

Physical Devices

These in-road tools address concerns with vehicle speed. They force vehicles to make low-speed turning maneuvers in otherwise straight stretches of road, reducing speeds, and in some cases providing shorter crossing distance for pedestrians. All physical devices can have an impact on emergency services, increasing response time. Physical devices with an impact to ride quality have an impact on delivery vehicles and transport of cargo. Some physical devices can increase noise to neighboring properties as vehicles cross over. Some of the more common physical devices include:

Traffic Circles and Mounds

Traffic circles can be installed at intersections or mid-block, and force vehicles to make a low-speed turning maneuver. A traffic circle at an intersection eliminates movements that can lead to t-bone and right-angle collisions, forcing circulation around the circle for all traffic. Traffic flow can improve when compared to a typical 4-way stop controlled intersection. The traffic circle typically has an outer apron which can be crossed by larger vehicles which have trouble navigating the tight turns, and a central raised island. This island can provide an opportunity

for neighborhood volunteers to plant gardens or place public art. Traffic circles can be built with pedestrian refuges at the entry points of each leg if space allows, reducing crossing lengths. Traffic circles can increase response times for emergency services.

An alternative to a traffic circle is the traffic mound. This treatment would be used at intersections where there are higher volumes of large vehicles, or concern with emergency access. The traffic mound lacks the taller central island, and provides a surface that can be crossed by larger vehicles if needed.



Chicanes

Chicanes can take the form of curb extensions on alternating sides of the street, shifting both lanes of traffic by a few feet at each extension, or a one-way S-shaped curve which requires vehicles to yield to oncoming traffic. They can have a significant slowing effect on traffic. With careful siting of the extensions, they can also reduce pedestrian crossing widths.

These devices tend to have the least impacts to emergency services, or to neighborhood noise levels. There may be an impact to on-street parking or walkways. Chicanes must be carefully designed to not affect surface water drainage patterns. Chicanes can cause traffic diversion to parallel routes.



Speed Bumps, Humps, Cushions and Raised Crosswalks

Speed bumps, humps, cushions and raised crosswalks are all variations on a similar approach to traffic calming. A raised mound, typically 4 to 6 inches in height, is placed spanning the entire roadway. This bump forces vehicles to slow significantly in order to cross.

- A **speed bump** is the shortest along the path of travel and causes a significant impact to ride quality while slowing speeds.
- A **speed hump** is more elongated in the travel path and provides a slightly smoother ride.
- A **speed cushion** is a speed hump with cuts spaced to allow an emergency service vehicle to pass without having to slow for the raised bump. Smaller vehicles are unable to pass through both cuts and must slow their speeds over the hump.

- A **raised crosswalk** is typically 6 to 10 feet wide or more and provides a level walking surface for pedestrians to cross from an adjacent sidewalk. This treatment is only appropriate in areas where the street section is curb-and-gutter. The raised crosswalk serves as a speed hump and forces all vehicles to slow.

These treatments, even speed cushions, have the most impact to emergency service vehicles. Delivery vehicles, both commercial and personal cargo transport, are impacted by the bouncing and shifting ride quality. These treatments have the most noise impact to neighboring properties from the tires and shocks of all passing vehicles as they pass over the bump. Speed bumps are accompanied by warning signage and pavement markings.

Many of the benefits of speed bumps can be accomplished with other treatments that have less of an impact to ride quality, emergency services and neighborhood aesthetics.

