

THE CORPORATION OF THE CITY OF WINDSOR POLICY

Service Area:	Office of the City Solicitor	Policy No.:	
Department:	Planning and Building Services	Approval Date:	
Division:	Transportation Planning Services	Approved By:	
		Effective Date:	On approval
			<ul style="list-style-type: none"> - Expedited Temporary Traffic Calming Procedure - Arterial Roadway Traffic Calming Procedure - Bikeways Traffic Calming Procedure - New Neighbourhood Traffic Calming Procedure - Permanent Traffic Calming Procedure
Subject:	Traffic Calming Policy	Procedure Ref.:	
Review Date:		<i>Pages:</i>	Replaces: Traffic Calming Policy
Prepared By:	R. Toufeili, Policy Analyst	2	Date: September 2015

1. POLICY

1.1. This policy governs the implementation of traffic calming for the Corporation of the City of Windsor.

2. PURPOSE

2.1. The purpose of this policy is to provide Administration and the general public with a simple and transparent framework to assess, design and implement traffic calming measures on primarily residential streets to reduce and maintain appropriate traffic speeds and volumes.

3. SCOPE

3.1. This policy covers:

- 3.1.1. requests for permanent traffic calming measures;
- 3.1.2. requests for expedited temporary traffic calming;
- 3.1.3. speed control on arterial roadways;
- 3.1.4. traffic calming on bikeways; and
- 3.1.5. traffic calming requirements for new residential developments.

3.2. This policy should be utilized in coordination with the City's Active Transportation Master Plan and School Neighbourhood Policy, where applicable.

4. RESPONSIBILITY

- 4.1 Council has authority to approve implementation and funding for traffic calming plans that are developed under this policy, and is responsible for approving amendments to this policy.
- 4.2 Administration is responsible for carrying out this policy as follows:
 - 4.2.1 The City Engineer and the City Solicitor are corporate leads for all transportation and associated public safety programs and are responsible for initiating amendments to the Traffic Calming Procedures.
 - 4.2.2 The Transportation Planning Senior Engineer is responsible for:
 - 4.2.2.1 Overseeing implementation of this policy,
 - 4.2.2.2 Bringing forward traffic calming plans before Council for approval,
 - 4.2.2.3 Recommending operating and capital budget expenditures related to traffic calming, and
 - 4.2.2.4 Recommending amendments to this policy to Council.
 - 4.2.3 The Manager of the 311 Call Centre has overall responsibility for receiving public poll responses, and for reporting these responses to the Transportation Planning Senior Engineer.

5. GOVERNING RULES AND REGULATIONS

- 5.1 This policy will be implemented in accordance with the following traffic calming procedures:
 - 5.1.1 Expedited Temporary Traffic Calming Procedure
 - 5.1.2 Arterial Roadway Traffic Calming Procedure
 - 5.1.3 Bikeways Traffic Calming Procedure
 - 5.1.4 New Neighbourhood Traffic Calming Procedure
 - 5.1.5 Permanent Traffic Calming Procedure
 - 5.1.6 Local Roadway Speed Humps Procedure

6. RECORDS, FORMS AND ATTACHMENTS

- 6.1. Records for this policy shall be prepared and retained in accordance with Records Retention By-Law 21-2013, as amended.
- 6.2. Attachments:
 - 6.2.1. Attachment 1: Expedited Temporary Traffic Calming Procedure
 - 6.2.2. Attachment 2: Arterial Roadway Traffic Calming Procedure
 - 6.2.3. Attachment 3: Bikeways Traffic Calming Procedure
 - 6.2.4. Attachment 4: New Neighbourhood Traffic Calming Procedure
 - 6.2.5. Attachment 5: Permanent Traffic Calming Procedure
 - 6.2.6. Attachment 6: Local Roadway Speed Humps Procedure

THE CORPORATION OF THE CITY OF WINDSOR PROCEDURE

Service Area:	Office of the City Solicitor	Procedure No.:	
Department:	Planning and Building Services	Approval Date:	
Division:	Transportation Planning	Approved By:	
		Effective Date:	On Approval
Subject:	Expedited Temporary Traffic Calming Procedure	Policy Ref.:	Traffic Calming Policy
		<i>Pages:</i>	Replaces:
Prepared By:	L. Ash, Policy Analyst	6	Date:

1. PURPOSE

1.1. This procedure is intended to provide details for implementation of the Traffic Calming Policy without conducting a full traffic calming warrant review as outlined in the Permanent Traffic Calming Procedure.

2. SCOPE

2.1. This procedure provides details for expediting implementation of temporary traffic calming measures.

3. RESPONSIBILITY

3.1. Responsibility for implementing this procedure is outlined in the Traffic Calming Policy.

4. PROCEDURE



4.1. Some temporary traffic calming measures may be installed without completing the full warrant review and public consultation process outlined for permanent traffic calming measures, and may be removed quickly if negative feedback is received.

4.2. Temporary traffic calming measures may be considered:

- a) at locations that have been approved (or are likely to be approved) for traffic calming through the Permanent Traffic Calming Procedure and are in the review, approval, design or construction stages;
- b) if a neighbourhood is experiencing (or is expected to experience) temporary traffic issues;
- c) on streets that do not qualify for (or are otherwise unsuitable for) permanent traffic calming measures but have traffic issues that remain unaddressed;
- d) as an interim solution for locations that qualify for traffic calming but are identified for roadwork in the near future (e.g. road reconstruction);

- e) to lower the cost of installation compared to permanent measures (not applicable with all measures); and
 - f) to be able to rotate through several locations so that one device can benefit multiple streets (e.g. radar speed feedback sign). This may not provide the same service level as one device at a fixed location.
- 4.3.** Administration may respond to a traffic speed concern by offering the temporary traffic calming measures provided in **Table 1**. A cost estimate range applied to each measure is provided in **Table 2**.

Table 1: Temporary Traffic Calming Measures

Item #	Measure	Example	Description	Estimated Annual Cost Range
4.3.1	Radar Speed Feedback Trailer	 <p>Denvergov.org</p>	A portable electronic speed display device placed at the location of a traffic speed concern to measure vehicle speeds of oncoming traffic and display the speed to nearby drivers and residents.	\$ - \$\$
4.3.2	Lawn Signs		A lawn sign provided upon request for placement within the boulevard to identifying a local speed concern and encourage safe driving habits and lower vehicle operating speeds on neighbourhood streets.	\$

4.3.1. Radar Speed Feedback Trailer

4.3.1.1. A resident may request to have the radar trailer placed at a specific location by contacting 311. Requests may also be received from a Ward Councillor or the Windsor Police Service.

4.3.1.2. Administration will review the request and place the radar trailer in the closest possible location that will capture the driver's full speed. Due to prior commitments, there may be a delay from the time the request is made to the time the radar trailer is present onsite. Other factors that may cause delays include weather and/or construction activity.

- 4.3.1.3. The radar trailer will typically remain at each location until two full week-days of data are collected.
 - 4.3.1.4. The results of the radar speed detection are recorded and shared with the Windsor Police Service.
 - 4.3.1.5. The radar trailer may be used on any road classification except expressways.
 - 4.3.1.6. Locations are not eligible for a repeat radar trailer within 3 years.
- 4.3.2. Lawn signs**
- 4.3.2.1. A resident may request a lawn sign by contacting 311 and providing their information. Signs will be available on a first-come first-served basis, subject to availability each year. Councillors will be provided with 10% of the total number of signs for distribution within their ward. Generally, one sign will be provided per dwelling unit.
 - 4.3.2.2. Signs must be placed in the lawn at least 0.6 meters (2 feet) from the curb, sidewalk or edge of roadway.
 - 4.3.2.3. Signs must not obstruct sidewalks, or sightlines for pedestrians, cyclists or drivers, or be placed within 3 meters of a fire hydrant, on a roadway, median, traffic island, sidewalk, bicycle path, multi-use trail, near an expressway (or expressway ramp) or anywhere that interferes with access to or operation of a drainage ditch, culvert, bridge or overpass.
 - 4.3.2.4. Signs must be used as supplied, without further illumination or the use of reflective tape, and inserted into the ground using the wire frame only. Signs are not to be mounted on a building, structure, post, pole, tree or bush.
 - 4.3.2.5. Signs can be reused year after year. Once received, the condition of the sign is the responsibility of the requestor.
 - 4.3.2.6. Signs can deteriorate over time and should be safely maintained and replaced when needed. Signs that are unsafe or unable to stay anchored into the ground should be removed immediately.
 - 4.3.2.7. Signs can be used adjacent to all roadways except expressways.
 - 4.3.2.8. Administration may request residents who received a lawn sign to participate in a short survey regarding their use and effectiveness.

