Traffic Calming Policy Manual

What is Traffic Calming?

Speeding and unsafe driving habits are a major concern throughout communities in the United States. The Town of Summerville is no exception with neighborhoods expressing similar concerns. In order to assist residents, the Mayor and Town Council, and decision makers in addressing the major concerns of neighborhood speeds and safety, the Town has developed this Traffic Calming Policy Manual. "Traffic Calming involves changes in street alignment, installation of barriers, and other physical measures to reduce traffic speeds and cut-through volumes in the interest of street safety, livability, and other public purposes." (As defined in the Institute of Transportation Engineers' (ITE), *Traffic Calming State of the Practice*, Ewing, 1999). Non-engineering measures such as enforcement, signage and striping are not included. Traffic control devices, particularly STOP, SPEED LIMIT and CHILDREN AT PLAY signs, require increased enforcement and are not a part of the program. Traffic calming measures, by contrast, are intended to be self-enforcing.

The Town's traffic calming program is outlined as follows:

1. Introduction
    a. Overview of Traffic Calming Program
    b. Types of Traffic Calming Measures
    c. Location of Traffic Calming
2. Traffic Calming
    a. Introduction
    b. Street Criteria
    c. Petition
    d. Data Collection
    e. Speed and Volume Criteria
    f. Placement
3. Summary of Traffic Calming Measures

1a. Overview of Traffic Calming Program

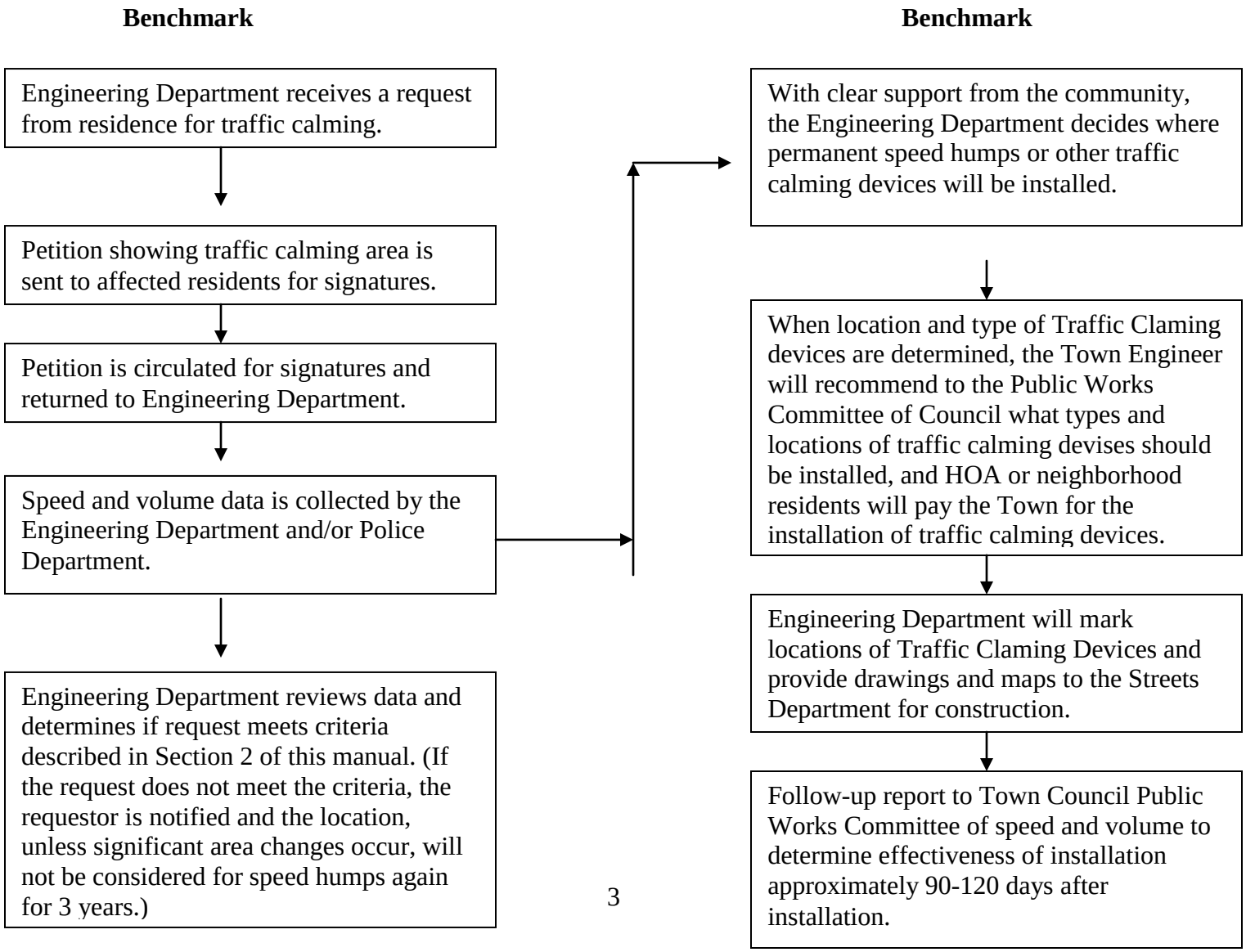
The Town of Summerville's traffic calming program is intended to work as a partnership between the Public Works Department and the community. Each group has specific responsibilities in order to make the program work. Traffic Calming can and should be considered with all new developments. All traffic calming devices, including type, use and design, must be approved by the Town Engineer.

The Program is designed to cover the full spectrum of measures by providing short, intermediate and long-term solutions. Volume and speed warrants are used to ensure the humps are placed in critical locations. Speed humps can only be placed on roadways improved with asphalt paving. More specifics on the speed hump program are discussed in section 2 of this manual.

1. A petition and Town Council approval is required,
2. the installation must meet the appropriate volume and speed criteria,
3. and Home Owners Association or neighborhood residents are responsible for funding. The Town of Summerville shall not fund speed humps.

More specifics on the permanent speed hump program are discussed in Section 2. Permanent speed hump program benchmarks and timelines are shown in Table 1-1 on the following page.

Table 1-1
Traffic Calming Policy and Timeline - Temporary and Permanent Speed Humps



1b. Types of Traffic Calming Measures

Traffic calming can be divided into three categories:

1. Volume control measures: consist of modifications that reduce the quantity of vehicles that use a specific roadway.
2. Vertical speed control measures: are elevated segments of roadway and gateway/landscape treatments, which require vehicles to slow down.
3. Horizontal speed control measures: alter the typical straight line traveled way or narrow a specific roadway to reduce speed.

These three categories comprise the Town of Summerville's traffic calming toolbox and have varying effects on speeds and volumes. All categories of traffic calming can be utilized in some aspect of the traffic calming program.

Table 1-2 lists specific traffic calming measures, which constitute the Town of Summerville's traffic calming toolbox. Greater detail on these measures, and their effectiveness, are shown in Section 5 of this Policy Manual or the Protocol Manual.

Table 1-2
Traffic Calming Measures

Volume Control	Full Street Closures
	Half Street Closures
	Forced Turn Islands
	Diverters
Vertical Speed Control	Speed Humps
	Speed Tables
	Gateway/Landscapes
	Raised Crosswalks
	Raised Intersections
Horizontal Speed Control	Mini Traffic Circle
	Roundabouts
	Road Narrowings
	Lateral Shifts
	Chicanes
	Neckdowns
	Chokers
	Island Narrowings

1c. Location of Traffic Calming

Traffic calming is primarily suited to residential streets and low volume neighborhood collector streets. Collector streets, or streets that act as the main access to a particular neighborhood, will generally have horizontal traffic calming measures only; however, some raised intersections and/or raised crosswalks can be considered for locations where posted speeds are 30 miles per hour or less. Vertical measures are designed for the lower speed limits and cannot be installed on routes with posted speeds greater than 30 miles per hour.

In addition, emergency response must be considered on the collector streets and main neighborhood access streets. Emergency vehicle access routes must be identified and accounted for when deciding the types of traffic calming measures to employ. Some vertical measures on critical routes can significantly slow emergency responses.

Section 2- Speed Hump Program

2a. Introduction

Traffic Calming is a growing concern throughout the United States and Europe. Speeding and unsafe driving habits are becoming a major concern with the public. Excessive speeding and unsafe driving habits can threaten the safety and livability of neighborhoods.

2b. Street Criteria

Speed humps and other traffic calming devises will be installed on a priority basis based on speed and volume of the identified roadways. Due to the overwhelming requests for speed humps, requests under consideration will be limited to through streets with a posted speed limit of 30 miles per hour or less. Cul-de-sacs and dead ends less than 1000’ in length will not be considered. In addition, speed humps will be placed on roadways paved with asphalt paving only. Speed humps cannot be placed on the following roadway surfaces:

- concrete,
- chip sealed,
- or gravel roads.

These road surface types will not accommodate speed humps and will increase call-outs for the maintenance crews.

