident(s) of the affected street 2 years following the implementation. Removal will be considered only:

- After receipt of a petition containing support for removal by a minimum of 75 percent of civic addresses within the original study area; and
- if there is a capital works project being undertaken by the City on that portion of the street where the traffic calming measures are installed.

If traffic calming measures are removed from a street following a petition by resident, subsequent traffic calming requests will not be considered for the particular street for a period of 10 years.

2.5. Community Engagement

2.5.1. Determine Level of Engagement

The level of community engagement and participation should be determined once a request has passed the assessment and ranking process. The level of engagement may be dependent on the scale of the traffic calming project and is entirely at the discretion of City staff and/or Council.

Comprehensive traffic calming plans should be developed in consultation with the community and impacted stakeholders providing them the opportunity to become better informed on local traffic concerns, offer input on potential solutions and/or participate in the development of the traffic calming plan. Solutions developed without sufficient input have the potential to generate opposition, often resulting in preventing the implementation of the plan or leading to the removal of traffic calming measures after implementation. The most successful traffic calming plans are supported by a community that is aware of, supports and is committed to the solution.

Council may elect to proceed with some traffic calming measures with little or no community consultation. In the event that no community consultation process is initiated, the following steps are not required. In such cases, the post-implementations steps to monitor, evaluate, refine and/or remove are critical to the success of the project. Any feedback, positive or negative, received from the public through other means (e.g. complaints received) must be documented to inform the evaluation and refinement of the implemented traffic calming plan as necessary and also to guide the development of future plans.

In cases where the intent is to engage the public, potential participants in a traffic calming project could include:

- Residents and businesses of impacted street(s);
- The general public;
- Elected officials;
- Community groups; and
- Cycling and walking advocacy groups.

The scope of the engagement process could include up to three stages of community engagement:

- Gauge Initial Resident Support
- Public Information Meeting
- Gauge Final Resident Support

Completion of one or more of the following community engagement stages is dependant upon whether City staff and/or Council decides that community engagement is required and the defined scope of the consultation City staff will define the scope of the engagement following the assessment and ranking process.

For most projects affecting only a single street, obtaining initial and/or final support from residents of the affected street would be sufficient. The Public Information Meeting stage

includes consultation with the broader public and should only be considered for larger scale projects that could affect entire neighbourhoods. Details on each stage are provided in the following sections.

2.5.2. Gauge Initial Resident Support

Once a roadway qualifies for traffic calming and receives a capital funding commitment, the City will distribute and collect a survey to determine if there is community support for traffic calming in the affected area.

The survey will be distributed to each household with direct frontage or flankage on the street in question. Only one signature per household is counted, regardless of the amount of people living in the household. The City will allow the survey 28 days to be returned, with the day of distributing the survey being Day Zero (0).

For a request to proceed to the plan development stage of the process, the survey responses must meet the following minimum response and approval rates:

- **Response Rate:** 50 percent of the eligible households responded.
- **Approval Rate:** 51 percent of the survey responses received indicate support.

If the support level is not met, the process is completed and the applicant will be notified of the result. The roadway may not be considered for traffic calming methods for a minimum of two (2) years.

2.5.3. Public Information Meeting

City staff may host a public information meeting to gain feedback from the public. This meeting could occur during the evaluation of alternative traffic calming plans or following the selection of a recommended traffic calming plan.

Notice of the public information centre will be distributed to all residents that live within the affected area of the street being considered. Additional promotion of the public information meeting via social media will occur to allow all public the chance to attend.

This step will ensure that residents, businesses, and other stakeholders in the project area are given the opportunity to review the design and provide input to influence the traffic calming plan.

2.5.4. Gauge Final Resident Support

Once the traffic calming plan has been finalized, the City will distribute and collect a survey with the final design to determine if there is community support for the design and allow an opportunity to oppose the implementation of the traffic calming measures.

The survey will be distributed to each household with direct frontage or flankage on the street in question. Only one signature per household is counted, regardless of the amount of people living in the household. The City will allow the survey 28 days to be returned, with the day of distributing the survey being Day Zero (0).

The objective of the survey will be to understand the degree to which a plan has support and/or opposition. The goal is to gather the broadest input possible; the City should actively encourage all eligible participants to respond to the survey.

