

# TRAFFIC CALMING TOOLBOX

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Traffic control devices are those official signs and striping placed in the public right-of-way and recognized by the public such as STOP signs, curve warning signs, centerline striping, etc. These devices have been officially approved by the Manual on Uniform Traffic Control Devices (MUTCD) as supplemented by the State of California Department of Transportation pursuant to legislative authority provided for in the California Vehicle Code.

Traffic calming measures, however, have evolved to include features that are not officially approved through legislative action by the State of California. Commonly referred to as "tools", traffic calming measures or features (e.g., tools) are available in the traffic calming "toolbox".

Each tool in the toolbox of options is unique and has a specific purpose for addressing residential street traffic concerns requiring some form of traffic calming. Tools have their limitations on effectiveness, advantages and disadvantages and a range of costs. More than just a structural feature on the street, traffic calming tools include the components of education, enforcement, engineering, and enhancement.

The following pages identify tools that are endorsed and available in the traffic calming toolbox. They were chosen for:

- appropriateness to address traffic concerns in La Mesa
- acceptability to stakeholders, including the Fire Department
- suitability for use in neighborhoods

Each traffic calming measure is briefly described, application for use is listed and the advantages and disadvantages of the tool is provided. Estimated costs have been provided where the cost of the measure was able to be determined.

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# Education

## Phase 1

### Description:

Conversations, meetings, e-mails, letters and handouts to residents regarding neighborhood traffic and pedestrian safety issues.

### Application:

Traffic education is intended to make residents aware of local residential speed limits and other neighborhood traffic and safety concerns.



### Advantages:

- Allows residents to express views and obtain answers.
- Identifies issues of concern and solutions.

### Disadvantages:

- Effectiveness may be limited.
- Potentially time consuming.
- Limited audience.

### Special Considerations:

- Meetings need to stay focused on specific traffic issues.

### Estimated Cost:

- Varies (staff time and published materials).

# Police Presence

Phase 1

## Description:

Police vehicles drive through or stop for a few minutes on residential streets to observe driver behavior.

## Application:

Police presence is used to make a visual showing in residential neighborhoods to help discourage speeding.



## Advantages:

- Shows an enforcement presence.
- May help slow vehicle speeds.

## Disadvantages:

- Presence without enforcement has limited effectiveness.
- Limited police resources.

## Special Considerations:

- Typically only effective when officer is present.
- Used on residential streets with complaints of speeding.

## Estimated Cost:

- N/A

# Radar Trailer

Phase 1

## Description:

A portable trailer equipped with a radar unit that detects and displays the speed of passing vehicles on a reader board located next to a speed limit sign.

## Application:

Radar trailers help discourage speeding along neighborhood streets by showing drivers their current speed.



## Advantages:

- Effective educational tool.
- Good public relations tool.
- Encourages speed compliance.
- Can reduce speeds temporarily.

## Disadvantages:

- Not an enforcement tool.
- Ineffective on multi-lane roadways.
- Less effective on high volume streets.

## Special Considerations:

- Can be placed where a resident indicates a speeding problem is located.
- Typically only effective in reducing speeds when radar trailer is present.
- Some motorists may speed up to try to register a high speed.

## Estimated Cost:

- Minimal.

# Police Enforcement

## Phase 1

### Description:

The Police Department deploys motorcycle or automobile officers to perform targeted enforcement on residential streets.

### Application:

Targeted police enforcement used to make drivers aware of local speed limits and to reduce speeds by issuing citations.



### Advantages:

- Effective, visible enforcement.
- Driver awareness increased.
- Can be used on short notice.
- Can reduce speeds temporarily.

### Disadvantages:

- Temporary measure.
- Requires long-term use to be effective.
- Limited police resources.

### Special Considerations:

- Typically only used on residential streets with documented speeding problems.
- Typically only effective while officer is actually monitoring speeds.
- Benefits are short-term without regular periodic enforcement.
- Expensive.

### Estimated Cost:

- N/A

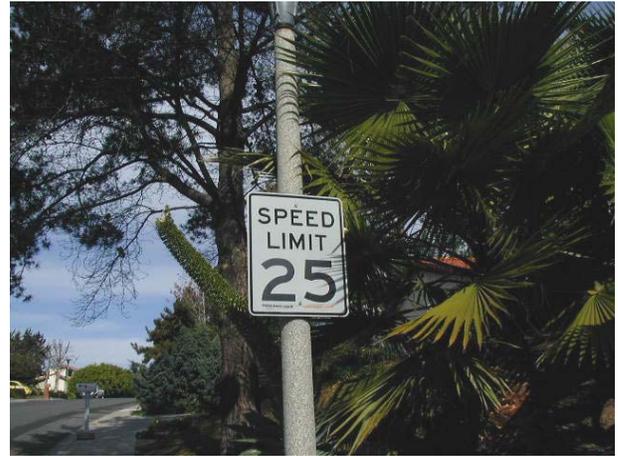
# Speed Limit Signs

Phase 1

## Description:

25 mile per hour speed limit signs are installed on neighborhood residential streets that meet the legal definition of a RESIDENCE DISTRICT.

**Application:** Speed limit signing encourages slower vehicle speeds along residential streets. Signs are only installed along streets where speeding is a problem.



## Advantages:

- Clearly indicates prima facie speed limit.
- Helps reduce speeds.
- Usually popular with residents.
- Low cost of installation.

## Disadvantages:

- Not effective by themselves.
- May add to sign clutter.
- Increased cost of sign maintenance.

## Special Considerations:

- Typically only installed on streets where speeding is a documented problem.
- Requires police enforcement to be effective.

## Estimated Cost:

- \$125 per sign.

