

Cheltenham Township Police Department

Introduction to **TRAFFIC CALMING**

What is Traffic Calming?

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.

The Objectives of Traffic Calming

Traffic calming measures are mainly used to address speeding and high cut-through traffic volumes on residential streets.

- Speeding and High cut through volumes can create an atmosphere in which non-motorists (pedestrians) are intimidated, or even endangered, by motorized traffic.
- Along with the additional amount of traffic generated within the neighborhood, cut-through motorists are often perceived as driving faster than local motorists.
- By addressing high speeds and cut-through volumes, traffic calming can increase both the real and perceived safety of pedestrians and bicyclists, and improve the quality of life within the neighborhood.

Where is Traffic Calming Appropriate?

- Residential roads – 25mph speed Limit
- 85th% speeds above 35mph
- Excessive volume (ADT Average Daily Traffic)
- Documented reportable crashes

Methods of Traffic Calming

- The role of physical measures in traffic calming has been emphasized because they are “self-policing”.
- This means that traffic calming measures, such as speed humps and traffic circles, have the ability to slow motor vehicles in the absence of enforcement.

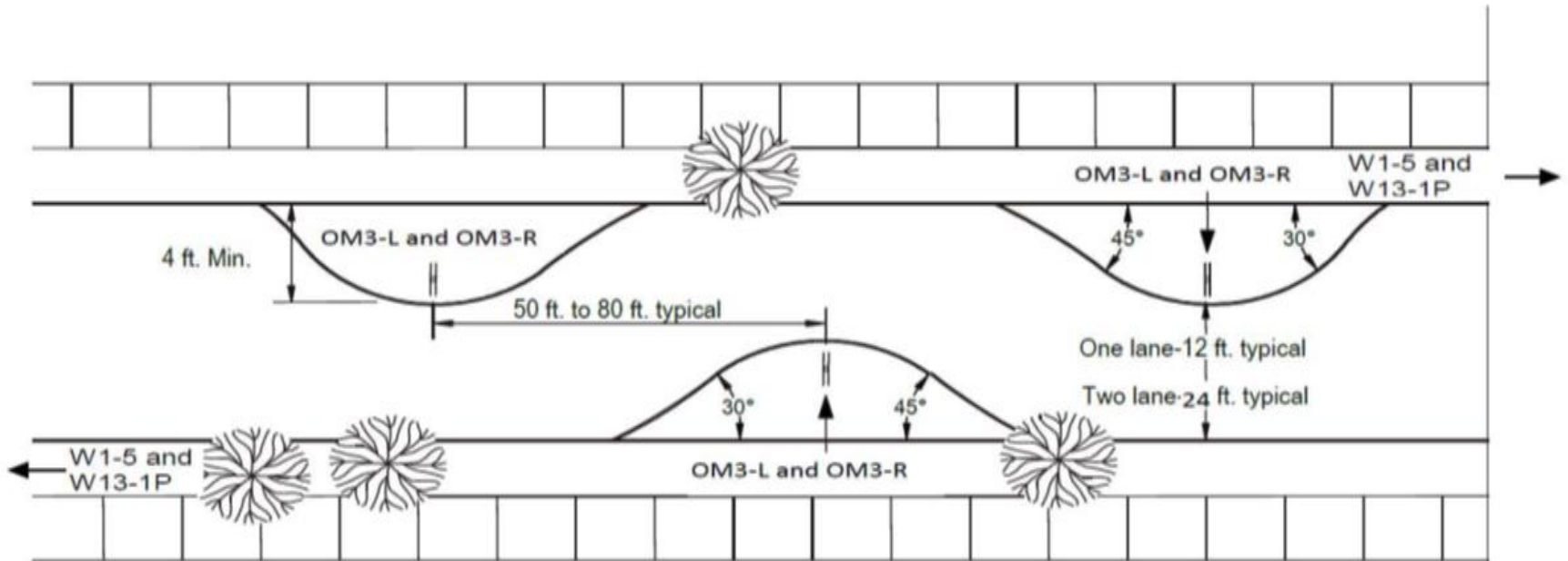
The selection of traffic calming measures should be based on:

1. The measures potential to address volume or speed reduction on affected roadways.
2. The type of roadway.
3. Actual site conditions.

➤ Horizontal Deflection

- Refers to two types of traffic calming measures. Both may be painted or physically constructed.
 1. The first type hinders the driver's ability to drive in a straight line by creating a horizontal shift in the roadway. This shift forces drivers to slow their vehicles in order to safely navigate the measure.

