



NEIGHBORHOOD TRAFFIC CALMING PROGRAM

City of Lathrop
Department of Public Works

Updated August 2014

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Introduction

The Neighborhood Traffic Calming Program was established by the City of Lathrop (City) to address and resolve local neighborhood traffic concerns and quality of life issues. The Traffic Calming Program expands the City's current approach to mitigate the neighborhood concerns in a systematic and efficient manner. The Traffic Calming Program provides outlines of the broad range of possible solutions to the problem(s). The program is based upon the techniques that are being utilized by surrounding cities in the region. In developing the program, City staff reviewed the traffic calming programs of these cities, and evaluated their full impacts as well as the relevant experience of each city. Staff also conducted additional research and incorporated many other effective ideas and traffic calming measures into this document.

The traffic calming program process begins with a resident identifying a perceived traffic problem, reviewing the guidelines contained in the Traffic Calming Program, and then forwarding the concern to the City:

City of Lathrop – Public Works Department
Attn: Neighborhood Traffic Calming Program
390 Towne Centre Drive
Lathrop, CA 95330

Telephone Number: (209) 941-7430
Fax Number: (209) 941-7449

Purpose

The City periodically receives public concerns regarding excessive vehicle speeding and cut-through traffic on neighborhood streets. In many instances, motorists when faced with a congested arterial route may choose to use non-arterial streets through neighborhoods. This consequently has led to an increase in demand from residents for traffic calming devices to be installed in their neighborhood streets to mitigate the subsequent traffic problems that are either real or perceived.

In reaction to these concerns as well as the desires of the City to provide its residents with a methodical approach to managing these concerns, the City has developed a comprehensive Traffic Calming Program. This program is not intended to replace but rather to supplement current City practices.

“Neighborhood Traffic Calming” expresses the sentiments of residents who wish to maintain peaceful and people-friendly streets within their neighborhoods by either minimizing or eliminating the undesirable impacts caused by the motoring public. While all streets are public property, residents have particular concerns about streets in their neighborhoods. The City understands the concerns residents may have regarding their neighborhood streets and supports the residents in taking a special interest. As such, the Traffic Calming Program aims to facilitate the maintenance and enhancement of elements characteristic of livable communities, which include elements supporting security and safety of all residents and visitors, the sense of home and privacy; and the feeling of community identification.

The City believes this program will provide a framework which can be consistently applied in addressing a myriad of traffic safety concerns as well as quality of life issues as they are encountered by residents and the City. These concerns include limited sight distance, on-street parking, pedestrian and bicyclist safety, right-of-way control, high incidence of accidents, excessive vehicle volumes and speeding. The program is designed, however, to be flexible enough to respond to case-by-case situations and to be amended as necessary.

Furthermore, the traffic calming measures included as part of the Traffic Calming Program should be implemented only to address documented safety or traffic concerns supported by traffic engineering studies. All implementations shall adhere to the guidelines provided in this report unless otherwise approved by the City Engineer.

Has your neighborhood experienced any of the following problems?

Limited sight distance – vegetation and parked vehicles.

What can be done about sight obstructions or restrictions?

- When foliage is the culprit in compromising sight visibility, City forces will either trim or remove the shrub or tree. When the tree is within the resident's property, the City will notify the resident of his/her responsibility to correct the problem.
- When parked vehicles or other obstructions are causing a sight restriction preventing motorists from seeing approaching vehicles, the City Council can authorize the City Traffic Engineer to prohibit parking of vehicles, garbage bins, storage bins, or any other obstruction to provide all road users with adequate sight distance.

Concern for pedestrian and bicyclist safety.

How can the City help provide a safe environment for pedestrians?

- Police Department conducts pedestrian and bicycle school safety programs (on request). These programs alert and educate pedestrians and bicyclists to potential safety hazards.
- Suggested safe route to school programs. Through cooperative efforts between the City, School Districts, and parents a safe route to and from school can be determined.
- Traffic control tools are available that can assist pedestrians and bicyclists in negotiating street facilities. When warranted, marked crosswalks, adult crossing guards, flashing beacons, stop signs, traffic signals, detector loops, pedestrian push buttons, etc. can be used.
- When warranted the construction of sidewalks will provide a path for pedestrians to separate them from vehicles, reducing the potential for conflicts.
- When warranted and when there is sufficient right-of-way, bicycle lanes and bicycle paths can improve the comfort and safety of bicyclists.

Parking control and prohibition

How can street parking be controlled?

- Time limit parking. When all day parking interferes with reasonable time usage, time limits can be established in order to provide available parking for all motorists.
- Parking prohibition. When vehicles parking or stopping cause a sight visibility or roadway obstruction, parking prohibition can help to improve visibility and facilitate vehicle movements.
- Preferential parking permit program for residential areas. When allowing all day parking on neighborhood streets becomes a burden and those who are parking are non-residents (businesses, schools, etc.) parking limits can be established that would allow residents to obtain residential parking permits (administered by Police Department).
- Traffic enforcement. When motorists are seen not observing traffic controls or regulations the Lathrop Police Department will schedule selective enforcement.

Right of Way Control at Intersections

What tools are available that can help assign the right-of-way?

- Marked crosswalks. They are intended to alert drivers to locations where they need to watch carefully for pedestrians. Also, crosswalks mark the best or preferred location where pedestrians should cross the street.
- Adult school crossing guards. Trained adults watch traffic flow; wait for an appropriate gap between vehicles and lead groups of children promptly across a street.
- Turn prohibition signs. Where vehicle turning movements are determined to be hazardous specific turning prohibitions can be implemented.
- Raised curb medians. These are physical features used as street median barriers to prevent left turns, and improve main street traffic flow.
- Semi-diverter (half-closures). Physical structure(s) serving as barriers to prevent access onto local streets by through traffic.
- Traffic chokers. These are geometrically designed features that physically narrow the street, reducing the distance for pedestrians when crossing the street.

- Stop signs. These assign the vehicular and pedestrian right-of-way at intersections.
- Traffic signals. Electronic traffic control that assigns vehicular and pedestrian right-of-way at intersections. In addition they facilitate traffic flow through the intersection.

High Incidence of Accidents

Depending on the location of reported accidents, some of the solutions that Traffic Engineers have to reduce the number of accidents are the following:

- Speed limit or warning signs. Regulatory signs will inform motorists of the vehicle speeds they are expected to travel and warning signs will alert them to unexpected road conditions.
- Right-of-way control assignments. Where traffic accidents, vehicular volumes, and time delays are substantial, traffic controls like stop signs and traffic signal can help to provide adequate time gaps to enter the intersection.
- Road improvements. When warranted the types of road improvements possible are: sidewalks, street lights, street width modification, etc.
- Request for increased Lathrop Police Department Traffic Enforcement. Selective enforcement provides an education opportunity by adding emphasis on observing the rules of the road.
- Traffic Engineering Studies and Observations. Traffic volume, speed, roadway, and accident studies can be conducted to assess the nature and extent of the problem. Roadway conditions such as sight distances, pavement conditions, traffic signing, pavement markings, and roadway geometry are reviewed to determine the effect they have on the driving conditions. The findings from these studies can be used to help in lessening the traffic concern by either improving the situation or by demonstrating the situation is not as adverse as perceived.
- Installation of striping, stop signs, additional and larger speed limit signs, and striped speed limit pavement messages. These are recommended as treatments to increase the motorist's awareness and other driving conditions by highlighting various areas of the roadway.

Excessive Vehicle Volumes

What types of traffic control tools are available to reduce vehicle volumes?

- Turn prohibition signs. The success of these regulatory signs will depend on their general acceptance by motorists. When posted, they will prohibit specific turning movements.
- Raised curb medians and forced-turn channelization. These are permanent physical features used as street median barrier or at intersections to prevent through traffic from making turning movements onto local neighborhood streets.
- Semi-diverters (half-closures). These are permanent physical structure(s), serving as barriers to prevent access onto local streets by through traffic.
- Diagonal diverters. These are permanent physical barriers that are placed diagonally across the intersections to re-direct through traffic away from local neighborhoods.
- Cul-de-sac. A complete physical barrier blocking through traffic.

Excessive speeding

How can it be controlled?

- Speed limit signs and striped speed limit pavement “messages.” Either used separately or as a combination, they are one of the most cost effective measures in increasing the awareness of motorists traveling through a neighborhood street. These two devices do not have glaring negative impacts as far as air quality, emergency response time, maintenance, and liability exposure are concerned.
- When warranted geometrically designed features or barriers can be used, such as speed humps and traffic circles to reduce vehicle speeds on local neighborhood streets.

How can the posted speed limit be enforced or monitored?

- Radar Speed Trailer. The deployment of the radar speed trailer is coordinated with the Police Department. It is primarily used as an educational tool. The primary intent of the radar speed trailer is to remind motorists of the prevailing speed limit and the need to check their speedometer on a more frequent basis. It is important to note that the trailer is not an enforcement device.

- Increased Police Enforcement. Police enforcement is proven to be the most effective and successful technique in reducing speeds within a residential area. Police presence alone would increase safety awareness in residential streets. Unlike other costly traffic measures, police enforcement has the distinct advantage of impacting offending drivers without affecting the convenience or mobility of motorists who obey the rules of the road. The speeding pattern sometimes crop up again when enforcement activity is not periodically resumed. Due to various City-wide needs and the amount of traffic movement within the City, particularly during commute hours, the Police Department cannot always provide the desired amount and frequency of enforcement residents would like. Without regular periodic enforcement, long-term benefits of speed reduction may be diminished.

Traffic Management Strategies

Traffic calming options to address residential traffic concerns can generally be categorized in the following four strategies:

1. Meeting with residents to better understand the nature and extent of traffic problem(s). A discussion of potential solutions to those problems often highlights not only the potential benefits but also the potential impacts.
2. Enforcing general laws and ordinances pertaining to speed limits, turning restrictions, intersection control and parking regulations. This includes periodic speed zone surveys, which help to set speed limits, and may entail the establishment or revision of City ordinances. To enable speed enforcement by the Police Department, speed zone surveys must be performed every 5 years (maximum).
3. Utilizing traffic control devices that provide specific regulatory, warning or guide messages to pedestrians, bicyclists, motorists and all users of the roadway.
4. Neighborhood meetings and installing either painted or physical geometric design features that influence or direct the movement of vehicles, bicyclists and/or pedestrians within the neighborhood streets. Only when the methods in strategies 1, 2 and 3 (above) have proven ineffective should these measures be utilized in addressing residential concerns.

