City of Bartlesville

Residential Subdivision Traffic Calming

Policy and Procedure

Adopted by the City Council March 13, 2006

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1. INTRODUCTION AND BACKGROUND

Bartians live among a highly mobile population where there is continual travel to and from home, work, school, shopping, entertainment and many other destinations. We are dependant on the motorized vehicle. Thanks to careful planning efforts, the destinations are linked by a hierarchy of streets that include arterials, collectors, sub-collectors and local streets. Residential streets may fit into any of these categories except arterials.

Today, because of the increased dependency of vehicles for mobility, we see a dramatic increase in vehicle speeds and daily neighborhood traffic volume. Additionally, as delay on arterials has increased, some motorists have decided to bypass the congested arterials and use neighborhood streets to get from one arterial to another or as a shortcut to their destination.

Vehicle dependency and increased arterial delay share blame for the increased noise levels and traffic hazards occurring on these residential streets. Residents, pedestrians and bicyclists are subjected to this increase risk as well. A residential street's function includes not only its place in the transportation system but its role as part of a residential community's living environment.

For these reasons, the City Council, Traffic Committee, Public Works and Engineering Department provide an array of traffic calming solutions and a guideline for their implementation. It does not and shall not preclude the City from applying appropriate traffic engineering judgment on individual cases, as deemed necessary.

1.1. Traffic Calming Principles:

The Engineering Department has collected and researched many cities' traffic calming programs. The following principles are the underlying premise toward the City's effort to minimize the impact of traffic within residential neighborhoods. They are,

- Consideration of **safety** first in all aspects of the planning, design and implementation of traffic calming measures
- Consideration of all **services** (school buses, fire, snowplowing, garbage, ambulance, etc.)
- Identification of the **issues and concerns** brought forth by citizens, citizen groups or registered neighborhood associations
- Application of traffic calming on a **neighborhood-wide basis**, i.e. look at the neighborhoods in their entirety, the residential collector and local residential streets bounded by primary and secondary arterial streets as identified in the City's Traffic Way Plan.
- Assessment of **operation of adjacent arterials** and consideration of improvements to the arterial network first, thereby reducing or removing incentives for motorist to intrude on residential collector and local residential streets

- Measurement of **existing conditions**
- Avoidance of intentionally **diverting traffic** off of the target street to other adjacent neighborhood streets
- Avoidance of restricting **ingress/egress** to residences
- Emphasis on using **self-enforcing** traffic calming measures
- Emphasizing of traffic calming measures on residential collector and local residential streets adjacent to **schools** and those designated or known as school routes where children walk or bicycle to school

1.2. Recommended Practices

The Engineering Department recommends the speed hump (see illustration description, "Speed Hump" on page 13) as the primary traffic calming device for existing residential and collector streets. The reasons are cost, ease of construction, and availability of asphalt material. Design and application of speed humps shall follow the Institute of Transportation Engineers (ITE) Guidelines for the Design and Application of Speed Humps. Other proposed traffic calming designs will be at the discretion of the individual designer, however the design will conform to ITE criteria or accepted design practice currently in use.

The City shall continue to work with both residential and commercial developers as well as concerned citizen groups and neighborhood associations that address unique neighborhood traffic calming opportunities (see **Appendix 1**). Included in those opportunities are neighborhood groups and associations who desire to add traffic calming devices, other than speed humps, to calm traffic and enhance the aesthetics of the neighborhood.

2. TRAFFIC CALMING PROCESS

2.1. Planning

The traffic calming process is planned at the neighborhood level, but implemented on an uninterrupted street segment basis. Planning on a neighborhood wide basis will help to identify if solving a problem on one street shifts it to another street. Additionally, it will provide an opportunity to plan for a comprehensive series of devices that will work together to improve the traffic operations of a neighborhood.

On receipt of a traffic calming application, the first step in working with the neighborhood is to clearly define the problem. Because traffic calming addresses quality of life issues, it will be important to consider a wide range of perspectives, observations, and perceptions as well as engineering data.

Subsequent examination will be spent matching specific solutions with the problem(s) identified. The speed hump will primarily be employed, however residents may be presented with additional options.

2.2. Public Involvement

A successful traffic calming program must involve the public and clearly be understood by all participants. Participation by those living along the affected street and adjacent registered neighborhood associations is essential.

Homeowners living along the affected street segment will be asked to complete petitions that account for their participation and either affirm or not affirm their support for the installation(s). The requester of the traffic calming devices(s) will solicit the neighborhood(s) for signatures and submit the petition with a Verification Statement (see **Appendix 6**).

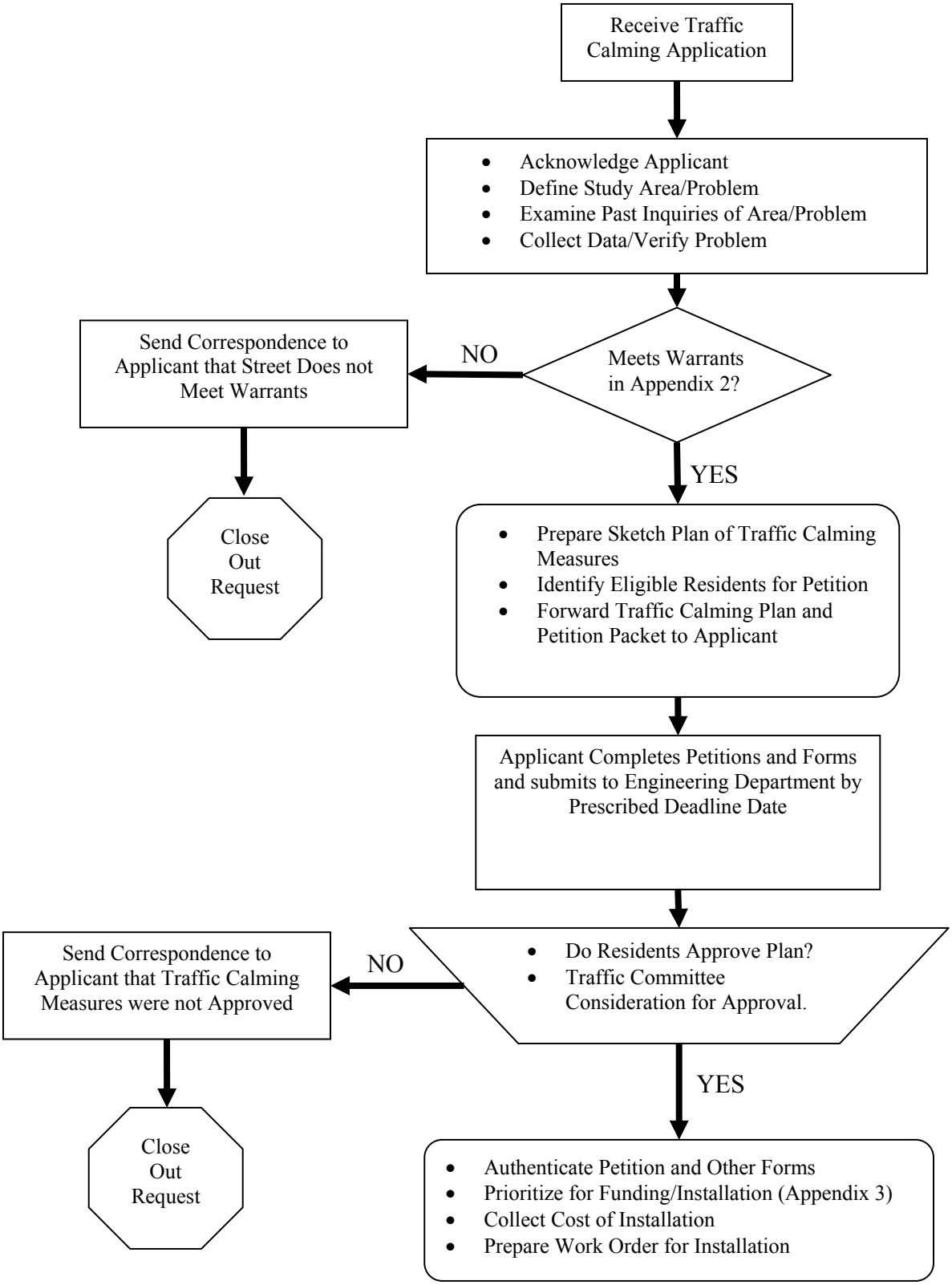
Registered neighborhood associations that are directly affected will be ask to complete the Endorsement Statement (see **Appendix 7**) that acknowledges adjacent streets to the traffic calmed street may see an increase in traffic and/or speed.

