

TO: JAMES L. APP, CITY MANAGER
FROM: ROBERT A. LATA, COMMUNITY DEVELOPMENT DIRECTOR
SUBJECT: TRAFFIC CALMING PROGRAM
DATE: JANUARY 18, 2005

NEEDS: For the City Council to consider a Traffic Calming Program.

- FACTS:
1. The General Plan incorporates several goals, policies and programs in the Land Use and Circulation Elements that address traffic calming related issues. These policies are listed in Attachment 1.
 2. The Plan specifically directs the development of a Traffic Calming Program to include: protecting local streets from cut-through traffic; speeding; traffic congestion; residential parking problems; vehicle and pedestrian safety; support for livable neighborhoods; truck traffic; and to encourage other modes of traveling.
 3. The Traffic Calming Program was prepared to address existing conditions and in design of new specific plan areas, subdivisions and development projects.
 4. The traffic calming features proposed will ultimately be incorporated into the City's Public Works and Engineering Standard Details and Specifications. As standards, these tools can be required as official public works design specifications.
 5. The City hired a transportation consultant to assist with this project. A committee comprised of staff from all departments provided input into the development of the Traffic Calming Program.
 6. The Program was reviewed by a City Council Traffic Calming Ad Hoc Committee. The Committee supported the Final Draft Program as presented.
 7. The Planning Commission considered the Traffic Calming Program at their meeting of November 23, 2004 and recommended approval.

ANALYSIS
AND
CONCLUSION:

The Traffic Calming Program is divided into five sections: 1) a description of the type of streets and related issues that traffic calming measures are designed to address; 2) five different types of traffic management measures and their purposes, e.g. speeding, congestion, etc.; 3) characteristics of traffic calming tools; 4) criteria for determining how, when and where traffic calming should be applied, as well as guidelines for selection; and 5) a traffic calming decision-making procedure.

POLICY

REFERENCE: Paso Robles General Plan and EIR, Zoning Ordinance, and CEQA.

FISCAL IMPACT:

Adoption of this program will not have a direct fiscal impact. Fiscal impacts of traffic calming measures would be determined on a case-by-case basis.

OPTIONS: After opening the public hearing and taking public testimony, the City Council is requested to take one of the actions listed below:

- a. Adopt Resolution No. 05-xx approving the Traffic Calming Program.
- b. Amend, modify, or reject Option a.

ATTACHMENTS:

1. General Plan Traffic Calming Provisions
2. Resolution to approve the Traffic Calming Program
3. Traffic Calming Program
4. Newspaper and Mail Notice Affidavits

RESOLUTION NO. 05-

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES
ADOPTING A TRAFFIC CALMING PROGRAM

WHEREAS, the City Council of the City of El Paso de Robles adopted an updated General Plan including the Land Use and Circulation Elements, in December 2003; and

WHEREAS, the General Plan includes several goals, policies and action items that direct the City to address traffic-related programs through development and implementation of a Traffic Calming Program; and

WHEREAS, the City initiated preparation of a Traffic Calming Program to implement the General Plan policy direction and to address traffic-related problems through input from each City department and expert consultation of transportation engineer consultants; and

WHEREAS, the City prepared a Traffic Calming Program that addresses the policies included in the General Plan by providing traffic calming tools, evaluation criteria for effectiveness, and an implementation process; and

WHEREAS, the tools and methodology in the Traffic Calming Program can be used to correct existing traffic problems and used when designing new Specific Plans, subdivisions, and development projects; and

WHEREAS, the Traffic Calming Program specifically provides for a public participation process to involve the public in identification and addressing traffic problems; and

WHEREAS, this program is not a "project" as defined in the Statutes and Guidelines of the California Environmental Quality Act (CEQA); and

WHEREAS, based on the information presented in the staff report and attachments thereto, the public testimony received, the City Council makes the following findings:

1. The Traffic Calming Program is in compliance with and implements the goals, policies and action items of the Paso Robles General Plan.
2. The Traffic Calming Program measures and implementation methods are suitable to be implemented to address traffic conditions and for use in designing new Specific Plan areas, subdivisions, and development projects.