# Speed Limit Pavement Legends

Phase 1

## **Description:**

Painting of speed limit legends on the roadway adjacent to speed limit signs.

## **Application:**

Speed limit pavement legends increase driver awareness of the speed limit to help reduce speeding.



## **Advantages:**

- Supplement to speed limit signs.
- May help reduce speeds.
- Usually popular with residents.

## **Disadvantages:**

- Not effective or legal by themselves.
- Increase in maintenance cost.

## **Special Considerations:**

- Should only be installed on streets where speeding is a documented problem.

## **Estimated Cost:**

- \$250 per legend.

# Warning Signs

Phase 1

## Description:

Standard warning signs give drivers advanced notice of roadway conditions.

## Application:

Warning signs advise motorists to reduce their speed.



## Advantages:

- Informs motorists of roadway conditions.
- Low cost of installation.

## Disadvantages:

- May add to sign clutter.
- Increased cost of sign maintenance.
- Not a regulatory sign.

## Special Considerations:

- Advisory only, cannot be enforced.

## Estimated Cost:

- \$125 per sign.

# Turn Restrictions via Signs

Phase 1

## Description:

Standard "No Left Turn", "No Right Turn", or "Do Not Enter" signs used to prevent undesired turning movements onto residential streets.

## Application:

Turn restriction signing used to reduce cut-through traffic on residential streets.



## Advantages:

- Redirects traffic to main streets.
- Reduces cut-through traffic.
- Low cost.

## Disadvantages:

- May divert traffic to other streets.
- Enforcement required.
- Adds to sign clutter.
- Violation rates can be high without enforcement.

## Special Considerations:

- Installed at entry points of a neighborhood to prevent traffic from entering.
- Has little or no effect on speeds for through vehicles.
- With active enforcement, violation rates can be reduced.

## Estimated Cost:

- \$125 per sign.

# Special Signs

Phase 1

## Description:

Special signs involve the use of neighborhood yard signs such as "KEEP KIDS ALIVE, DRIVE 25".

## Application:

Special signs may help reduce speeding on residential streets.



## Advantages:

- May increase driver awareness.
- May cause drivers to slow down.
- Popular with residents.
- Low cost of installation.
- Proactive approach to a neighborhood concern.

## Disadvantages:

- Has no lasting effect.
- Not a permanent feature.
- May create visual pollution.
- Can create a false sense of security.
- Increased cost of sign maintenance.
- Not authorized to be installed in the public right-of-way.

## Special Considerations:

- Passively reminds drivers to observe residential speed limits without confrontation.
- Residents are less likely to speed themselves if they are displaying a yard sign.
- Only used 1-2 weeks to increase neighborhood awareness.

## Estimated Cost:

- \$20 per sign.

# High Visibility Crosswalks

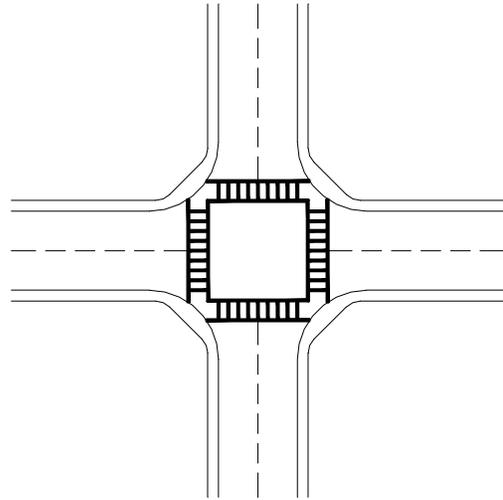
Phase 2/3

## Description:

High visibility crosswalks established by painting stripes between the crosswalk's outer boundary stripes.

## Application:

High visibility crosswalks increase crosswalk visibility to drivers.



## Advantages:

- More visible to the driver than traditional crosswalks.

## Disadvantages:

- May give false sense of security to pedestrians.
- Higher maintenance costs.
- Increase resurfacing cost.

## Special Considerations:

- Pedestrians may place too high a reliance on its ability to control driver behavior.
- Can be used at high pedestrian volume crossing locations.
- Follow City of La Mesa Crosswalk Guidelines.

## Estimated Cost:

- \$1,000 to \$5,000 each.

# Narrowing Lanes (Striping)

Phase 2/3

## Description:

Striping used to narrow traffic lanes. The "extra" pavement width can be used to create or add to bicycle and/or parking lanes.

## Application:

Narrowing lanes with striping used to help slow vehicle speeds.



## Advantages:

- Can be quickly implemented.
- May reduce travel speeds.
- May improve safety.
- Can be easily modified.

## Disadvantages:

- Increases regular maintenance.
- Not always accepted as an effective tool.
- Some residents may oppose striping on neighborhood streets.
- Increases resurfacing costs.

## Special Considerations:

- Narrowed travel lanes create "friction" to help slow vehicle speeds.
- Can be installed quickly.
- Designated bicycle lanes and/or parking lanes can be created.
- Adds centerline and edgeline striping to neighborhood streets.

## Estimated Cost:

- \$0.15 per linear foot.

