

Bradford
west
Gwillimbury



Traffic Mitigation Strategy

Public Information Centre #3

March 6, 2024

6:00pm to 8:00pm

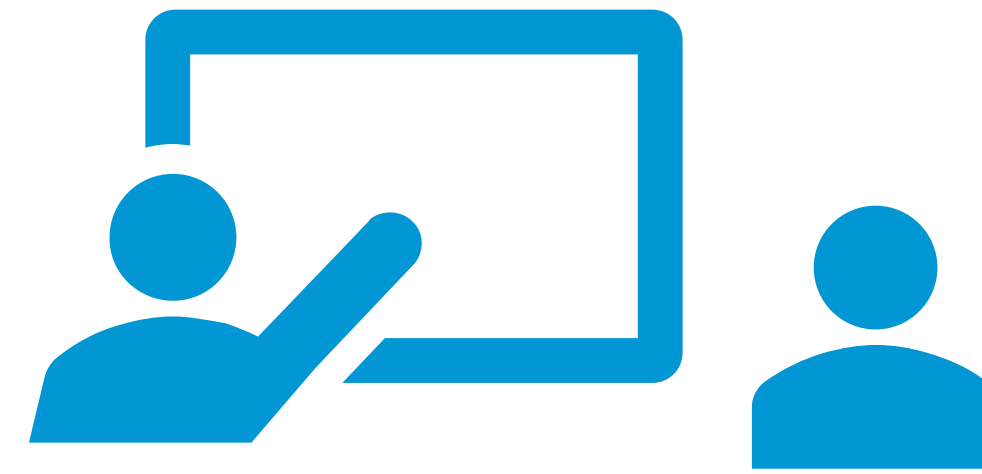


Welcome

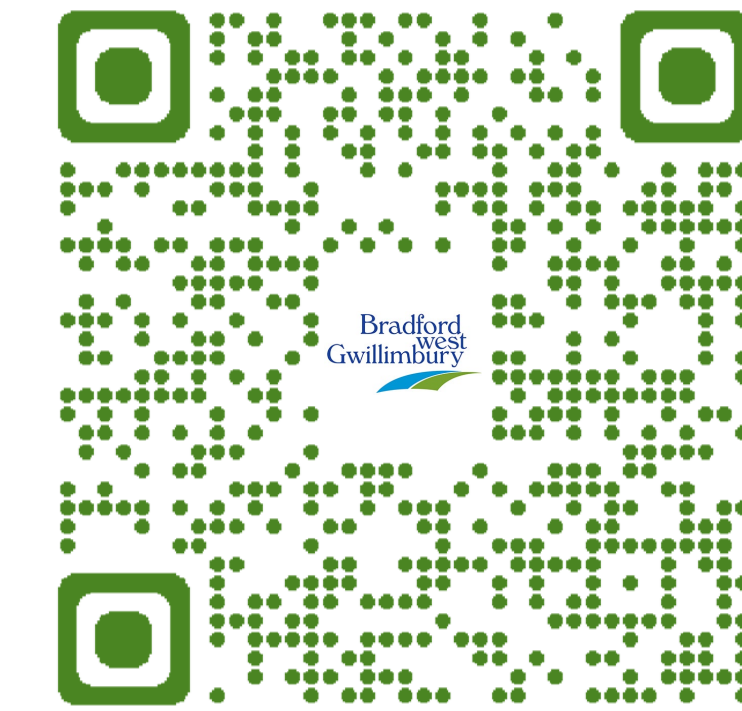
Thank you for attending PIC #3 for the BWG Traffic Mitigation Strategy project. There are many ways to provide feedback on today's PIC:



Provide written comments via the **comment box**



Discuss questions / comments with a **member of the project team**



Provide comments via the **project website at:**
www.townofbwg.com/tms

Land Acknowledgement

As visitors on this land, The Town of BWG acknowledges that the land on which we gather today is the traditional territory of the Anishinaabek Nation, which includes Ojibwe, Odawa and Pottawatomi Nation, collectively known as the Three Fires Confederacy. We recognize that the Huron-Wendat, Chippewa and Haudenosaunee Nations have walked on this territory over time.

In times of great change, we recognize more than ever the importance of honouring Indigenous history and culture and are committed to moving forward in the spirit of reconciliation, respect and good health with all First Nation, Métis and Inuit people.

