

Targeted Speed Enforcement

County Staff or NTC members can identify locations for temporary targeted enforcement, based on personal observations and survey comments. A request can be submitted to the California Highway Patrol (CHP) for the desired enforcement. Because of limited CHP resources, the duration of the targeted enforcement may be limited. Targeted enforcement may also be used in conjunction with new neighborhood traffic management devices to help drivers become aware of the new restrictions.



Approximate Cost: No direct cost.

Advantages

- Inexpensive if used temporarily
- Does not physically slow emergency vehicles or buses
- Quick implementation

Disadvantages

- Expensive to maintain an increased level of enforcement
- Effectiveness may be temporary

Radar Trailer

A radar trailer is a device that measures each approaching vehicle's speed and displays it next to the legal speed limit in clear view of the driver. They can be easily placed on a street for a limited amount of time then relocated to another street, allowing a single device to be effective in many locations.



Approximate Cost: No direct cost. (Purchase \$6,000 - \$12,000)

Advantages

- Portable
- Does not physically slow emergency vehicles or buses
- Quick implementation

Disadvantages

- Effectiveness may be temporary
- Drivers may divert to alternate streets due to uncertainty of device implications
- Subject to vandalism

Speed Feedback Signs

Speed feedback signs perform the same functions as radar trailers but are permanent. Real-time speeds are relayed to drivers and flash when speeds exceed the limit. Speed feedback signs are typically mounted on or near speed limit signs.



Approximate Cost: \$3,000 - \$10,000

Centerline/Edge Line Lane Striping

Lane striping can be used to create formal travel lanes, bicycle lanes, parking lanes, or edge lines. As a neighborhood traffic management measure, they are used to narrow the travel lanes for vehicles, thereby inducing drivers to lower their speeds. The past evidence on speed reductions is, however, inconclusive.



Approximate Cost: \$2.00 per linear foot

Advantages

- Inexpensive
- Can be used to create bicycle lanes or delineate on-street parking
- Does not slow emergency vehicles

Disadvantages

- Has not been shown to significantly reduce travel speeds
- Requires regular maintenance

Optical Speed Bars

Optical speed bars are a series of pavement markings spaced at decreasing distances. They have typically been used in construction areas to provide drivers with the impression of increased speed. They do not provide long-term speed reduction benefits.



Advantages

- Inexpensive
- Does not physically slow emergency vehicles or buses

Disadvantages

- Long-term effects in residential area unknown
- Increases regular maintenance

Approximate Cost: \$1.00 per linear foot

Signage

Various signs may also be useful in alerting driver of certain conditions. Examples include:

- "Cross Traffic Does Not Stop" Signs
- Truck Restriction Signs



Approximate Cost: \$150 - \$500 per sign



Advantages

- Inexpensive
- Truck restrictions can reduce through truck traffic
- Does not slow emergency vehicles or buses

Disadvantages

- Requires regular maintenance
- Speed limit signs are not applicable because they do not necessarily change driver behavior
- If speed limits are set unreasonably low, drivers are more likely to exceed it

Speed Limit Signage

DESCRIPTION:

Regulatory Speed Limit signs (MUTCD R2-1) are installed along streets to notify and remind drivers of the legal speed limit.

APPLICATION:

The standard speed limit on residential streets per the City of Albuquerque Code of Ordinances is 25 MPH:

Because by default, the 25 MPH speed limit applies on all residential streets, the City does not post regulatory Speed Limit signs on every such street. However, where a problem of speeding traffic has been documented, signs may be installed to remind drivers to check their speed.

Effectiveness Scorecard

	Speed	
	Volume	
	Cut-through	
	Crashes	
	Emergency Vehicle	
	Pedestrian	
	Bicycle	
	Noise	
	Cost	

Very Good Good Fair
 Poor Not Applicable

Quick Glance

SPEED LIMIT 25



Advantages

- Speed Limit signs provide a clear indication of the speed limit and undisputable basis for enforcement.
- Speed Limit signs are relatively easy and low-cost to install.
- Speed Limit signs do not slow emergency vehicles.

Disadvantages

- Signs alone do not guarantee responsible driving behavior.
- Overuse of unnecessary signs creates visual clutter that detracts from the conspicuity of other important signs and leads to loss of effectiveness.
- Posted speed limits that are below 25 MPH, below the 85th percentile speed for a roadway, or at an unrealistically low speed will not be respected by most drivers, and will breed disrespect for speed limits in general.
- Signs require regular maintenance. Signs must be replaced approximately every 8 years.