2c. Petition

When a request is submitted to the Engineering Department, the requestor will be sent a petition form, which will outline the traffic calming process. In addition, a map or other descriptive information will be sent which details the area to be canvassed for concurrence signatures. The petition will ensure residents in the area are aware of the traffic calming request and are in favor of the installation of the devices. Consideration of traffic calming device installation will proceed only if a minimum of 51% of the residents concur with their installation (one signature per household).

2d. Data Collection

Once the petition is received in the Engineering Department, data collection will occur. Collection will include volume and speed counts for the requested roadway. The data will be collected on regular weekdays and not on holidays or weekends. The Engineering Department must have BOTH the signed petition and the collected data before a neighborhood is considered for traffic calming device installation.

2e. Speed and Volume Criteria

The Engineering Department reviews all data requested for each requested road. The following criteria must be met before traffic calming is considered:

- **Criteria 1** – A minimum of 500 vehicles per day and 85th percentile speed greater than 25 mph.

or

- **Criteria 2-** Less than 500 vehicles per day and 85th percentile speed greater than or equal to 30 mph.

The volume and speed criteria shown above target get the majority of traffic using a given roadway. The 85th percentile speed is the speed at or below which 85 percent of the motorists drive on a given road (in good conditions) and is the speed at which motorists feel safe traveling. When 85th percentile speeds exceed the posted speed, traffic calming measures are an appropriate method to help reduce speeds. A petition and Town Council approval is required and the installation must meet the appropriate volume and speed criteria.

NOTE:

Many physical constraints dictate the placement of speed humps and other traffic calming control devises.

Speed humps are an effective means to reduce traffic speeds in residential neighborhoods. Three types of speed humps are considered for construction. There are two conventional asphalt speed humps: 13 feet and 22 feet in length. The third type is a modular traffic cushion 6.5’ in length. This type will allow emergency vehicles to pass over the cushion without causing as long of delays as caused by conventional speed humps. The speed cushions should be “Traficop Traffic Calming Device” manufactured by Safer Roads, LLC or the equivalent. Conventional speed humps are constructed with asphalt and are 3 inches in height with a specific sinusoidal design. The 22 foot speed humps typically placed on major neighborhood access routes and SCDOT maintained roads.

2f. Placement

Many physical constraints dictate the placement of permanent speed humps. Emergency response must be considered on the collector streets and main neighborhood access streets. Emergency vehicle access routes must be identified and accounted for when deciding the types of traffic calming

measures on critical routes can significantly slow emergency response. Consideration for emergency response is extremely important and is provided for in both the location and design of permanent speed humps. Following is a list of placement constraints:

- Curves
- Steep grades
- Driveway locations
- Roadway intersections- must be placed at least 50 feet away from intersection
- Placed on a property line, if possible.

State roads that may warrant traffic calming devises must meet SCDOT traffic calming guidelines.

2g. Types of Traffic Calming Measures

Traffic calming can be divided into three categories:

1. **Volume control measures:** consist of modifications that reduce the quantity of vehicles that use a specific roadway.
2. **Vertical speed control measures:** are elevated segments of roadway and gateway/landscape treatments, which require vehicles to slow down.
3. **Horizontal speed control measures:** alter the typical straight line traveled way or narrow a specific roadway to reduce speed.

These three categories comprise the Town of Summerville's traffic calming toolbox, shown in **Table 3-1,** and have varying effects on speeds and volumes, illustrated in **Table 3-2**. All categories of traffic calming can be utilized in some aspect of the traffic calming program. Greater detail on these measures, and their effectiveness, are shown in Section 4 of this Policy Manual or the Protocol Manual.

Table 3-1
Traffic Calming Measures

Volume Control	Full Street Closures
	Half Street Closures
	Forced Turn Islands
	Diverters
Vertical Speed Control	Speed Humps
	Speed Table
	Gateway/Landscape
	Raised Crosswalks
	Raised Intersections
Horizontal Speed Control	Mini Traffic Circle
	Roundabouts
	Road Narrowings
	Lateral Shifts
	Chicanes
	Neckdowns
	Chokers
	Island Narrowings

Traffic Calming Request Procedure

Speed humps or other traffic calming devises will be installed on a priority basis based on speed and volume of the identified roadways. Due to the overwhelming requests for speed humps, requests under consideration will be limited to through streets with a posted speed limit of 25 miles per hour or less. Cul-de-sacs and dead ends less than 1000' in length will not be considered. In addition, speed humps will be placed on roadways paved with asphalt paving only. Speed humps cannot be placed on the following roadway surfaces:

- concrete,
- chip Sealed,
- or gravel roads.

These road surface types will not accommodate speed humps and will increase call-outs for the maintenance crews.

Date:_____

We, the residents of _____would support the Town of Summerville installing traffic calming devices on _____.

Only one signature per household will be considered by the Town of Summerville.

Note: Speed humps are placed on 25 mph municipal paved roads.

Return signed petition to: Russell W. Cornette, PE, 200 S. Main Street, Summerville, SC 29483

Printed Name	Street Address	Signature

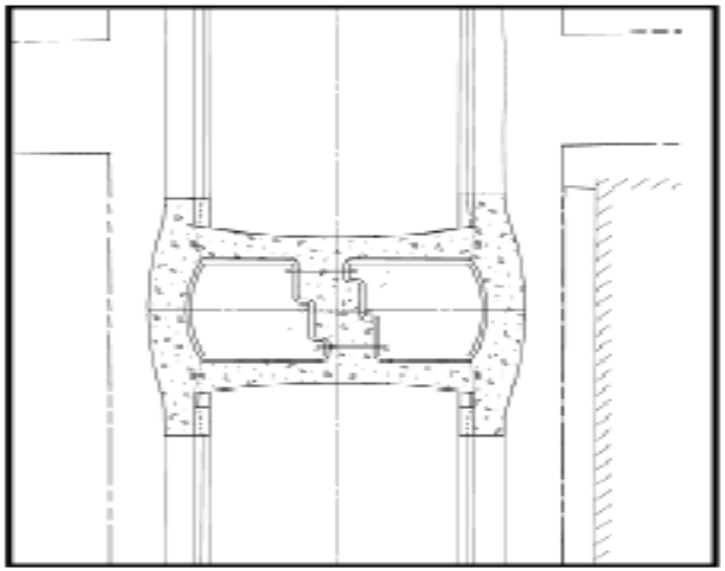
TRAFFIC CALMING TOOL BOX	Volume Reduction	Speed Reduction	Safety Improvement	Pollution Reduction	Access Restriction	Emergency Access	Maintenance Issues	Community Acceptance	Cost
Full Closures	●	●	◙	●	●	●	●	○	●
Half Closures	◙	◙	◙	◊	●	●	○	○	●
Forced turn Islands/Diverters	◙	◙	◙	◊	●	●	●	○	●
Speed Humps/Tables/Raised Crosswalk/Raised Intersections	◙	●	○	○	○	●	◙	○	◙
Traffic Circle/Roundabouts	○	◙	◙	○	○	●	◙	○	●
Lateral Shifts/Chicanes	◙	○	◙	○	○	○	○	●	●
Neckdowns/Chokers	◙	◙	◙	○	○	○	○	○	●

Key

○ Low, Unlikely, No
◙ Mid, Moderate, Possible
● High, Likely, Yes
◊ Traffic Shift