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of El Paso de Robles, based on its independent judgment, that it does hereby approve the Traffic Calming Program.

PASSED AND ADOPTED by the City Council of the City of Paso Robles this 18th day of January 2005 by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT: None

Frank R. Mecham, Mayor

ATTEST:

Sharilyn M. Ryan, Deputy City Clerk

PROOF OF PUBLICATION

LEGAL NEWSPAPER NOTICES

PLANNING COMMISSION/CITY COUNCIL
PROJECT NOTICING

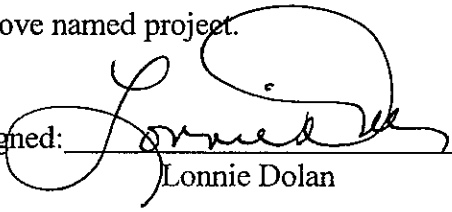
Newspaper: Tribune

Date of Publication: January 5, 2005

Meeting Date: January 18, 2005
(City Council)

Project: Traffic Calming Program
(City initiated)

I, Lonnie Dolan, employee of the Community Development Department, Planning Division, of the City of El Paso de Robles, do hereby certify that this notice is a true copy of a published legal newspaper notice for the above named project.

Signed: 
Lonnie Dolan

**CITY OF EL PASO DE ROBLES
NOTICE OF PUBLIC HEARING**

NOTICE IS HEREBY GIVEN that the City Council of the City of El Paso de Robles will hold a Public Hearing on Tuesday, January 18, 2005, at 7:30 p.m. at the City of El Paso de Robles, 1000 Spring Street, Paso Robles, California, in the City Council Chambers, to consider the following project:

To consider a Traffic Calming Program. The Program was prepared to implement General Plan policies adopted to address traffic-related problems. The Program document provides information on various types and methods available to calm traffic, and a proposed public process for implementation.

The proposed Traffic Calming Program and staff report may be reviewed at the Community Development Department, 1000 Spring Street, Paso Robles, California. Copies may be purchased for the cost of reproduction.

Written comments on the proposed Traffic Calming Program may be mailed to the Community Development Department, 1000 Spring Street, Paso Robles, CA 93446, provided that the comments are received prior to the time of the public hearing. Oral comments may be made at the hearing. Should you have any questions regarding this application, please call Susan Zaleschuk at (805) 237-3970.

If you challenge the Traffic Calming Program in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the Planning Commission at or prior to the public hearing.

Susan Zaleschuk, AICP
City Planner
Jan. 5, 2005

811874

Residential and Arterial/Collector Street Traffic Calming Program

**Second
Draft**

Prepared For:

City of Paso Robles

Prepared By:



**RESIDENTIAL AND ARTERIAL/COLLECTOR STREET
TRAFFIC CALMING PROGRAM**

**SECOND
DRAFT**

Prepared For:

City of Paso Robles

**Prepared By
OMNI-MEANS, LTD.
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(916) 782-8688**

June 2004

**25-5307-07
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Section 1 - Introduction

Maintaining safe and efficient streets is the policy of the City of Paso Robles. The purpose of this program is to protect the neighborhoods these streets transcend. Communities across the country, and in fact, around the world have undertaken community sponsored programs to implement “traffic calming” measures as a means to respond to unacceptable motoring behavior on the community’s streets and roadways. This program is designed to address the specific traffic calming needs of both local and arterial/collector streets.

In 1997 the Institute of Traffic Engineers (ITE) defined 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.”

The ITE document goes on to further define traffic calming as follows:

*... "**mainly physical measures**" ... means "physical measures and a supportive environment, which includes such things as policy and legislative support for traffic calming and flexibility of standards, guidelines, and practices."*

*... "**reduce the negative effects of motor vehicle use**" ... means altering ...the design and role of the street to minimize the adverse effects (such as speeding and pollution) ...*

*... "**alter driver behavior**" ... means drivers regulate their own behavior, such as reducing both their speed and aggressive driving and increasing their respect for pedestrians, bicyclists, etc.*

*... "**Improving conditions for ... non-motorized street users**" means promoting activities such as walking and cycling, increasing overall safety, and enhancing aesthetics.*

*... "**measures**" referred to ... vertical and lateral changes to the street, constrictions, narrow pavement widths, entrance features, traffic circles, small corner radii, and related "streetscaping," such as lighting, trees, landscaping, art, etc., placed along streets and at intersections. (Traffic calming is most successful when it is accompanied by streetscaping.) ...*

The same document, which defines traffic calming, also articulates the need for the establishment of goals and objectives; and, the development of a process to evaluate the many requests that are sure to come. This program has been developed to address safety and quality of life issues within the neighborhoods of Paso Robles, be they residential, commercial, or school area in nature.