The survey is intended to be a consensus-building process, not a referendum. The survey should present a single traffic calming plan, with options for specific locations as appropriate; or where there are contentious issues such as turning restrictions. Residents should be asked to indicate their "level of comfort" with the plan rather than "support". This approach will allow them to acknowledge if they have concerns or hesitations with the option presented without being simply for or against the plan. For the same reason a "neutral" choice should be provided so residents who hesitate to actively support a plan but may not want to condemn it with a vote of "no support" are given to the option to acknowledge that the plan would not bother them if implemented. This consensus building approach reflects the reality that is can be challenging to satisfy all opinions. Neutral and positive response can be counted together as the number of people indicating acceptance of the plan.

The survey should also include an open-ended question that asks what aspects of the plan a respondent supports and why, as well as what aspects are a concern and why. This type of question can often provide important insight that is more useful than just an indication of support.

For a request to proceed to the implementation stage of the process, the survey responses must meet the following minimum response and approval rates:

- **Response Rate:** 60 percent of the eligible households responded.
- **Approval Rate:** 67 percent of the survey responses received indicate acceptance of the plan (i.e. positive and neutral responses).

If the plan does not meet the predetermined targets for acceptance, a decision should be made on the process to address outstanding concerns identified in the survey's open-ended question. The plan could be modified to minimize or eliminate these concerns. If the modifications result in substantial changes to the plan a second survey should be distributed to residents. However, if the concerns can be successfully addressed without substantial changes to the plan, a second community survey will not be required.

If the support level is not met following the second survey, the process is completed and the applicant will be notified of the result. Written notice will be distributed to those members of the public directly affected informing them that the project will not proceed due to lack of public support. The roadway may not be considered for traffic calming methods for a minimum of two (2) years.

3. TRAFFIC CALMING TOOLBOX

This toolbox is intended to present a range of traffic calming measures that can be implemented alone or in combination with each other to create a traffic calming plan. Information on the application and effects on traffic volumes, speeds, conflicts and the neighbourhood environment are provided for each measure. The toolbox presents some of the most common traffic calming measures used in North America, this is not an exhaustive list of all traffic calming measures available.

The traffic calming measures and their potential benefits and disbenefits are summarized in Table 4. Further details on each traffic calming are provided in the following sections. The traffic calming measures are separated into six categories:

- **Vertical deflections:** Vertical deflections are traffic calming measures which cause a vertical upward movement of the vehicle. Motorists are expected to slow to avoid unpleasant sensations when traversing the traffic calming measure. Vertical deflections are primarily used for speed reduction, but may also reduce traffic volumes, reduce conflicts and enhance the neighbourhood environment.
- **Horizontal deflections:** Horizontal deflections are primarily intended reduce traffic volumes by discouraging short-cutting or through traffic. Potential secondary effects of horizontal measures include reducing vehicle speeds, reducing conflicts and enhancing the environment for non-motorists.
- **Roadway narrowing:** Roadway narrowing is a traffic calming measure which causes a narrowing of the roadway. These measures are intended to increase motorists' feeling of confinement, resulting in reduced speeds. Roadway narrowing measures are primarily used for speed reduction, but may also enhance the neighbourhood environment and re-allocate space to other road users.
- **Surface treatments:** Surface treatments are traffic calming measures which cause vibrations of the vehicle. Motorists are expected to slow to avoid unpleasant sensations when traversing the traffic calming measure. Surface treatments are primarily used for speed reduction.
- **Pavement markings:** Pavement markings measures can influence drivers to reduce speed by drawing attention to a specific area or information or by creating optical effects that create the impression that the driver's speed is increasing.
- **Access restrictions:** Access restrictions are traffic calming measures which restrict specific vehicle movements. These measures that are typically used at intersections, but in some cases may be applicable to mid-block locations. Access restrictions are primarily used to discourage short-cutting or through traffic, but may also reduce conflicts and enhance the neighbourhood environment.

Stop signs at intersections, such as all-way stop control, are not to be used a traffic calming measure to control vehicle speeds. The implementation of all-way stop control must conform to the guidelines established by the TAC Manual of Uniform Traffic Control Devices for Canada.