Section 3 – Summary of Traffic Calming Measures

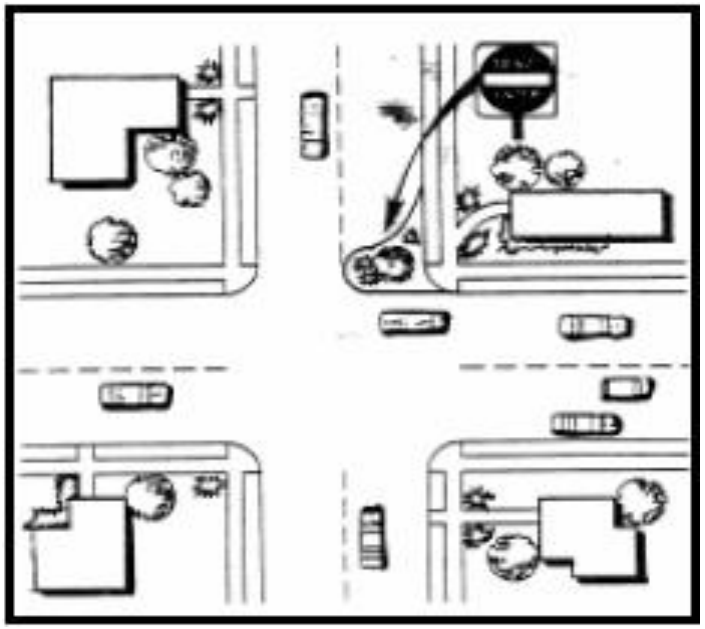
Full Street Closures



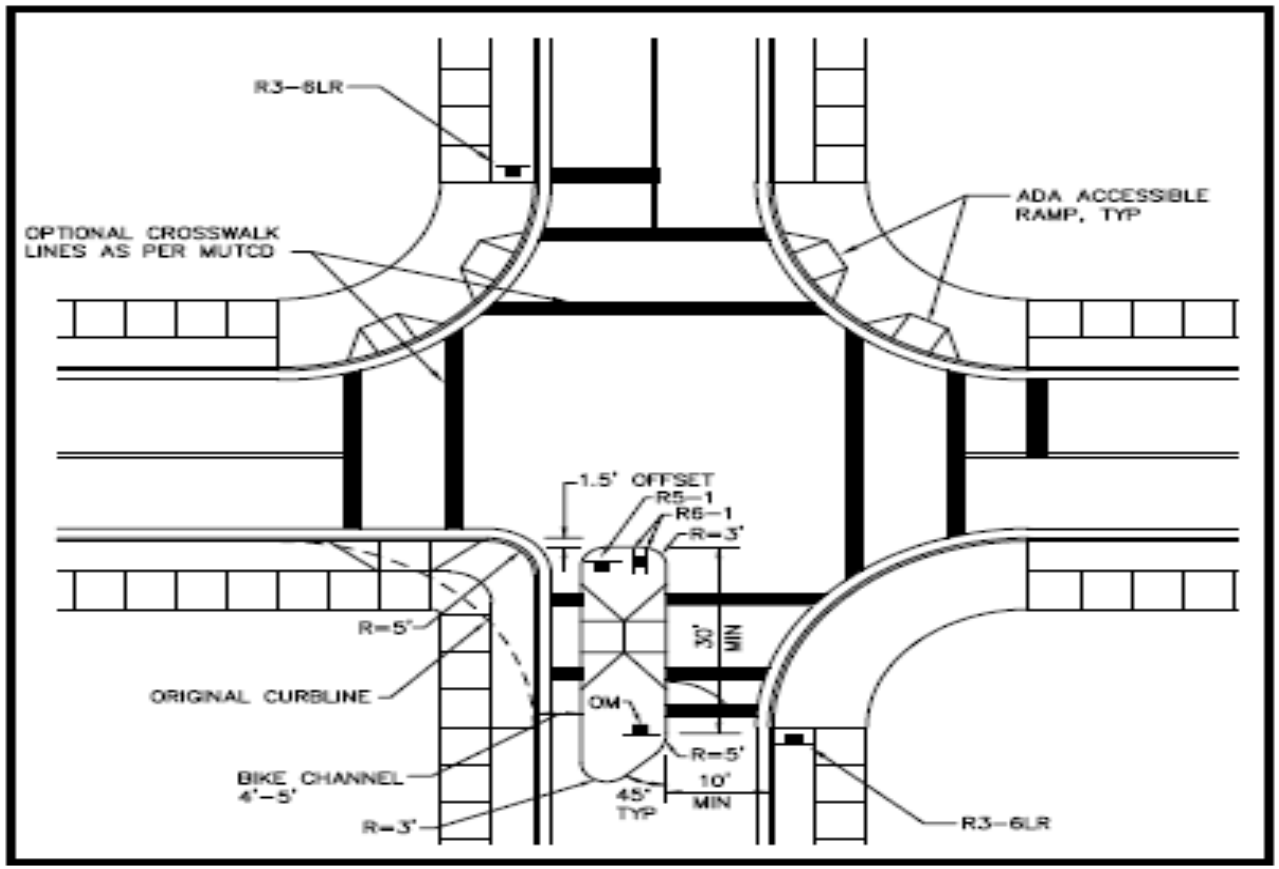
Full street closures are barriers placed across a street to completely close the street to through traffic usually leaving only sidewalks open. Examples of full street closures include hammer heads, cul-de-sac, and dead-ends. Closure barriers may consist of landscaped islands, walls, gates, side-by-side bollards, or any other obstructions that leave an opening smaller than the width of a passenger car.

Given the fact that full closures can be designed in so many ways, no typical design is included in this manual.

Half Street Closures

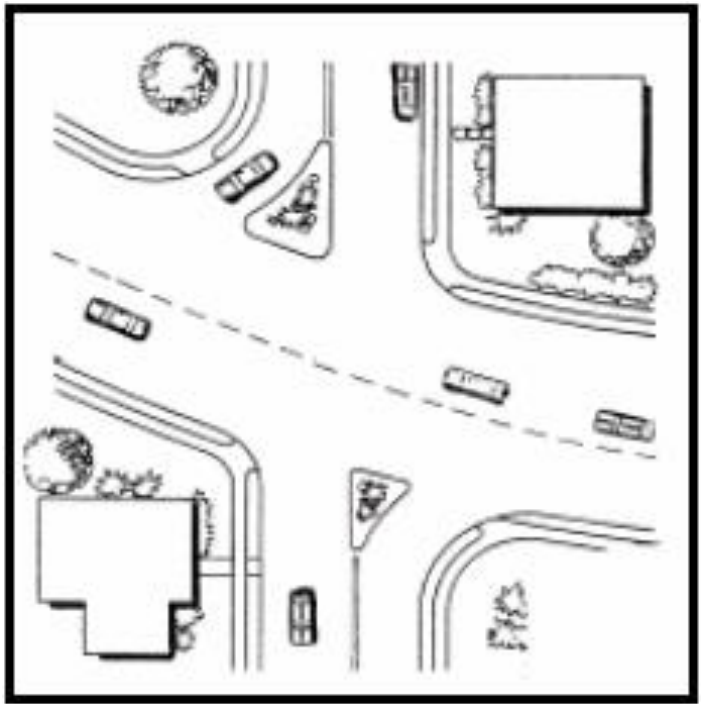


Half street closures are barriers that block travel in one direction for a short distance on otherwise two-way streets. They are also sometimes called *partial closures* or *one-way closures*. When two half closures are placed across form one another at an intersection, the result is a *semi-diverter* that blocks through movement on a cross street.

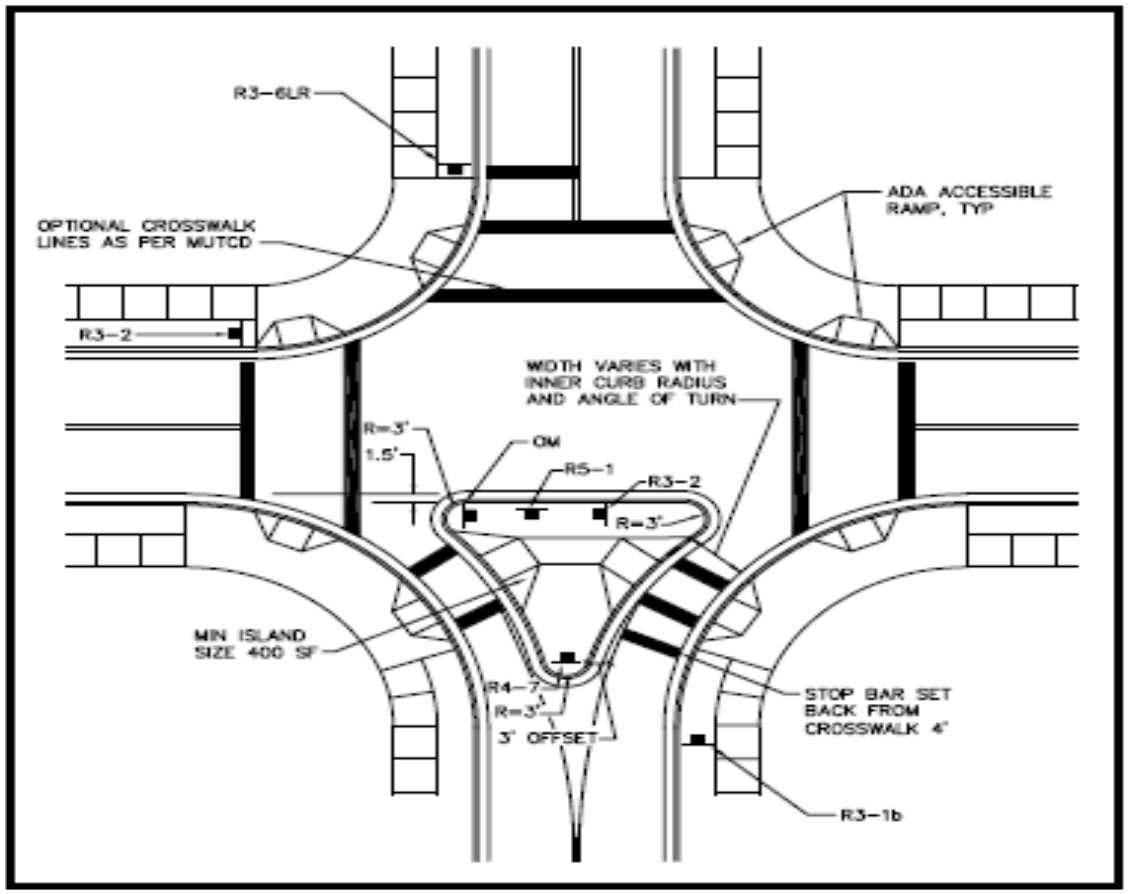


The typical *half closure* has two geometric features designed to encourage compliance with the one-way restriction. First, the curb extension or edge island extends more than a car length along the roadway. Second, the curb extension or edge island extends all the way to the centerline of the street or beyond on a wide street.

