

Mount Joy Township Traffic Calming Policy

Approved by Mount Joy Township Board of Supervisors — April 21, 2014

PURPOSE & INTENT

The purpose of this policy is to establish guidelines for the installation of traffic calming systems on Township-owned roadways. Such systems shall be specifically designed to reduce the speed, but not necessarily the volume, of motor vehicle traffic in residential areas. The purpose of traffic calming devices is not to move traffic to adjoining roadways. Traffic calming measures shall also consist of enforcement and education activities by the Police Department.

DEFINITIONS

ADT – Average daily traffic.

Municipal Traffic Engineer – The individual designated as the Municipal Traffic Engineer in accordance with Chapter 127 of the Code of Ordinances of the Township of Mount Joy.

PennDOT – The Pennsylvania Department of Transportation or any agency successor thereto.

Police Department – The Northwest Regional Lancaster County Police Department or any successor municipal or multi-municipal police department having jurisdiction within the corporate boundaries of the Township.

Speed hump – A raised hump in the pavement extending across the width of the roadway at a right angle to the direction of the flow of traffic.

Traffic calming system – See “speed hump”

PROCEDURE

Applicants may request that a study be conducted to construct speed humps in a particular neighborhood. Requests shall be submitted in writing, along with a petition described below, to the Municipal Traffic Engineer for consideration at the next available meeting of the Board of Supervisors. Such requests shall be submitted a minimum of 30 days before the meeting at which they will be discussed.

A. Petition

- (1) All adult residents of the affected streets pursuant to Subsection A(2) below, must be contacted by the applicants and advised that speed humps are being considered for their street.

- (2) A signed petition must be submitted reflecting the support of a minimum of 80% of the residents of households on the street on which humps are proposed to be installed and a minimum of 60% of the residents of households located on streets or cul-de-sacs whose only access is via the street on which humps are proposed to be installed.
- (3) Only one adult signature per household, apartment or business will be considered on the petition.
- B. Notwithstanding whether or not a petition has been submitted under Subsection A, nothing herein shall limit the Township's right to unilaterally consider and install any traffic calming measures whatsoever, including but not limited to speed humps, bulb outs, chicanes, raised crosswalks, etc., as it may deem necessary to protect the health, safety, and welfare of a specific neighborhood or the public in general.

CRITERIA

The following criteria shall be used to limit speed humps to areas where they will be most effective and practical.

- A. Speed humps will not be installed on state roadways.
- B. The legally posted speed limit on the street shall not exceed 35 miles per hour (mph).
- C. The minimum length of the street, or portion thereof, measured from the nearest intersecting street, shall be at least 1,000 feet.
- D. The ADT shall not be less than 1,000 vehicles per day, which shall be determined by a traffic count conducted and/or approved by the Municipal Traffic Engineer.
- E. The 85th percentile speed shall not be less than five (5) mph over the legally posted speed limit, which shall be determined by a traffic study conducted and/or approved by the Municipal Traffic Engineer.
- F. The Municipal Traffic Engineer will analyze the number of accidents on the affected roadway over the most recent three-year period to ascertain the extent to which excessive or unsafe speeds were a major contributing factor.
- G. Speed humps, including associated signage and pavement markings, shall be designed in accordance with Exhibit A, which is from PennDOT Publication 383, Pennsylvania's Traffic Calming Handbook. Seminole humps shall be used when the ADT is greater than 3,000 and/or the posted speed limit is over 30 mph.

APPROVAL AND INSTALLATION

All decisions regarding whether or not to recommend the installation of speed humps shall be made by the Board of Supervisors in accordance with the criteria contained herein.