Speed Legend

Speed legends are numerals painted on the roadway indicating the current speed limit in miles per hour. They are usually placed near speed limit signposts. Speed legends can be useful in reinforcing a reduction in speed limit between one segment of a roadway and another segment. They may also be placed at major entry points into a residential area.



Approximate Cost: \$75 per location

Centerline Botts Dots

Botts dots, or "raised pavement markers," are small bumps lining the centerline or edge of a roadway. They are often used on curves where vehicles have a tendency to deviate outside of the proper lane, risking collision. Raised reflectors improve the nighttime visibility of the roadway edges.



Approximate Cost: \$4.50 per marker

Advantages

- Inexpensive
- Helps reinforce a change in speed limit
- Does not slow emergency vehicles

Disadvantages

- Has not been shown to significantly reduce travel speeds
- Requires regular maintenance

Advantages

- Inexpensive
- Does not physically slow emergency vehicles or buses
- Can help keep drivers in the appropriate travel lane on curves and under low-visibility conditions

Disadvantages

- Noise caused by Botts Dots
- Requires regular maintenance
- Has not been shown to significantly reduce travel speeds

Speed Limit Pavement Markings

DESCRIPTION:

Speed limit pavement markings are numerals applied in the traffic lane to remind drivers of the regulatory speed limit. In addition, a "SLOW" word legend may be applied with the speed legend.

APPLICATION:

Where a problem of speeding traffic has been documented, speed limit pavement markings may be installed to remind drivers to check their speed.

On residential streets, the standard speed limit is 25 MPH (see discussion on the sheet for Speed Limit Signs). On these streets,

Effectiveness Scorecard

	Speed	
	Volume	
	Cut-through	
	Crashes	
	Emergency Vehicle	
	Pedestrian	
	Bicycle	
	Noise	
	Cost	\$

Very Good Good Fair
Poor Not Applicable

Quick Glance

SPEED LIMIT 25



Advantages

- Provides a clear indication of the speed limit to drivers who are watching the road.
- Do not become obscured by street-side vegetation growth, parked trucks, or other obstructions.
- Relatively easy and low cost to install.
- Do not slow emergency vehicles.

Disadvantages

- Used alone do not guarantee responsible driving behavior.
- Used alone have not been shown to significantly reduce traffic speeds.
- Require regular maintenance. Markings must be reapplied approximately every 6 years.



High Visibility Crosswalks

High-visibility crosswalks use special marking patterns and raised reflectors to increase the visibility of a crosswalk. A "triple-four" marking pattern is created by painting two rows of four-foot wide rectangles, separated by four feet of unpainted space across the roadway. Raised reflectors are placed at the approach edges of these rectangles. The unpainted space along the center of the crosswalk provides an untreated path for wheelchair users and foot traffic, as markings may become slippery in rainy/wet conditions.



Approximate Cost: \$1,600 per location

Angled Parking

Angled parking reorients on-street parking spaces to a 45-degree angle, increasing the number of parking spaces and reducing the width of the roadway available for travel lanes. Angled parking is also easier for vehicles to maneuver into and out of than parallel parking. Consequently, it works well in areas with high parking demand and turnover rates.

Approximate Cost: Dependent on amount of parking



Education and Community Involvement

DESCRIPTION:

Educational traffic calming measures include working with neighborhoods to make residents aware of speed limits, traffic laws, and safe driving habits, and enlisting their support in practicing and promoting safe and lawful driving habits. Individual program components may include presentations at neighborhood meetings, local workshops, school programs, yard signs, neighborhood flyers or letters, and individual pledge letters to obey speed limits and traffic laws.

APPLICATION:

Public education is an important element in any traffic calming program. While most neighborhood traffic problems are perceived to be caused by "outsiders," the majority of traffic—in problem traffic—in a neighborhood is usually fellow neighborhood drivers. Public education programs seek to make all drivers more aware of their own driving behavior and the impact it has on others. As such, it is recommended that neighborhoods apply for traffic

Effectiveness Scorecard

	Speed	
	Volume	
	Cut-through	
	Crashes	
	Emergency Vehicle	
	Pedestrian	
	Bicycle	
	Noise	
	Cost	

Very Good Good Fair
Poor Not Applicable

Quick Glance

SPEED LIMIT 25

Advantages

- Heightens driver awareness of traffic laws and their own driving behaviors.
- Allows residents to meet, share their views, and move toward consensus on the issues.
- Communicates the identified issues to City staff.

Disadvantages

- May require considerable City staff time.
- Meetings need to be actively led to maintain focus.



