

Proposed Traffic Calming Program and Planning Process

What is Traffic Calming?

According to the Institute of Transportation Engineers (ITE) the definition of traffic calming is “the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users.”

By design, traffic calming is a self-enforcing traffic management approach that forces motorists to alter their speed or direction of travel. The purpose of traffic calming is to improve safety, especially for pedestrians and bicyclists, and to improve the environment or “livability” of streets for residents and visitors.

Objectives/Goals of Traffic Calming

- Slow vehicular travel speeds
- Increase safety for non-motorized street users
- Enhance the street environment
- Reduce cut-through motor vehicle travel patterns
- Provide police enforcement in tandem with calming measures

Traffic Calming Techniques

Traffic Calming techniques may include education, enforcement, or physical deterrents to reduce speeds. Traffic Calming techniques may include physical changes such as speed tables, roadway narrowing, traffic circles, pavement markings, signage and others.

Traffic Calming Program Steps

A traffic calming program is usually based on a structured process, from initial determination of a problem or issue through implementation of an individual measure or series of measures.

The process/program should seek to strike a balance between adherence to the wishes of a group of residents and reliance on professionals to provide guidance and advice.

Typically, all effective traffic calming programs incorporate the following seven components which will be discussed in more detail below:

- Public participation
- Identification of problem or issue that is proposed for traffic calming
- Quantification of problem or issue to be resolved
- Development of traffic calming plan
- Approval of plan
- Implementation of plan
- Evaluation (and refinement) of traffic calming plan

1 Public Participation

There is some level of public or citizen involvement at each step of the process. Near the outset of the problem identification step, the public involvement process needs to be defined and formalized.

The information garnered in a public participation process will include how the community perceives the problems or issues, how the community perceives the effects of potential solutions, and ultimately how the community perceives a recommended program of actions.

The public participation process provides an opportunity for staff to explain and demonstrate the traffic calming process, an evaluation of a problem or issue in measurable terms, the potential effects of traffic calming measures, and the likelihood of success for a program of actions. "Measurable" is absolutely key. Data-driven recommendations will be the key to overcoming public resistance.

2 Identification of Problem

A successful program or process should include a mechanism by which both residents and the Town can identify a problem or issue for which traffic calming may provide a solution. It should have the flexibility to be both reactive (i.e., able to respond to citizens requests to address a problem) and proactive, perhaps as a result of an ongoing monitoring effort by the Town.

A project request should be able to be initiated by the Town, elected officials, or a community group. For a request from an individual, some level of support should be demonstrated by a formal mechanism (such as a petition) that reflects a specified number of residents, property owners, or businesses within the proposed affected area.

3 Quantification of Problem

An initial determination should be made of the area that could be potentially affected by implementation of a traffic calming measure. This becomes the initial affected area. It is preferable for the affected area to not be too large because additional problems (especially non-traffic calming problems) may be brought into the discussion.

At the minimum, the affected area includes all streets for which traffic calming is proposed, all streets that are only accessible via these streets, and all streets that are likely to absorb significant levels of traffic diverted as part of traffic calming measures.

The affected area is typically larger for a volume control measure (such as installing stop signs to discourage drivers from cutting through a congested neighborhood) than for a speed control measure (installing speed tables to slow traffic in the vicinity of a school) because traffic diverted from one route will impact some other route that must also be considered. However, the affected area can also be large for a speed control measure that is aggressive at reducing motorist speed such as when the effort is intended to reduce speeding in an entire town.

The data to be compiled throughout the affected area may include some or all of the following:

- Roadway functional classification – such as local residential street, collector street with predominantly residential uses, and arterial road with commercial and other uses
- Speed – posted speed, average speed and 85th percentile speed in each direction
- Vehicle volume – daily and with directional splits for peak hours
- Graphical representation of all traffic control devices in affected area, including signs, markings, and signals
- Description of physical characteristics of roadways in affected area, including width, pavement condition, sidewalks, crosswalks, bicycle facilities, curb and gutter versus shoulder, vegetation
- Adjacent arterial streets – are mobility or safety problems on an arterial street contributing to the perceived local street problem or issue?
- Accident data – recent by type
- Parking – location and use
- Pedestrian activity – volume and origin-destination patterns
- Bicyclist activity – volume and origin-destination patterns
- Designated emergency response routes
- Locations of schools, parks, or other unique trip generators

These data are used as "before" data to quantify the problem and to compare to "after" data to determine the effectiveness of the final traffic calming plan. The data can also be used as screening criteria.

4 Plan Development

The first step in the development of an overall traffic calming plan usually is to identify all measures that are appropriate for the setting and the problem to be addressed. They should be evaluated individually and as part of complimentary sets of measures.