2.3. Funding

Area residents (beneficiaries) and the City of Bartlesville will jointly provide funding for warranted and approved traffic calming measures. The beneficiaries will be required to pay for fifty percent (50%), or local share, of the materials used in construction of the traffic calming measure(s), with a minimum payment of $100. The City will fund the other half as well as provide the labor, machinery and equipment to install the devices. Work will be scheduled on approved measures upon receipt of the local share.

Traffic calming measures constructed entirely with privately donated funds will become public improvements. The City will provide all future maintenance on these measures.

2.4. Implementation



2.5. Possible Effects of Traffic Calming Devices

Traffic calming devices may effect neighborhoods and other aspects of road use, which are shown below.

	WHAT MAY BE AFFECTED	EFFECT
	Emergency Vehicles	Increases response time
	Adjacent Neighborhoods	Increases traffic volume and speed
	Utility Vehicles (i.e. sanitation vehicles)	Increases route times
	Other Roadway Users (i.e. bicyclists, roller skaters, skate boarders, joggers, pedestrians, handicapped)	Increases likelihood of an unintended negative impact in attempting to negotiate or circumvent the traffic calming device
	Residents Immediately Adjacent to the Traffic Calming Devices	Increases noise level from vehicles braking and going over and around the traffic calming devices
	On-Street Vehicle Parking	Loss of on-street parking immediately adjacent to traffic calming device(s)
	Neighborhood Aesthetics	Unsightliness of traffic calming device
	Future Maintenance Costs	Increased landscaping and street rehabilitation costs (e.g. asphalt, pavement markings or sign maintenance)

3. GUIDELINES AND PROCEDURES

3.1. Authority and Scope

The City Engineer administers the traffic calming program. The City Engineer retains the full authority to install or remove traffic calming devices for cause independent of this guideline.

The effective date for the traffic calming program is March 13, 2006.

3.2. Request Process

Individual residents or neighborhood associations can initiate traffic calming requests. An application (see **Appendix 4**) can be downloaded from the City's website at www.cityofbartlesville.org or requested by calling the Engineering Department at 338-4251. Forward completed applications to:

City of Bartlesville, Engineering Department
401 South Johnstone Ave., Bartlesville, OK 74003

3.3. Installation Eligibility

On receipt of a traffic calming application, City staff will identify the area-wide and site-specific study area. Acknowledgement will be sent to the applicant making the inquiry. That person must reside on the requested street segment within the boundaries defined on the traffic calming application. The acknowledgement will confirm that a study is underway and will indicate an anticipated completion date.

Engineering staff will initiate the data collection and review of existing operational and geometric characteristics of the street in question. Eligibility for a traffic calming measure will be determined based upon the warrants (see **Appendix 2**) and a review of the operational and geometric characteristics of the street segment. Traffic calming warrants are based on the following:

- 85^{th} percentile speed
- 24-hour traffic volume
- Total number of reported crashes over a two-year period
- Excessive peak hour volume

If the street segment meets criteria and warrants for traffic calming, the applicant will be contacted, a petition packet mailed and the item scheduled for consideration at a regular meeting of the Traffic Committee. The applicant will be responsible for contacting all affected property owners and registered neighborhood associations as identified by City staff.

If the requested street does not meet criteria and warrants, the applicant will be notified through the U.S. Postal Service. No further study action will be taken.

Reconsideration for the street segment in question will not be undertaken for another 12 months unless compelling evidence is otherwise shown.

3.4. Project Prioritization

After meeting operational, geometric and general warrant criteria, traffic calming projects will be prioritized on a citywide basis. This ensures a proper allocation of City resources and an equitable process to Bartlesville citizens. Projects will be ranked for funding and installation according to the criteria found in **Appendix 3**. Projects will be assigned points on the basis of:

- 85^{th} percentile speed,
- 24-hour traffic volume,
- Total number of reported crashes over a two year period, and
- Proximity to special generators

The street segment installation accumulating the greatest number of points will be considered to have the highest priority. Among project installations with the same rank, higher priority will be given to the applicant with the earliest application date subsequent to the effective date of the traffic calming program.

3.5. Notification/Evidence of Support

If a speed hump is proposed for the traffic calming device, a petition (see **Appendix 8**) from adjacent residents and business owners is required. It must document that at least seventy percent (70%) of all households and businesses adjacent to the project support the installation of speed humps. All properties within the affected area must be accounted for, either by signature or by written statement by the contact person why a specific property was not represented. Request with either no petition or with a petition that does not account for all properties will be considered incomplete and will not further the process.