Turn-Movement Restrictions

Turn movement restrictions involve the use of signs to prevent undesired turning movements without the use of physical devices. The restrictions may generally apply to turning movements in or out of a residential street to a larger street. The turn movement restrictions may be permanent or only during peak commute hours.

Measured Effectiveness			
Speed Reduction	Reduction in 85th Percentile Speeds between Slow Points	I/D	I/D
Volume Reduction	Reduction in Vehicles per Day	I/D	I/D
Safety Reduction	Reduction in Average Annual Number of Collisions	I/D	I/D

Note: I/D = Insufficient Data to predict reduction effect.

Approximate Cost: \$150 per sign (enforcement may be necessary to be effective)



Advantages

- Can reduce cut-through traffic at specific times of day
- Can increase safety at an intersection by prohibiting certain turning movements
- Low cost

Disadvantages

- Restrictions apply to resident and non-residents
- Requires enforcement during time of restriction to be effective
- May divert a traffic problem to another street

Parking Strategies



DESCRIPTION:

In many city neighborhoods, parking issues are just as important to the residents as traffic speeding and volume issues. While some parking treatments can themselves serve traffic calming purposes, consideration of parking issues should be made when applying any of the traffic calming tools outlined in this program. Several of the non-physical, narrowing, and horizontal measures may reduce or eliminate available parking, while others may offer opportunities to create additional parking.

APPLICATION:

As part of any assessment for implementing traffic calming, the parking issues in the neighborhood should be identified at the outset. Is the supply of parking adequate for the demand? Are there parking intrusion issues from nearby land uses? The City of Albuquerque has implemented residential permit parking on some streets around Downtown, the State Fairgrounds, and UNM to address intrusion issues. While parallel parking is the default on most neighborhood streets, streets may be converted to angled or perpendicular parking to increase available spaces.

Effectiveness Scorecard

	Speed	
	Volume	
	Cut-through	
	Crashes	
	Emergency Vehicle	
	Pedestrian	
	Bicycle	
	Noise	
	Cost	

Very Good Good Fair
 Poor Not Applicable

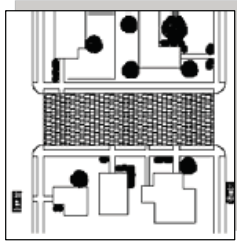
Quick Glance



Textured Pavement

Textured colored pavement includes the use of stamped pavement (asphalt) or alternate paving materials to create an uneven surface for vehicles to traverse. Textured pavement may have limited effectiveness as a standalone device and should be used to supplement other devices such as raised crosswalks or center median islands. Little data has been collected to predict the reduction in speed, traffic volumes, or collisions, and use of this device may not result in significant decreases. Resources permitting, DPW staff can collect before and after data to determine the effectiveness of textured pavement.

Approximate Cost: \$8.00 per square foot



Measured Effectiveness			
Speed Reduction	Reduction in 85th Percentile Speeds between Slow Points	I/D	I/D
Volume Reduction	Reduction in Average Daily Traffic	I/D	I/D
Safety Reduction	Reduction in Average Annual Number of Collisions	I/D	I/D

Note: I/D = Insufficient Data to predict reduction effect.



Advantages

- Can reduce vehicle speeds
- Aesthetic upgrades can have positive value
- Placed at an intersection, it can slow two streets at once

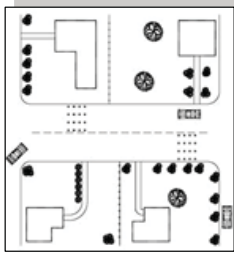
Disadvantages

- Expensive, varying by materials used
- Can be uncomfortable for bicyclists or handicapped.
- Textured pavement can increase noise to adjacent properties

Rumble Strip

Rumble strips are closely spaced pavement markers at regular intervals on the roadway that create noise and vibration to the vehicle. Rumble strips can be used to warn drivers of a change in speed limit, leading up to a residential or school area, and upcoming stop sign or intersection. Rumble strips should be used only in areas where the noise impact would be minimal. Little data has been collected to predict the reduction in speed, traffic volumes, or collisions, and use of this device may not result in significant decreases. Resources permitting, DPW staff can collect before and after data to determine the effectiveness of rumble strips.

Approximate Cost: \$500 per location



Measured Effectiveness			
Speed Reduction	Reduction in 85th Percentile Speeds between Slow Points	I/D	I/D
Volume Reduction	Reduction in Average Daily Traffic	I/D	I/D
Safety Reduction	Reduction in Average Annual Number of Collisions	I/D	I/D

Note: I/D = Insufficient Data to predict reduction effect.