The development of a traffic calming plan to effectively address an identified problem or issue can be conducted with a varying amount of public involvement. Regardless of the level of public involvement, it is critical to the success of a plan that (1) it reflects the needs and nuances of street users from the perspective of residents and (2) area residents feel ownership in the plan.

5 Approval

The plan approval process provides the affected residents the opportunity to have input

regarding the details of the recommended traffic calming measures through community meetings.

Formal support and approval by Mayor and Aldermen should be required – and is certainly desirable in order for the program of actions to be successful.

The concerns and viewpoints of providers such as emergency management agencies should be considered through either the public involvement process or by in-person meetings. These services should include the following:

- WRES
- Hamilton County Sheriff's office

6 Implementation

Implementation actions can include securing funding, preparing the design, and constructing or installing the traffic calming measures.

The final design should cover the following:

- traffic calming measure features
- crosswalks – new or remarked
- pavement markings – new or revised
- signage – new or repositioned
- landscaping – new, enhanced, or reduced

Instead of a permanent installation, a trial installation could provide an opportunity to modify the configuration or location without incurring significant cost. A trial installation may also be warranted under certain circumstances:

- if traffic diversion is difficult to predict as part of a complex area-wide plan, or
- if the traffic calming measure is novel or new and unfamiliar to the area

A recommended trial period should last approximately least three to six months. For a measure that has the potential to significantly alter traffic patterns, a longer time period could be appropriate – perhaps a six-to-twelve-month period.

A temporary measure should resemble a permanent measure as much as possible. The temporary measure should be complemented with the appropriate pavement markings, signs, and lighting that would accompany a permanent installation.

7 Evaluation

An evaluation should be conducted to determine whether the traffic calming implementation was a success in addressing the problem or issue that prompted the development and implementation of a traffic calming plan.

Speed and volume are likely to be the primary metrics used to assess the effects of the measure. But, other appropriate measures, in particular any collected as part of the

"before" documentation, could be worthwhile.

The data will help the community learn from the project and acquire local data on the effects of the measure.

The evaluation could also lead to refinement of the plan – including the removal, relocation, or redesign of a measure.

WHAT DO TRAFFIC CALMING MEASURES LOOK LIKE?

Some speed management countermeasures are familiar to drivers and have been used for many years. Others are relatively new. All provide great safety and speed management benefits and may offer operations and cost-savings benefits as well.

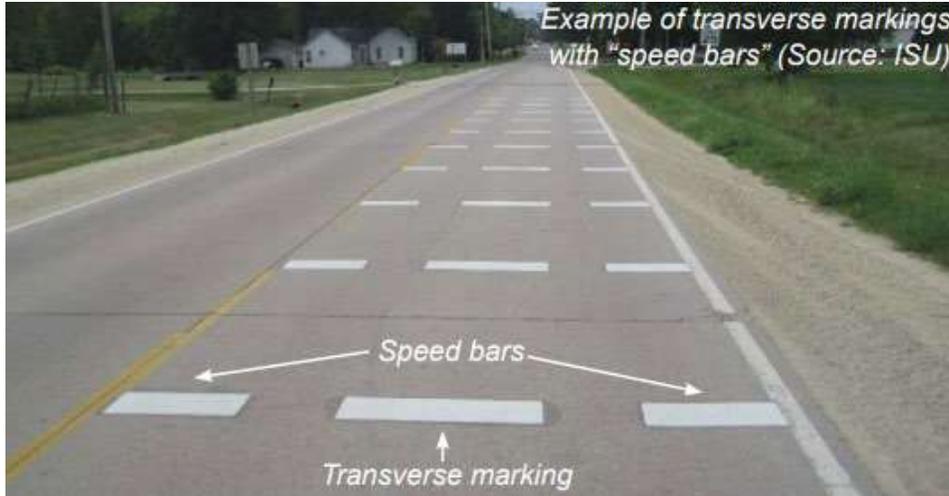
Some examples include:

- **Speed Feedback Signs.** These portable, interactive signs display a vehicle's current speed to remind the driver to slow down and obey the posted speed limit. Research shows these types of signs have been effective at reducing speeds by 5 mph.



<https://www.clackamas.us/engineering/speed.html>

- **Enhanced Pavement Marking and Signage.** By improving striping or signing along horizontal curves, or narrowing lanes by edge striping, motorists are more aware of the road's width and are more likely to slow down to a speed. Depending on the type and combination of delineation countermeasures chosen, studies show speeds can be reduced by nearly 10 mph.