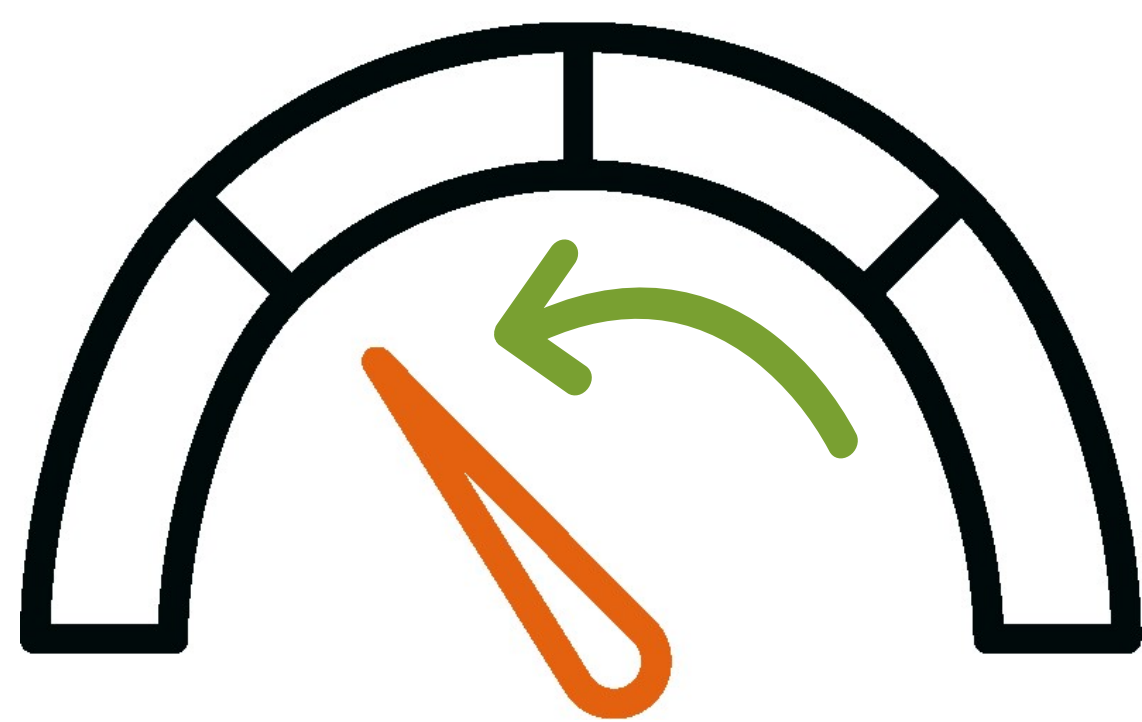
Project Background

The Town of Bradford West Gwillimbury has experienced **significant residential and commercial development** over the past several years and the **second-highest population growth rate** in Ontario.

With a road network of 300 km and counting, **traffic safety has become a growing concern** in the Town.

The Town has developed a **Traffic Mitigation Strategy** to help address these concerns and meet the following objectives:

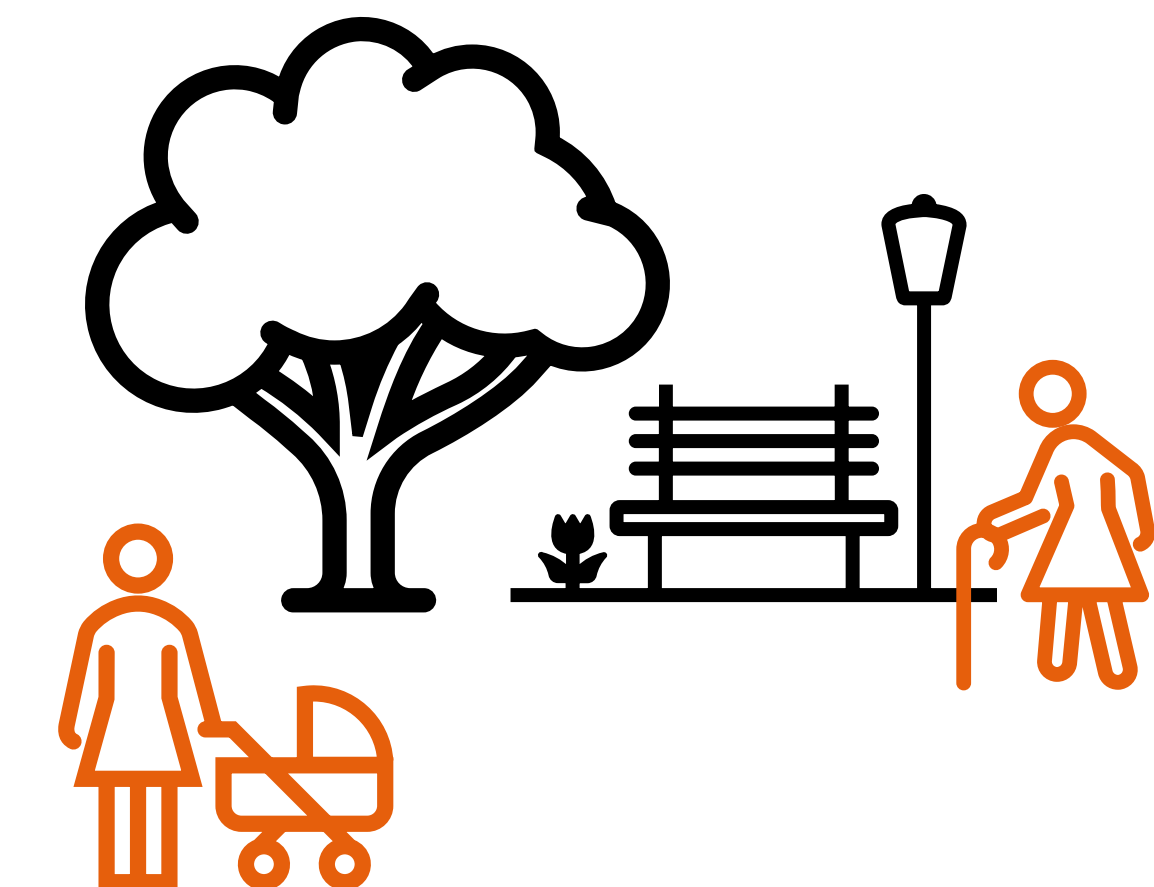
Reduce Speeding



Provide Safe Routes for Pedestrians and Cyclists



Promote Place Making



Project Process

The **Traffic Mitigation Strategy** was developed through the following steps:

1 Background & Best Practice Review

- Summary of **existing traffic data and policies**
- Reviewing strategies from **other municipalities**
- Identifying **potential traffic calming solutions**

2 Public & Stakeholder Engagement

- Meetings with key stakeholders and the public to **understand traffic concerns** in BWG
- Exploring traffic calming processes to **understand gaps and opportunities**

3 Traffic Mitigation Strategy Development

- Developing **Clear processes** for evaluating, prioritizing, and implementing traffic calming requests
- Providing a **toolbox of traffic calming measures** to help address traffic concerns

Project Timeline

Today's PIC #3 provides an **overview of the Traffic Calming Guide** that will be incorporated in the Town's final Traffic Mitigation Strategy.



The final step in the process will be to **present the Traffic Mitigation Strategy** to Town Council for approval.

Traffic Calming Refresher

What is Traffic Calming?

Traffic Calming includes adding **physical or visual measures** to a street to help reduce speeding, aggressive driving, traffic volumes, and other concerns.

Traffic Calming measures can be implemented as **temporary tools or permanent changes** to the street, depending on the concern and context.

