

Traffic Calming and Road Diets

Well-designed Traffic-Calming projects reduce the speed and/or volume of cars on a roadway. A Road Diet is a type of Traffic Calming. There are numerous traffic-calming strategies and devices. This section will review some of the most common strategies and devices.

Traffic Calming—Benefits and Costs

There is a variety of reasons to consider traffic calming. The chart below by Todd Litman of the Victoria Transport Policy Institute is a good summary of some of the main reasons to implement traffic calming ([Traffic Calming entry in the TDM Encyclopedia](#)):

- Safety, mobility, livability, economic development, and public health are all strong arguments in favor of traffic calming, where appropriate.
- Costs have also been compiled by Litman. A selection of costs for different measures can be found on the next page. The full chart can be found in the [Traffic Calming entry in the TDM Encyclopedia](#).

Benefits	Description
Increased Road Safety	Reduced traffic accident frequency and severity, particularly for crashes involving pedestrians and cyclists.
Increased comfort and mobility for non-motorized travel	Increased comfort and mobility for pedestrians and cyclists.
Reduced automobile impacts	Increased non-motorized travel substitutes for automobile trips, reducing congestion, expenses and pollution.
Increased neighborhood interaction	More hospitable streets encourage street activities and community interaction.
Increased property values	Reduced traffic speed and volumes increase residential property values.
Public Health	More opportunities for walking and other physical activity.

Types of Traffic Calming

The Victoria Transport Policy Institute recognizes 23 types of traffic-calming strategies and devices ([Traffic Calming](#), Litman). The group WalkSanDiego recognizes 26 traffic-calming techniques. A selected number of these strategies, devices, and techniques will be reviewed in this document. ITE states that there are 4 types of traffic calming: vertical deflections, horizontal shifts, roadway narrowings, and closures ([Traffic Calming Measures webpage](#), ITE).

Measure	Typical Cost in U.S. Dollars
Chokers	\$7,000 for landscaped choker on asphalt street, \$13,000 on concrete
Chicanes	\$8,000 for landscaped chicanes on asphalt streets, \$14,000 on concrete
Pedestrian refuge island	\$6,000-9,000, depending on materials
Center medians	\$15,000-20,000 per 100 feet.
Raised intersection	\$70,000+ per intersection

▲ Costs have also been compiled by Litman. The full chart can be found in the [Traffic Calming entry in the TDM Encyclopedia](#).

Traffic Calming—Vertical Deflection

A vertical deflection means changing the road in the vertical direction. This means a car travelling on a road with vertical deflection will have to move up and down, compared to the road before traffic calming. A hill in the road is a natural type of vertical deflection. Following are examples of vertical deflection elements.

Speed Hump

A speed hump is a small curved hump in the road, 7-10 cm tall ([Traffic Calming](#), Litman, and Walk San Diego, p. 8):

- Speed humps are sometimes confused with speed bumps. Bumps are taller and more severe. Bumps can damage some vehicles. Bumps should be restricted to use in parking lots.
- A speed hump is less aggressive than a speed bump. It is most frequently used on residential streets. These can be found in various locations in central Ohio.

► A speed hump marked with yellow caution signs in Chapel Hill, North Carolina.
 (Source: www.pedbikeimages.org/Austin)



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Speed Table (or Raised Crosswalk)

A speed table is a ramped surface above the roadway, 7-10 cm high ([Traffic Calming](#), Litman, and Walk San Diego, p. 9):

- A speed table provides a good crossing point for pedestrians, like a mid-block crossing.
- A speed table elevates pedestrians, giving them better sight of oncoming vehicles.



◀ A mid-block speed table. Note the curb extension on the right with red paint in Solano Beach, California. (Source: [Streetswiki](#) / [Gallagher](#))

Intersection Table (or Raised Intersection)

A speed table is a raised surface covering an entire intersection, including the crosswalks. More facts on Speed Tables (Walk San Diego, p. 9):

- This is like a speed table except it covers an entire intersection, including the crosswalk areas.
- This slows vehicles and highlights the intersection. It may not be appropriate for routes frequently used by emergency response vehicles or buses.



▲ A speed table with warning white stripes and red brick. (Source: Google Maps)

- At the intersection of Marcella Street and Berkshire Street in Cambridge, MA.