This document, the “City of Paso Robles Residential and Arterial/Collector Street Traffic Calming Program” (TCP) is designed to address the traffic calming needs of all of our neighborhoods. This document is organized in a manner to deal specifically with the differing conditions and traffic calming considerations available for residential neighborhood problems, business or commercial precincts within the community, and our school area neighborhoods as well.

Section 2 - Overall Program Goals, Objectives and Policies

The intent of this program is to meet the needs of each neighborhood in the city. To accomplish this stated intent we have established a series of overall goals and objectives, which lead to the individual goals, and objectives of the specific neighborhood being addressed. In **general** the City of Paso Robles **goals** are:

- *Promote safe motor vehicle operation within the City of Paso Robles.*
- *Promote conditions which enhance the neighborhood environment*
- *Promote conditions which encourage bicycle and pedestrian activity*

To meet these goals the following **general objectives** have been identified:

- *Establish a comprehensive, integrated, policy based program founded on sound traffic engineering principles*
- *Provide clear guidelines of the process to evaluate traffic calming measures*
- *Encourage citizen involvement in all phases of neighborhood traffic calming activities*
- *Make efficient use of City resources by prioritizing traffic calming requests*

It is therefore the desire of the City of Paso Robles that the traffic calming program herewith presented shall comply with these **general policy statements**:

- *Public involvement in this process is important*
- *Traffic calming devices shall be designed to minimize adverse impacts to maintenance activities*
- *Minimize diverted traffic to other local or residential collector streets*
- *Maintain or improve the aesthetics of the streetscape through landscaping and hardscape treatments*
- *Emergency vehicle access, safety and response times shall be considered*
- *Only State/Federal approved signs shall be installed*
- *The implementation of "Traffic Calming Measures" shall be consistent with sound traffic engineering principals*

Implementing traffic calming measures is not a solution for all speeding, cut-through, congestion or traffic safety concerns. This program was developed to guide city staff and inform residents about the processes and procedures for implementing traffic calming measures. Under this policy, staff will work with residents, and businesses, to identify traffic issues in their neighborhoods. Each neighborhood will have its own unique set of problems that will require a comprehensive traffic engineering evaluation in order to identify the appropriate solution.

The basic goal of this Traffic Calming Program is to evaluate measures identified by a consensus of the neighborhood, and to provide measures that will affect driver behavior in such a way that public safety and the quality of life for residents and/or businesses, pedestrians, bicyclists and motorists are improved.

Section 3 - Purpose

It is the concern with overall public safety and mobility that has led the city to develop a program which addresses the needs of:

- Residential Neighborhoods
- Business and/or Commercial Neighborhoods
- School Areas

This program recognizes the “functional classification” differences of streets within the community, and addresses them specifically and individually. With respect to school area traffic calming - schools are often located on arterial and/or collector streets, which are “functionally classified” to provide for the safe and efficient movement of large volumes of vehicular traffic. The appropriate measures for school area traffic calming must recognize a broader spectrum of solutions, applying specific measures appropriate for use on residential streets and/or arterial/collector streets. This program also identifies measures designed specifically for the school environment.

Residential Neighborhood Streets

Residential neighborhood streets provide are planned and designed to provide local access to and from our residential neighborhoods. These facilities are neither designed nor intended for the use of non-local traffic and are not recognized within the city’s Circulation Element of the General Plan.

However, when congested conditions occur on the collector and arterial roadways, these local streets will often provide an attractive alternative route, or “cut-through”; the geometrics of the neighborhood street system can lead to increased speeds as well. These problems, individually or collectively result in a reduction in neighborhood safety for homeowners, pedestrians, and bicyclists.