Forced Turn Islands

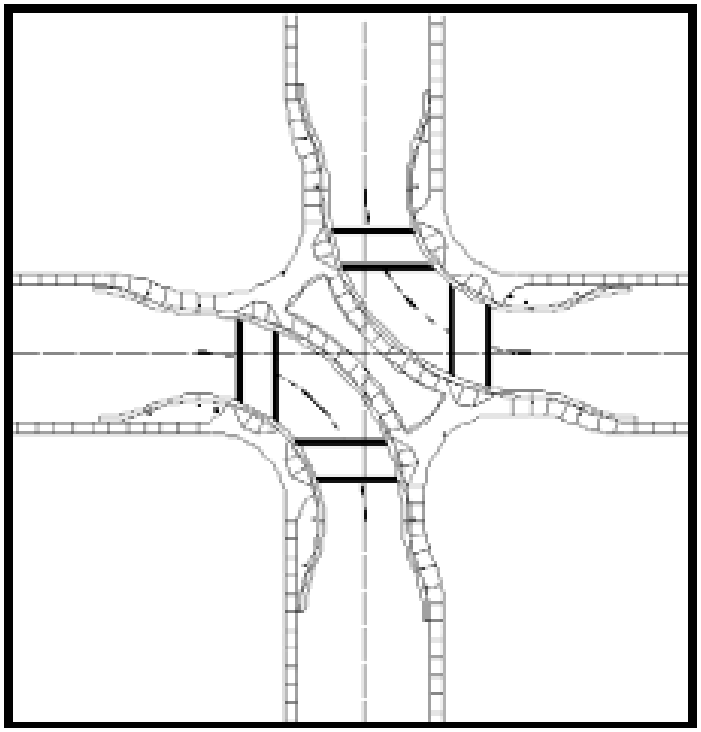


Forced turn islands are raised islands on approaches to an intersection that block certain movements. They are sometimes called *forced turn channelizations*, *pork chops*, or in their most common incarnation, *right turn islands*.

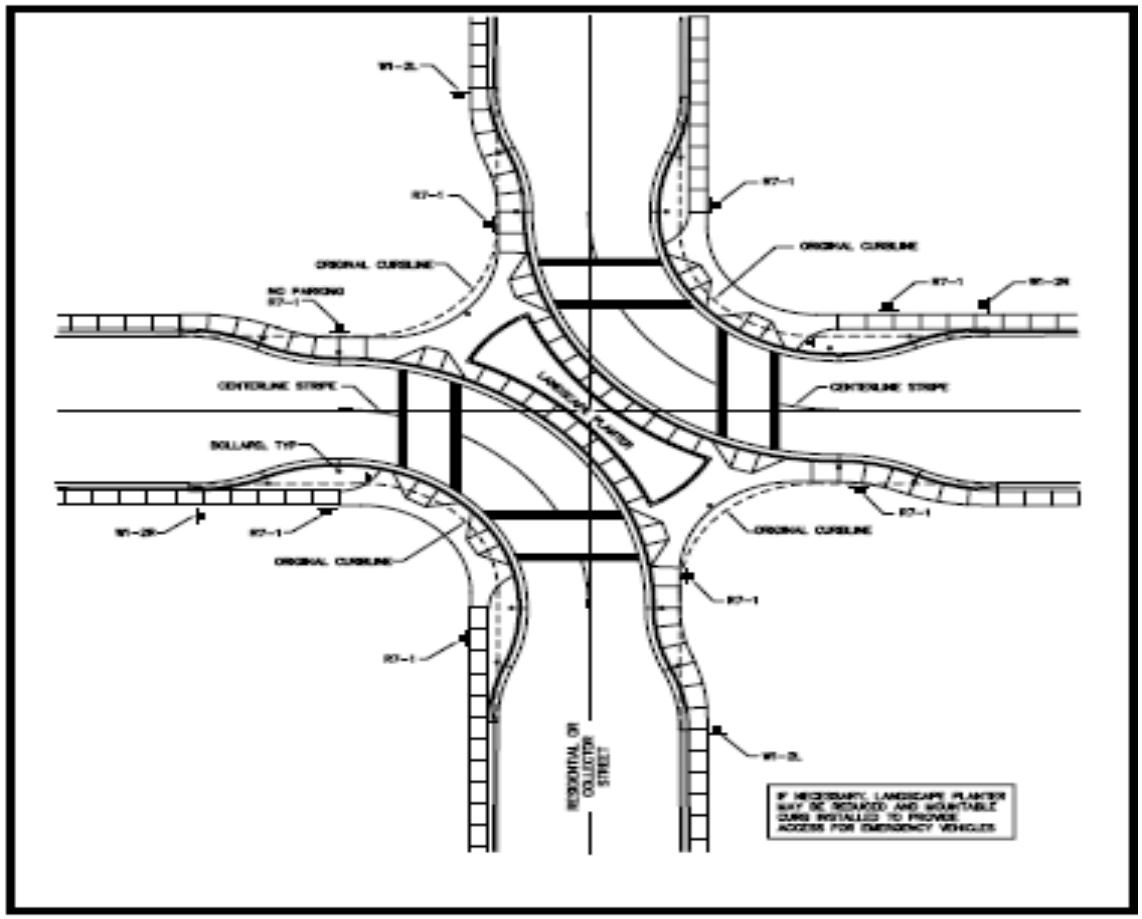


Forced turn islands will have clear widths sufficient for single-unit trucks (or buses if a transit route) to make turns at treated intersections without encroaching into opposing lanes. In addition, islands will be sharply angled toward the right on the approach to discourage wrong-way movement.

Diagonal Diverters

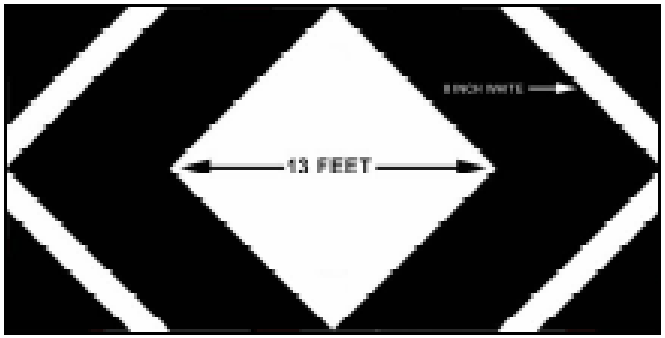


Diagonal diverters are barriers placed diagonally across an intersection blocking through movement. They are also called *full diverters* and *diagonal road closures.*