Traffic Calming-Horizontal Shift

A horizontal shift means changing the road in the horizontal direction. This means a car travelling on a road with a horizontal shift will have to move left and right, compared to the road before traffic calming. A flat curve in the road is a natural type of horizontal shift.

Roundabouts

A roundabout is a one-way, circular intersection in which traffic flows around a center island. More facts about roundabouts (Walk San Diego, p. 10)

- Roundabouts increase the intersection capacity and are cheaper to maintain than signals. They also reduce crashes compared to signalized and stop-sign intersections.
- Modern roundabouts in the U.S. are better designed than their predecessors.
- Note that sight-impaired pedestrians rely on the sound of approaching vehicles when crossing. This is made difficult when navigating a roundabout. For this reason some disability advocates may oppose the use of roundabouts and researchers are looking at innovative solutions. These solutions must still meet standards such as federal and Ohio MUTCD.



◀ Roundabout at Avery-Muirfield Drive and Post Road in Dublin, OH. (Source: Wawszkiewicz/Dublin)

- Note the school bus in the background and the mountable truck apron shown in red.

Mini-Traffic Circles (or Neighborhood Traffic Circles)

A mini-traffic circle is a small-scale, one-way, circular intersection in which traffic flows around a center island. More facts about mini-traffic circles (Walk San Diego, p. 11):

- Mini-traffic circles are sometimes confused with roundabouts. While they may look similar to roundabouts, they have some differences. Mini-traffic circles are used on lower-volume streets, such as residential streets. They are only one-lane, while roundabouts can be two or even three lanes wide.
- Mini-traffic circles reduce crashes compared to stop-sign controls.
- Landscaping is an important element of a mini-traffic circle.



◀ A neighborhood traffic circle on E. Sycamore Street at Linwood Avenue. Columbus, OH. (Source: MORPC)

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Chicanes

A chicane is a curb extension that forces vehicles to move in an S-curve (Walk San Diego, p. 11):

- Chicanes produce a visual obstruction, which reduces travel speed. They also provide a large area for landscaping.
- Chicanes can reduce on-street parking.

► Chicane on Lechner Avenue just south of Floral Avenue
(Source: Google Maps)

- Note the Lechner Avenue is one-way in the photo at the Hilltop Neighborhood in Columbus, OH.



Traffic Calming-Roadway Narrowing

Roadway narrowing means making the road more narrow. A common example of a roadway narrowing is at a bridge crossing, especially in more rural areas.

Choker (or Curb Extension or a Neck-Down)

A choker (or curb extension) is typically found at an intersection. A choker narrows the street without reducing access (Walk San Diego, p. 17):

- Chokers can be found mid-block or at intersections. They reduce vehicle speeds.
- Often the choker is created by extending the sidewalk or widening the planting strip ([Choker entry in the ITE Traffic Calming Measures website](#), ITE).



◀ This curb extension on the left shortens the pedestrian crossing distance at Easton Town Center in Columbus, OH.
(Source: www.pedbikeimages.org / Burden)

Road Diet

A Road Diet converts vehicle travel lanes to other uses, such as parking, sidewalks, bike lanes, or landscaping.

- Road Diets reduce the number and width of travel lanes, particularly on arterials ([Traffic Calming](#), Litman). Studies have shown that generally lane widths for arterial roads can be narrowed to 10 feet from the “standard” 12 feet ([Potts, Harwood, and Richard, 2007](#)).
- On urban arterial roads with posted speeds less than 45 mph, 10-foot and 11-foot lanes are just as safe as 12-foot lanes ([LaPlante, 2010](#)).
- An analysis of road diet measures on crashes found that the crash modification factor (CMF) varies from 47% (for small urban areas) to 19% (for suburban areas) ([Federal Highway Administration report, 2010](#)). Note that in both cases the CMF means a reduction in crashes due to the road diet. The majority of the road diets in this study were conversions from four lanes to three lanes, where a four-lane undivided road was converted to two through lanes plus a center turn lane.



▲ Before and after a road diet. Note the addition of a center turn lane, bike lanes, and marked crosswalks. Champaign-Urbana, IL. (Source: [Streetscape Improvements entry in the TDM Encyclopedia](#). Litman, 2011.)

Center Island Narrowing (or Pedestrian Refuge Island)

Center Island Narrowing, also known as a pedestrian refuge island, consists of an island that narrows the street for vehicular traffic (Walk San Diego, p. 17):

- A raised island can provide a refuge for pedestrians crossing the street.
- The raised island also cues drivers to expect pedestrians.