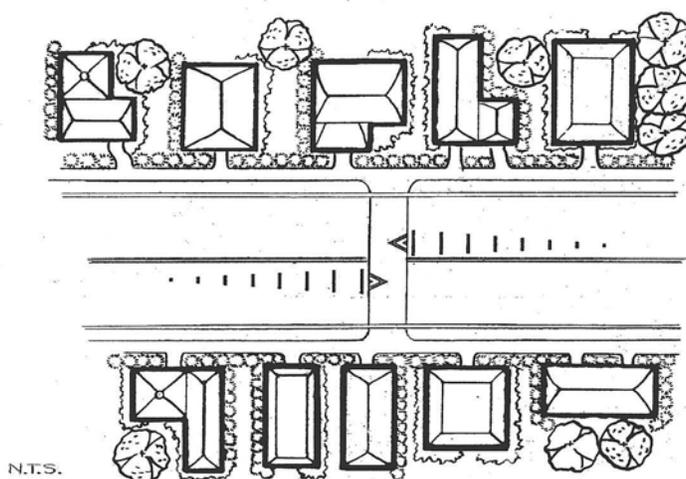
SPEED HUMPS

Description:

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 by far the most popular traffic calming measure in the United States, likely because they are effective in reducing speeds at minimal cost.

Common Designs:

- ❑ The Watts speed hump (designed by the Transport and Road Research Laboratory in Great Britain) is a parabolic hump 12 feet in length. This model was endorsed by ITE in *Guidelines for the Design and Application of Speed Humps*.
- ❑ 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".



Appropriate Locations:

- ❑ Both humps are appropriate for use on Pennsylvania roads. However, due to their different profiles, they are effectively employed in different settings.
- ❑ The Watts hump is recommended only for local streets with volumes less than 3,500 ADT and posted speeds of 30 mph or less. In addition, it is not recommended for major emergency service routes.
- ❑ The Seminole County hump can be used in a greater variety of situations. This type of hump can be used on collector roads as well as local roads. It is appropriate for streets with volumes up to 6,500 ADT. Many jurisdictions also permit the use of Seminole speed humps on emergency response routes.
- ❑ Primarily used at mid-block locations.
- ❑ Similar designs can be used as raised pedestrian crosswalks.

Typical Uses:

- ❑ Within typical residential travel speeds, humps create a gentle rocking motion encouraging motorists to slow to a safe speed at or below the speed limit.
- ❑ In Pennsylvania, the Watts speed hump is typically used.

Speed/Volume Reductions:

- ❑ The design speed is determined by the dimensions of the speed hump.

- ❑ The Watts hump is designed to slow vehicles to 15 to 20 mph at each hump and 25 to 30 mph in between properly spaced humps (see “Other Considerations”). Numerous studies have demonstrated that Watts humps can reduce speeds by about 8 mph in the vicinity of humps. Volumes are reduced, on the average, by about 18 percent.
- ❑ Because of its gentler profile, the Seminole County hump has a design speed of 25 to 30 mph at the hump, and approximately 35 mph in between humps. It has been shown to reduce speeds by about 6.5 mph and volumes by 12 percent. Some jurisdictions have found that speed of motorists at the hump and in-between the humps are not significantly different.

Approximate Cost:

- ❑ Each speed hump installation costs about \$1,500 to \$3,500, depending on roadway width.

Other Speed Hump Designs:

- ❑ The Gwinnett County speed hump, like the Seminole County hump, is 22 feet in length with 6-foot ramps and a 10-foot plateau. However, the ramps of the Gwinnett speed hump are straight, not parabolic. This type of hump can be used in situations similar to the Seminole County hump.
- ❑ The 14-foot speed hump was developed by Portland, Oregon after it concluded that the 12-foot hump was too abrupt. Its effect on speeds and volumes is similar to the Watts hump and is also designed for use only on local streets.
- ❑ The Offset/Split speed hump, also designed by Portland, Oregon, is used for the benefit of emergency vehicles. Two 22-foot speed humps on opposing sides of the roadway are placed at least 50 feet apart. Small concrete medians are placed 10 to 15 feet in advance of each “hump half.” Pavement striping and raised markings give the illusion that the median continues through. Emergency vehicles can avoid the speed hump by following a chicane pattern around the humps.