Chicanes



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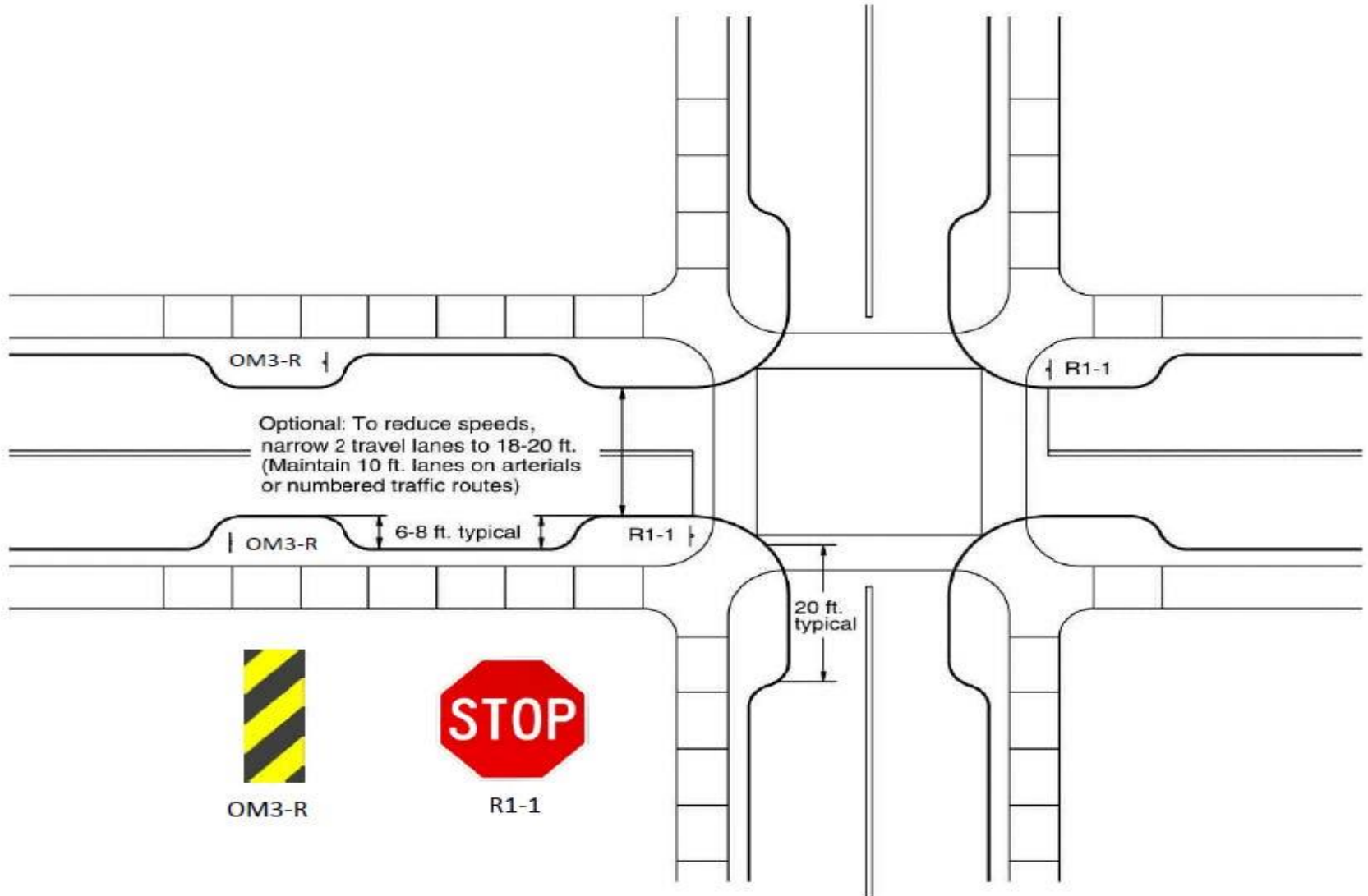
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Curb Extensions & Bump Outs



- Chicanes, Curb Extensions and Bump Outs are typically seen in commercial corridors due to road width requirements.
- Excessive cost and significant construction times compared to other measures.
- Speed reductions are generally 1-2 mph

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2. The second type of horizontal deflection measure is designed to narrow the width of the travel lane. Doing so reduces the usable surface of the roadway causing drivers to slow their vehicles to maintain an acceptable level of comfort.



Painted center island used to reduce road width.

- Although horizontal deflection measures are mainly used to address speed concerns, applications that narrow the travel lane can improve pedestrian safety by reducing the width of the crossing. Horizontal deflection measures may also have the secondary effect of reducing volumes; however, the effects will typically be minor.

➤ Vertical Deflection

This refers to traffic calming measures that create a change in the height of the roadway. When designed properly, vehicles must slow down over these measures in order to avoid unpleasant bumping sensations. As with horizontal deflection measures, vertical deflection measures are mainly used to reduce vehicle speeds, with only minor effects on traffic volumes. Vertical deflection measures can also be used to improve the safety of pedestrian crossings.

Main types of Vertical Deflection

Speed hump	Raised humps in the roadway, typically 3-4 inches high with a 12 or 22-foot travel length.
Speed Cushion	Series of three to four cushions spaced across the roadway width that permits wide axle emergency vehicles to pass without slowing down.

Speed Hump

A speed hump is a raised surface on the roadway that is typically 3 to 4 inches in height, and 12 to 20 feet in length. Speed humps are a popular traffic calming measure in the United States, likely because they are fairly effective in reducing speeds at moderate cost.