# Entry Treatment

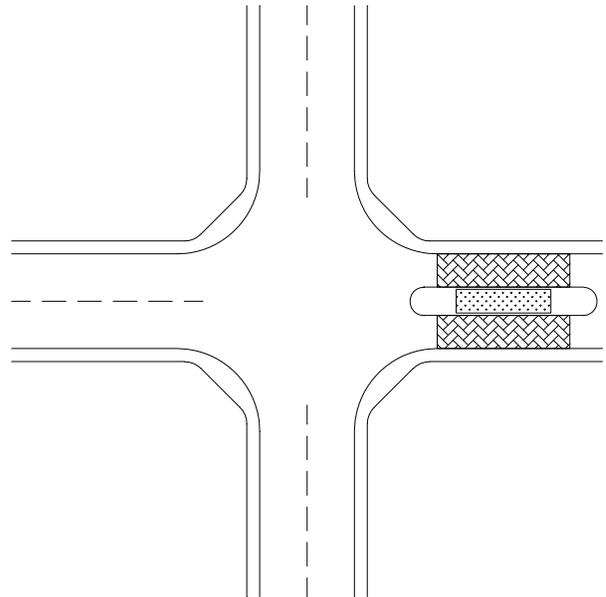
Phase 2/3

## **Description:**

Entry treatments consist of raised landscaped median islands and textured pavement features and are located at entries to neighborhoods.

## **Application:**

Entry treatments help reduce speed. They provide visual cues to drivers they are entering a residential area or that surrounding land uses are changing.



## **Advantages:**

- May reduce vehicle speeds.
- Creates an identify for the neighborhood.
- May reduce cut-through traffic.
- Opportunity for landscaping.

## **Disadvantages:**

- Increase in noise.
- May require removal of parking.
- Can impede truck movements.
- Creates physical obstruction.
- Increase in maintenance.

## **Special Considerations:**

- Entry treatments have minimal influence on drivers routine behavior.
- Overall speeds and volumes are usually only minimally affected.
- Entry treatments make drivers more aware of the neighborhood environment.
- Care should be taken not to restrict pedestrian visibility at adjacent crosswalk.

## **Estimated Cost:**

- \$10,000 to \$20,000 each.

# Traffic Circle

Phase 2/3

## Description:

Traffic circles are raised circular islands installed in an existing intersection. Traffic circles require drivers to slow down to maneuver around the circle.



## Application:

Traffic circles provide speed control.

## Advantages:

- Effectively reduces vehicle speeds.
- Reduces collision potential.
- Better side-street access.
- Opportunity for landscaping.

## Disadvantages:

- May increase bicycle/automobile conflicts.
- Can increase emergency vehicle response time.
- Can restrict large vehicle access.
- Expensive.

## Special Considerations:

- Traffic circles are best used in a series or with other devices.
- About 30 feet of curbside parking must be prohibited in advance of circle.
- Requires the installation of signs and pavement markings.
- Traffic circles are less effective at T-intersections.

## Estimated Cost:

- \$15,000 to \$25,000 each.

# Center Island Narrowing

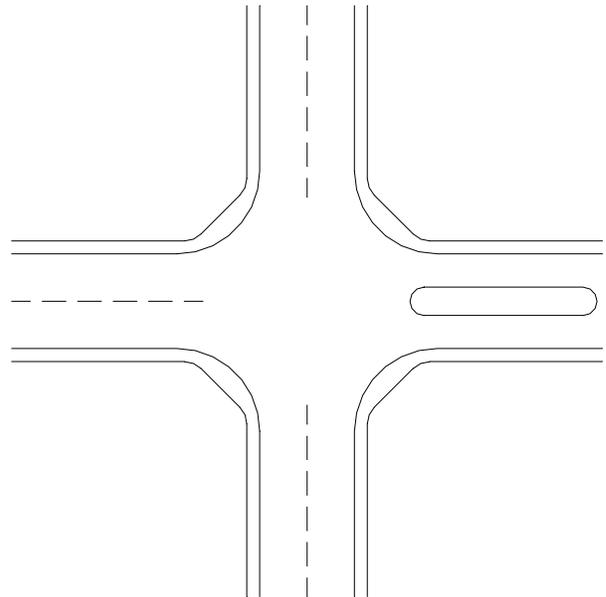
Phase 2/3

## **Description:**

Center island narrowing is the construction of a raised island in the center of a wide street.

## **Application:**

Center islands are installed on wide streets to help lower speeds and/or to prohibit left-turning movements. They also provide a mid-point refuge area for pedestrians.



## **Advantages:**

- Reduces vehicle speeds.
- Can reduce vehicle conflicts.
- Reduces pedestrian crossing width.
- Landscaping opportunity.

## **Disadvantages:**

- May require parking removal.
- May reduce driveway access.
- May impact emergency vehicles.
- May divert traffic to other streets.

## **Special Considerations:**

- When used to block side street access, may divert traffic.
- May visually enhance the street with landscaping.
- Bicyclists prefer not to have travel way narrowed.

## **Estimated Cost:**

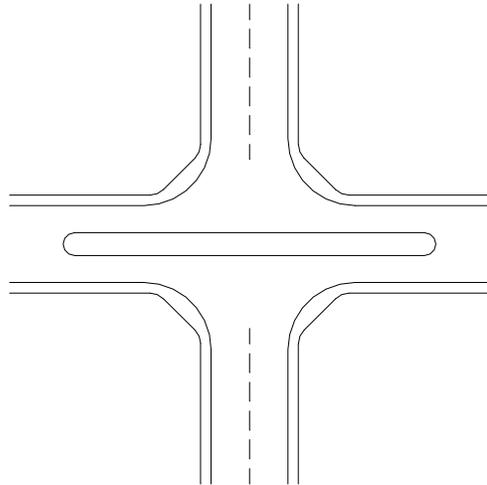
- \$10,000 to \$20,000 each.

# Median Barrier

Phase 2/3

## Description:

Median barriers are raised islands constructed through intersections that prevent left turns and side street through movements.



## Application:

Median barriers reduce cut-through traffic.

## Advantages:

- Redirects traffic to other streets.
- Reduces cut-through traffic.
- Provides pedestrian refuge area.
- Opportunity for landscaping.

## Disadvantages:

- Redirects traffic to other streets.
- Increases trip lengths.
- May impact emergency response.
- Creates physical obstruction.

