Beaufort County

# 2023 Traffic Calming Guidelines

*April 2023*

## SOURCES

ITE/FHWA. *Traffic Calming Primer*. May 2018.
https://highways.dot.gov/safety/speed-management/traffic-calming-eprimer

SCDOT. *Traffic Calming Guidelines.* 2019
https://www.scdot.org/business/pdf/accessMgt/trafficEngineering/SCDOT_TCG_06.pdf

NACTO. *Global Street Design Guidelines*.
https://nacto.org/publication/global-street-design-guide/

# INTRODUCTION

To replace the June 11, 2013 Traffic Calming Policy currently in effect in Beaufort County, the County has developed the 2023 Traffic Calming Policy to provide additional details and procedures related to traffic calming within its jurisdiction. This document standardizes Beaufort County's approach to traffic calming, including eligible roadways, appropriate devices and strategies, the process for requesting traffic calming installations and removals, and criteria for traffic calming.

# ELIGIBLE ROADWAYS

Any Beaufort County-owned roadway is eligible for traffic calming installations by the County.

Any SCDOT-owned roadway is subject to SCDOT traffic calming guidelines and needs to be coordinated with SCDOT District 6 staff. SCDOT-owned roadways can be identified in the following database: http://ris.scdot.org/RoadwayInformationStreetFinder.aspx .

Any City-owned roadways shall be coordinated with that municipality's planning staff on their specific traffic calming policy.

## Cost responsibility

If a municipality requests installation of a traffic calming device on a Beaufort County roadway, that municipality shall pay for the study, and if eligible, the County will partner with the municipality for the cost of installation of the traffic calming measure.

If the requestor requests traffic calming at an intersection where one or more of the legs of the intersection is a privately owned roadway, the requestor shall pay for the proportional percentage of the study for the portion of the overall intersection that is privately owned.

Beaufort County will not install traffic calming measures on private roadways.

# TRAFFIC CALMING DEVICES AND STRATEGIES

Traffic calming devices provide deflection or restrictions to reduce speed or shorten the path for non-vehicular users. The Institute of Transportation Engineers (ITE) and the Federal Highway Administration (FHWA) identified four types of traffic calming measures in their *ITE/FHWA Traffic Calming EPrimer*: Vertical Deflections, Horizontal Deflections, Street Width Reduction, and Other Traffic Calming Measures.

## Vertical Deflections

Vertical deflections change the height of the roadway to reduce the vehicles speed. Vertical deflections include:

- Speed Humps
- Raised Crosswalks/Intersections
- Speed Cushions/Tables

## Horizontal Deflections

Horizontal deflections create deflection in the travel path to hinder the ability for motorists to travel on a straight path, reducing vehicular speeds. Horizontal deflections include:

- Mini Roundabouts
- Chicanes
- Lateral Shifts
- Realigned Intersections

## Street Width Reductions

Street widths are reduced to lower the speed of traveling vehicles as well as to shorten crossing distances for pedestrians. Street Width Reduction treatments include:

- Road Diets
- Parking Bulb-outs

## Other Traffic Calming Measures

Other traffic calming measures may include thinks to make drivers more aware; these additional measures include:

- Speed Feedback Signs

## TRAFFIC CALMING REQUEST PROCESS

A traffic calming request may be initiated a municipality or member of the general public. The figure on the next page illustrates the process for a traffic calming request to be processed by Beaufort County.

A petition for a traffic calming study must be signed by 50% of HOA landowners (if within an HOA) or 50% of the landowners in the affected roadway section (if area is not included in an HOA). The required petition form is included in the Appendix of this document.