A verification statement (see **Appendix 6**) confirming the signatures on the petition form are valid and represent at least seventy (70%) of the households/businesses adjacent to the project street is required from the contact person.

Registered neighborhood associations adjacent to the street segment area will be asked to sign an endorsement statement (see **Appendix 7**), endorsing the traffic calming installation. In the absence of registered neighborhood associations, the petition may be extended to include nearby streets, which may see an increase in traffic as a result of the impending installation.

3.6. Speed Hump Installation Criteria

3.6.1. Speed Hump Location Consideration

3.6.1.1. The street shall provide access (via a driveway or on-street parking) to abutting residential and/or commercial properties (residential local or collector streets). Residential properties include multiple dwelling such as apartment complexes.

3.6.1.2. The street shall not have more than one traffic lane in each direction.

3.6.1.3. The street shall have a regulatory speed limit of 30 mph or less.

3.6.1.4. The 85th percentile speed on the street section must be at least 6 mph over the regulatory speed limit.

3.6.1.5. Speed humps shall not be located in a horizontal curve, on vertical curves where visibility of the hump is restricted, or on the approach to these curves.

3.6.1.6. For speed hump installation, the street should have curb and gutter. Consideration may be given to streets without curb and gutter. In such cases, special care should be used to accommodate drainage and prevent vehicle run-arounds.

3.6.1.7. Street segment boundaries identified for traffic calming should be uninterrupted segments of street, i.e. no stop signs. If an application does identify a street segment with interrupted points, then the project plan may direct the existing interrupted points be removed.

3.6.1.8. No consideration will be given to speed hump installation on a residential collector street segment where traffic signals are located at beginning and ending terminal points with a higher classified roadway than a collector street. Additionally, the City will reserve the right to remove any traffic calming devices on a residential collector street segment that if at a later date, traffic signals are installed on the terminal points of a segment.

3.6.1.9. Speed humps will not be located in front of a driveway or within an intersection. Speed humps shall be kept a minimum of 100 feet from the near curb line of an intersecting street.

3.6.1.10. Speed humps will not be located over manholes or adjacent to a fire hydrant.

3.6.1.11. Speed humps located near drainage inlets will be placed immediately downstream of the inlet.

3.6.1.12. Speed humps will be located as near as practical on property line to minimize the intrusion of the speed hump on abutting property frontages.

3.6.1.13. To the extent possible, speed humps will be located near existing mid-block street lighting.

3.6.1.14. A speed hump will not be located in front of a property if the occupant objects to its placement or, in the case of multiple dwellings, if a majority of the households on the property object to its placement.

3.6.1.15. The average daily traffic must be less than 5,000 vehicles per day to qualify for speed humps.

3.6.2. Speed Hump Spacing and Location

3.6.2.1. Speed humps typically will be placed 200 to 600 feet apart. Other spacing may be used based on engineering judgment.

3.6.2.2. Speed humps will typically be placed on single short blocks (300 to 500 feet), a single speed hump will be positioned near the mid-point.

3.6.2.3. On single blocks of moderate length (500 to 1,000 feet), a two speed hump configuration will be used.

3.6.2.4. On very long blocks (1,000 to 1,600 feet), three speed humps will be placed on approximate quarter points.

3.6.2.5. On lengthy continuous street segments or segments comprised of a number of blocks, desirable interior speed hump spacing will be 400 to 600 feet.

3.6.2.6. A street segment or block must be at least 300 feet to qualify for speed hump installation.

3.7. Speed Hump Removal

3.7.1. Maintenance or Construction Activities

3.7.1.1. Any traffic calming speed hump that is removed or damaged during the course of publicly funded construction will be reinstalled upon completion of that construction at City of Bartlesville expense.

3.7.1.2. Speed humps partially or completely removed during routine City of Bartlesville maintenance activities will be repaired or reconstructed to original conditions upon completion of these maintenance activities at City of Bartlesville expense.

3.7.1.3. Any speed hump that is removed or damaged during construction the course of privately funded maintenance or construction will be reinstalled upon completion of those activities at the expense of the party damaging the speed hump.

3.7.1.4. The replacement of speed humps completely removed through the above actions is not automatic, but contingent upon a review for conformance with current policies and procedures.

3.7.2. Citizen Requests

3.7.2.1. Request Process

3.7.2.1.1. Citizens may request a street segment be reviewed for the possible removal of same or all of the existing humps. An application (see

Appendix 4) can be downloaded from the City's website at www.cityofbartlesville.org or requested by calling (918) 338-4251.

Forward applications to:

City of Bartlesville, Engineering Department
401 South Johnstone Ave., Bartlesville, OK 74003

3.7.2.1.2. The removal request must originate from a resident, business, or entity whose property is within the affected segment area. The affected area will be determined by Engineering staff and will include primarily those properties facing or abutting the street segment on which speed humps are located. A property will be considered part of the affected area if its only ingress and egress route requires traveling over existing speed humps requested to be removed.

3.7.2.2. Eligibility

3.7.2.2.1. City of Bartlesville Engineering Department will determine eligibility for removal considered by these factors:

i. The request must not be a duplicate.
ii. The removal segment must correspond with the installation segment.
iii. The speed humps have been in place for at least one year or at least one year has elapsed since any previous speed hump removal occurred.

3.7.2.3. Notification/Evidence of Support

3.7.2.3.1. Subsequent to the determination of eligibility for speed hump removal on a segment, a map of the affected area will be prepared, and a petition packet sent to the contact person for documenting support for the removal. All properties within the affected area must be accounted for, either by signature and indication of preference (in favor or oppose) or by written statement by the contact person why a specific property was not represented. There must be at least a 70 percent evidence of support to further the process.

3.7.2.3.2. Requests with either no petition or with a petition that does not account for all properties will be considered incomplete and will not further the process.

3.7.2.4. Removal Determination

3.7.2.4.1. The specific street segment indicated on the removal application will be the basis to identify the speed humps for removal. Final determination for the removal will be at the discretion of the City of Bartlesville's Engineering staff. Based on engineering judgment, the review process may recommend removal of none, some, or all of the speed humps. Factors considered, but not limited to are:

a. Existing speed hump locations and spacing
b. Stop/yield signs along the segment
c. Historical and existing traffic speed and volume information
d. Accident History
e. Presence or absence of sidewalks, schools and parks

3.7.2.4.2. If speed studies conducted along the requested segment or portions of the segment show the 85th percentile speed is greater than or equal to 6 mph over the posted speed limit, then no hump removal will occur along the segment or portion of the segment represented by the study.

3.7.2.4.3. Following the removal of any speed hump, the segment may be reconsidered for additional hump removal after at least one year. A new application must be submitted to have a segment received consideration for additional removal.