Vertical measures such as speed cushions, raised crosswalks, and raised intersections



Horizontal measures such as curb extensions, flexible signs, and roundabouts

The “3E” Approach to Traffic Calming

The Town aims to implement traffic calming measures in order of the “3 Es”:

Traffic Calming Measures

Level of Impact Low/None Medium High

Measures	Potential Advantages			Potential Disadvantages			Road Classification					
	Speed Reduction	Volume Reduction	Conflict Reduction	Emergency Response	Active Transportation	Maintenance	Local	Collector	Rural			
									Hot Mix Asphalt	Surface Treatment	Gravel	
Education												
Flexible Bollards	●	○	●	○	●	●	✓	✓	x	x	x	
Pavement Markings ²	●	○	○	○	○	●	✓	✓	✓	✓	x	
Radar Message Board	●	○	○	○	○	●	✓	✓	✓	✓	✓	
C.S.Z.	●	●	●	○	○	○	✓	✓	x	x	x	
40 km/h Speed Limit Area	●	○	●	○	○	○	✓	✓	x	x	x	
Enforcement												
Automatic Speed Enforcement (ASE)	●	●	○	○	○	●	✓	✓	✓	✓	✓	
Engineering – Vertical Measures												
Raised Intersection	●	○	●	●	●	●	✓	✓	x	x	x	
Speed Cushion	●	●	●	●	●	●	✓	✓	x	x	x	
Speed Hump	●	●	●	●	●	●	✓	✓	x	x	x	
Engineering – Horizontal Measures												
Chicane	●	●	●	●	●	●	✓	✓	x	x	x	
Curb Extension	●	○	○	○	●	●	✓	✓	x	x	x	
Curb Radius Reduction	●	○	○	○	●	●	✓	✓	x	x	x	
On-Street Parking	●	○	○	●	●	●	✓	✓	x	x	x	
Raised Median Island	●	○	●	○	○	●	✓	✓	✓	✓	x	
Traffic Circle	●	●	●	●	●	●	✓	✓	✓	✓	x	
Engineering – Obstruction Measures												
Directional Closure	●	●	●	●	●	●	✓	✓	x	x	x	
Diverter	○	●	●	●	●	●	✓	✓	x	x	x	
Full Closure	○	●	●	●	●	●	✓	✓	x	x	x	

¹ Effectiveness of regulatory measures are dependent on enforcement

² Various pavement markings have different levels of impacts for “Speed Reduction”, the upper ranges of speed reduction effectiveness was cited

1. Education

Improve driver awareness through low-cost, quick-build measures

2. Enforcement

Influence driving habits through supplementary deterrents when quick-build measures alone are unsuitable or ineffective

3. Engineering

Guide driver behaviour through physical changes to roadways

Before any of these measures are implemented the Town must follow the **Traffic Calming Process**

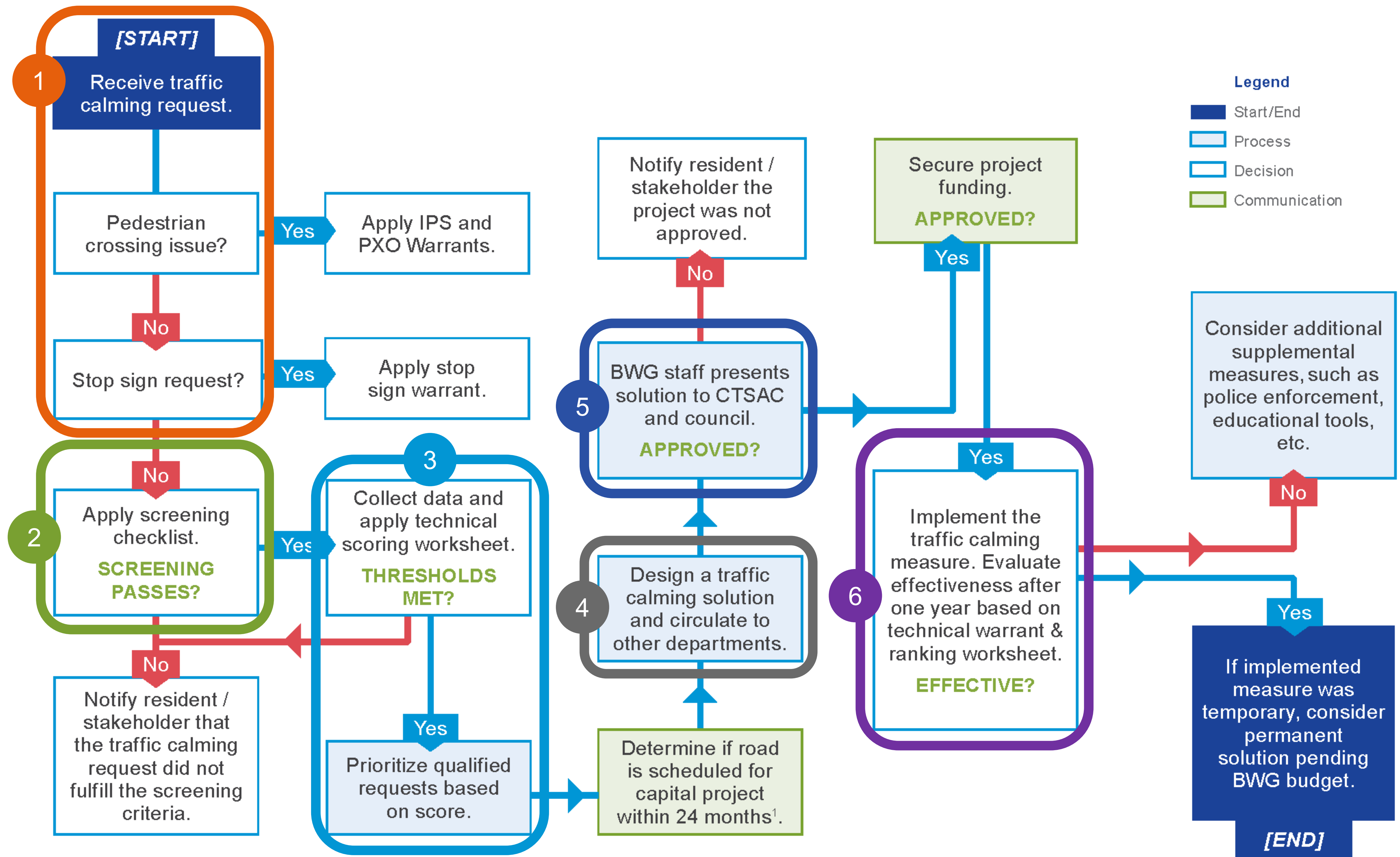


Traffic Calming Process

The Town's new **Traffic Calming Process** follows a six-phase approach:

Made for BWG
This process streamlines the major steps used by other municipalities to improve efficiency and fit the Town's unique needs.

