

In the world of traffic calming, options to reduce speeding drivers, to increase pedestrian and motorist safety, and to improve the quality of life within a community are constantly evolving. This document is the third in a series of 21st Century Traffic Calming guides that analyze engineered traffic-calming solutions.

Part III: Narrowing Measures

Curb Extensions and Center Islands



[Studies](#) show that wider residential streets experience higher speeds. By reducing the “effective” street width, excessive speeds can be reduced. Curb extensions and island narrowing are the fundamental street narrowing tools. Properly installed, narrowing measures reduce speeds (near the device), diminish traffic volume, make pedestrians more visible and offer pedestrians protection from vehicle traffic.

CURB EXTENSIONS

Curb extensions extend the sidewalk into the street, reallocating a portion of the roadway to pedestrians. By reducing the roadway width from curb to curb, curb extensions slow motorists and benefit pedestrians by providing shorter crossing distances. In some cases, these devices may also provide a protected street parking zone.

Also called bulbouts and popouts, these traffic-calming tools can be located at an intersection or mid-block. When placed at an intersection, curb extensions are often called neckdowns. Mid-block they are sometimes referred to as chokers.

Design:

- Must consider site drainage needs.
- Landscaping can be incorporated as part of a community beautification project.

Known Concerns:

- Right turns may be difficult to maneuver by large vehicles.
- On-street parking may be diminished, depending on design.
- Poorly designed curb extensions can pose a hazard to cyclists.

Costs:

- Initial installation: \$10,000-\$40,000 per corner ([Sparks, NV](#))
- Mid-block installation may cost less: \$4,000 ([Harrisburg, PA](#))
- To retrofit an existing four-leg intersection: \$100,960 (8 x \$12,620 - [North Carolina](#))
- Additional initial costs vary based on design and site conditions. Drainage tends to be the most significant cost determinant. Other factors include size of extension area, pavement type, street furnishings, and vegetation and landscaping. If movement of utility pole or controller box is required, this will substantially increase installation costs.
- Long-term expenses focus primarily on the maintenance of the vegetation.

Federal Compliance Guidelines for Curb Extensions

There are no federal guidelines for curb extensions though there may be local and state requirements for compliance with certain construction codes. While MUTCD guidelines do not directly address these, there are a number of transferrable recommendations:

1. Utilize “Road Narrows” word message signs to alert drivers to changes in road width with any narrowing of the road, such as the presence of curb extensions, bulb-outs or chicanes
2. Utilize painted lines to identify street edges with on narrowed roadways
3. Incorporate appropriate markings and signage if crosswalks are part of the curb extension.

CENTER ISLANDS

Center islands—also known as crossing islands, pedestrian islands, and refuge islands—are raised alterations found in the median of a street between opposing lanes of traffic. Located at an intersection or mid-block, these devices increase protection for pedestrians as they cross the street. These refuge areas complement crosswalks by reducing the time that a pedestrian is exposed to the roadway and by drawing drivers’ attentions to the presence of the crosswalk. Properly utilized, crossing islands reduce pedestrian injuries and vehicle crashes.

Design:

- Most appropriate for wide or multi-lane streets.
- Wheelchair access at the median must be taken into account when constructing a cut-through design.
- Must be clearly visible to traffic both day and night.
- The minimum widths for accessible refuge islands and for design and placement of detectable warning surfaces are provided in the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" (see [Section 1A.11](#)).

Known Concerns:

- Where cyclists are frequently present, the refuge island should not narrow the lanes too much.
- May impact left-hand turning.

Costs:

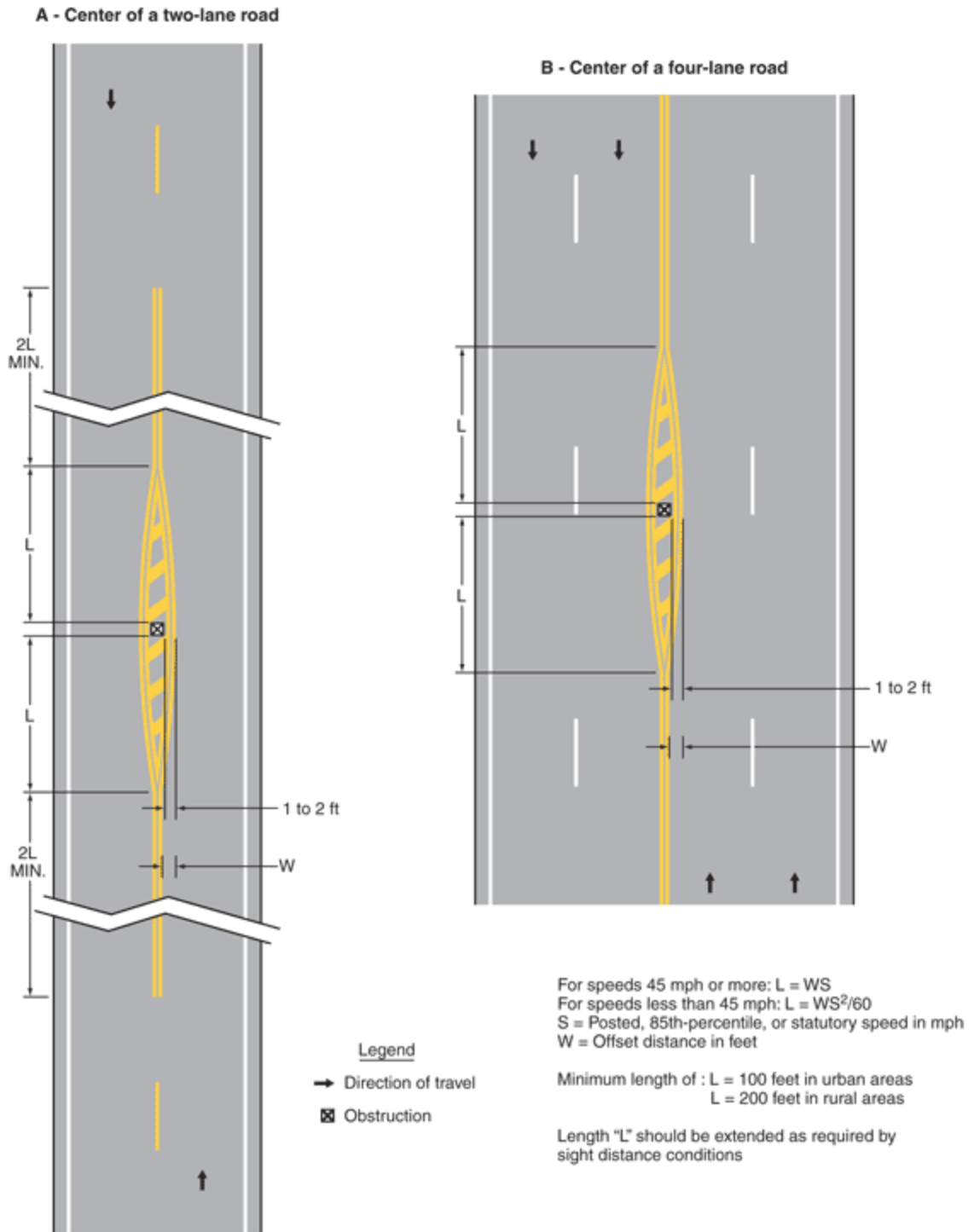
- Initial installation: \$10,000-\$40,000 ([North Carolina](#))
- Additional cost factors vary based on the materials used, presence of vegetation / landscaping and drainage factors.
- Long-term expenses include maintenance, construction and landscape.

Federal Compliance Guidelines for Center Islands

There are no federal guidelines for center islands though there may be local or state requirements for compliance with certain construction codes. MUTCD guidelines are limited to pavement and curb markings, channelizing devices and delineators.

1. Markings shall consist of a tapered line or lines extending from the center line or the lane line to a point 1 to 2 feet to the right-hand side, or to both sides, of the approach end of the obstruction (see [Figure 3B-15](#)).

Figure 3B-15. Examples of Applications of Markings for Obstructions in the Roadway
(Sheet 1 of 2)



NOTE: This approach to an obstruction for a particular island ([Section 3B.10](#)) may be omitted based on engineering judgment.

Island Marking Colors

1. Islands outlined by curbs or pavement markings should be marked with retroreflective white or yellow material as determined by the direction or directions of travel they separate (see [Section 3A.05](#)).
2. The retroreflective area should be of sufficient length to denote the general alignment of the edge of the island along which vehicles travel, including the approach end, when viewed from the approach to the island.

Option: On long islands, curb retroreflection may be discontinued such that it does not extend for the entire length of the curb, especially if the island is illuminated or marked with delineators or edge lines.

Island Delineation

1. Delineators installed on islands shall be the same colors as the related edge lines except that, when facing wrong-way traffic, they shall be red (see [Section 3F.03](#)).
2. Each roadway through an intersection shall be considered separately in positioning delineators to assure maximum effectiveness.

Option: Retroreflective or internally illuminated raised pavement markers of the appropriate color may be placed on the pavement in front of the curb and/or on the top of curbed approach ends of raised medians and curbs of islands, as a supplement to or as a substitute for retroreflective curb markings.