Advantages

- Relatively inexpensive
- Can be effective in slowing travel speeds in specific locations

Disadvantages

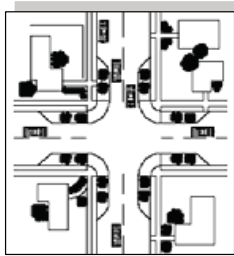
- Raised pavement markers can be slippery when wet
- Increased noise in vicinity of rumble strips
- Maintenance of raised pavement markers
- Aesthetics
- Uncomfortable for motorcyclists and bicyclists

Neckdown/Bulbout

Neckdowns/bulbouts are raised curb extensions that narrow the travel lane at intersections or midblock locations. Neckdowns/bulbouts "pedestrianize" intersections by shortening the crossing distance and decreasing the curb radii, thus reducing turning vehicle speeds. Both of these effects increase pedestrian comfort and safety at the intersection.

The magnitude of speed reduction is dependent on the spacing of neckdowns between points that require drivers to slow (see page 55). On average, neckdowns achieve a 7 percent reduction in speeds.

Approximate Cost: \$5,000 – \$10,000 per corner



Measured Effectiveness			
Speed Reduction	Reduction in 85th Percentile Speeds between Slow Points	-7%	
Volume Reduction	Reduction in Vehicles per Day	-10%	
Safety Reduction	Reduction in Average Annual Number of Collisions	I/D	

Note: I/D = Insufficient Data to predict reduction effect.
Source: Traffic Calming: State of the Practice, 2000.



RETROFIT



NEW CONSTRUCTION

Advantages

- Reduces pedestrian crossing distance and exposure to vehicles
- Through and left-turn movements are easily negotiable by large vehicles
- Creates protected on-street parking bays
- Reduces speeds (especially right-turning vehicles) and traffic volumes

Disadvantages

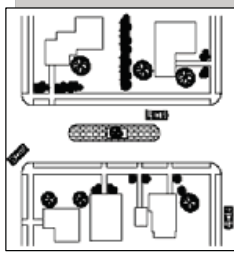
- Effectiveness is limited by the absence of vertical or horizontal deflection
- May slow right-turning emergency vehicles
- Potential loss of on-street parking
- May require bicyclists to briefly merge with vehicular traffic

Center Island Narrowing

Center island narrowings are raised islands located along the centerline of a street that narrow the travel lanes at that location. Placed at the entrance to a neighborhood, and often combined with textured pavement, they are often called "gateways." Fitted with a gap to allow pedestrians to walk through at a crosswalk, they are often called "pedestrian refuges." They can also be landscaped to increase visual aesthetics.

The magnitude of speed reduction is dependent on the spacing of center island narrowings between points that require drivers to slow (see page 55). On average, center island narrowings achieve a 7 percent reduction in speeds.

Approximate Cost: \$5,000 – \$10,000 per location



Measured Effectiveness			
Speed Reduction	Reduction in 85th Percentile Speeds between Slow Points	-7%	
Volume Reduction	Reduction in Vehicles per Day	-10%	
Safety Reduction	Reduction in Average Annual Number of Collisions	I/D	

Note: I/D = Insufficient Data to predict reduction effect.
Source: Traffic Calming: State of the Practice, 2000.



FITTED WITH PEDESTRIAN REFUGE



UPGRADED AESTHETICS

Advantages

- Can increase pedestrian safety
- Aesthetic upgrades can have positive aesthetic value
- Reduces traffic volumes if alternative routes are available

Disadvantages

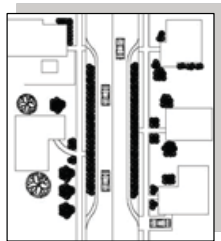
- Effect on vehicle speeds is limited by the absence of any vertical or horizontal deflection
- Potential loss of on-street parking

Two-lane choker

Chokers are curb extensions at midblock that narrow a street. Chokers leave the street cross section with two lanes that are narrower than the normal cross section.

The magnitude of speed reduction is dependent on the spacing of two-lane chokers between points that require drivers to slow (see page 55). On average two-lane chokers achieve a 7 percent reduction in speeds.

Approximate Cost: \$7,000 - \$8,000 per location



Measured Effectiveness			
Speed Reduction	Reduction in 85th Percentile Speeds between Slow Points	-7%	
Volume Reduction	Reduction in Vehicles per Day	-10%	
Safety Reduction	Reduction in Average Annual Number of Collisions	I/D	
Note: I/D = Insufficient Data to predict reduction effect. Source: Traffic Calming: State of the Practice, 2000.			