The Traffic Calming Program is intended to expand the City's current practices to mitigate cut-through traffic, speeding and other traffic-related problems in residential neighborhoods. In line with the management strategies above, traffic calming options available through the Traffic Calming Program are generally classified into three categories:

- **Level 1** -- These measures are generally comprised of studies, observations, public education, public involvement, enforcement efforts, striping, signage, parking controls and the use of the speed radar trailer.
- **Level 2** -- These measures include STOP signs and/or require the alteration of the configuration of neighborhood streets (see strategy 4 above). These changes typically change the striping on the street to alter the flow of traffic. For example, narrowing wide streets by using painted chicanes.
- **Level 3** -- These measures generally require the alteration of the physical configuration of neighborhood streets (see strategy 4 above). These measures are sometimes referred to as "physical controls." Common characteristics of these controls are that they force or prohibit specific actions. These features are largely self-enforcing and may create a visual impression that a street is not intended for through traffic. Level 3 treatments include chokers, traffic circles, median barriers, semi-diverters, forced-turn channelization, diagonal diverters, cul-de-sacs and speed humps, among others.

Table 1
Level 1 Neighborhood Traffic Calming Options

	Traffic Calming Measure	Speed Reduction	Volume Reduction Traffic Diversion	Noise Increase	Loss of On-Street Parking	Access Restriction	Emergency Vehicle Response Impacts	Increase in Street Maintenance	Installation Cost
1	Increased Police Enforcement	Yes	Possible	No Change	None	None	None	No	N/A
2	Special Neighborhood Signs	Possible	No	No Change	None	None	None	No	\$300 per sign
3	Speed Limit Signs and Pavement Messages	Possible	No	No Change	None	None	None	No	\$300 per sign
4	Speed Radar Trailer	Yes	No	No Change	None	None	None	No	N/A
5	Striping Narrower Lanes	Yes	Possible	No Change	None	None	None	Yes	\$1,000 per lane mile
6	Higher Visibility Crosswalks	Possible	No	No Change	None	None	None	Yes	\$1,000 per crosswalk
7	Turn Restriction Signs	Possible	Yes	Yes	None	Yes	None	No	\$300 per sign

Table 2
Level 2 Neighborhood Traffic Calming Options

	Traffic Calming Measure	Speed Reduction	Volume Reduction Traffic Diversion	Noise Increase	Loss of On-Street Parking	Access Restriction	Emergency Vehicle Response Impacts	Increase in Street Maintenance	Installation Cost
1	Painted Chicanes	Yes	Possible	Increase Possible	Yes	None	None	Possible	Varies
2	Optical Speed Bars	Possible	Possible	Increase Possible	None	None	None	Yes	Varies
3	Painted Lateral Shifts	Yes	Possible	Increase Possible	Yes	None	None	Possible	Varies
4	Stop Signs	Possible	No	Increase	None	None	None	No	\$1000 per set
5	Extensive Restriping	Possible	Possible	No Change	Possible	None	None	Yes	Varies

Table 3**Level 3 Neighborhood Traffic Calming Options**

	Traffic Calming Measure	Speed Reduction	Volume Reduction Traffic Diversion	Noise Increase	Loss of On-Street Parking	Access Restriction	Bus Route and Emergency Vehicle Response Impacts	Increase in Street Maintenance	Installation Cost
1	Speed Humps	Yes	Yes	Increase	Yes	None	Yes	Yes	Approx. \$4,000 per hump
2	Traffic Circles	Yes	Possible	No Change	Yes	None	Yes	Yes	\$5,000-\$20,000
3	Chokers	Yes	Possible	No Change	Yes	None	Yes	No	\$5,000-\$40,000 per set
4	Median Barrier	Possible	Yes	Decrease	None	Right Turn Only	Yes	No	\$5,000-\$20,000 per block
5	Intersection Channelization	Yes	Possible	No	Yes	None	Yes	Possible	\$30,000
6	Diagonal Diverter	Yes	Yes	Decrease	Possible	Left/Right Turn Only	Yes	No	\$10,000-\$15,000
7	Cul-De-Sac (Dead end)	Yes	Yes	Decrease	Yes	Total	Yes	No	\$50,000
8	Chicanes	Yes	Possible	Increase Possible	Yes	None	Yes	Possible	\$50,000-\$75,000 or more
9	Gateways	Yes	Possible	Decrease	None	Yes	Yes	No	\$5,000-\$20,000
10	Rumble Strips	Yes	Possible	Yes (High)	None	None	None	Yes	\$500

Table 4

Speed Impacts of Traffic Calming Measures

Speed Impacts of Traffic Calming Measures (standard deviation)				
Type	Sample Size	85th Percentile Speed Afterward (mph)	Average Change in 85th Percentile Speed (mpg)	Average % Change (%)
12' Speed Hump	179	27.4 (4)	-7.6 (3.5)	-22 (9)
14' Speed Hump	15	25.6 (2.1)	-7.7 (2.1)	-23 (6)
22' Speed Table	58	30.1 (2.7)	-6.6 (3.2)	-18 (8)
Longer Table (>22')	10	31.6 (2.8)	-3.2 (2.4)	-9 (7)
Raised Intersection	3	34.3 (6)	-0.3 (3.8)	-1 (10)
Traffic Circle	45	30.3 (4.3)	-3.9 (3.2)	-11 (10)
Narrowing	7	32.3 (2.8)	-2.6 (5.5)	-7 (22)
Choker	5	28.6 (3.1)	-2.6 (1.3)	-14 (4)
Half Closure	16	26.3 (5.2)	-6 (3.6)	-19 (11)
Digonal Diverter	7	27.9 (5.2)	-1.4 (4.7)	0 (17)

Note: speeds are measured at midpoints between measures

Source: Fehr & Peers *Impacts of Traffic Calming*

Impacts of Traffic Calming Measures

While Level 3 measures have the potential to achieve the desired results, they can also present significant problems that compound the initial resident concerns. From the resident's point of view, the benefits are quite often obvious while the shortcomings may be less apparent. There are different types of traffic calming devices and measures, and their impacts will vary depending on the application and the existing roadway conditions. In recommending the use of Level 3 calming measures, it will be the City's policy to proceed with caution and to fully investigate potential problems associated with their implementation.

In order to determine the suitability of traffic calming devices, it is first important to quantify the problem(s) to determine the nature and extent. Each problem should be handled on a case-by-case basis and described qualitatively as well. It is important that the real problem, not simply a perceived concern, must be identified to ensure the solution achieves the desired results.

The experiences of other jurisdictions illustrate that negative impacts must be identified and then weighed against the benefits of any proposed traffic calming method. Furthermore, delays to services including police, fire, ambulance, waste collection, transit, and street cleaning can have adverse implications, resulting in a compromise to neighborhood safety and livability. Traffic calming measures and devices should be applied only where sound engineering judgment justifies their use. The City, however, shall strive for a balance between responsive customer service and sound engineering judgment in dealing with residential requests for traffic calming devices and measures.

Procedure for the Evaluation of Citizen Requests

1. Citizens shall submit a complaint, problem, and/or request for implementation of traffic calming measures in writing to the City:

City of Lathrop – Department of Public Works
Attn: Neighborhood Traffic Calming Program
390 Towne Centre Drive
Lathrop, CA 95330

2. Initial steps will be to consider and determine the effectiveness of Level 1 measures (see Appendix A) in mitigating the concern(s). The City Engineer will work directly with the resident(s) to develop these solutions.
3. After a period of 60 calendar days, should Level 1 treatments prove unsatisfactory in resolving the concern, or should a perceived concern persist, Level 2 and then Level 3 treatments would be considered. The resident submitting the complaint/problem/request will be given a standard Traffic Calming Request/Petition Form to circulate among the neighborhood.
4. All residents of the affected neighborhood are to be contacted and the petition must contain the signatures of property owners representing at least 50% of the properties that face directly on the block(s) under consideration. The City Engineer will determine the extents of the affected neighborhood. If the neighborhood representative cannot obtain the necessary neighborhood concurrence, the use of Level 1 treatments in mitigating the traffic concerns will continue. City Council may choose to direct staff via Council Referral to consider implementation of Level 3 measures in lieu of this step.
5. The City Engineer will undertake any necessary engineering studies, if required, and will work closely with the Police and Fire Departments to determine whether or not the street in question meets the established criteria for an installation. If the street is eligible for the device being considered, the matter will be scheduled for an upcoming City Council meeting. A letter will be sent to the affected residents which includes an exhibit depicting the proposed modifications and informing the residents of the upcoming council meeting at which the modifications will be considered. Residents will have the opportunity to address Council at the meeting to support or oppose the measure. If the measure is approved, the device will be scheduled for installation, based on funding availability and funding priority. If the recommendation is denied, the device will not be used and the use of Level 1 treatments will continue.
6. If it is determined that the street is **NOT** eligible for the requested Level 2 Level 3 device, the representative will be notified in writing giving the reason why the street is not eligible.

7. Evaluation of complaints, concerns, and traffic calming requests will be done on a first-come, first-serve basis.
8. Traffic calming devices and measures will only be installed in conformance with the design guidelines that have been established by the City Engineer.
9. If there is subsequently a desire by residents to remove a Level 2 or Level 3 device, it will only be considered for removal after a petition requesting removal is received by the City Engineer from property owners representing at least 75% of the properties that face directly on the block. This will require City Council approval and be subject to available funding.
10. All installations will be prioritized according to the priority scoring system established in this report, and are subject to availability of funds in the City's annual budget for traffic calming.

CITY OF LATHROP

DEPARTMENT OF PUBLIC WORKS

PETITION FOR INSTALLATION OF TRAFFIC CALMING DEVICE

The undersigned approve/disapprove the implementation of a traffic calming measure on the following residential street:

on _____ between _____ and _____

The undersigned have read the Neighborhood Traffic Calming Program installation and removal policy and fully understand the procedures.

All persons signing this petition do hereby certify that they reside within the area impacted.

Return petition forms to:

City of Lathrop – Public Works Department
Attn: Neighborhood Traffic Calming Program
390 Towne Centre Drive
Lathrop, CA 95330

Contact person(s): _____ Phone No(s): _____

The contact person(s) will act as the facilitator(s) between the neighborhood residents and the Traffic Engineering Division staff. The facilitator's duties will include collection of all necessary signatures from residents.