This toolbox is not a roadway design standard, design guidance is provided in other resources such as:

- TAC Geometric Design Guide for Canadian Road
- TAC Manual of Uniform Traffic Control Devices
- TAC Canadian Guide to Traffic Calming
- National Association of City Transportation Officials' (NACTO) Urban Street Design Guide

Table 4: Potential Benefits and Disbenefits of Traffic Calming Measures

Traffic Calming Measure	Potential Benefits				Potential Impacts		
	Speed Reduction	Volume Reduction	Conflict Reduction	Environ-ment	Local Access	Emergency Response	Mainte-nance
Vertical Deflection							
Raised Crosswalk	●	○	◉	◉	○	◉	◉
Speed Hump/Table	●	◉	●	◉	○	●	◉
Speed Cushion	●	◉	●	◉	○	◉	◉
Raised Intersection	●	○	◉	◉	○	◉	◉
Horizontal Deflection							
Chicane	●	●	●	◉	○	◉	◉
Curb Radius Reduction	◉	○	○	◉	○	○	◉
Lateral Shift	◉	○	○	○	○	○	○
Speed Kidney	◉	○	○	◉	○	○	◉
Traffic Circle/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-lane Transverse Bars	●	○	○	○	○	○	◉
Peripheral Transverse Bars	●	○	○	○	○	○	◉
On-Road 'Sign'	●	○	○	○	○	○	◉
Access Restriction							
Directional Closure	●	●	◉	◉	◉	◉	◉
Diverter	○	●	◉	◉	●	◉	◉
Full Closure	○	●	●	◉	●	●	◉
Intersection Channelization	○	◉	◉	◉	●	◉	◉
Raised Median Through Intersection	○	●	◉	◉	●	◉	◉
Right-in/Right-out Island	○	●	◉	◉	◉	◉	◉
Legend	●	Substantial Benefits			●	Substantial Disbenefits	
	◉	Moderate Benefits			◉	Moderate Disbenefits	
	○	No Benefits/ Limited Data			○	No Disbenefits/ Limited Data	

3.1. Vertical Deflections

Vertical deflections are traffic calming measures which cause a vertical upward movement of the vehicle. Motorists are expected to slow to avoid unpleasant sensations when traversing the traffic calming measure. Vertical deflections are primarily used for speed reduction, but may also reduce traffic volumes, reduce conflicts and enhance the neighbourhood environment.

3.1.1. Raised Crosswalk

A raised crosswalk is a marked pedestrian crosswalk at an intersection or mid-block location constructed at a higher elevation than the adjacent roadway.

A raised crosswalk can be constructed with textured materials. Refer to 3.4.1 Sidewalk Extension/Textured Crosswalk for additional details.

The purpose of a raised crosswalk is to reduce vehicle speeds, improve pedestrian visibility and reduce pedestrian-vehicle conflicts.

Location Applicability
Local, Collector
Urban cross section

Cost
Low to medium

Figure 1: Raised Crosswalk - Image Source NACTO Urban Street Design Guide

3.1.2. Speed Hump/Table

A speed hump is a raised area of a roadway, which deflects both the wheels and body of a traversing vehicle.

A speed table is an elongated speed hump with a flat-topped section that is long enough to raise the entire wheelbase of a vehicle.

The flat-topped section of a speed table may be constructed with textured materials. Refer to 3.4.1 Sidewalk Extension/Textured Crosswalk for additional details.

The purpose of a speed hump/table is to reduce vehicle speeds and reduce pedestrian-vehicle conflicts. A series of speed humps/tables is more effective than a single installation.

Location Applicability
Local, Collector
Urban cross section

Cost
Low to medium

Figure 2: Speed Hump - Image Source: Richard Drdul

Figure 3: Speed Table - Image Source: NACTO Urban Street Design Guide

3.1.3. Speed Cushion

A speed cushion is a segmented speed hump which allows for the passage of larger vehicles such as emergency vehicles or buses without difficulty, while light vehicles will still have at least one side of the vehicle deflected upwards.

The purpose of a speed cushion is to reduce passenger vehicle speeds and reduce pedestrian-vehicle conflicts. A series of speed cushions is more effective than a single installation.