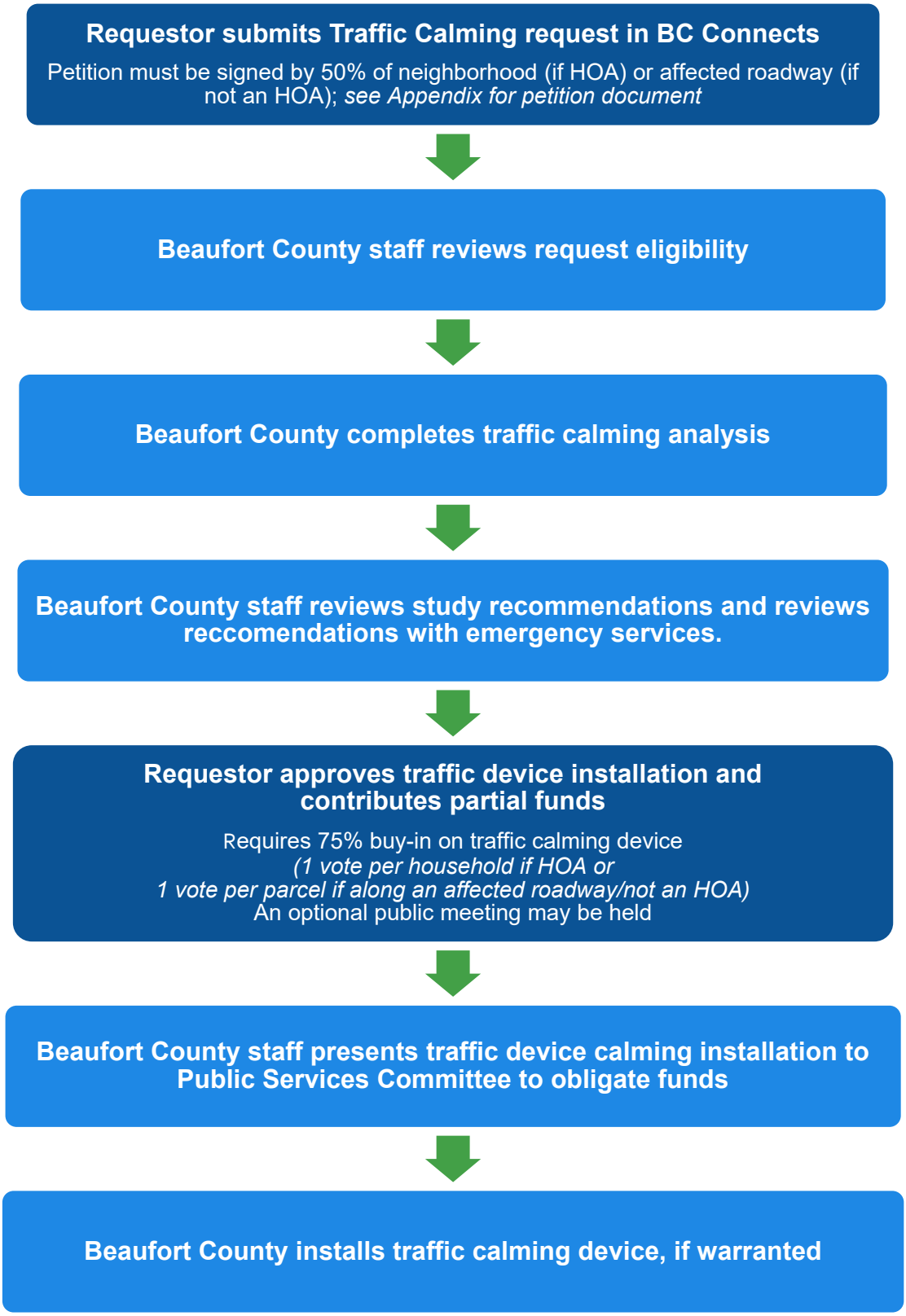
Upon receiving a request, Beaufort County staff will review the eligibility of the request, request any funding to be collected via the BC Connects site, complete a traffic calming analysis, and review this study's recommendations.

The County will review the proposed traffic calming device will be coordinated with emergency services and address any changes to the preliminary traffic calming plan.

The requestor must have 75% buy-in on traffic calming device from the affected area (1 vote per household if HOA or 1 vote per parcel along an affected roadway/not an HOA). An optional informational public meeting may be held at the discretion of the County Engineer or designee.

If the traffic calming measure is approved by the neighborhood or by the parcel owners along the roadway concept, Beaufort County staff will present the proposed traffic calming device to the Public Services Committee to obligate funds. If warranted and funds are obligated, Beaufort County will install the recommended traffic device.

Note: Beaufort County can remove a traffic calming device at their discretion.


Requestor submits Traffic Calming request in BC Connects
Petition must be signed by 50% of neighborhood (if HOA) or affected roadway (if not an HOA); see Appendix for petition document
Beaufort County staff reviews request eligibility
Beaufort County completes traffic calming analysis
Beaufort County staff reviews study recommendations and reviews reccomendations with emergency services.
Requestor approves traffic device installation and contributes partial funds
Requires 75% buy-in on traffic calming device
(1 vote per household if HOA or
1 vote per parcel if along an affected roadway/not an HOA)
An optional public meeting may be held
Beaufort County staff presents traffic device calming installation to Public Services Committee to obligate funds
Beaufort County installs traffic calming device, if warranted

## IF INTERSECTION/ROADWAY IS NOT FOUND TO MEET TRAFFIC CALMING GUIDELINES

If an intersection/roadway is not warranted, the applicant must wait 2 years from the completion of the previous traffic calming study before petitioning for reconsideration. If there is a substantial change on this roadway, as deemed by Beaufort County staff, the reconsideration period may be shortened.

## REMOVAL OF TRAFFIC CALMING DEVICE REQUESTS

A traffic calming device must be in place for 2 years. A removal request requires that 75% of the affected areas (HOA, if HOA exists, or of parcels along the traffic calmed segment, if no HOA) petition for removal. The applicant must pay the full cost of the removal of the traffic calming device. No reimbursement will be made for prior payments made by applicant for the traffic calming study or installation of the device.