It is the intent of this program to identify traffic calming measures, which can alter travel behavior to the betterment of the neighborhoods being affected. The intent here is to improve safety, encourage bicycle and pedestrian travel, and to positively affect a resident’s quality of life.

Therefore, the objectives of the Local Residential Neighborhood program are:

- *Enhance the neighborhood environment*
- *Reduce vehicular speed where appropriate*
- *Reduce cut-through traffic*
- *Promote conditions that encourage bicycle and pedestrian travel*

Business and/or Commercial Neighborhood Streets

Business and commercial neighborhoods are normally located on or adjacent to arterial and collector streets. These streets are planned and designed to maintain an acceptable level of service and to carry significant traffic flows, at a high rate of speed on both a daily and peak hour basis. These roadways are commonly included within the city’s Circulation Element of the General Plan.

These neighborhoods often experience undesirable travel speeds, and/or congestion, incompatible with the business and/or commercial characteristics of the adjoining business activities. It is the intent of this program to identify measures, which can alter travel behavior to the betterment of the community at large. The objectives of the Business/Commercial Neighborhood traffic calming program is to:

- *Control traffic speeds*
- *Reduce congestion*
- *Enhance safety*
- *Promote conditions that encourage bicycle and pedestrian travel*
- *Enhance the street environment*

These policies recognize the needs of the city's arterial and collector street system. These installations may provide the unintended benefit of creating public spaces, and other environmentally pleasing opportunities, where enhanced landscaping or hardscape improvements can be made to create public spaces.

School Area Streets

School area traffic calming involves all classifications of streets, from residential to collector to arterial. The measures appropriate for installation around schools are broader in spectrum, and can involve alterations to the operations of the school itself. Traffic calming measures considered for school area installation need to meet the same basic criteria for implementation, including evaluation of the potential negative impacts that can result.

School area traffic tends to be extremely peaked, occurring at the time when children are arriving or departing class. While, the condition requiring attention is short term in nature, the impacts of the traffic calming device extend throughout the day, and continue during school holidays and vacation. The traffic engineering studies must take into consideration these issues as well.

It is common to find schools fronting on arterial and collector streets. This program is designed in part to address the problems presented by previous "school site" location and access decisions. However, the decisions that are yet to be made, as the planning for new schools is undertaken, can have a larger effect on school area safety than any traffic calming measures that may be implemented after the fact. Congestion and safety problems will likely be avoided by providing, and considering, traffic engineering studies before initial site location and design development decisions are made.

Therefore, the objectives of the School Area portion of this program are:

- *Work cooperatively with the School District during the planning phases of new schools*
- *With respect to existing schools*
 - *Improve the safety environment for children*
 - *Increase awareness of school sites by motorists*
 - *Promote conditions that encourage bicycle and pedestrian travel*

Section 4 – Traffic Calming Measures

The tools available for use in resolving residential and arterial/collector neighborhood traffic problems are many, and diverse in both their cost and effectiveness. This program has identified four levels of traffic calming measures:

- Basic Measures
- Speed Reduction Measures
- Volume Reduction Measures
- School Area Measures

Traffic calming measures can include many devices, measures, that do not directly affect driver behavior and are therefore not self enforcing. These measures are generally included within the “Basic Measures” category. These are worthwhile steps in the effort to resolve speeding, congestion, safety or cut-through problems; however, if they fail more restrictive measures may be warranted.

These “more restrictive” traffic calming measures, those found in the “speed reduction” and “volume reduction” categories, mandate a driver behavior change and as a result may be effective where “Basic Measures” have failed. These measures generally require one of two desired actions:

- Vertical Deflection - obstacles to be mounted
- Horizontal Shift - roadway narrowing/closures/obstacles to be circumvented

There are many measures which can be put into effect on or near school sites. These include all three of the levels identified above, plus reversal which is applicable exclusively for school areas.