Table 2: Estimated Cost Range




Symbol	Range
\$	\$0 - \$5,000
\$\$	\$5,000 - \$20,000
\$\$\$	\$20,000 - \$50,000
\$\$\$\$	\$50,000 - \$100,000
\$\$\$\$\$	> \$100,000






- 4.4. Administration may install the temporary traffic calming measures provided in **Attachment A** on Local or Class II Collector roads upon direction from the Ward Councillor without the full warrant review and public consultation process outlined for permanent traffic calming.
- 4.5. Projects would be funded by the temporary traffic calming measures initiative on a cost recovery basis, with 10% of the total funds being allocated per ward. Administration may meet with Councillors annually to review the prioritized list of outstanding traffic calming requests and speed/volume concerns to help create a plan for each year's budget. Measures will not automatically be renewed each year; funds must be approved each year to renew certain measures (such as pavement markings that would otherwise they will be allowed to fade, flexible posts that may require removal before the winter season and would not be reinstalled without subsequent direction and funding as necessary, etc.). Councillors may choose to rotate certain measures between wards/locations at a lower cost than purchasing additional units.
- 4.6. Administration will continue to explore new traffic calming measures and may test different measures as pilot projects to determine if they are suitable for temporary or permanent installation.
- 4.7. Where a resident or Councillor requests a more thorough traffic calming review, Administration will refer to the Permanent Traffic Calming Procedure.
- 4.8. Where requests are received on higher classification roadways, such as Arterial roadways as defined in the City's Official Plan, Administration will refer to the Arterial Roadways Traffic Calming Procedure.
- 4.9. Where requests form part of a planned or existing bikeway, Administration will refer to the Bikeways Traffic Calming Procedure.

5. RECORDS, FORMS, AND ATTACHMENTS

- 5.1. Records for this policy shall be prepared and retained in accordance with Records Retention By-Law 21-2013, as amended.
- 5.2. Attachment A – Expedited Temporary Traffic Calming Toolbox

ATTACHMENT A – Expedited Temporary Traffic Calming Toolbox

Item #	Measure	Example	Description	Est. Initial Cost	Est. Annual Maint. Cost
1	Radar Speed Feedback Signs	 <p style="text-align: center;">Townofsananselmo.org</p>	Post or pole-mounted radar speed feedback signs provide immediate feedback alerting the driver to their speed. Ideally this will encourage drivers to obey the speed limit. Additional enforcement or physical measures are encouraged to reinforce the treatment.	\$\$	\$
2	Vehicle Activated Warning Signs	 <p style="text-align: center;">Unipartdorman.com</p>	Solar powered electronic signs equipped with radar speed detectors alert drivers of hazards ahead when activated by speeds surpassing a programmed threshold.	\$ - \$\$	\$
3	On-Road Sign Pavement Markings	 <p style="text-align: center;">google.com/maps (Queen St. S. at Glenfern Ave., Hamilton, Ontario)</p>	Sign pavement markings may be used to provide on-road messages, such as “MAX 50 km/h”, “Stop Ahead”, “School Ahead”, or “SLOW”.	\$ - \$\$	\$ - \$\$

		 <p>google.com/maps (S. Sterling Ave., Tampa, Florida)</p>			
4	* Flexible Posts	 <p>City of Kalamazoo</p>	Flexible posts anchored to the pavement to create bulb-outs or chicane.	\$	\$
5	* Traffic Calming Curbs	 <p>facebook.com/MunicipalityofLeamington (Talbot St. W. at Queens Ave.)</p>  <p>google.com/maps (McKenzie Towne Gate, Calgary)</p>  <p>google.com/maps (Erin Woods Blvd., Calgary)</p>	Precast concrete slabs used to create curb extensions, traffic circle centre islands, chicanes or protected bicycle lanes.	\$ - \$\$	\$ - \$\$

* Will likely need to be removed during the winter season (November to April)

THE CORPORATION OF THE CITY OF WINDSOR PROCEDURE

Service Area:	Office of the City Solicitor	Procedure No.:	
Department:	Planning and Building Services	Approval Date:	
Division:	Transportation Planning	Approved By:	
		Effective Date:	On Approval
Subject:	Arterial Roadway Traffic Calming Procedure	Policy Ref.:	Traffic Calming Policy
		<i>Pages:</i>	Replaces:
Prepared By:	L. Ash, Policy Analyst	5	Date:

1. PURPOSE

1.1. This procedure is intended to provide details for implementing traffic calming on arterial roadways.

2. SCOPE

2.1. This procedure provides the details of how traffic calming is to be implemented on arterial roadways for the purpose of reducing excessive vehicle speeds, alleviating conflicts between road users and eliminating inappropriate driver behaviour. Volume control is not desirable on arterial roadways, and therefore will not be studied.

3. RESPONSIBILITY

3.1. Responsibility for implementing this procedure is outlined in the Traffic Calming Policy.

4. PROCEDURE

- 4.1. Traffic calming may be considered on an arterial roadway when a traffic speed concern is identified by City, the Windsor Police Services, a Councillor, resident, business or group.
- 4.2. Administration will determine the appropriate location(s) to collect traffic speed data. The observed 85th percentile speed must be at least 10 km/h over the posted speed limit to be considered for traffic calming.
- 4.3. Administration will utilize the Traffic Calming Toolbox for Arterial Roadways provided in **Attachment A** to develop a Traffic Calming Plan.
 - **Table A-1** provides a brief description of each measure.
 - **Table A-2** provides cost estimate ranges used for each measure.
- 4.4. Administration will continue to explore new traffic calming measures and may test different measures as pilot projects to determine if they are suitable for installation.

- 4.5.** Applicable policies, guidelines and master plans should be considered during the review, including the City's Active Transportation Master Plan (ATMP), School Neighbourhood Policy and the Transportation Association of Canada (TAC) Canadian Guide to Traffic Calming. Any traffic calming construction work shall meet the requirements on the City of Windsor Development Manual and any relevant City of Windsor Engineering Standard Drawings.
- 4.6.** Other affected agencies, such as emergency services, the Windsor Accessibility Advisory Committee (WAAC), the Windsor Bicycling Committee (WBC), Bus Kids, any affected Business Improvement Areas (BIA) and the Windsor-Essex County Health Unit (WECHU) may be invited to provide comments and feedback.
- 4.7.** Projects will be put forward in priority sequence for approval to proceed with implementation. The number of projects put forward in any given year will depend on associated implementation cost and available budget. The length of time a project has been waiting for implementation funding will not influence whether it is constructed in the coming season. Practical considerations may affect the selection of projects, some of which include the availability of funds restricted to specific activities or areas, the potential to coordinate with other projects and the availability of alternate funding sources.
- 4.8.** Administration will present a report to Council for approval to fund and implement the Traffic Calming Plan. Other methods for presenting the results to Council may include an annual presentation as a part of the capital budgeting process.
- 4.9.** Administration will notify the public when a Traffic Calming Plan is to be presented to Council for approval. Notification may be provided by any of the following means:

 - A notice provided to adjacent households and commercial properties;
 - A notice posted at the location of the concern; or
 - Information posted on the City's website, local newspaper or other media.
- 4.10.** Outcome reviews will be undertaken 6-12 months following installation of traffic calming measures to evaluate effectiveness. The scope of outcome reviews will be dependent on the objectives of the project, and will generally include the collection of speed and collision data for comparison against pre-installation data.

 - Due to the types of roads for which traffic calming will be considered, it is highly unlikely that any significant collision trends will be identified over an analysis period of 6-12 months. Additional time may be required before collision data may be used to help evaluate the results of the traffic calming treatment.
 - The outcome review will in most cases not include a diverted traffic analysis. These may be considered if comparable data was collected prior to installation and this was a key objective for the installation.
- 4.11.** Success with traffic calming will be a reduction in vehicle speed and/or collisions. Depending on the outcome achieved, the City may choose to review the site to see if it still has a need and how it compares to other

potential sites. If the City decides that the traffic calming measures have not been effective, they may choose to undertake further amendments to the project. Prior to implementing changes, a report will be delivered to Council reviewing the performance of said traffic calming measures.




- 4.12. Some roadway sections or intersections may require further study beyond the scope of the Traffic Calming Policy and may be identified for further study.