Advantages

- Easily negotiable by emergency vehicles and buses
- Can have positive aesthetic value
- Reduces both speeds and volumes

Disadvantages

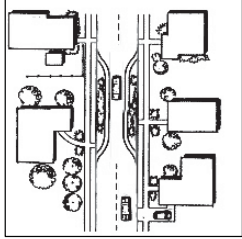
- Effect on vehicle speeds is limited by the absence of any vertical or horizontal deflection
- May require bicyclists to briefly merge with vehicular traffic
- Loss of on-street parking
- Build-up of debris in gutter

One-lane choker

One-lane chokers narrow the roadway width such that there is only enough width to allow travel in one direction at a time. They operate similarly to one-lane bridges, where cars approaching on one side must wait until all traffic in the other direction has cleared before proceeding.

The magnitude of speed reduction is dependent on the spacing of one-lane chokers between points that require drivers to slow (see page 55). On average, one-lane chokers achieve a 14 percent reduction in speeds.

Approximate Cost: \$8,000 - \$9,000 per location



Measured Effectiveness			
Speed Reduction	Reduction in 85th Percentile Speeds between Slow Points	-14%	
Volume Reduction	Reduction in Vehicles per Day	-20%	
Safety Reduction	Reduction in Average Annual Number of Collisions	I/D	
Note: I/D = Insufficient Data to predict reduction effect. Source: Traffic Calming: State of the Practice, 2000.			



Advantages

- Maintains two-way vehicle access, except at choker
- Very effective in reducing speeds and traffic volumes

Disadvantages

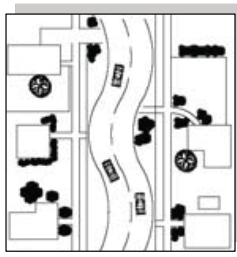
- Perceived as unsafe because opposing traffic is vying for space in a single lane
- Can be used only on low-volume, low speed roads
- Loss of on-street parking

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Chicane

Chicanes are curb extensions that alternate from one side of the street to the other, forming S-shaped curves. Chicanes can also be created by alternating on-street parking between one side of the road and the other. Each parking bay can be created either by restriping the roadway or by installing raised center islands at each end, creating a protected parking area. Chicanes have limited effectiveness in reducing traffic speeds and volumes as compared to other devices. Little data has been collected to predict the reduction in speed, traffic volumes, or collisions, and use of this device may not result in significant decreases. Resources permitting, DPW staff can collect before and after data to determine the effectiveness of chicanes.

Approximate Cost: \$8,000 - \$14,000 per location



Measured Effectiveness			
Speed Impacts	Reduction in 85th Percentile Speeds between Slow Points	I/D	I/D
Volume Impacts	Reduction in Vehicles per Day	I/D	I/D
Safety Impacts	Reduction in Average Annual Number of Collisions	I/D	I/D

Note: I/D = Insufficient data to predict reduction effect.



Advantages

- Discourages high speeds by forcing horizontal deflection
- Easily negotiable by emergency vehicles and buses

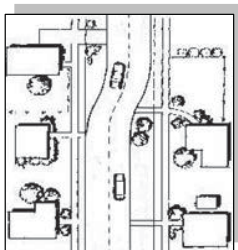
Disadvantages

- Must be designed carefully to discourage drivers from deviating out of the appropriate lane
- Curb realignment and landscaping can be costly, especially if there are drainage issues
- Loss of on-street parking

Lateral Shift

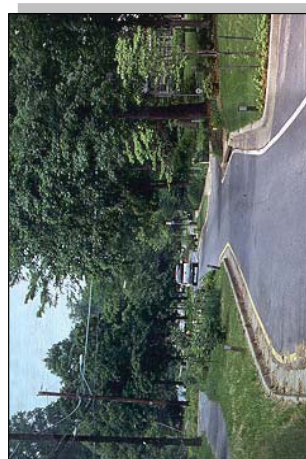
Lateral shifts are curb extensions on otherwise straight streets that cause a shift in the travel. Lateral shifts, with just the right degree of deflection, can be effective. However, lateral shifts have had limited use in the United States, and, consequently, insufficient data prevents accurate prediction of speed reduction and traffic volumes.