Follow along on the simplified flowchart below!

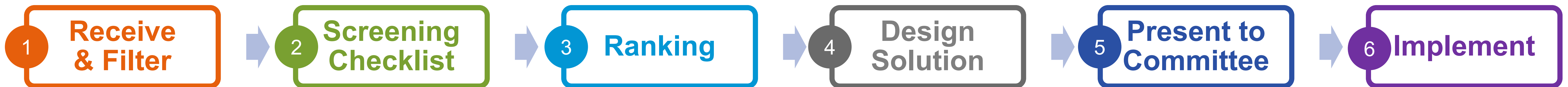
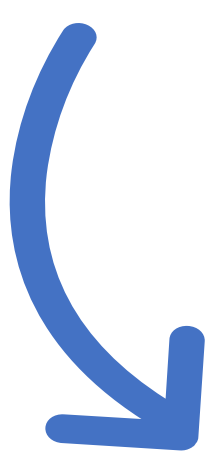


Acronyms

BWG – Town of Bradford West Gwillimbury
TC – Traffic Calming
OTM – Ontario Traffic Manual

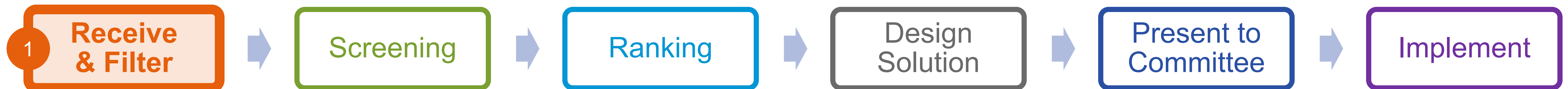
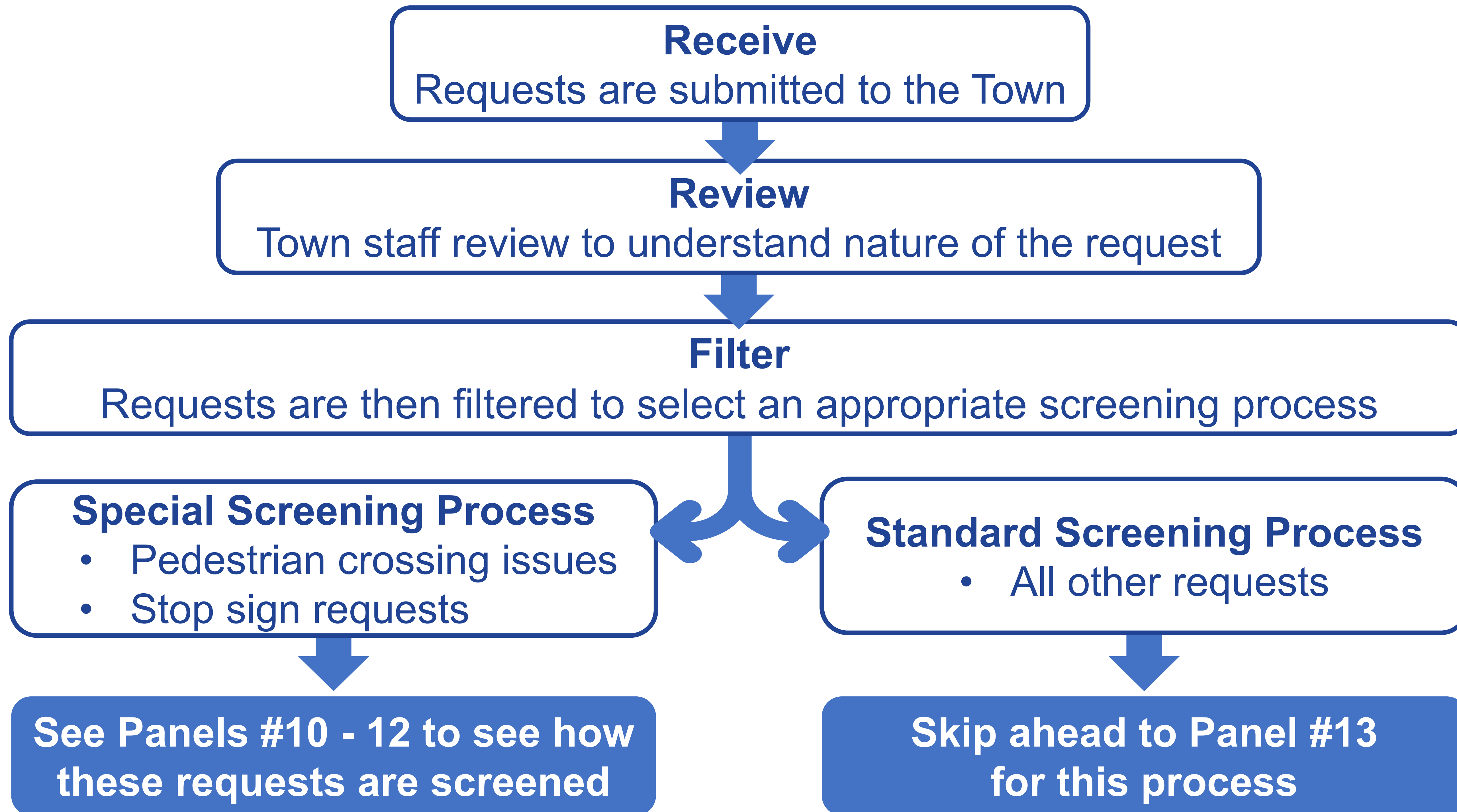
CTSAC – Community and Traffic Safety Advisory Committee
IPS – Intersection Pedestrian Signal
PXO – Pedestrian Crossover

*1 If road is scheduled for a capital project within the next 24 months, consider incorporating TC measures into that project.