5. RECORDS, FORMS, AND ATTACHMENTS

- 5.1. Records for this policy shall be prepared and retained in accordance with Records Retention By-Law 21-2013, as amended.
- 5.2. Attachment A – Traffic Calming Toolbox for Arterial Roadways

ATTACHMENT A – Traffic Calming Toolbox for Arterial Roadways

Table A-1: Traffic Calming Measures for Arterial Roadways

Item #	Measure	Example	Description	Est. Cost Range	Est. Annual Maint. Cost
1	Radar Speed Feedback Signs	 <p align="center">www.townofsananselmo.org</p>	Post or pole-mounted radar speed feedback signs provide immediate feedback alerting the driver to their speed. Ideally this will encourage drivers to obey the speed limit. Additional enforcement or physical measures are encouraged to reinforce the treatment.	\$\$	\$
2	Vehicle Activated Warning Signs	 <p align="center">unipartdorman.com</p>	Solar powered electronic signs equipped with radar speed detectors alert drivers of hazards ahead when activated by speeds surpassing a programmed threshold.	\$ - \$\$	\$
3	Pavement Markings	 <p align="center">ctre.iastate.edu</p>	Pavement markings, such as traverse bars or chevrons, may be used to provide drivers more notice about their speed. These are only appropriate in certain areas, such as rural locations or transition zones	\$ - \$\$	\$ - \$\$




		 alertdriving.co.nz	where drivers are being reminded of a change in roadway character.		
4	On-Road Sign Pavement Markings	 google.com/maps (Queen St. S., Hamilton, Ontario)  google.com/maps (S. Sterling Ave., Tampa, Florida)	Sign pavement markings may be used to provide on-road messages, such as "MAX 50 km/h", "Stop Ahead", "School Ahead", or "SLOW".	\$ - \$\$	\$ - \$\$

Table A-2: Cost Estimate Range

Symbol	Range
\$	\$0 - \$5,000
\$\$	\$5,000 - \$20,000
\$\$\$	\$20,000 - \$50,000
\$\$\$\$	\$50,000 - \$100,000
\$\$\$\$	> \$100,000

THE CORPORATION OF THE CITY OF WINDSOR PROCEDURE

Service Area:	Office of the City Solicitor	Procedure No.:	
Department:	Planning and Building Services	Approval Date:	
Division:	Transportation Planning	Approved By:	
		Effective Date:	On Approval
Subject:	Bikeways Traffic Calming Procedure	Policy Ref.:	Traffic Calming Policy
		Pages:	Replaces:
Prepared By:	L. Ash, Policy Analyst	8	Date:

1. PURPOSE

- 1.1. This procedure is intended to provide details for implementing traffic calming support developing the All Ages and Abilities (AAA) cycling network recommended in the City's Active Transportation Master Plan.

2. SCOPE

- 2.1. This procedure provides the details of how traffic calming is to be implemented with the goal of reducing traffic speeds and/or volumes on streets identified as a local street bikeway.

3. RESPONSIBILITY

- 3.1. Responsibility for implementing this procedure is outlined in the Traffic Calming Policy.

4. PROCEDURE

- 4.1. Administration will review the City's cycling network on an on-going basis to identify streets that may be classified as a local street bikeway to develop the All Ages and Abilities (AAA) network recommended in the Active Transportation Master Plan Traffic (ATMP).
- Local street bikeways are streets with low traffic speeds and volumes that have been optimized for bicycle travel through treatments such as traffic calming and traffic reduction by means of signage and pavement markings, as well as intersection crossing treatments, to allow through movements for cyclists while discouraging similar through trips by non-local motorized traffic (Ontario Traffic Manual Book 18).
- 4.2. To support implementing a local street bikeway, Administration may develop a Traffic Calming Plan for the street identified using the Bikeways Traffic Calming Toolbox provided in **Attachment A**.

- **Table A-1** provides a brief description of the different traffic calming measures.
 - **Table A-2** provides cost estimate ranges used for each measure.
- 4.3. Other measures may also be considered at critical locations where local bikeways intersect with major roads or other bikeways to minimize conflicts between motor vehicles and cyclists/pedestrians. Examples of crossing treatments include median islands, pedestrian corridors, signals and sensors.
 - 4.4. Administration will continue to explore new traffic calming measures and may test different measures as pilot projects to determine if they are suitable for temporary or permanent installation.
 - 4.5. Applicable policies, guidelines and master plans should be considered during the review, including the City's Active Transportation Master Plan (ATMP), School Neighbourhood Policy, the Transportation Association of Canada (TAC) Canadian Guide to Traffic Calming and the Ontario Traffic Manual (OTM) Book 18. Any traffic calming construction work shall meet the requirements on the City of Windsor Development Manual and any relevant City of Windsor Engineering Standard Drawings.
 - 4.6. Other affected agencies, such as emergency services, the Windsor Accessibility Advisory Committee (WAAC), the Windsor Bicycling Committee (WBC), Bus Kids, any affected Business Improvement Areas (BIA) and the Windsor-Essex County Health Unit (WECHU) may be invited to provide comments and feedback.
 - 4.7. Projects will be put forward based on the prioritization criteria provided in the Active Transportation Master Plan. The number of projects put forward in any given year will depend on associated implementation cost and available budget. The length of time a project has been waiting for implementation funding will not influence whether it is constructed in the coming season. Practical considerations may affect the selection of projects, some of which include the availability of funds restricted to specific activities or areas, the potential to coordinate with other projects and the availability of alternate funding sources.
 - 4.8. Administration will present a report to Council for approval to fund and implement the Traffic Calming Plan. Other methods for presenting the results to Council may include an annual presentation as a part of the capital budgeting process.
 - 4.9. Administration will notify the public when a Traffic Calming Plan is to be presented to Council for approval. Notification may be provided by any of the following means:
 - A notice provided to adjacent households and commercial properties;
 - A notice posted at the location of the concern; or
 - Information posted on the City's website, local newspaper or other media.
 - 4.10. Opportunities to include traffic calming measures on residential streets with designated bikeways should be considered prior to road reconstruction projects.





- 4.11. The Active Transportation Master Plan encourages pedestrian connectivity for people walking and cycling when considering dead end streets as a traffic calming measure.






5. RECORDS, FORMS, AND ATTACHMENTS




- 5.1. Records for this policy shall be prepared and retained in accordance with Records Retention By-Law 21-2013, as amended.
- 5.2. Attachment A – Bikeways Traffic Calming Toolbox




ATTACHMENT A – Bikeways Traffic Calming Toolbox

Table A-1: Bikeways Traffic Calming Measures

Item #	Measure	Example	Description	Est. Cost Range	Est. Annual Maint. Cost
1	Speed Hump ¹	 <p style="text-align: center;">www.fhwa.dot.gov</p>	Speed humps provide a vertical, tactile alert to drivers, encouraging lower speeds.	\$ - \$\$	\$ - \$\$
2	Speed Table ¹	 <p style="text-align: center;">www.surrey.ca</p>	Speed tables serve a similar function as speed humps but allow for slightly higher speeds and are generally preferred by emergency services over speed humps.	\$\$	\$
3	Traffic Circle or Roundabout	 <p style="text-align: center;">google.com/maps (35th & Raleigh St., Denver, CO)</p>  <p style="text-align: center;">google.com/maps (Sandwich St., Windsor)</p>	Traffic circles and roundabouts require drivers to slow their approach and yield to traffic while transitioning through the intersection. May be designed to be traversable for larger vehicles and emergency response vehicles.	\$\$ - \$\$\$\$\$	\$

4	Right-in/Right-out Island	 <p data-bbox="576 472 771 504">www.fhwa.dot.gov</p>	Right in/right out islands restrict vehicle flow to help eliminate left turn movements into and out of driveways lowering the potential for conflicts.	\$\$	\$
5	Chicanes	 <p data-bbox="516 829 836 850">en.wiktionary.org/wiki/chicane</p>	Bump-outs on opposite sides of the road require drivers to slow down to zigzag through the roadway configuration.	\$\$	\$
6	Road Diet	 <p data-bbox="576 1134 779 1155">Roadsbridges.com</p>	Reconfiguration of a roadway to allocate reclaimed road width for other uses, such as turning lanes, bike lanes, pedestrian refuge islands or parking.	\$\$\$	N/A
7	Directional (Half) Closure	 <p data-bbox="552 1407 795 1428">www.stocktongov.com</p>	Partially restricts the flow of vehicles along the street. This measure is strictly for volume control and has little impact on driver speeds.	\$ - \$\$\$	\$
8	Full Closure	 <p data-bbox="584 1753 763 1774">www.victoria.ca</p>	A full closure or cul-de-sac eliminates through traffic for motor vehicles at one end of a road, serving as a volume control measure.	\$\$\$\$	\$

9	Diagonal Diverter	 <p data-bbox="565 483 787 514">www.sanantonio.gov</p> <p data-bbox="552 693 803 745">google.com/maps (Monmouth Rd., Windsor)</p>	Diagonal diverters allow some traffic to flow through the intersection in restricted ways to discourage (not necessarily eliminate) through traffic.	\$\$\$	\$
10	Raised Median Through Intersection	 <p data-bbox="560 1029 795 1060">www.pedbikesafe.org</p>	Raised medians through an intersection prohibits cross traffic in one direction. This helps reduce or eliminate through traffic in one direction. Small gaps may be included to allow bicycle and other non-motorized traffic to pass through.	\$\$	\$ - \$\$
11	Traffic Calming Curbs	 <p data-bbox="495 1659 860 1732">facebook.com/MunicipalityofLeamington (Talbot St. W. at Queens Ave., Leamington)</p>	Precast concrete slabs used to create curb extensions, traffic circle centre islands, chicanes or protected bicycle lanes.	\$ - \$\$	\$ - \$\$

		 <p>google.com/maps (McKenzie Towne Gate, Calgary)</p> <p>google.com/maps (Erin Woods Blvd., Calgary)</p>			
12	Turn Prohibition (signed)	 <p>www.fhwa.dot.gov</p>	Turn prohibitions should serve a similar purpose as directional closures or diagonal diverters.	\$	\$
13	Through Traffic Prohibition (signed)	 <p>www.fhwa.dot.gov</p>	Through traffic prohibitions should serve a similar purpose as full closures, diagonal diverters, or raised medians through intersections.	\$	\$

Note 1 – In general, it is recommended that large, bolt-in traffic calming measures such as speed cushions not be installed at the same location for more than two years. Beyond this point, the pavement damage can be severe enough that the anchors may not be able to keep the cushions secured to the pavement.