## Special Considerations:

- Should not be used on critical emergency response routes.
- Landscaping needs to be carefully designed to not restrict visibility for motorists, bicyclists and pedestrians.

## Fire Department Evaluation:

This measure requires extensive evaluation of the specific location and impacts to emergency response times.

## Estimated Cost:

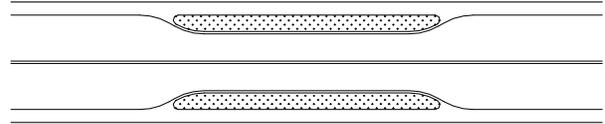
- \$10,000 to \$20,000 each.

# Mid-Block Choker

Phase 2/3

## Description:

Mid-block chokers are curb extensions that narrow a street by extending the curbs towards the center of the roadway. The remaining street cross-section consists of two narrow lanes.



## Application:

Reduces speeds by narrowing the roadway so two vehicles can pass slowly in opposite directions.

## Advantages:

- Effectively reduces vehicle speeds.
- Shorter pedestrian crossing width.
- Improves sight distance.
- Opportunity for landscaping.

## Disadvantages:

- May require parking removal.
- May create hazard for bicyclists.
- May create drainage issues.
- May impede truck movements.
- May impact driveway access.

## Special Considerations:

- Preferred by many emergency response agencies to other measures.
- Provide excellent opportunities for landscaping.

## Estimated Cost:

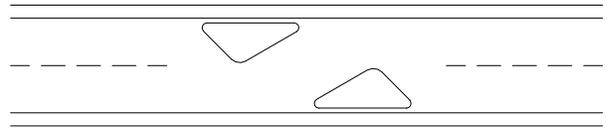
- \$10,000 each.

# Lateral Shift

Phase 2/3

## Description:

A lateral shift is the construction of curb extensions into the roadway that creates a horizontal deflection drivers must negotiate.



## Application:

A lateral shift helps reduce vehicle speeds.

## Advantages:

- Effectively reduces vehicle speeds.
- Low impact on emergency vehicles.
- Opportunity for landscaping.

## Disadvantages:

- Loss of parking.
- Increased maintenance.
- May impact driveways.
- May be expensive.

## Special Considerations:

- Most effective when traffic volumes are approximately equal in both directions.
- May increase conflicts with pedestrians and bicyclists.

## Estimated Cost:

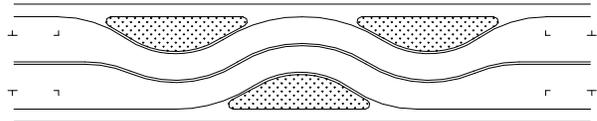
- \$10,000 to \$20,000 each.

# Chicane

Phase 2/3

## Description:

A chicane is a series of two or more staggered curb extensions on alternating sides of a roadway. The horizontal deflection causes motorists to reduce speed.



## Application:

Chicanes help reduce vehicle speeds.

## Advantages:

- Effectively reduces vehicle speeds.
- Low impact on emergency vehicles.
- Opportunity for landscaping.

## Disadvantages:

- Loss of parking.
- Increased maintenance.
- May impact driveways.
- May be expensive.

## Special Considerations:

- May require removal of substantial amounts of on-street parking.
- Most effective when traffic volumes are approximately equal in both directions.
- May increase conflicts with pedestrians and bicyclists.
- Provide landscaping opportunities.
- Most residents would have their driveways affected.

## Estimated Cost:

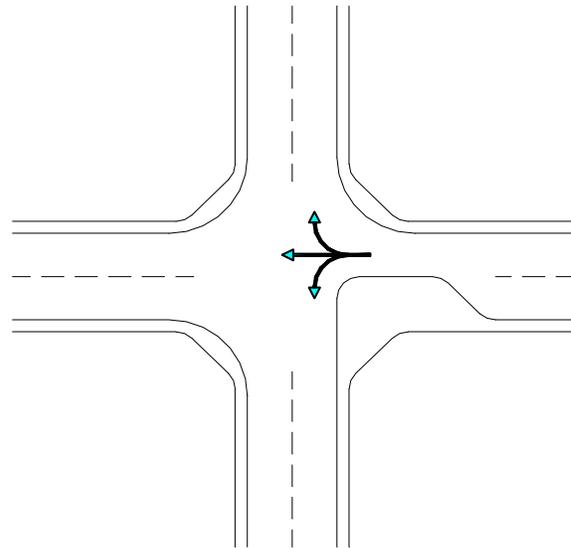
- \$30,000 to \$60,000 each.

# Semi-Diverter

Phase 2/3

## Description:

Semi-diverters are curb extensions that restrict movements into a street. They are constructed to approximately the center of the street, obstructing one direction of traffic. A one-way segment is created at the intersection, while two-way traffic is maintained for the rest of the block.



## Application:

Semi-diverters reduce traffic volume.

## Advantages:

- Reduces cut-through traffic.
- More self-enforcing than signs.
- Reduces pedestrian crossing widths.
- Opportunity for landscaping.

## Disadvantages:

- May divert traffic to other streets.
- May increase trip lengths.
- May require the removal of parking.
- Increased maintenance.

## Special Considerations:

- Restricts access into street while allowing residents access within block.
- Potential use must consider how residents will gain access.
- In emergency situations, emergency vehicles can gain access.
- May increase emergency response times.

## Fire Department Evaluation:

This measure requires extensive evaluation of the specific location and impacts to emergency response times.