Split Speed Hump
Source: City of Portland, Oregon

Advantages of offset/split speed humps include:

- Reduced travel time for emergency response vehicles; and
- They may be utilized on primary emergency response routes.

Disadvantages of offset/split speed humps include:

- A minimum roadway width of approximately 40-feet, curb-to-curb, is required to allow spaces for the serpentine path of emergency response vehicles; and
- On-street parking would be prohibited within the vicinity of offset speed humps.

Signing and Markings:

- ❑ A Speed Hump Warning Sign (MUTCD W17-1) has been incorporated in the Manual on Uniform Traffic Control Devices. This sign has also been included in PennDOT's Publication 236 (W17-1). It is recommended that this sign be installed either 100 feet in advance of speed humps, at the hump, or in both locations. Where multiple humps exist on one street, one sign before the first hump encountered, labeled "SPEED HUMPS," may be sufficient. It is also recommended that the "Speed Hump" sign be accompanied by an "Advisory Speed Plaque" (W13-1P). However, if there are a series of speed humps in close proximity, an advisory speed plaque may be eliminated on all but the first speed hump sign in the series. The indicated speed depends upon the design of the individual speed hump.



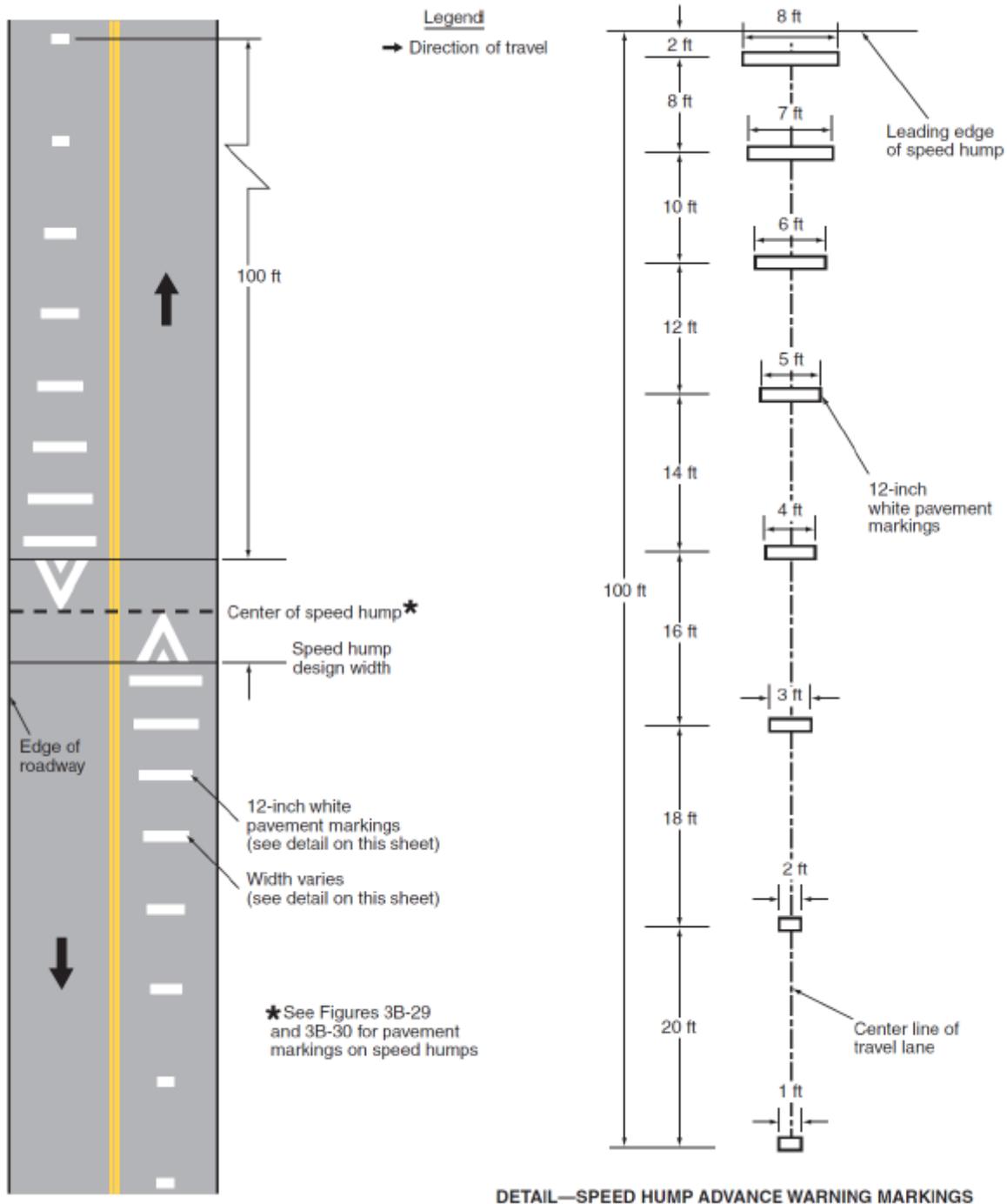
W17-1



W13-1P

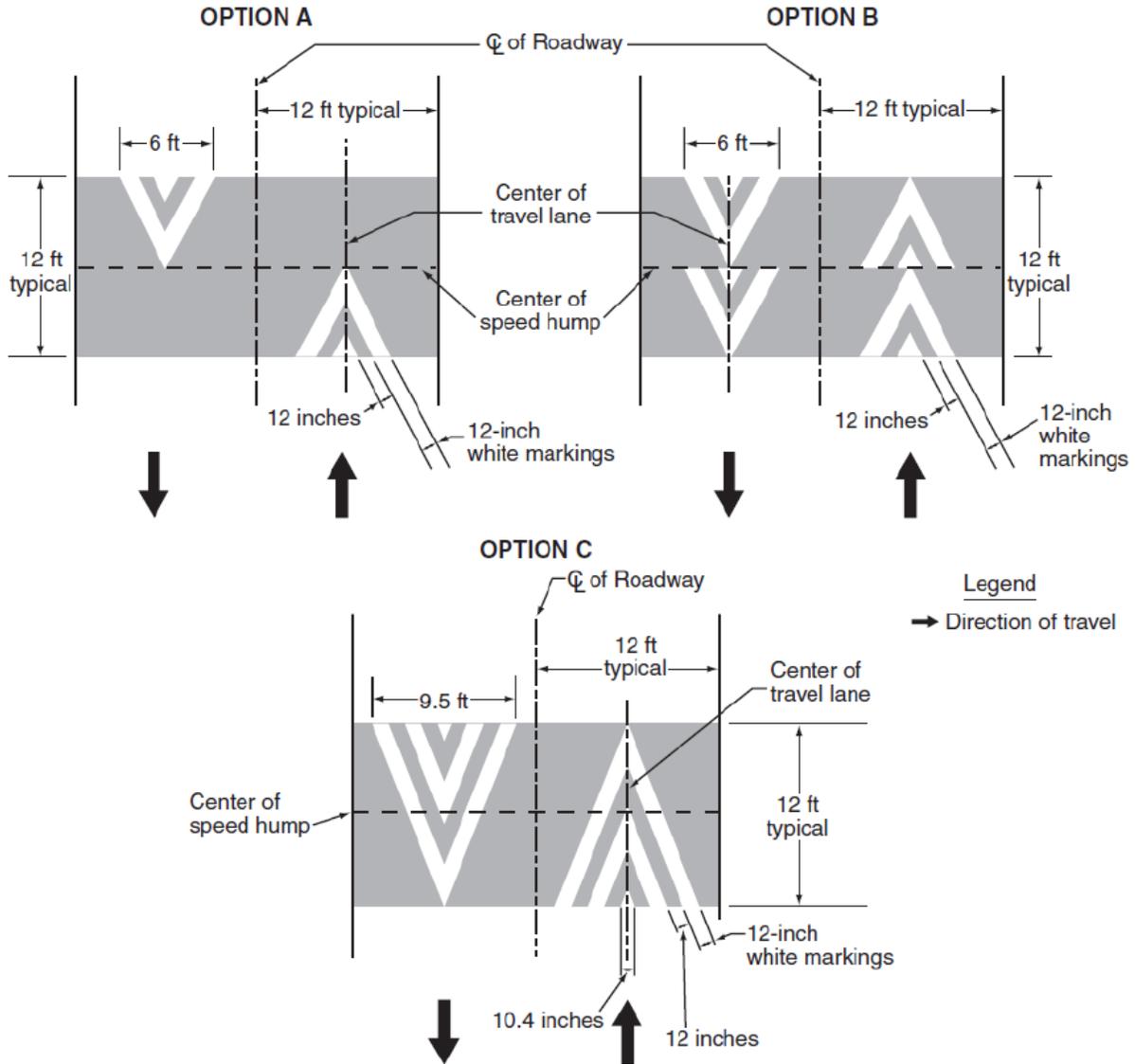
- ❑ The pavement marking designs on the following pages are provided in the Manual on Uniform Traffic Control Devices. It is recommended that one of these sets of markings be used with speed hump designs.
- ❑ All signing and pavement markings should utilize the latest applicable standards and manuals.