Location Applicability
Local, Collector
Urban cross section

Cost
Low

Figure 4: Speed Cushion - Image Source: NACTO Urban Street Design Guide

3.1.4. Raised Intersection

A raised intersection is a full intersection including crosswalks, constructed at a higher elevation than the adjacent roadways.

The purpose of a raised intersection is to reduce vehicle speeds, better define crosswalk areas and reduce pedestrian-vehicle conflicts.

Location Applicability
Local, Collector
Urban cross section

Cost
Medium to high

Figure 5: Raised Intersection – Image Source: NACTO Urban Street Design Guide

3.2. Horizontal Deflections

Horizontal deflections are primarily intended reduce traffic volumes by discouraging short-cutting or through traffic. Potential secondary effects of horizontal measures include reducing vehicle speeds, reducing conflicts and enhancing the environment for non-motorists.

3.2.1. Chicane

A chicane is a series of curb extensions on alternating sides of the roadway which narrow the roadway cross section and require drivers to steer from one side of the roadway to the other to travel through the chicane.

The purpose of a chicane is to discourage shortcutting or through traffic and reduce vehicle speeds. With a chicane through traffic is further discouraged on a two-way roadway where a chicane incorporates a narrowing to less than the width of two vehicles, so that when vehicles travelling in opposite directions meet at the chicane, one vehicle must yield.

Location Applicability
Local, Collector
Urban cross section, maximum two lanes

Cost
Medium

Figure 6: Chicane - Image Source: NACTO Urban Street Design Guide

3.2.2. Curb Radius Reduction

A curb radius reduction is the reconstruction or modification of an intersection corner using a smaller radius, usually in the 3.0 to 5.0 metre range.

The purpose of a curb radius reduction is to reduce the speed of right turning vehicles, reduce crossing distances for pedestrians and to improve the visibility of pedestrians.

Location Applicability
Local, Collector, Low Volume Arterial
Urban cross section

Cost
Low to medium

Figure 7: Curb Radius Reduction - Image Source: Richard Drdul

3.2.3. Lateral Shift

A lateral shift in a roadway occurs where an otherwise section is redesigned using pavement markings or curb extensions to create a curvilinear alignment (a 'jog') in the roadway similar to a chicane.

The purpose of a lateral shift is to reduce vehicle speeds.

Location Applicability
Local, Collector
Urban cross section

Cost
Low to medium

Figure 8: Lateral Shift - Image Source: FHWA Traffic Calming ePrimer

3.2.4. Speed Kidney

A speed kidney is an arrangement of three speed humps elongated with a curvilinear shape in the direction of traffic. Vehicles choosing to drive in a straight path with experience discomfort as two or four wheels traverse different parts of the speed kidney. Vehicles are required to take a curvilinear path in order to avoid the vertical deflection.

The purpose of a speed kidney is to reduce vehicle speeds.

Location Applicability
Local, Collector
Urban cross section

Cost
Low to medium

Figure 9: Speed Kidney - Image Source: FHWA

3.2.5. Mini-Roundabout/Traffic Circle

A traffic circle/mini-roundabout is a raised island located in the centre of the intersection, which requires vehicles to travel through the intersection in a circular, counter-clockwise direction around the island.

A mini-roundabout is designed is accordance with full-size roundabout design principles. A mini-roundabout will include splitter islands and deflection of vehicles on all approaches but have a smaller diameter and traversable central island.

A traffic circle is typically smaller than a mini-roundabout and does not include splitter islands.

The purpose of a traffic circle/mini-roundabout is to reduce vehicle speeds. A series of traffic circles or mini-roundabouts is more effective than a single installation.

Location Applicability
Local, Collector intersections
Urban or rural cross section, max. two lanes

Cost
Traffic circle: Low to medium
Mini-roundabout: Medium to high

Figure 10: Mini-Roundabout - Image Source: City of Stockton

Figure 11: Traffic Circle - Image Source: Richard Drdul

3.3. Roadway Narrowing

Roadway narrowing are traffic calming measures which cause a narrowing of the roadway. These measures are intended to increase motorists' feeling of confinement, resulting in reduced speeds. Roadway narrowing measures are primarily used for speed reduction, but may also enhance the neighbourhood environment and re-allocate space to other road users.