Receiving Traffic Calming Requests

The first step of the traffic calming process is to **receive, review, and filter traffic calming requests** that are submitted by the community:

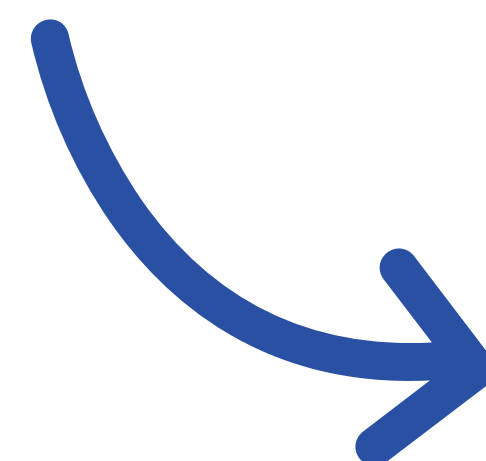


Special Screening Process: IPS Warrant

Before entering the standard screening process, a series of **Special Screening Processes** are completed to help filter requests.

The first includes reviewing **Intersection Pedestrian Signal (IPS) Warrants**, to determine if an IPS should be implemented to address a pedestrian crossing issue.

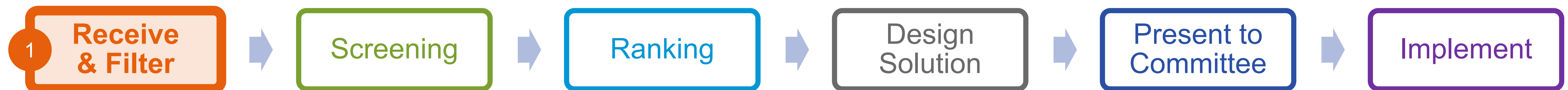
An IPS is warranted if each criteria receives a “yes”



Intersection Pedestrian Signal (IPS) Warrant			
CRITERIA #	CRITERIA	REQUIREMENT	COMPLIANCE (%)
1	OTM Book 12 Justification 1: Minimum Vehicular Volume (Table 12)	Rural: Minimum volume met?	
		A*. Vehicle Volume. All approaches for each of the heaviest 8 hours of an average day is 480 vehicles/hour?	At least 80%?
		B***. Vehicle Volume. Minor streets for each of the same 8 hours is 120 vehicles/hour?	At least 80%?
		Urban: Minimum volume met?	
		A*. Vehicle Volume. All approaches for each of the heaviest 8 hours of an average day is 480 vehicles/hour?	At least 80%?
		B***. Vehicle Volume. Minor streets for each of the same 8 hours is 120 vehicles/hour?	At least 80%?
OR			
2	OTM Book 12 Justification 2: Delay to Cross Traffic (Table 13)	Rural: Minimum volume met?	
		B*. Combined vehicle and pedestrian volume crossing the major street for each of the same 8 hours is 50 units/hour?	At least 80%?
		Urban: Minimum volume met?	
		B*. Combined vehicle and pedestrian volume crossing the major street for each of the same 8 hours is 75 units/hour?	At least 80%?
AND			
3	OTM Book 12 Justification 5: Collision Thresholds for 3 years	5 collisions/year averaged over 3 years?	Y/N
AND			
4	OTM Book 12 Justification 6: Pedestrian Volume & Delay (Tables 16-19)	A. Plotted point for 8 hr pedestrian volumes vs 8 hr vehicular volumes in justified zone?	Y/N
		B. Plotted point for 8 hr pedestrian volumes experiencing delays vs 8 hr vehicular volume in justified zone?	Y/N
CRITERIA #1-4 ALL ANSWERED YES?			

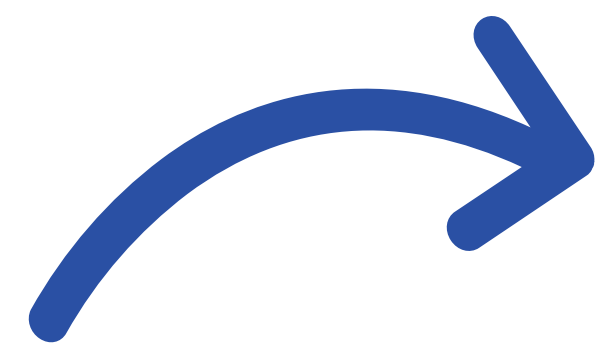
Factored pedestrian volume = unassisted volume + 2x assisted volume
OTM Book 12 (Traffic Signals, March 2012)

Based on OTM Book 12 (2012)



Special Screening Process: PXO Warrant

Another **Special Screening Process** includes reviewing the **Pedestrian Crossing (PXO) Warrant**, to determine if a pedestrian crossing should be implemented to address a pedestrian crossing issue.



If each criteria receives a “yes”, town staff will utilize the Ontario Traffic Manual Book 15 to confirm PXO design.