Detail – Advance Warning Markings for Speed Humps



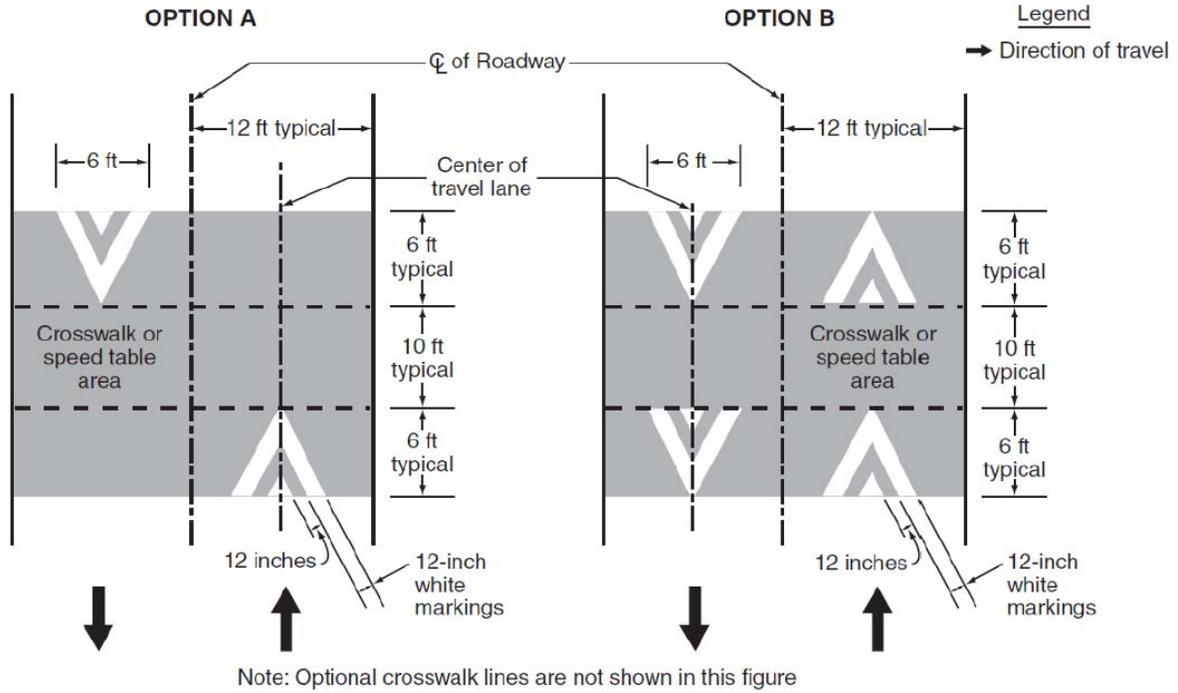
Note: All signing and pavement markings should utilize the latest applicable standards and manuals.

