501 Primrose Road
Burlingame CA 94010
(650) 558-7230

CITY OF BURLINGAME
PUBLIC WORKS


# Residential Traffic Calming Information Booklet

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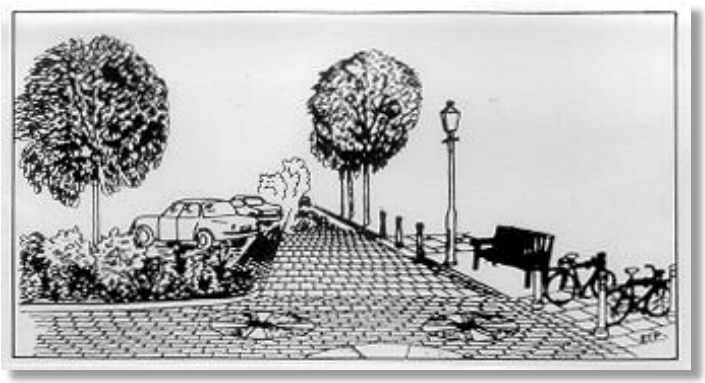
# Introduction & Background



## What is "traffic calming"?

> "Traffic calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users."
>
> – Institute of Transportation Engineers (ITE)

Traffic calming is a program aimed at improving the quality of life in neighborhoods by mitigating the negative impacts of vehicular traffic on residential streets. The program typically uses specific measures to enhance pedestrian safety by altering driver behavior and reducing vehicle speeds and volumes.

The concept of "traffic calming" actually began in Europe in the 1960's as a grassroots movement of residents to prevent cut-through traffic through their neighborhood. By the early 1970's, a few U.S. cities began implementing their versions of traffic calming.

U.S. cities often cited as early users of traffic calming are:

- Seattle, WA (1971)
- Eugene, OR (1974)
- Berkeley, CA (1975)
- Charlotte, NC (1978)
- Montgomery County, MD (1978)
- San Jose, CA (1978)

Currently, it is believed that over 350 U.S. cities and countries have implemented some form of traffic calming.

## Residential Traffic Calming Program and Three E's

In 2000, the City of Burlingame adopted its own traffic calming program called the "Residential Traffic Calming Program" (RTCP).

This program represents the City's commitment to enhancing safety and livability of neighborhoods. The goal of the RTCP is to provide a process for identifying and addressing problems related to speeding, excessive traffic volumes and safety on roadways classified as "local, residential streets."

There are three elements to this program, and are commonly referred to as the "3 E's".

- **E**ducation - the use of neighborhood involvement and educational programs.
- **E**ngineering - the use of signs, striping, and construction.
- **E**nforcement - the use of radars, speed trailers, and citations by the police.

Under the program, the Public Works Department (PWD) and Burlingame Police Department (BPD) will work with residents within neighborhoods to evaluate the type and severity of traffic problems. The PWD and BPD will then process applications for traffic calming and implement measures if the required approval by residents, the Traffic, Safety and Parking Commission (TSPC), and City Council is obtained and funding is available.

# Goals, Objectives, & Policies

The goal of the City of Burlingame's Residential Traffic Calming Program is to have procedures and measures that will enhance the quality of life in the City's neighborhoods by mitigating the negative impacts of vehicular traffic on the residential streets.

## The Objectives

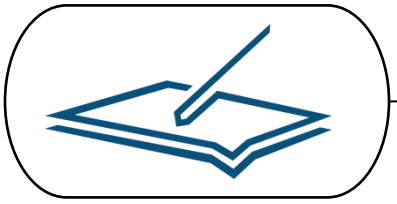
- To promote safe and pleasant conditions for residents, pedestrians, bicyclists, and motorists on neighborhood streets.
- To reduce the average speed of traffic on local neighborhood streets.
- To reduce the total amount of vehicular traffic on local neighborhood streets.
- To preserve and enhance pedestrian bicyclist access to neighborhood destinations.
- To encourage citizen involvement in neighborhood traffic management activities.
- To provide a process that will address neighborhood traffic management requests.

## The Policies

- Through traffic should be routed to the major roadways, whenever possible.
- The amount of rerouted traffic that is acceptable as a result of a traffic calming project should be defined on a project-by project basis.
- Emergency vehicle access should be preserved.
- Each traffic calming measure will be planned and designed in conformance with sound engineering and planning practices.
- Uniform procedures will be followed in processing neighborhood traffic calming requests.

# Implementation Process

Resident Requests



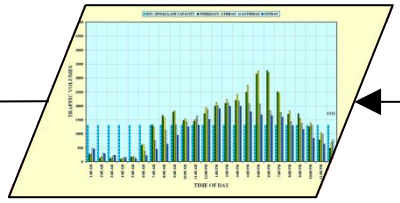
Meet Residents & Staff

Signature Petition for Consideration

Yes

No

Preliminary Analysis



Sub Committee Workshop on Preliminary Analysis

No Traffic Calming

Project Development

Project Presentation to Neighborhood

Recommendation to the Traffic Safety & Parking Commission

Recommendation to City Council

# Program Status

**Current Funding Status:**

- Due to competing annual Capital Improvement Program interests and budget constraints, funding for Burlingame's Residential Traffic Calming Program is periodic.
- Similar programs in other cities are typically funded for between $200,000 to $800,000 annually, depending on program scope and size.
- Previously, Burlingame budgeted $100,000 annually.