Traffic Calming Guide, Village of Ruidoso, New Mexico, 2019



Traffic Calming Guide, Village of Ruidoso, New Mexico, 2019

- **Speed Tables.** Generally located on residential streets or other low-speed roads, these raised pavement structures force motorists to slow down to a safe speed. Studies show speed humps can be effective at reducing speeds by nearly 10 mph.



<https://trafficlogix.com/speed-tables/>

- **Roundabouts.** This type of circular intersection is very effective at safely moving traffic through an intersection and can have significant traffic calming effects. Features such as channelized approaches, a center island, and circular design encourage lower speeds. Studies have shown roundabouts can lower speeds by as much as 15 to 20 mph and reduce severe crashes by nearly 80 percent.



<https://emersongarfield.org/montgomery-ave-traffic-circle-landscaping-mou/>

- **Road Diets.** Narrowing lanes or reducing the number of lanes can lower speeds and greatly reduce the number of motorists speeding excessively. Road Diets can include reducing vehicle lane width in order to install bike lanes or shoulders.
- **Chicanes and Lane Shifts.** [Chicanes](#) slow drivers by alternating parking or curb extensions along the corridor. A lane shift horizontally deflects a vehicle and may be designed with striping, curb extensions, or parking.

Chicane



Lane Shift



Adapted from: Urban Street Design Guide, National Association of City Transportation Officials, 2013
<https://nacto.org/publication/urban-street-design-guide/>

- **Other Speed Reduction Strategies.** Other methods of traffic calming can be implemented by minor road modifications, enhanced marking, or landscaping. Some of these mechanisms include:

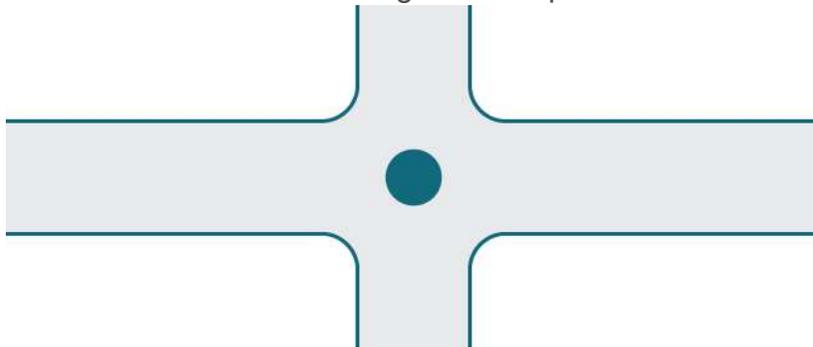
- **Pinchpoint.** Chokers or pinchpoints restrict motorists from operating at high speeds on local streets and significantly expand the sidewalk realm for pedestrians.



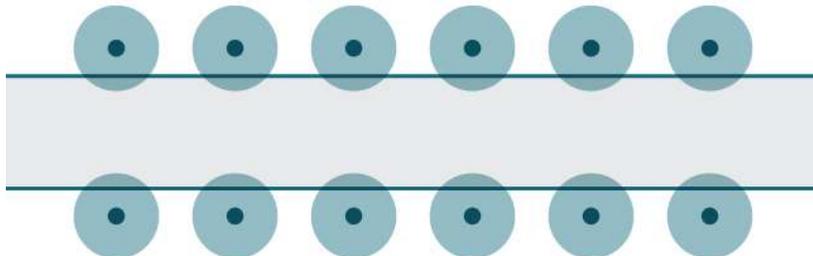
- **Median.** Medians create a pinchpoint for traffic in the center of the roadway and can reduce pedestrian crossing distances.



- **Roundabout.** Roundabouts reduce traffic speeds at intersections by requiring motorists to move with caution through conflict points.



- **Street Trees.** Trees narrow a driver's visual field and create rhythm along the street.



Adapted from: Urban Street Design Guide, National Association of City Transportation Officials, 2013
<https://nacto.org/publication/urban-street-design-guide/>

CHOOSING A TRAFFIC CALMING MEASURE

- **Roadway Setting (i.e., Urban vs. Rural)** Most countermeasures are versatile and can be applied in a variety of locations, but some countermeasures may be more appropriate in either a rural or urban setting. For example, speed tables may be appropriate and effective on more rural roads or suburban residential streets.
- **Roadway Type.** Whether a roadway is an arterial, or residential street influences the type of countermeasures to select. For instance, speed tables are not appropriate for a higher speed roadway, but could be suited for streets with

speed limits below 35 mph.