3.3.1. Curb Extension

A curb extension is a horizontal intrusion of the curb into the roadway resulting in a narrower section of roadway. The curb is extended on one or both sides of the roadway to reduce the roadway width to as little as 6.0 metres for two-way travel on a two-lane roadway. A curb extension is also known as neckdown, choker, curb bulb or bulb-out.

The purpose of a curb extension is to reduce vehicle speeds, to reduce crossing distances for pedestrians and to increase the visibility of pedestrians.

Location Applicability
Local, Collector, Arterial
Urban cross section

Cost
Medium to high

Figure 12: Curb Extension - Image Source: Richard Drdul

3.3.2. Lane Narrowing

Lane narrowing is the reduction of lane widths using pavement markings or other features such as bicycle lanes, street beautification and pavement texture. The intention is for drivers to perceive the roadway to be less comfortable at higher speeds due to the narrowing of lanes.

The purpose of lane narrowing is to reduce vehicle speeds.

Location Applicability
Local, Collector
Urban cross section

Cost
Low to medium

Figure 13: Lane Narrowing - Image Source: FHWA

3.3.3. On-Street Parking

On-street parking is the reduction of the roadway width available for vehicle travel by allowing vehicles to park adjacent and parallel to the curb. The purpose of using on-street parking to narrow the effective roadway space is to reduce vehicle speeds.

Location Applicability
Local, Collector
Urban cross section

Cost
Low to medium

Figure 14: On-Street Parking - Image Source: Richard Drdul

3.3.4. Raised Median Island

A raised median island is an elevated median constructed on the centreline of a two-way roadway to reduce the overall width of the adjacent travel lanes.

The purpose of a raised median island is to reduce vehicle speeds and to reduce pedestrian-vehicle conflicts.

Location Applicability
Local, Collector, Urban Arterial
Urban or rural cross section

Cost
Medium to high

Figure 15: Raised Median Island - Image Source: Richard Drdul

3.3.5. Road Diet

A road diet is the reconfiguration of a roadway where the number of travel lanes and/or the effective width of the roadway is reduced in order to allocate the reclaimed space for other uses such as wider sidewalks, turning lanes, bicycle lanes and parking.

Location Applicability
Collector, Arterial
Urban cross section, minimum four lanes

Cost
Variable

Figure 16: Road Diet - Image Source: FHWA

3.3.6. Vertical Centreline Treatment

A vertical centreline treatment is the use of vertical treatments such as flexible post-mounted delineators or raised pavement markers to create a centre median with the purpose of giving drivers a perception of lane narrowing and creating a sense of constriction.

The purpose of a vertical centreline treatment is to reduce vehicle speeds.

Location Applicability
Local, Collector
Urban or rural cross section, maximum two lanes

Cost
Low

Figure 17: Vertical Centreline Treatment - Image Source: Calm Streets Boston

3.4. Surface Treatments

Surface treatments are traffic calming measures which cause vibrations of the vehicle. Motorists are expected to slow to avoid unpleasant sensations when traversing the traffic calming measure. Surface treatments are primarily used for speed reduction.

3.4.1. Sidewalk Extension/Textured Crosswalk

A sidewalk extension is a sidewalk continued across a local street intersection at the level of the adjacent roadway. Textured/patterned elements that contrast the roadway can be incorporated into the sidewalk extension.

The purposed of a sidewalk extension is to visually enhance a pedestrian crossing location so drivers become more aware of its presence. With a sidewalk extension/textured crosswalk the continuation of the surface and enhanced visual/tactile identification of the crosswalk area emphasized pedestrian priority.

Location Applicability
Local, Collector and Arterial
Urban Cross Section

Cost
Low to Medium

Figure 18: Textured Crosswalk - Image Source: NACTO Urban Street Design Guide

Figure 19: Sidewalk Extension - Image Source: City of Victoria

3.4.2. Textured Pavement

Textured pavement is a roadway pavement that incorporates textured and/or patterned surface which contrasts adjacent roadways in the surrounding area. The difference in texture alerts drivers of the potential need to reduce speed.