Beaufort County can remove a traffic calming device at their discretion.

# TRAFFIC CALMING CRITERIA

## Speed Humps/Raised Crosswalks

- Posted speed limit of 25 mph or less
- Average Daily Traffic (ADT) volume is less than 2,500 vehicles per day but greater than 600 vehicles per day
- 85$^{th}$-percentile speed shall exceed 10 mph over the posted speed limit
- Roadway must be 1,000 feet in length
- Roadway is classified as Minor Collector or Local Street
- Location will not have a significant effect on emergency services or school buses
- Roadway must be connected to two roadways, dead end roadways will not be considered

## Speed Tables/Raised Intersections

- Posted speed limit of 25 mph or less
- ADT volume is less than 3,500 vehicles per day but greater than 600 vehicles per day
- 85$^{th}$-percentile speed shall exceed 10 mph over the posted speed limit
- Roadway must be 1,000 feet in length
- Roadway is classified as Minor Collector or Local Street
- Location will not have a significant effect on emergency services or school buses
- Roadway must be connected to two roadways

## Chicanes/Urban Roundabout

- Posted speed limit of 25 mph or less
- ADT volume is less than 3,500 vehicles per day but greater than 600 vehicles per day
- 85$^{th}$-percentile speed shall exceed 10 mph over the posted speed limit
- Roadway must be 1,000 feet in length
- Roadway is classified as Minor Collector or Local Street
- Location will not have a significant effect on emergency services or school buses
- Roadway must be connected to two roadways
- A traffic study may be required by Beaufort County

## Road Diet/Change to Stop Control

- Traffic engineering study required.

# GLOSSARY

**The attached information sheets reflect the current practice, however are subject to change. Additional traffic calming measure fact sheets can be found at** https://www.ite.org/technical-resources/traffic-calming/traffic-calming-measures/.

## Speed Hump

*Traffic Calming Guidelines, SCDOT, 2019*

## Raised Crosswalk

*Traffic Calming Guidelines, SCDOT, 2019*

## Speed Table


*https://highways.dot.gov/safety/speed-management/traffic-calming-eprimer/module-3-part-2#3.12*

## Mini Roundabout

*https://nacto.org/publication/urban-street-design-guide/intersections/minor-intersections/mini-roundabout/*

## Chicane

*https://nacto.org/publication/urban-street-design-guide/street-design-elements/curb-extensions/chicane/*

## Speed Feedback Sign


*https://ctre.iastate.edu/research-synthesis/roadway-departures/dynamic-speed-feedback-signs/*

# Traffic Calming Fact Sheets

May 2018 Update

## Speed Hump

**Description:**

- Rounded (vertically along travel path) raised areas of pavement typically 12 to 14 feet in length
- Often placed in a series (typically spaced 260 to 500 feet apart)
- Sometimes called road humps or undulations

**Applications:**

- Appropriate for residential local streets and residential/neighborhood collectors
- Not typically used on major roads, bus routes, or primary emergency response routes
- Not appropriate for roads with 85th-percentile speeds of 45 mph or more
- Appropriate for mid-block placement, not at intersections
- Not recommended on grades greater than 8 percent
- Work well in combination with curb extensions
- Can be used on a one-lane one-way or two-lane two-way street

(Source: City of Boulder, Colorado)


(Source: PennDOT Local Technical Assistance Program)

***ITE/FHWA Traffic Calming EPrimer:*** https://safety.fhwa.dot.gov/speedmgt/traffic_calm.cfm

**Design/Installation Issues:**

- ITE recommended practice - "Guidelines for the Design and Application of Speed Humps"
- 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
- Typically spaced no more than 500 feet apart to achieve an 85th percentile speed between 25 and 35 mph
- Hump heights range between 3 and 4 inches, with trend toward 3 - 3 ½ inches maximum
- Often have associated signing (advance warning sign before first hump in series at each hump)
- Typically have pavement markings (zigzag, shark's tooth, chevron, zebra)
- Taper edge near curb to allow gap for drainage
- Some have speed advisories
- Need to design for drainage, without encouraging means for motorists to go around a hump

**Potential Impacts:**

- No impact on non-emergency access
- Average speeds between humps reduced between 20 and 25 percent
- Speeds typically increase approximately 0.5 to 1 mph midway between humps for each 100 feet Beyond the 200-foot approach and exit of consecutive humps
- Traffic volumes diversion estimated around 20 percent; average crash rates reduced by 13 percent

**Emergency Response Issues:**

- Impacts to ease of emergency-vehicle throughput
- Approximate delay between 3 and 5 seconds per hump for fire trucks and up to 10 seconds for ambulances with patients

