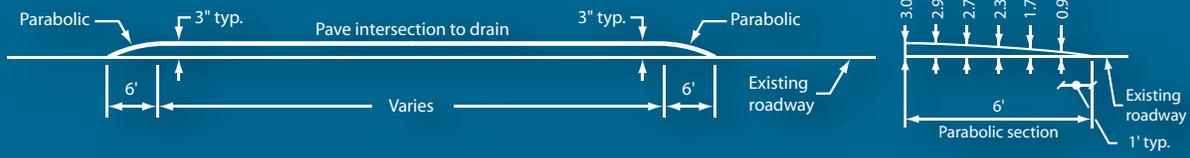




Traffic Calming Guidelines



... reducing the speed and volume of traffic to acceptable levels

Revised 2006

This publication is designed to provide Internet users with direct links to referenced documents. All blue Internet addresses can be single clicked to open the appropriate sites. If this feature is not available, users should upgrade their Acrobat Reader software to the latest version at the following Adobe Web site.

<http://www.adobe.com/products/acrobat/readstep2.html>

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For ease of use, Table of Contents page numbers match Adobe Reader page numbers.

Acknowledgements

Manual on Uniform Traffic Control Devices (MUTCD). Millennium Edition. US Department of Transportation, Federal Highway Administration. <http://mutcd.fhwa.dot.gov/>

“Institute of Transportation Engineers (ITE) Traffic Calming...for Communities.”
<http://www.ite.org/traffic/index.html>

City of Greensboro, North Carolina – Multi-Way Stop Policy. 300 W. Washington Street, PO Box 3136, Greensboro, NC 27402-3136. <http://www.greensboro-nc.gov>

“Residential Traffic Calming Guide.” Virginia Department of Transportation, Traffic Engineering Division. 1401 East Broad Street Richmond, VA 23219, (803 786-2966).
<http://virginiadot.org>

Traffic Calming Design Manual. Delaware Department of Transportation. P.O. Box 778, Dover, DE 19903, (302-760-2080). <http://www.state.de.us/deldot/>

City of Portland, Oregon, USA – Office of Transportation. Traffic Calming Program.
<http://www.portlandonline.com/transportation/index.cfm?c=40520>

Photographs:

Institute of Transportation Engineers (ITE) “Traffic Calming...for Communities.”
<http://www.ite.org/traffic/index.html>

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Introduction

The South Carolina Department of Transportation (SCDOT) maintains the fourth largest state highway system in the nation. The majority of these roads are secondary routes that can be classified as minor collectors or local streets. Many of these roadways serve property that is zoned as residential. As such, the SCDOT receives numerous requests from local governments and individuals to address the cut-through and speeding traffic within neighborhoods. In an effort to mitigate these problems, the SCDOT has developed *Traffic Calming Guidelines* to assist local governments in addressing these concerns.

What is Traffic Calming?

The Institute of Transportation Engineers' (ITE) publication *Traffic Calming: State of the Practice* defines traffic calming as “the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users.” The SCDOT considers traffic calming to include physical and visual measures, as well as enforcement and educational activities.

Desired Results:

The immediate purpose of traffic calming is to reduce the speed and volume of traffic to acceptable levels (“acceptable” for the functional class of a street and the nature of bordering activity). Intermediate goals are to reduce accidents and to provide safer environments for pedestrians and children. Urban redevelopment and the reduction of noise, pollution, and crime are long-term goals.

Partnerships for Successful Traffic Calming Programs:

Engineering applications, enforcement cooperation, education of motorists, and economics typically determine the success of any traffic-calming endeavor, whether it is an on-going program or an individual project. Therefore a partnership between the various entities, such as the SCDOT, the local government and the local Metropolitan Planning Organizations (MPO) or Councils of Government (COG), effected to address these various areas, will be beneficial to the traffic calming process. See Appendix F.

Each traffic-calming project should include a community awareness and education component. This should include some of the following public awareness measures:

- Distribution of traffic safety brochures within the neighborhood, area schools, and businesses.
- Presentations from a mix of educational programs, such as child safety seats, seatbelt usage, pedestrian safety, bicycle safety, Operation Lifesaver, enforcement presentations (DPS), safety belt use, and safe driving tips.
- If a school is in the impacted area, a safe walking route to school should be identified when appropriate.

- Some useful resource materials can be found at the following Web sites:
<http://www.fhwa.dot.gov/>
<http://www.madd.org/>
<http://www.scdot.org/inside/highwaypolicy/statistics.shtml>
<http://www.nhtsa.dot.gov/people/outreach/media/catalog/index.cfm>
<http://www.scdps.org/ohs>

Each traffic-calming project should also be endorsed by the local enforcement agencies and should include a commitment from them for increased presence/enforcement activity in the area. In addition to the traditional role of enforcing speed limits through issuing tickets, the police may also increase the community's awareness of speeding problems. The following measures are recommended:

- Public service announcements to reinforce that the results of speeding are tickets and accidents.
- Speed Monitoring Awareness Radar Trailer (SMART). A mobile trailer equipped with a radar gun and a speed limit sign, SMART shows motorists how fast they are traveling in comparison with the posted speed limit.
- Enforcement of speed limits.

Eligibility Criteria (All of the following must be met)

Residential:

- Functional Classification = local residential or minor collector.
- 30 (or less) mph speed limit.
- Two-lane roadway (may have turn lanes and may have parking).
- The primary access to commercial or industrial sites is not eligible.
- Traffic volume less than 4000 AADT.
- Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: "Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more."

Central Business District:

- Traffic Volume less than 6000 AADT.
- 30 (or less) mph speed limit.
- The primary access to commercial or industrial sites is not eligible.
- Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: "Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more."

The eligibility criteria were written to ensure traffic calming measures are installed in appropriate areas. The SCDOT has patterned its policy after successful programs in other states, particularly Virginia and Delaware. Each of these programs based installation eligibility on volume, characteristics of the area, grades, sight distance, and neighborhood acceptance. For example, there are high volume roadways, classified as either major collectors or minor or major arterials, where traffic calming could potentially reduce roadway capacity to an undesirable level. These roadways are ineligible for any physical traffic calming measures, and enforcement, education, and engineering studies are the best methods to address speeding issues.

The installation of speed bumps, chicanes, or other measures that reduce the total two-way travel area to less than 20 feet in width are not eligible traffic calming measures within the SCDOT's right of way. In addition, if the proposed physical traffic calming measure compromises roadway safety, based on limited sight distance, severe grades, or other engineering judgment, the measure is not eligible for approval. The local government, or designated agent, is responsible for maintaining traffic calming measures and any landscaping, signing, or pavement markings associated with these measures.

Traffic Calming Project Process

Requests received by the SCDOT for traffic calming measures will be referred to the local government to determine eligibility. The local government should proceed with the necessary information gathering to determine project eligibility, planning, and feasibility. It is imperative that the planning phase address area-wide projects and not just spot improvements to ensure the impacted area is compatible with the proposed traffic calming measures. **The SCDOT will provide a review of the area to ensure that traffic control devices are appropriately installed and will make changes as needed for safety, based on available funding and priorities. Traffic calming proposals should be the responsibility of the local government.**

1. Determine if area is eligible for traffic calming.

2. Initial Reviews are to be performed by the local government or designated agent and submitted to the appropriate SCDOT District Traffic Engineer (see Appendix E, SCDOT Contacts or http://www.scdot.org/inside/engineering_directory.shtml) and shall include the following information:

- Application Form (Appendix C, Application and Checklist).
 - Description of problem: cut-through traffic, speeding, safety, etc.
 - General idea of the requested calming measures and which streets they are requested on.
 - Verification of the eligibility.
- Description of impacted areas, with map. (The impacted area is generally a neighborhood area, but can be the same as the petition area, as defined by local government in cooperation with the SCDOT.)