ONLY ONE SIGNATURE ALLOWED FOR EACH ADDRESS

Name (Please Print)	Address	Phone No.	(Signature Required) APPROV	(Signature Required) DISAPPROVE
1.				
2.				
3.				
4.				
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18.				
19.				
20.				

Criteria for Installation of Level 2 and Level 3 Devices

The following criteria must be met for the installation of Level 2 devices:

1. The street shall be a two (2) lane local residential street where the primary function is to provide access to abutting residences. At least 75% of the street segment must be developed residentially (schools and parks qualify as residential units).
2. The posted speed limit or prima facie speed shall be 25 mph or less, unless otherwise approved by the City Engineer.
3. Traffic volumes shall be less than 3,500 vehicles per day.
4. The 85th percentile speed shall exceed 33 miles per hour on posted 25 mph streets.
5. Installation on a primary emergency response route and/or transit route shall **NOT** be permitted unless specifically authorized in writing by the Police and/or Fire Department.
6. The boundaries of the affected areas/neighborhoods as well as the identification of the impacted residents will be determined by the City Engineer.
7. Installation will not be permitted where substantial diversions of traffic to other local/residential streets may occur, subject to approval by the City Engineer.
8. Devices shall be located a minimum of 5 feet from driveways, manholes, drain inlets, water valves, and street monuments, unless otherwise approved by the City Engineer.
9. Devices shall be located a minimum of 25 feet from fire hydrants, subject to approval by the Fire Department.
10. Devices shall be installed only where minimum safe stopping sight distance (per AASHTO's *A Policy of Geometric Design of Streets*) can be provided.

Additional Criteria - Installation of Speed Tables, Speed Humps, or Raised Crosswalks

1. The street shall have adequate existing curb and gutter on each side of the street to prevent flooding in the area of the speed hump, speed table, or raised crosswalk, unless otherwise approved by the City Engineer.
2. The first speed hump in a series should be located in a position where it can not be approached at high speed from either direction. To achieve this objective, the first hump should be located at approximately 200 feet from an intersection or a stop sign, unless otherwise approved by the City Engineer.
3. Speed humps shall not be installed within horizontal curves of less than 300 feet centerline radius, and on vertical curves with less than the minimum safe stopping sight distance.
4. Speed humps should be located in line with or near residential property lines wherever possible.
5. Speed humps should be located near street lights when possible in order to illuminate them at night for bicycle and pedestrian safety.
6. Spacing between speed humps should be as even as possible in order to produce a relatively uniform speed along the entire street. Speed humps within a series should be placed from 200 to 600 feet apart.

Priority Scoring and Ranking System for Installation of Level 2 and Level 3 Devices

All Level 2 and Level 3 traffic calming measures/devices approved by the City Council will be eligible for funding. They shall be ranked according to the following point system:

- Percent of vehicles exceeding speed limit.....1 point/percentage point
- Number of vehicles over 1,000 daily traffic volume.....1 point/100 vehicles
- Number of reported speed related accidents (in last 2 years.).....10 points/accident
- Vicinity to schools or parks (within 1 block).....5 points each
- Percent of property owners approving installation(s).....1 point/percentage point

The total of the five evaluation criteria shall be used to determine the prioritization of the eligible installations. The installations not funded for a specific funding cycle shall be re-evaluated and shall compete on an annual basis with any new eligible installation on a priority basis.

Conclusion

Instead of replacing current City practices, the emphasis of the Neighborhood Traffic Calming Program is to broaden the traffic calming options available to residents wishing to calm traffic in their neighborhoods. Many of the concerns can be resolved by utilizing current City practices (Level 1) which have consistently proven over the years to be very effective at calming traffic. Ultimately, the program will help all the parties involved in determining the suitability of alternative traffic calming treatment(s) for a given neighborhood.

Basically, traffic calming measures are aimed at counteracting the negative impacts of traffic speeding and cut-through traffic in residential areas. Some of the benefits of traffic calming devices and measures include the following: reduced vehicle speed, reduced traffic flows, improved public safety, increased comfort and mobility for non-motorized travel, reduced noise and air pollution, increased street activity and neighborhood interactions, and a more attractive streetscape. The Traffic Calming Program can maintain and perhaps enhance the safety, cohesion, and vitality within Lathrop's neighborhoods with appropriate applications of these treatments.

APPENDIX A

NEIGHBORHOOD TRAFFIC CALMING OPTIONS

Higher Visibility Crosswalks

Level 1

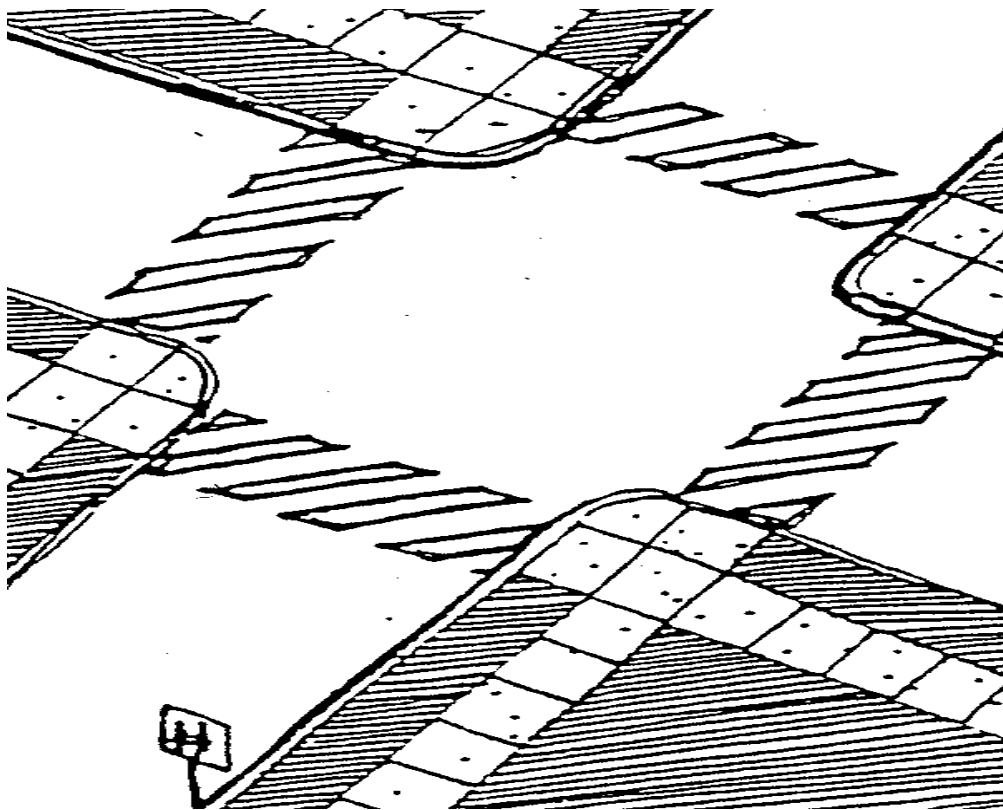
Description: A crosswalk incorporating striped pattern. Mid-block crosswalks are to be avoided because they are unexpected by the motorist.

Positive Aspects:

- ✓ More visible to motorists than traditional crosswalks.

Negative Aspects:

- ✓ May create a false sense of pedestrian security.
- ✓ Requires more maintenance than traditional crosswalks.



Police Enforcement

Level 1

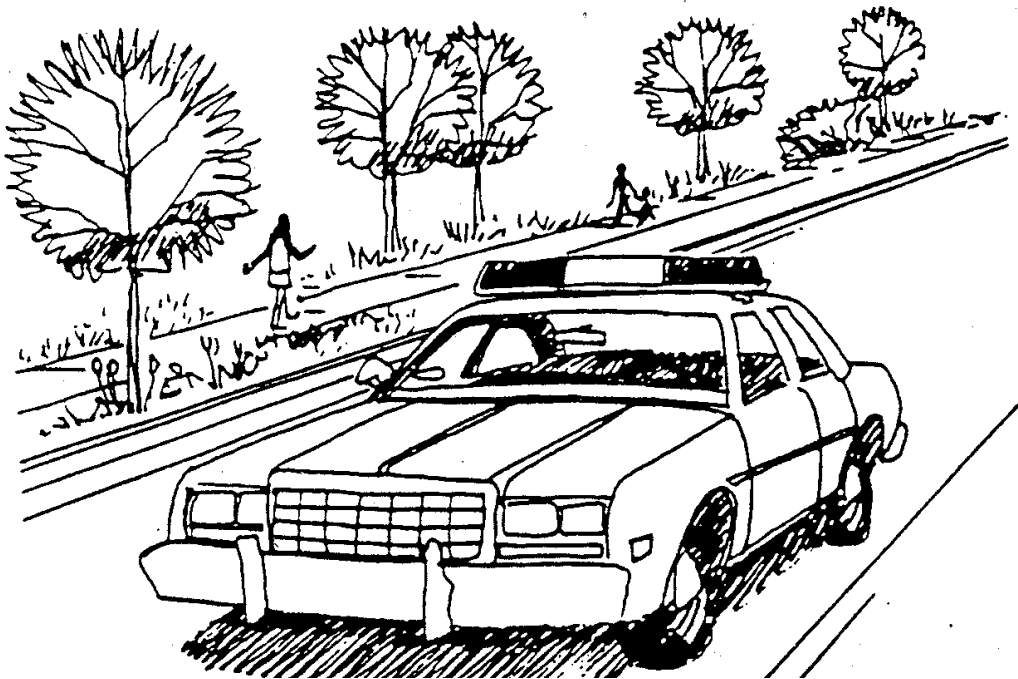
Description: The Police Department deploys units to residential areas with reported problems to perform stepped up enforcement.

Positive Aspects:

- ✓ Reduces vehicle speeds.
- ✓ May help reduce cut-through traffic.
- ✓ Can be conducted during time periods that are deemed to be most problematic.
- ✓ Impacts offenders without affecting the convenience or mobility of motorists who obey the rules of the road.

Negative Aspects:

- ✓ Without regular periodic enforcement, long-term benefits may be diminished.
- ✓ The time period and frequency of enforcement is generally controlled by limited resources and other policing duties.



Special Neighborhood Signs

Level 1

Description: Special neighborhood signs alert motorist to the fact that they are entering a traffic calming area.

Positive Aspects:

- ✓ Alert motorists that they are entering traffic calming area.

Negative Aspects:

- ✓ Too many signs may become a negative aesthetic impact.



