

Development Services Department Engineering Transportation Section 300 N. Coast Highway Oceanside, CA 92054



February 2011

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### 1. INTRODUCTION

Traffic calming is the implementation of physical and visual devices along a road in order to reduce traffic speed and/or volume. According to the "U.S. Traffic Calming Manual" (Ewing and Brown, 2009), traffic calming is defined as follows:

"changes to the street alignment, installation of barriers, and other physical measures to reduce traffic speed and/or cut-through volumes, in the interest of street safety, livability and other public purposes"

In 1997, the Oceanside Neighborhood Traffic Action Program (ONTAP) was established. The program was initiated to address common neighborhood traffic concerns, including excessive speeding, traffic accidents, unfriendly pedestrian and/or bicycling environments, and cut-through traffic. These concerns often cause frustration and affect the quality of life in residential neighborhoods. After implementing the program, the City found that applying traffic calming resulted in measurable benefits to the community and has resulted in improvements to the safety and livability on local streets.



**Pacific Street** 

Over the past several years, the traffic calming program has been updated to incorporate more uniform methods of evaluating traffic calming. In addition, a growing number of residents have expressed concerns about excessive speeding, noise, and/or the risk of pedestrian-involved accidents throughout the City. In 2010, the Oceanside Neighborhood Traffic Calming Program was created to standardize the process by which City staff and residents can work together to find solutions to the unique traffic calming issues in each neighborhood.

The purpose of the traffic calming program is to identify the cause of neighborhood traffic concerns and determine feasible traffic calming solutions. In some cases, implementing traffic calming devices may not be the appropriate solution. Therefore, not all neighborhoods who request traffic calming will qualify for the program.

In general, this traffic calming program applies to local streets, as defined in the California Department of Transportation California Road System (CRS) maps. The CRS maps define the functional classification for each roadway in California and are updated annually. Typically most 25 mile per hour streets are defined as local streets in the CRS maps. CRS maps are available online at http://www.dot.ca.gov/hq/tsip/hseb/crs\_maps/. Other streets not classified as local streets are evaluated on a case-by-case basis by City staff.

## 2. TRAFFIC CALMING STEERING COMMITTEE

To update the traffic calming program, a Steering Committee comprised of City staff; local business owners; Oceanside residents; representatives from the Transportation Commission, emergency services, and the Oceanside Police Department; and the City Traffic Engineer was developed in 2009. The Steering Committee met frequently to discuss and develop the goals and processes included in this traffic calming program. The Steering Committee reviewed the advantages and disadvantages of the existing traffic calming program and its effectiveness in solving speeding and/or safety issues in residential areas. In addition, the steering committee interviewed other jurisdictions with effective traffic calming programs to determine the successes and/or failures of each program and how to update the program to best suit the needs of Oceanside's residential neighborhoods.

# 3. ROLE OF CITY STAFF IN TRAFFIC CALMING PROGRAM

The City of Oceanside's Engineering Transportation Section receives and processes numerous traffic calming requests each year. As requests are received, they will be evaluated based on the qualifying criteria identified in this manual and prioritized in accordance with the ranking criteria described in Section 6.

There is no simple solution that will address all neighborhood concerns. Identifying the appropriate solution that will be accepted by a neighborhood takes a collaborative effort on the part of the residents and the City. Several steps must be taken to ensure that the traffic calming devices selected for a neighborhood will be supported by both the residents and City staff. City staff will work with the

residents in outlining the process and establishing a timeline. The traffic calming process can take up to six (6) months to a year to complete. However, implementing the devices can take longer due to funding and the number of qualified projects received each year. In addition, traffic calming devices can be very expensive to install depending on the complexity of the plan.

### 4. TRAFFIC CALMING GOALS AND OBJECTIVES

Collectively, the Steering Committee developed both the goals and objectives of the traffic calming program. Goals for the program identify the desired outcome of the traffic calming program. Objectives identify the method by which the goals of the traffic calming program will be achieved.

#### **GOALS**

- Improve street safety, promote community character, and enhance the quality of life in Oceanside neighborhoods.
- Educate residents on the traffic calming process and make available tools that would address their concerns.
- Actively involve the community in identifying solutions that achieve desired results for their neighborhood.

### **OBJECTIVES**

- Provide a structure to clearly identify the traffic problems along a street or in a neighborhood.
- Provide a clear and concise list of tools that may be used to resolve traffic-related issues.
- Provide a structure for residents through the process of initiating traffic calming on their street or in their neighborhood.



Pacific Street near Buccaneer Beach

The goals and objectives of the traffic calming program are intended to aid in the development and implementation of a traffic calming plan.

# 5. **GUIDING PRINCIPLES**

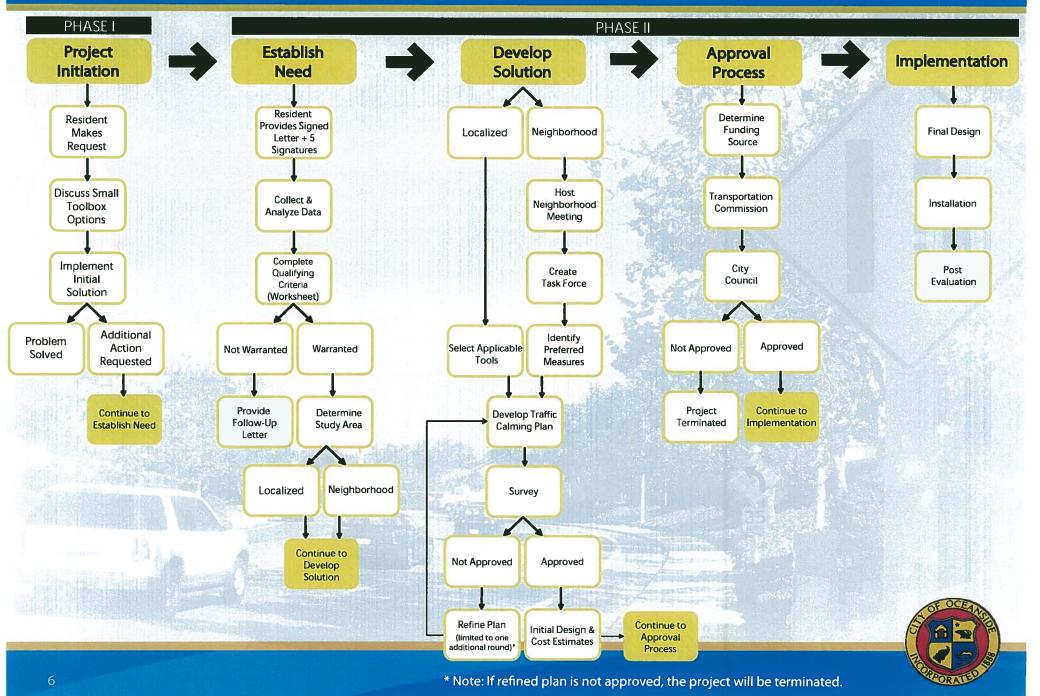
In order to achieve the desired goals and objectives of the City of Oceanside Traffic Calming Program, the following guiding principles were established. These principles represent the cornerstone of the traffic calming program:

- The traffic calming program is intended to be a collaborative process between City staff and the community. Community participation is vital to the success of a traffic calming plan and is required for all physical traffic calming installations.
- 2. The traffic calming program is intended to treat requests for traffic calming in a fair and orderly manner. Specific criteria must be met in order for a street and/or neighborhood to qualify for traffic calming.
- 3. In general, the traffic calming program is primarily for local streets as defined in the CRS maps.
- 4. The traffic calming program is intended to improve the quality of life for pedestrians, bicyclists, motorists, and residents. Traffic calming measures identified for each neighborhood or street will be selected based on the unique characteristics and traffic issues of that area.
- 5. Emergency response times may be affected by the implementation of traffic calming devices. However, a traffic calming plan should attempt to minimize impacts to emergency response times.
- 6. Traffic calming devices should be designed to minimize the diversion of substantial traffic to another street.
- 7. Traffic calming devices will be constructed within the existing available right-of-way. Removal of on-street parking may be necessary to install selected traffic calming measures. Impacts to on-street parking will be minimized and will be evaluated on a case-by-case basis.

# 6. TRAFFIC CALMING PROCESS FOR EXISTING STREETS AND ESTABLISHED NEIGHBORHOODS

For existing streets and neighborhoods, the traffic calming program consists of two phases. Phase I includes initiating the process and implementing smaller-scaled traffic calming measures. If the traffic issue persists, residents may proceed onto Phase II. In Phase II, a street or neighborhood must qualify for larger-scaled traffic calming measures based on qualifying criteria and neighborhood support. The process by which traffic calming requests are processed is summarized in Figure 1.

# City of Oceanside Neighborhood Traffic Calming Program Flowchart



### 6.1 PHASE I

### PROJECT INITIATION

To initiate the traffic calming process, a resident must contact City staff to discuss their traffic related concerns. City staff will work with the resident and assess the situation. During the Phase I process, City staff will evaluate the degree of traffic-related issues on a local street or in a neighborhood, and identify basic solutions that resolve or minimize the traffic concerns.

Phase I traffic calming (small toolbox) options include:

- Community Education on Traffic Safety City staff will meet with residents to educate the community on traffic safety on local streets or in residential neighborhoods.
- Radar Gun City staff will meet with the resident(s) and utilize a radar gun to determine if speeding is prevalent along the street. The radar gun is a helpful visual aid for residents to see how fast a motorist is actually traveling.
- Posted Signage Appropriate signage may be posted on a street or for a neighborhood.



**Radar Speed Trailer** 

- Radar Speed Trailer City staff will temporarily place a radar speed trailer
  on the street to educate and increase motorists' awareness of their
  traveling speed compared to the posted speed limit.
- Police Enforcement City staff will request police enforcement to address vehicular speeding.

Phase I traffic calming options will be explored to determine which options best suit the resident's concerns. Once the determination is made for the Phase I tool that is most appropriate, City staff will initiate the chosen option(s). Implementation of the Phase I traffic calming option(s) signifies the completion of Phase I efforts.

In many cases these simple changes will solve basic traffic issues. Recognizing that the Phase I options may not be effective for all conditions, Phase II of the traffic calming program was developed to produce more in-depth solutions if necessary.

### 6.2 PHASE II

All projects must be processed through Phase I before they can be considered for the second phase of this traffic calming program. Phase II integrates the community in the process of identifying issues and selecting the appropriate tools for their neighborhood. This phase can take several months to complete and will rely on the support of the community.

### 6.2a ESTABLISH NEED

#### INITIATE PROCESS AND QUALIFYING CRITERIA

Requirements to initiate Phase II of the program are as follows:

- Written request with signature to City staff
- Petition with five (5) additional signatures from property owners or residents along the street in the vicinity of the identified area of concern. One signature per household will be accepted.