## Estimated Cost:

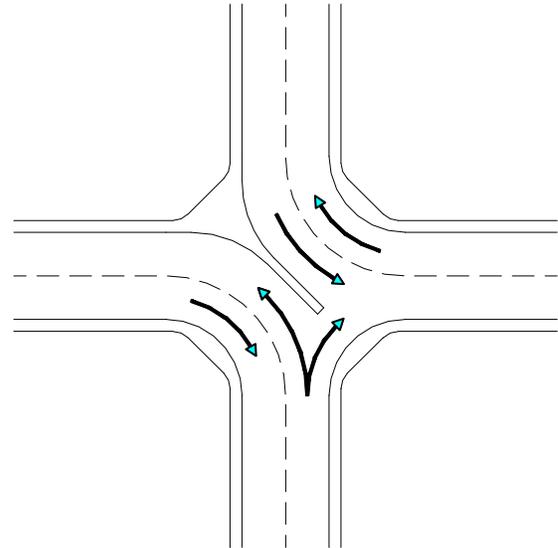
- \$15,000 to \$20,000 each.

# Partial Diverter

Phase 2/3

## Description:

Partial diverters are raised areas placed diagonally across a four-legged intersection (3/4 closure). They prohibit through movements by creating two "L" shaped intersections, with one leg having a right turn.



## Application:

Partial diverters help reduce cut-through traffic. They also minimally decrease speeds near the intersection.

## Advantages:

- Reduces cut-through traffic.
- Minimal impact to emergency access.
- Reduces collision potential.
- Opportunity for landscaping.

## Disadvantages:

- Redirects traffic to other streets.
- May increase trip lengths.

## Special Considerations:

- Problem(s) may be shifted to other streets unless a comprehensive area plan is developed.
- Less impact to circulation than a full street closure.
- Can be attractively landscaped.

## Fire Department Evaluation:

This measure requires extensive evaluation of the specific location and impacts to emergency response times.

## Estimated Cost:

- \$15,000 to \$35,000 each.

# Forced Turn Channelization

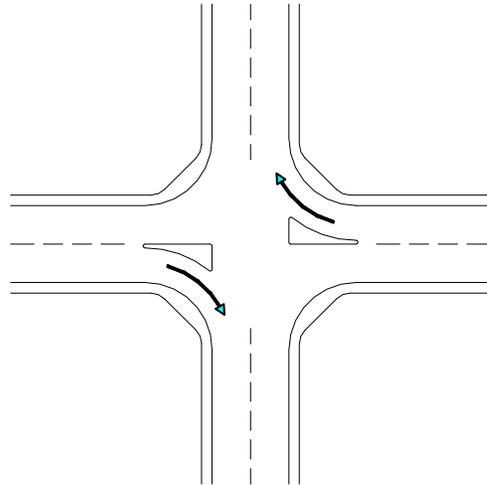
Phase 2/3

## Description:

Forced turn channelization are raised median islands that restrict specific movements at an intersection.

## Application:

Forced turn channelization reduces traffic volumes/cut-through traffic.



## Advantages:

- Reduces cut-through traffic.
- More self-enforcing than signs.
- Shorter pedestrian crossing distances.

## Disadvantages:

- May divert traffic to other streets.
- Can increase trip lengths.

## Special Considerations:

- Has little or no effect on speeds for through vehicles.
- In emergency situations, emergency vehicles can gain access.
- May increase emergency response times.

## Estimated Cost:

- \$5,000 to \$10,000 each.

# Intersection Bulb-Out

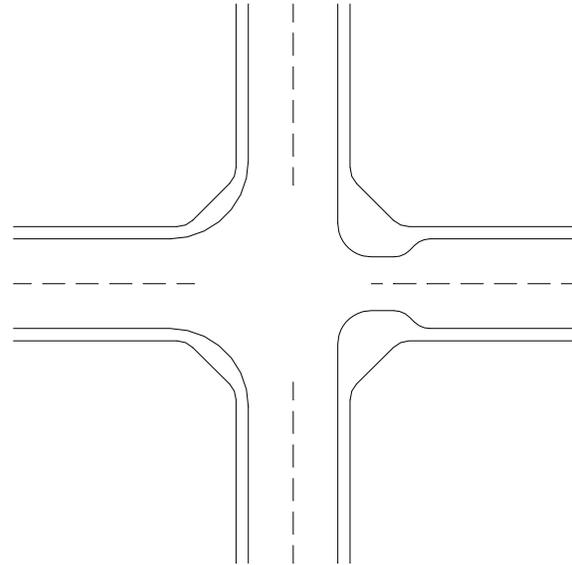
Phase 2/3

## Description:

Intersection bulb-outs narrow the street by extending the curbs toward the center of the roadway.

## Application:

Used to narrow the roadway and to create shorter pedestrian crossings. They also influence driver behavior by changing the appearance of the street.



## Advantages:

- Improve pedestrian visibility.
- Shorter pedestrian crossing width.
- May reduce vehicle speeds.
- Opportunity for landscaping.

## Disadvantages:

- May require parking removal.
- May create hazard for bicyclists.
- May create drainage issues.
- Impacts large vehicle turns.

## Special Considerations:

- Intersection bulb-outs at transit stops enhance service.
- May require landscape maintenance to preserve sight distances.

## Estimated Cost:

- \$10,000 to \$20,000 each.

# Curb Radius Reduction

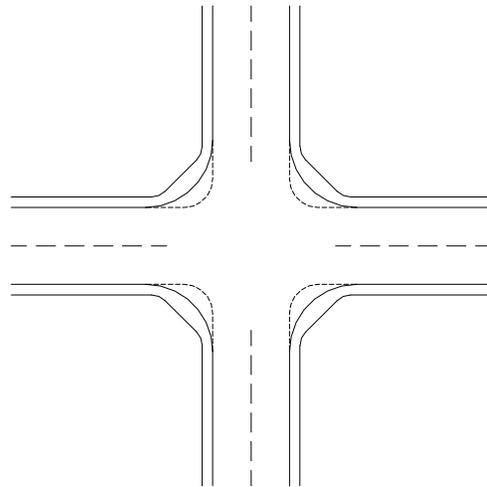
Phase 2/3

## Description:

Removal of existing larger radius curb returns at an intersection and construction of smaller radius curb returns.