**Alternative actions without new funding:**

- Minor signs, striping, and markings work
- Traditional speed and radar trailer enforcement.
- Installation of portable driver feedback sign

**Educational program with $50,000 funding:**

- Staff time for specific Traffic Calming neighborhood meetings
- Production and distribution of brochures, bumper stickers, lawn signs, and other educational material
- Specially fabricated Traffic Calming/neighborhood signs
- Staff time for establishing Neighborhood Speed Watch programs

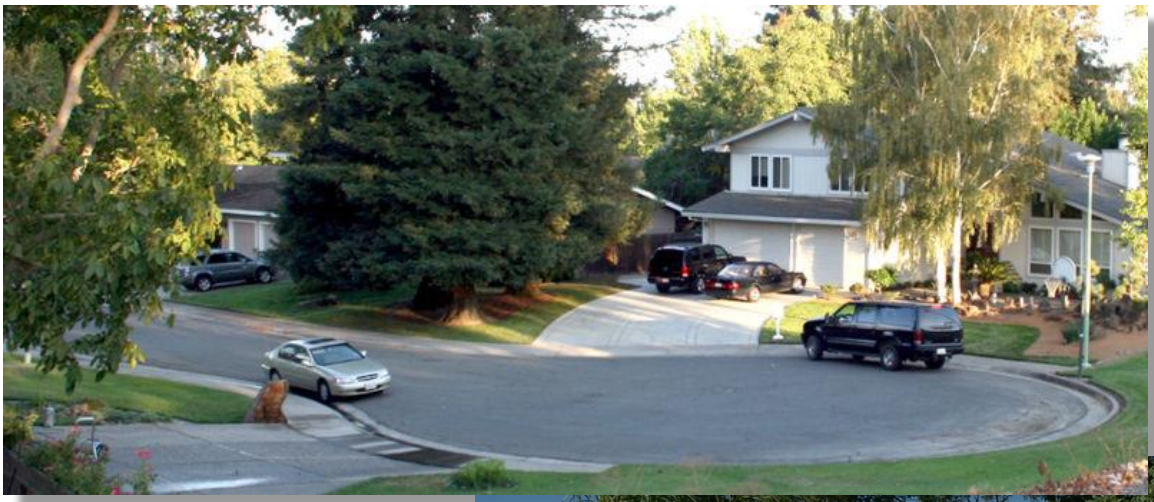
**Neighborhood funded program with staff support:**

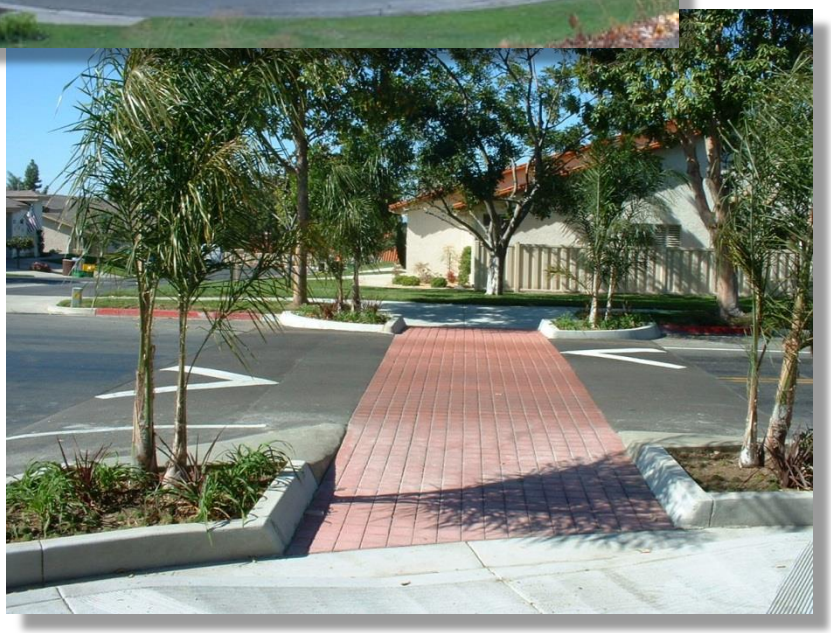
- Level 2 mitigations

**Joint City/Neighborhood funded program:**

- Level 2 mitigations
- Example: Dwight Road-Peninsula Avenue gateway/bulb-out project

# Program Levels & Summary Table of Traffic Calming Measures





# Residential Traffic Calming Program Levels

## Levels 1 & 2

The Burlingame Residential Traffic Calming Program has two levels of traffic calming measures. Both sets of measures are divided into increasingly complex and/or costly levels that can be implemented or installed on the neighborhood streets. The complete collection of measures, regardless of levels, is commonly referred to as the "toolbox".

***Level 1*** set of tools are things that can be done as basic, day-to-day actions. Their purpose is to educate, inform, guide, warn, and finally regulate driver behavior and habits. Level 1 tools are mainly used in areas where traffic volumes may not be serious but where traffic control and education are needed.

***Level 2*** tools are considered when Level 1 tools are either shown to be ineffective, or when it is obvious that greater measures are needed to address speeding and cut through traffic. Also, Level 2 tools typically require more effort in installation and annual maintenance by the City.

The cost of Level 1 and Level 2 tools can range from no to moderate cost (up to about $100,000 per measure).