Speed Limit Signs and Pavement Messages

Level 1

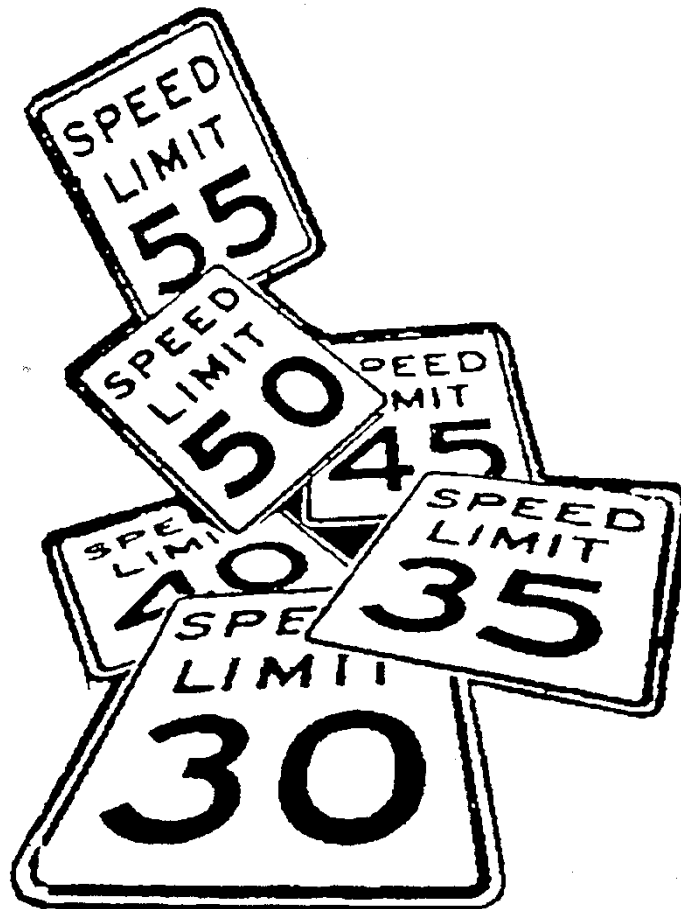
Description: Although all motorists are required to know the prima facie speed limit of 25 mph in a residential area, speed limit signs and pavement messages can help remind motorists of the prevailing speed limit that applies to the street.

Positive Aspects:

- ✓ Relatively inexpensive to install.
- ✓ In conjunction with regular periods of enforcement, can be effective at reducing speeds.

Negative Aspects:

- ✓ Effectiveness is dependent on motorist acceptance and amount of enforcement.



Speed Radar Trailer

Level 1

Description: The trailer is primarily used as an educational tool. A speed radar trailer reminds motorists of the posted speed limit. They are also capable of measuring vehicle speeds and graphically displaying the speeds of passing vehicles. They are intended to alert motorists to the fact that they may be exceeding the speed limit.

Positive Aspects:

- ✓ Vehicle speeds may be reduced at radar trailer location.
- ✓ An effective educational tool.
- ✓ Can be deployed quickly to trouble spot. The Police Department has two (2) trailers which are available for use as needed.
- ✓ Information reflected in the displayed speeds can demonstrate to residents that speeds may not be as high as perceived.

Negative Aspects:

- ✓ Not an enforcement tool.
- ✓ Not effective as long term solution, or for repeat street location travelers



Turn Restriction Signs

Level 1

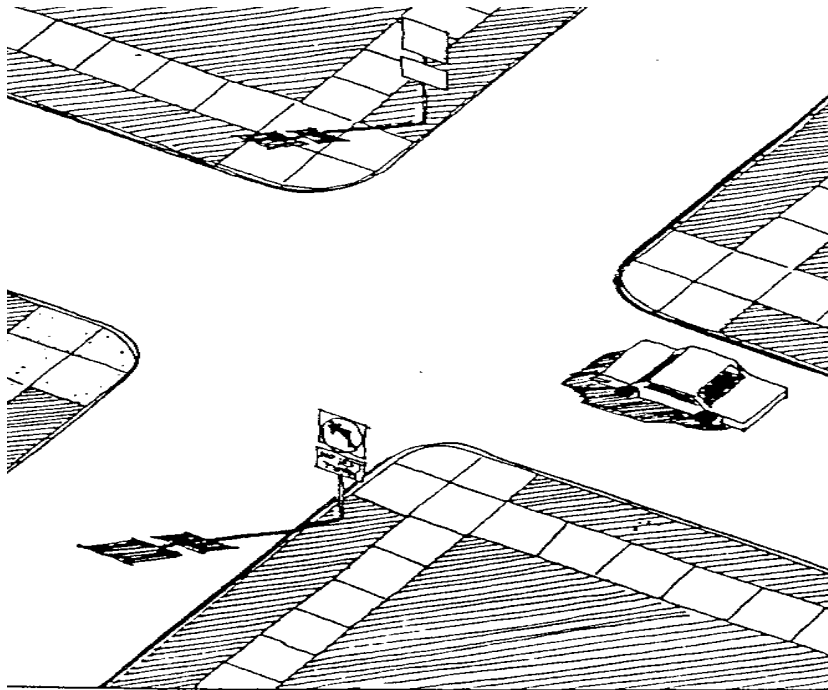
Description: Signs prohibiting certain turning movements to help mitigate cut-through traffic on neighborhood streets. Convenient and logical route alternatives to the prohibited movement must be provided to ensure the effectiveness of the signs. City Council can establish turn prohibitions during certain times of the day, preferably during commute work hours when excessive cut-through traffic are likely to occur in neighborhood streets. This arrangement allows residents full accessibility during the other periods of the day.

Positive Aspects:

- ✓ Reduces vehicle volume.
- ✓ Can divert traffic to adjacent arterial streets.
- ✓ No loss of on-street parking.
- ✓ Can reduce noise pollution.
- ✓ No increase in street maintenance.
- ✓ Low cost to implement.

Negative Aspects:

- ✓ Success depends on motorist acceptance and on level of enforcement.
- ✓ Without considering overall traffic circulation in area, this measure may divert traffic to adjacent neighborhood streets.
- ✓ Limits neighborhood traffic movement.



Striping Narrow Lane

Level 2

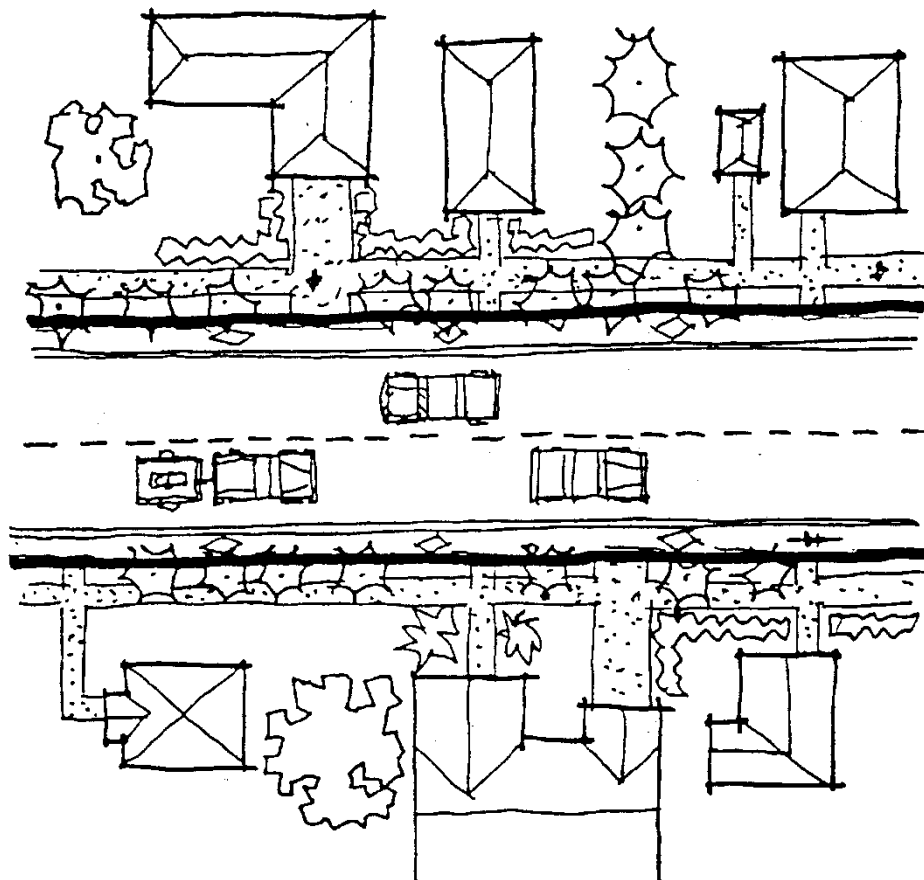
Description: Striping is used to create narrow lanes to give the impression of a narrow street that makes the motorist feel somewhat constricted.

Positive Aspects:

- ✓ Changes can be quickly implemented.
- ✓ Painted striping can be easily modified.
- ✓ Low cost to implement.

Negative Aspects:

- ✓ Requires an increase in regular maintenance.
- ✓ There is little evidence that narrow striping will consistently reduce vehicle speeds.



Optical Speed Bars

Level 2

Description: Striping is used to create an optical illusion that gives the impression of increased speed.

Positive Aspects:

- ✓ Makes motorists more aware of their velocity
- ✓ Low cost to implement.

Negative Aspects:

- ✓ Requires an increase in regular maintenance.
- ✓ Motorists will eventually adapt to the striping and eventually increase their speed.
- ✓ Aesthetics



Painted Chicanes

Level 2

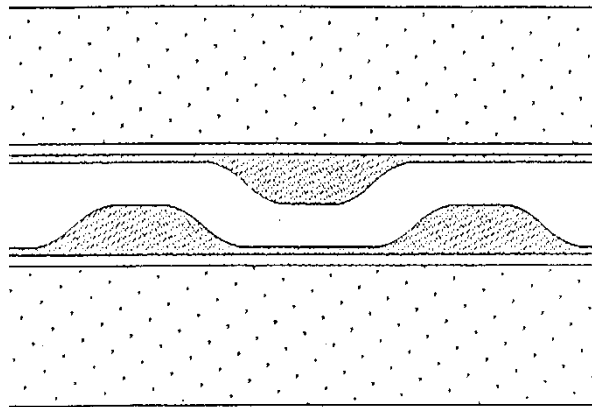
Description: Chicanes are artificial blockages on opposite sides of the street to create an S-curvature on a naturally straight street. Chicanes require vehicles to meander through the roadway alignment.