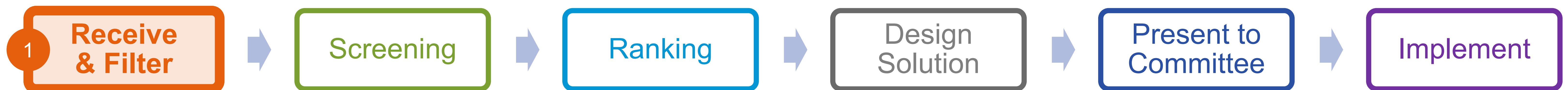
Mid-Block Pedestrian Crossing (PXO) Warrant			
CRITERIA #	CRITERIA	REQUIREMENT	YES/NO
1	Pedestrian Network	Is there a pedestrian desire line or system connectivity requirement here?	
2	8 or 4 Hour Volumes	Pedestrian volume* (8 hour total) is or greater than 100?	
		AND	
		Vehicular volume (8 hour total) is or greater than 750?	
		OR	
		Pedestrian volume* (4 hour total) is or greater than 65?	
		AND	
		Vehicular volume (4 hour total) is or greater than 395?	
3	Proximity From Another Traffic Control Device	Is the site <200 m from another traffic control device?	
4	Sight Distance	Adequate sight distance for motorists and pedestrians? (i.e., motorist stopping sight distance)	
5	Vulnerable Road Users	Is the concern near a school or in a community safety zone?	
CRITERIA #1-5 ALL ANSWERED YES?			
If All Yes, Proceed to OTM Book 15 Table 7 (Pedestrian Crossover Selection Matrix)			

Based on OTM Book 15 (2016)

* Pedestrian volume is the summation of unassisted pedestrians and assisted pedestrians, per OTM Book 12 and 15
 Adjusted pedestrian volume = unassisted volume + 2x assisted volume
 Unassisted: Adults and adolescents aged 12 or older
 Assisted: Children under 12, senior citizens, pedestrians with accessibility needs

Made for BWG

To improve safety and walkability, BWG’s final Traffic Mitigation Strategy will consider opportunities to create standardized crossing designs for the Town using a context-based approach – such as special treatments for school zones versus collector roads.



Special Screening Process: All-Way Stop Warrant

The final **Special Screening Process** includes reviewing the feasibility of an **All-Way Stop Warrant**.

Made for BWG
Considerations for improving crossing safety and walkability in school zones will be a key component in the Town's final Traffic Mitigation Strategy.

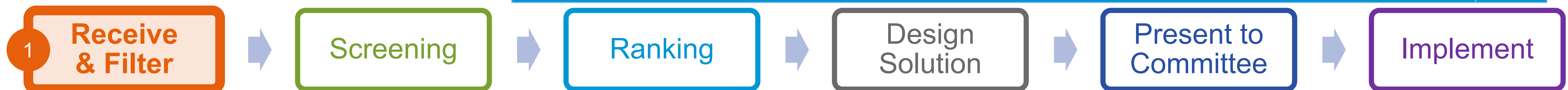
An all-way stop is warranted if each criteria receives a "yes" (for criteria #1 and #2) and "no" for criteria #3

*Units include vehicles and pedestrians

**Bikes are vehicles

*** Based on Transportation Association of Canada (TAC) 2017 sight distance calculation methodologies for stopping sight distance (SSD) and departure sight distance (DSD)

All-Way Stop Warrant			
CRITERIA #	CRITERIA	REQUIREMENT	YES/NO
1	Volume Thresholds: Per Hour for Each of [#] Highest Hours of Day	Urban Arterial: Minimum volume met?	
		1.1. All approaches total: 500 vehicles / hour for all 8 hours*	
		1.2.1. Minor Road: Case 1: 200 units / hour for all 8 hours**	
		OR	
		1.2.2. Minor Road: Case 2: 150 units / hour for all 8 hours with average delay of 30 sec	
		Collector Road and Rural Arterial: Minimum volume met?	
		1.1. All approaches total: 375 vehicles / hour for all 8 hours*	
		1.2.1. Minor Road: Case 1: 150 units / hour for all 8 hours**	
		OR	
		1.2.2. Minor Road: Case 2: 120 units / hour for all 8 hours with average delay of 30 sec	
		Local Road: Minimum volume met?	
		1.1. All approaches total: 200 vehicles / hour for all 4 hours*	
		1.2. Minor Road: Case 1: 75 units / hour for all 4 hours**	
		All Road Types: Split within thresholds?	
		1.3. Volume split: does not exceed 70/30 for 8 hour period (T-intersection 75/25)	
		• Major road counts only vehicles**	
		• Minor road counts units*	
2	Collision Thresholds for 3 years	Urban Arterial	
		2.1. 3 collisions/year over 3 years (9 collisions total)	
		Local/Collector/Rural Arterial	
		2.2. 4 collisions/year over 3 years (12 collisions total)	
3	Inappropriate areas	All Answers Below Shall be NO to Qualify	
		On multi-lane approaches?	
		Intersection has less than 3 or more than 4 approaches	
		Intersection geometry is offset / substandard	
		Stopping on steep grades?	
		Sign's stopping sight distance deficient due to horizontal curves?	
		Using for cut-through traffic issues?	
		Using to reduce speed?	
		Any other traffic control device within 250 m of stop sign?	
		Any progressive/coordinated signal timing on road within 800 m of stop sign?	
Based on OTM Book 5 (2021)			DOES IT PASS THE WARRANT?



Standard Screening Process

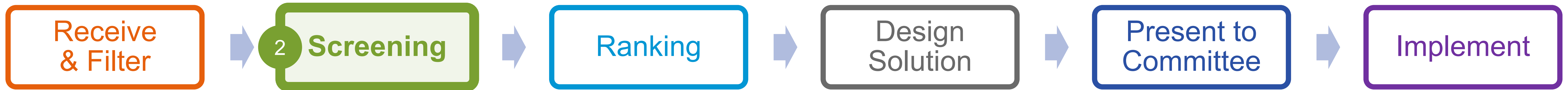
Requests that do not fall under pedestrian crossing concerns or stop sign requests will proceed to the **Standard Screening Process**.

These requests will be scored using the **Initial Screening Checklist**.

If each criteria receives a “yes”, the request will proceed to the next step, ranking and scoring.

Made for BWG
This checklist combines Town data with best practices from other municipalities to fit BWG's needs and improve efficiency.