3.8. Design Standards, Construction, and Maintenance

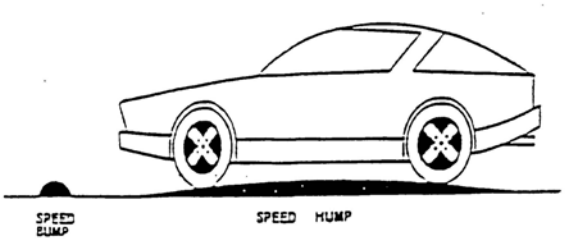
The City of Bartlesville Engineering Department will prepare and maintain current design standards and installation and removal procedures for speed humps and other traffic calming devices in accordance with current City of Bartlesville design practices and the criteria herein established.

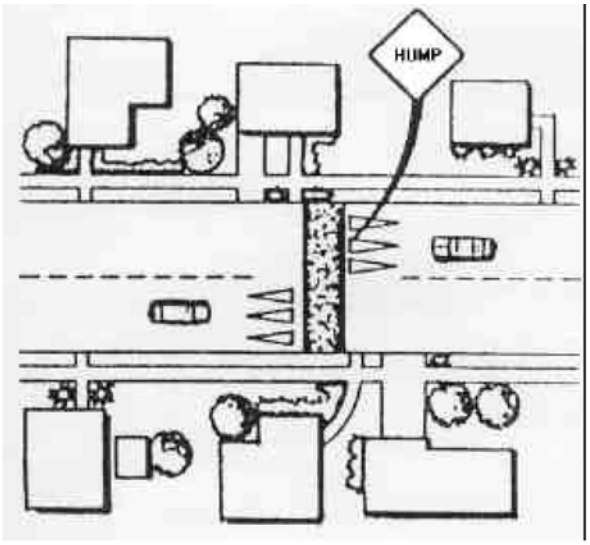
Design and construction or removal of traffic calming devices along with associated pavement markings and signs will be the responsibility of the City of Bartlesville. Future maintenance of traffic calming devices will be the responsibility of the City of Bartlesville, unless a license agreement or other contractual agreement is otherwise executed.

Appendix 1 – Traffic Calming Devices

Speed Hump

Definition: Speed humps are parabolic-shaped humps in the street. The height of the speed hump determines how fast it may be traversed without causing discomfort to the driver or damage to the vehicle. Discomfort increases as speed over the hump increases. Typically speed humps are placed in a series rather than singularly. Speed humps are gradual changes in the roadway surface usually 12-14 feet long and 3-4 inches high and differ dramatically from speed bumps that were traditionally installed on private property. Speed bumps tend to jolt a vehicle and can cause damage or loss of control if taken at excessive speed. Speed humps have little effect on a vehicle driving the posted speed limit, but produce discomfort when the speed limit is exceeded. Speed humps are generally placed approximately 300 feet apart and require signage and pavement markings in each direction that warns the driver to slow down. Speed humps are effective in reducing speed while not creating hazards to emergency response and transit vehicles.



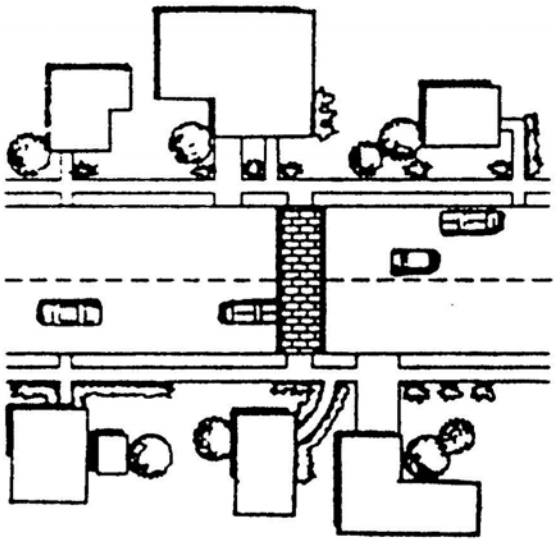


Advantages	Disadvantages
• Reduces vehicle speeds in the vicinity of the hump without increasing crashes. Better if used in a series at 300' to 500' spacing • Self enforcing • Relatively inexpensive	• May create noise particularly if there are loose items in the vehicle or trailer • If not properly designed, drivers may try to skirt around to avoid impact • May be a problem for emergency vehicles • May impact drainage • Driver may speed up between humps • May increase volumes on other streets • Difficult to properly construct • Required signage/markings may be considered unsightly

Evaluation Considerations						
Safety	**Speed Reduction**	**Traffic Reduction**	**Fuel Consumption**	**Pollution**	**Cost**	**Emergency Services**
Possible Improvements	Yes	Possible	Small Increase	Small Increase	Low to Medium	Possible Problems

Raised Crosswalk

Definition: A raised crosswalk is a marked pedestrian crosswalk at an intersection or mid-block location constructed at a higher elevation than the adjacent roadway. The purpose of a raised crosswalk is to reduce vehicular speeds, improve pedestrian visibility and reduce pedestrian-vehicle conflicts. The measure can include textured pavement, which helps to communicate a change in the driving environment.

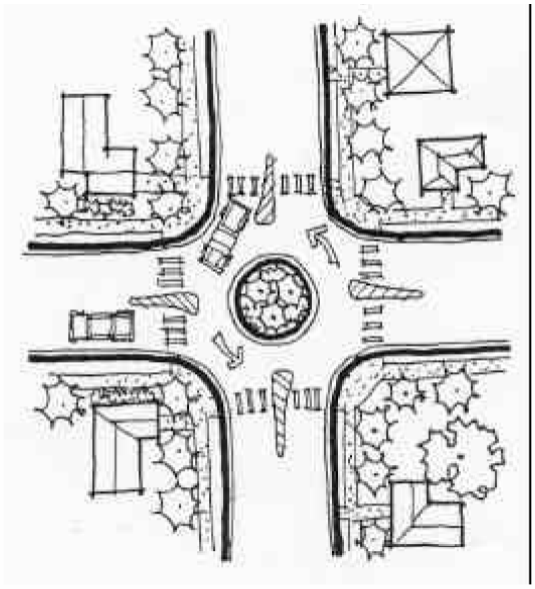


Advantages	Disadvantages
• Slows traffic • Increases pedestrian visibility in the crosswalk • Clearly designates the crosswalks • Requires minimum maintenance; pavement markings must be maintained • Minimal impact on snow removal	• Increases emergency response time • May damage emergency response vehicles if not carefully designed • May increase traffic noise in vicinity of crosswalk • May create drainage issues where raised crossing extends from curb to curb

Evaluation Considerations						
Safety	**Speed Reduction**	**Traffic Reduction**	**Fuel Consumption**	**Pollution**	**Cost**	**Emergency Services**
Possible Improvements	Possible	No Effect	No Change	No Effect	Medium	Possible Problems

Traffic Circle

Definition: Traffic circles are raised circular areas (similar to medians) placed at intersections. Drivers travel in a counterclockwise direction around the circle. Modern traffic circles are "yield upon entry," meaning that cars in the circle have the right of way and cars entering the circle must wait to do so until the path is clear. When a traffic circle is placed in an intersection, vehicles may not travel in a straight line. Traffic circles are raised concrete or landscaped islands that are placed in the center of an intersection. They require that vehicles change course while proceeding through an intersection and this generally results in a speed reduction. Intersections containing traffic circles must have adequate street lighting and signage to provide advance visibility and warning for the required change of course.