- Description of petition area, with map. (The petition area is the area bounded by surrounding collector or arterial roads, as defined by local government in cooperation with the SCDOT.)
 - Average Daily Traffic volumes, with directional splits for peak hours, within petition area.
 - Average speed and/or 85th percentile speed in both directions within petition area.
 - Existing speed limits on roadways within impacted area.
 - Graphical representation of all traffic control devices (signs, markings, and signals) within impacted area.
 - Description of roadways in impacted area including width, pavement condition, curb and gutter, sidewalks, shoulder width, ditch type, etc.
 - Character of area including current property zoning, current use, facilities such as schools, parks, hospitals, nursing homes, etc.
3. Based on the initial review, the SCDOT may require additional information on specific roadways within the impacted area, as follows:
- Speed studies for both directions on calming requested roadways.
 - Turning volume movements, as necessary (as determined by the SCDOT).
 - Percentage of cut-through traffic (origin/destination studies).
4. The project should be developed with the input from representatives from the petition area, the impacted area, any affected homeowners associations, local government staff including police, fire, rescue, traffic engineering, and roadway maintenance personnel, and other appropriate persons. The SCDOT will provide assistance as necessary to provide information to the group concerning eligible traffic calming measures.
- The project should outline how the measure will give the desired results, the effects of the traffic calming measures on adjacent streets, and any other possible positive and negative effects.
 - The project should address each of the four aspects of traffic calming, including enforcement, education, economic feasibility, and engineering solutions.
 - The project should include a cost estimate for the traffic calming measures including installation and maintenance.
 - The project should include a statement from the local government indicating its intent to provide all on-going maintenance of the traffic calming measure within the State's right of way.
5. Once completed, the project should be submitted to the SCDOT for final review, along with a petition indicating concurrence and signed by at least 75% of the total occupied households within the petition area or approval of the city or county council.

6. Upon the SCDOT's approval, an encroachment permit will be issued to install traffic calming measures. Temporary measures such as sandbags and cones may be required to determine the effectiveness and the workability of traffic calming measures (traffic circles, landscaped medians, chokers, and others as determined to be necessary). This requirement should be stipulated in the permit and will provide an observation period under real traffic conditions. Within three months, the SCDOT's District Engineering Administrator will determine if the permanent measure can be installed.

Upon completion of any traffic-calming project, an evaluation should be performed within one year of installation to determine the effectiveness of the measures implemented. The local government should perform this evaluation to improve designs for future projects and to determine what measures work for various problems. **If safety problems are encountered, the SCDOT reserves the right to remove any traffic calming measure installed within the State's right of way.**

Meeting eligibility requirements does not guarantee the approval of a traffic calming project or measure.

- Measures not eligible within the SCDOT right of way: speed bumps and chicanes, or other measures, such as installation of curbed areas that reduce the total two way travel area to less than 20 feet in width. These are not considered appropriate measures based on safety and accessibility and should not be proposed for installation within the State's right of way. **(The local government may exercise the option to remove the roadway from the State's system, if the appropriate criterion is met.)**
- Traffic calming measures are not eligible if they compromise roadway safety, based on limited sight distance, severe grades, or other engineering judgment. (The SCDOT may recommend other measures. Approval will only be given if safety is not compromised.)
- Traffic calming measures are not eligible if the petition requiring 75% support or city/county council approval cannot be obtained. (There may be some solutions acceptable to one portion of the impacted area that is not acceptable to another portion of the impacted area. Citizen support of the project is necessary for a successful program.)

Maintenance

The SCDOT will maintain approved traffic control devices, such as signs, signals, and pavement markings, as outlined in the *Manual of Uniform Traffic Control Devices*. The local government, or designated agent, will maintain traffic calming measures and any landscaping, special signing, or pavement markings associated with these measures.

Informational Resources

The SCDOT will provide any information that is readily available such as roadway plans, traffic counts, and previous traffic studies. In addition, any applicable SCDOT technical information, traffic calming program resources, books, Web sites, standards, and specifications will be available for review as a guide to setting up these Traffic Calming Programs locally. (See Appendix B, Traffic Calming References and Photographs.)

Funding

The SCDOT does not have a designated funding source for traffic calming programs or projects at this time. The local government will be responsible for obtaining the funding for the traffic calming projects. Traffic calming projects may be eligible for the following funding sources, depending on the proposed measures and the characteristics of the area:

- C-funds, administered by the County Transportation Committee.
- Local governmental agency funds, administered by each elected body of leadership.
- Public/private grants/partnerships.
- Transportation Enhancement Funds.
- Residential or user assessments.
- Other available funding sources as suggested by area Metropolitan Planning Organizations (MPO) or Councils of Government (COG)
http://www.scdot.org/inside/planning_faq.shtml#COG

Appendix A — Traffic Calming Measures

The installation of speed bumps, chicanes, or other measures that reduce the total two-way travel area to less than 20 feet in width are not eligible traffic calming measures within the SCDOT right of way. In addition, if the proposed physical traffic calming measure compromises roadway safety, based on limited sight distance, severe grades, or other engineering judgement, the measure is not eligible for approval. The local government, or designated agent, is responsible for maintaining traffic calming measures and any landscaping, signing, or pavement markings associated with these measures.

Speed Humps (Parabolic, Flat Topped)



- All eligibility requirements below must be met (mandatory).
 - Residential —
 - Functional Classification = local residential or minor collector.
 - 30 (or less) mph speed limit.
 - Two-lane roadway (may have turn lanes and may have parking).
 - The primary access to commercial or industrial sites is not eligible.
 - Traffic volume less than 4000 AADT.
 - Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: “Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more.”
 - Central Business District —
 - Traffic Volume less than 6000 AADT.
 - 30 (or less) mph speed limit.
 - The primary access to commercial or industrial sites is not eligible.
 - Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: “Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more.”

- Insure positive roadway drainage (mandatory).
- Horizontal curve of 300 foot radius or more (mandatory).
- Vertical curve with adequate stopping sight distance (mandatory).
- Grade of 8% or less (mandatory).
- Minimum 40% cut through traffic (desirable).
- No more than 5% long wheelbase vehicles (desirable).
- Not on primary emergency response route or bus route (desirable).
- The average speed exceeds posted limit by 5 mph or more or the 85th percentile speed exceeds posted limit by 10 mph or more (desirable).
- Spacing no less than 350 feet. Spacing should be designed to achieve desired speed limit (mandatory).
- Designed and installed in accordance with specifications and construction details shown in Appendix A, including Signage and Markings (mandatory).
- Coordinate with resurfacing schedules to prevent conflict (mandatory).