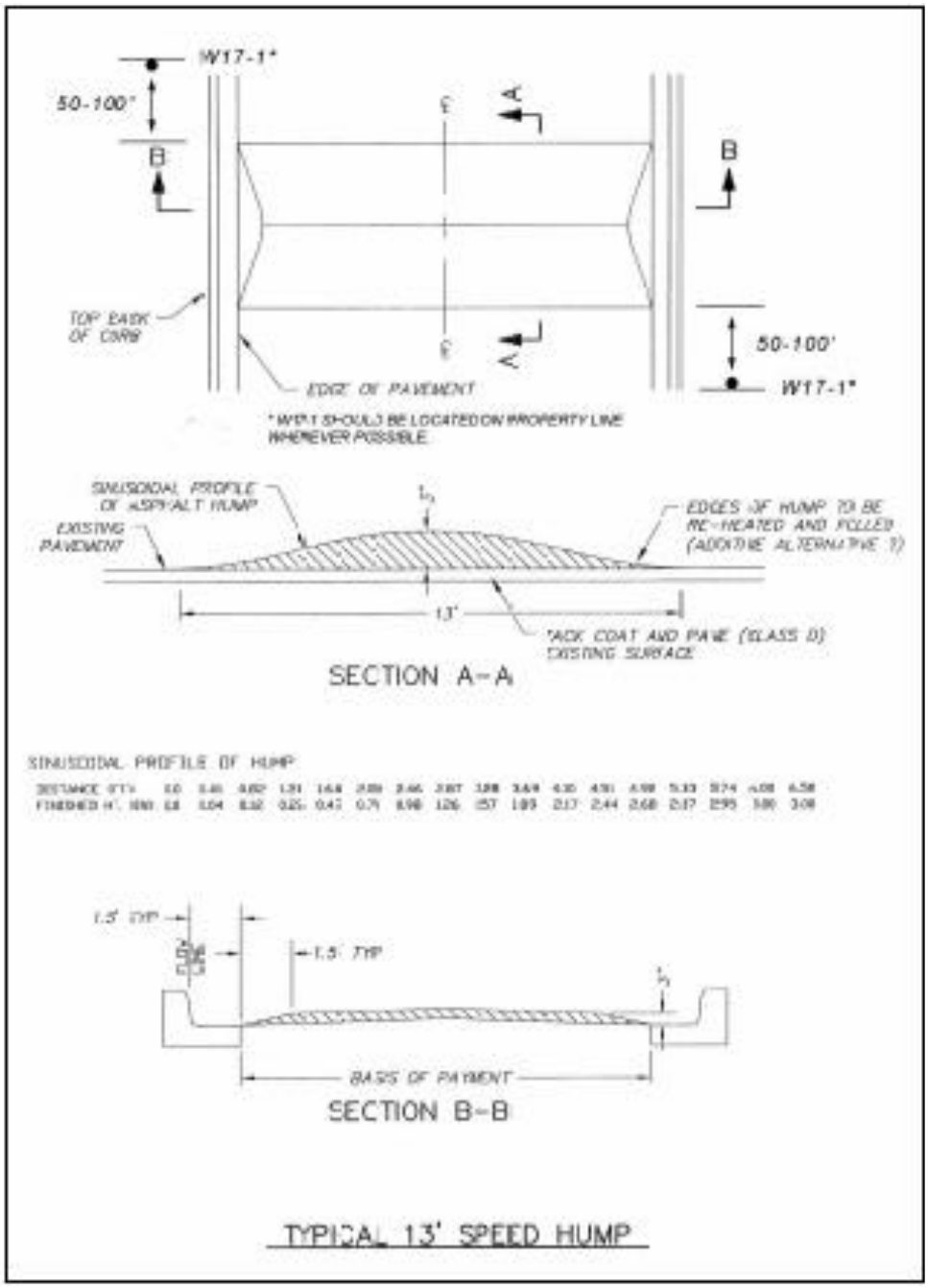


Diagonal diverters will have clear widths sufficient for single-unit trucks (or buses if a transit route) to make turns at treated intersections without encroaching into opposing lanes. They will have openings five to six feet, sufficient for bicyclists to pass through barriers, but not for motorists to do so.

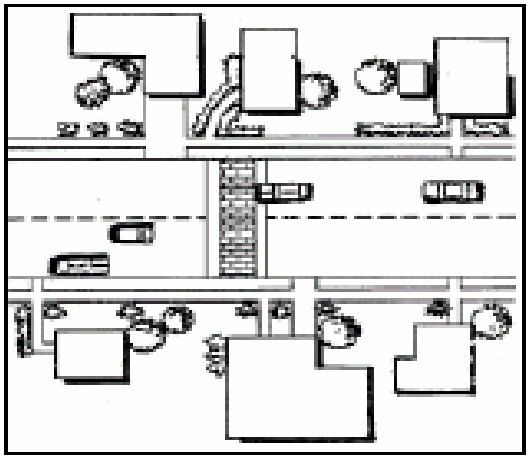
Speed Humps



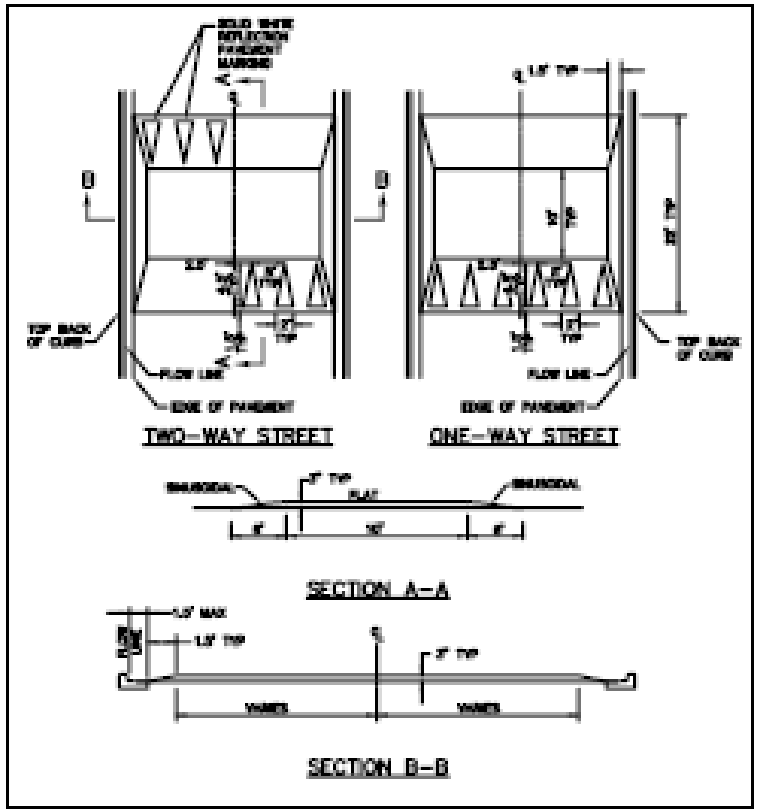
Speed humps are rounded raised areas placed across the road. They are also referred to as *undulations*. The standard or Watts profile hump, developed and tested by Britain's Transport and Road Research Laboratory, is the most common speed control measure in the United States (U.S.). It is the only speed control measure, at present, for which ITE provides design and application guidance.


W17-1*
50-100'
B
TOP EDGE OF CURB
EDGE OF PAVEMENT
℄
A
A
B
50-100'
W17-1*
* W17-1 SHOULD BE LOCATED ON PROPERTY LINE WHEREVER POSSIBLE.
SINUSOIDAL PROFILE OF ASPHALT HUMP
EXISTING PAVEMENT
EDGES OF HUMP TO BE RE-HEATED AND ROLLED (ADDITIVE ALTERNATIVE 1)
13'
TACK COAT AND PAVE (CLASS D) EXISTING SURFACE
SECTION A-A
SINUSOIDAL PROFILE OF HUMP
1.5' TYP
1.5' TYP
BASIS OF PAYMENT
SECTION B-B
TYPICAL 13' SPEED HUMP

Speed Tables

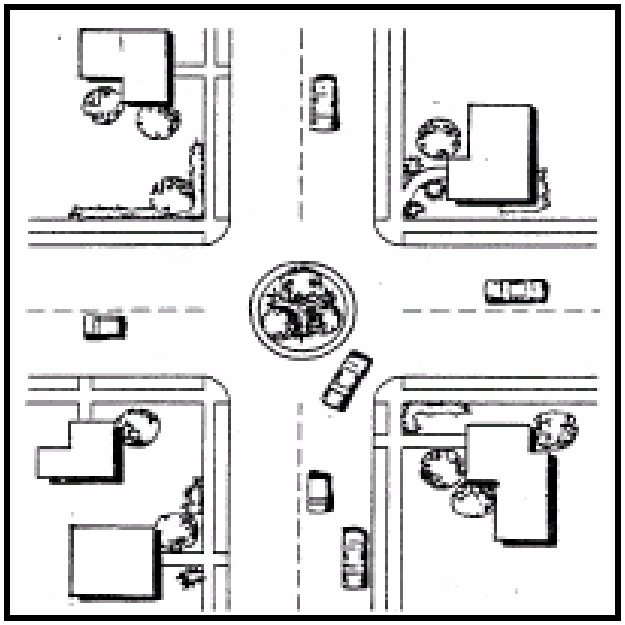


Speed tables are flat-topped speed humps often constructed with a brick or other textured materials on the flat section. They are also called *trapezoidal humps*, *plateaus*, and if marked for pedestrian crossing, *raised crossings* or *raised crosswalks*.