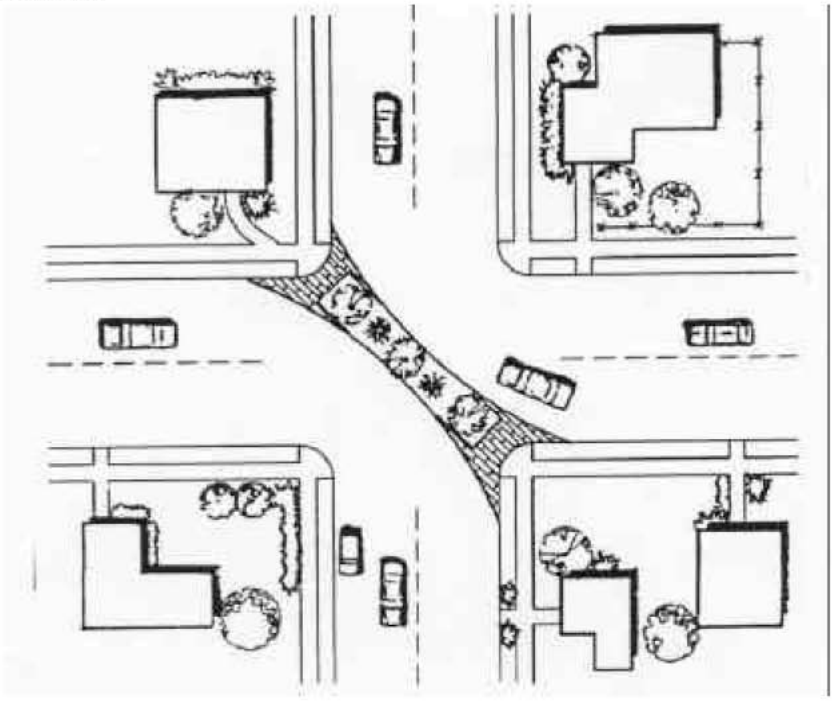


Advantages	Disadvantages
• May reduce crashes by 50 to 90 percent when compared to 2-way, 4-way stop signs, and traffic signals by reducing the number of conflict points at intersections • Reduces speed at intersection approach • Longer speed reduction influence zones • Provides space for landscaping • Cheaper to maintain than a traffic signal • Effective at multi-leg intersections • Provides equal access to intersections for all drivers • Provides a good environment for cyclists • Does not restrict movements, but makes them more difficult	• May be restrictive for larger vehicles if designed to low speed. Providing a mountable apron minimizes limitation • May require additional lighting and signage • If left turns by large vehicles are to be accommodated then right-of-way may have to be purchased • Initial safety issues as drivers adjust • May increase volumes on adjacent streets • Maintenance responsibility if landscaped

Evaluation Considerations						
Safety	**Speed Reduction**	**Traffic Reduction**	**Fuel Consumption**	**Pollution**	**Cost**	**Emergency Services**
Improved	Yes at Intersection	Possible	No Effect	Slight Increase	High	Possible Problems

Diagonal Diverter

Definition: A barrier is placed diagonally across a four-legged intersection, interrupting traffic flow across the intersection. This type of barrier may be used to create a maze-like effect in a neighborhood. These devices place a barrier diagonally across an intersection, which results in the elimination of through movements and turning conflicts. The resulting intersection resembles two back-to-back curves. Diagonal diverters reduce traffic while still allowing access and circulation through the neighborhood.

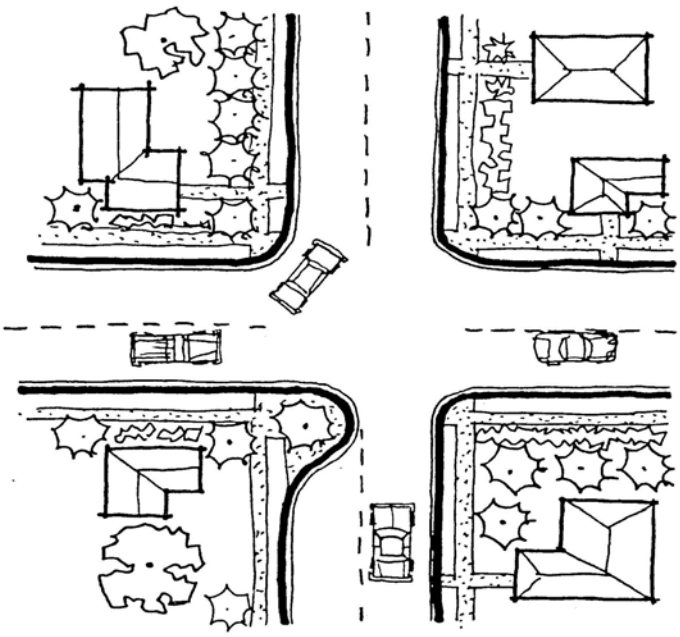


Advantages	Disadvantages
• Eliminates through traffic • Provides area for landscaping • Reduces traffic conflict points • Increases pedestrian safety • Can include bicycle path connection	• May inconvenience residents gaining access to their property • May inhibit access by emergency vehicles • May divert through traffic to other local streets • Altered traffic patterns may increase trip length

Evaluation Considerations						
Safety	**Speed Reduction**	**Traffic Reduction**	**Fuel Consumption**	**Pollution**	**Cost**	**Emergency Services**
Possible Improvements	Yes	Yes	Slight Increase	Small Increase	Medium	Possible Problems

Semi-Diverter a.k.a. Directional or Half Closure or Entrance Barrier or Curb Extensions

Definition: Physical blockage of one direction of traffic on a two-way street. The open lane of traffic is signed "one way," and traffic from the blocked lane is not allowed to go around the barrier through the open lane. These devices limit access to a street from one direction by blocking half of the street. They may also be constructed to limit certain movements at an intersection. Semi-diverters are generally effective in reducing traffic in the direction they block but are still able to allow emergency access.