## Application:

Curb radius reductions slow vehicle turning speeds and shorten pedestrian crossing distance.



## Advantages:

- Shorter pedestrian crossing width.
- Slower vehicle turning speeds.
- Opportunity for landscaping.

## Disadvantages:

- Impacts large vehicle turns.

## Special Considerations:

- Careful attention needs to be given to drainage issues and turning radii.

## Estimated Cost:

- Varies.

# Realigned Intersection

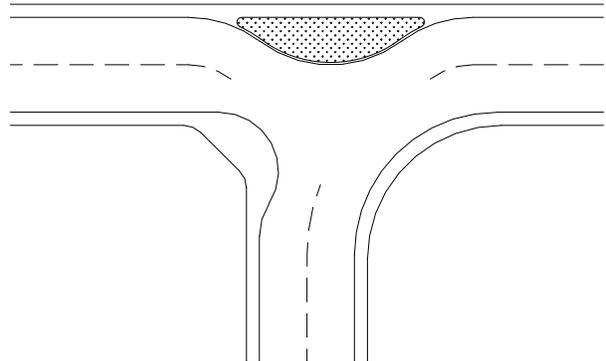
Phase 2/3

## Description:

"T" intersections are realigned/modified by constructing horizontal deflection which forces previous straight-through movements to make slower turning movements.

## Application:

Realigned intersections help reduce vehicle speeds.



## Advantages:

- Reduces vehicle speeds.
- No significant impact on emergency and transit service.
- May discourage through traffic.
- Opportunity for landscaping.

## Disadvantages:

- Removal of parking required.
- Increased maintenance.
- May divert traffic to other streets.

## Special Considerations:

- Reduces vehicle speeds near intersection.
- May change STOP sign configuration and affect emergency response times.
- Careful attention needs to be made to drainage issues.

## Estimated Cost:

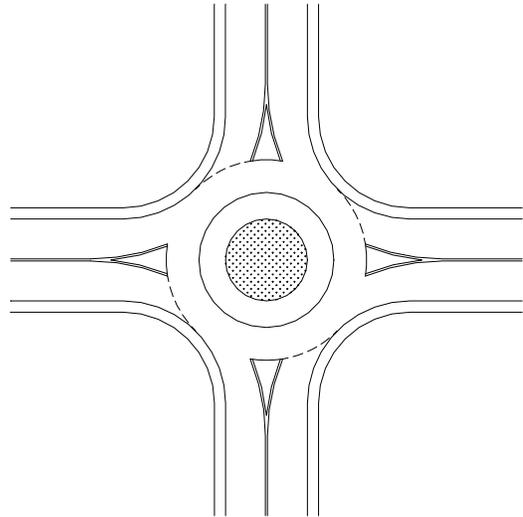
- \$10,000 to \$20,000 each.

# Roundabout

Phase 2/3

## Description:

Roundabouts are large radius raised circular islands installed at an intersection in lieu of a traffic signal or STOP sign. Roundabouts reduce vehicle speeds and delay at an intersection.



## Application:

Roundabouts reduce vehicle speeds and delay at an intersection.

## Advantages:

- Effectively reduces vehicle speeds.
- Reduces collision potential.
- Better side-street access.
- Opportunity for landscaping.

## Disadvantages:

- Parking removal required.
- May increase bicycle/automobile conflicts.
- Requires additional right-of-way.
- Expensive.

## Special Considerations:

- Retrofitting a roundabout at an existing intersection would require obtaining additional right-of-way and removal of existing curb returns.
- Curbside parking must be prohibited in advance of the roundabout.
- Requires the installation of signs and pavement markings.

## Estimated Cost:

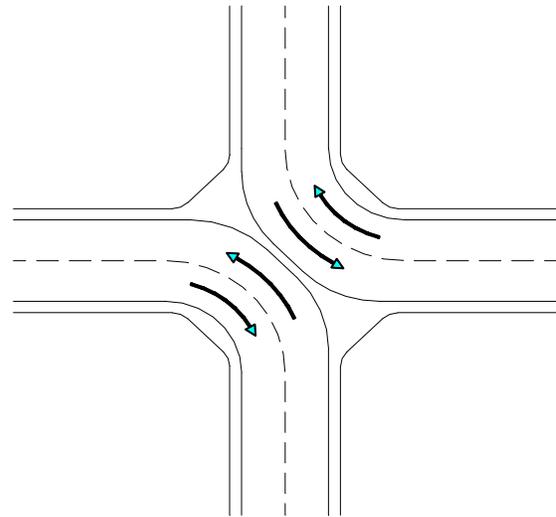
- \$50,000 to \$75,000 each (construction only/does not include right-of-way costs).

# Diagonal Diverter

Phase 2/3

## Description:

Diagonal diverters are raised areas placed diagonally across a four-legged intersection. They prohibit through movements by creating two "L" shaped intersections.



## Application:

Diagonal diverters reduce traffic volumes. They also minimally decrease speeds near the intersection.

## Advantages:

- Reduces cut-through traffic.
- Self-enforcing.
- Reduces vehicle conflicts.
- Opportunity for landscaping.

## Disadvantages:

- Increases out of direction travel.
- Increases trip lengths.
- Impedes emergency vehicles.