Construction Details — Speed Humps (Flat topped, Parabolic)

SIGNS (In accordance with MUTCD)

- Materials for the signs should be high intensity type sheeting.
- Use W17-1, as indicated below.
- Section 2C.24 SPEED HUMP/BUMP sign (W17-1).
<http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch2C.pdf>
- Signs are to be placed at the Speed Hump, on both approaches with the appropriate Advisory speed plate, in accordance with 2C.46.
Section 2C.46 Advisory Speed Plaque (W13-1).
<http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch2C.pdf>
- Supplemental W17-1 signs may be needed in advance of the hump, if adequate sight distance is not available, as indicated in Table 2C-4, MUTCD. If used, provide Supplemental Plaque in accordance with Section 2C.43 and 2C.40, indicating “AHEAD” or a Distance Plaque in accordance with Section 2C.41.
<http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch2C.pdf>
Section 2C.43 Use of Supplemental Plaques, (from MUTCD).
<http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch2C.pdf>
Section 2C.45 Distance Plaques (W16-2 and W16-3) (from MUTCD).
<http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch2C.pdf>

MARKINGS (In accordance with MUTCD)

- Materials for the markings should be the thermoplastic or other heat applied markings, as approved by the SCDOT's Resident Maintenance Engineer.
- Apply as indicated on page 13, using option A, as shown in Figure 3B-28 for parabolic humps or option A, as shown in Figure 3B-29 for flat topped humps.

Section 3B.26 Speed Hump Markings, page 66 and 69 (from MUTCD).

<http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch3.pdf>

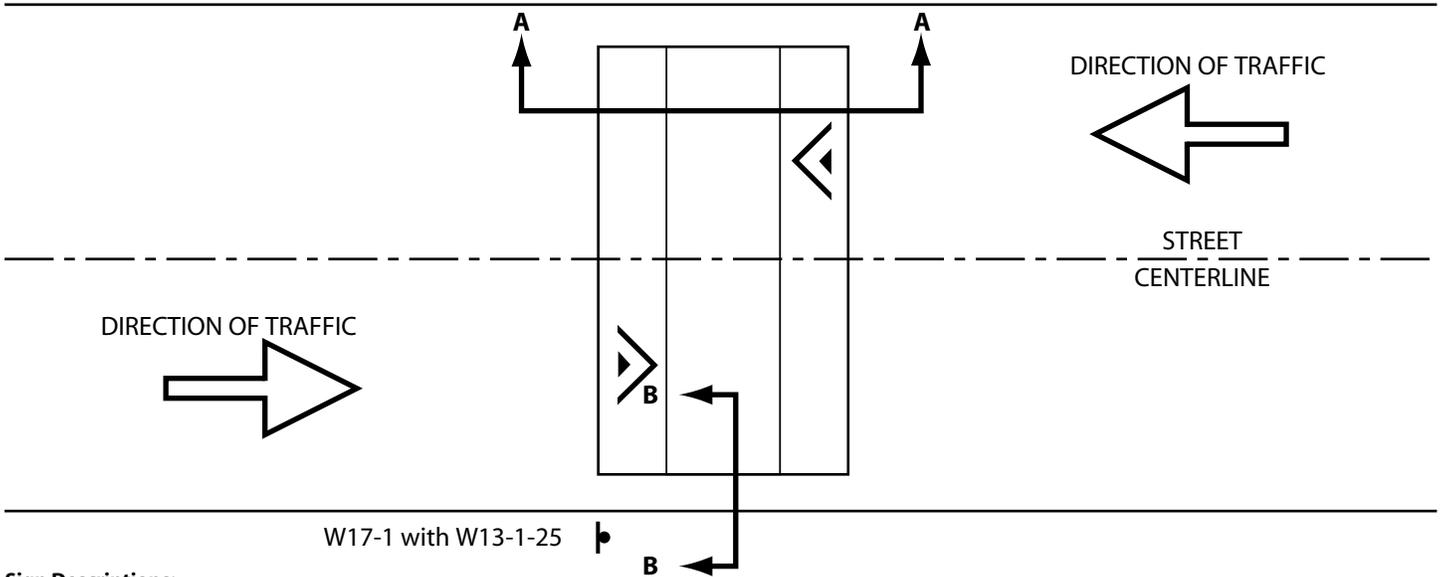
Section 3B.27 Speed Hump Markings, page 66 and 69 (from MUTCD).

<http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch3.pdf>

Construction Detail

Not to Scale

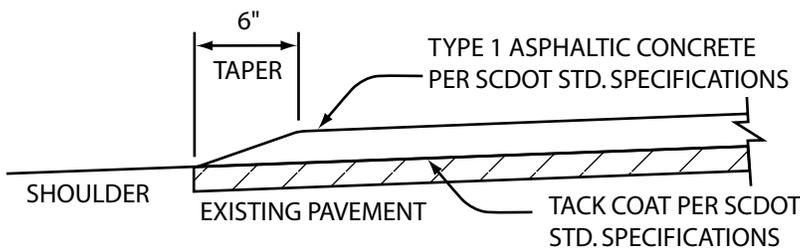
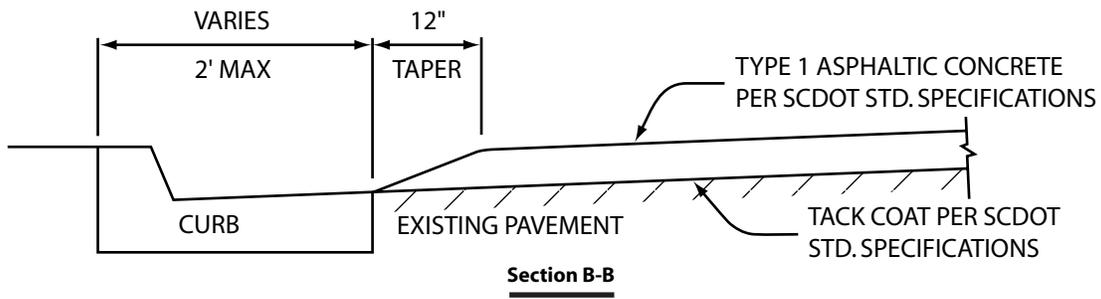
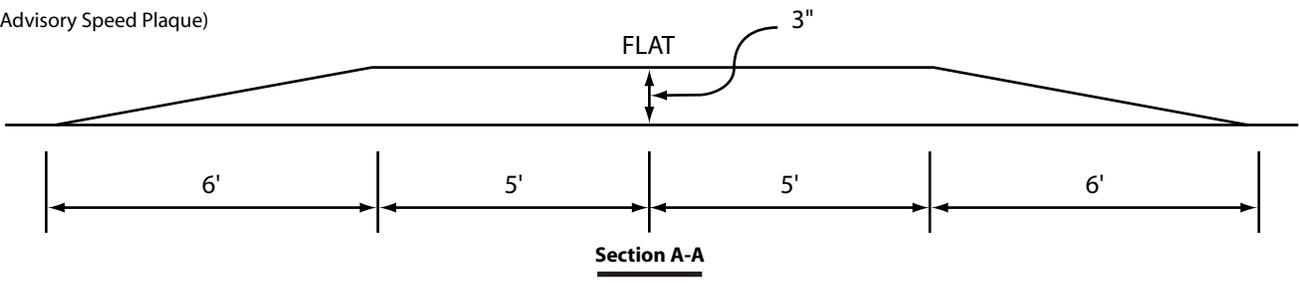
W17-1 with W13-1-25



Sign Descriptions:

W17-1 (Speed Hump Sign)

W13-1 (Advisory Speed Plaque)