Positive Aspects:

- ✓ May slow down vehicles.
- ✓ Can be very effective in changing the initial impression of the street.

Negative Aspects:

- ✓ Bicyclists may feel “squeezed in” due to narrower roadway.
- ✓ May require modification or reconstruction of drainage features and other utilities.
- ✓ May require part or all of on-street parking removal.
- ✓ Increased maintenance.
- ✓ Not an actual barrier.



Painted Lateral Shift

Level 2

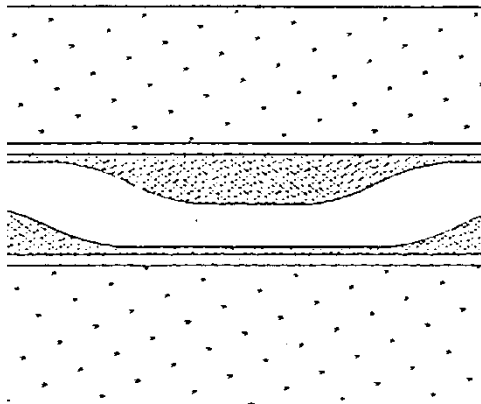
Description: Painted lateral shifts are similar to chicanes and are designed to create an S-curve on a naturally straight street. Painted lateral shifts require vehicles meander through the roadway alignment.

Positive Aspects:

- ✓ May slow down vehicles.
- ✓ Can be very effective in changing the initial impression of the street.

Negative Aspects:

- ✓ Bicyclists may feel “squeezed in” due to narrower roadway.
- ✓ May require modification or reconstruction of drainage features and other utilities.
- ✓ May require part or all of on-street parking removal.
- ✓ Increased maintenance.
- ✓ Not an actual barrier.



Flashing Crosswalks

Level 2

Description: A crosswalk incorporating flashing lights. Mid-block crosswalks should be avoided because they are unexpected by motorists.

Positive Aspects:

- ✓ More visible to motorists than traditional crosswalks, especially at night.

Negative Aspects:

- ✓ May create a false sense of pedestrian security.
- ✓ Requires more maintenance than traditional crosswalks.



Stop Signs

Level 2

Description: Stop signs are intended to assign the right of way at an intersection and are not to indicated be used as a technique to reduce vehicle speeds or volumes by recognized traffic engineering standards. They should only be installed after a warrant study is conducted and concludes a stop sign is warranted.

Positive Aspects:

- ✓ Helps pedestrians, bicyclists and motorists at the intersection decide who has the right of way.

Negative Aspects:

- ✓ When used under the wrong conditions, the installation can result in speeding in between traffic controls, noise at the controlled intersection, motorist disregard for the sign(s), rolling stops, and motorist contempt for all traffic controls.
- ✓ Creates a false sense of security for pedestrians, especially children.
- ✓ When not warranted, increases unnecessary delays for the approaches.
- ✓ Frequently not acceptable to residents immediately adjacent to new stop sign locations.

May encourage high mid-block speeds on long blocks.



Traffic Circles

Level 3

Description: Traffic circles are raised islands, placed in intersections, around which traffic circulates. They are good for calming intersections, especially within neighborhoods, where large vehicle traffic is not a major concern but speeds, volumes, and safety are problems.

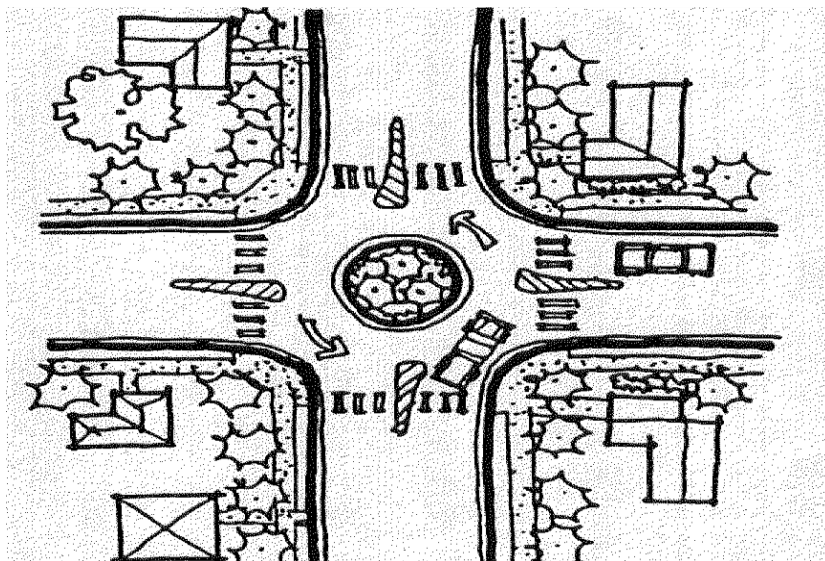
Advantages:

- ✓ Traffic Circles are very effective in moderating speeds and improving safety
- ✓ If designed well, they can have positive aesthetic value
- ✓ Placed at an intersection, they can calm two streets at once

Disadvantages:

- ✓ They are difficult for large vehicles (such as fire trucks) to circumnavigate
- ✓ They must be designed so that the circulating lane does not encroach on the crosswalks
- ✓ They may require the elimination of some on-street parking
- ✓ Landscaping must be maintained, either by the residents or by the municipality

Effectiveness: Average of 11% decrease in the 85th percentile travel speeds, or from an average of 34.1 to 30.2 miles per hour (from a sample of 45 sites). Including a large sample from Seattle, an average of 73% decrease in accidents or from an average of 2.2 to 0.6 accidents per year (from a sample of 130 sites). Excluding the large sample from Seattle, an average of 29% decrease in accidents, or from an average of 5.9 to 4.2 accidents per year (from a sample of 17 sites)



Gateways

Level 3

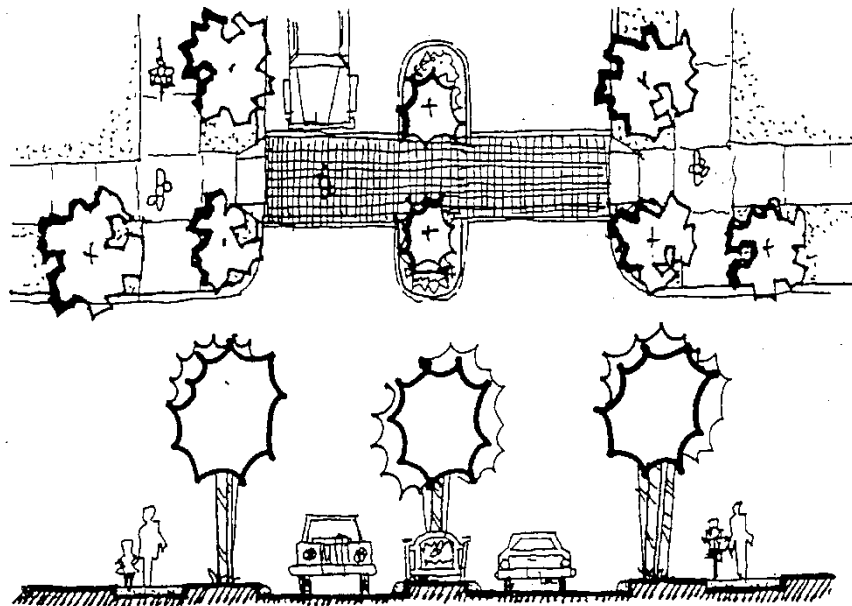
Description: A gateway is a special entrance that reduces width of travel way, often implementing the use of islands. **Gateways are not gates.** The exact physical design of the gateway treatment will depend on existing conditions.

Positive Aspects:

- ✓ May eliminate cut-through traffic.
- ✓ Reduces speeds in the immediate vicinity.
- ✓ Reduces pedestrian crossing distance.
- ✓ Allows signs to be located favorably within motorists line of sight.
- ✓ May create space for landscaping.
- ✓ May create neighborhood identity.

Negative Aspects:

- ✓ Impedes emergency vehicle, truck and other service vehicle access.
- ✓ May divert traffic to adjacent neighborhood streets.
- ✓ May become obstacles for motorists to drive into.
- ✓ Low speed of turning vehicles may restrict traffic flow on arterial roadway.
- ✓ May require part or all of on-street parking removal.
- ✓ High installation cost.
- ✓ Increased maintenance.



Speed Tables or Platforms

Level 3

Description: 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 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.

Speed tables are good for locations where low speeds are desired but a somewhat smooth ride is needed for larger vehicles.

Advantages:

- ✓ They are smoother on large vehicles (such as fire trucks) than Speed Humps
- ✓ They are effective in reducing speeds, though not to the extent of Speed Humps

Disadvantages:

- ✓ They have questionable aesthetics, if no textured materials are used;
- ✓ Textured materials, if used, can be expensive; and
- ✓ They may increase noise and air pollution.

Effectiveness:

For a 22-foot speed table: 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). 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).



Raised Intersections

Level 3

Description: Raised intersections are flat raised areas covering an entire intersection, with ramps on all approaches and often with brick or other textured materials on the flat section. They usually raise to the level of the sidewalk, or slightly below to provide a "lip" that is detectable by the visually impaired. By modifying the level of the intersection, the crosswalks are more readily perceived by motorists to be "pedestrian territory".

Raised intersections are good for intersections with substantial pedestrian activity, and areas where other traffic calming measures would be unacceptable because they take away scarce parking spaces.

Advantages:

- ✓ Raised Intersections improve safety for both pedestrians and vehicles
- ✓ If designed well, they can have positive aesthetic value
- ✓ They can calm two streets at once

Disadvantages:

- ✓ They tend to be expensive, varying by materials used
- ✓ Their impact to drainage needs to be considered
- ✓ They are less effective in reducing speeds than Speed Humps, Speed Tables, or Raised Crosswalks

Effectiveness: Average of 1% decrease in the 85th percentile travel speeds, or from an average of 34.6 to 34.3 miles per hour; (from a sample of 3 sites).



Textured Pavement

Level 3

Description: Textured and colored pavement includes the use of stamped pavement or alternate paving materials to create an uneven surface for vehicles to traverse. They may be used to emphasize either an entire intersection or a pedestrian crossing, and are sometimes used along entire street blocks.