◀ A pedestrian refuge island.

(Source: [Center Island Narrowing entry in the ITE Traffic Calming Measures website](#), ITE, Ewing.)

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Traffic Calming-Closures and Other Types

There are a few other types of traffic calming that deserve mentioning, but do not fall into the above categories (vertical deflection, horizontal shift, or roadway narrowing).

Road Closure

A road closure is a partial or total closure of the road to motor vehicle traffic ([Closure entry in the ITE Traffic Calming Measures website](#), ITE, 2011):

- This is an extreme form of traffic calming. While motor vehicle traffic is prevented from traveling, provisions are made for pedestrians and bicyclists.
- Some road closures can be less extreme, using diagonal diverters or median barriers to prevent movement in certain directions.

► A traffic diverter forces motor vehicle traffic to turn at this intersection. (Source: [Streetswiki / Burden](#))

- Note that the sidewalk provides through access for pedestrians.



Woonerf

A woonerf is a street with mixed vehicle and pedestrian traffic, where motorists are required to drive at very low speeds. ([Traffic Calming](#), Litman).

- A woonerf favors walking and bicycling over automobile use.
- These can be found in Europe on residential streets and low-volume commercial streets.

► A woonerf in Europe with perpendicular parking arranged to calm the street. (Source: [Kodransky and Hermann, 2011.](#))



Diagonal Parking

Diagonal parking is where cars are parked diagonally between the travel lane and the curb and sidewalk (Walk San Diego, p. 21):

- Converting parallel parking to diagonal parking can be used to slow motor vehicles.
- Drivers slow down as they anticipate parked vehicles backing out. Diagonal parking increases the on-street parking supply, compared to parallel parking. However, it does require 19 feet of pavement width, compared to 8 feet.



◀ Diagonal parking at Columbus's North Market. Note the other side of the one-way street has parallel parking.
(Source: MORPC.)

Traffic Calming-Examples

Gay Street in Columbus, Ohio

Gay Street in downtown Columbus is an example of a traffic-calmed street. The street was one-way before the project started in 2007. The street was converted to two-way after six months of construction ([Doulin/The Dispatch](#), 2007). Current features of Gay Street include ([City of Columbus Press Release](#)):

- Shorter crosswalk distances for pedestrians. Crosswalks are also well marked.
- Sidewalks, diagonal parking, and one travel lane in each direction.
- Landscaped medians and two rain gardens.
- Street trees and decorative light poles.
- Bike racks and designated motorcycle parking spaces.
- Conduit for future fiber optic cable was installed underground.



◀ Pedestrians, bicyclists, and motorists use Gay Street. Note the landscaped median and marked crosswalk.
(Source: [City of Columbus website](#))

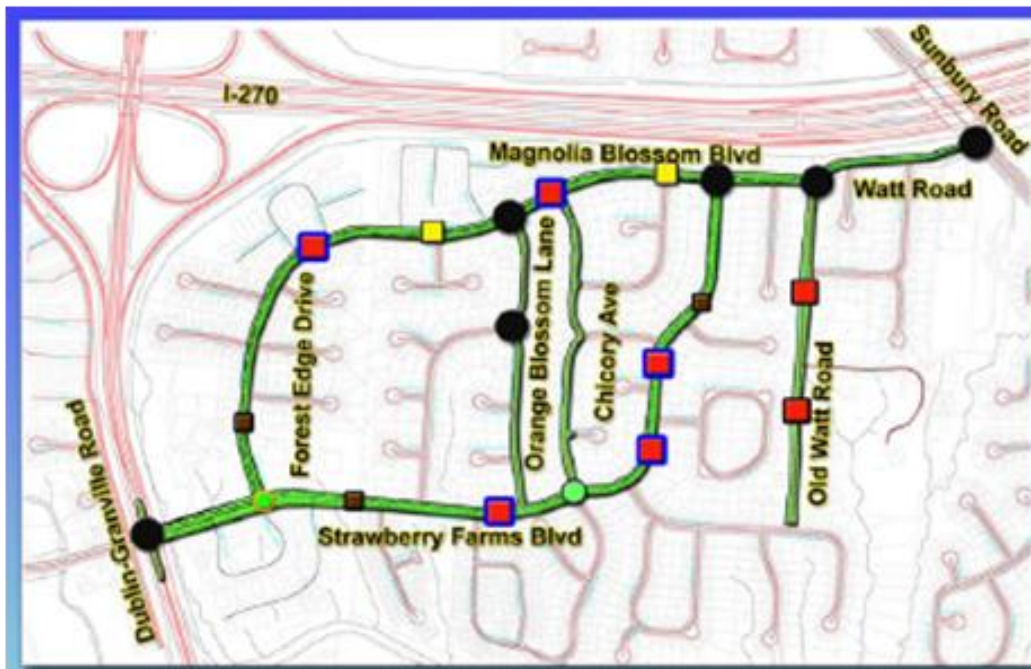
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Strawberry Farms neighborhood in Columbus, Ohio