Basic Measures

Basic traffic calming measures are those traffic control devices and programs implemented on a day-to-day basis to regulate, warn, guide, inform, enforce and educate motorists, bicyclists and pedestrians. They include standard striping and signing measures as found in the State of California Traffic Manual, minor roadway design measures to improve visibility and safety, enforcement by police and photo-radar (NASCO), and safety education programs. Basic Measures are used primarily in those areas where traffic impacts have been found not to be excessive or serious, but where traffic control and/or education has been determined to be appropriate. Some common Basic Measures include:

- Safety Education Programs
- Police Enforcement
- NASCO Enforcement
- High-Visibility Crosswalks
- Radar Application
- Permanent Radar Installation
- Permanent Striping
- Curb Markings
- Stop Signs
- Gateway Treatments
- Truck Restrictions
- High-Visibility Signs
- Signed Turn Restrictions
- Minor Bulbouts

Speed Reduction Measures

Speed reduction measures are traffic control devices and roadway design features primarily designed to slow traffic. They are employed when the use of basic measures cannot, or has not, effectively addressed speeding issues and it has been found that speeds and/or accidents exceed the thresholds identified later in this document. Speed reduction measures are often used in conjunction with basic measures, and may have a limited effect on traffic volume as well. Some common speed reduction measures include:

- Speed Humps
- Raised Crosswalks
- Raised Intersections
- Speed Cushions
- Traffic Circles
- Roundabouts
- Mid-Block Chokers
- Medians
- Major Bulbouts
- Chicanes

Volume Reduction Measures

Volume reduction measures are traffic control devices and roadway design features primarily designed to discourage cut-through traffic from using residential streets. They are used when it has been found that traffic volumes exceed the thresholds indicated later in this document. Volume reduction devices can be used by themselves or in conjunction with basic and/or speed reduction measures. Some common volume reduction measures include:

- Diverters
- Extended Median
- Partial Closure
- Full Street Closure

School Area Measures

Paso Robles children and schools are the backbone and future of our City. As our City has matured the schools area environment has also changed and brought with it different needs and challenges which impact not just quality education, but the quality of life of our children, their parents and the residents or business adjacent to the schools. Concerns regarding children's safety, emergency access, congestion and neighborhood impacts have led to the development of a series of specific school area traffic calming measures.

This portion of the program is designed to be an interactive partnership to plan and manage school traffic in the City and at individual schools. The traffic calming tools are tailored to provide opportunities for the school district, parents and the city to improve conditions. The city, the schools, and the parents working together can improve individual school safety, congestion and our quality of life.

The goal of this Traffic Calming Program is to provide the tools and an interactive process whereby each all concerned can come to a consensus on a traffic management plan for each individual school.

- Safe Routes to School Program
- Carpool to School Program
- Bike Pools
- Walk Pools
- Staggered Bell Times
- Pick-Up and Drop-Off Procedures
- Redesign Parking Lots and Loading Areas
- Crossing Guard
- Safety Patrol and Escort Service

Impacts of Traffic Calming Measures

Prior to installing traffic calming measures, it is important to carefully consider their potential impacts. While many of the measures offer positive results, there are potential problems, which may be more significant than the original concern. This section attempts to describe some of the possible impacts of the use of speed reduction or volume reduction traffic calming tools. While the benefits may seem quite obvious, the disadvantages can be much more unexpected. Consequently, a greater emphasis has been placed on the potential problems so that decisions can be made in a more fully informed manner.

Effectiveness of Traffic Calming Devices

Physical actions such as the installation of speed humps, traffic circles/roundabouts and street closures are almost always successful in forcing traffic to behave in an intended fashion. In many instances they achieve the desired result; creating a one-time capital expenditure and generally low ongoing maintenance costs. Speed reduction and volume reduction traffic calming options are generally viewed as more “permanent” solutions than basic actions.

In some instances the alternative approach to achieve the desired result involves repetitive and costly continuous basic traffic calming actions. There may be significant potential benefits to utilizing speed reduction and volume reduction traffic calming actions, which is why the City of Paso Robles is exploring their possible use. However, there are potential impacts associated with speed reduction and volume reduction actions as discussed below. These impacts should be considered in the decision to install.