Initial Screening Checklist				
CRITERIA #	SCREENING CRITERIA	MINIMUM REQUIREMENT	YES/NO	
1	Road Jurisdiction	The road of concern is under the jurisdiction of BWG.		
2	Road Length	The area of concern is an uninterrupted road segment, with at least 100 m long, between two traffic control devices (e.g., stop sign to stop sign).		
3	History	There have been no assessments within the past 36 months, unless significant road or land use changes have occurred nearby, likely affecting traffic patterns.		
4	Nature of concern	The request can be addressed through the use of traffic calming measures (i.e., issues are related to speeding, traffic infiltration, cut-through traffic, etc.)		
5	Speeding	Posted speed of:		
		50 km/hr or below: 85th% > 10 km/hr?		
		60 km/hr: 85th% > 10 km/hr?		
6	Volume Thresholds: Average Daily Traffic (ADT)	70 and 80 km/hr: 85th% > 10 km/hr?		
		Does the road studied meet or exceed the minimum average daily traffic volume threshold below based on collected data?		
		Rural Road: Minimum ADT met?		
		• Local: 500 vehicles / day		
		• Collector: 500 vehicles / day		
		OR		
Urban Road: Minimum ADT met?				
• Local: 750 vehicles / day				
• Collector: 2000 vehicles / day				
7	Road grade	Maximum threshold of 6%		
CRITERIA #1 TO #7 ALL MET?				
If YES, then the traffic calming request satisfies the screening criteria and should proceed to Step 2 – Ranking Worksheet.				



Ranking Requests

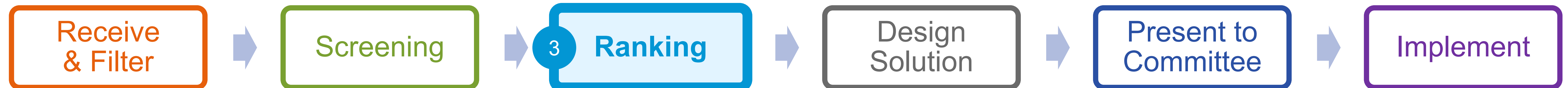
Requests that meet the requirements of the Initial Screening Checklist will then be assessed using the **Ranking Worksheet**.

The total score will be used to **prioritize traffic calming requests** during the design stage.

Town staff will consider upcoming capital projects (within 1 year) when prioritizing requests.

Made for BWG
Unique to other municipalities, this worksheet incorporates all road types into one process using BWG-specific data to streamline the request process.

Ranking Worksheet						
CRITERIA		URBAN		RURAL		POINTS
		Local	Collector	Local	Collector	
Speeding	Speeding Threshold	0	10	0	10	0-25
	Speeding	Local: 1 point per km/hr over posted speed limit Collector: 1 point per km/hr over 10 km/hr over posted speed limit				
ADT	Y (veh/day ADT overage amount)	100	200	50	75	0-20
	Z (veh/day ADT threshold)	750	2000	500	500	
	ADT / AADT minimum threshold	1 point for every Y vehicles/day over Z vehicles/day				
Collision Rate		1 point for each 2 collisions within a 50 m radius + 2 points for each pedestrian collision				0-10
Truck Volume		1 point for each % that truck traffic volumes represent greater than 2% of the 24 hr traffic volumes				0-5
Vulnerable Road Users		5 points if there are no protected walking or cycling facilities		n/a		0-5
		5 points for each nearby pedestrian generator fronting the road		5 points for each nearby pedestrian generator fronting the road		0-10
Driveway Density (ρ) ρ = number of driveways per 1 km		n/a		<ul style="list-style-type: none"> • 0 points if $\rho < 0.5$ • 1 points if $0.5 \leq \rho < 5.5$ • 2 points if $5.5 \leq \rho < 10.5$ • 3 points if $10.5 \leq \rho < 15.5$ • 4 points if $15.5 \leq \rho < 20.5$ • 5 points if $\rho \geq 20.5$ 		0-5
Total Score						175



Selecting a Design Solution

Made for BWG
The "Rural Roads" classification was added to the toolbox based on feedback from the community.

Once the Ranking Worksheet is completed, the next step involves selecting a **Design Solution** for each request.

During this stage, the Town will utilize the "3 Es" approach to select an appropriate traffic calming measure:

1. Education

Low-cost, quick-build measures

2. Enforcement

Supplementary deterrents

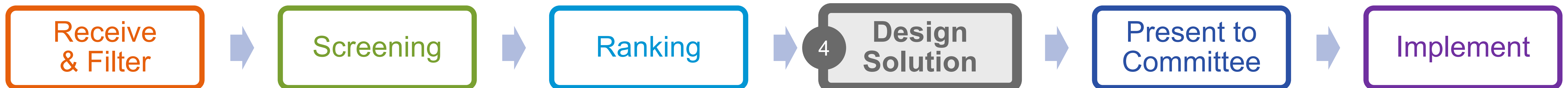
3. Engineering

Physical changes to roadways; typically higher-cost and longer to implement

Traffic Calming Measures

Measures	Potential Advantages			Potential Disadvantages			Road Classification				
	Speed Reduction	Volume Reduction	Conflict Reduction	Emergency Response	Active Transportation	Maintenance	Local	Collector	Rural		
									Hot Mix Asphalt	Surface Treatment	Gravel
Education											
Flexible Bollards	●	○	●	○	●	●	✓	✓	x	x	x
Pavement Markings ²	●	○	○	○	○	●	✓	✓	✓	✓	x
Radar Message Board	●	○	○	○	○	●	✓	✓	✓	✓	✓
C.S.Z.	●	●	●	○	○	○	✓	✓	x	x	x
40 km/h Speed Limit Area	●	○	●	○	○	○	✓	✓	x	x	x
Enforcement											
Automatic Speed Enforcement (ASE)	●	●	○	○	○	●	✓	✓	✓	✓	✓
Engineering – Vertical Measures											
Raised Intersection	●	○	●	●	●	●	✓	✓	x	x	x
Speed Cushion	●	●	●	●	●	●	✓	✓	x	x	x
Speed Hump	●	●	●	●	●	●	✓	✓	x	x	x
Engineering – Horizontal Measures											
Chicane	●	●	●	●	●	●	✓	✓	x	x	x
Curb Extension	●	○	○	○	●	●	✓	✓	x	x	x
Curb Radius Reduction	●	○	○	○	●	●	✓	✓	x	x	x
On-Street Parking	●	○	○	●	●	●	✓	✓	x	x	x
Raised Median Island	●	○	●	○	○	●	✓	✓	✓	✓	x
Traffic Circle	●	●	●	●	●	●	✓	✓	✓	✓	x
Engineering – Obstruction Measures											
Directional Closure	●	●	●	●	●	●	✓	✓	x	x	x
Diverter	○	●	●	●	●	●	✓	✓	x	x	x
Full Closure	○	●	●	●	●	●	✓	✓	x	x	x