The Strawberry Farms neighborhood in the City of Columbus was the focus of a Traffic Management Plan. This plan was motivated by resident concerns about speeding and cut-through traffic ([City of Columbus website](#)). Some of the proposed treatments include ([Strawberry Farms Traffic Calming Master Plan](#)):

- Intersection medians
- Speed tables
- Chokers
- Roundabouts
- Neighborhood traffic circles
- For more information, consult the Traffic-Calming plan online: http://publicservice.columbus.gov/uploadedFiles/Public_Service/Transportation/Mobility/Columbus.ONE.5-20-05.pdf



▲ Conceptual plan for Traffic-Calming features in Strawberry Farms.

(Image: [Strawberry Farms Traffic Calming Master Plan](#))

Ninth Street in Ferndale, Michigan

The National Trust for Historic Preservation recognized downtown Ferndale in 2010 with its highest honor—the Great American Main Street Award. Ferndale is a vibrant and healthy community, in part because of the design of its major thoroughfare, Ninth Street. A road diet was completed on Ninth Street, reducing the street from four travel lanes to two travel lanes. Ferndale Mayor Dave Coulter explains ([Walden Hughes/ Michigan Municipal League](#)):

- “It was a controversial issue at the time to slow traffic down and make it two lanes, but that was really the beginning in bringing people and foot traffic back to downtown Ferndale.”
- “We have to get past this mentality that the roads that go through communities like Ferndale are mini-expressways to get you some place quickly.”
- “Instead we have to realize these roadways really are a fabric of the community and that they can be a source of recreation and community.”

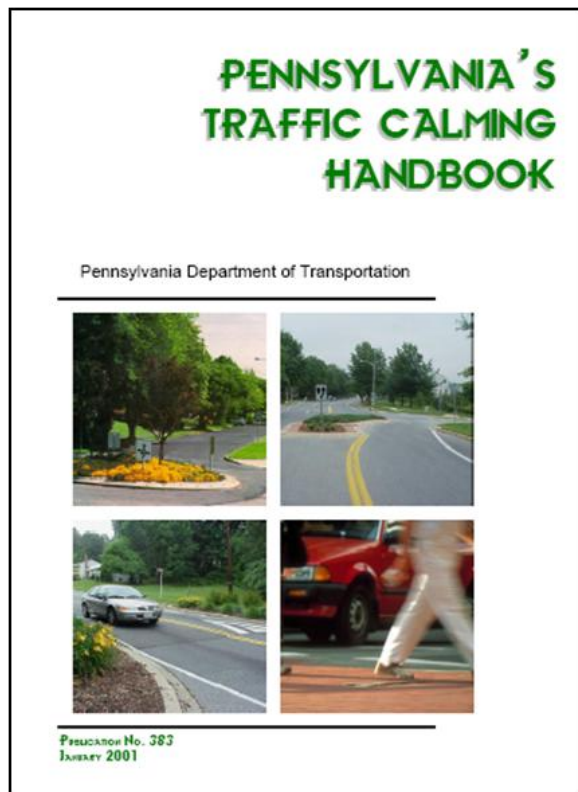
Ninth Street in Ferndale, Michigan (cont'd)



▲ Ninth Street in Downtown Ferndale after the road diet. Note that each side of the road has one parking lane and one travel lane.
(Source: [English Academic Wikipedia website](#))

Traffic-Calming Guidelines

There are more detailed guidelines on traffic-calming design at the federal, state, and local level. Below is the cover of a guide from the Pennsylvania Department of Transportation (DOT). More information on resources can be found in the “Sources and Resources” section that begins on the next page.



◀ The Pennsylvania DOT has created a handbook on Traffic Calming.
(Source: [Penn. DOT](#))

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Sources and Resources

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