**Typical Cost (2017 dollars):**

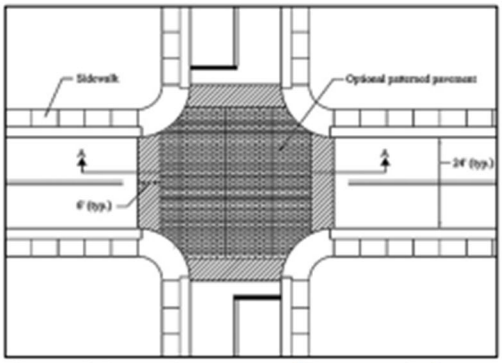
- Cost ranges between $2,000 and $4,000

# Traffic Calming Fact Sheets
May 2018 Update

## Raised Intersection

**Description:**
- Flat raised areas covering entire intersections, with ramps on all approaches and often with brick or other textured materials on the flat section and ramps
- Sometimes referred to as raised junctions, intersection humps, or plateaus

**Applications:**
- Intersections of collector, local, and residential streets
- Typically installed at signalized or all-way stop controlled intersections with high pedestrian crossing demand
- Works well with curb extensions and textured crosswalks
- Often part of an area-wide traffic calming scheme involving both intersecting streets in densely-developed urban areas



(Source: Delaware Department of Transportation)


(Source: Chuck Huffine, Phoenix AZ)

***ITE/FHWA Traffic Calming EPrimer:*** https://safety.fhwa.dot.gov/speedmgt/traffic_calm.cfm

**Design/Installation Issues:**
- Used at intersections with a maximum speed limit of 35 mph
- Typically rise to sidewalk level; appropriate if crosswalks exist on all four legs
- Appropriate if a dedicated bicycle facility passes through the intersection
- Detectable warnings and/or color contrasts must be incorporated to differentiate the roadway and the sidewalk
- May require bollards to define edge of roadway
- Storm drainage/underground utility modifications are likely necessary
- Minimum pavement slope of 1 percent to facilitate drainage

**Potential Impacts:**
- Reduction in through movement speeds likely at intersection
- Reduction in mid-block speeds typically less than 10 percent
- No impact on access
- Can make entire intersections more pedestrian-friendly
- No data available on volume diversion or safety impacts

**Emergency Response Issues:**
- Slows emergency vehicles
- Appropriate for primary emergency vehicle routes and streets with access to a hospital or emergency medical services

**Typical Cost (2017 dollars):**
- Costs range between $15,000 and $60,000

# Traffic Calming Fact Sheets

May 2018 Update

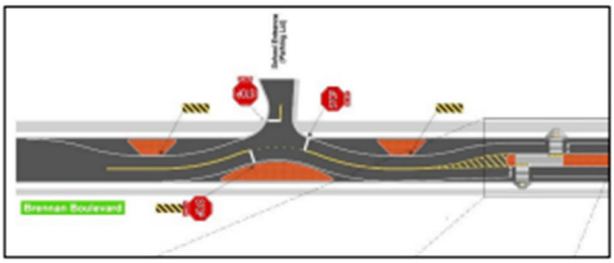
## Chicane

**Description:**

- A series of alternating curves or lane shifts that force a motorist to steer back and forth instead of traveling a straight path
- Also called deviations, serpentines, reversing curves, or twists

**Applications:**

- Appropriate for mid-block locations but can be an entire block if it is relatively short
- Most effective with equivalent low volumes on both approaches
- Appropriate speed limit is typically 35 mph or less
- Typically, a series of at least three landscaped curb extensions
- Can use alternating on-street parking from one side of a street to the other
- Applicable on one-lane one-way and two-lane two-way roadways
- Can be used with either open or closed (i.e. curb and gutter) cross-section
- Can be used with or without a bicycle facility




(Source: Delaware Department of Transportation)

***ITE/FHWA Traffic Calming EPrimer:*** https://safety.fhwa.dot.gov/speedmgt/traffic_calm.cfm

**Design/Installation Issues:**

- Chicanes may still permit speeding by drivers cutting straight paths across the center line
- Minimize relocation of drainage features
- May force bicyclists to share travel lanes with motor vehicles
- Maintain sufficient width for ease of emergency vehicles and truck throughput

**Potential Impacts:**

- No effect on access, although heavy trucks may experience challenges when negotiating
- Limited data available on impacts to speed and crash risk
- Street sweeping may need to be done manually
- Minimal anticipated volume diversion from street
- May require removal of some on-street parking
- Provides opportunity for landscaping
- Unlikely to require utility relocation
- Not a preferred crosswalk location
- Bus passengers may experience discomfort due to quick successive lateral movements

**Emergency Response Issues:**

- Appropriate along primary emergency vehicle routes

**Typical Cost (2017 dollars):**

- Reported costs range between $8,000 and $25,000