Shoulder Detail for Street Without Curbs

Note:

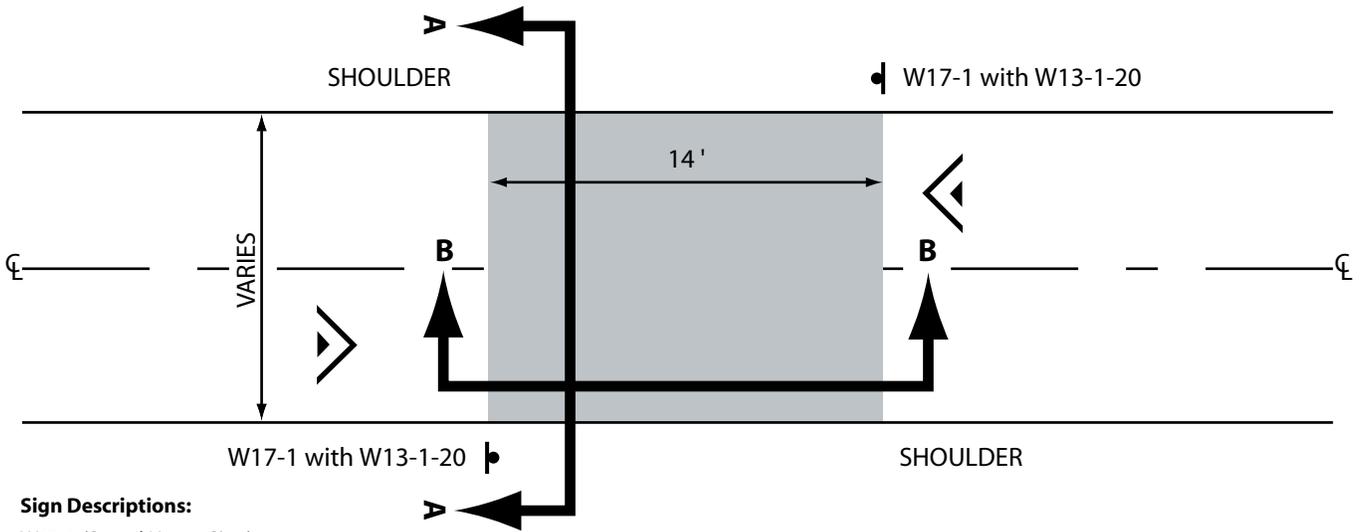
1. Materials must be approved by Resident Maintenance Engineer.
2. Decorative asphalt paving may be used if in accordance with SCDOT standards.

FLAT-TOPPED SPEED HUMP

Eligible for use on roadways with ADTs ≤ 4,000

Construction Detail

Not to Scale

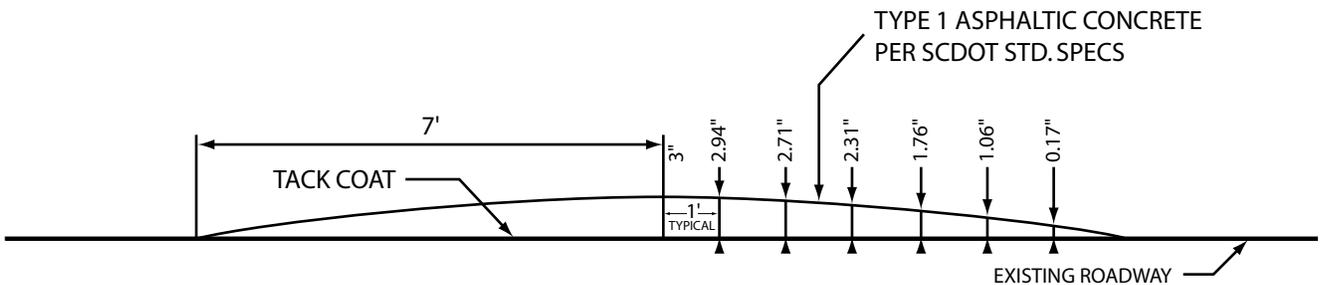


Sign Descriptions:
 W17-1 (Speed Hump Sign)
 W13-1 (Advisory Speed Plaque)

* Use 12" taper with curb & gutter, not encroaching into gutter area.



Section A-A



PARABOLIC CROWN

Section B-B

Note:

1. Materials must be approved by Resident Maintenance Engineer.
2. Decorative asphalt paving may be used if in accordance with SCDOT standards.

PARABOLIC SPEED HUMP

For use on roadways with ADTs \leq 2,000

Raised Crosswalks and Raised Intersections



Raised crosswalk adapted for use on a one-way street.

- All eligibility requirements below must be met (mandatory).
 - *Residential* —
 - Functional Classification = local residential or minor collector.
 - 30 (or less) mph speed limit.
 - Two-lane roadway (may have turn lanes and may have parking).
 - The primary access to commercial or industrial sites is not eligible.
 - Traffic volume less than 4000 AADT.
 - Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: “Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more.”
 - *Central Business District* —
 - Traffic Volume less than 6000 AADT.
 - 30 (or less) mph speed limit.
 - The primary access to commercial or industrial sites is not eligible.
- Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: “Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more.”
- Insure positive roadway drainage (mandatory).
- Horizontal curve of 300 foot radius or more (mandatory).

- Vertical curve with adequate stopping sight distance (mandatory).
- Grade of 8% or less (mandatory).
- Pedestrian volume, school area, central business district (desirable).
- Signal or stop control spacing greater than 1280' (desirable).
- The average speed exceeds posted limit by 5 mph or more or the 85th percentile speed exceeds posted limit by 10 mph or more (desirable).
- Designed and installed in accordance with specifications and construction details shown in Appendix A, including Signage and Markings (mandatory).
- Coordinate with resurfacing schedules to prevent conflict (mandatory).

Construction Details — Raised Crosswalks and Raised Intersections

SIGNS (In accordance with MUTCD)

- Section 2C.41 Crossing Signs (W11-1, W11-2, W11-3, W11-4, W16-7P).
<http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch2C.pdf>