## Special Considerations:

- Can be designed to allow emergency vehicle access.
- Can be designed to allow pedestrian and bicycle access.
- Problem(s) may be shifted to other streets unless a comprehensive area plan is developed.
- Less impact to circulation than a full street closure.

## Fire Department Evaluation:

This measure requires extensive evaluation of the specific location and impacts to emergency response times.

## Estimated Cost:

- \$15,000 to \$35,000 each.

# Textured Pavement

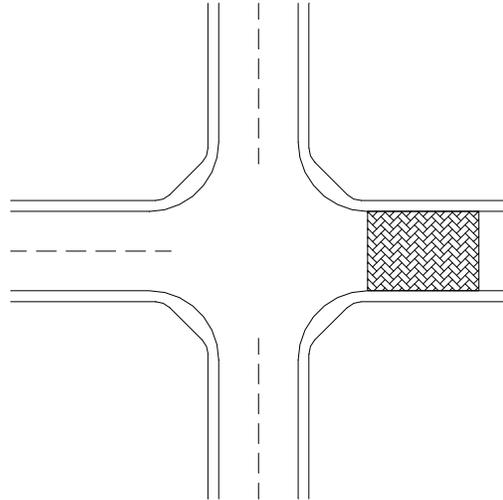
Phase 2/3

## Description:

Textured pavement is installed in the roadway typically to provide an entry statement to the neighborhood.

## Application:

Used as a visual cue for drivers to slow down.



## Advantages:

- Aesthetic/visual enhancement.
- Provides entry statement to traffic calmed area.

## Disadvantages:

- Increase in maintenance.
- Increase in noise.
- Expensive.

## Special Considerations:

- Textured pavement has minimal influence on drivers routine behavior.
- Overall speeds and volumes are usually only minimally influenced.

## Estimated Cost:

- \$7 per square foot.

# Raised Crosswalk

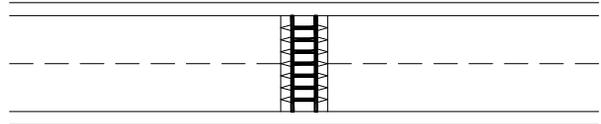
Phase 2/3

## Description:

Raised crosswalks are constructed 3 to 4 inches above the elevation of the street. They have ramps on the approaches with a flat section in the middle.

## Application:

Raised crosswalks help reduce vehicle speeds at pedestrian crossing locations.



## Advantages:

- Reduces vehicle speeds.
- Enhances pedestrian safety.
- Access not affected.

## Disadvantages:

- May increase noise.
- Drainage modifications may be required.
- Requires special signing and markings.
- Emergency response times affected.

## Special Considerations:

- Crosswalk elevation needs to be lower than the sidewalk to alert visually impaired that it is a crosswalk.
- Careful attention needs to be made to drainage issues.
- Work well in combination with curb extensions and curb radius reductions.

## Fire Department Evaluation:

This measure is least acceptable to the Fire Department and its use requires extensive evaluation of the specific location and impacts to emergency response times.

## Estimated Cost:

- \$5,000 to \$10,000 each.

# Raised Intersection

Phase 2/3

## **Description:**

A raised intersection is a flat, raised area covering an entire intersection. There are ramps on all approaches. The plateau is generally about 4" high. Typically, the raised intersection is finished with textured pavement.

## **Application:**

Raised intersections reduce vehicle speeds and provide for safer pedestrian crossings.

## **Advantages:**

- Effectively reduces vehicle speeds.
- Enhances pedestrian safety.
- Can be aesthetically pleasing.

## **Special Considerations:**

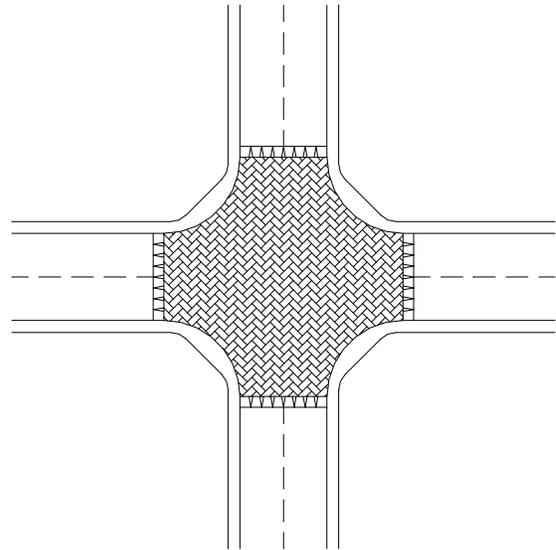
- Makes intersections more pedestrian-friendly.
- Special signing is required.

## **Fire Department Evaluation:**

This measure is least acceptable to the Fire Department and its use requires extensive evaluation of the specific location and impacts to emergency response times.

## **Estimated Cost:**

- \$35,000 to \$80,000 per intersection.



## **Disadvantages:**

- Expensive to construct and maintain.
- Requires drainage modifications.
- Affects emergency vehicle response time.
- May require bollards around corners.

# Neighborhood Signs

Phase 3

## Description:

Neighborhood signs involve the use of special signs such as "ENTERING A TRAFFIC CALMED NEIGHBORHOOD" to increase motorists awareness.

## Application:

Neighborhood signs help reduce speeding on residential streets.



## Advantages:

- May increase driver awareness.
- May cause drivers to slow down.
- Low cost of installation.

## Disadvantages:

- May have no lasting effect.
- Can create false sense of security.
- Adds to sign clutter.
- Increased cost of sign maintenance.
- Not a standard Caltrans sign.

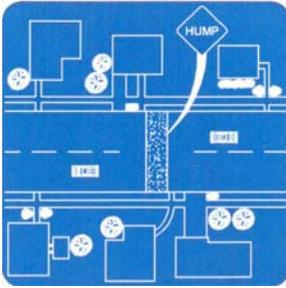
## Special Considerations:

- Installed at entry points to a neighborhood.