**Downs Street** 

Once the written request and signed petition are received (see Attachment A), City staff will complete the Traffic Calming Criteria Worksheet (see Attachment B) to determine if the street meets the minimum criteria for larger-scaled traffic calming measures. At a minimum, the following criteria must be met to be considered:

- Street is classified as a local street in the California Road System (CRS) map
- Critical speed (85%) is 30 mph or higher
- Street width is 40 feet or less
- Street provides only one lane in each direction

Streets that meet these minimum requirements are eligible for Phase II of the traffic calming program.

#### LOCAL STREET AND NEIGHBORHOOD RANKING

In addition to qualifying a project for the traffic calming program, the Traffic Calming Criteria Sheet will be used to rank projects when multiple projects are considered for the program. The Ranking Criteria allocates points based on existing conditions, traffic volume, accident history, pedestrian facilities, and whether the street provides access to major pedestrian generators like schools, churches, and/or civic facilities. A total of 15 points are available in the Ranking Criteria section of the Traffic Calming Criteria Sheet (see Attachment B).

#### **STAFF EVALUATION**

City staff will analyze relevant data, such as traffic volumes, speed, and accident history to establish the extent of the study area and boundaries of the project. The study area is also determined based on access points, travel patterns, potential diversion to adjacent streets, and other factors in the surrounding neighborhood. The study area will be classified as either localized or neighborhood:

- Localized A study area is considered localized if the issues and potential solutions affect only a minimal portion of an area, such as a span of a few blocks along one street. Implementation of traffic calming tools would not affect adjacent streets, such as diversion of traffic or other externalities, in a localized study area.
- Neighborhood A study area is considered to be at the neighborhood level if the issues and potential solutions affect the surrounding area where traffic calming is needed, such as along a street that feeds into other local streets. Implementation of traffic calming devices can potentially affect adjacent streets, and the access for others who may not live on the street where traffic calming is needed, but travel along the roadway to get to or from their home.

### 6.2b DEVELOP SOLUTION

#### LOCALIZED STUDY AREA PROCESS

If the study area is determined to be localized, City staff will work with the resident who provided the request in determining and implementing applicable tools. Residents may choose to work with City staff directly or as part of a committee. Neighborhood meetings are not required in establishing a localized traffic calming plan. However, support for the traffic calming plan will be subject to the survey requirements, as described in this section.

#### **NEIGHBORHOOD STUDY AREA PROCESS**

If the study area is determined to be at a larger, neighborhood scale, the process by which traffic calming solutions are selected requires both a neighborhood meeting and formation of a Resident Task Force.

### NEIGHBORHOOD MEETING

A neighborhood meeting will be conducted at which City staff will introduce residents of the neighborhood to the traffic calming program and identify the project study area. The goal of the meeting is to solicit input from the participants regarding their concerns and ideas, and to establish a Resident Task Force.

### RESIDENT TASK FORCE

The Resident Task Force will be comprised of volunteers from the neighborhood who wish to be actively involved in establishing the traffic calming plan. The Resident Task Force is comprised of City staff and individuals who reside within the boundary of the study area and represent all areas of the neighborhood. Collectively this task force will be responsible for developing the traffic calming plan based on neighborhood concerns and ideas expressed at the neighborhood meeting. Resident Task Force meetings will be facilitated by City staff who will help identify the appropriate tools to address the traffic-related concerns of the neighborhood.

Once the Resident Task Force agrees on a traffic calming plan, it is their responsibility to communicate with their neighborhood regarding the proposed



plan. The Resident Task Force should inform and educate neighbors about the purpose of the project, existing concerns and issues, and the objective of the project to calm traffic. When requested, City staff will aid in the Resident Task Force's efforts to communicate with their neighbors by providing necessary materials for the traffic calming plan.

### NEIGHBORHOOD SUPPORT

Neighborhood support of the traffic calming plan is essential to ensure community consensus and that the proposed solutions are supported by those who may be affected by the traffic calming measures. To establish neighborhood support of the traffic calming plan, a Traffic Calming Survey will be distributed to all residences in the project study area. For a neighborhood to successfully approve a traffic calming plan, the survey criteria must be met.

#### TRAFFIC CALMING SURVEY

Once a traffic calming plan is developed and prior requirements are met, City staff will distribute a Traffic Calming Survey (see Attachment C) to all residences in the project study area. The Traffic Calming Survey consists of an introduction to the project, a summary of issues and the traffic calming process, the traffic calming plan (including descriptions of each proposed), and a map that illustrates the location of each proposed device. One survey per residence will be distributed, and one signature per household will be accepted by the City.

For a traffic calming plan to be approved, the survey criteria listed below must be met for:

#### Localized Street

- 70% of households shall be in support of the traffic calming plan
- 100% of households immediately adjacent to the proposed devices must approve the plan

### Neighborhood

- 40% of distributed surveys must be returned
- 55% of the returned surveys must be in favor of the traffic calming plan
- 100% of households immediately adjacent to the proposed devices must approve the plan

If the Traffic Calming Survey process meets all the criteria, City staff will advance the traffic calming plan and initiate conceptual design plans and cost estimates. If the neighborhood does not meet all the survey criteria, the task force is responsible for refining the traffic calming plan and City staff will redistribute the Traffic Calming Survey. The Resident Task Force may revise the traffic calming plan and reissue the Traffic Calming Survey **only once** following the initial attempt. If neighborhood consensus cannot be reached, the project will be terminated.

### 6.2c APPROVAL PROCESS

After the traffic calming plan (localized or neighborhood) demonstrates community support by meeting the survey criteria and a funding source is determined, the traffic calming plan will be sent to the Transportation Commission and City Council for approval and funding.



Skyhaven Lane and Zenith-Calavero Lane

#### **APPROVED PROJECTS**

Projects that are approved by City Council are permitted to move forward and will be implemented.

#### PROJECTS THAT ARE NOT APPROVED

If a traffic calming plan is not approved by City Council, the project will be terminated.

### **FUNDING**

Projects may be funded from a variety of sources, such as the City's traffic management budget, Capital Improvement Plan (CIP) budget, Safe Route to School grants, and other grant programs. Whether large or small, the ability of the City to implement projects in any given year may be limited by the availability of City funds for such purposes. Depending on available funds, the project may be divided into phases or placed on a waiting list for future funding.



### 6.2d IMPLEMENTATION

#### FINAL DESIGN AND INSTALLATION

Final design plans will be prepared once the traffic calming plan is approved by City Council and funding is secured. Design of traffic calming devices shall reference the standards established in the Traffic Calming Toolbox and Design Elements of the Oceanside Traffic Calming Program. Modification to design standards shall require approval by the City Engineer and the City Traffic Engineer before final design plans are completed.

If construction of all devices of the traffic calming plan cannot be funded in one phase, the traffic calming plan for a neighborhood or street could be divided into a phased plan. Phasing the traffic calming devices may help residential neighborhoods install devices in the areas of greatest need first when resources to fund the improvements are limited. By implementing the traffic calming devices in phases, improvements in traffic conditions can be monitored to determine the benefits associated with the implementation. Results of the monitoring can also be used to determine when the other devices of the plan should be installed to further improve the conditions.

#### POST EVALUATION OF TRAFFIC CALMING DEVICE INSTALLATION

A component of a successful plan is the evaluation and monitoring of prior traffic conditions versus the results of post traffic calming device installation. Follow-up studies will be conducted to evaluate the measures of a project's success. This information can be used to determine whether the neighborhood's desired outcome has been achieved and to what degree. Follow-up studies will also be used to determine if the traffic problem has shifted to other neighborhood streets.

When applicable, methods by which follow up studies should be conducted include:

- Speed Surveys
- Traffic Volume Study
- Diversion Study

City staff will present the results of the before and after studies to the Transportation Commission and/or the City Council as deemed necessary. This process will help ensure effectiveness towards improving and maintaining the traffic calming program for future use.

### 7. TRAFFIC CALMING IN NEW DEVELOPMENTS

In most cases traffic calming is implemented to address traffic problems that arise due to the design and operations of an existing road or roadway network. If traffic calming is integrated into the planning of new developments, potential issues such as excessive vehicular speeding, and/or pedestrian conflicts can be mitigated in the early stages of design and planning. This can also lead to cost savings to the broader community and the City as a whole. Also integrating traffic calming into the design of new developments can provide opportunities to integrate landscape, storm water management, and other features into the design for the neighborhoods.

Various factors can be reviewed in determining whether traffic calming should be integrated into the design of a new development such as the local street's anticipated vehicular volume, vehicular speeds, street layout, existing conditions surrounding the new development, and engineering judgment. In considering on whether traffic calming should be integrated into a new development will mainly be at the discretion of the Planning and Engineering Divisions.

Guidelines that staff may use in determining if there is a necessity for traffic calming on local streets is as follows:

- Traffic Speeds Identify street design features that could lead to potential excessive vehicular speeding and may need traffic calming integrated into design of new development:
  - Street with unimpeded block lengths greater than 600 feet
  - Roadway grade
  - Potential pedestrian and vehicle conflicts due to pedestrian generators such as schools, parks, and community centers

# City of Oceanside Neighborhood Traffic Calming Program

- Width of street such as:
  - o 36 40 feet curb to curb with parking on both sides
  - o 32 feet curb to curb with parking on one side
  - o 28 feet curb to curb when no on-street parking is provided
- Bike activity
- Contiguous vs. noncontiguous sidewalks
- Street Layout: Review layout of new development (and surrounding existing neighborhoods) to determine if there is potential for cut-through traffic.
- Existing Adjacent Neighborhoods:
  - Review surrounding neighborhoods for existing traffic calming devices and how that might affect the new development
  - Review surrounding neighborhoods to determine if existing neighborhoods need traffic calming

Where feasible, traffic calming features should integrate storm water best management practices (BMP) to reduce urban run-off. Bio retention, drainage swales and other BMP features should be used to reclaim storm water for purposes of irrigating landscape in traffic calming features. Where feasible these features should be integrated into all new development design.

When deemed appropriate, City staff and the developer will meet to identify a mutually acceptable neighborhood traffic calming plan which can then be incorporated into the design of the new development. This is an opportunity for City staff to be proactive in addressing potential neighborhood traffic concerns.

## 8. **STOP SIGNS**

Stop signs are defined in the California Manual for Uniform Traffic Control Devices (CA MUTCD) as a traffic control device. As such, the purpose of a stop sign is to clearly identify the right-of-way at an intersection. Therefore, stop signs are not appropriate as a traffic calming measure. Stop signs are ineffective in reducing mid-block vehicular speeds. Also, increased noise and air pollution emissions occur at the stop sign location due to vehicle braking and acceleration patterns.

### 9. LANDSCAPING

Although it may be possible to integrate landscape in some traffic calming devices, landscaping will not be funded through the Oceanside Traffic Calming Program. Providing landscaping within an approved traffic calming device, such as a median or choker, may be considered on a case-by-case basis. However, in most installations, traffic calming will be installed without landscape. Neighborhoods interested in landscape will need to demonstrate the ability to provide funding for planting, irrigation, and maintenance. Landscaping for traffic calming devices must abide by the guidelines outlined in the City of Oceanside's Landscape Development Manual and other applicable design standards.