# Toolbox Overview

## Level 1 Traffic Calming Methods

| | CALMING METHOD | DESCRIPTION | RELATIVE COST |
|---|---|---|---|
| LEVEL 1 | Education | Conversations, meetings, e-mails, letters and handouts regarding neighborhood traffic and pedestrian safety issues. | Low |
| | Traditional Speed Enforcement | Targeted Police enforcement, observation, and physical presence to discourage speeding. | Low |
| | Radar Trailer | Portable trailer equipped with a radar unit that detects and displays the speed of passing vehicles on a reader board. | Low |
| | Portable Driver Feedback | Small radar sign installed on sign polls and can remain in neighborhoods for months at a time. | Low |
| | Turn Prohibitions | Street signs that prevent turning movements onto residential streets. | Low |
| | Flashing Yellow Beacon | A mechanism to alert drivers to changing driving conditions. | Low |
| | Misc. Signs | Various signs that help signify vehicles of traffic operations. | Low |
| | Roadway Striping and Narrowing Lanes | Markings on pavement that create narrower lanes for vehicles to go through, thus lowering the speeds at which they travel. | Low |
| | Centerline Striping | Marking on pavement that signify specific lanes for vehicles. | Low |
| | Pavement Markings | Use of various types of painted markings to alert drivers to a special condition. | Low |

# Toolbox Overview

## Level 2 Traffic Calming Methods

| | CALMING METHOD | DESCRIPTION | RELATIVE COST |
|---|---|---|---|
| LEVEL 2 | Speed Humps | Areas of pavement raised as to affect the speed at which vehicles can comfortably go over the hump. | Medium to High |
| | Speed Cushions | A series of speed humps with spacing between them, allowing for large/emergency vehicles to pass through. | Medium to High |
| | Chicanes | Features placed in the road that create turns in the road, causing vehicles to slow down. | Medium to High |
| | Chokers / Bulb-Outs | Physical curb reduction of road width at intersections and mid-block locations, discouraging cut-through traffic. | Medium to High |
| | Gateway Treatment | Physical landmark indicating a change in environment from a higher speed road to a lower speed residential or commercial district. | Medium to High |
| | One-Way Streets | Traffic regulated to only flow in one direction. | High |
| | Modified Tee Intersection | Three-way intersection with barriers in the middle of each lane entering. | High |
| | Traffic Circle | A circular intersection in which vehicles entering the circle have the right-of-way compared to vehicles inside the circle. | High |
| | Street Closure | Street closed to through-traffic, usually leaving only sidewalks open to pedestrians. | Low |
| | Forced Turn Channelization | A barrier that restricts vehicles from entering a street while still allowing vehicles to exit the street. | High |
| | Median / Diverter | Raised median island that restrict specific movements at an intersection. | Medium to High |
| | 4-Way Star | A physical barrier that restricts traffic movement and/or separates traffic traveling in different directions. | Medium to High |

## Education

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

Advantages:

- Involves and empowers residents
- Works well with other mitigations
- No negative effect on emergency services

Disadvantages:

- Can be expensive and time-consuming
- May take time to be effective
- Effectiveness may decrease over time



## Traditional Speed Enforcement

**Targeted Police enforcement, observation, and physical presence to discourage speeding.**

Advantages:

- Useful educational tool
- Good public relations tool
- Useful where spot speed reduction is desired
- No negative effect on emergency services

Disadvantages:

- Requires periodic enforcement
- Effective for limited durations

## Radar Trailer

**Portable trailer equipped with a radar unit that detects and displays the speed of passing vehicles on a reader board.**

Advantages:

- Useful educational tool
- Good public relations tool
- Useful where spot speed reduction is desired
- No negative effect on emergency services

Disadvantages:

- Requires periodic enforcement
- Effective for limited durations
- Requires frequent moving

## Turn Prohibitions

**Street signs that prevent turning movements onto residential streets.**

Advantages:

- Redirect traffic to main streets
- Reduces cut-through traffic
- Low cost installation

Disadvantages:

- May divert traffic to other streets
- May add to sign clutter
- Requires enforcement
- Potentially high violation rate without enforcement

## Flashing Yellow Beacon

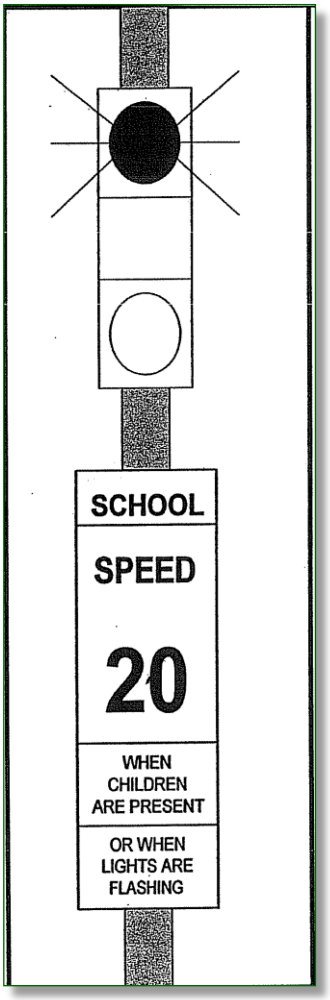
**A mechanism to alert drivers to changing driving conditions.**

Advantages:

- Effective in reducing average speeds in school zones if timed with the presence of children

Disadvantages:

- Ineffective if continuously present (flashing)
- May tend to encourage a false sense of security in pedestrians
- Relatively high cost for a measure that is only effective for a limited amount of time each day



## Miscellaneous Signs

**Various signs that help signify vehicles of traffic operations.**


Advantages:

- May reduce vehicle speeds
- May increase driver awareness
- Relatively low cost

Disadvantages:

- Most signs are not enforceable, only advisory
- Overuse can decrease effectiveness
- Effectiveness may decrease over time

## Roadway Striping or Narrowing Lanes

**Markings on pavement that create narrower lanes for vehicles to go through, thus lowering the speeds at which they travel.**

Advantages:

- Relatively quick implementation
- Easy modification
- May reduce traffic speeds
- Increased bicycle and pedestrian safety

Disadvantages:

- Increased maintenance
- Residents may oppose striping  neighborhood street
- May limit or restrict on-street parking

## Centerline Striping

**Marking on pavement that signify specific lanes for vehicles.**

Advantages:

- Guides traffic within designated lanes
- Narrowing effect on residential streets can result in slower speeds
- Relatively low cost installation

Disadvantages:

- Can increase potential for sideswipe accidents
- Residents may oppose striping neighborhood street

## Pavement Markings

**Use of various types of painted markings to alert drivers to a special condition.**

Advantages:

- Supplement to speed limit signs
- May help reduce speeds

Disadvantages:

- Not enforceable by themselves
- Increase in maintenance costs


## Speed Humps

**Areas of pavement raised as to affect the speed at which vehicles can comfortably go over the hump.**

Advantages:

- Reduces speeds
- Relatively inexpensive costs
- Self-enforcing

Disadvantages:

- Questionable aesthetics
- Can cause discomfort for people with disabilities
- Can reduce emergency vehicle response times
- Possible noise due to braking and accelerating vehicles
- Potential damage to emergency vehicles and injury to emergency personnel

## Speed Cushions

**A series of speed humps with spacing between them, allowing for large/ emergency vehicles to pass through.**


Advantages:

- Reduces speeds
- May reduce traffic volumes
- Self-enforcing

Disadvantages:

- Low aesthetic appeal
- Potentially divert traffic to other streets
- May require removal of on-street parking to align large vehicle over cushions
- May disrupt emergency transit access

## Chicanes

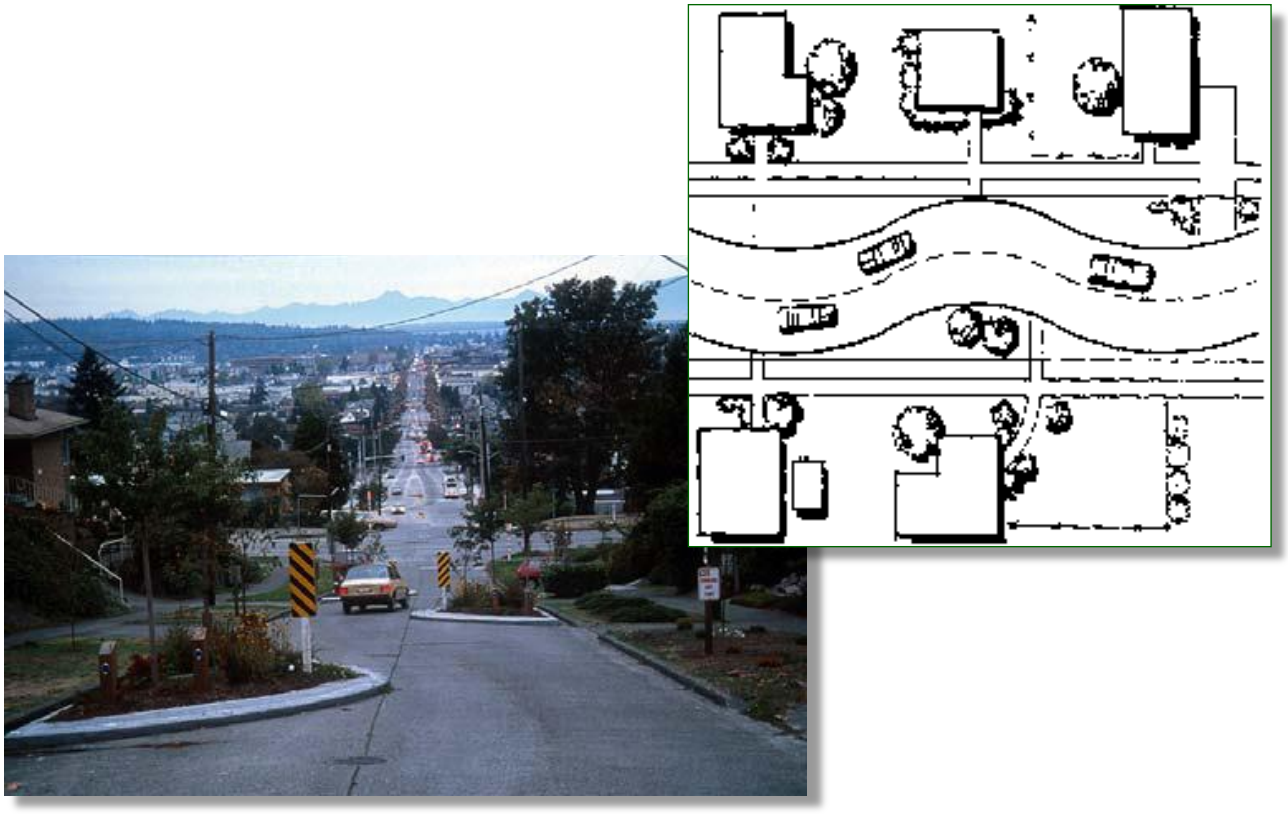
**Features placed in the road that create turns in road, causing vehicles to slow down.**

Advantages:

- Reduced vehicle speeds by removing straight line of sight
- Landscaping opportunities
- Accommodates emergency vehicle access

Disadvantages:

- Reduces or eliminates on-street parking
- Increased maintenance
- Can impact driveway access
- Residents may oppose striping neighborhood street