Pavement Markings for Speed Humps without Crosswalks



Note: All signing and pavement markings should utilize the latest applicable standards and manuals.

Pavement Markings for Speed Tables or Speed Humps with Crosswalks



Note: All signing and pavement markings should utilize the latest applicable standards and manuals.

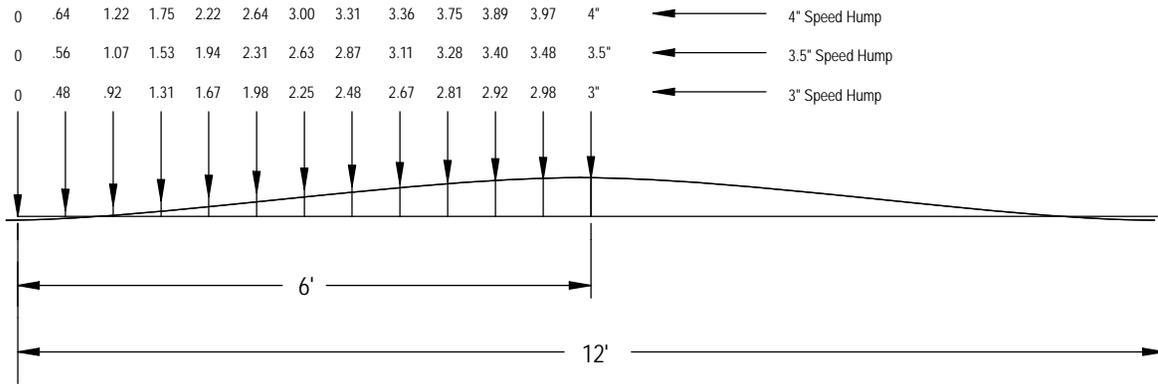
Other Considerations:

- ❑ Humps should be placed 250 to 600 feet apart. One study showed that placing Watts speed humps at intervals of 275 feet resulted in 85th percentile speeds of 25 mph; intervals of 550 feet resulted in 85th percentile speeds of 30 mph.
- ❑ Normally, no hump should be placed within 150 feet of an unsignalized intersection or 250 feet of a signalized intersection.
- ❑ Speed humps should not be used on curves unless the radius is greater than 300 feet.
- ❑ Humps should not be installed on streets with a grade exceeding 8%.
- ❑ Humps should not be installed on streets without curbing unless obstructions such as signing, flexible delineator posts, or bollards prevent drivers from driving around the hump. Rocks, boulders, and other objects of this nature should not be used for this application.
- ❑ Ideally, speed humps should extend across the roadway from curb to curb. This design is generally preferred by bicyclists, and it prevents motorists from driving with one wheel in the gutter (this may happen with tapered edges). If drainage cannot be accommodated under curb-to-curb conditions, it is recommended that humps end before bike lanes or continue across the bike lane without tapering off.
- ❑ Watts humps delay emergency vehicles anywhere from 1 to 10 seconds, with most delays in the range of 3 to 7 seconds.
- ❑ Seminole County humps appear to reduce the delay for most types of emergency vehicles by approximately 1 second. Emergency service companies greatly prefer Seminole County humps to Watts humps both because they reduce delay, and because they are less jarring to the long, stiff-bodied emergency service vehicles.
- ❑ Humps usually have a parabolic cross section. A sinusoidal cross section is harder to construct but may better facilitate snow removal.
- ❑ Speed humps have been found to be more effective in reducing speeds, but speed tables are easier to construct and generally more acceptable to the traveling public.
- ❑ Although speed humps may create noise from vehicles passing over them, the overall noise levels on the street may be reduced due to lower vehicle speeds.
- ❑ Traffic may divert to other parallel streets that are not traffic calmed.
- ❑ In areas with snow removal problems, a measure such as a flexible delineator post may be needed at each hump to alert snowplow operators to lift their blades.