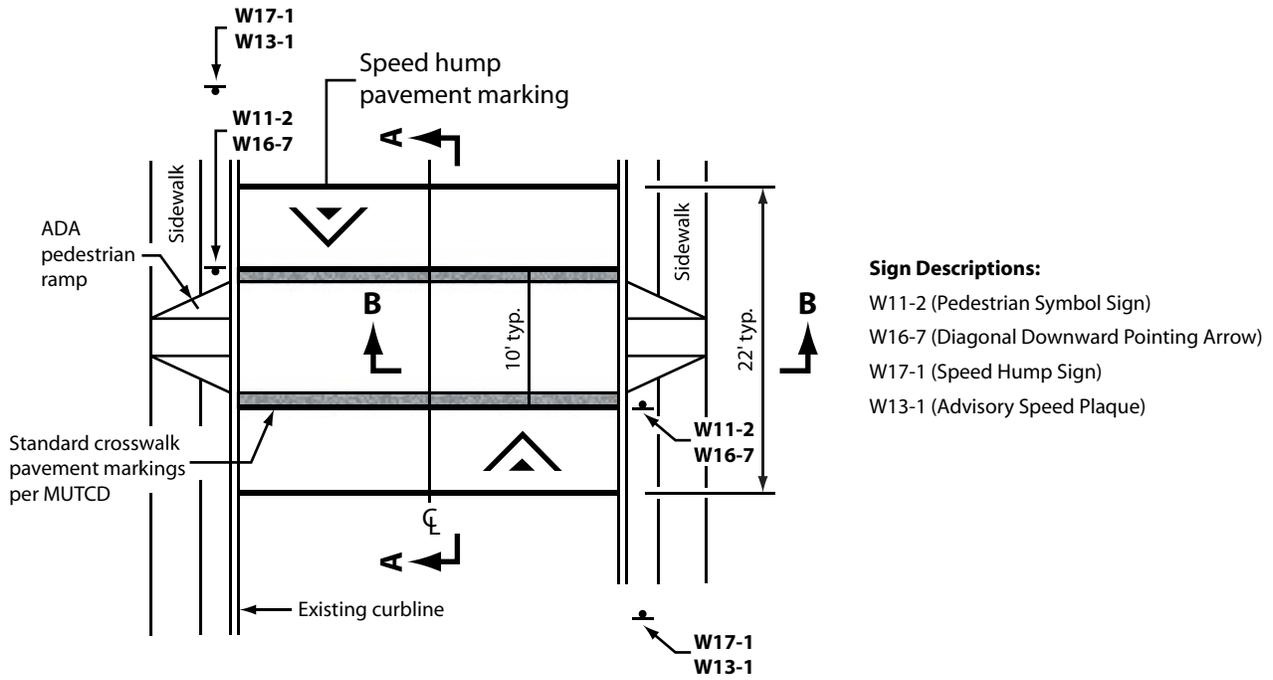
MARKINGS (In accordance with MUTCD)

- Materials for the markings should be thermoplastic or other heat applied markings.
- Use the same markings as for speed humps, in accordance with MUTCD Section 3B.26 Speed Hump Markings, using option A, as shown in Figure 3B-29, page 13.
- In addition, provide Crosswalk Markings as indicated below:

Section 3B.17 Crosswalk Markings (from MUTCD).
<http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch3.pdf>

Construction Detail

Not to Scale

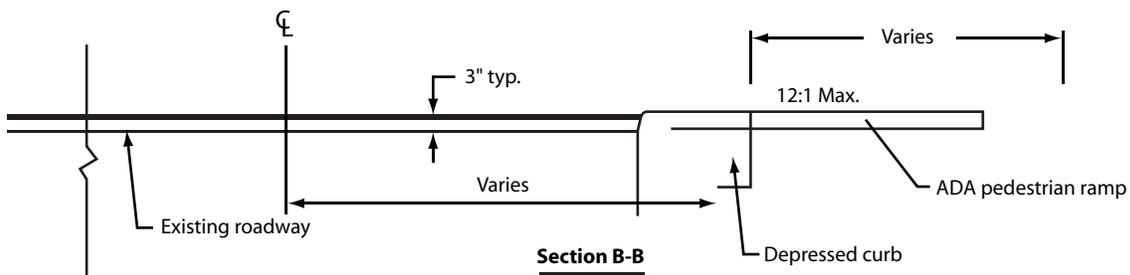
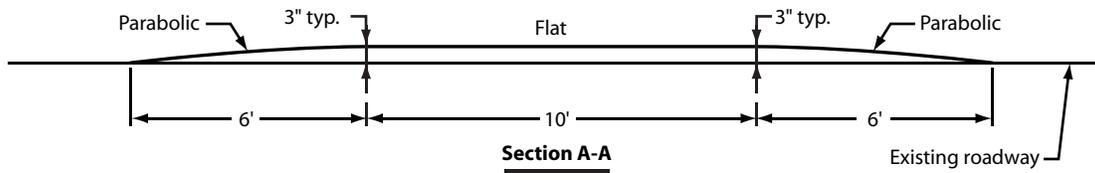
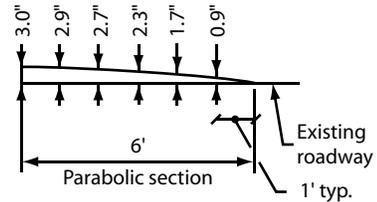


Sign Descriptions:

- W11-2 (Pedestrian Symbol Sign)
- W16-7 (Diagonal Downward Pointing Arrow)
- W17-1 (Speed Hump Sign)
- W13-1 (Advisory Speed Plaque)

Note:

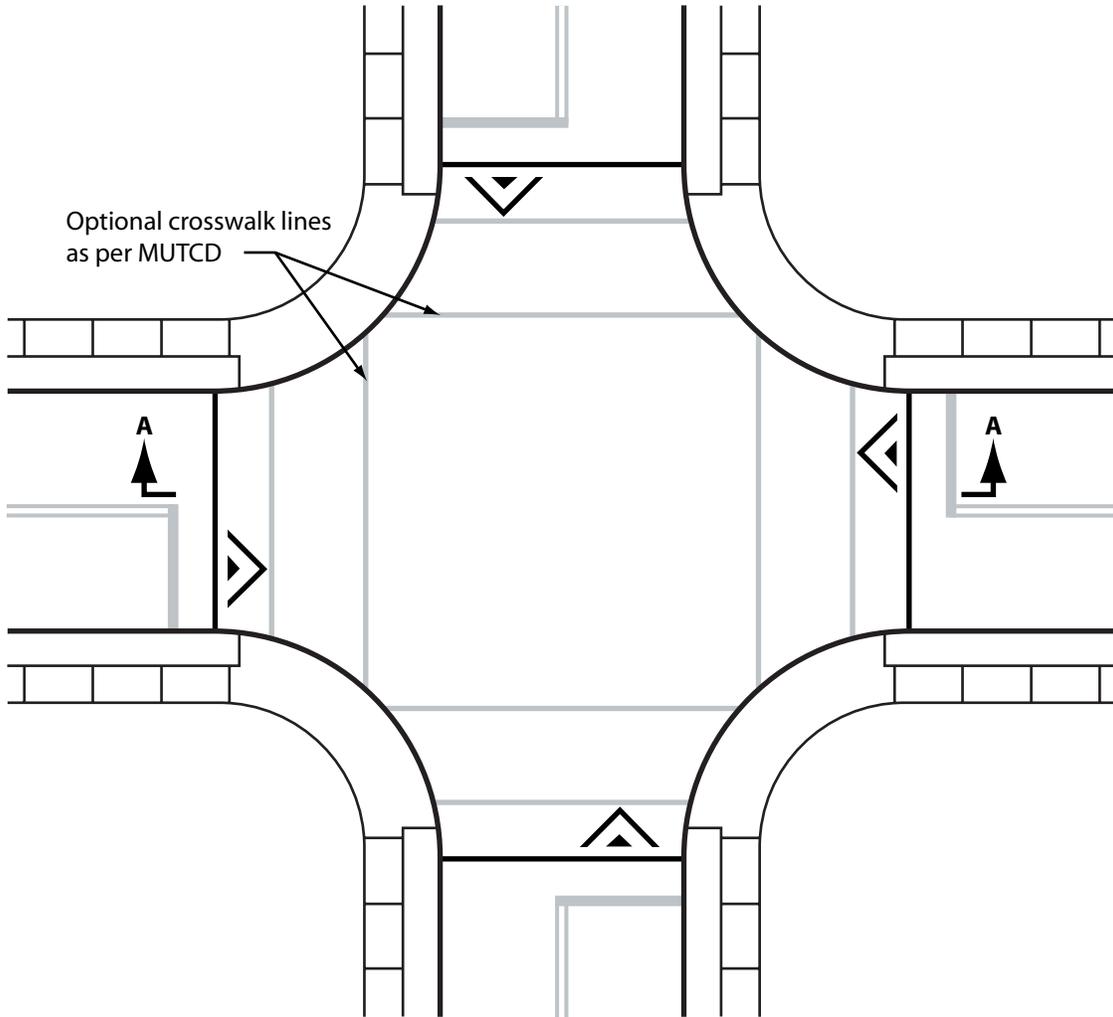
1. Materials must be approved by Resident Maintenance Engineer.
2. Decorative asphalt paving may be used if in accordance with SCDOT standards.
3. Provide drainage inlets or piping as necessary.