Approximate Cost: Dependent on size of offset and length of transition



Measured Effectiveness			
Speed Reduction	Reduction in 85th Percentile Speeds between Slow Points	I/D	I/D
Volume Reduction	Reduction in Vehicles per Day	I/D	I/D
Safety Reduction	Reduction in Average Annual Number of Collisions	I/D	I/D

Note: I/D = Insufficient Data to predict reduction effect.



Advantages

- Can accommodate higher traffic volumes than many other neighborhood traffic management measures
- Easily negotiable by large emergency vehicles and buses

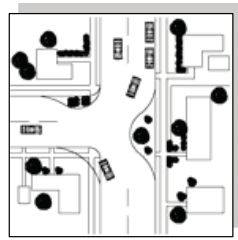
Disadvantages

- Potential for loss of on-street parking
- Must be designed carefully to discourage drivers from deviating out of the appropriate lane

Realigned Intersection

Realigned intersections provide deflection on an otherwise straight approach of a T-intersection. By providing deflection in the form of a curb extension or realignment, drivers are required to slow through the intersection or come to a stop before turning. Little data has been collected to predict the reduction in speed, traffic volumes, or collisions, and use of this device may not result in significant decreases. Resources permitting, DPW staff can collect before and after data to determine the effectiveness of realigned intersections.

Approximate Cost: \$15,000 - \$30,000 per location



Measured Effectiveness			
Speed Reduction	Reduction in 85th Percentile Speeds between Slow Points	I/D	I/D
Volume Reduction	Reduction in Vehicles per Day	I/D	I/D
Safety Reduction	Reduction in Average Annual Number of Collisions	I/D	I/D

Note: I/D = Insufficient Data to predict reduction effect.



Advantages

- Can be effective at reducing speeds at T-intersections
- Can be effective in increasing safety at T-intersections

Disadvantages

- Modifying curbs or drainage can be costly
- Acquiring additional right-of-way can be costly

Medians and Partial Medians

DESCRIPTION:

A median is a raised curb island placed at the center of a roadway. Medians are typically concrete and may include landscaping to provide additional visual enhancement. They provide physical separation between on-coming traffic lanes, narrow the travel lanes, and can create the perception of a narrower roadway. They can also act as a refuge for pedestrians in certain applications.

APPLICATION:

Medians may be used for speed reduction, turn restrictions, enhanced safety, or a mix of all three. Medians are best suited for wide residential streets with a history of high speeds to narrow the travel lanes, interrupt sight distances, and reduce pedestrian crossing distances.

Advantages

- May help reduce travel speed
- Separates opposing traffic lanes
- Shortens pedestrian crossings
- Can improve safety both for vehicles and pedestrians

Disadvantages

- Potential for increased maintenance if landscaped
- Medians are not as effective as speed humps or traffic circles in slowing speeds
- May interrupt emergency access and operations
- May interrupt driveway/side street access and result in U-turns at the end of medians
- Can create drainage issues



Effectiveness Scorecard

SPEED LIMIT 25	Speed	Volume	Cut-through	Crashes	Emergency Vehicle	Pedestrian	Bicycle	Noise	Cost

Very Good Good Fair
Poor Not Applicable

Quick Glance

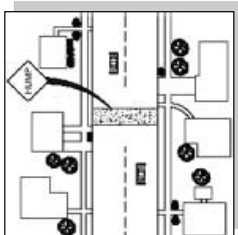
SPEED LIMIT
25

Speed Hump

Speed humps are rounded raised areas placed across the road. They are generally 12 feet long (in the direction of travel), 3 to 3 1/2 inches high, parabolic in shape, and have a design speed of 15 to 20 mph. They are usually constructed with a taper on each side to allow unimpeded drainage between the hump and curb. When placed on a street with rolled curbs or no curbs, bollards are placed at the ends of the speed hump to discourage vehicles from veering outside of the travel lane to avoid the device.

The magnitude of reduction in speed is dependent on the spacing of speed humps between points that require drivers to slow (see page 55). On average, speed humps achieve a 22 percent reduction in speeds.

Approximate Cost: \$2,000 - \$3,000 per location



Measured Effectiveness		
Speed Impacts	Reduction in 85th Percentile Speeds between Slow Points	-22%
Volume Impacts	Reduction in Average Daily Traffic	-18%
Safety Impacts	Reduction in Average Annual Number of Collisions	-13%

Source: Traffic Calming: State of the Practice, 2000.