Textured pavements are good for "main street" areas where there is substantial pedestrian activity and noise is not a major concern.

Advantages:

- ✓ Textured Pavements can reduce vehicle speeds over an extended length
- ✓ If designed well, they can have positive aesthetic value
- ✓ Placed at an intersection, they can calm two streets at once

Disadvantages:

- ✓ They are generally expensive, varying by materials used
- ✓ If used on a crosswalk, they can make crossings more difficult for wheelchair users and the visually impaired

Effectiveness: No data has been compiled on the effects of textured pavements



Speed Humps

Level 3

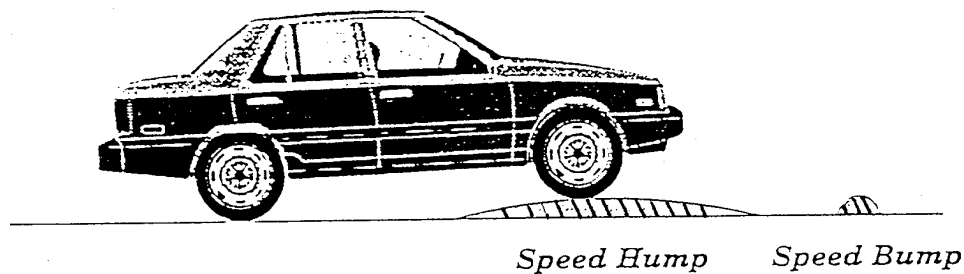
Description: Speed humps or undulations are mounds of paving material that extend across the roadway. They generally have a 12-foot base and a gradual rise and fall 2.5 inches to 3.75 inches.

Positive Aspects:

- ✓ May reduce speeds.
- ✓ May divert traffic to arterial streets.

Negative Aspects:

- ✓ Impedes emergency vehicle, truck and other service vehicle access.
- ✓ May divert traffic to adjacent neighborhood streets.
- ✓ May be hazardous to an injured patient being transported in an ambulance.
- ✓ Contents of vehicles can be jarred.
- ✓ May encourage speeding between humps.
- ✓ Increase in noise adjacent to speed hump.
- ✓ Speed humps have to be reinstalled each time street is resurfaced.
- ✓ Increased liability to City.
- ✓ High installation cost.



Speed Lumps

Level 3

Description: Speed lumps or undulations are mounds of paving material that extend across the roadway. They have a 12-foot wide base and typically 2-feet deep with a gradual rise and fall of 2.5 inches-inches to 3.75-inches. Speed lumps include wheel cut-outs that allow buses and emergency vehicles to pass without slowing. The cut-outs are spaced too far apart for passenger vehicles to pass without at least one set of wheels being affected by the hump.

Positive Aspects:

- ✓ May reduce speeds.
- ✓ May divert traffic to arterial streets.

Negative Aspects:

- ✓ May divert traffic to adjacent neighborhood streets.
- ✓ Contents of vehicles can be jarred.
- ✓ Increased liability to City.
- ✓ High installation cost.
- ✓ May encourage speeding between humps.
- ✓ Increase in noise adjacent to speed hump.
- ✓ Speed humps have to be reinstalled each time street is resurfaced.



Rumble Strips

Level 3

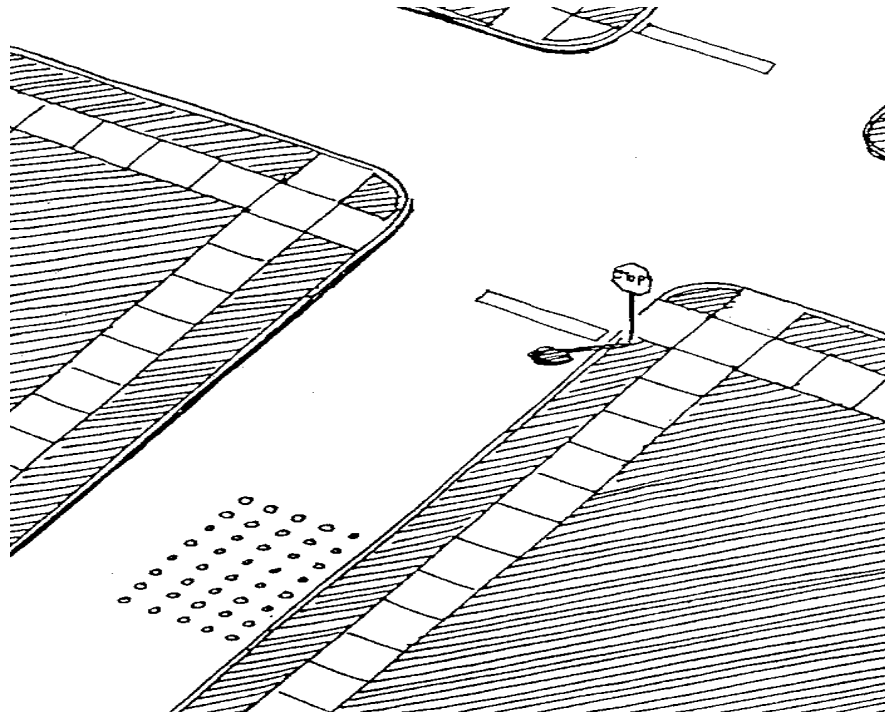
Description: Rumble strips consist of raised markers (dots, bars or grooves) installed within the travel lanes at regular intervals to create noise and vibrations in a vehicle crossing them. Rumble strips are generally not used in residential areas due to the excessive level of noise they produce.

Positive Aspects:

- ✓ Reduces vehicle speeds in first time or minimal users of the street.
- ✓ The “rumble” heightens safety by alerting drivers to unexpected conditions or notifying drivers to intended action.
- ✓ Relatively inexpensive to install, remove or modify.
- ✓ No loss of on-street parking.

Negative Aspects:

- ✓ Produces high level of noise
- ✓ Requires high maintenance.
- ✓ May not slow down repeat users of the street.
- ✓ May be objectionable to bicyclists.



Chicanes

Level 3

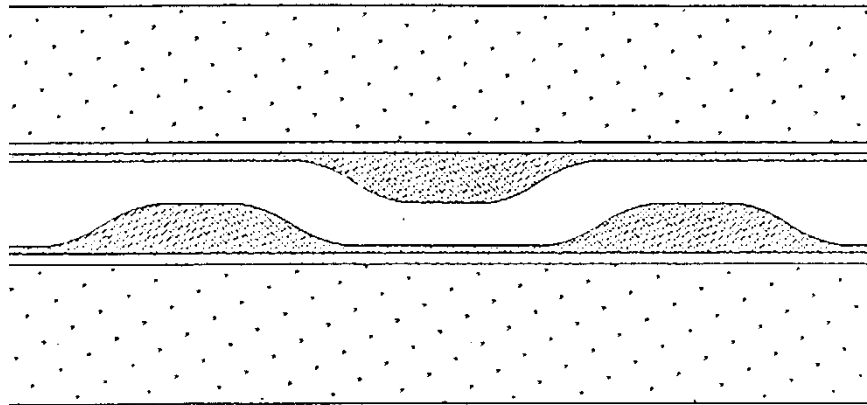
Description: Chicanes are artificial blockages on opposite sides of the street to create an S-curvature on a naturally straight street. Chicanes require vehicles to meander through the roadway alignment.

Positive Aspects:

- ✓ May slow down vehicles.
- ✓ Can be very effective in changing the initial impression of the street.
- ✓ Creates space for landscaping.

Negative Aspects:

- ✓ Impedes emergency vehicle, truck and services such as garbage trucks.
- ✓ Bicyclists may feel “squeezed in” due to narrower roadway.
- ✓ May require modification or reconstruction of drainage features and other utilities.
- ✓ May become obstacles for motorists to drive into.
- ✓ May require part or all of on-street parking removal.
- ✓ High installation cost.
- ✓ Increased maintenance.



Chokers

Level 3

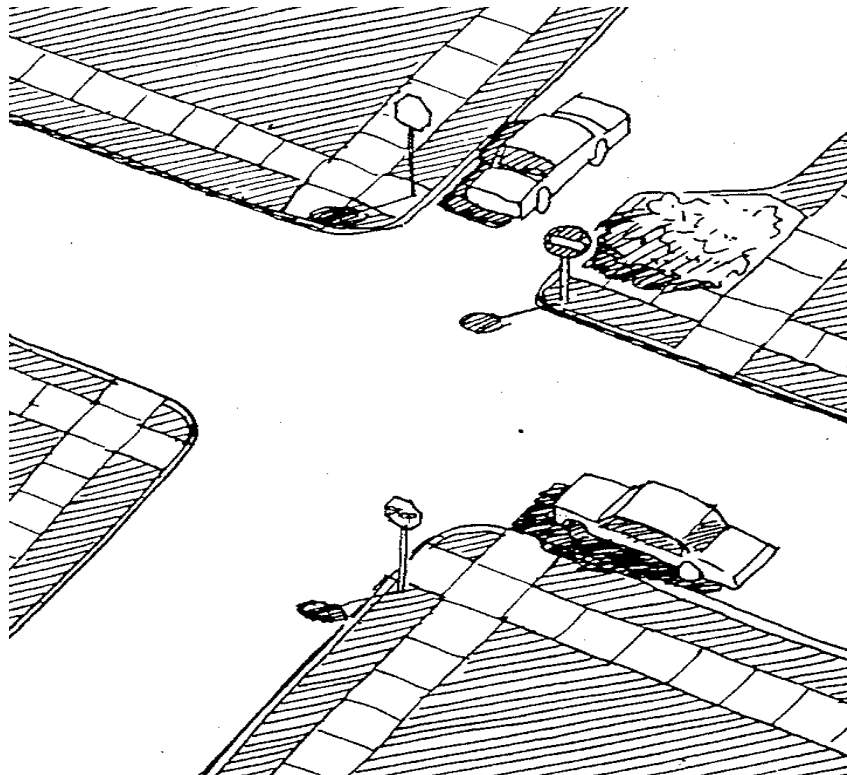
Description: Chokers physically narrow a street either at the intersection, at mid-block or a segment of a street by using curb extensions.

Positive Aspects:

- ✓ May reduce speeds by giving motorists the sense of limited space.
- ✓ Improves motorist-pedestrian visibility of each other.
- ✓ Intersection crossing distance for pedestrians is reduced.
- ✓ Allows signs to be located favorably within motorists line of sight.
- ✓ Creates space for landscaping.