Typical installation approximately \$4000 ea.

Design Types

➤ WATTS Speed Hump

- The Watts speed hump is a parabolic hump 12 feet in length. This model was endorsed by ITE in *Guidelines for the Design and Application of Speed Humps*.

➤ Seminole County Speed Hump

- The Seminole County speed hump is the most popular alternative to the Watts hump. Designed by Seminole County, Florida, this hump is 22 feet in length with 6-foot ramps on either end of a 10-foot flat top. This type of speed hump design is also referred to as a “speed table”.



Typical edged to edge installation

Speed Cushions

- Speed cushions, also known as speed pillows, are modified speed humps installed across the roadway width with spaces between each cushion to permit wider axle emergency vehicles to pass without slowing down.



Spaced to ease emergency vehicle passage.

Vertical Deflection Pros & Cons

Advantages:

- Can be effective in slowing traffic on residential streets.
- Relatively inexpensive to install and maintain.
- Can reduce motor vehicle conflicts.
- Should not pose problems for bicyclists or motorcyclists, except at high speeds.

Disadvantages:

- Watts speed humps are inappropriate for emergency response routes.
- Seminole County humps may be considered for emergency routes.
- Should be avoided on major transit routes.
- Snow removal personnel may require special training in speed hump areas.
- Drainage could be a concern.
- Noise levels increase as vehicle cross.
- May not eliminate volume/cut through traffic.
- May require elimination of parking depending on location.

➤ Road Surface Painting Options

- Options for marking the road surface with paint in various manners can be effective in some calming aspects. Painting is typically the least expensive initially but do require routine maintenance which may involve repainting every 2-3 years.



Speed Limit Markings



Transverse Lane Markings

➤ Electronic Monitors

- Electronic radar speed display monitors are currently in use in different forms. Smaller portable displays as well as full size trailer units. These units are moved frequently to allow placement in problem areas fairly quickly. Radar signs give drivers instant visual feedback when exceeding the speed limit.

➤ Speed alert



SHIELD 12

Smaller easily portable battery operated speed display sign. Can be mounted on existing speed limit signs as well as utility poles.

Approx. \$3000.00 per unit

➤ Speed/Message Display



Larger radar speed display which combines speed display with warning messages and flashing lights to warn drivers.

Approx. \$5000 per unit

➤ Speed/Message Radar Trailer



Large trailer mounted battery/solar speed and message display.
Approx. \$14,000.00 per unit.

Stop Signs

A common request made by citizens is to use multi-way stop sign control as a means of slowing traffic. However, multi-way stop sign control should only be installed in accordance with the warrants listed in Manual on Uniform Traffic Control Devices, and should not be used for speed control.

Stop Signs

- If installed where not warranted:
 - Traffic rarely comes to a full stop.
 - Motorists increase their speed between stop signs to make up for lost time.
 - Residents may gain a false sense of security.
 - The use of unwarranted stop signs can create disrespect for stop sign control at other locations where it is truly needed, and may be a liability.

Common Issues with Traffic Calming

➤ Policy

The Township needs to have a policy in place to guide the selection and approval process and the placement of any recommended calming measure. This policy is currently under construction, with hopes to have it in place in the next few months. This policy is vital in protecting the Townships liability as a result of installing any traffic calming measures.

➤ Funding

- Funding is the next most critical issue with any calming project. If there is no available funding for a calming project, it cannot be instituted. PA State Pub 383 recommends that a municipality does not even begin to study problem areas until funding is secured. This should include funding for the projected maintenance.

➤ Emergency Vehicle Access

- Emergency service providers may be slowed or inconvenienced by certain types of traffic calming measures. Generally, longer and heavier vehicles must slow to a greater extent than passenger cars to negotiate various measures. For fire trucks, which cannot accelerate very fast, some calming installations may cause a delay of up to 9 seconds each, significantly slowing their emergency response. Traffic calming measures may have an even greater effect on ambulances that are transporting patients.

➤ Snow Removal

Many of the traffic calming measures identified in this presentation may have an effect on the removal of snow and ice, with vertical deflection measures being the most difficult for the removal of snow and ice. Additional training will be required for Public Works personnel to avoid damage during plowing operations.

➤ Drainage

- The installation of traffic calming measures may change the drainage patterns of the roadways on which they are located. It is very important to review drainage characteristics when determining which measures are most appropriate. Otherwise, problems such as ice/water accumulation on a pedestrian crossing or roadway could occur. Drainage should always be considered and designed in accordance with the latest PennDOT standards.

➤ ADA Requirements

Traffic calming measures must be designed to accommodate all people in the community. To accomplish this goal, measures that are implemented to improve pedestrian safety, or have an effect on pedestrian travel, must be designed to meet the requirements set forth in the Americans with Disabilities Act.

Current Considerations

- Purchase Additional Reactive Radar Display Signs
- Roadway markings including:
 - Horizontal deflection applications
 - Lane narrowing
 - Lane dividers
 - Speed Limits

Questions?