¹ Effectiveness of regulatory measures are dependent on enforcement
² Various pavement markings have different levels of impacts for "Speed Reduction", the upper ranges of speed reduction effectiveness was cited



Approvals & Implementation

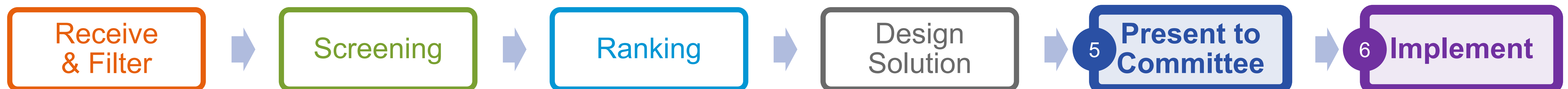
How are Design Solutions Approved?

The next step in the process is to **present the proposed design solution** to Council and the Community and Traffic Safety Advisory Committee (CTSAC) for approval:

- If approved, town staff will secure project funding to implement the project; or
- If not approved, residents / stakeholders will be notified.

What Happens After Approval?

- Once funding is secured, the Town will **implement the traffic calming solution**.
- Town staff will **evaluate the effectiveness** of the traffic calming solution after 1-5 years (depending on the design solution) and make modifications as necessary, including:
 - Making a temporary measure permanent, if it is showing to be effective; and
 - Adding additional measures to support any measures that may not be working effectively.



Project Deliverables and Outcomes

What will the Final Traffic Mitigation Strategy Include?

1. Guidance for **reviewing and addressing** traffic calming concerns:
 - Screening process;
 - Ranking process;
 - Special screening and warranting processes for:
 - Traffic counts;
 - Curbside parking;
 - Flexible bollards;
 - Posted speed limits;
 - Improving walkability for school zones;
 - New developments – specifically a “New Development Checklist” to ensure developers consider traffic calming and mitigation strategies in their site plans; and
 - Accommodating emergency services on key emergency response roadways.
 - Traffic data compiled into digital map and chart format for ease of use. The Town will continue to add data going forward.
2. A **toolbox** of traffic calming measures that will be used to address concerns.
3. Guidance on **monitoring** traffic calming solutions post-installation.

Thank You!

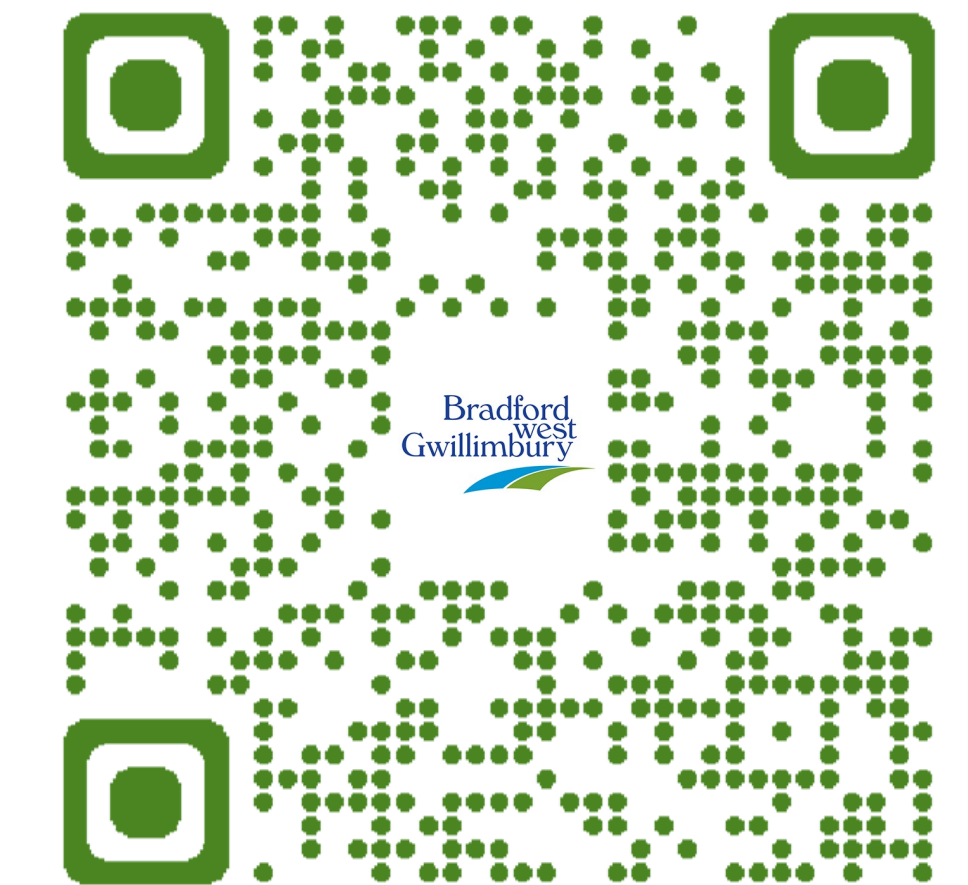
If you have questions or would like additional information, please visit the project website at: www.townofbwg.com/tms or contact the project team via:

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Thank you for attending today's PIC!

Please provide feedback using the comment box before leaving today!