# 10. REMOVAL PROCESS FOR TRAFFIC CALMING DEVICE(S)

For new installations, requests for device removal will not be considered until 12 months following the installation of the device. This will allow City staff and residents to adequately evaluate the effectiveness of the devices.

Individuals in a neighborhood or on a street may determine that traffic calming devices should be removed or modified. If this occurs, the resident must submit a written request to initiate the removal process.

Once a request for removal of traffic calming devices has been submitted to City staff, a petition will be provided to the resident by staff which the resident will be required to circulate (see Attachment D). To demonstrate support for the removal of the device(s), 80% of the residences that live on the street with the device(s) must sign the petition. One signature per household will be accepted and all signatures will be verified by City staff.

When the petition requirements have been fulfilled, City staff has evaluated the circumstances, and funding has been allocated, then the request to remove the traffic calming device(s) will be sent to the Transportation Commission and City Council for consideration and approval.



# City of Oceanside Neighborhood Traffic Calming Program

Once the traffic calming devices are removed, it is possible that traffic speeds or volumes may increase. Consideration for future traffic calming along such streets will be subject to engineering judgment and will be determined on a case-by-case basis. If a traffic calming device is to be reinstalled on the street, it will be the residents' responsibility to fund the future devices.

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### TRAFFIC CALMING TOOLBOX - FAST FACTS

	1	licable			cable		Impacts to				ja:		
	Local Street	Collector Street	Arterial Street	Reducing Traffic Speed	Reducing Traffic Volume	Noise	Access	Bicycles	Transit	Parking	Emergency Response	Cost Range <sup>1</sup>	Page
Initial Tools (Phase I) Tools n	ot show	wn											
Education	•	•	•	•			=			_		\$	N/A
Radar Gun	•	•	•									\$	N/A
Signage	•	•	•	•								\$	N/A
Radar Speed Trailer	•	•	•	•						Р		\$	N/A
Enforcement	•	•	•	•								\$	N/A
Speed Control Measures (I	hase	II)											
Signing & Striping	•	•	•	•				Р				\$	22
Diagonal Parking		•	Р	•				•		•		\$	24
Speed Humps	•	Р		•	Р	•					•	\$	26
Speed Lumps	•	Р		•	Р	•						\$	28
Bulb Outs/Curb Extensions	•	•	•	•				Р	•	Р		\$\$	30
Center Island/Median	•	•	•	•			Р			Р		\$\$	32
Radar Feedback Sign	•	•	•	•								\$\$\$	34
Choker	•	•		•				Р	Р	•		\$\$\$	36
Chicane	•	•		•				Р	•	•		\$\$\$	38
Traffic Circle	•	•		•				Р	Р	Р		\$\$\$	40
Lateral Shift	•	•		•				Р		•		\$\$\$	42
Raised Crosswalk	•	•		•	Р	•				Р	•	\$\$\$	44
Raised Intersection	•	•		•	Р	•					•	\$\$\$\$	46
Roundabout	•	•	•	•				Р	Р	•		\$\$\$\$	48
Volume Control Measures	(Phase	e II)											
Turn Restrictions	•	•	•		•		•	Р	•			\$	50
Forced Turn Island	•				•		•	Р	•	Р		\$	52
Half Street Closure	•	Р			•		•		•			\$\$\$	54
Full Street Closure	•				•		•	Р	•		•	\$\$\$	56
Median Barricade	•	•	•		•		•	Р	•		Р	\$\$\$	58
Diagonal Diverter	•	Р	P = Pos	Р	•		•	Р	•		•	\$\$\$\$	60

P = Possible

¹Cost Range:

(\$) Less than \$5,000 (\$\$) \$5,000 - \$10,000 (\$\$\$) \$10,000 - \$50,000 (\$\$\$) Greater than \$50,000 This page intentionally left blank.

# Traffic Calming Toolbox and Design Elements (Phase II)

# Signing & Striping

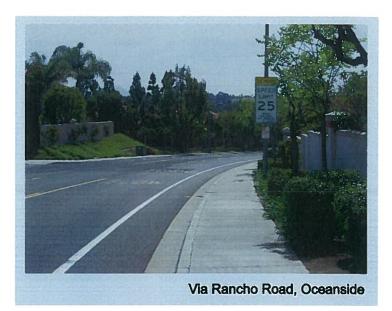
(\$1.50 per linear foot)

## **Description & Purpose**

Signage, which may include regulatory and/or warning signs, can aid in increasing drivers' awareness of existing street conditions.

Striping a roadway helps define the travel lane for motorists and sometimes provides designated bike lanes or parking lanes. Striping a roadway can also visually narrow the width of the street.

Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	Yes
Reduces Speed	Yes
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Possible
Transit Impact	No
Parking Impact	No
Emergency Response Impact	No



Local Street

| 8' | 10' MIN. | 10' MIN. | 8' |
| PARKING TRAVEL LANE LANE LANE LANE LANE LANE |

### **Advantages**

- Increases motorist awareness of street conditions
- Can be easily modified
- Low cost
- No affect on emergency vehicles

# **Disadvantages**

- Temporary reduction in speeds
- Increases regular maintenance



# Signing & Striping

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# **Diagonal Parking**

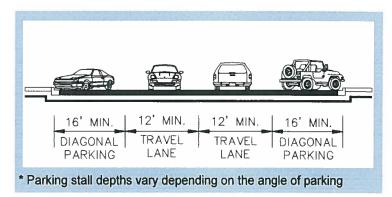
(\$8 per stall)

## **Description & Purpose**

Diagonal parking is used to increase the supply of available on-street parking spaces. Installing angle parking requires the travel lanes to be narrowed, which generally results in slower speeds as motorists anticipate vehicles pulling out of the parking spaces.

Fast Facts:					
Can be used on Local Street	No				
Can be used on Collector	Yes				
Can be used on Arterial	Possible				
Reduces Speed	Yes				
Reduces Volume	No				
Noise Impact	No				
Restricts Access	No				
Bicyclist Impact	Yes				
Transit Impact	No				
Parking Impact	Yes				
Emergency Response Impact	No				
Emergency Response impact	INO				





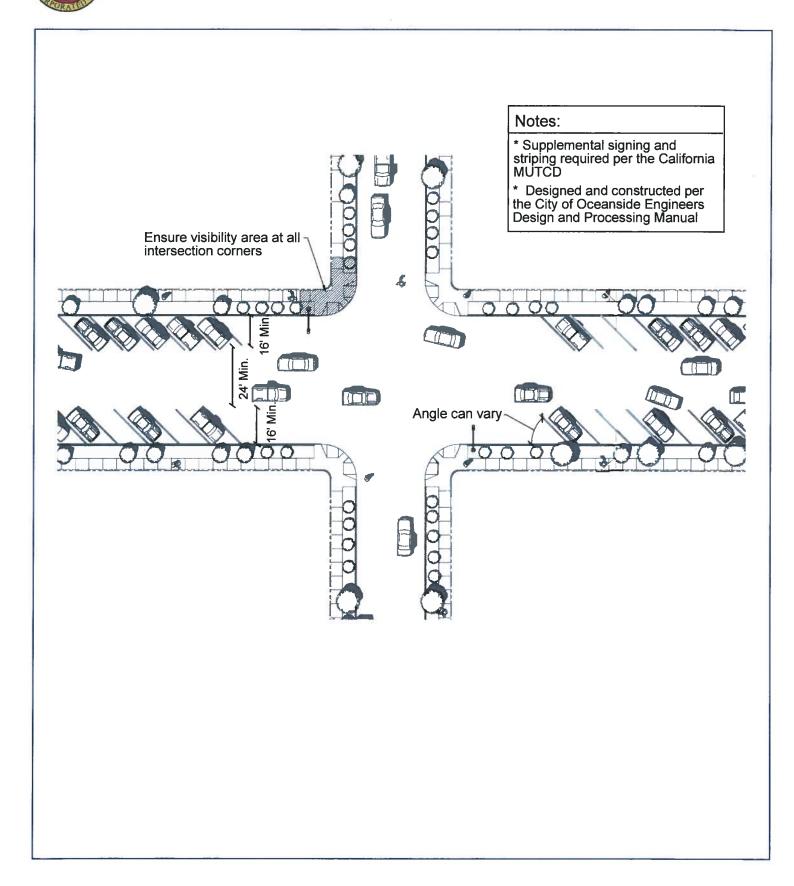
## **Advantages**

- Effective in reducing speeds
- No impact to emergency response times
- Provides additional parking spaces

# Disadvantages

- Increases regular maintenance
- Must meet street width requirements
- Impact to bicyclists

# **Diagonal Parking**





# Speed Humps

(\$3,000 to \$5,000)

## **Description & Purpose**

Speed humps are rounded, tapered raised areas placed across a roadway to reduce speeds. Speed humps are supplemented with appropriate striping and signage to adequately inform motorists of the traffic calming device.

Fast Facts:				
Can be used on Local Street	Yes			
Can be used on Collector	Possible			
Can be used on Arterial	No			
Reduces Speed	Yes			
Reduces Volume	Possible			
Noise Impact	Yes			
Restricts Access	No			
Bicyclist Impact	No			
Transit Impact	No			
Parking Impact	No			
Emergency Response Impact	Yes			



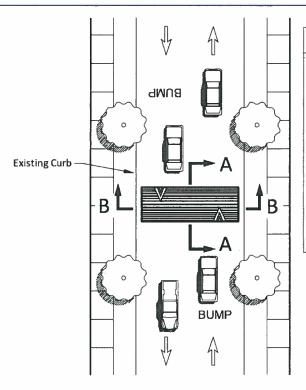
# **Advantages**

• Effective in reducing speeds

# Disadvantages

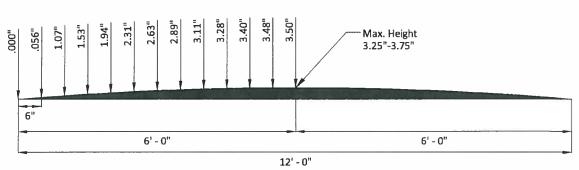
- Impacts emergency response times
- Increases regular maintenance

# **Speed Humps**

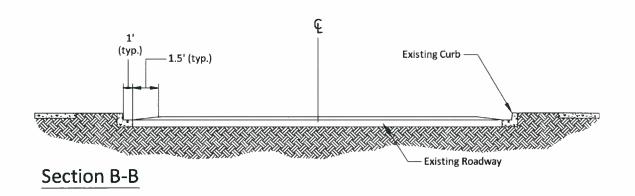


### Notes:

- \* Supplemental signing and striping required per the California MUTCD
- \* Designed and constructed per the City of Oceanside Engineers Design and Processing Manual
- \* Drainage requirements must be evaluated and addressed
- Begin speed humps at the edge of the gutter; if no gutter exists begin the speed humps 1' from the curb face



### Section A-A





# Speed Lumps

(\$4,000 to \$6,000)

## **Description & Purpose**

Speed lumps are similar to speed humps in that they are rounded, tapered raised areas placed across a roadway to reduce speeds. However, speed lumps are designed to allow emergency vehicles to travel along a roadway with minimal impact to response times. Speed lumps are supplemented with appropriate striping and signage to adequately inform motorists of the traffic calming device.