Advantages

- Relatively inexpensive
- Relatively easy for bicyclists to cross
- Very effective in slowing travel speeds

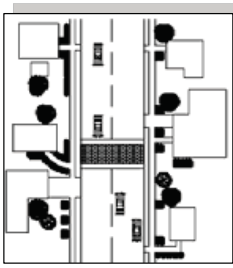
Disadvantages

- Causes a "rough ride" for drivers, and can discomfort people with certain skeletal disabilities
- Slows emergency vehicles and buses
- Aesthetics
- Signs may be unwelcome by adjacent residents
- Increased noise for nearby residents

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Speed Table

Speed tables are flat-topped speed humps approximately 22 feet long. They are typically long enough for the entire wheelbase of a passenger car to rest on top. Their long, flat fields, plus ramps that are more gently sloped than speed humps, give speed tables higher design speeds than humps, and, thus, may be more appropriate for streets with higher ambient speeds. Brick or other textured materials improve the appearance of speed tables, draw attention to them, and may enhance safety and speed reduction.



The magnitude of speed reduction is dependent on the spacing of speed tables between points that require drivers to slow (see page 55). On average, speed tables achieve an 18 percent reduction in speeds.

Approximate Cost: \$4,000 for basic treatment

Measured Effectiveness			
Speed Impacts	Reduction in 85th Percentile Speeds between Slow Points		-18%
Volume Impacts	Reduction in Vehicles per Day		-12%
Safety Impacts	Reduction in Average Annual Number of Collisions		-45%
Source: Traffic Calming: State of the Practice, 2000.			



Advantages

- Smoother on large vehicles (such as fire trucks) than speed humps
- Effective in reducing speeds, though not to the extent of speed humps

Disadvantages

- Aesthetics
- Textured materials, if used, can be expensive
- Signs may be unwelcome by adjacent residents
- Increased noise for nearby residents

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Raised Crosswalk

Raised crosswalks are speed tables striped with crosswalk markings and signage to channelize pedestrian crossings, providing pedestrians with a level street crossing. Also, by raising the level of the crossing, pedestrians are more visible to approaching motorists.

The magnitude of speed reduction is dependent on the spacing of raised crosswalks between points that require drivers to slow (see page 55). On average, raised crosswalks achieve an 18 percent reduction in speeds.

Approximate Cost: \$5,000 for basic treatment



Measured Effectiveness		
Speed Impacts	Reduction in 85th Percentile Speeds between Slow Points	-18%
Volume Impacts	Reduction in Vehicles per Day	-12%
Safety Impacts	Reduction in Average Annual Number of Collisions	-45%
Source: Traffic Calming: State of the Practice, 2000.		



Advantages

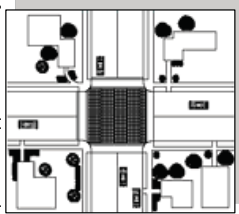
- Improve safety for both vehicles and pedestrians
- Aesthetic upgrades can have positive aesthetic value
- Effective in reducing speeds, though not to the extent of speed humps

Disadvantages

- Textured materials, if used, can be expensive
- Impact to drainage needs to be considered
- Textured pavement can increase noise to adjacent residents
- Signs may be unwelcome by adjacent residents

Raised Intersection

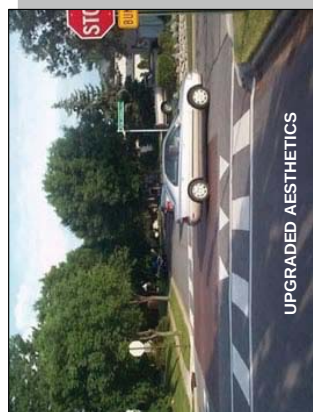
Raised intersections are flat raised areas covering entire intersections, with ramps on all approaches. They usually rise to sidewalk level, or slightly below, to provide a “lip” for the visually impaired. By modifying the level of the intersection, the crosswalks are more readily perceived by motorists to be a pedestrian area. They are particularly useful where loss of on-street parking due to other traffic calming devices is considered unacceptable. Raised intersections are ineffective at reducing traffic speeds or volumes.



Approximate Cost: Varies based on size of intersection

Measured Effectiveness			
Speed Reduction	Reduction in 85th Percentile Speeds between Slow Points	-1%	I/D
Volume Reduction	Reduction in Average Daily Traffic		
Safety Reduction	Reduction in Average Annual Number of Collisions		I/D

Note: I/D = Insufficient Data to predict reduction effect.
Source: Traffic Calming: State of the Practice, 2000.