Table A-2: Estimated Cost Range

Symbol	Estimated Cost Range
\$	\$0 - \$5,000
\$\$	\$5,000 - \$20,000
\$\$\$	\$20,000 - \$50,000
\$\$\$\$	\$50,000 - \$100,000
\$\$\$\$\$	> \$100,000

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Service Area:	Office of the City Solicitor	Procedure No.:	
Department:	Planning and Building Services	Approval Date:	
Division:	Transportation Planning	Approved By:	
		Effective Date:	On Approval
Subject:	New Neighbourhood Traffic Calming Procedure	Policy Ref.:	Traffic Calming Policy
		<i>Pages:</i>	Replaces:
Prepared By:	L. Ash, Policy Analyst	4	Date:

1. PURPOSE

1.1. This procedure is intended to provide details for implementation of the Traffic Calming Policy for new neighbourhoods.

2. SCOPE

2.1. This procedure provides the details about traffic calming measures to be implemented into the development of new neighbourhoods.

3. RESPONSIBILITY




3.1. Responsibility for implementing this procedure is outlined in the Traffic Calming Policy.

4. PROCEDURE

4.1. Traffic Calming will be considered in all new neighbourhoods and placed in accordance with the actual road classification in the official plan for the area. The designation of those streets will dictate the type of traffic calming devices that are to be implemented.

4.2. Developers will be required to include engineering design plans for approved traffic calming devices in plans of subdivisions and new development. Specifically, this may include the measures described in **Table 1**.

Table 1: Traffic Calming Measures for New Neighbourhoods

Item #	Measure	Example	Description
1	Traffic Circle or Roundabout	 <p data-bbox="545 583 850 642">google.com/maps (35th & Raleigh St., Denver, CO)</p> <p data-bbox="581 863 813 911">google.com/maps (Sandwich St., Windsor)</p>	<p data-bbox="919 331 1438 506">Traffic circles should be considered for intersections between two local roads. Modern roundabouts should be constructed at intersections of two collector roads.</p>
2	Chicanes	 <p data-bbox="537 1203 857 1226">en.wiktionary.org/wiki/chicane</p>	<p data-bbox="919 932 1438 1106">Long straight sections of roadway segments longer than 300 m should be considered for one lane chicanes on local roads and two lane chicanes on collector roads.</p>
3	Sidewalk/ Curb Extension	 <p data-bbox="540 1535 854 1558">Contextsensitivesolutions.org</p>	<p data-bbox="919 1243 1438 1493">Curb extensions and special sidewalk treatments should be considered for intersections between local and collector roads, except where it is determined that they will have an adverse effect on transit or emergency services.</p>

4	Lane Narrowing	 <p data-bbox="597 548 797 569">www.fhwa.dot.gov</p>	Lane narrowing (including curb bump outs and median islands) combined with pedestrian crossings at crucial locations where pedestrians may cross to utilize parks, or other pedestrian generators are required on both local and collector roads.
5	Raised Median Island	 <p data-bbox="597 852 797 873">www.fhwa.dot.gov</p>	Median islands should be used extensively throughout all neighbourhood designs especially on collector roads and at key locations on local roads
6	Raised Median Through Intersection	 <p data-bbox="581 1157 813 1178">www.pedbikesafe.org</p>	Median islands should also be used at key locations to prevent nearby traffic from utilizing local roads as short cuts. This can be achieved by placing medians at intersections with local roads where short-cutting may be a future problem.

4.3. The design and proposed location of traffic calming measures are required to be included in the application for a plan of subdivision or new development. Each device location shall include the following elements:

- 4.3.1.** Traffic calming devices should meet the design criteria included in the most current Canadian Guide to Traffic Calming – Transportation Association of Canada (TAC).
- 4.3.2.** Traffic calming devices should include all required signage and markings according to the Canadian Guide to Traffic Calming – TAC.
- 4.3.3.** Traffic calming devices must permit and allow for the potential enhancement of safe movements by all non-motorized modes of travel.
- 4.3.4.** The design should consider requirements outlined in the Active Transportation Master Plan (ATMP) and School Neighbourhood Policy.

4.4. Proposed design drawings will be circulated to other departments for comments.

5. RECORDS, FORMS, AND ATTACHMENTS

5.1. Records for this policy shall be prepared and retained in accordance with Records Retention By-Law 21-2013, as amended.

THE CORPORATION OF THE CITY OF WINDSOR PROCEDURE

Service Area:	Office of the City Solicitor	Procedure No.:	
Department:	Planning and Building Services	Approval Date:	
Division:	Transportation Planning	Approved By:	
		Effective Date:	On Approval
Subject:	Permanent Traffic Calming Procedure	Policy Ref.:	Traffic Calming Policy
		<i>Pages:</i>	Replaces:
Prepared By:	R.Toufeili, Policy Analyst	18	Date:

1. PURPOSE

- 1.1. This procedure is intended to provide details for reviewing traffic calming requests and implementing the Traffic Calming Policy using a warrant review process.

2. SCOPE

- 2.1. This procedure provides the details to address traffic calming requests for permanent traffic calming measures.

3. RESPONSIBILITY

- 3.1. Responsibility for implementing this procedure is outlined in the Traffic Calming Policy.

4. PROCEDURE

- 4.1. A traffic calming project is initiated when a resident, business or group submits a concern specifically related to vehicle speeds and/or volumes. Requests are usually submitted by contacting 311
- 4.2. There are four stages of a traffic calming project:
 Stage 1: Project Initiation (Section 4.5)
 Stage 2: Project Development (Section 4.6)
 Stage 3: Project Approval (Section 4.7)
 Stage 4: Project Implementation (Section 4.8)
- 4.3. A traffic calming project ends when a traffic calming solution is implemented or traffic calming is not appropriate for implementation.

4.4. Stage 1: Project Initiation

- 4.4.1. Upon receiving the request, the street will be evaluated for eligibility and must meet all of the following criteria, otherwise the review process ends:
- Local or Collector road in the City's Official Plan;
 - Longer than 150 m; and
 - Has not been evaluated for traffic calming in the last 3 years.
- 4.4.2. Administration will then determine the appropriate locations to collect speed and volume data. One of the following thresholds must be met, otherwise the street is reviewed for speed humps eligibility through the Local Roadway Speed Humps Procedure:
- A minimum 85th percentile speed of 10 km/h over the speed limit; or
 - A minimum volume of 1,000 vehicles per day (vpd) for local roadways; 3,000 vpd for Class II collector roadways and 6,000 vpd for Class I collector roadways.
- 4.4.3. A preliminary warrant review of speed, volume and pedestrian data may be undertaken to determine whether a warrant would be achievable. If it is determined the initial data would not meet warrant, the requestor may be referred to the Expedited Temporary Traffic Calming Procedure or the Local Roadway Speed Humps Procedure.
- 4.4.4. Administration will identify a survey area to survey the neighbourhood for support of initiating a traffic calming review. The survey area should include all residential households and commercial properties directly abutting the street of concern (excluding City-owned or vacant properties), up to 150 m on either side of the location of concern, or to the nearest intersection, whichever is closer. If the concern is at an intersection, the survey area should extend to the next cross street in each direction. Examples of survey areas are illustrated in **Figure 1**.
- 4.4.5. Administration will mail a letter to all households, residential units and commercial properties within the survey area, requesting participation in a telephone survey using the City's 311 system (or other means appropriate) to demonstrate neighbourhood support. **A minimum 25% must respond in favour of a traffic calming review.** If this threshold is not met, the review process for permanent traffic calming ends and the street is reviewed through the Local Roadway Speed Humps Procedure. A new traffic calming request within the same street segment may start from the survey stage if the traffic data collected for the previous request is still current.
- 4.4.6. Upon confirming neighbourhood support, a warrant/prioritization area will be identified, which should include local and collector roads bound by higher functioning roads, as illustrated in **Figure 2**.
- 4.4.7. A warrant review will be conducted using the points criteria identified in **Table 1**. Vehicle speeds are analyzed using the 85th percentile speed collected during a speed study. Volumes are analyzed using the measured annual average daily traffic (AADT) counts.