Fast Facts:					
Can be used on Local Street	Yes				
Can be used on Collector	Possible				
Can be used on Arterial	No				
Reduces Speed	Yes				
Reduces Volume	Possible				
Noise Impact	Yes				
Restricts Access	No				
Bicyclist Impact	No				
Transit Impact	No				
Parking Impact	No				
Emergency Response Impact	No				



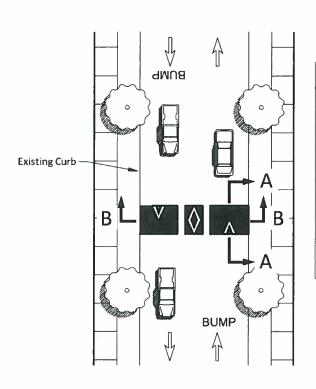
# **Advantages**

- Effective in reducing speeds
- Minimal impact to emergency response times

## Disadvantages

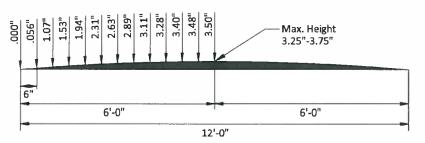
• Increases regular maintenance

# **Speed Lumps**

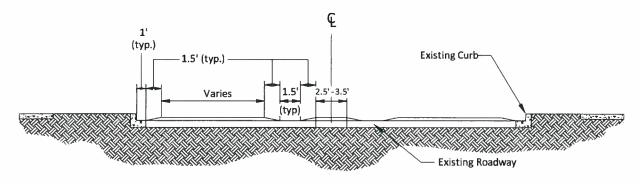


### Notes:

- \* Supplemental signing and striping required per the California MUTCD
- Designed and constructed per the City of Oceanside Engineers Design and Processing Manual
- \* Drainage requirements must be evaluated and addressed
- Begin speed lumps at the edge of the gutter; if no gutter exists begin the speed lumps 1' from the curb face



## Section A-A



Section B-B



# **Bulb Outs/ Curb Extensions**

(\$5,000 to \$15,000 per corner)

## **Description & Purpose**

Bulb outs, also referred to as curb extensions, narrow the roadway at the corners of an intersection by extending the curb into the parking lane or shoulder. Bulb outs narrow the width of the road which can reduce motorists' speeds as they travel through the intersection, particularly when turning. These devices reduce the pedestrian crossing distance and improve motorists' visibility of pedestrians. Bulb outs may be installed at an intersection or mid-block. Bulb outs placed mid-block are also known as Chokers.



Yes
Yes
Yes
Yes
No
No
No
Possible
Yes
Possible

### **Advantages**

**Fast Facts**:

- Effective in reducing turning speeds
- Shortens pedestrian crossing distance
- Improves visibility of pedestrians

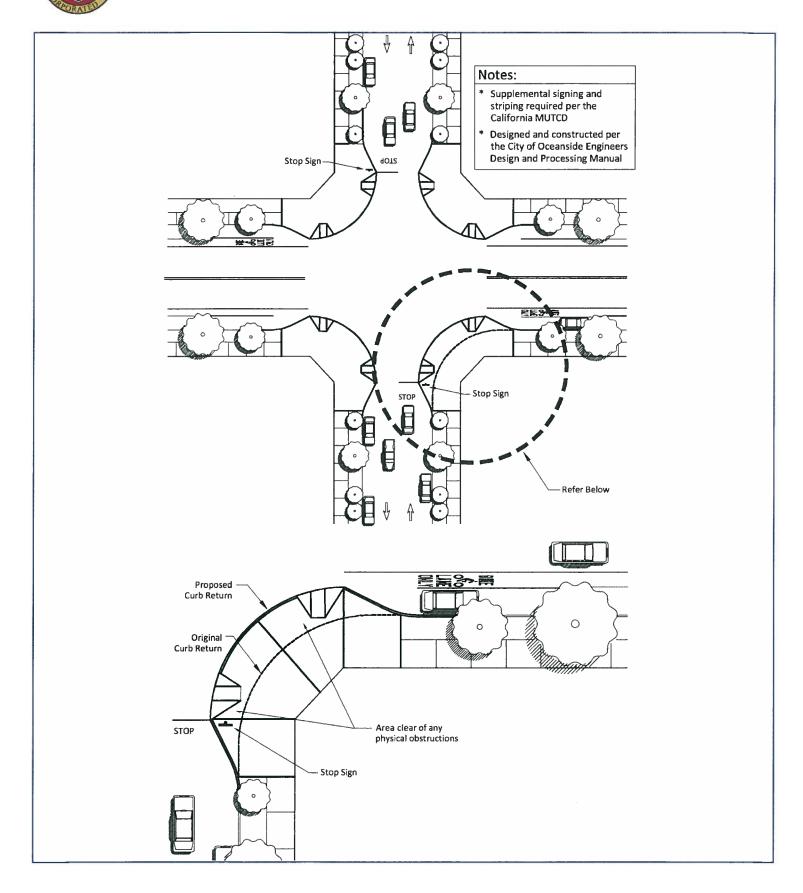
**Emergency Response Impact** 

# Disadvantages

- Increases regular maintenance
- May affect larger vehicle turning radius

No

# **Bulb Outs/ Curb Extensions**



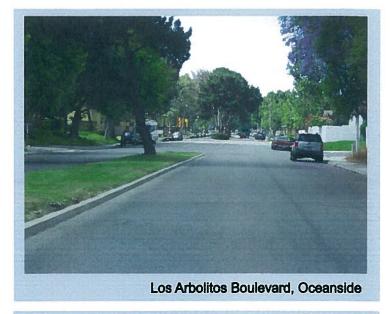
# **Center Island/Median**

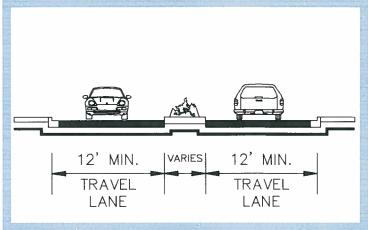
(\$5,000 to \$7,000)

# **Description & Purpose**

Center islands are raised medians placed between two directions of traffic, often within a center turn lane. Center islands are installed to narrow the width of the road which can reduce motorists' speeds as they travel through the area. Center islands are useful in reducing potential conflicting turning movements.

Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	Yes
Reduces Speed	Yes
Reduces Volume	No
Noise Impact	No
Restricts Access	Possible
Bicyclist Impact	No
Transit Impact	No
Parking Impact	Possible
Emergency Response Impact	No
Emergency Response Impact	No





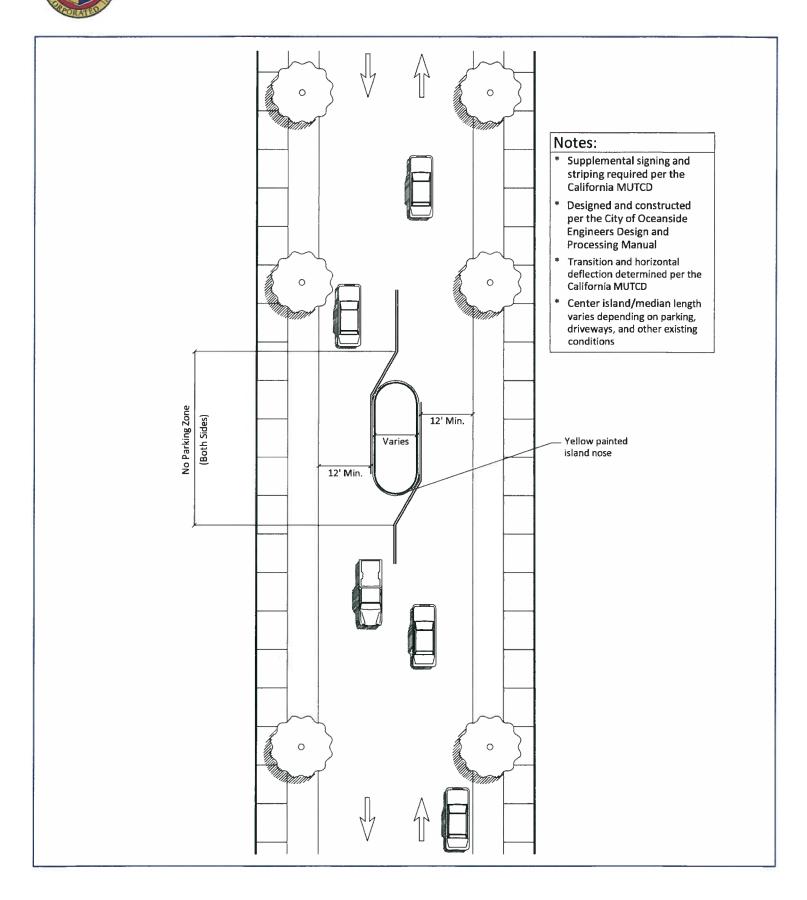
### **Advantages**

- Eliminates turning or passing conflicts
- Narrows road
- Provides buffer between opposing traffic

### **Disadvantages**

- Increases regular maintenance
- May require loss of parking spaces

# **Center Island/Median**





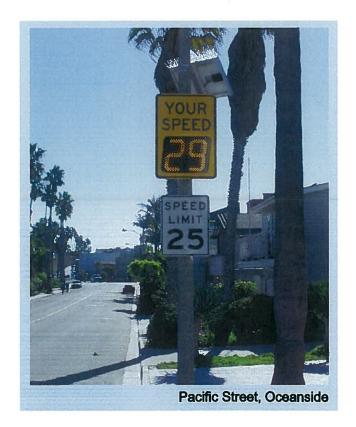
## Radar Feedback Sign

(\$10,000 to \$15,000)

#### **Description & Purpose**

Radar feedback signs display the speed of oncoming vehicles, thereby increasing drivers' awareness of the speed they are traveling at versus the posted speed limit. Speed limit signs are posted as a supplement to the radar feedback sign.

Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	Yes
Reduces Speed	Yes
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	No
Transit Impact	No
Parking Impact	No
Emergency Response Impact	No



#### **Advantages**

- Increases driver awareness of the posted speed limit
- Can be installed on an existing street light pole

#### Disadvantages

• May lose effectiveness over time



## Radar Feedback Sign

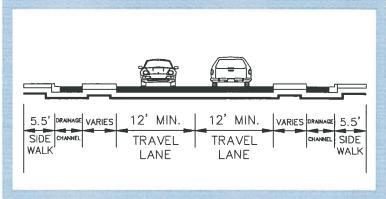
(\$12,000 - \$15,000)

### **Description & Purpose**

A choker is a pair of mid-block curb extensions that narrow the width of the travel way, thereby reducing motorists' speed.

Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	Yes
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Possible
Transit Impact	Possible
Parking Impact	Yes
Emergency Response Impact	No





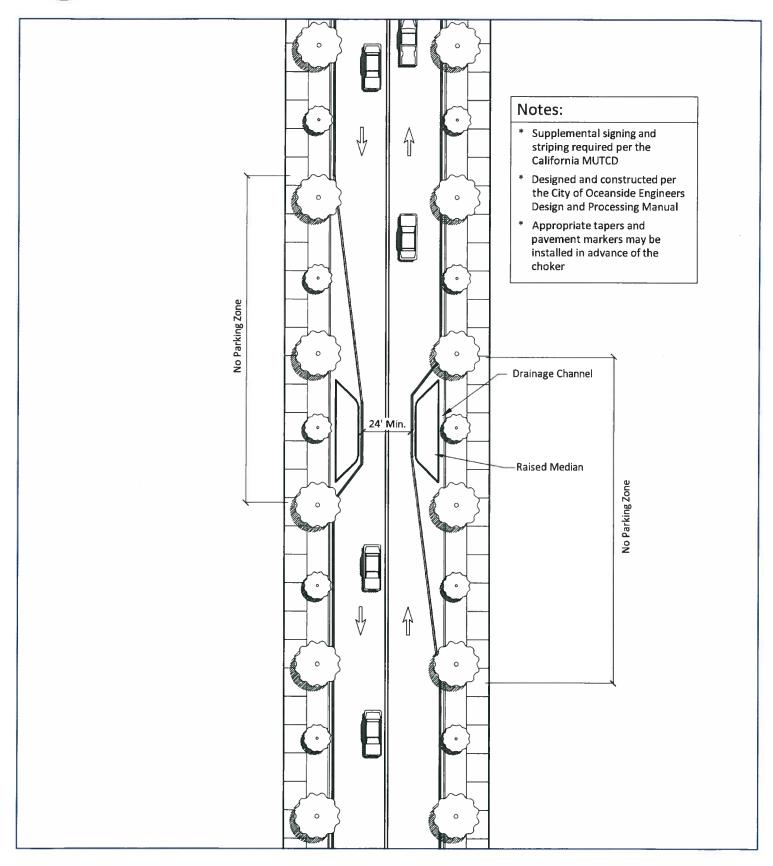
#### **Advantages**

- Effective in reducing speeds
- Minimal affect on drainage
- Buffer for parked vehicles

#### **Disadvantages**

• Eliminates parking spaces



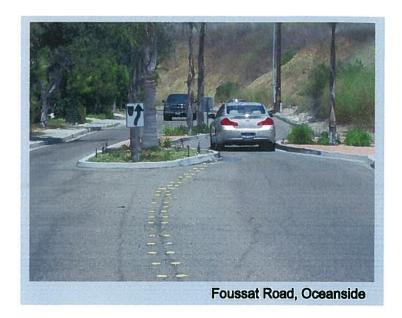


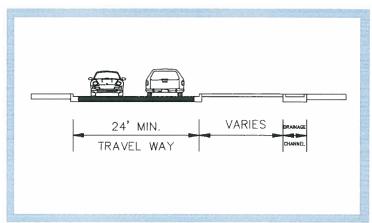
(\$30,000 to \$40,000)

#### **Description & Purpose**

Chicanes narrow the roadway with alternating curb extensions to create an S-shaped curve. Chicanes alter the road alignment and narrow the width of the travel lane in order to reduce motorists' speed as they travel through the road segment.

Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	Yes
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Possible
Transit Impact	Yes
Parking Impact	Yes
Emergency Response Impact	No



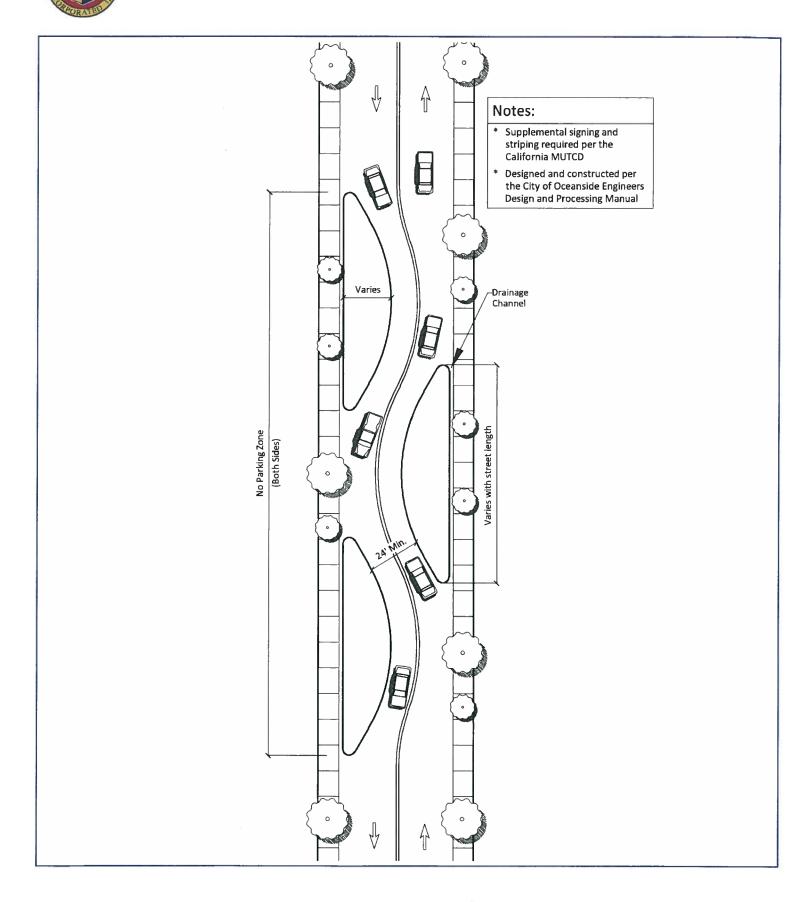


#### Advantages

• Effective in reducing speeds

- Increases regular maintenance
- Loss of parking spaces

## Chicane





## **Traffic Circle**

(\$10,000 to \$25,000 excluding landscaping)

#### **Description & Purpose**

Traffic circles are raised circular islands constructed in the middle of an intersection. Traffic circles require motorists to maneuver around the circle to proceed through the intersection, which will result in motorist speed reduction.

Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	Yes
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Possible
Transit Impact	Possible
Parking Impact	Possible
Emergency Response Impact	No

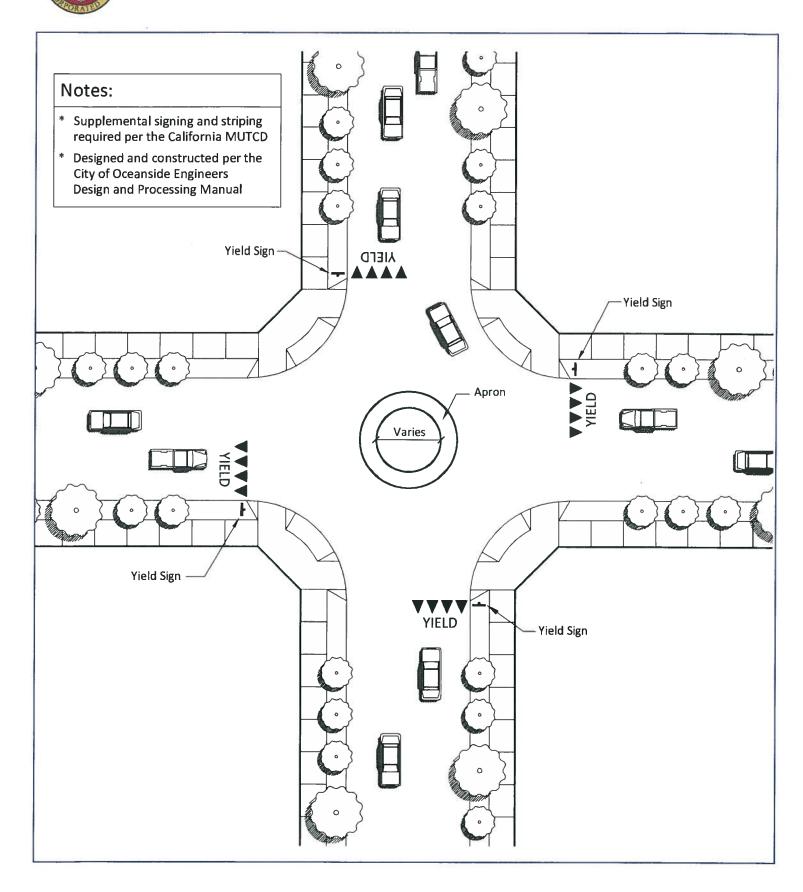


#### **Advantages**

• Reduces speed through an intersection

- Increases regular maintenance
- Wrong-way left-turns could occur

## **Traffic Circle**





# **Lateral Shift**

(\$15,000 to \$20,000)

## **Description & Purpose**

A lateral shift is two intermittent curb extensions and a median constructed in the roadway. The curb extensions and median create curves in the roadway that motorists' have to maneuver through, which results in speed reduction.

Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	Yes
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Possible
Transit Impact	No
Parking Impact	Yes
Emergency Response Impact	No

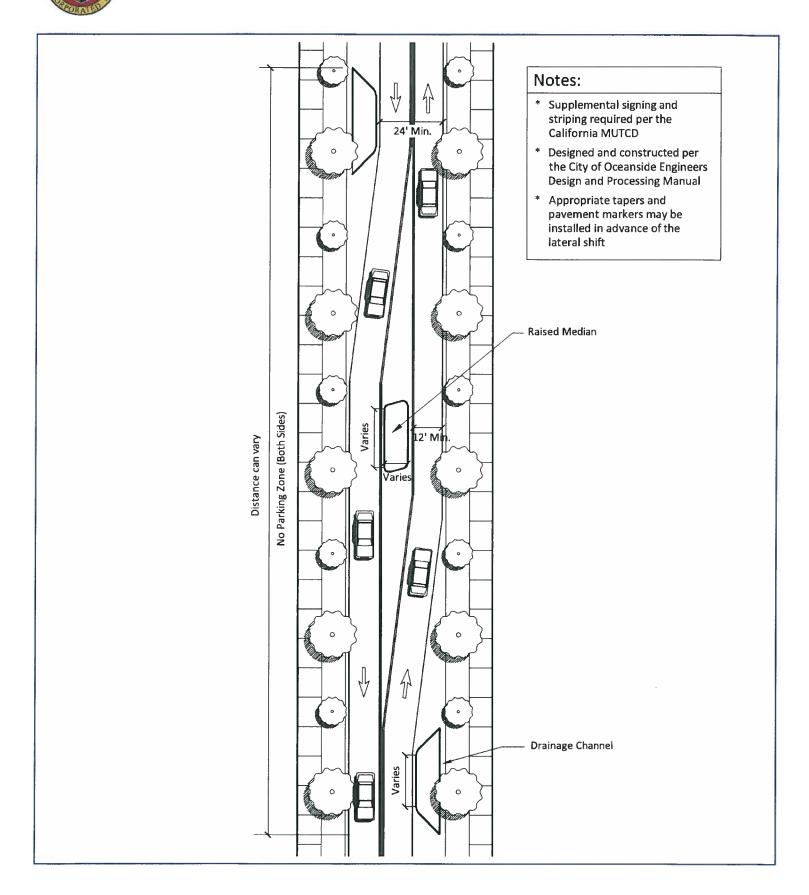


#### **Advantages**

• Effective in reducing speeds

- Increases in regular maintenance
- Loss of parking

## **Lateral Shift**





## **Raised Crosswalk**

(\$10,000 to \$15,000)

#### **Description & Purpose**

A raised crosswalk is a flat-topped speed hump that requires motorists to reduce speeds as they proceed through the elevated section of the road.

Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	Yes
Reduces Volume	Possible
Noise Impact	Yes
Restricts Access	No
Bicyclist Impact	No
Transit Impact	No
Parking Impact	Possible
Emergency Response Impact	Yes

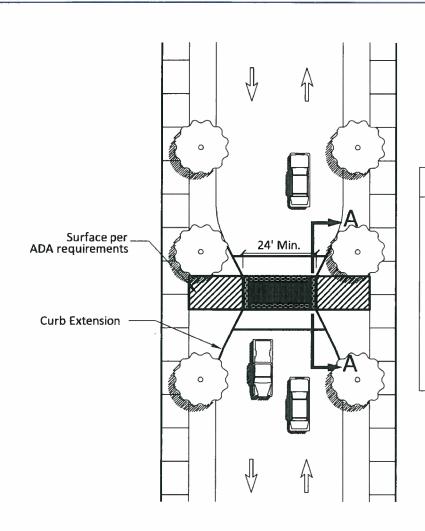


### **Advantages**

- Reduces speed
- Improves motorist visibility of pedestrians

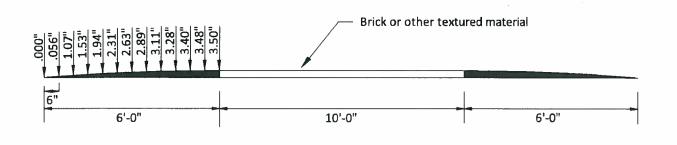
- Increases regular maintenance
- May require modifications to drainage
- May require loss of parking

## **Raised Crosswalk**



#### Notes:

- \* Supplemental signing and striping required per the California MUTCD
- Designed and constructed per the City of Oceanside Engineers Design and Processing Manual
- \* Drainage requirements must be evaluated and addressed
- Crosswalks must meet traffic engineering requirements



**Section A-A** 

## **Raised Intersection**

(\$125,000 to \$150,000)

#### **Description & Purpose**

A raised intersection requires motorists to reduce speeds as they proceed through an elevated intersection. Raised intersections are typically constructed to be six inches in height. Raised intersections are supplemented with appropriate striping and signage to adequately inform motorists of the traffic calming device.



Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	Yes
Reduces Volume	Possible
Noise Impact	Yes
Restricts Access	No
Bicyclist Impact	No
Transit Impact	No
Parking Impact	No
Emergency Response Impact	Yes

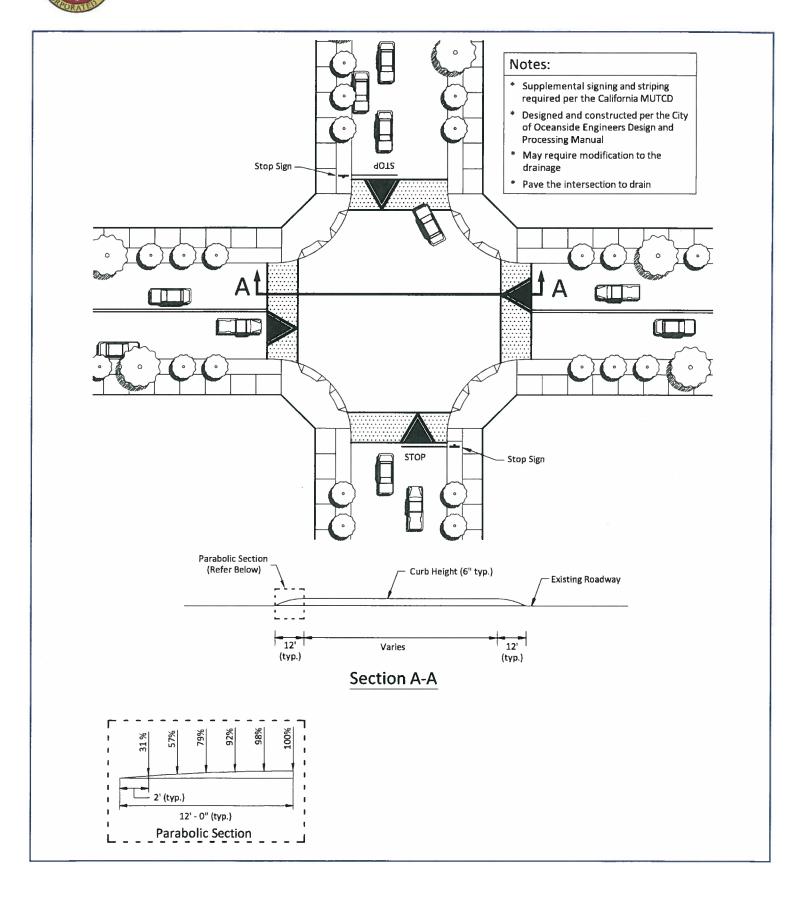


#### **Advantages**

- Reduces speed through an intersection
- May improve pedestrian safety

- Expensive
- Increases regular maintenance

## **Raised Intersection**



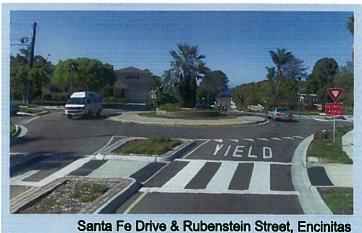
(\$250,000 to \$500,000)

## **Description & Purpose**

Roundabouts are large raised circular islands placed in the middle of an intersection with channelized approaches. The purpose of roundabouts is to slow motorist speeds as they maneuver around the circle to proceed through the intersection. Motorists entering the intersection must yield to circulating traffic. The dimensions of the roundabout can vary depending on the volume and types of vehicle usage.

Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	Yes
Reduces Speed	Yes
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Possible
Transit Impact	Possible
Parking Impact	Yes
Emergency Response Impact	No



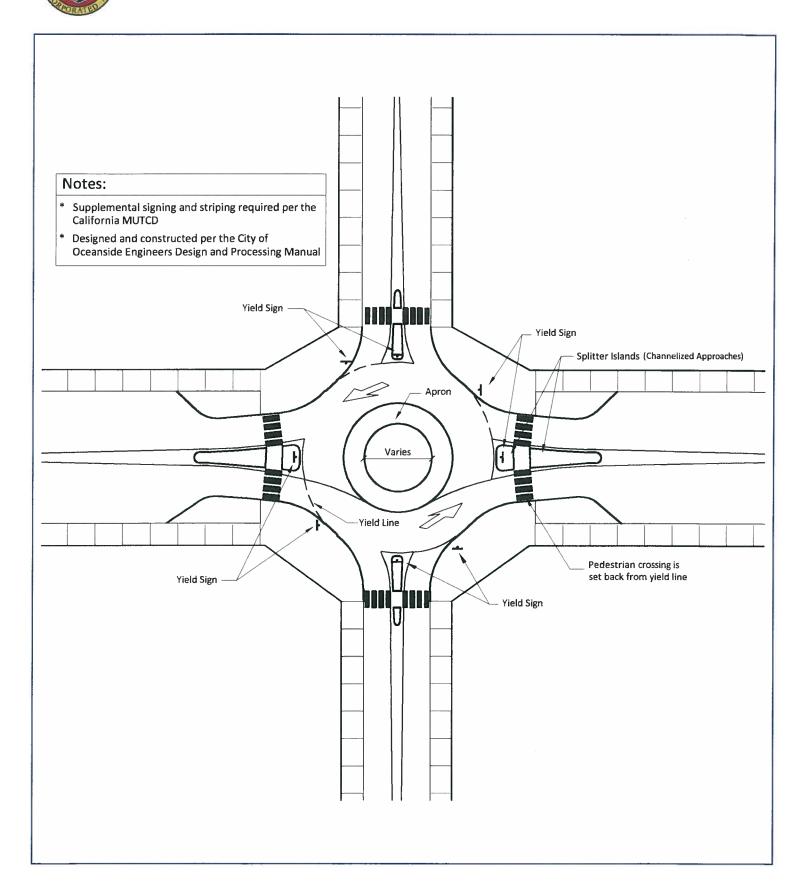


#### **Advantages**

- Reduces speed through an intersection
- Increases intersection capacity
- Reduces vehicle delay and queues
- Improves access

- Increases regular maintenance
- May require loss of parking
- May require additional right-of-way

## Roundabout





## **Turn Restrictions**

(\$100 to \$250 per sign)

#### **Description & Purpose**

Turn restrictions may be implemented by posting signage and/or striping. The purpose of turn restrictions is to prevent cut-through traffic or undesired turning movements from entering or exiting a street. Turn restrictions can be permanent or time specific.

Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	Yes
Reduces Speed	No
Reduces Volume	Yes
Noise Impact	No
Restricts Access	Yes
Bicyclist Impact	Possible
Transit Impact	Yes
Parking Impact	No
Emergency Response Impact	No





#### **Advantages**

- Reduces cut-through traffic
- Low cost

- Diverts traffic to adjacent streets
- Effectiveness is subject to driver compliance; may require intermittent enforcement to remain effective



## **Turn Restrictions**



## **Forced Turn Island**

(\$1,000 to \$15,000)

#### **Description & Purpose**

Forced turn islands are striped or raised medians that channelize traffic at an intersection. Their purpose is to prevent cutthrough traffic or undesired turning movements from entering or exiting a street.



Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	No
Reduces Volume	Yes
Noise Impact	No
Restricts Access	Yes
Bicyclist Impact	Possible
Transit Impact	Yes
Parking Impact	Possible
Emergency Response Impact	No

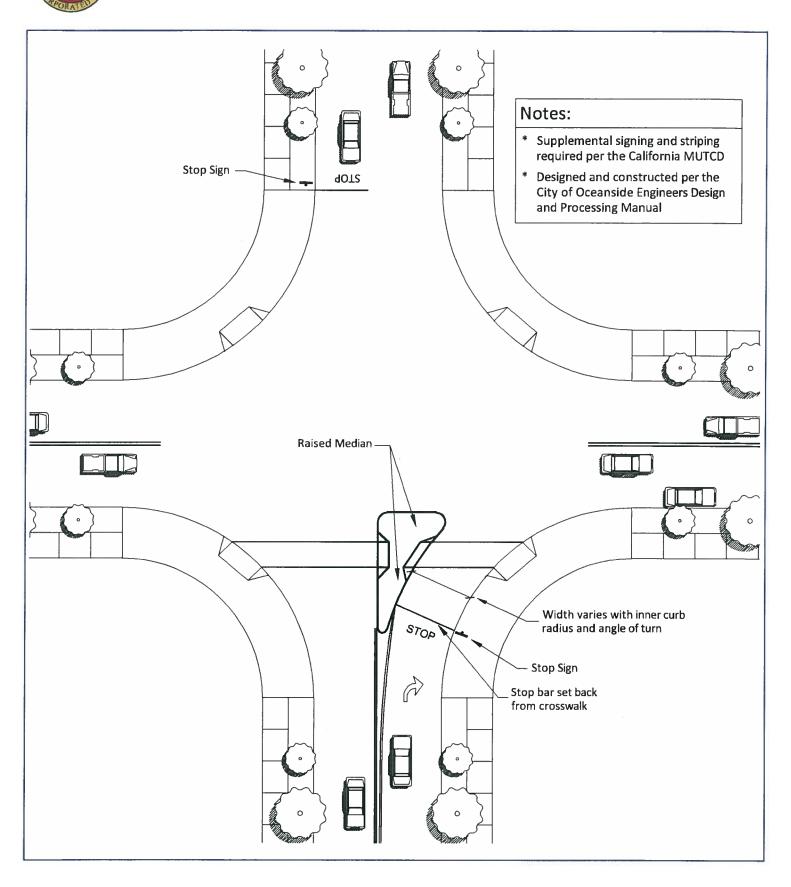
#### Advantages

• Reduces cut-through traffic

#### Disadvantages

• May divert traffic to adjacent streets

## **Forced Turn Island**



## **Half Street Closure**

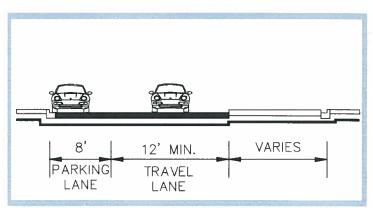
(\$10,000 to \$25,000)

#### **Description & Purpose**

Half street closures restrict motorists from entering or exiting a street in one direction with curb extensions, bollards, or other treatments. The purpose of a half street closure is to prevent cut-through traffic or undesired turning movements.



#### **Fast Facts:** Can be used on Local Street Yes Can be used on Collector Possible Can be used on Arterial No **Reduces Speed** No **Reduces Volume** Yes **Noise Impact** No **Restricts Access** Yes **Bicyclist Impact** No **Transit Impact** Yes Parking Impact No **Emergency Response Impact** No

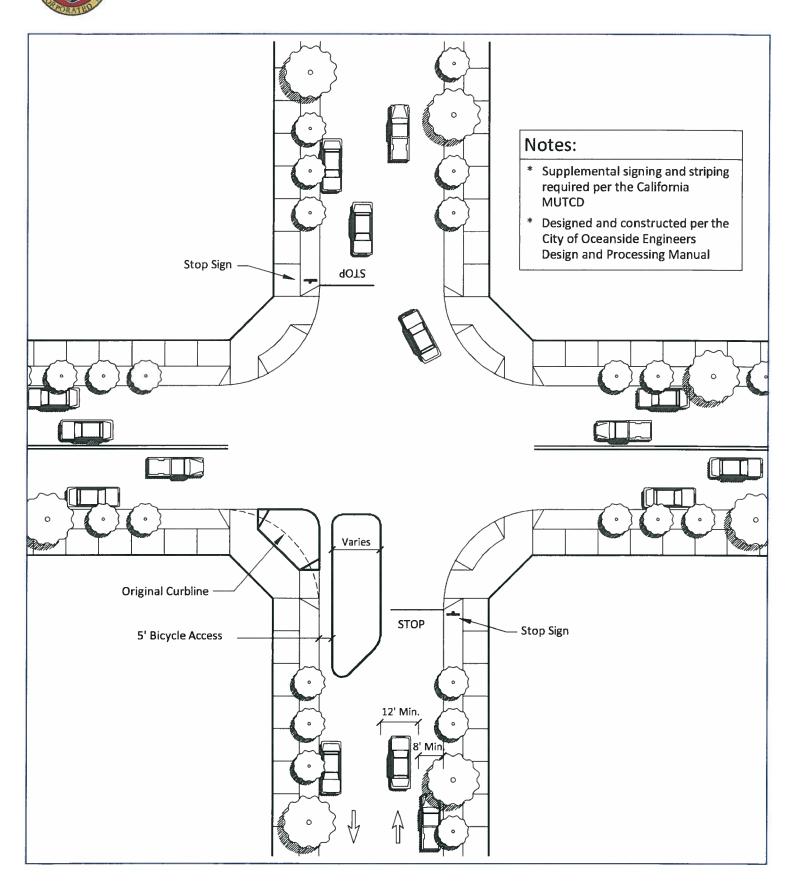


#### **Advantages**

- Reduces cut-through traffic in one direction
- Allows two-way traffic along the remainder of a street
- Bicycle and pedestrian routes can be maintained

- Diverts traffic to adjacent streets
- Increases trip lengths
- Impacts access

## **Half Street Closure**





## **Full Street Closure**

(\$25,000 to \$50,000)

#### **Description & Purpose**

Full street closures create cul-de-sacs which restricts all vehicle access into and out of the street at that location. The purpose of full street closures is to eliminate cut-through or undesired traffic from entering or exiting a street.

Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	No
Can be used on Arterial	No
Reduces Speed	No
Reduces Volume	Yes
Noise Impact	No
Restricts Access	Yes
Bicyclist Impact	Possible
Transit Impact	Yes
Parking Impact	No
Emergency Response Impact	Yes



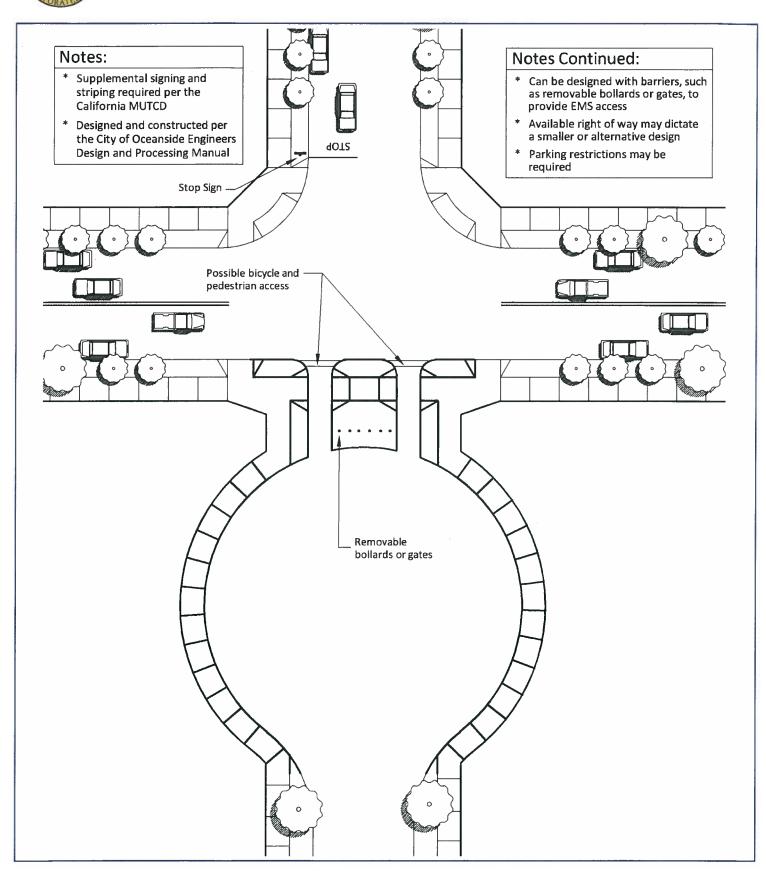


#### **Advantages**

- Reduces cut-through traffic
- Pedestrian routes can be maintained
- Bicycle routes may be maintained

- Impacts access
- Diverts traffic to adjacent streets
- Increases trip lengths

## **Full Street Closure**





## **Median Barricade**

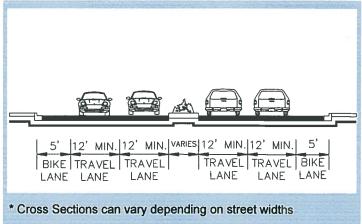
(\$250 per square foot)

#### **Description & Purpose**

A median barricade is a raised island placed in the center of a roadway to restrict left-turn or through traffic access from a side street. Median barricades typically replace a two-way left turn lane or are placed in the middle of a wide roadway. Emergency access and access to intermittent side streets may be maintained by providing breaks in the median. The purpose of a median barricade is to reduce traffic volumes across a major street or reduce conflicts at an intersection.

Fast Facts:	
Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	Yes
Reduces Speed	No
Reduces Volume	Yes
Noise Impact	No
Restricts Access	Yes
Bicyclist Impact	Possible
Transit Impact	Yes
Parking Impact	No
Emergency Response Impact	Possible



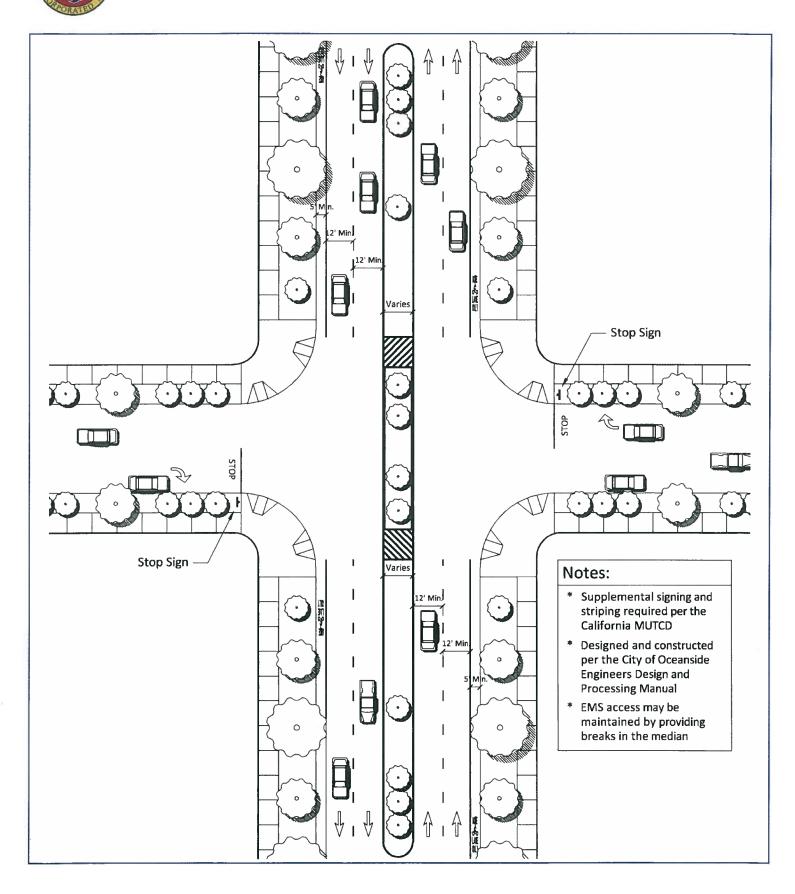


#### **Advantages**

- Reduces traffic volumes along a roadway
- Reduces conflicts at intersections

- Impacts access
- Increases trip lengths
- Only applicable on wide roads

## **Median Barricade**



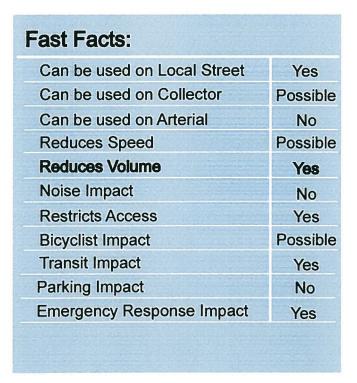


## **Diagonal Diverter**

(\$50,000 to \$75,000)

#### **Description & Purpose**

A diagonal diverter is either a raised median, bollards, and/or another type of treatment placed diagonally across an intersection to restrict through traffic movements. Diagonal diverters split a four-way intersection into two L-shaped turns. Bicycle and pedestrian access may be maintained by providing breaks in the treatment. The purpose of a diagonal diverter is to reduce traffic volumes along a roadway and divert traffic to adjacent streets.