Speed humps should be distinguished from speed *bumps*, which may be encountered in parking lots. Speed bumps are usually about 3 to 6 inches in height, 1 to 3 feet in length, and force traffic to slow to 5 to 10 miles per hour. Speed bumps may generate severe vertical displacement at low speeds and are not to be used as traffic calming measures.

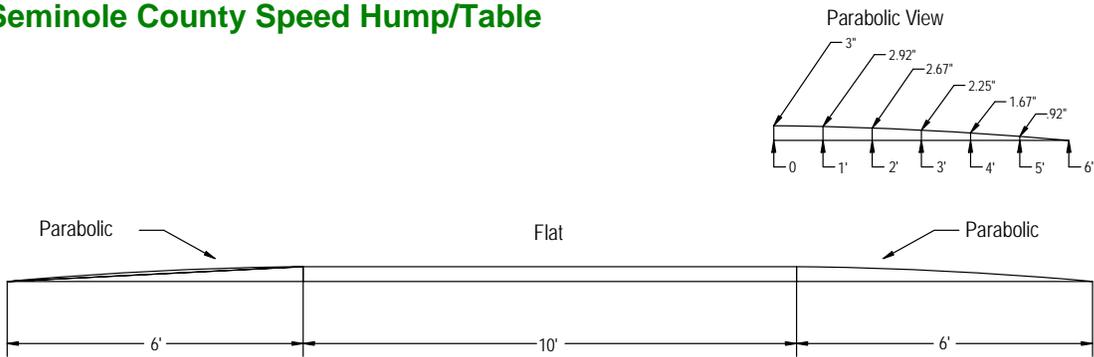
<p>Advantages:</p> <ul style="list-style-type: none"> ❑ Can be very effective in slowing traffic on residential streets. ❑ Relatively inexpensive to install and maintain. ❑ Can reduce motor vehicle conflicts. ❑ Should not pose problems for bicyclists or motorcyclists, except at high speeds. 	<p>Disadvantages:</p> <ul style="list-style-type: none"> ❑ Watts speed humps are inappropriate for emergency response routes. ❑ Seminole County humps may be considered for emergency routes, but only after close coordination with emergency service providers. ❑ Should be avoided on major transit routes. ❑ Snow removal personnel may require special training in speed hump areas. However, speed humps have been used successfully in many jurisdictions with heavy snowfalls. ❑ Drainage could be a concern.
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Watts (TRRL Profile) Speed Hump



Source: ITE, Guidelines for the Design and Application of Speed Humps

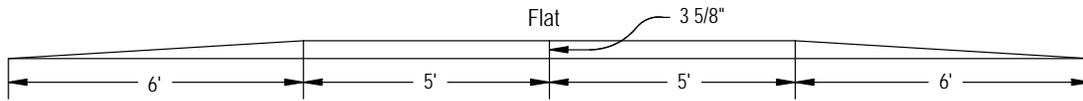
Seminole County Speed Hump/Table



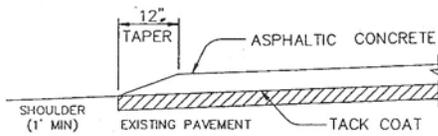
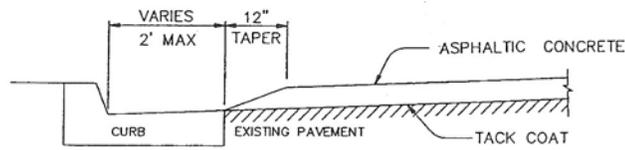
Source: Seminole County, Florida

Note: All signing and pavement markings should utilize the latest applicable standards and manuals.

Gwinnett County Speed Hump/Table



Gwinnett County Speed Hump/Table Shoulder Detail



Shoulder Detail For Streets Without Curbs

Source: Gwinnett County, Georgia

Note: All signing and pavement markings should utilize the latest applicable standards and manuals.