Effect on Emergency Vehicles Response Times

Speed, and to a lesser extent, volume traffic calming measures have potential for negatively impacting several classes of emergency vehicles because they physically control speed and maneuvering. The city, residents, and business owners place a high priority on minimizing emergency response times. Installation of many physical traffic calming techniques can significantly worsen emergency response time. This is especially true for fire apparatus and ambulances.

Because of the weight of fire engines and the delicate instruments and patients within ambulances, these vehicles may come to a complete halt when encountering a hump, dip or sharp curve. Creating humps, dips and curves is often precisely the objective being sought by many of the traffic calming techniques. While these maneuvers will cause moderate discomfort and delay for normal passenger vehicles, they may cause a much greater problem for emergency response vehicles.

The City’s Fire and Police Departments are concerned about the effect these devices have on response time and have expressed concern regarding the application of some of the measures in volume and speed reduction, depending upon the context of the installation. These concerns will be considered for each location where volume and/or speed reduction traffic calming techniques are recommended. Citywide implementation of traffic calming devices (speed humps in particular) on emergency vehicle response time will be taken into consideration.

Traffic Diversion

Another concern is the potential for traffic calming techniques to move, rather than solve, the problem. The placement of impediments on a particular residential street may merely divert some or all of that traffic to another streets. Proposals for traffic volume reductions will include adequate traffic engineering study to evaluate traffic diversion impacts.

Impacts on Transit and Utility Vehicles

Some speed reduction and volume reduction traffic calming options could potentially severely impact bus routes and utility vehicles such as trash trucks. Service providers will be consulted whenever speed reduction and volume reduction options, which could impact these operations, are considered.

Considerations for Other Roadway Users

In addition to the safety concerns already discussed, speed reduction and volume reduction traffic calming techniques can often have unintended negative safety impacts on certain roadway users such as bicyclists, roller skaters, skate boarders, joggers, pedestrians and parked vehicles. These impacts will be considered as well.

Noise Impacts

The noise impact to adjacent residents resulting from vehicles braking, going over and around traffic calming devices can have a major impact on the acceptability of these devices by residents affected by them. The unanimous support of residents living immediately adjacent to locations where physical changes are proposed will be essential to the success of any project.

Loss of Parking

It is often necessary to prohibit or restrict on-street parking in the immediate vicinity of the intersection in order to accommodate the realigned vehicle path. There are also significant on street parking impacts from many speed reduction and volume reduction options.

Liability Exposure Implications

Many speed reduction and volume reduction traffic calming devices may also result in varying degrees of liability exposure to the city. The most likely source of increased liability exposure would be that resulting from implementation of traffic calming actions by the city.

This exposure would probably stem from two general categories of negative impacts. The first would be the liability, which might arise from the negative impact to emergency vehicle response times. Delay of emergency response could result in a civil action by an injured party from allegations that the emergency vehicle response was delayed by traffic calming devices. It is also possible that traffic calming devices themselves might allegedly result in damage or injury. Certainly, if a traffic calming device were not properly designed with all appropriate lighting, signage and pavement markings, liability exposure could result. But there is also potential liability from adequately designed and installed traffic calming devices.

If the device itself causes driver behavior, which results in damage to property or injury, the city could potentially be held liable. For instance, if a driver maneuvered in order to avoid a traffic calming device and as a result struck a parked vehicle, pedestrian or cyclist, there is the potential for city liability exposure. Agencies have, in general, been held liable for not maintaining warning signs and markings in excellent conditions. These are just a few examples of potential, unintended impacts of traffic calming devices.

Visual Impacts and Aesthetic Concerns

While some traffic calming devices can have favorable aesthetic impacts, others can be, by their nature, unsightly. Some devices, such as speed humps and diverters, pose little or no opportunity for the incorporation of aesthetics and can have negative visual impacts. Virtually all speed reduction and volume reduction traffic calming techniques require reflective devices, signs and striping which may negatively affect the aesthetics of a neighborhood.

Increased Maintenance Costs

Street maintenance costs will increase in two areas. First, landscaping associated with such devices as neighborhood traffic circles, roundabouts, chokers and chicanes, etc., will require regular maintenance. Second, devices such as speed humps will have to be reinstalled each time a residential street is overlaid which will increase these costs.