Figure 2 - Example of Warrant/Prioritization Area

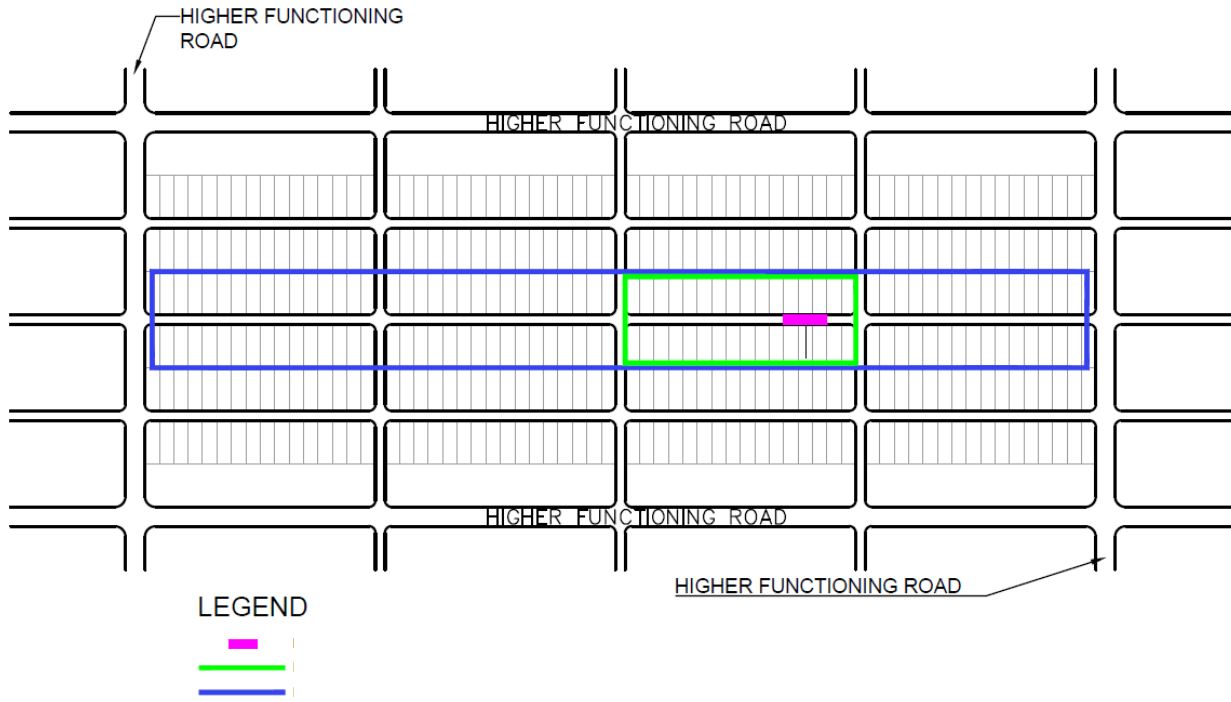


Table 1: Permanent Traffic Calming Warrant Review

Criteria	Points	Max. Points
LOCAL ROADS		
Vehicle Speeds	3 points for every km/h (85 th percentile) over the posted speed using the average along the street. Eg. average 85 th percentile speed: 58 km/h in a max. 50 km/hr zone = 24 points	30
Vehicle Volumes	1 point for every 100 AADT starting from 0. Eg. 1,500 AADT = 15 points	25
Presence of Schools	7.5 points for each school along the street and 5 points for designated school walk routes for schools near but not on the street itself.	15
Other Pedestrian Generators	5 points for each generator (park, senior's center, community centre, place of worship, retail or public institution excluding schools) with a direct connection to the street (frontage, trail, sidewalk or other access point).	10
Collisions	1 point for each reducible* collision per kilometer in the past five years plus 5 points for each reducible collision per kilometer involving a vulnerable road user within the past five years.	10
Presence of Sidewalks	5 points if the road does not have a continuous sidewalk on at least one side.	5
COLLECTOR ROADS		
Vehicle Speeds	2 points for every km/h (85 th percentile) over the posted speed limit using the average along the street. E.x. average 85 th percentile speed: 58 km/h in a max. 50 km/h zone = 16 points	30
Vehicle Volumes	1 point for every 100 AADT starting from 3,000 for Class II; 6,000 for Class I. E.x. 4,500 AADT on Class II = 15 points 7,500 AADT on Class I = 15 points	25
Presence of Schools	7.5 points for each school along the street and 5 points for designated school walk routes for schools near but not on the street itself.	15
Other Pedestrian Generators	5 points for each generator (park, senior's center, community centre, place of worship, retail or public institution excluding schools) with a direct connection to the street (frontage, trail, sidewalk or other access point).	10
Collisions	1 point for each reducible* collision per kilometer in the past five years plus 5 points for each reducible collision per kilometer involving a vulnerable road user within the past five years.	10
Presence of Sidewalks	5 points if the road does not have a continuous sidewalk on at least one side.	5

*The collision data used for the criteria should be limited to those collision types which may have been prevented by traffic calming treatments. Excluding the collisions which may not have been prevented ensures that the project does not receive a higher priority for an outlying safety issue beyond the scope of traffic calming. High collision rate areas should be given broader consideration and reviewed outside of the Traffic Calming Policy. In addition to collisions with vulnerable road users, engineering judgement must be used to identify collisions which may be reduced based on suitable traffic calming measures.

Both mid-block and intersection collisions may be considered if they meet the above criteria. In order to ensure that longer streets don't receive a higher priority versus a shorter street because of the higher likely number of collisions due to length, a collision rate is utilized. The collision rate is expressed as the number of collisions per kilometre of roadway.

4.5. Stage 2 - Project Development

4.5.1. Administration will define a study area, including all local roads bound by the nearest collector/major roads. If the request is located on a Class II Collector, the study area should include the area adjacent to the collector bound by major roads. A decision tree is provided in **Table 2** and illustrations in **Figure 3** to assist with defining the study area. Some element of professional judgment will be required in finalizing the limits. If cut-through traffic is confirmed as an issue, the study area should consider potential alternative routes cut-through traffic would take if measures were implemented.

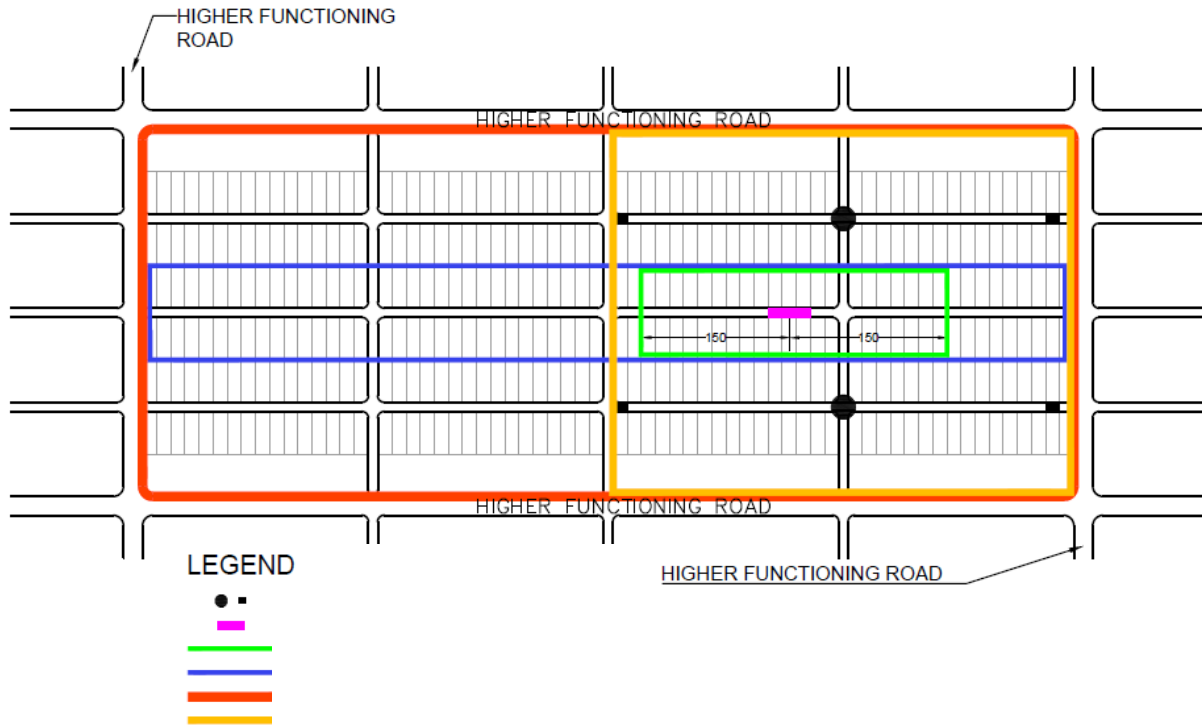
- Cut-through traffic may be confirmed by estimating the number of trips made by residential and other types of units along the road. If the measured traffic volume is greater than the estimated volume, cut-through traffic may be assumed.