Negative Aspects:

- ✓ Impedes emergency vehicle, truck and other service vehicle access.
- ✓ Bicyclists may feel “squeezed in” due to narrower roadway.
- ✓ May require modification or reconstruction of drainage features and other utilities.
- ✓ May become obstacles for motorists to crash into.
- ✓ May require part or all of on-street parking removal.
- ✓ High installation cost.
- ✓ Increased maintenance.



Cul-De-Sac

Level 3

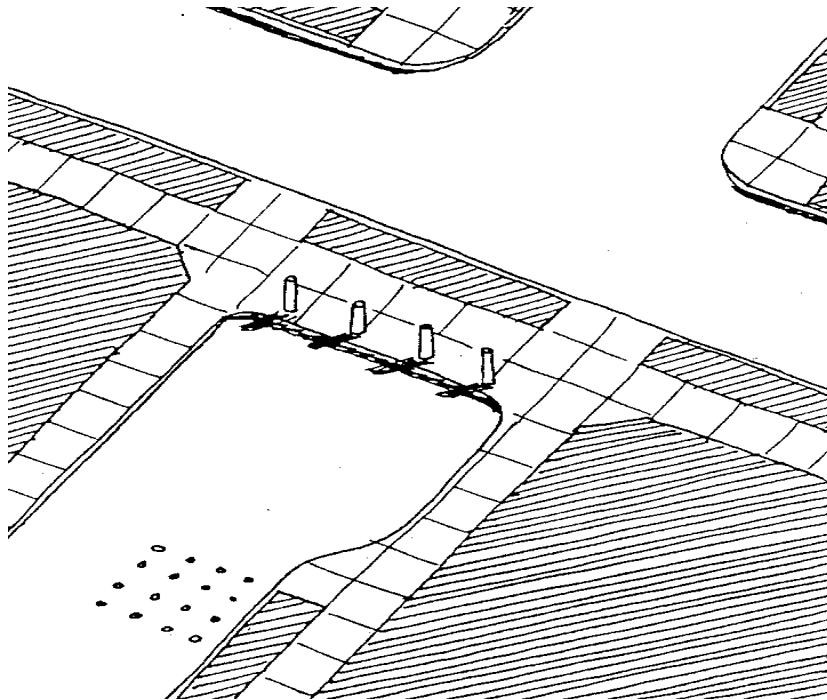
Description: A cul-de-sac is a physical barrier of a street at mid-block or at an intersection. Cul-de-sacs can be thought of as dead-end streets. An adequate turn around is usually not possible. Mountable curbs should be provided to address any delay problems.

Positive Aspects:

- ✓ Eliminates through traffic volumes.
- ✓ Reduces noise and speeds in the vicinity of the closure.
- ✓ Improves safety for non-motorized users.
- ✓ Creates space for landscaping.

Negative Aspects:

- ✓ Impedes emergency vehicles, trucks and service vehicles such as garbage trucks.
- ✓ May divert traffic to adjacent neighborhood streets.
- ✓ Will need adequate turning radius causing vehicles to back up when turning around.
- ✓ May require part or all of on-street parking removal.
- ✓ Drainage may be affected if used as a part of modification project.
- ✓ High installation cost.
- ✓ Increased maintenance.
- ✓ An inconvenience for residents.



Diagonal Diverters

Level 3

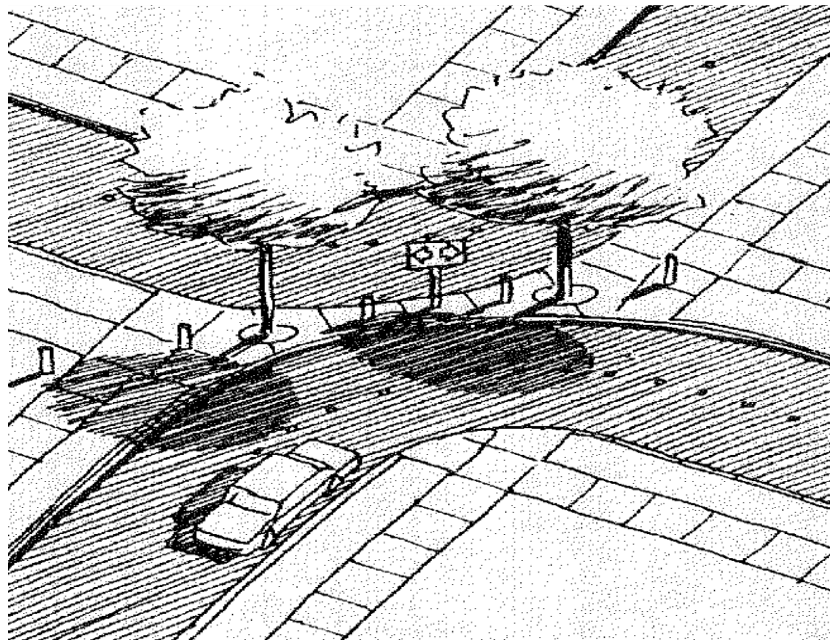
Description: Diagonal diverters are devices that are placed diagonally across an intersection, creating two unconnected streets.

Positive Aspects:

- ✓ Eliminates through traffic.
- ✓ Will reduce traffic volumes.
- ✓ Improves pedestrian safety.
- ✓ Reduces right of way conflicts at intersection.
- ✓ Can be designed and installed to provide for emergency vehicle access.
- ✓ Creates space for landscaping.

Negative Aspects:

- ✓ Impedes emergency vehicle routes.
- ✓ May divert traffic to adjacent neighborhood streets.
- ✓ May become obstacles for motorists to drive into.
- ✓ May require part or all of on-street parking removal.
- ✓ Speed is reduced only in the immediate vicinity of diverter.
- ✓ High installation cost.
- ✓ Increased maintenance.



Intersection Channelization

Level 3

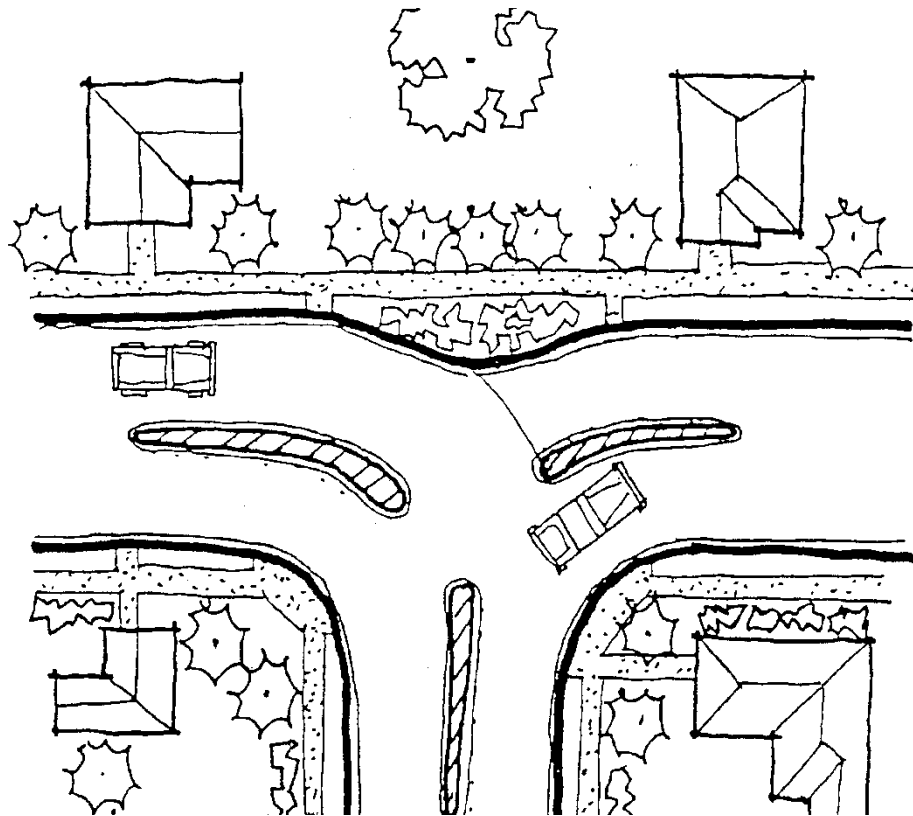
Description: Channelization involves the use of raised islands at intersections designed to force traffic to make or prevent certain movements.

Positive Aspects:

- ✓ Reduces cut-through traffic.
- ✓ Allows signs to be located favorably within motorists line of sight.
- ✓ Can be designed and installed for emergency vehicle access.

Negative Aspects:

- ✓ May divert traffic to adjacent neighborhood streets.
- ✓ May become obstacles for motorists to drive into.
- ✓ May require part or all of on-street parking removal.
- ✓ May be violated, particularly in the late evening.
- ✓ Turn restriction signs may prove to be effective enough in reducing cut-through traffic.
- ✓ High installation cost.
- ✓ High maintenance cost.



Median Barrier

Level 3

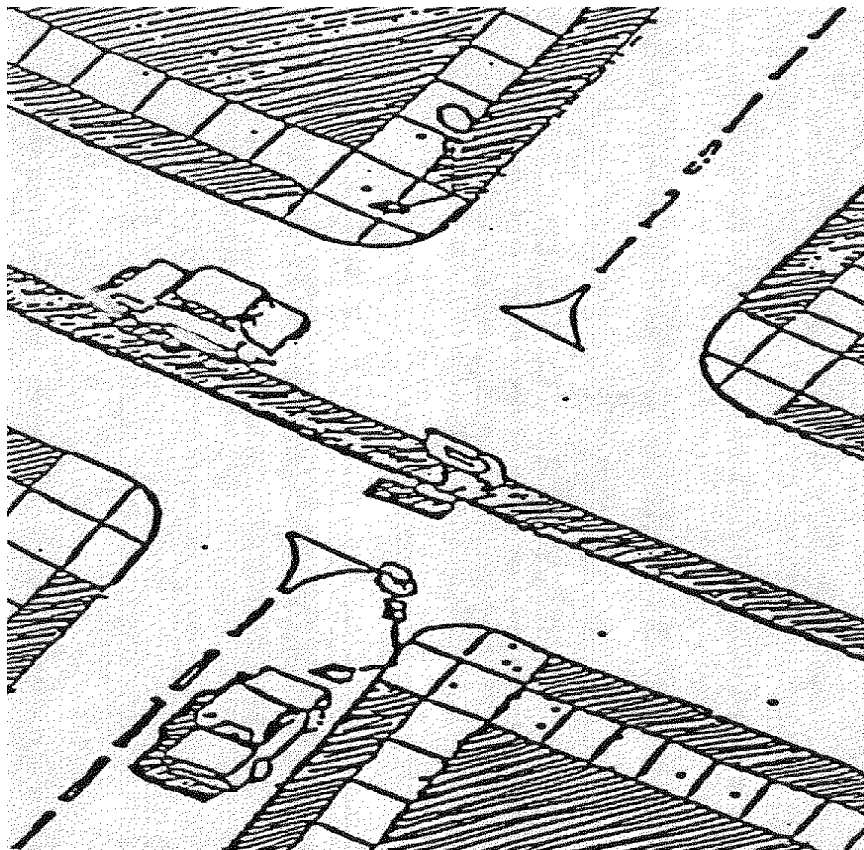
Description: Physical barriers (from flexible delineator posts to k-rails or raised islands) are placed at intersections to prevent left turn movement.