## Chokers or Bulb-Outs

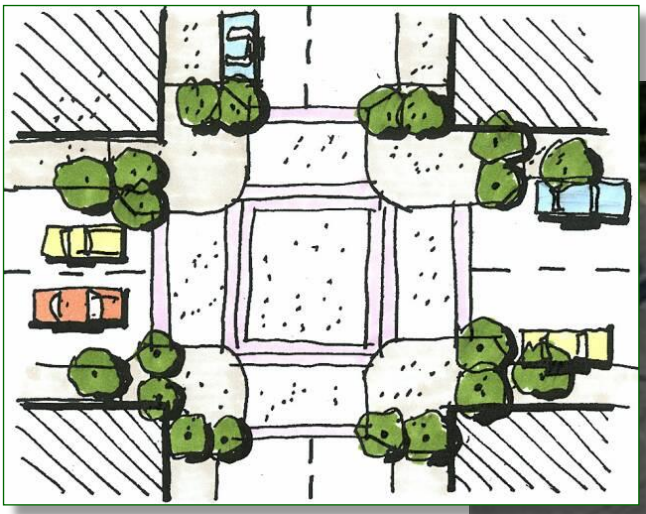
**Physical curb reduction of road width at intersections and mid-block locations, discouraging cut-through traffic.**

Advantages:

- Narrowing affect slows vehicles
- Reduced turning radii slows turning traffic
- Reduces crossing distance for pedestrians
- Landscaping opportunities
- Interrupts straight curb lines, slowing traffic

Disadvantages:

- Can reduce on-street parking
- Potential maintenance and drainage issues
- Utilities may require costly relocation
- Can restrict or impede large vehicle access



## Gateway Treatment

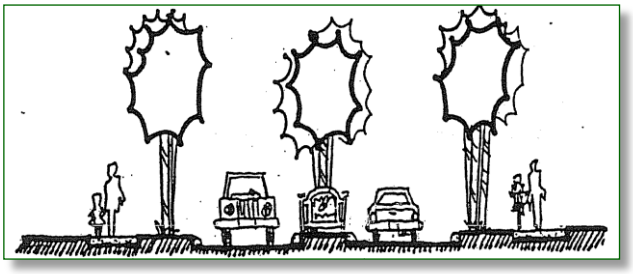
**Physical landmark indicating a change in environment from a higher speed road to a lower speed residential or commercial district.**

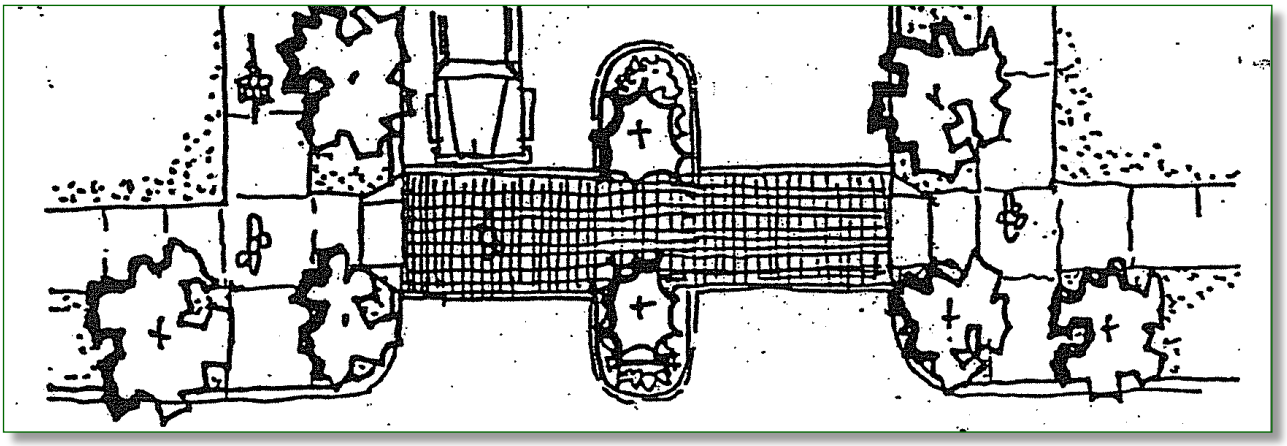
Advantages:

- Positive identification of a change in environment from arterial road to residential street
- Will likely reduce speed entry
- Can reduce pedestrian crossing distance
- On wider streets provides space for landscaping in the median
- Helps give neighborhood creativity and participation in design

Disadvantages:

- Maintenance and irrigation responsibility
- Cost can be significant
- Speed reduction limited to entry point
- Can delay emergency services depending on gateway design





## One-Way Streets

**Traffic regulated to only flow in one direction.**

Advantages:

- Tend to be safer for vehicles due to lack of friction from opposing traffic flow
- Can facilitate traffic through an area
- Can open up narrow streets for more resident parking
- Can maintain reasonable access for emergency vehicles depending on location
- Maze effect of one-way traffic discourages through traffic
- Reduce the frequency of head on collisions
- Relatively low cost

Disadvantages:

- Must reclassify street through City Ordinance
- Can lead to increased vehicle speeds
- May result in longer trip lengths
- May increase emergency response times and volumes on other streets
- Initial safety concerns as drivers adjust
- May be confusing for occasional drivers
- May have more stops and starts