Advantages	Disadvantages
• Reduces through traffic in one direction and possibly in the other • Allows two-way traffic in the remainder of the street • Good for pedestrians due to shorter crossing distance • Provides space for landscaping • Can be designed to provide two-way access for bicycles	• Reduces access for residents • Emergency vehicles are only partially affected as they have to drive around partial closure with care • Compliance with semi-diverters is not 100% • May increase trip length for some residents • Maintenance responsibility if landscaped

Evaluation Considerations						
Safety	**Speed Reduction**	**Traffic Reduction**	**Fuel Consumption**	**Pollution**	**Cost**	**Emergency Services**
Improved Pedestrian Crossing	Possible	Yes	Small Increase	Small Increase	Low to Medium	No Effect

Appendix 2 – General Traffic Calming Warranting Criteria

The following must be met to qualify a street segment for traffic calming:

Warrant No. 1 **- and -** Warrant No. 2	**- or -**	Warrant No. 1 **- and -** 0.80 x Warrant No. 2 **- and -** Warrant No. 3 **- or -** Warrant No. 4

Warrant	**Street Classification[1]**	
	Collector or Sub-Collector	**Local Residential Street**
1. 85th-percentile speed	> 6 mph over posted speed	
2. Minimum 24-hour traffic volume[2]	> 1,250 vpd	> 500 vpd
3. Total crashes[3] (Two most recent consecutive years)	3	
4. Peak hour volume[4]	phv > 1.5 x 0.10 x vpd	

vpd = vehicles per day; phv = peak hour volume

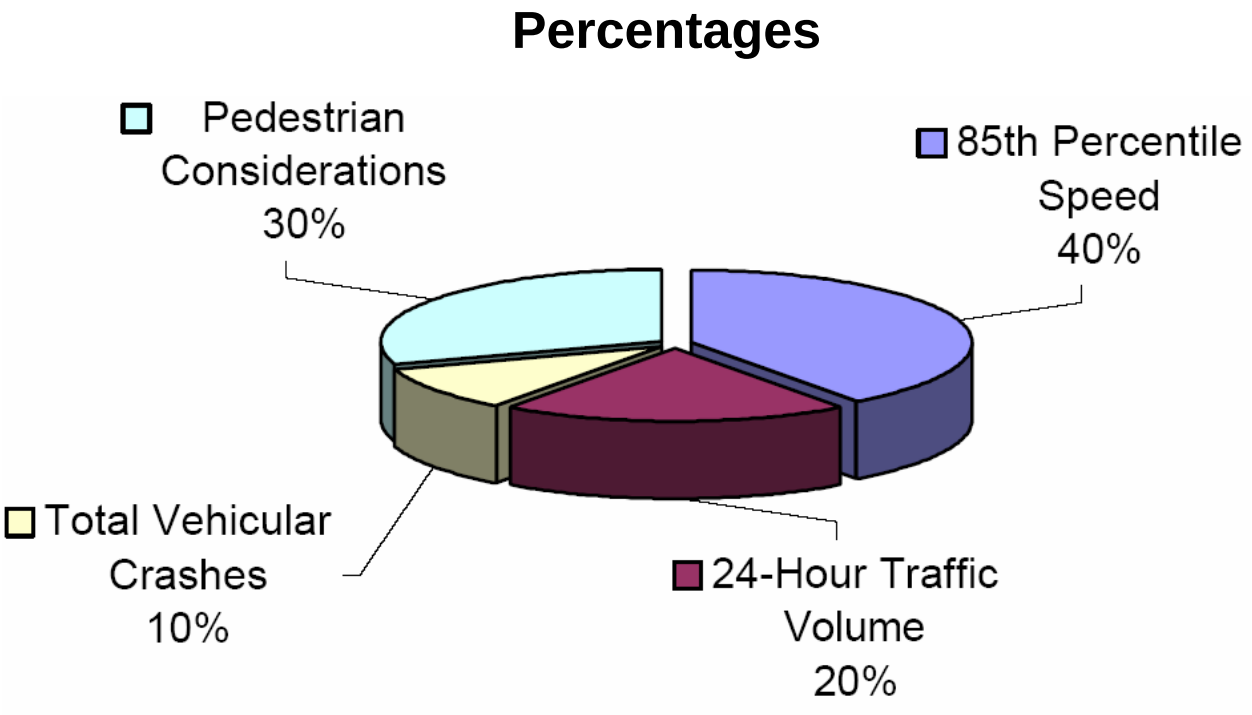
[1] As determined by Engineering staff

[2] For every additional 1 mph speed over the 6 mph speed threshold, 100 vehicles per day can be added to the 24-hour traffic volume to help facilitate the warrant meeting requirements.

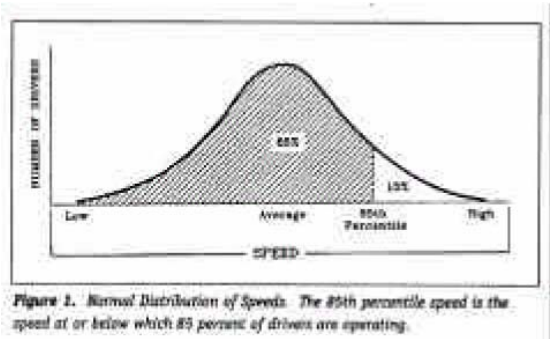
[3] Only those crashes correctable by the installation of traffic calming devices will be considered in the warrant considerations for the site-specific application

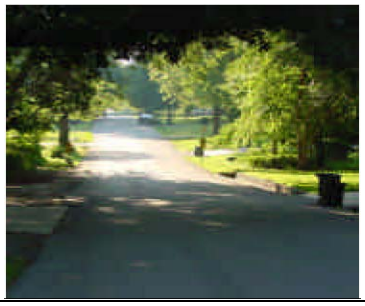
[4] As rule-of-thumb, peak hour volume for a segment is estimated at 10% of the 24-hour volume. If excessive non-local cut-through traffic is using the segment, this peak hour volume will be exaggerated. Hence, Warrant no. 4 is met when the actual peak hour volume is greater than or equal to 1.5 times this computed peak hour volume value.

Appendix 3 – Project Prioritization Criteria



Speed differential ranks heaviest in the consideration for installing traffic calming devices, followed by pedestrian generators, minimum daily traffic volume and total vehicular crashes. Point accumulation will be determined from the chart below. A total of 20 points is possible.