- **Speeding-related Accident History.** Transportation agencies often choose speed management countermeasures based on where, when, and what type of accidents are occurring. For example, curve delineation and rumble strips are effective countermeasures when a roadway is experiencing many speeding-related run-off-the-road crashes and improving the visibility of intersections or installing roundabouts may reduce speeding-related intersection crashes.
- **Road Users.** Professionals also consider the users of the roadway and its surrounding area. For example, Road Diets are very effective at reducing speeds and allow designers to incorporate features such as bicycle lanes, pedestrian refuge islands, pedestrian shoulders to accommodate the needs of all road users.
- **Cost.** Budget limitations can affect countermeasure selection. The Town should allocate their resources to achieve the best safety benefits within available funding. A method should be developed to evaluate multiple alternatives to determine the solution that provides the best result for a specific location or for the system as a whole.
- **Effectiveness.** Some effort should be put into monitoring studies that examine the effectiveness of speed management countermeasures in order to select the best solutions.

Recommended Implementation Method

There are two methods recommended for implementing traffic calming projects:

- 1) Town led implementation and/or
- 2) Resident led implementation.

1 Town-Initiated Projects

The Town will initiate and fund projects where conditions warrant an active intervention. The Town's policy will implement traffic calming measures on streets if there are specific areas that present a significant safety hazard for bicyclists, pedestrians, property, or other drivers or when traffic calming improvements can be implemented as part of a larger project.

2 Resident Request Process

The Town has supported a community-driven approach to residential speed control on streets. To be effective, speed control measures need to be supported by the residents along a street.

Phased Approach

A common process that the Town could consider using when petitioned by the

residents of a street would be to use a phased process that also incorporates some threshold criteria to evaluate the requests received.

A phased approach would involve some data-gathering to determine whether the current situation exceeds the threshold for moving forward with traffic calming actions. If the threshold is met, then options can be considered to try and address the situation without immediately proceeding to more permanent construction-related solutions. Figure 2 shows the phasing options and applicable threshold criteria. There would need to be a period of reevaluation after Phase 1 solutions are implemented to determine effectiveness prior to consideration of moving to Phase 2.

	PHASE 1	PHASE 2
Threshold Requirement	15% of traffic traveling at or above 5 MPH over the posted limit OR 25% of peak hour traffic is non-local OR 2 or more speed-related accidents in the past year	15% of traffic traveling at or above 10 MPH over the posted limit OR 25% of peak hour traffic is non-local OR 3 or more speed-related accidents in past year AND At least 60% of affected properties are supportive of moving into Phase 2
Treatment Options	<ul style="list-style-type: none"> • Traffic Safety Campaign • Temporary speed reader sign • Targeted Police enforcement • Signage enhancements • Trimming vegetation • Enhanced Pavement Markings 	<ul style="list-style-type: none"> • Permanent speed reader signs • Road Diet • Speed Tables • Crosswalks • Shoulder construction • Medians/chicanes/traffic circles • Local traffic only restrictions

Figure 2 - Traffic Calming Program Phasing Options

Streets of concern: Ivory Ave, Chestnut Ave, Forest Park Drive, Wilson Ave, Fairmount Pike, Miles Road, Anderson Pike, and East Brow Road

Proposed Prioritization of Requests

In anticipation of the implementation of a Traffic Calming program, the Town or Roads & Safety Committee collect a number of active requests from citizens. Recognizing the limitations on Town resources, a process for collecting, evaluating, and prioritizing the requests will be needed to efficiently manage the program.

It is proposed that an annual program approach be implemented, which would include:

- ~~Receiving and recording~~ the requests for annual program consideration
- Collecting threshold data for Phase 1 and Phase 2 determination
- Prioritizing the requests in accordance with proposed scoring criteria in Figure 3
- Presenting a proposed annual project list for Town Council approval
- Implementing the approved projects as a group, twice per year

Based on the prioritized list of requests and resources available to implement them, the Roads & Safety Committee would determine which projects would move forward for Phase 1 or 2 treatment options in the next yearly cycle and submit for approval to the Town Council.

CRITERIA:	POINTS:
<u>Average Daily Traffic (ADT)</u>	
500-1000	1
1001-2000	2
2001- more	3
<u>Traffic Speed (85th Percentile)</u>	
5-7 mph above posted	2
8-10 mph above posted	4
More than 10 mph above posted	6
<u>Parks/Schools</u>	
Over ½ mile	1
Between ¼ and ½ mile	2
Within ¼ mile	3
<u>Accident History (Accidents/Year)</u>	
1	3
2	4
3	5
More than 3	7
<u>Street Conditions</u>	
Sidewalks or shoulders both sides	1
Sidewalks or shoulders one side	2
No sidewalks or shoulders	3
<u>Non-Local Traffic</u>	
25%-49%	1
50%-74%	2
More than 74%	3

Figure 3 - Traffic Calming Program Prioritization Scoring