TYPICAL RAISED CROSSWALK

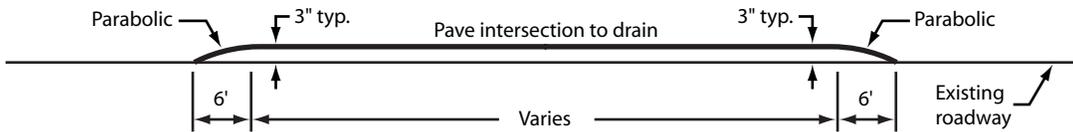
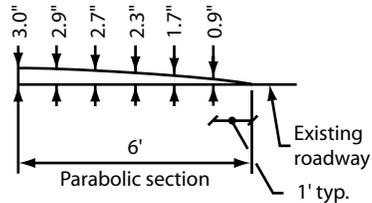
Construction Detail

Not to Scale



Note:

1. Materials must be approved by Resident Maintenance Engineer.
2. Decorative asphalt paving may be used if in accordance with SCDOT standards.
3. Provide drainage inlets or piping as necessary.



Section A-A

TYPICAL RAISED INTERSECTION

Traffic Circles and Roundabouts



- All eligibility requirements below must be met (mandatory).
 - Residential —
 - Functional Classification = local residential or minor collector.
 - 30 (or less) mph speed limit.
 - Two-lane roadway (may have turn lanes and may have parking).
 - The primary access to commercial or industrial sites is not eligible.
 - Traffic volume less than 4000 AADT.
 - Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: “Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more.”
 - Central Business District —
 - Traffic Volume less than 6000 AADT.
 - 30 (or less) mph speed limit.
 - The primary access to commercial or industrial sites is not eligible.
- Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: “Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more.”
- Insure positive roadway drainage (mandatory).
- The average speed exceeds posted limit by 5 mph or more or the 85th percentile speed exceeds posted limit by 10 mph or more (desirable).

- Temporary traffic control measures installed on a trial basis to determine motorists' compliance and maneuverability. A permanent installation may be constructed under an approved encroachment permit (mandatory).
- Designed and installed in accordance with specifications and construction details shown in Appendix A, including Signage and Markings (mandatory).

Construction Details — Traffic Circles and Roundabouts

SIGNS (In accordance with MUTCD)

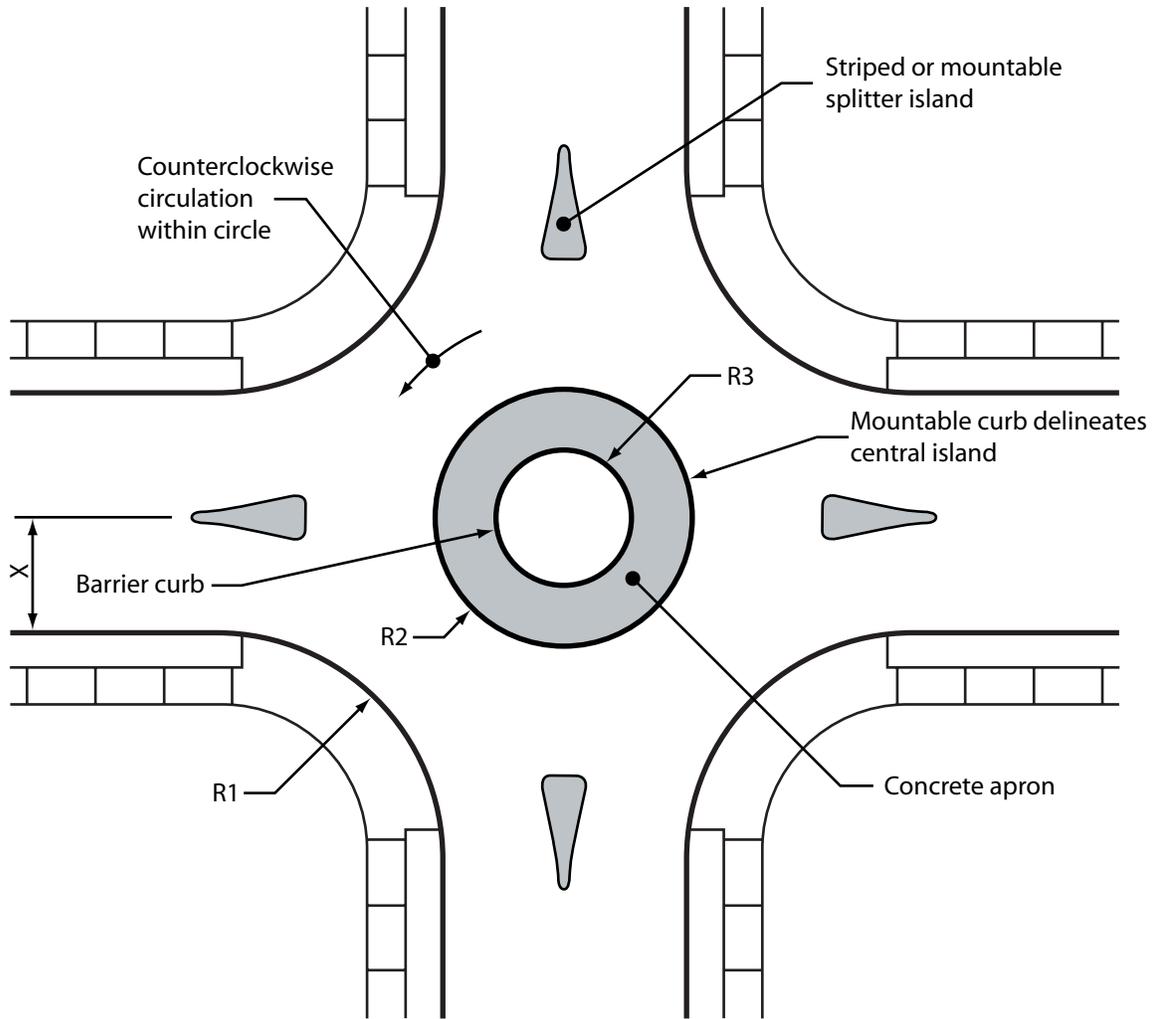
- Material for the signs should be high intensity type sheeting.
- In accordance with MUTCD Figure 3B-26, 3B-27, Using R1-2 (Yield Signs), W11-2 (Pedestrian Crossing Signs).