Advantages

- Can improve safety for pedestrians and motorists
- Aesthetic upgrades can have positive aesthetic value
- Can treat two streets at once

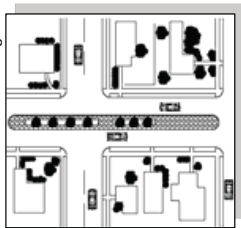
Disadvantages

- Less effective in reducing vehicle speeds than speed humps and speed tables
- Expensive, particularly as a retrofit
- Textured pavement can increase noise to adjacent residents

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Median Barrier

Median barriers are raised islands that are located along the centerline of a street and continue through an intersection so as to block through (and left-turn) movement at a cross street.



Approximate Cost: \$15,000 - \$20,000 per 100 feet (dependent on length and width)

Measured Effectiveness			
Speed Reduction	Reduction in 85th Percentile Speeds between Slow Points	I/D%	
Volume Reduction	Reduction in Vehicles per Day	-31%	
Safety Reduction	Reduction in Average Annual Number of Collisions	I/D	
Note: I/D = Insufficient Data to predict reduction effect.			
Source: Traffic Calming: State of the Practice, 2000.			



STANDARD TREATMENT



UPGRADED AESTHETICS

Advantages

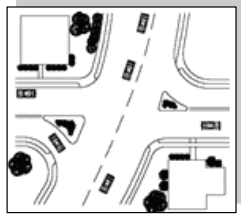
- Can improve safety at an intersection of a local street and a major street by prohibiting critical through or left-turn movements
- Can reduce traffic volumes on a cut-through route that crosses a major street

Disadvantages

- Requires available street width on the major street
- Limits turns to and from the side streets and driveways for local residents and emergency services

Forced-Turn Island

Forced turn islands are raised islands that prohibit certain movements on approaches to an intersection.



Approximate Cost: \$3,000 - \$5,000 per location

Measured Effectiveness			
Speed Reduction	Reduction in 85th Percentile Speeds between Slow Points	I/D%	
Volume Reduction	Reduction in Vehicles per Day	-31%	
Safety Reduction	Reduction in Average Annual Number of Collisions	I/D	
Note: I/D = Insufficient Data to predict reduction effect.			
Source: Traffic Calming: State of the Practice, 2000.			



STANDARD TREATMENT

Advantages

- Can improve safety at an intersection by prohibiting critical turning movements
- Reduces traffic volumes

Disadvantages

- If designed improperly, drivers can maneuver around the island to make an illegal movement
- May divert a traffic problem to a different street

Two-way Street Conversions



DESCRIPTION:

Two-way street conversions involve changing the operation of a one way street to two way traffic. One-way couplets were historically established to provide greater capacity for traffic moving into and out of downtown areas. As travel patterns have changed and urban neighborhoods have become more established many cities are converting one-way couplets into two, two-way streets.



APPLICATION:

Two-way street conversions are most appropriate in areas where long established one-way couplets are no longer needed to accommodate the peak hour traffic demand or in areas where changing the character of the street is seen to have a positive neighborhood or economic development benefit. Two-way street conversions involve the reconstruction of traffic signals, signing, and striping.

Advantages

- May reduce vehicle speed
- May improve neighborhood character
- May create economic development opportunities

Disadvantages

- Introduces more vehicle, bicycle, and pedestrian conflicts
- Reduces through traffic capacity
- May impact bicycle lanes and parking

Effectiveness Scorecard

	Speed	
	Volume	
	Cut-through	
	Crashes	
	Emergency Vehicle	
	Pedestrian	
	Bicycle	
	Noise	
	Cost	

Very Good Good Fair
Poor Not Applicable

Quick Glance



One-way Couplet Conversions



DESCRIPTION:

One-way couplets consist of a pair of parallel one-way streets that carry traffic in opposing directions. Couplets are established to provide greater capacity for automobiles particularly in areas with heavy peak directional demand. In a grid system, one-way couplets are often separated by a single city block, have fewer turning movements at intersections, and better synchronization of traffic signals.



APPLICATION:

One-way couplets are most appropriate for core urban areas with an established grid street system where the emphasis on mobility over land access is desired. Recognizing the need to maintain capacity for peak hour travel, this strategy is meant to manage rather than restrict or redirect vehicles. One-way couplets can be designed and configured to reduce the pedestrian crossing distances, establish bicycle lanes, and/or create needed on-street parking.

Effectiveness Scorecard

	Speed	
	Volume	
	Cut-through	
	Crashes	
	Emergency Vehicle	
	Pedestrian	
	Bicycle	
	Noise	
	Cost	

Very Good Good Fair
Poor Not Applicable

Quick Glance

