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.[1]

Traffic calming goals include:

- increasing the quality of life;
- incorporating the preferences and requirements of the people using the area (e.g., working, playing, residing) along the street(s), or at intersection(s);
- creating safe and attractive streets;
- helping to reduce the negative effects of motor vehicles on the environment (e.g., pollution, sprawl); and
- promoting pedestrian, cycle and transit use.[1]

Traffic calming objectives include:

- achieving slow speeds for motor vehicles,
- reducing collision frequency and severity,
- increasing the safety and the perception of safety for non-motorized users of the street(s),
- reducing the need for police enforcement,
- enhancing the street environment (e.g., street scaping),
- encouraging water infiltration into the ground,
- increasing access for all modes of transportation, and
- reducing cut-through motor vehicle traffic.

Four types of measures are summarized:

- **Vertical deflections**, **horizontal shifts**, and **roadway narrowings** are intended to reduce speed and enhance the street environment for non-motorists.
- **Closures** (diagonal diverters, half closures, full closures, and median barriers) are intended to reduce cut-through traffic by obstructing traffic movements in one or more directions.

Traffic Calming Measures - Speed Hump

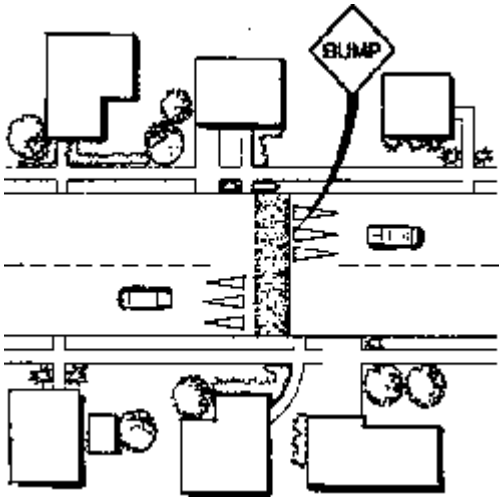
Description:

- rounded raised areas of pavement typically 12 to 14 feet in length
- often placed in a series (typically spaced 300 to 600 feet apart)
- sometimes called road humps or undulations

Applications:

- residential streets
- not typically used on major roads, bus routes, or primary emergency response routes
- midblock placement, not at an intersection
- not on grades greater than 8 percent
- work well with curb extensions

Design/Installation Issues:



- typically 12 to 14 feet in length; other lengths (10, 22, and 30 feet) reported in practice in U.S.
- speed hump shapes include parabolic, circular, and sinusoidal
- hump heights range between 3 and 4 inches with trend toward 3 - 3 ½ inches maximum
- difficult to construct precisely; may need to specify a construction tolerance (e.g. ± 1/8 inch) on height
- often have signage (advance warning sign before first hump in series and warning sign or object marker at hump)
- typically have pavement marking (zigzag, shark's tooth, chevron, zebra)
- taper edge near curb to allow gap for drainage
- some have speed advisories
- bicyclists prefer that it not cover or cross a bike lane

Potential Impacts:

- no effect on non-emergency access

- speeds determined by height and spacing; speeds between humps have been observed to be reduced between 20 and 25 percent on average
- based on a limited sample of sites, typical crossing speeds (85th percentile) of 19 mph have been measured for 3½ inch high, 12 foot humps and of 21 mph for 3 inch high, 14 foot humps; speeds have been observed to rise to 27 mph within 200 feet downstream
- speeds typically increase approximately 0.5 mph midway between humps for each 100 feet of separation
- studies indicate that traffic volumes have been reduced on average by 18 percent depending on alternative routes available
- studies indicate that collisions have been reduced on average by 13 percent on treated streets (not adjusted for traffic diversion)
- most communities limit height to 3-3½ inches, partly because of harsh ride over 4-inch high humps
- possible increase in traffic noise from braking and acceleration of vehicles, particularly buses and trucks

Emergency Response Issues:

- Concern over jarring of emergency rescue vehicles
- Approximate delay of between 3 and 5 seconds per hump for fire trucks and up to 10 seconds for ambulance with patient

Typical Cost:

- Approximately $2,000 (1997 dollars)