4.5.2. The polling area is defined as all streets on which measures will be placed, extending from the last measure to the next nearest intersection. An illustrated is provided in **Figure 3**.

Table 2: Decision Tree for Defining the Study Area

Source of Issue	Location of Issue	Issue	Study Area Suggestion
Local Traffic	Block	Speed	Identified block (including turns on/off the block)
		Volume	Access management study required
		Both	Identified block (including turns on/off the block) and alternate routes
	Intersection	Speed	One block radius from intersection
		Volume	Access management study required
		Both	One block radius from intersection
	Multiple Blocks (Linear)	Speed	Identified blocks (including turns on/off the blocks)
		Volume	Neighborhood area
		Both	Identified blocks (including turns on/off the blocks) and alternate routes
	Neighbourhood Wide	Speed	Neighborhood area
		Volume	
		Both	Neighborhood area and alternate routes
Shortcutting (or both local and shortcutting)	Block	Speed	Identified block (including turns on/off the block) and alternate routes
		Volume	
		Both	
	Intersection	Speed	One block radius extending from identified intersection
		Volume	
		Both	
	Multiple Blocks (Linear)	Speed	Identified blocks (including turns on/off the blocks) and alternate routes
		Volume	
		Both	
	Neighbourhood Wide	Speed	Neighborhood area and alternate routes
		Volume	
		Both	
Other			Professional Judgement

Figure 3: Examples of Study and Polling Area



4.5.3. Administration will then develop a Traffic Calming Plan for the study area using the Traffic Calming Toolbox provided in **Attachment A**.

- **Table A-1** provides general recommendations for traffic calming measures according to road classification.
- **Table A-2** provides cost estimate ranges used for each measure.
- **Table A-3** provides a brief description of each measure.
- Administration will continue to explore new traffic calming measures and may test different measures as pilot projects to determine if they are suitable for temporary or permanent installation.
- Each location/scenario should be evaluated with the full range of traffic calming measures.
- Applicable policies, guidelines and master plans should be considered during the review, including the City's Active Transportation Master Plan (ATMP), School Neighbourhood Policy and the Transportation Association of Canada (TAC) Canadian Guide to Traffic Calming. Any traffic calming construction work shall meet the requirements on the City of Windsor Development Manual and any relevant City of Windsor Engineering Standard Drawings.

4.5.4. The proposed Traffic Calming Plan should include:

- Description of all aspects of the project;
- Description of the problem including results of data collection;

- Proposed design layout with signage; and
 - Description/photos of proposed treatment with cost estimate.
- 4.5.5. Notifications will be mailed to all dwelling units and commercial properties within the study area, inviting residents and stakeholders to attend an open house to review the proposed Traffic Calming Plan, ask questions and provide comments. Notices may also be advertised in the local newspaper, City website or media.
- 4.5.6. The community will be given the opportunity to provide feedback on the design during a given feedback period. A second public meeting may be required if the feedback results in substantial design changes.
- 4.5.7. Other affected agencies, such as the Windsor Accessibility Advisory Committee (WAAC), the Windsor Bicycling Committee (WBC), Bus Kids, any affected Business Improvement Areas (BIA) and the Windsor-Essex County Health Unit (WECHU), may be invited to provide comments and feedback.
- 4.5.8. Additional collection of speed and volume data may be required due to a change in study area boundaries based on feedback.

4.6. Stage 3 - Project Approval

- 4.6.1. Once the comments have been reviewed, the City will mail a letter to all dwelling units and commercial properties within the polling area to disclose the final details of the proposed Traffic Calming Plan and request participation in a telephone survey using the City's 311 system (or other means appropriate) to identify community acceptance. **A minimum 50% must respond, and of this, 60% must indicate their support for the Traffic Calming Plan.** If threshold is met, the Traffic Calming Plan will be deemed to have been approved by the community in the polling area. If this threshold is not met, the project ends.
- 4.6.2. Approved Traffic Calming Plans will be prioritized using the points score outlined above, with consideration to implementation cost. Projects will be put forward in priority sequence for approval to proceed with implementation. The number of projects put forward in any given year will depend on associated implementation cost and available budget. The length of time a project has been waiting for implementation funding will not influence whether it is constructed in the coming season. Practical considerations may affect the selection of projects, some of which include the availability of funds restricted to specific activities or areas, the potential to coordinate with other projects and the availability of alternate funding sources. Although a project may be appropriate for traffic calming, it may take several years before it proceeds to implementation. The City's traffic calming website provides details about traffic calming projects and status.
- 4.6.3. Administration will present a report to the Environment, Transportation and Public Safety Standing Committee containing the Traffic Calming Plan and the results of the prioritization process (including details of costs and public support) for consideration and recommendation to Council

about implementation and funding the Traffic Calming Plan. Additional methods for presenting the results of the process to the Council include an annual presentation as a part of the capital budgeting process. Other methods may be developed as necessary. Council makes the decisions about funding for the implementation of the traffic calming measures.

4.7. Stage 4 - Project Implementation

4.7.1. Outcome reviews will be undertaken 6-12 months following installation of traffic calming measures to evaluate effectiveness. The scope of outcome reviews will be dependent on the objectives of the project, and will generally include the collection of speed, volume, and collision data for comparison against pre-installation data.

- Due to the types of roads for which traffic calming will be considered, it is highly unlikely that any significant collision trends will be identified over an analysis period of 6-12 months. Additional time may be required before collision data may be used to help evaluate the results of the traffic calming treatment.
- The outcome review will in most cases not include a diverted traffic analysis. These may be considered if comparable data was collected prior to installation and this was a key objective for the installation.

4.7.2. Success with traffic calming will be a reduction in vehicle speed, volume, and/or collisions. Depending on the outcome achieved, Administration may choose to run the site through the warrant/prioritization process to see if it still has a need and how it compares to other potential sites. If Administration decides that the traffic calming measures have not been effective, they may recommend undertaking further public meetings to discuss amendments to the project. Prior to the convening of public meetings, a report will be delivered to Council reviewing the performance of said traffic calming measures.

4.7.3. Projects waiting for implementation may be referred to the Temporary Expedited Traffic Calming Procedure.

5. RECORDS, FORMS, AND ATTACHMENTS

5.1. Records for this policy shall be prepared and retained in accordance with Records Retention By-Law 21-2013, as amended.

5.2. Attachment A – Traffic Calming Toolbox

ATTACHMENT A – Traffic Calming Toolbox

Table A-1: Permanent Traffic Calming Measures by Road Classification

Item #	Category	Measure	Local	Class II Col.	Class I Col.	Est. Cost Range	Est. Annual Maint. Cost
1.1	Vertical Deflection	Speed Hump ¹	✓	x	x	\$ - \$\$	\$ - \$\$
1.2		Textured Crosswalk	✓	▲	▲	\$ - \$\$	\$
1.3		Raised Crosswalk	▲	x	x	\$\$ - \$\$\$\$	\$
1.4		Raised Intersection	✓	x	x	\$\$\$\$ - \$\$\$\$\$	\$
1.5		Speed Table ¹	✓	✓	✓	\$\$	\$
2.1	Horizontal Deflection	Curb Radius Reduction	✓	✓	✓	\$\$	N/A
2.2		Speed Kidneys	✓	▲	x	\$ - \$\$	\$ - \$\$
2.3		On-Street Parking	✓	✓	✓	\$ - \$\$	\$
2.4		Lane Narrowing (Physical)	✓	✓	✓	\$ - \$\$	N/A
2.5		Raised Median Island	✓	✓	✓	\$\$	\$
2.6		Sidewalk/Curb Extension	✓	✓	✓	\$\$	N/A
2.7		Traffic Circle or Roundabout	✓	✓	✓	\$\$ - \$\$\$\$\$	\$
2.8		Right-in/Right-out Island	✓	✓	✓	\$\$	\$
2.9		Chicanes	✓	x	x	\$\$	\$
2.10		Road Diet	✓	✓	✓	\$\$\$	N/A
3.1	Volume Control	Directional (Half) Closure	✓	x	x	\$ - \$\$\$	\$
3.2		Full Closure ²	✓	x	x	\$\$\$\$	\$
3.3		Diagonal Diverter	✓	x	x	\$\$\$	\$
3.4		Raised Median Through Intersection	✓	✓	✓	\$\$	\$ - \$\$

Table A-1: Permanent Traffic Calming Measures by Road Classification (cont.)