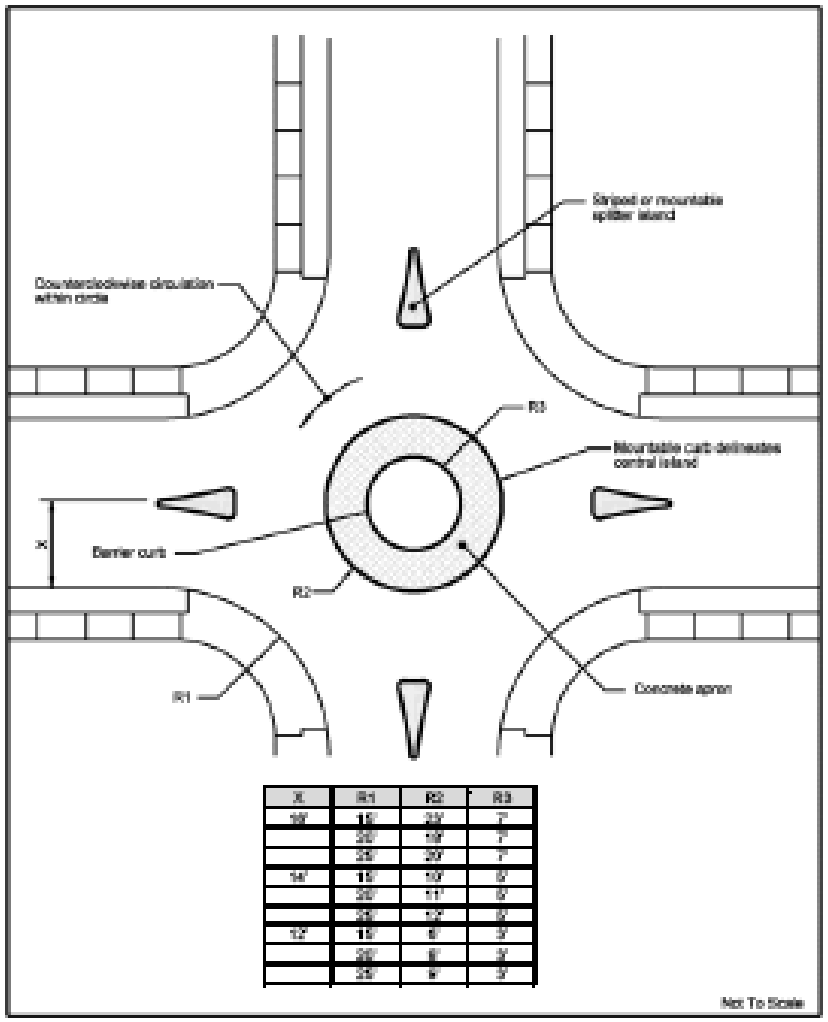


The typical *speed table* is three inches high and 22 feet long in the direction of travel. The plateau (flat top) is 10 feet long and each ramp is six feet long. The plateau is made of asphalt, concrete, stamped asphalt or concrete, or other patterned materials as approved by the Engineer.

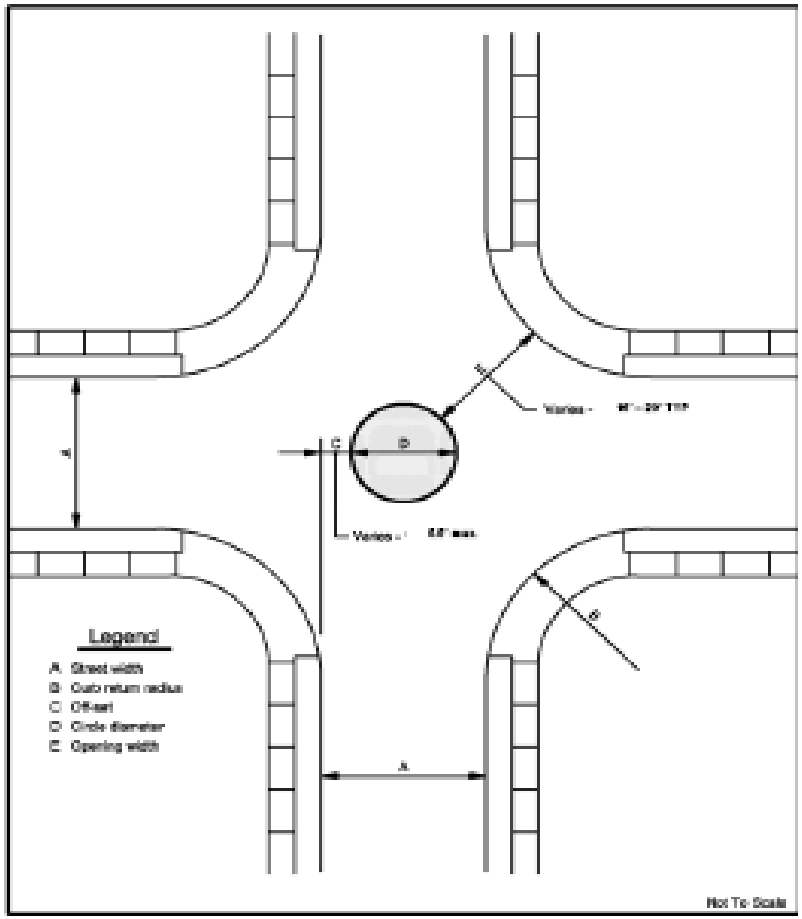
Mini Traffic Circle



Mini traffic circles are raised islands placed in intersections around which traffic circulates. They are sometimes called *intersection islands*. They are usually circular in shape and landscaped in their center islands, though not always. They often have outer rings (called truck aprons) or conical shapes (with "lips") that are mountable so large vehicles can circumnavigate their small curb radii.

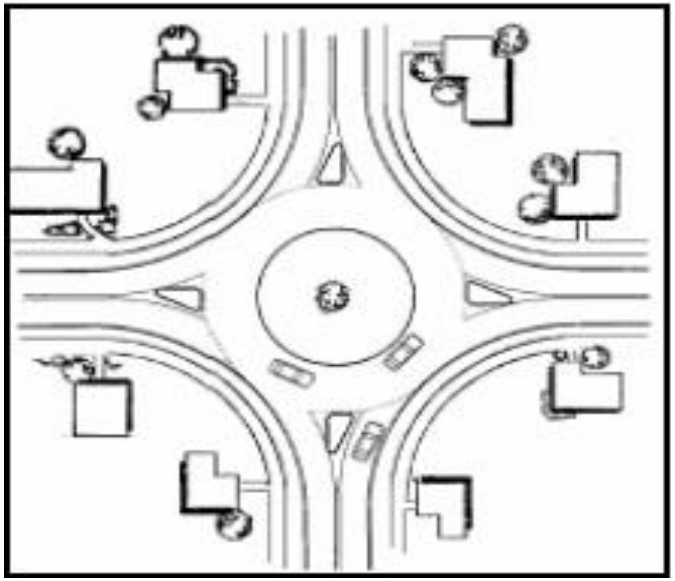


X	R1	R2	R3
16'	15'	23'	7'
	20'	18'	7'
	25'	20'	7'
14'	15'	10'	5'
	20'	11'	5'
	25'	12'	5'
12'	15'	8'	3'
	20'	8'	3'
	25'	9'	3'

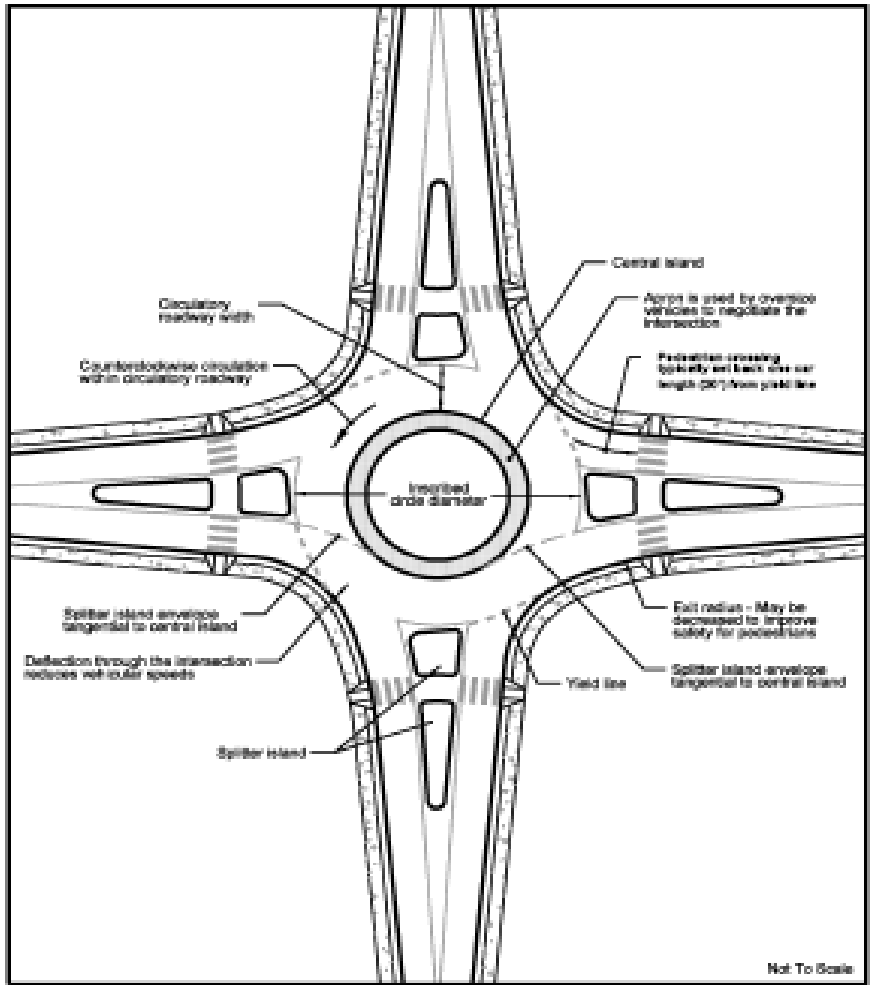


Most *traffic circles* have circular center islands and circular perimeters formed by the intersection corners. Where intersecting streets differ significantly in width, the center island may be elongated to better fit the intersection. An elongated circle consists of half-circles with tangent sections between them. Most traffic circles are deployed at four-way intersections, for this is where the greatest safety benefits accrue.