## Modified Tee Intersection

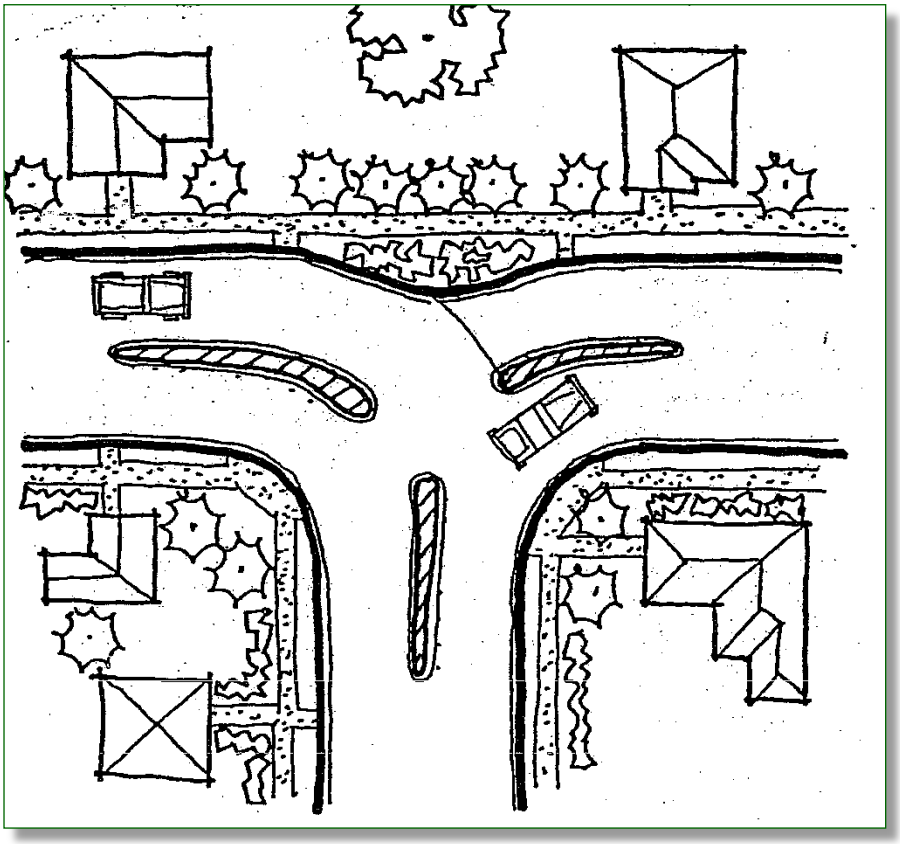
**Three-way intersection with barriers in the middle of each lane entering.**

Advantages:

- Reduces vehicle speed
- Reduces through traffic along top of the Tee
- Enforces changes in priority from one street to another
- May provide space for landscaping
- No effect on emergency services if used appropriately

Disadvantages:

- Can cause confusion regarding priority movements
- Increased maintenance if landscaped
- Cost can be significant



## Traffic Circle

**A circular intersection in which vehicles entering the circle have the right-of-way compared to vehicles inside the circle.**

Advantages:

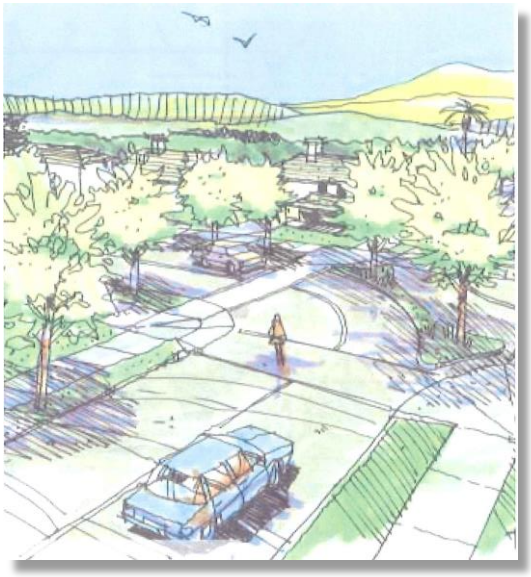
- Effectively reduces vehicle speeds
- Reduces collision potential
- Better side street access
- Landscape opportunity
- Reduces number of conflicts

Disadvantages:

- Expensive
- Can restrict or impede large vehicle access

## Street Closure

**Full street closures are barriers placed either straight or diagonally across the street to completely close the street to through-traffic, usually leaving only sidewalks open to pedestrians.**

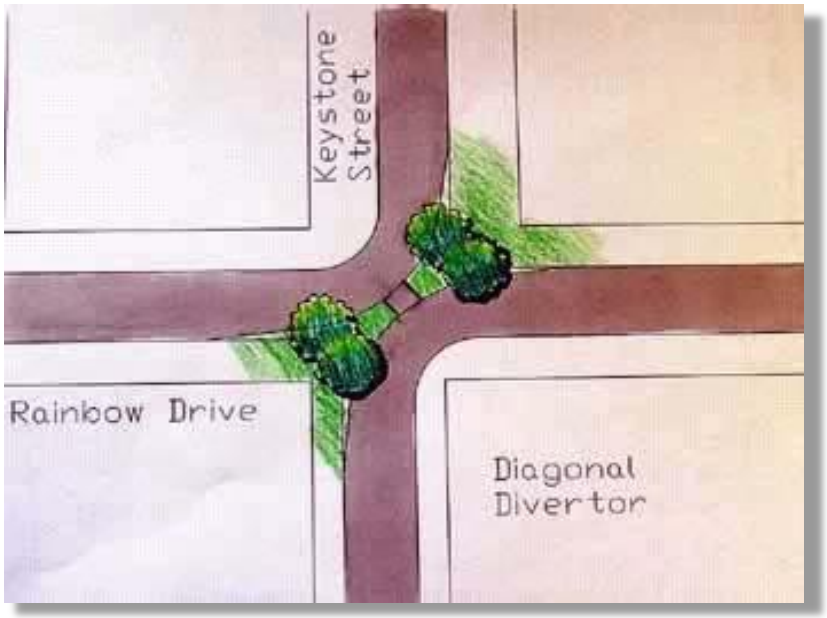


Advantages:

- Eliminates cut-through traffic
- Reduces crossing distance for pedestrians
- Reduces conflicts at intersections
- Landscape opportunity

Disadvantages:

- Requires City Council approval
- Restricts vehicular access, even for residents
- No effects on vehicle speed beyond intersection
- Can restrict large vehicles if improperly designed
- May divert traffic to other residential streets



## Forced Turn Channelization

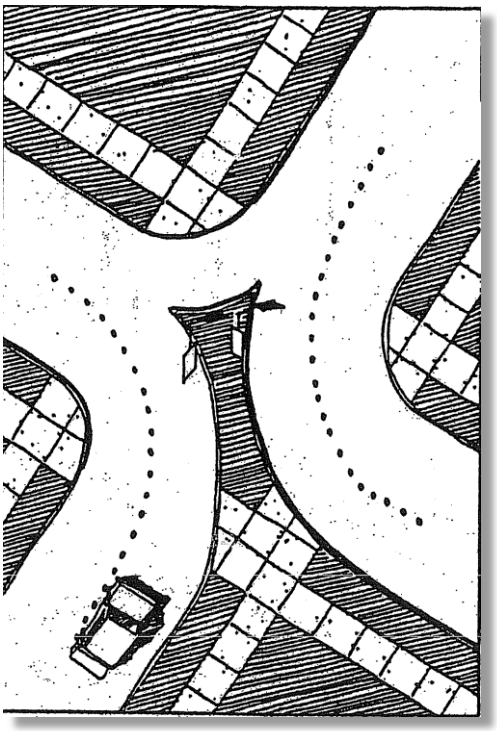
**A barrier that restricts vehicles from entering a street while still allowing vehicles to exit the street.**

Advantages:

- Effective with full compliance
- Prevents traffic flow from one neighborhood to another across the major street
- Increases traffic safety
- Aesthetically pleasing if landscaped

Disadvantages:

- May encourage turning movements in opposite direction
- More likely to be violated within a neighborhood since enforcement is minimal
- Not much change on speeds other than the required slowing for turning



## Median/Diverter

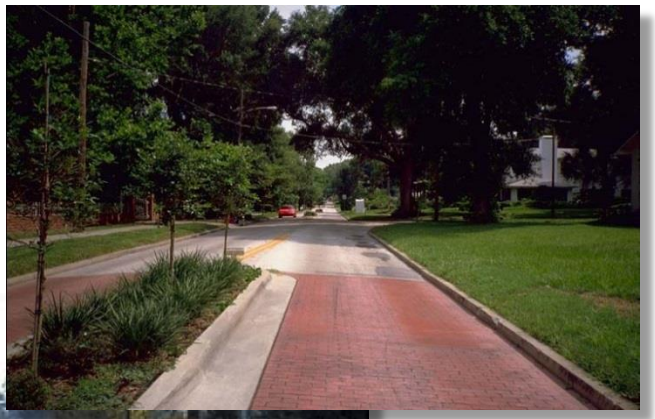
**Raised median island that restrict specific movements at an intersection.**

Advantages:

- Reduces cut-through traffic
- Reduces vehicle speeds with narrow lanes
- Increase traffic safety by proper lane usage

Disadvantages:

- Possible elimination of on-street parking
- Restricts residential driveway access
- Expensive



## 4-Way Star

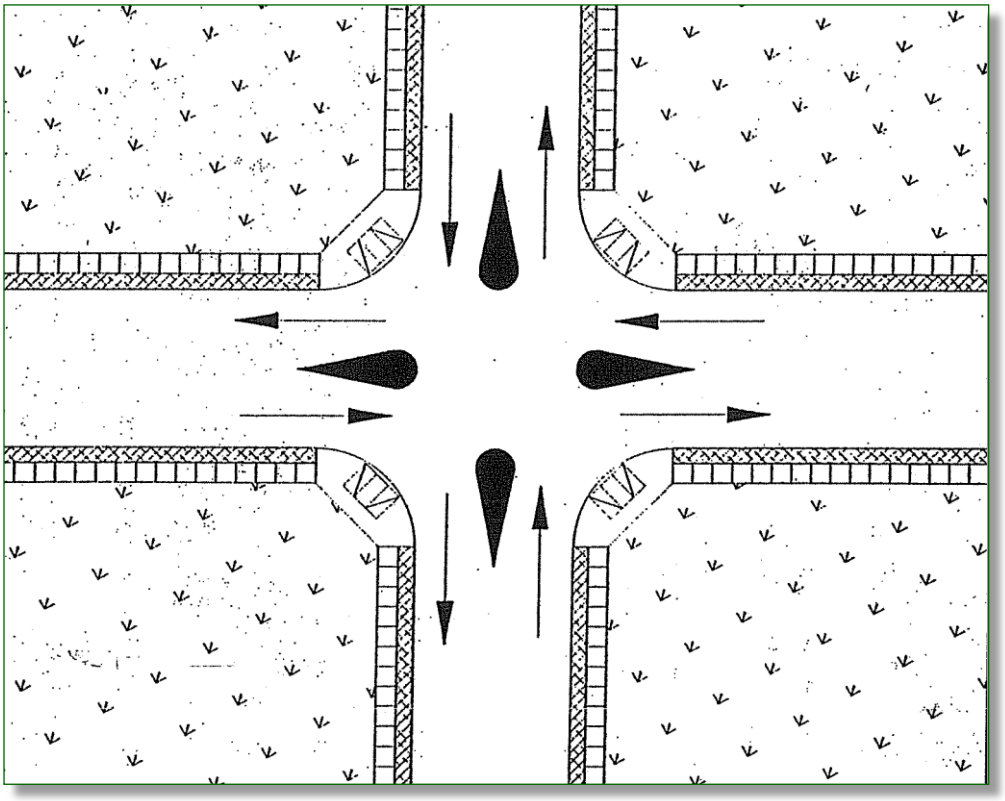
**A physical barrier that restricts traffic movement and / or separates traffic traveling in different directions.**