Item #	Category	Measure	Local	Class II Col.	Class I Col.	Est. Cost Range	Est. Annual Maint. Cost
4.1	Non-Physical	Radar Speed Feedback Signs	✓	✓	✓	\$\$	\$
4.2		Vehicle Activated Warning Signs	✓	✓	✓	\$ - \$\$	\$
4.3		Pavement Markings	✓	✓	✓	\$ - \$\$	\$ - \$\$
4.4		On-Road Sign Pavement Markings	✓	✓	x	\$ - \$\$	\$ - \$\$
4.5		Turn Prohibition (signed) ³	✓	✓	x	\$	\$
4.6		Through Traffic Prohibition (signed) ³	✓	✓	x	\$	\$
4.7		Traffic Calmed Neighborhood Sign ³	✓	✓	✓	\$	\$
Legend: ✓ Applicable ▲ Consider with Caution x Not Appropriate							

Note 1 – In general, it is recommended that large, bolt-in traffic calming measures such as speed cushions not be installed at the same location for more than two years. Beyond this point, the pavement damage can be severe enough that the anchors may not be able to keep the cushions secured to the pavement.






Note 2 – the City’s ATMP recommends the City strive to ensure that traffic calming does not encourage dead end streets to preserve connectivity for pedestrians.

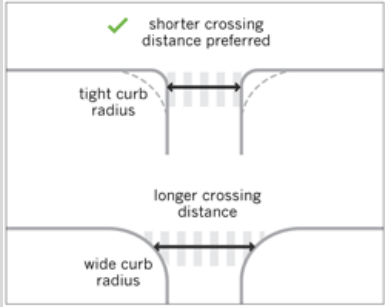
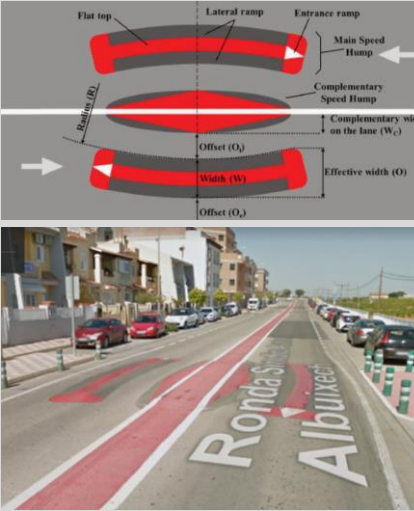


Note 3 – Only used in conjunction with physical measures.






Table A-2: Estimated Cost Range






Symbol	Range
\$	\$0 - \$5,000
\$\$	\$5,000 - \$20,000
\$\$\$	\$20,000 - \$50,000
\$\$\$\$	\$50,000 - \$100,000
\$\$\$\$\$	> \$100,000

Table A-3: Permanent Traffic Calming Measures





Item #	Measure	Example	Description
1.1	Speed Hump	 <p data-bbox="591 541 786 569">www.fhwa.dot.gov</p>	Speed humps provide a vertical, tactile alert to drivers, encouraging lower speeds.
1.2	Textured Crosswalk	 <p data-bbox="591 903 786 930">www.fhwa.dot.gov</p>	Brick pavers or other materials are used to help distinguish the pedestrian crosswalk from the roadway. This feature may also help to remind drivers to remain alert to the presence of pedestrians and other non-motorized traffic.
1.3	Raised Crosswalk	 <p data-bbox="591 1266 786 1293">www.fhwa.dot.gov</p>	Raised crosswalks serve as a visual and tactile alert to drivers of the presence of pedestrians and other non-motorized traffic.
1.4	Raised Intersection	 <p data-bbox="591 1545 786 1572">www.fhwa.dot.gov</p>	Raised intersections provide visual and tactile encouragement for drivers to lower their speed, particularly on their approach to the intersection where non-motorized traffic especially may be present.
1.5	Speed Table <small>Note 1</small>	 <p data-bbox="607 1812 769 1839">www.surrey.ca</p>	Speed tables serve a similar function as speed humps but allow for slightly higher speeds and are generally preferred by emergency services over speed humps.

<p>2.1</p>	<p>Curb Radius Reduction</p>	 <p>www.mto.gov.on.ca</p>	<p>Reductions in curb radii force drivers to manoeuvre turns at lower speeds, encouraging lower speeds on the approaches to the intersection.</p>
<p>2.2</p>	<p>Speed Kidneys</p>	 <p>google.com/maps (Rondo Sindic Antoni Albuixech, Almussafes, Spain)</p>	<p>A speed kidney is an arrangement of three elongated speed humps with a curvilinear shape, built into the pavement in the direction of travel. Vehicle drivers can slow down and deviate the raised sections, or travel over them similar to a speed hump.</p>
<p>2.3</p>	<p>On-Street Parking</p>	 <p>Vancouver.ca</p>	<p>On-street parking may help to lower speeds along streets by narrowing the travel ways and encouraging drivers to be more alert for vehicles or other drivers entering or exiting vehicles.</p>
<p>2.4</p>	<p>Lane Narrowing</p>	 <p>www.fhwa.dot.gov</p>	<p>Narrow lanes tend to encourage lower speeds as drivers feel slightly constricted. This may be achieved through physical alterations as well as the addition of on-street parking, bike lanes, pavement markings, movable planters or traffic calming curbs.</p>

2.5	Raised Median Island	 <p>www.fhwa.dot.gov</p>	<p>Raised median islands may be used to provide a physical refuge area for pedestrians and other non-motorized traffic. They may also be used to help narrow travel ways. These features help to encourage lower driver speeds.</p>
2.6	Sidewalk/ Curb Extension	 <p>Contextsensitivesolutions.org</p>	<p>Curb extensions reduce the distance pedestrians and other non-motorized traffic must travel when crossing the street. They may also be used to narrow travel ways, or reduce curb radii, slowing driver speeds.</p>
2.7	Traffic Circle or Roundabout	 <p>google.com/maps (35th & Raleigh St., Denver, CO)</p>  <p>google.com/maps (Sandwich St., Windsor)</p>	<p>Traffic circles and roundabouts require drivers to slow their approach and yield to traffic while transitioning through the intersection. May be designed to be traversable for larger vehicles and emergency response vehicles.</p>
2.8	Right-in/Right-out Island	 <p>www.fhwa.dot.gov</p>	<p>Right in/right out islands restrict vehicle flow to help eliminate left turn movements into and out of driveways lowering the potential for conflicts.</p>

2.9	Chicanes	 <p>en.wiktionary.org/wiki/chicane</p>	Bump-outs on opposite sides of the road require drivers to slow down to zigzag through the roadway configuration.
2.10	Road Diet	 <p>Roadsbridges.com</p>	Reconfiguration of a roadway to allocate reclaimed road width for other uses, such as turning lanes, bike lanes, pedestrian refuge islands or parking.
3.1	Directional (Half) Closure	 <p>www.stocktongov.com</p>	Partially restricts the flow of vehicles along the street. This measure is strictly for volume control and has little impact on driver speeds.
3.2	Full Closure	 <p>www.victoria.ca</p>	A full closure or cul-de-sac eliminates through traffic for motor vehicles at one end of a road, serving as a volume control measure.
3.3	Diagonal Diverter	 <p>www.sanantonio.gov</p> <p>google.com/maps (Monmouth Rd., Windsor)</p>	Diagonal diverters allow some traffic to flow through the intersection in restricted ways to discourage (not necessarily eliminate) through traffic.

<p>3.4</p>	<p>Raised Median Through Intersection</p>	 <p>www.pedbikesafe.org</p>	<p>Raised medians through an intersection prohibits cross traffic in one direction. This helps reduce or eliminate through traffic in one direction. Small gaps may be included to allow bicycle and other non-motorized traffic to pass through.</p>
<p>4.1</p>	<p>Radar Speed Feedback Sign</p>	 <p>www.townofsananselmo.org</p>	
<p>4.2</p>	<p>Vehicle Activated Warning Sign</p>	 <p>unipartdorman.com</p>	
<p>4.3</p>	<p>Pavement Markings</p>	 <p>ctre.iastate.edu</p> <p>alertdriving.co.nz</p>	

<p>4.4</p>	<p>On-Road Sign Pavement Markings</p>	 <p>google.com/maps (Queen St. S., Hamilton, Ontario)</p> <p>google.com/maps (S. Sterling Ave., Tampa, Florida)</p>	<p>Sign pavement markings may be used to provide on-road messages, such as “MAX 50 km/h”, “Stop Ahead”, “School Ahead”, or “SLOW”.</p>
<p>4.5</p>	<p>Turn Prohibition (signed)</p>	 <p>www.fhwa.dot.gov</p>	<p>Turn prohibitions should serve a similar purpose as directional closures or diagonal diverters.</p>
<p>4.6</p>	<p>Through Traffic Prohibition (signed)</p>	 <p>www.fhwa.dot.gov</p>	<p>Through traffic prohibitions should serve a similar purpose as full closures, diagonal diverters, or raised medians through intersections.</p>
<p>4.7</p>	<p>Traffic Calmed Neighbourhood Sign</p>	 <p>www.surrey.ca</p>	<p>Traffic Calmed Neighborhood signs help to alert drivers of the presence of traffic calming measures. Ideally this will provide additional encouragement for drivers to lower speeds and increase alertness to the presence of non-motorized traffic. Only used in conjunction with physical measures.</p>

**THE CORPORATION OF THE CITY OF WINDSOR
PROCEDURE**

Service Area:	Office of the City Solicitor	Procedure No.:	
Department:	Planning and Building Services	Approval Date:	
Division:	Transportation Planning	Approved By:	
		Effective Date:	On Approval
Subject:	Local Roadway Speed Humps Procedure	Policy Ref.:	
		<i>Pages:</i>	Replaces: N/A
Prepared By:	R. Toufeili, Policy Analyst		Date:

1. PURPOSE

1.1. This procedure is intended to provide details for the implementation of speed humps as requested by residents for the Corporation of the City of Windsor.