Roundabouts

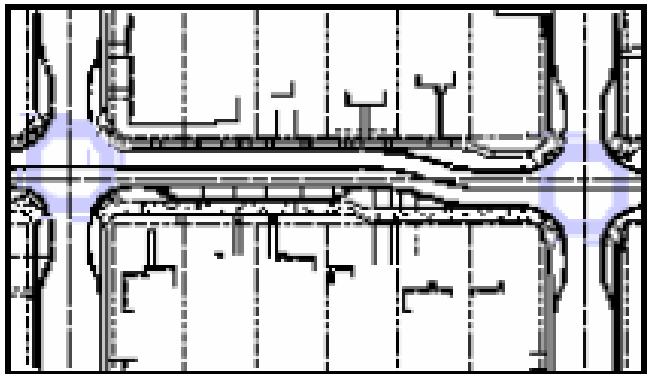


Roundabouts, similar to mini traffic circles in that traffic circulates around center islands, are used at higher volume intersections to allocate ROW among competing movements. Roundabouts in the U.S. are found primarily on arterial and collector streets, often substituting for traffic signals or all-way stops. They are larger than mini traffic circles, are designed for higher speeds, and have raised splitter islands to channel approaching traffic to the right.

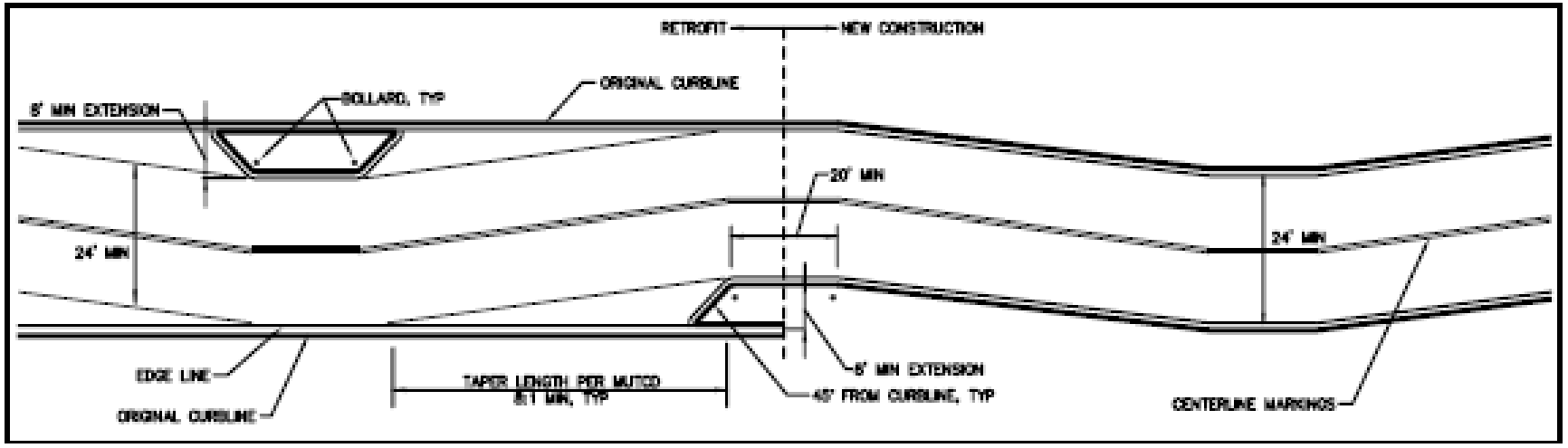


Roundabouts are distinguished from traffic circles by larger radii, correspondingly higher design speeds and capacities, and splitter islands on all approaches to slow traffic and discourage wrong-way movements.

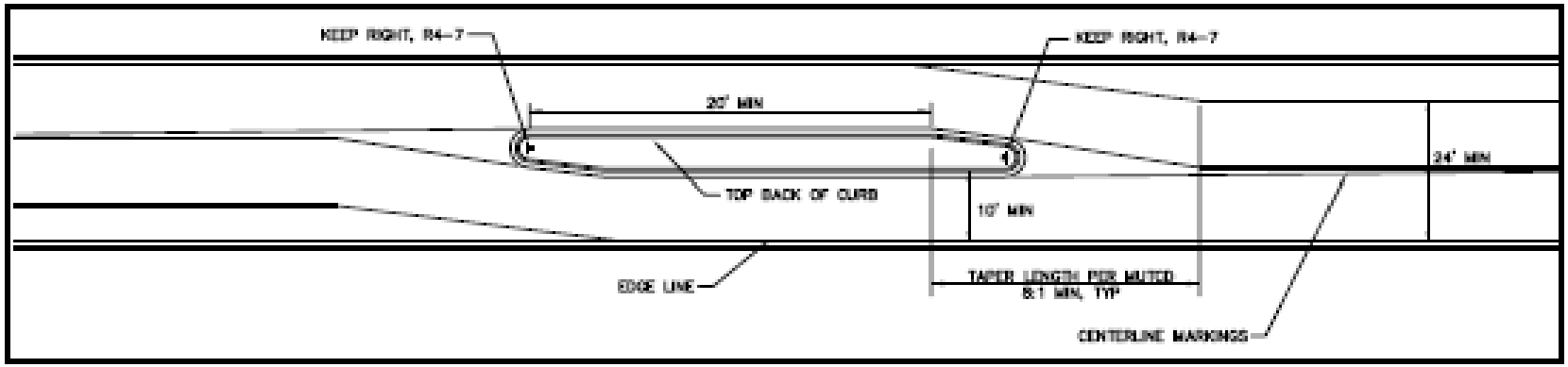
Chicanes/Lateral Shifts



Chicanes are curb extensions that alternate from one side of the street to the other forming s-shaped curves. They are also referred to as *deviations, serpentines,* and *reversing curves*. *Realigned intersections* are changes in alignment that convert "T" intersections with straight approaches into curving streets meeting at right angles. A straight shot along the top of the "T" becomes a turning movement. Realigned intersections are sometimes called *modified intersections.* The typical *lateral shift* is one-half of the typical chicane.