MARKINGS (In accordance with MUTCD)

- Materials for the markings should be thermoplastic or other heat applied markings as approved by the SCDOT's Resident Maintenance Engineer.
- In accordance with MUTCD as indicated below:
Section 3B.24 Markings for Roundabouts (from MUTCD).
<http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch3.pdf>

Construction Detail

Not to Scale



Note:

1. Materials must be approved by Resident Maintenance Engineer.
2. Decorative asphalt paving may be used if in accordance with SCDOT standards.
3. Provide drainage inlets or piping as necessary.
4. Install W2-6 circular intersection symbol sign with W16-12P traffic circle plaque on each approach to the intersection.

X	R1	R2	R3
16'	15'	12'	7'
	20'	18'	7'
	25'	20'	7'
14'	15'	10'	5'
	20'	11'	5'
	25'	12'	5'
12'	15'	6'	3'
	20'	8'	3'
	25'	9'	3'

TYPICAL MINI-TRAFFIC CIRCLE

Raised Landscaped Medians



- All eligibility requirements below must be met (mandatory).
 - *Residential* —
 - Functional Classification = local residential or minor collector.
 - 30 (or less) mph speed limit.
 - Two-lane roadway (may have turn lanes and may have parking).
 - The primary access to commercial or industrial sites are not eligible.
 - Traffic volume less than 4000 AADT.
 - Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: “Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more.”
 - *Central Business District* —
 - Traffic Volume less than 6000 AADT.
 - 30 (or less) mph speed limit.
 - The primary access to commercial or industrial sites is not eligible.
 - Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: “Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more.”
- Insure positive roadway drainage (mandatory).
- The average speed exceeds posted limit by 5 mph or more or the 85th percentile speed exceeds posted limit by 10 mph or more (desirable).
- Temporary traffic control measures installed on a trial basis to determine motorists’ compliance and maneuverability. A permanent installation may be constructed under an approved encroachment permit (mandatory).

- Designed and Installed in accordance with specifications and construction details shown in Appendix A, including Signage and Markings (mandatory).

Construction Details — Raised Landscape Medians

SIGNS (In accordance with MUTCD)

- At ends of median islands, use R4-7, as indicated below:
Section 2B.33 Keep Right and Keep Left Signs (R4-7, R4-8) (from MUTCD).
<http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch2B.pdf>
- **Landscaping shall be accomplished in accordance with the SCDOT's Access and Roadside Management Standards (ARMS).**
<http://www.scdot.org/doing/pdfs/ARMS.pdf>

Road Closures



- All eligibility requirements below must be met (mandatory).
 - *Residential* —
 - Functional Classification = local residential or minor collector.
 - 30 (or less) mph speed limit.
 - Two-lane roadway (may have turn lanes and may have parking).
 - The primary access to commercial or industrial sites is not eligible.
 - Traffic volume less than 4000 AADT.
 - Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: “Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more.”
 - *Central Business District* —
 - Traffic Volume less than 6000 AADT.
 - 30 (or less) mph speed limit.
 - The primary access to commercial or industrial sites is not eligible.
 - Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: “Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more.”
- A detailed analysis should be submitted showing where the traffic will be redistributed. If redistributed to main line roadways, documentation showing adequate capacity to handle this redistribution is required (mandatory).

Physically Reducing Lane Widths

- All eligibility requirements below must be met (mandatory).
 - *Residential* —
 - Functional Classification = local residential or minor collector.
 - 30 (or less) mph speed limit.
 - Two-lane roadway (may have turn lanes and may have parking).
 - The primary access to commercial or industrial sites are not eligible.
 - Traffic volume less than 4000 AADT.
 - Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: “Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more.”
 - *Central Business District* —
 - Traffic Volume less than 6000 AADT.
 - 30 (or less) mph speed limit.
 - The primary access to commercial or industrial sites is not eligible.
 - Within Urban District as defined in Section 56-5-1520 *Code of Laws of South Carolina*: “Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more.”
- Insure positive roadway drainage (mandatory).
- The average speed exceeds posted limit by 5 mph or more or the 85th percentile speed exceeds posted limit by 10 mph or more (desirable).
- Minimum 20 foot width required, if existing roadway width is less than 20 feet, no further reduction will be allowed with two-way traffic (mandatory).
- Reducing lane widths is permissible as long as the local traffic and service and emergency vehicles can be accommodated. Examples are:
 - Construction of a curb and gutter section with a sidewalk.
 - Neck-downs where on-street parking is permitted.
 - Raised mid-block landscaped areas adjacent to on-street parking.

Standard Traffic Control Devices

All standard traffic control devices are required to be installed according to the guidelines set forth within the *Manual of Uniform Traffic Control Devices* (MUTCD). The SCDOT will maintain these approved traffic control devices, such as signs, signals and pavement markings, as outlined in the *Manual of Uniform Traffic Control Devices*.

- **All Way Stop Control (AWSC)** — The SCDOT will follow the criteria shown in Appendix D for installation of all-way stop control.
- **Reduction of Speed Limits** — As outlined within the MUTCD and by state law.
- **Pedestrian Crossing signs and crosswalks** — As outlined within the MUTCD and by state law.
- **School Zone signing** — As outlined within the MUTCD.
- **Visually Reducing Lane Widths** — Reducing lane widths to discourage speeding or provide a bike lane, by installing pavement markings.

http://www.scdot.org/getting/bikeped/Bp_default.shtml

Appendix B — Traffic Calming References and Photographs

The following link connects users to the Institute of Transportation Engineers’ “Traffic Calming . . . for Communities” Web site concerning the current state of traffic calming practices. The SCDOT does not necessarily endorse all the practices shown there but is providing this link for information only.

<http://www.ite.org/traffic/index.html>

Appendix C — Application and Check List

The Traffic Calming Application, as shown on the next two pages, should be filled out by the local governmental agency and submitted to the appropriate SCDOT District Office for review and approval.

The following link can be used to determine the proper SCDOT Engineering District for each county: http://www.scdot.org/inside/engineering_directory.shtml.

SCDOT Application for Traffic Calming

Applicant _____

County _____

Address _____

Location _____

Road/Route # _____

Contact Person _____

Road Name _____

Telephone Number _____

Boundaries _____

Residential

Central Business District

Attach additional documentation as needed

Description of Problem (cut-through traffic, speeding, safety) _____

General idea of the requested calming measures and which streets they are requested on

Verification of eligibility *(All of the following are to be met)*

Residential

- Functional Classification = local residential or minor collector
- 30 (or less) mph speed limit
- Two-lane roadway (may have turn lanes & may have parking)
- The primary accesses to commercial or industrial sites are not eligible
- Traffic volume less than 4000 AADT
- Within Urban District as defined in Section 56-5-1520 Code of Laws: "Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more."

Central Business District

- Traffic Volume less than 6000 AADT
- 30 (or less) mph speed limit
- The primary accesses to commercial or industrial sites are not eligible
- Within Urban District as defined in Section 56-5-1520 Code of Laws: "Urban district means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more."

CHECKLIST FOR INITIAL REVIEW

- Description of impacted area, with map (The impacted area is generally a neighborhood area, but can be the same as the petition area, as defined by local government in cooperation with SCDOT.)
- Description of petition area, with map (The petition area is the area bounded by surrounding collector or arterial roads, as defined by local government in cooperation with SCDOT)
- Functional classification for each roadway within impacted area (Examples: Major Arterial, Minor Arterial, Major Collector, Minor Collector, Local Residential)
- Average daily traffic volumes, with directional splits for peak hours, within petition area
- Average speed and 85th percentile speed in both directions within petition area
- Existing speed limit within impacted area
- Graphical representation of all traffic control devices, signs, markings, and signals within impacted area, including speed limits, stop signs, school zones, etc.
- Character of area including current zoning, current use, facilities such as schools, parks, hospitals, nursing homes, etc.
- Description of roadways in impacted area including width, pavement condition, curb and gutter, sidewalks, shoulder width, ditch type, etc.