2. SCOPE

2.1. This procedure covers requests for speed bumps within the City as a measure for traffic calming and speed reduction.

2.2. This procedure serves as an addition to the existing Traffic Calming Policy by the Corporation of the City of Windsor.

3. RESPONSIBILITY

3.1. Responsibility for implementing this procedure is outlined in the Traffic Calming Policy.

4. PROCEDURE

4.1. The speed humps location check is used to determine areas where the seed humps can not be located. Speed humps through this procedure shall not be implemented on:

4.1.1. Scenic drives, collector or arterial roads;

4.1.2. Roads which are transit routes;

4.1.3. Roads which are truck routes;

4.1.4. Roads where the speed limit is above 50 km/h;

4.1.5. Roads which are primary routes for Emergency Services;

4.1.6. Roads which do not have curbs;

4.1.7. Roads which are classified as local road industrial; and,

4.1.8. Roads which are deemed unsuitable at the discretion of the City Engineer if there are special circumstances related to feasibility or implementation.

4.2. The selection of speed hump locations shall be processed through the Traffic Calming Policy – Permanent Traffic Calming Procedure as shown in **Figure 1** and as follows:

4.2.1. A request for traffic calming measures will be received through 311 or City Administration.

4.2.2. A speed and volumes check will be conducted in agreement with the Permanent Traffic Calming Procedure.

4.2.3. If the speed and volumes check does not pass through the Permanent Traffic Calming Procedure, the request shall be reviewed for eligibility of speed humps.

4.2.4. If the traffic calming request passes all Permanent Traffic Calming Procedure steps up to the resident petition stage but does not receive the required 25% support, the request shall be reviewed for eligibility for speed humps.

4.2.5. If a roadway is eligible for speed humps based on the speed humps location check but it **does not** meet the warrant criteria of the permanent traffic calming procedure, a survey will be completed along the length of the subject area to **determine if a majority of the subject area, over 50%, are in support** of receiving speed humps on their street. The survey shall be open for a period of 30 days.

4.2.6. If a roadway is eligible for speed humps based on the speed humps location check and it **does** meet the warrant criteria of the permanent traffic calming procedure, a survey will be completed along the length of the subject area requiring a **50% response rate and 60% support**. The survey shall be open for a period of 30 days.

The survey area should include all residential households and commercial properties directly abutting the street of concern (excluding City-owned or vacant properties).

4.2.7. If the speed humps survey does not achieve the required level of support, the street will be ineligible for speed humps and residents can reapply once one year has elapsed from the closing date of the survey.

Current Permanent Traffic Calming Procedure

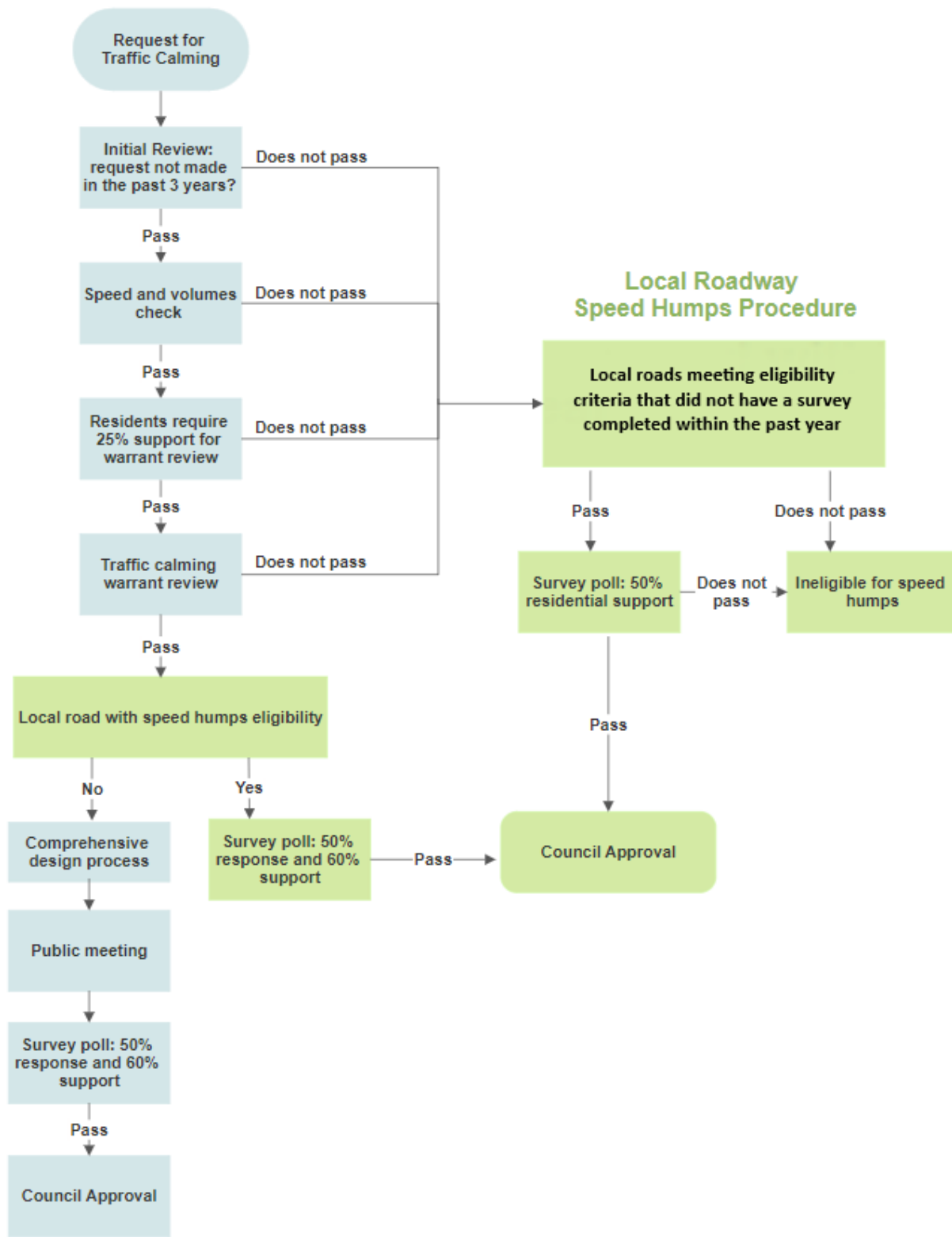


Figure 1 – Local Roads Speed Humps Procedure

- 4.3.** For streets that warrant speed humps:
- 4.3.1.** A list of locations will be kept where speed humps are warranted based on the Local Roads Speed Humps procedure.
 - 4.3.2.** Locations will be prioritized for speed humps based on:
 - 4.3.2.1.** Streets that have passed the traffic calming warrant review in the Permanent Traffic Calming Procedure; and,
 - 4.3.2.2.** Level of percent support from street residents.
 - 4.3.3.** A priority list comprised of two sections, as shown in **Table 1**, will be presented to Council of speed hump locations and available funding for the projects. Council may direct administration to place speed humps on specified roadways.

Table 2 – Speed Hump Locations Priority List Structure

Priority List of Speed Hump Locations
<p>Part 1 Prioritized by points achieved through the Permanent Traffic Calming Warrant Review (# of Points)</p>
<p>Part 2 Prioritized by percentage of resident support (% Resident Support)</p>

- 4.4.** Speed humps shall be placed as follows:
- 4.4.1.** With appropriate signs and pavement markings adjacent to each speed hump to indicate their presence to drivers;
 - 4.4.2.** Not obstructing any driveways or significant areas of access on the roadways; and,
 - 4.4.3.** Not on parts of roadways within 75 meters of traffic signals.