Category	Criteria	Points Assigned	Points Possible Per Category
Speed Difference Between 85th Percentile and Posted Speed  *Figure 1. Normal Distribution of Speeds. The 85th percentile speed is the speed at or below which 85 percent of drivers are operating.*	6-7 mph	3.5	8.0
	8mph	4.0	
	9mph	4.5	
	10mph	5.0	
	11mph	5.5	
	12 mph	6.0	
	13mph	6.5	
	14 mph	7.0	
	15 mph	7.5	
	≥16 mph	8.0	

Category	Criteria	Points Assigned	Points Possible Per Category
24-Hour Traffic Volume-Local Residential Street 			4.0
	500-1099	3.0	
	1100-1499	3.5	
	≥1,500	4.0	
24-Hour Traffic Volume-Residential Collector & Sub-Collector Street 			4.0
	1250-1599	2.5	
	1600-1949	3.0	
	1950-2299	3.5	
	≥2300	4.0	
Total Vehicular Crashes 	≥ 3 crashes total in past two consecutive years of most recent crash data	2.0	2.0

Appendix 4 - Application for Traffic Calming

APPLICATION FOR TRAFFIC CALMING

Please provide the name of the street to be considered (Requested Street). Indicate the boundaries of the street segment by identifying intersecting streets (From and To). Consideration will be given for only that described. Complete additional applications for other street segments.

Street Study Information	
Requested Street:	
From:	
To:	

Each request must provide a contact person who lives on the requested street within the study area boundary. The contact person will receive all correspondence and be responsible for gathering evidence of support when requested.

Contact Person Information		
Name:		
Address:	**Phone Number**	
	Home:	**Work:**
Email Address:	**Cell:**	

I understand this request will be processed according to the procedures detailed in the Residential Subdivision Traffic Calming Policy and Procedure. I agree to be the contact person for the above request.

Signature of Applicant: _____ **Date:** _____

Remit to: City of Bartlesville, Engineering Department, 401 South Johnstone Ave., Bartlesville, OK 74003

Appendix 5 - Application for Removal of Traffic Calming

APPLICATION FOR REMOVAL OF TRAFFIC CALMING

Please provide the name of the street to be considered (Requested Street). Indicate the boundaries of the street segment by identifying intersecting streets (From and To). Consideration will be given for only that described. Complete additional applications for other street segments.

Street Study Information	
Requested Street:	
From:	
To:	

Each request must provide a contact person who lives on the requested street within the study area boundary. The contact person will receive all correspondence and be responsible for gathering evidence of support when requested.

Contact Person Information		
Name:		
Address:	**Phone Number**	
	Home:	**Work:**
Email Address:	**Cell:**	

I understand this request will be processed according to the procedures detailed in the Residential Subdivision Traffic Calming Policy and Procedure. I agree to be the contact person for the above request.

Signature of Applicant: _____ **Date:** _____

Remit to: City of Bartlesville, Engineering Department, 401 South Johnstone Ave., Bartlesville, OK 74003

Appendix 6 - Verification Statement

VERIFICATION STATEMENT
Speed Hump Petition

There are a total of _____ properties adjacent to _____

between _____ and _____.

There are _____ valid signatures on the speed hump petition, which represent _____% of the properties adjacent to the street within the aforementioned section.

I verify that the signatures on the speed hump petition are valid and only one signature per household/business has been considered in the above percentage.

Signature of Contact Person: _____ **Date:** _____

Contact Person Information		
Name:		
Address:	**Phone Number**	
	Home:	**Work:**
Email Address:	**Cell:**	

Remit to: City of Bartlesville, Engineering Department, 401 South Johnstone Ave., Bartlesville, OK 74003

Appendix 7 - Endorsement Statement

ENDORSEMENT STATEMENT

Speed Hump Petition

In a meeting held on the _____ day of _____, _____, the

_____ Homeowners Association approved and endorsed the Traffic Calming

project on: _____ from _____

to_____.

The association acknowledges that because of installation of Traffic Calming Devices up to and including speed humps on the above-mentioned street, there may be an increase in traffic on nearby streets.

The contact person has confirmed that signatures on the Traffic Calming petition are valid and represent 70 percent of the households/businesses adjacent to the street within the section mentioned above.

	Neighborhood Association Officer Printed Name	Neighborhood Association Officer Signature	Date
1			
2			
3			
4			

Appendix 8 - Petition for Traffic Calming

PETITION FORM

Page _____ of _____.

Petition to modify the traffic flow on _____ between _____ and _____.

BEFORE YOU SIGN THIS PETITION, KNOW WHAT YOU ARE SIGNING! IT IS RECOMMENDED THAT YOU FIRST READ THE CITY'S *RESIDENTIAL SUBDIVISION TRAFFIC CALMING POLICY AND PROCEDURE* GUIDELINE. Note: The street mentioned above will be considered for a traffic calming device installation only if the signatures below represent **70 percent or more** of all households adjacent to the street. Only one signature from each household will be considered. All persons signing this petition do hereby certify that they reside within the area impacted by the traffic calming device.

Address	Name (Please Print)	Signature	Whether Owner or Renter	Phone Number		Ok if Installed in Front of My Residence (Please Initial)
				Home	Work	

Appendix 9 - Glossary

24-Hour Volume	The 24-hour traffic volume for both directions collected as near as practical at the midpoint of the street.
85th Percentile Speed	The speed at or below which 85 percent of all traffic is moving in both directions.
Access	Access refers to modes of transportation permitted to enter or exit an area or pass a specific location (such as with a barrier incorporating gaps to permit bicycle access), or specific movements that are permitted at an intersection (such as with an obstruction which permits right turn access only). The term is also used when describing the location of driveways and walkways providing access to a property. See *ingress and egress.*
Applicant	The applicant means the staff member or citizen requesting the traffic study and the traffic calming measure.
Application Fee	An application fee in the amount of $100.00 will be charged to the applicant prior to performing the detailed traffic study. The application fee will be credited to the applicant (to offset the local share of the measures) if the traffic calming measures are approved for installation. The fee will be refunded if traffic calming measures are not approved. The application fee is not required for Staff generated request.
Arterial Street	A major street for which the primary function is to provide for vehicle movement as defined by the Subdivision Regulations.
Channelization	The separation and direction of vehicle and pedestrian movements at an intersection into defined paths through the use of roadway features and signs.
Chicane	A series of curb extensions on alternating sides of a roadway, which narrow the roadway and require drivers to steer from one side of the roadway to the other to travel through the chicane. Typically, a series of at least three curb extensions is used.
Collector Street	A street for which vehicle movement and access are of equal importance and as defined by the Subdivision