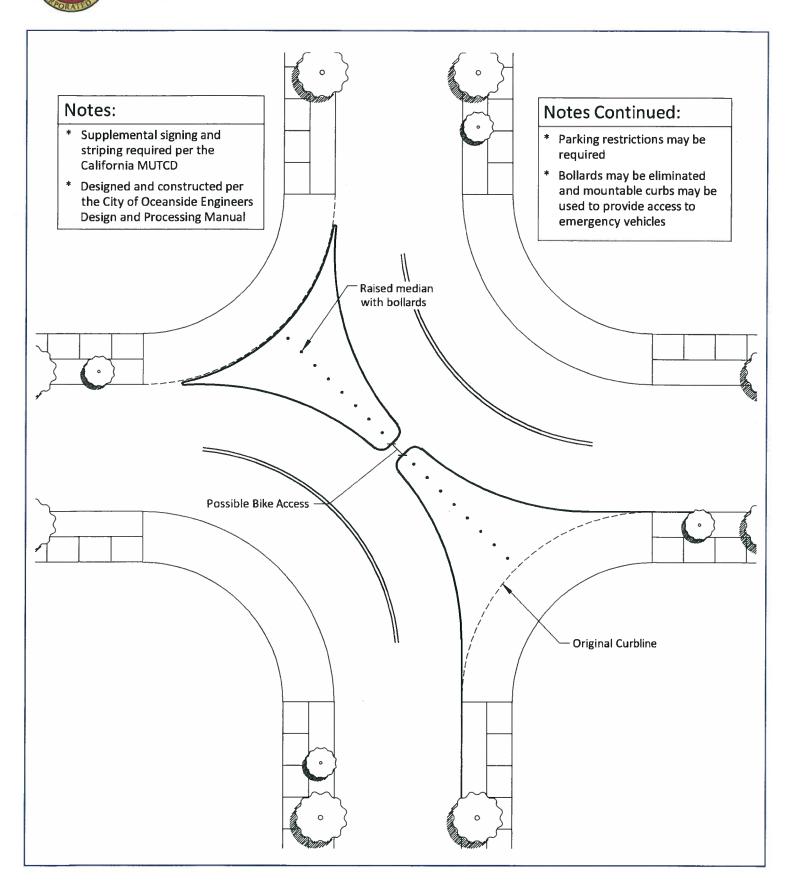


#### **Advantages**

- Reduces cut-through traffic
- Bicycle and pedestrian access may be maintained

- Impacts access
- Increases trip lengths
- Increases traffic to adjacent streets

## **Diagonal Diverter**



#### **ATTACHMENT A:**

Resident Request Form and Neighborhood Petition

#### **RESIDENT REQUEST FORM AND NEIGHBORHOOD PETITION**

traffic prob	olems	occurring	on	(enter	street	name)
				_		between
		and				
Existing traffic pro	oblems ir	nclude the follo	wing:			
Excessive †	ravel spe	eds			_ Vehicle no	oise
High volum	nes of noi	n-local traffic		1 <u></u>	_ Pedestriar	n Safety
Demonstro	ıted acci	dent history			_ Bicycle Sc	ıfety
Other:						
e (please print)	Addre	ess (please prin	t) Tele	ephone	Date	Signature
			ı			

### **ATTACHMENT B:**

**Traffic Calming Criteria Worksheet** 

# TRAFFIC CALMING CRITERIA SHEET (Local Streets)



lame:				VIEW		
imits:	From:					
	To:					
A.	Complete this section to determine if street is eligible for Traffic Calming Program. All criteria must be met to be					
	Primary Criteria	Yes	No			
	Is there a signed petition? (Signature and letter from the originator of the traffic request					
	in addition to 5 other residents signatures?) Street is classified as a local street in the California Road Systems (CRS) maps?		<del> </del>	-		
	Is the critical speed (85th percentile) 30 mph or more?			1		
	Is the curb to curb width 40 feet or less?			1		
	Is there one lane in each direction?			]		
	Does this segment of roadway meet the minimum traffic calming requirements?					
	If Section A is satisfied as meeting the minmum traffic calming requirements then pro	ceed to Se	ection B.			
	Traffic Engineering:	Date:		_		
В.	Complete this section to determine if there is a likeliness of traffic diversion. (If there is to a neighborhood situation)	hen this is	no longer a	localized situa		
	Supplemental Criteria	Yes	No	7		
	Is there a likeliness of traffic diversion?			]		
	Complete this section when street is determined to meet all traffic calming minimum criteria. Use the following criteria for ranking projects and in understanding the operational characteristics of the road segment.					
	Traffic Calming Ranking Criteria Daily Traffic Volume	Po	ints			
	less than 200 vehicles per day	0 points	1			
	200 - 500 vehicles per day	1 point				
	500 - 1,000 vehicles per day	2 points				
	1,000 - 1,500 vehicles per day	3 points				
- 1	more than 1,500 vehicles per day  Street Segment Length (Uninterrupted)	4 points	-	-		
ŀ	less than 600 feet	0 points	1			
	greater than 600 feet	1 point				
[	Cul-de-Sac (800 feet or less)			1		
	On a cul-de-sac	0 points				
- }	Not on a cul-de-sac Accident History	1 point		-		
ł	I point for each accident (within 3 years)	up to 5 pts	1			
ŀ	Near High Pedestrian Generator	3p 10 0 pta	<b>†</b>	1		
	street fronts or provides access to school	3 points	1			
	street is in CBD	1 point				
	street has high transit activity, near church or other civic facility	1 point	ļ	-		
ŀ	Sidewalk  No sidewalk or on one-side of street only	1 point	1			
ŀ	TOTAL POINTS	1 point	<del>                                     </del>	1		
ι			L	J		
	To be completed by the Fire Marshall.		I	7		
	Emergency Response	Yes	No	-		
•	Is this street a designated emergency response route?		<u> </u>	J		
	Comments:			_		
				=		
				<u>-</u>		
	Fire Marshall Signature:	Date:				
	▼			_		

### **ATTACHMENT C:**

Sample Traffic Calming Survey



## (Street Name) Traffic Calming Plan

City of Oceanside Neighborhood Traffic Calming Program

#### DEAR NEIGHBORS,

This letter is from the (Street Name) Traffic Calming Committee. We are a group of volunteer residents that have been working with City staff over the past few months to improve the traffic conditions on our street by addressing speeding (or volume) issues along (Street Name). We are seeking your support for the (Street Name) Traffic Calming Plan.

#### The City of Oceanside Traffic Calming Program

The City of Oceanside Neighborhood Traffic Calming Program is a resource for residents to refer to when there is an inquiry on how to have traffic calming installed on a street. The program explains the process of how to aquire traffic calming on a street or within a neighborhood if the necessary steps are taken and criteria is met. For more detailed information on the program, you can view the program document on the City's website: www.oceanside.ca.us.

#### What is the Process?

Residents were notified by mail and invited to a neighborhood workshop in (Date). At the workshop, participants discussed the areas of concern in the neighborhood. Participants learned about traffic calming tools and were provided with an opportunity to suggest improvements along (Street Name). The Resident Task Force was established at the first workshop. The task force then worked with City staff to discuss potential solutions to concerns. Ultimately, (state number of devices) traffic calming features were developed that collectively represent the Traffic Calming Plan for (Street Name). With your support, we now have the opportunity to take the Traffic Calming Plan forward to the City Council and initiate its implementation. It is envisioned that this plan will be implemented in stages with the most cost efficient and effective elements installed first. Alternate traffic calming devices may need to be installed on an intermediate basis until sufficient funds are available.

#### How Do I Participate?

The proposed traffic calming plan must be approved by a majority of the residents along (Street Name) before it can be brought to City Council for approval. Therefore, your input is critical to this effort. Please fill out the enclosed survey form and indicate whether or not you support the proposed Traffic Calming Plan. The pre-paid, pre-addressed survey forms must be mailed in by (DUE DATE).

(Picture)

(Picture)

(Picture)

(Picture)

#### What is the Traffic Calming Plan?

(Summary of each element and proposed locations in the traffic calming plan)

(Street Name) Traffic Calming Plan - Figure 1

# (INSERT MAP OF TRAFFIC CALMING PLAN)



If you would like more information regarding any particular feature and its potential impact on adjacent properties, contact (Project Manager's name and phone number).



#### CITY OF OCEANSIDE NEIGHBORHOOD TRAFFIC CALMING RESIDENT SURVEY FORM

As a resident	of this neighborh	nood, whether you are	a property owner or tenant,
indicate your	support or oppos	sition to the traffic calm	ning plan by checking a box
below and sig	gning here. Please	e use the comment line	to express any opinion you
have of specif	fic concepts. Pleas	se mail this pre-paid, pre	e-addressed survey form in
by	·		
I		live at	
	(PRINT NAME)	,vc ut	(PRINT ADDRESS)
	CHECK ONE:	<ul><li>☐ Support the Plan</li><li>☐ Oppose the Plan</li></ul>	
Comments:			
Sian Horo			

### **ATTACHMENT D:**

Petition for Removal of Traffic Calming Device(s)

## PETITION FOR REMOVAL OF TRAFFIC CALMING DEVICE(S)

	and					
Please specify the	e reason for the request for	removal:				
Please specify the reason for the request for removal:						
( <del></del>				27 11		
×						
80% of the reside	nces must support the rem	oval of the traffi	c calming d	evice(s)		
ame (please print)	Address (please print)	Telephone	Date	Signature		
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