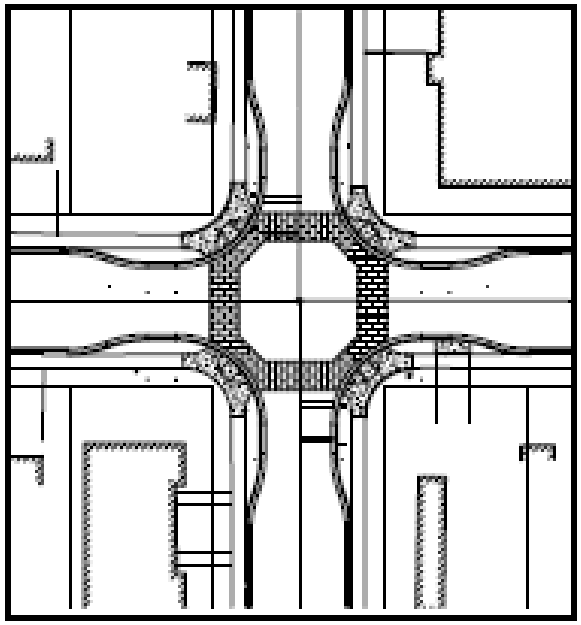
Chicane



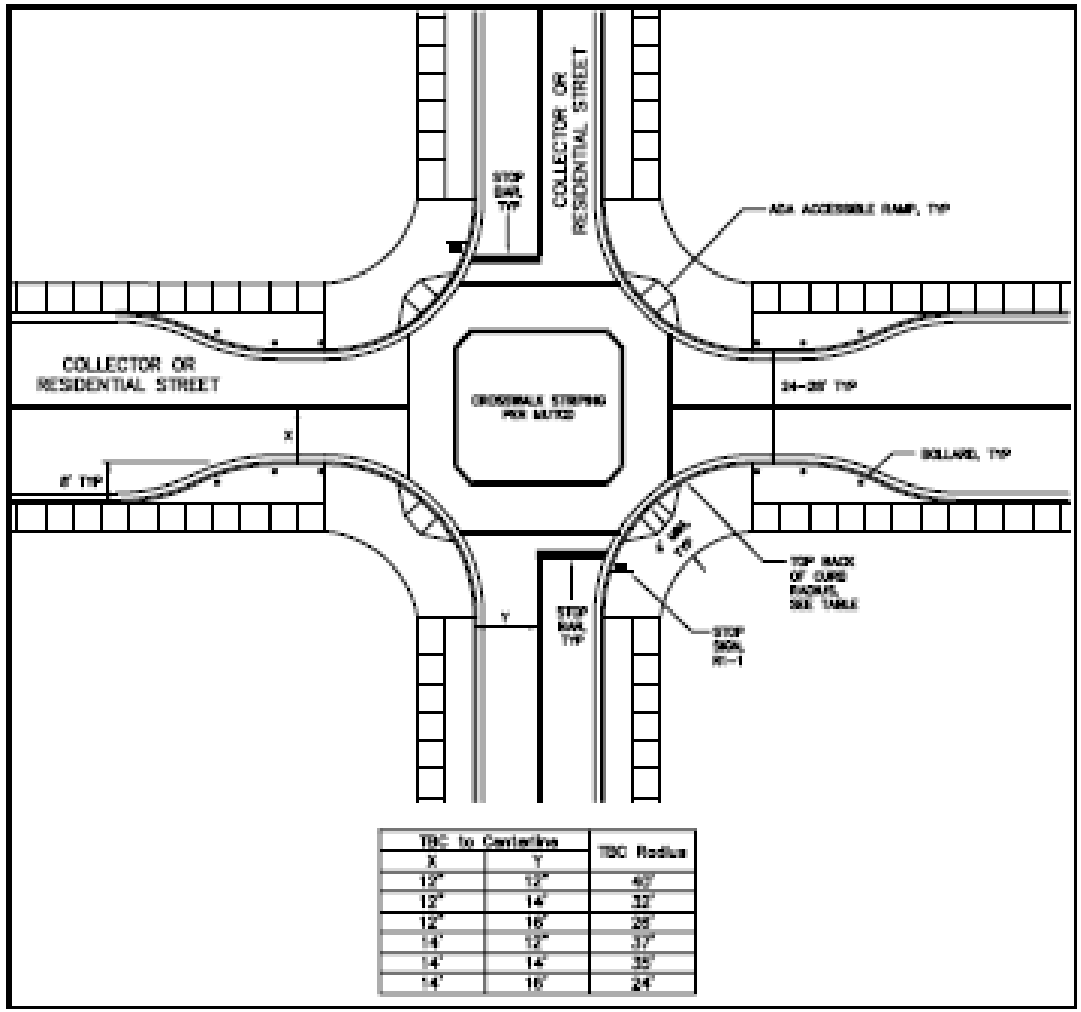
Lateral Shift

Chicanes can be created either by means of curb extensions or edge islands. Curb extensions or edge islands that form chicanes should have vertical elements to draw attention to them. Trees and other landscape materials meet this requirement. Barrier curbs should be used on curb extensions and edge islands that form chicanes. The typical lateral shift is just one half of the typical chicane.

Neckdowns



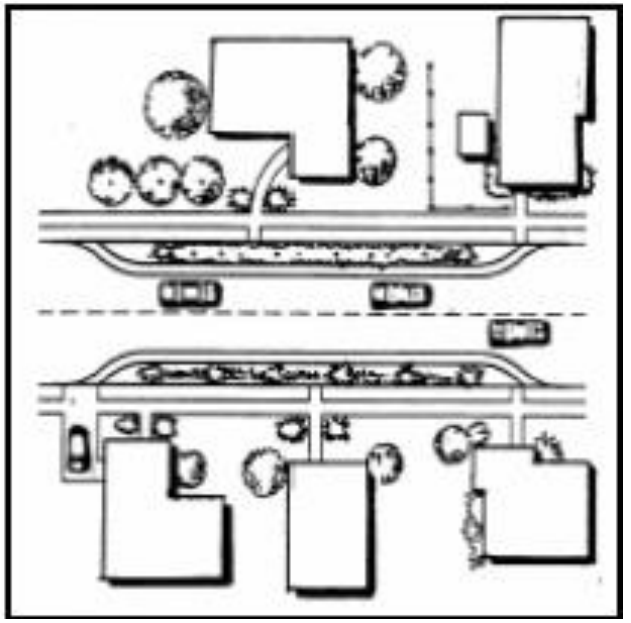
Neckdowns are curb extensions at intersections that reduce roadway width curb-to-curb. They are sometimes called *nubs, bulbouts, knuckles,* or *intersection narrowings*. If coupled with crosswalks, they are referred to as *safe crosses.* Placed at the entrance to a neighborhood, often with textured paving between them, they are called *gateways.* Their effect on vehicle speeds is limited by the absence of pronounced vertical or horizontal deflection. Instead, their primary purpose is to "pedestrianize" intersections.



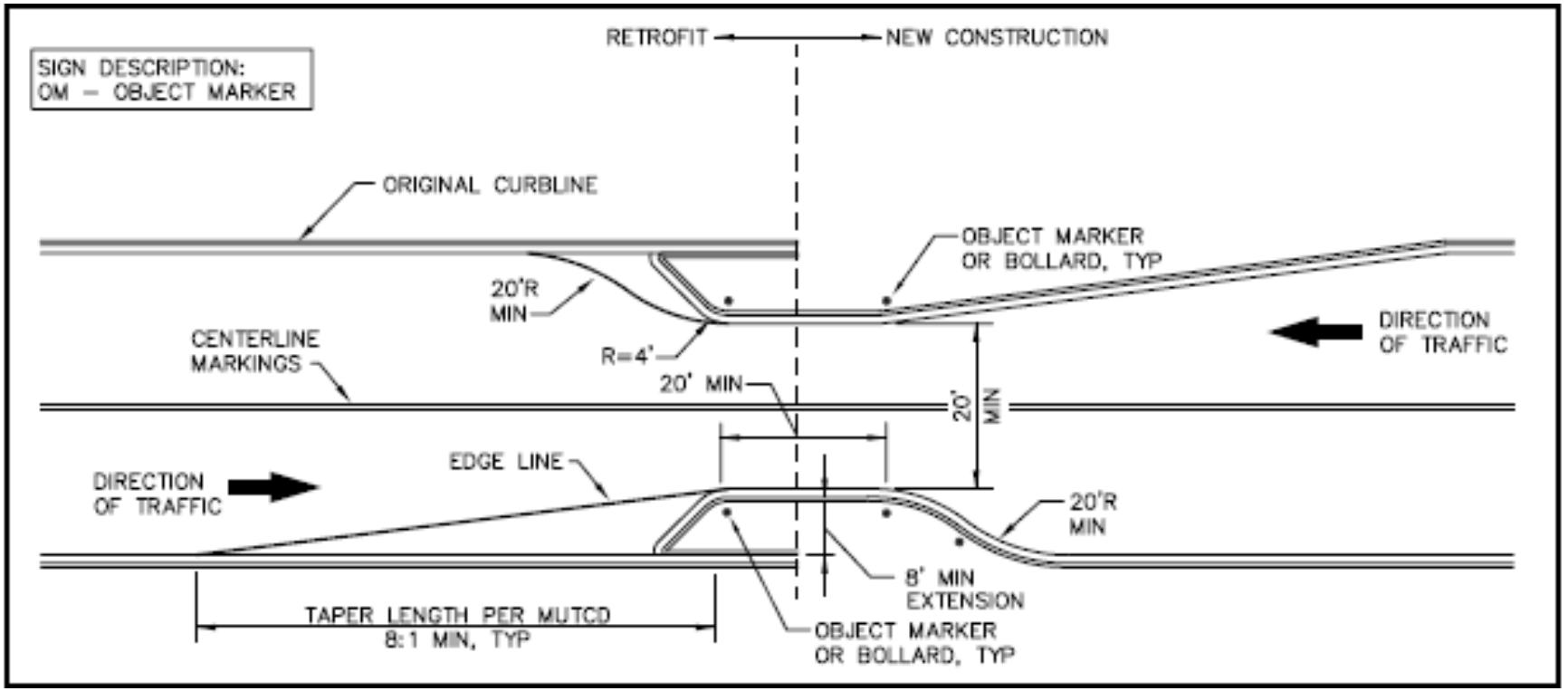
TBC to Centerline		TBC Radius
X	Y	
12'	12'	40'
12'	14'	33'
12'	16'	28'
14'	12'	37'
14'	14'	35'
14'	16'	24'

The typical *neckdown* is used in connection with on-street parking and, unlike a conventional intersection with a large curb return radius, offers a short crossing distance and high visibility for pedestrians. In the typical design, the curb return radii and street widths are such that single unit trucks can stay to the right of the centerlines when making right turns.

Chokers



Chokers are curb extensions or edge islands at midblock that narrow a street at that location. In different configurations, they are called *midblock narrowings, midblock yieldpoints,* and *pinch points*. If marked as crosswalks, they are also called *safe crosses*. Chokers can leave the street cross section with two lanes, albeit narrower lanes than before, or take it down to one lane. In the MOA, only two-lane chokers are permitted on two-way streets.



The typical two-lane *choker* is 25 feet from curb face to curb face. It has a minimum constricted length of 20 feet in the direction of travel, the length of a passenger car. The constricted length is kept short to avoid blocking driveways and displacing curbside parking.