Location Applicability
Local, Collector
Urban Cross Section

Cost
Low to Medium

Figure 20: Textured Pavement - Image Source: Halifax

3.4.3. Transverse Rumble Strips

Rumble strips are patterns of raised buttons, bars or grooves in the pavement closely spaced at regular intervals on the roadway that create both noise and vibration in a moving vehicle.

The purpose of a rumble strip is to alert motorists to a traffic control device with is associated with unusual or changing conditions ahead.

Location Applicability
Local, Collector and Arterial

Cost
Low

Figure 21: Transverse Rumble Strips - Image Source: Journal Times

3.5. Pavement Markings

Pavement markings measures can influence drivers to reduce speed by drawing attention to a specific area or information or by creating optical effects that create the impression that the driver's speed is increasing.

3.5.1. Converging Chevrons

Pavement markings painted in the shape of a forward-facing V pointing in the roadway travel direction. They can be spaced closer together or painted thinner as distance increases to create the illusion that a vehicle's speed is increasing.

Converging chevrons are used to alert the driver of the need to reduce speed.

Location Applicability
Local, Collector and Arterial
Rural Cross Section
Entrance to Rural Community

Cost
Low

Figure 22: Converging Chevrons - Image Source: FHWA

3.5.2. Dragon's Teeth

A series of triangular pavement markings along the edge of the travelled lane. They may be pained with increasing size to give the impression of roadway narrowing.

Dragon's teeth are used to provide a visual change of the roadway and alert the driver that they are entering a rural community.

Location Applicability
Local, Collector and Arterial
Rural Cross Section
Entrance to Rural Community

Cost
Low

Figure 23: Dragon's Teeth - Image Source: meganix.net/pavement

3.5.3. Full-Lane Transverse Bars

A series of parallel pavement markings which extend across the majority of the travelled lane width. They may be placed closer together with distance to create the illusion that a vehicle's speed is increasing.

Full-lane transverse bars are used to alert the driver of the need to reduce speed.

Location Applicability
Local, Collector and Arterial
Rural Cross Sections

Cost
Low

Figure 24: Full-Lane Transverse Bars - Image Source: FHWA

3.5.4. Peripheral Transverse Bars

A series of parallel pavement markings along the edge of the travelled lane. They may be placed closer together with distance to create the illusion that a vehicle's speed is increasing.

Peripheral transverse bars are used to alert the driver of the need to reduce speed. Peripheral transverse bars are similar to full-lane transverse bars but require less maintenance.

Location Applicability
Local, Collector and Arterial
Rural Cross Sections

Cost
Low

Figure 25: Peripheral Transverse Bars - Image Source: FHWA

3.5.5. On-Road 'Sign' Pavement Markings

Pavement markings that provide information that would typically be shown to drivers through signage but are painted on the roadway to provide a larger image, and one that is directly in the driver's line of sight. Examples include speed limit, school zone, stop ahead, etc.

Location Applicability
Local, Collector and Arterial
Urban and Rural Cross Sections

Cost
Low

Figure 26: On-Road 'Sign' Pavement Markings - Image Source: Unknown

3.6. Access Restrictions

Access restrictions are traffic calming measures which restrict specific vehicle movements. These measures that are typically used at intersections, but in some cases may be applicable to mid-block locations. Access restrictions are primarily used to discourage short-cutting or through traffic, but may also reduce conflicts and enhance the neighbourhood environment.

3.6.1. Directional Closure

A directional closure is a curb extension or vertical barrier extending to approximately the centerline of the roadway, effectively obstructing the movement of one direction of traffic. Bicycles are typically permitted to travel through a directional closure in both directions. The preferred orientation is to prevent ingress to a roadway rather than to prevent egress from a roadway.

The purpose of a directional closure is to obstruct short-cutting or through traffic. Not effective on rural cross sections unless obstructions are placed at roadside at directional closure location.

Location Applicability
Local at intersection with Collector/Arterial

Cost
Low to high

Figure 27: Directional Closure - Image Source: Richard Drdul

3.6.2. Diverter

A diverter is a raised barrier placed diagonally across an intersection, that forces traffic to turn and prevents traffic from proceeding straight through the intersection. Diverters typically include gaps for bicycles and pedestrians. Diverters can be mountable for emergency vehicles. Avoid on designated emergency routes unless the design accommodates the passage of emergency vehicles.