## Estimated Cost:

- \$125 per sign.

# Speed Humps



a.k.a. road humps, undulations

Speed humps are rounded raised areas placed across the roadway. They are generally 10 to 14 feet long (in the direction of travel), making them distinct from the shorter "speed *bumps*" found in many parking lots, and are 3 to 4 inches high. The profile of a speed hump can be circular, parabolic, or sinusoidal. They are often tapered as they reach the curb on each end to allow unimpeded drainage.

## Advantages:

- Speed Humps are relatively inexpensive;
- They are relatively easy for bicycles to cross if designed appropriately; and
- They are very effective in slowing travel speeds.

## Disadvantages:

- They cause a "rough ride" for all drivers, and can cause severe pain for people with certain skeletal disabilities;
- They force large vehicles, such as emergency vehicles and those with rigid suspensions, to travel at slower speeds;
- They may increase noise and air pollution; and
- They have questionable aesthetics.

Cost Estimates: \$2,000-2,500 (Portland, OR)

\$2,000 (Sarasota, FL)

\$2,000 (Seattle, WA)

## Effectiveness:

- For a 12-foot hump:
  - Average of 22% decrease in the 85th percentile travel speeds, or from an average of 35.0 to 27.4 miles per hour; (from a sample of 179 sites).
  - Average of 11% decrease in accidents, or from an average of 2.7 to 2.4 accidents per year (from a sample of 49 sites).
- For a 14-foot hump:
  - Average of 23% decrease in the 85th percentile travel speeds, or from an average of 33.3 to 25.6 miles per hour (from a sample of 15 sites).
  - Average of 41% decrease in accidents, or from an average of 4.4 to 2.6 accidents per year (from a sample of 5 sites).

## Similar Measures:

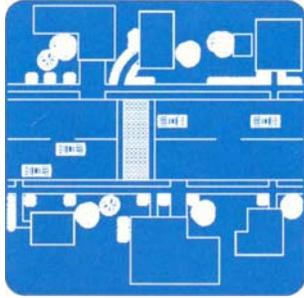
- By lengthening the hump with a flat section in the middle, you have a [Speed Table](#).
- By turning an entire crosswalk into a speed hump, you have a [Raised Crosswalk](#); and
- By raising the level of an entire intersection, you have a [Raised Intersection](#).



**Portland, OR**

This 14-foot speed hump uses a chevron marking pattern.

# Speed Tables



## a.k.a. trapezoidal humps, speed platforms

Speed tables are flat-topped speed humps often constructed with brick or other textured materials on the flat section. Speed tables are typically long enough for the entire wheelbase of a passenger car to rest on the flat section. Their long flat fields, plus ramps that are sometimes more gently sloped than [Speed Humps](#), give speed tables higher design speeds than [Speed Humps](#). The brick or other textured materials improve the appearance of speed tables, draw attention to them, and may enhance safety and speed-reduction.

Good for:

- Locations where low speeds are desired but a somewhat smooth ride is needed for larger vehicles.

Advantages:	Disadvantages:
<ul style="list-style-type: none"> <li>• They are smoother on large vehicles (such as fire trucks) than <a href="#">Speed Humps</a>; and</li> <li>• They are effective in reducing speeds, though not to the extent of <a href="#">Speed Humps</a>.</li> </ul>	<ul style="list-style-type: none"> <li>• They have questionable aesthetics, if no textured materials are used;</li> <li>• Textured materials, if used, can be expensive; and</li> <li>• They may increase noise and air pollution.</li> </ul>

Cost Estimates: \$2,000-2,500 (Portland, OR)

\$2,000 (Sarasota, FL)

\$2,000 (Seattle, WA)

Effectiveness:	Similar Measures:
<ul style="list-style-type: none"> <li>• For a 22-foot speed table:               <ul style="list-style-type: none"> <li>○ Average of 18% decrease in the 85th percentile travel speeds, or from an average of 36.7 to 30.1 miles per hour; (from a sample of 58 sites).</li> <li>○ Average of 45% decrease in accidents, or from an average of 6.7 to 3.7 accidents per year (from a sample of 8 sites).</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• By removing the flat section in the middle, you have a <a href="#">Speed Hump</a>.</li> <li>• By placing a crosswalk on the flat section, you have a <a href="#">Raised Crosswalk</a>; and</li> <li>• By raising the level of an entire intersection, you have a <a href="#">Raised Intersection</a>.</li> </ul>



### Bellevue, WA

This speed table is entirely asphalt with parabolic ramps.

### Naples, FL

This concrete speed table is combined with [Textured Pavement](#) to enhance its visibility and speed-reducing effect.



### Portland, OR

This asphalt speed table uses leading horizontal stripe markings.

### Charlotte, NC

This speed table uses stamped, colored concrete.



# Speed Cushions



## DESCRIPTION:

Speed cushions consist of 3 inch high asphalt humps. The length of the cushions is about 10 feet. The spaces between the cushions allow emergency vehicles to straddle the device.

## ADVANTAGES:

- Speed cushions reduce vehicle speed. They are more effective if used in a series at 300 – 500 foot spacing or in conjunction with other traffic calming devices.
- Can reduce vehicle volumes.
- No restrictions on on-street parking.
- Does not restrict access to residents.
- Requires minimum maintenance.
- Minimal impact to emergency response times.

## DISADVANTAGES:

- May divert traffic to parallel streets that do not have traffic calming measures.
- May increase emergency response times.
- Not aesthetically pleasing.
- Increases noise and pollution in the vicinity of the cushions.