Positive Aspects:

- ✓ Improves intersection safety by reducing the number of conflicting movements.
- ✓ Reduces cut-through traffic.
- ✓ Allows signs to be located favorably within motorists line of sight.

Negative Aspects:

- ✓ Impedes emergency vehicle, truck and other service access.
- ✓ May divert traffic to adjacent neighborhood streets.
- ✓ May become obstacles for motorists to drive into.
- ✓ High installation cost.



FREQUENTLY ASKED QUESTIONS

WHEN WILL A LOWER SPEED LIMIT BE POSTED ON MY STREET?

A common belief is that posting a speed limit will influence drivers to drive at that speed. The facts may indicate otherwise. Research conducted in many parts of this country over a span of several decades has shown that drivers are influenced more by the appearance of the highway itself and the prevailing traffic conditions than by the posted speed limit.

California's Basic Speed Law requires that: "No person shall drive a vehicle upon a highway at a speed greater than is reasonable or prudent having due regard for weather, visibility, the traffic on, and the surface and width of, the highway, and in no event at a speed which endangers the safety of persons or property."

Speed limits are called "prima facie" limits, which are safe and prudent under normal conditions. Certain prima facie limits are established by law and include the 25 mph limit in business and residential districts, the 15 mph limit in alleys, at blind intersections and blind railroad crossings, and a part-time 25 mph limit in school zones when children are present. These speeds are not always posted but all California motorists are required to know them.

Speed limits may also be established by local authorities on the basis of traffic engineering surveys. The City of Lathrop follows this policy; a list of speed limits on certain streets is contained in the City's Municipal Code, Chapter 10.08.030. These surveys include an analysis of roadway conditions, accident records, and the prevailing speed of prudent drivers. If speed limit signs are posted for a lower limit than is needed, many drivers will simply ignore the signs. At the same time, other drivers will stay within the posted limits. This generally increases the conflicts between faster and slower drivers, and increases the difficulty for pedestrians to judge the speed of approaching vehicles. Studies have shown that where uniformity of speed is not maintained, accidents generally increase.

WHEN IS A CROSSWALK UNSAFE (WHY WON'T THE CITY JUST INSTALL MORE OF THEM)?

Apparently, whenever it is **painted** on the street.

A number of years back, the city of San Diego published some startling results of a very extensive study of the relative safety of marked and unmarked crosswalks. San Diego looked at 400 intersections for five years (without signals or four-way stops) that had a marked crosswalk on one side and an unmarked crosswalk on the other. About two and one half times as many pedestrians used the marked crosswalk, but about six times as many accidents were reported in

the marked crosswalks! Long Beach studied pedestrian safety for three years (1972 through 1974) and found eight times as many reported pedestrian accidents at the intersections with marked crosswalks than at those without. One explanation of this apparent contradiction of common sense is the false security pedestrians feel at the marked crosswalk. Two painted lines do not provide protection against an oncoming vehicle and the real burden of safety has to be on the pedestrian to be alert and cautious while crossing any street. A pedestrian can stop in less than three feet, while a vehicle traveling at 25 mph will require 60 feet and at 35 mph approximately 100 feet.

The California Vehicle Code says that a crosswalk exists at all intersections unless pedestrian crossing is prohibited by signs. Some of these crosswalks are marked with painted lines, but most of them are not. Pedestrian crosswalk marking is a method of encouraging pedestrians to use a particular crossing. Such marked crossings may not be as safe as an unmarked crossing at the same location. Therefore, crosswalks should be marked only when necessary for the guidance and the control of pedestrians, to direct them to the safest of several potential routes.

Mid-block crosswalks or crosswalks between intersections should be avoided because they are unexpected by motorists. Pedestrians should be encouraged to cross only at intersections so that they are crossing at a location where drivers will have the expectation of pedestrians and other vehicles.

WHEN ARE WE GOING TO GET SOME **BIKE LANES** IN OUR NEIGHBORHOOD?

Bikeways have raised a lot of interest in recent years. Some cities have built separate off-road bike paths. Many more have painted bike lanes on streets. Others have installed “Bike Route” signs without the special lanes.

The cost of both building and maintaining bikeways can be a deterrent to many city bike programs. Initial cost can range from a few dollars to paint lines to a very large amount to build a separate path including special bridges where needed.

Before plunging into a bikeway program, a city or county should look at the total problem of bicycle operation and safety. Bike lanes and signs alone cannot solve the problem of bicycle accidents; in some places they have increased the problem by giving riders a false sense of security.

An overall bicycle safety program should include: enforcement of traffic laws; bike safety training in schools at an early age; reminder to wear bike helmets; follow-up training every year in the schools; and involvement of the parents of minor children who violate traffic laws or exhibit dangerous riding habits. The overwhelming cause of bicycle accidents is violation of the rules of the road.

If these recommendations seem to be oriented toward the younger set, there is good reason. Over 70 percent of cyclists involved in accidents were violating a traffic law; over 60 percent were age 17 or under. It only makes good sense to emphasize the children in training programs, since they are the principal users of bicycles.

The bike program for your community should include three principal points:

1. Education in safe riding.
2. Enforcement of rules of the road.
3. Development of well-engineered bike lanes and bike paths.

This will involve the active participation of:

1. The schools.
2. The police or sheriff.
3. The traffic engineers; and, of course, you, the citizen.

WHY WON'T THE CITY PUT UP “CHILDREN AT PLAY” SIGNS?

An often heard neighborhood request concerns the posting of generalized warnings signs with “SLOW – CHILDREN AT PLAY” or other similar messages. Parental concern for the safety of children in the street near home, and a misplaced but wide spread public faith in traffic signs to provide protection often prompt these requests.

Although some other states have posted such signs widely in residential areas, no factual evidence has been presented to document their success in reducing pedestrian accidents, operating speeds or legal liability. Studies have shown that many types of signs attempting to warn of normal conditions in residential areas have failed to achieve the desired safety benefits. If signs encourage parents and children to believe they have an added degree of protection, which the signs do not and cannot provide, a great disservice results.

Because of these serious considerations, California law does not recognize, and Federal Standards discourage, use of “Children at Play” signs. Specific warnings for schools, playgrounds, parks and other recreational facilities are available for use where clearly justified.

WHY WON'T THE CITY PUT IN MORE STOP SIGNS?

A stop sign is one of our most valuable and effective control devices when used at the right place and under the right conditions. It is intended to help drivers and pedestrians at an intersection decide who has the right-of-way.

One common misuse of stop signs is to arbitrarily interrupt through-traffic, either by causing traffic to stop, or by causing such an inconvenience as to force the traffic to use other routes. Where stop signs are installed as “nuisances” or “speed breakers,” there is a high incidence of

intentional violation. In those locations where vehicles do stop, the speed reduction is effective only in the immediate vicinity of the stop sign, and frequently speeds are actually higher between intersections. For these reasons, it should NOT be used as a speed control device.

Most drivers are reasonable and prudent with no intention of maliciously violating traffic; however, when an unreasonable restriction is imposed, it may result in flagrant violations. In such cases, the stop sign can create a false sense of security in a pedestrian and an attitude of contempt in a motorist. These two attitudes can and often do conflict with tragic results.

Well-developed, nationally recognized guidelines help to indicate when such controls become necessary. These guidelines take into consideration, among other things, the probability of vehicles arriving at an intersection at the same time, the length of time traffic must wait to enter and the availability of safe crossing opportunities.

DOES SOMEBODY HAVE TO GET HURT BEFORE A TRAFFIC SIGNAL WILL BE INSTALLED?

Traffic signals do not always prevent accidents. They are not always an asset to traffic control. In some instances, total accidents and severe injuries increased after signals are installed. Usually, in such instances, right angle collisions were reduced by the traffic signals, but the total number of collisions, especially the rear-end type, increased.

There are times when the installation of signals results in an increase in pedestrian accidents. Many pedestrians feel secure with a painted crosswalk and a red light between them and an approaching vehicle. The motorist, on the other hand, is not always so quick to recognize these “barriers.”

When can a traffic signal be an asset instead of a liability to safety? In order to answer this, traffic engineers have to ask and answer a series of questions:

1. Are there so many cars on both streets that signal controls are necessary to clear up the confusion or relieve the congestion?
2. Is the traffic on the main street so heavy that drivers on the side street will try to cross when it is unsafe?
3. Are there so many pedestrians trying to cross a busy main street that confusing, congested or hazardous conditions result?
4. Are there so many school children trying to cross the street at the same time that they need special controls for their protection? If so, is a traffic signal the best solution?
5. Are signals at this location going to help drivers maintain a uniform pace along the route without stopping unnecessarily?
6. Does the collision history indicate that signal controls will reduce the probability of collisions?
7. Do two arterials intersect at this location and will a signal help improve the flow of traffic?

8. Is there a combination of the above conditions which indicates that a signal will be an improvement rather than detriment?

To aid them in answering these questions, engineers compare the existing conditions against nationally accepted minimum guidelines. These guidelines (called “warrants”) were established from many observations at intersections throughout the country by experienced traffic engineers. Where the guidelines were met, the signals generally were operating effectively with good public compliance. Where the guidelines were not met, public compliance was reduced, and additional hazards resulted.

A traffic signal that decreases accidents and improves the flow of traffic is an asset to any community. On the other hand, an ill-advised or poorly designed signal can be a source of danger and annoyance to all who use the intersection; pedestrians, bicyclists and drivers alike.