	Regulations.
Curb Extension	A horizontal intrusion of the curb into the roadway resulting in a narrower section of roadway.
Curb Radius	The circular curved curb connecting the tangent curb sections of two intersecting streets.
Curve	A horizontal or vertical deviation in a roadway. A horizontal curve appears as a bend in the roadway, requiring motorists to turn the steering wheel. A vertical curve appears either as a "crest" or a "sag" to provide for a change in gradient.
Deflection	A vertical and/or horizontal change in the course or path of a vehicle as the result of a physical feature of a roadway. For example, a speed hump deflects the wheels, suspension, and chassis of a vehicle in a vertical deflection. A traffic circle requires that the vehicle be steered or deflected horizontally from its straight path to maneuver past the circle.
Device	A physical feature of the roadway, constructed for the purpose of affecting the movement of motor vehicles, bicycles and/or pedestrians.
Directional Closure	A curb extension or vertical barrier extending to approximately the centerline of a roadway, effectively obstructing (prohibiting) one direction of traffic.
Diverter	A raised barrier placed diagonally across an intersection, that forces traffic to turn and prevents traffic from proceeding straight through the intersection.
Egress	A way of exiting or traveling away from a location. Is used when describing which vehicle movements may be permitted at an intersection (such as with an egress-only barrier). Is also used when describing the location of driveways and walkways providing egress from a property. See *access*.
Full Closure	A barrier extending across the entire width of a roadway, which obstructs all motor vehicle traffic movements from continuing along the roadway.

Geometry	When referring to roadway design, geometry refers to the physical characteristics and dimensions of the roadway.
Guideline	A recommended practice, method or value for a specific design feature, but not a requirement. See *standard*.
Ingress	A way of entering into a location. Is used when describing which vehicle movements may be permitted at an intersection (such as ingress-only barrier). Is also used when describing the location of driveways and walkways providing ingress to a property. See *access*.
Intersection	Raised islands located in an intersection, used to obstruct specific traffic channelization movements and physically direct traffic through an intersection.
Plan	A formulated and sufficiently detailed description of how an objective or number of objectives is to be accomplished. A traffic-calming plan typically describes measures to be used, where they are to be located, in what order and at what times they will implemented, and how the costs of the measures will be funded.
Posted Speed Limits	That speed which is posted and displayed on a regulatory sign for a section or type of road, and is the maximum legal travel speed.
Raised Crosswalk	A marked pedestrian crosswalk at an intersection or mid-block location constructed at a higher elevation then the adjacent roadway.
Raised Intersection	An intersection—including crosswalks—constructed at a higher elevation than the adjacent roadways.
Raised Median	An elevated median located on the centerline of a two-way roadway to Island reduce the overall width of the adjacent travel lanes.
Raised Median Through Intersection	An elevated median located on the centerline of a two way roadway through an intersection, which prevents left turns and through movements to and from the intersection roadway.

Requested Street or Requested Street Segment	That segment of roadway requested for traffic calming consideration by an applicant.
Right-in/Right-out	A raised triangular island at an intersection approach that obstructs left Island turns and through movements to and from the intersection street or driveway.
Roadway	The reconstruction of a roadway or other transportation facility with Rehabilitation physical improvements to the existing design.
Roundabout	Similar to a traffic circle. Roundabouts are typically used on arterial and collector streets, and distinguished by yield signs and a raised median island on all approaches and in some cases, flare of the entry approach to two or more lanes. See *traffic circle*.
Rumble Strips	Raised buttons, bars or grooves closely spaced at regular intervals on the roadway that create both noise and vibration in a moving vehicle.
Self-enforcing	A traffic calming measure that does not require police enforcement in order to be effective. A speed hump is self-enforcing, for example, whereas a posted maximum legal vehicle speed is not self-enforcing.
Short-cutting	Traffic that travels through a neighborhood to bypass congestion on the arterial network or to make use of a more direct route. See *through traffic*.
Signalized	An intersection at which signals have been installed, typically to control vehicle movements on all approaches. May also describe a location that has been signalized to permit pedestrians to actuate signals that stop vehicles on an arterial street or collector street so the pedestrians may cross.
Speed Hump	A raised area of a roadway, which vertically deflects both the wheels and frame of a traversing vehicle.
Speeding	To determine whether speeding is a problem on a street during a particular time period, the 85th percentile speed of all vehicles passing during the time period is typically regarded as the representative speed. The 85th percentile speed is the speed exceeded by the fastest 15% of

	vehicles. When the 85th percentile speed exceeds the posted speed limits, this is generally considered as indicating a speed problem.
Stakeholder	An individual or organization with an interest in transportation issues in a neighborhood or specific location. Examples of stakeholders include residents associations, a chamber of commerce, a local transit agency, cycling advocates, and agency assisting disabled persons, and school boards. See *community*.
Standard	A value for a specific design feature, which practice or theory has shown to be appropriate where the prevailing circumstances are normal, and where no unusual constraints influence the design.
Streetscaping	A means of enhancing the street environment for all users of the right-of way, and a means of modifying motorist behavior, through the use of physical features which provide protection, coherence, security, convenience, community identify, way finding and orientation, aesthetic quality and interest along an urban street.
Textured Crosswalks	A crosswalk incorporating a textured and/or patterned surface that contrasts with the adjacent roadway.
Through Traffic	Traffic traveling through a neighborhood, and does not originate from, nor is destined to, a location within the neighborhood. See *local traffic* and *short-cutting*.
Timing	When referring to traffic signals, timing describes the amount of time allocated to each interval within each signal phase. For example, 25 seconds might be allocated to the green interval, followed by 4 seconds yellow interval, followed by a 1 second all red interval before the next phase begins. See *cycle* and *phase.*
Traffic Calming	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.
Traffic Circle	A raised island located in the center of an intersection, which requires vehicles to travel through the intersection in a counter-clockwise direction around the island.

Traffic Generator	A single land use generating significant amounts of single or one direction vehicle movements with either the origin or destination (exiting or entering) inside a study site.
Traffic Management	The change in traffic routing or flow within a neighborhood street system through combination of measures that alter route options.
Turn Prohibition	A regulation prohibiting a left turn or right turn at an intersection.
Unimpeded Street Length	The length of the street segment between speed impediments, i.e. stop signs, traffic signals, sharp turns, cul-de-sacs, etc.
Volume	When referring to traffic, volume is a measure of the number of vehicles traveling along a section of roadway, or those making a particular movement during a specific time period. Most often, traffic volumes are indicated as vehicles per hour during the peak hour, or vehicles per 24 hour period.