The purpose of a diverter is to obstruct and re-direct short-cutting and through traffic.

Location Applicability
Local, Collector

Cost
Low to medium

Figure 28: Diverter - Image Source: Richard Drdul

3.6.3. Full Closure

A full closure is a barrier extending across the entire width of a roadway, which obstructs all motor vehicle traffic movements from continuing along the roadway. Full closures typically include gaps for bicycles and pedestrians. Full closures can be mountable for emergency vehicles, avoid on designated emergency routes unless the design accommodates the passage of emergency vehicles.

The purpose of a full closure is to eliminate short-cutting and through traffic. Not effective on rural cross sections unless obstructions are placed at roadside at directional closure location.

Location Applicability
Local at intersections or mid-block

Cost
Medium to high

Figure 29: Full Closure - Image Source: City of Victoria

3.6.4. Intersection Channelization

Intersection channelization is the use of raised islands or bollards located in an intersection, used to obstruct specific traffic movements and physically direct traffic through an intersection. Bicycles are typically permitted to make all movements, including those which vehicles are prevented from making. Avoid on designated emergency routes unless the design accommodates the passage of emergency vehicles.

The purpose of intersection channelization is to obstruct short-cutting and through traffic. Intersection channelization can reduce pedestrian crossing distances and provide refuge areas.

Location Applicability
Local, Collector at intersection with Collector/Arterial

Cost
Low to medium

Figure 30: Intersection Channelization - Image Source: City of Stockton

3.6.5. Raised Median Through Intersection

A raised median through an Intersection is an island located on the centerline of a two-way roadway through an intersection, which prevents left turns and through movements to and from the intersecting roadways. The island provides a refuge for pedestrians and cyclists, enabling them to cross one direction of traffic at a time. The purpose of a raised median through an Intersection is to obstruct short-cutting or through traffic and reduce crossing distance for pedestrians.

A raised median through an Intersection can reduce speeds in some instances when combined with narrow lane widths. Refer to 3.3.4 Raised Median Island for additional details.

Location Applicability
Collector, Arterial at intersections with Local

Cost
Low to medium

Figure 31: Raised Median Through Intersection - Image Source: Richard Drdul

3.6.6. Right-in/Right-out Island

A right-in/right-out island is a raised triangular island at an intersection approach which obstructs left turns and through movements to and from the intersecting street or driveway. Bicycles are typically permitted to make left turn and through movement from the intersecting street.

The purpose of a right-in/right-out island is to obstruct short-cutting or through traffic.

Location Applicability
Local, Collector
Urban cross section

Cost
Low to medium

Figure 32: Right-in/Right-out Island - Image Source: Richard Drdul

APPENDIX A – REQUEST FORM

TRAFFIC CALMING REQUEST

To initiate a traffic calming assessment, please complete this form and return it to the City of Corner Brook.

Applicant Name: _____

Mailing Address: _____

_____

E-mail Address: _____

What street or location would you like reviewed?

_____

Please select any of the following areas that relate to the nature of your concern:

- ☐ Residential area
- ☐ School, playground or day care area
- ☐ Recreational area

Please select any of the following neighbourhood traffic concerns occurring on the street:

- ☐ High speed in neighbourhood
- ☐ Collision concerns
- ☐ High volume of vehicle traffic
- ☐ Cut-through traffic
- ☐ Pedestrian safety
- ☐ Inappropriate driver behaviour

When do these problems typically occur?

- ☐ Morning rush hour
- ☐ Weekdays
- ☐ Mid-day
- ☐ Weekends
- ☐ Evening rush hour
- ☐ Other (specify): _____
- ☐ Late evening

Which season does the problem occur?

- ☐ Summer
- ☐ Spring
- ☐ Fall
- ☐ Winter

Please provide any additional information relating your concerns:

_____

_____

_____

_____

_____

_____

_____

_____

Signing below indicates your understanding that the City of Corner Brook will assess your traffic calming request in accordance with the *Traffic Calming Policy*.

Applicant Signature: _____ Date: _____