Additional Information Required

TO BE FILLED OUT BY SCDOT

<input type="checkbox"/> Speed Studies for both directions on	<input type="checkbox"/> Turning volume movements at the intersection of	<input type="checkbox"/> Percentage of cut-through traffic on
---	--	---

<input type="checkbox"/> Require additional information <input type="checkbox"/> Project information completed <input type="checkbox"/> City/Council approval obtained <input type="checkbox"/> Petition with signatures obtained <input type="checkbox"/> Approval contingent upon: _____ _____ _____ _____	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center; padding: 5px;">DEA Approval</td> <td style="width: 50%; text-align: center; padding: 5px;">(Temporary Measures)</td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 10px 0 0 0;">_____</td> </tr> <tr> <td style="text-align: center; padding: 5px;">DEA Approval</td> <td style="text-align: center; padding: 5px;">(Permanent Measures)</td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 10px 0 0 0;">_____</td> </tr> </table>	DEA Approval	(Temporary Measures)	_____		DEA Approval	(Permanent Measures)	_____	
DEA Approval	(Temporary Measures)								

DEA Approval	(Permanent Measures)								

Applicant may proceed with submitting Encroachment Permit Application for installation of Traffic Calming Measures

Appendix D — All Way Stop Control Guidelines

A recent review of several multi-way stop installations, where warrants, outlined in the MUTCD, were met, revealed an overall reduction in accident history at each location studied. Multi-way stops, when used appropriately, may improve the safety of an intersection. The SCDOT receives many requests for multi-way stop installations to reduce or eliminate speeding on residential streets. Studies have shown that the installation of stop sign for speed control:

- Does not reduce the overall speed along the street.
- Does break up the flow of traffic, resulting in slower speeds at the intersection.
- Does reroute some traffic to parallel streets within the network.

We understand there has been a strong request by various cities around the country to obtain a different set of criteria for multi-way stop installations for residential streets in order to give neighborhoods more flexibility in planning where they want their traffic to go. In an effort to be more flexible and more responsive to a community traffic plan, the SCDOT is willing to implement a trial set of warrants, for review and evaluation, to determine if they are appropriate for traffic calming and neighborhood traffic management purposes.

MUTCD All Way Stop Control Warrants

The *Manual of Uniform Traffic Control Devices* sets forth guidelines for the installation of traffic control devices on streets and at intersections.

See <http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch2B.pdf>, Section SB.007 Multiway Stop Applications.

If any of the following items are met, the Multiway Stop Control Warrants outlined in the MUTCD should be applied:

- At intersections that include at least one street classified as a major collector or arterial.
- Any intersections not within a residential zoning district.
- On any street where Federal funds were used to wide, beautify, or otherwise improve.
- On any non-stopped street with an average daily traffic volume (ADT) exceeding 4000 vehicles per day (VPD).

All Way Stop Control Warrants for Traffic Calming Eligible Roadways

A trial set of reduced warrants are outlined below and may be considered by the SCDOT if the following conditions are met:

1. Intersections with non-removable sight obstruction problems, **or**

2. Intersections of low volume streets providing that ALL the following conditions are met:

- The total vehicular volume entering the intersection from all approaches averages a minimum of 200 vehicles per hour for at least any four-hour period during a typical weekday.
- In addition to the vehicular volumes specified above, the vehicular volume entering the intersection from the minor street or streets for the same four hours averages at least 100 vehicles per hour.
- Both streets have residential frontage and existing speed limits of 30 mph or less.
- Neither street is classified as a major collector of greater by the SCDOT.
- Neither street exceeds 36 feet in width (excluding medians).
- No existing stop signs or traffic signal is located on the free-flow street within a distance of 1,200 feet of the proposed stop location.
- The intersection legs extend at least 600 feet or more away from the intersection.
- The total volume of the non-stopped street does not exceed 4000 vehicles per day.
- The proposed multi-way stop location fits within an identified system plan.

If all the above criteria are met, and engineering judgment dictates denial of the all way stop control installation due to safety issues or other concerns, the SCDOT reserves the right to deny the installation.

Appendix E — SCDOT Contacts

Engineering District 1
District Traffic Engineer
1400 Shop Road
Columbia, SC 29201
(803) 737-6660

Engineering District 2
District Traffic Engineer
510 West Alexander Avenue
Greenwood, SC 29646
(864) 227-6971

Engineering District 3
District Traffic Engineer
2525 South Pleasantburg Drive
Greenville, SC 29607
(864) 241-1010

Engineering District 4
District Traffic Engineer
PO Box 130
Chester, SC 29706
(803) 377-4155

Engineering District 5
District Traffic Engineer
PO Box 1911
Florence, SC 29503
(843) 661-4710

Engineering District 6
District Traffic Engineer
6355 Fain Street
North Charleston, SC 29406
(843) 740-1665

Engineering District 7
District Traffic Engineer
PO Box 1086
Orangeburg, SC 29116
(803) 531-6850

The following link can be used to determine the proper SCDOT Engineering District for each county: http://www.scdot.org/inside/engineering_directory.shtml.

Appendix F — Traffic Calming Agreement Program

Since traffic calming involves many variables, and is a relatively new endeavor, the SCDOT is providing the following information for local governments if they desire to enter into an agreement to perform ongoing Traffic Calming Projects. The agreement will clarify the responsibilities of the local government and the SCDOT. Since local governments have varying staffing capabilities, the local government may also enter into an agreement with the appropriate Metropolitan Planning Organizations (MPO) or Councils of Government (COG). The following site http://www.scdot.org/inside/planning_faq.shtml#COG will assist in obtaining the required information.

When used, the proposed agreement between the SCDOT and the local government should address the following issues, and may include other items, as necessary:

Local Government responsibilities:

- Coordination with residents, emergency personnel, service personnel.
- Information gathering and analysis by qualified professional personnel.
- Funding for installation.
- On-going maintenance of traffic calming measures.
- Funding for removal (in case where the local government becomes unhappy with measure or where safety issues arise).
- Commitment to enforce traffic control devices.
- Commitment to traffic safety education endeavors.

SCDOT responsibilities:

- Resources for educational materials.
- Technical assistance during the review process.
- Any readily available information or drawings, such as previous studies, counts, roadway plans.
- Typical details for traffic calming measures.

If staff is not available to assist local governments with the traffic calming endeavors, the local government may request assistance from the area Metropolitan Planning Organizations (MPO) or Councils of Government (COG): http://www.scdot.org/inside/planning_faq.shtml#COG.

An agreement may be established between the local government and the appropriate planning entity addressing the following issues:

Local Government responsibilities:

- Funding for information gathering or coordination efforts.

COG responsibilities:

- Any available maps and traffic data.
- Assistance with developing a program or a specific plan.
- Any needed Annual Average Daily Traffic volumes (AADT) and/or turning movement counts, speed studies, origin/destination studies, roadway classifications, graphical representation of existing conditions. (The COG may not have staff to perform this type of data collection. Therefore, this information may need to be obtained from an outside company.)