Advantages:

- Attractive if landscaped
- May affect driving patterns
- Provides pedestrian refuge area
- Creates a visual break in the straight street

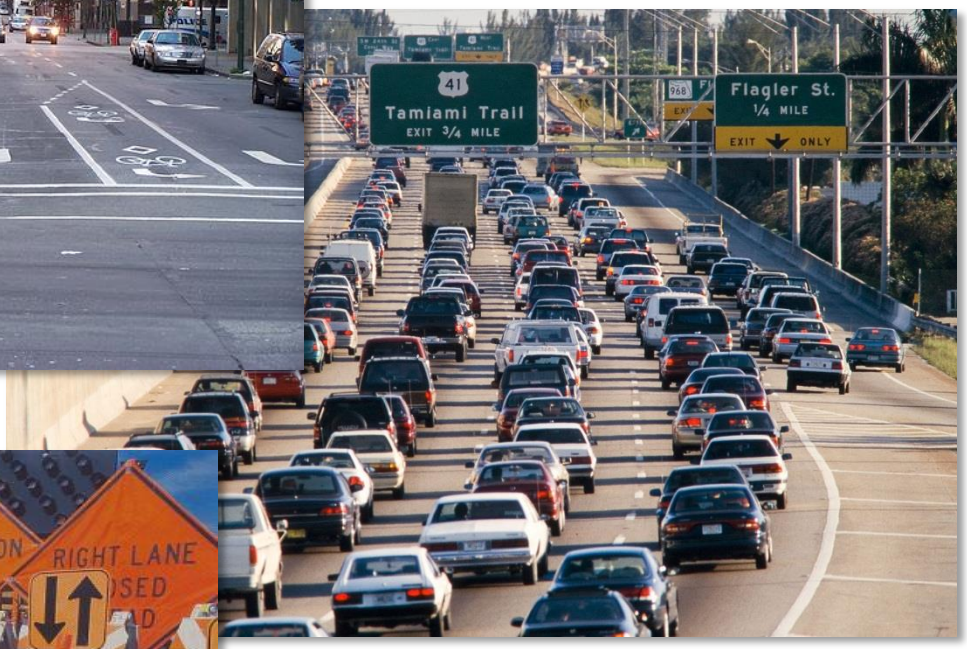
Disadvantages:

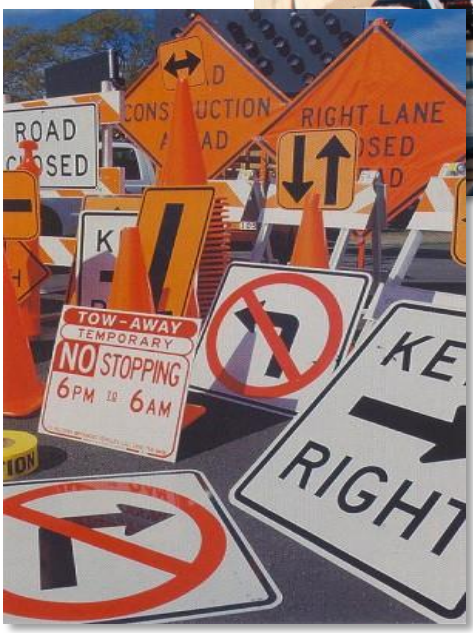
- Left turns are still possible
- Fire engines may have difficulty traversing the intersection
- Not as effective as similar devices since not significantly altering driving habits



# City of Burlingame

## Application and Information Packet



CITY OF BURLINGAME

PUBLIC WORKS DEPARTMENT
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CITY HALL – 501 PRIMROSE ROAD
BURLINGAME, CALIFORNIA 94010-3997
Website: www.burlingame.org

CORPORATION YARD
TEL: (650) 558-7670

# RESIDENTIAL TRAFFIC CALMING PROGRAM

## RESIDENTIAL TRAFFIC CALMING APPLICATION

DATE: _____

NAME: _____ PHONE: _____

ADDRESS: _____

LOCATION: _____

DESCIPTION OF PROBLEM(S): _____
_____
_____
_____
_____
_____
_____
_____
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_____

When completed, please return to:

**City of Burlingame**
**Public Works Department**
**Engineering Division**
**501 Primrose Rd.**
**Burlingame, CA 94010**
**Attention: Traffic Engineer**
**Phone (650) 558-7230**

CITY OF BURLINGAME

# RESIDENTIAL TRAFFIC CALMING PROGRAM

## RESIDENTIAL TRAFFIC CALMING APPLICATION

We, the undersigned, herby petition the City of Burlingame to evaluate _____(street) between _____(street) and _____(street) for traffic calming.

The best day/time of the week to conduct the traffic study would be _____.

| RESIDENT NAME (PLEASE PRINT) | ADDRESS OF 1 HOUSEHOLD MEMBER | PHONE NUMBER | SIGNATURE |
|---|---|---|---|
| CONTACT PERSON | | | |
| | | | |
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| | | | |
| | | | |

A minimum of 10 households (one signature per household) are required to demonstrate support and start the process. When completed, please return to:

**City of Burlingame**
**Public Works Department**
**Engineering Division**
**501 Primrose Rd.**
**Burlingame, CA 94010**
**Attention: Traffic Engineer**
**Phone (650) 558-7230**