Characteristics of Traffic Calming Measures

Basic Measures

Safety Education Programs

Safety education programs are an important measure of a comprehensive traffic calming program. Safety education programs include efforts to make the public more aware of their own driving behavior and the impact it has on others. Pedestrian and bicycle safety programs alert and educate pedestrians and bicyclists on road safety. Driver safety information and education on existing laws can help improve driver behavior.

The various safety education programs currently being implemented in the City of Paso Robles are:

- School Safety Education Program (PD - Assemblies and Bike Rodeos)
- Pedestrian and Bicycle Safety Workshops (PD – School Safety Unit) In-Classroom Training
- Safety Patrol Training (PD – School Safety Unit) Classroom and field training
- Mikey the Robot (PD – School Safety Unit) Classroom training/entertainment

Further information about these programs can be obtained by contacting the School Safety Unit of the Police Department at 805- - . , or the School Safety Program Manager at (805) - .



Police Enforcement

Police enforcement entails the presence of police to monitor speeds and issue citations. This method is used as an initial attempt to reduce speeds on streets. It is most applicable on streets with documented speeding problems and the need for quick mitigation. It can also be used during the learning period when new devices or restrictions are first implemented. For police enforcement, contact the Traffic Enforcement Unit (TEU) of the police department at 805- - .

Positive Aspects

- Effective while officer is actually present at the location
- Can be targeted to specific time periods that are deemed to be most problematic
- Can be implemented on short notice
- Targets violators without affecting normal traffic

Negative Aspects

- It is a temporary measure
- Enforcement may be limited by police availability and other policing duties



NASCOP Enforcement

Neighborhood Automated Speed Compliance Program (NASCO) is photo radar speed enforcement, designed to augment police enforcement that has been implemented by the city with the help of residents. A complete information guide about this program is presented in the NASCO application included as an attachment to this toolkit. This program is most applicable for residential streets with speeding problems. Access to this program is available by calling the city's Police Department at (805) - .



Positive Aspects

- Speed enforcement with minimal staffing
- May have widespread effectiveness due to mobile nature, difficulty to anticipate, and widespread application
- Does not involve pursuit of speeding vehicle in neighborhoods

Negative Aspects

- Public perceptions related to invasion of privacy
- Vehicle owners may receive tickets when they were not driving



High - Visibility Crosswalks

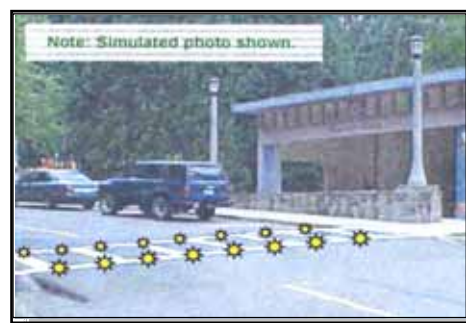
A high-visibility crosswalk is a crosswalk that incorporates striped patterns, pavement lights, improved signing or advance flashing beacons to improve the visibility of the crosswalk. This measure is most applicable on local streets where speed control and pedestrian crossing designation is desired. It can also be used to discourage cut-through traffic. This type of crosswalk is most appropriate near schools and recreation facilities.

Positive Aspects

- Slows traffic
- Increases driver awareness of crosswalk
- Requires minimal maintenance for striped crosswalks

Negative Aspects

- May require removal of parking in the vicinity of the crosswalk
- May result in significant maintenance for embedded pavement lights or advance flashing lights



Radar Application

Radar Trailer

This is a mobile trailer-mounted radar display that informs drivers of their speed. This measure is applicable on any street where speeding is a problem.

Positive Aspects

- Educational tool
- Good public relations for neighborhoods
- Effective for temporary speed reduction needs

Negative Aspects

- Not self-enforcing
- Duration of effectiveness is limited
- May require temporary lane closures



Permanent Radar Installation

This is a permanent-mounted radar display that informs approaching drivers of their speed. This measure is applicable on any street where speeding is a problem.



Positive Aspects

- Educational tool
- Good public relations for neighborhoods
- Permanent reminder of travel speed

Negative Aspects

- Not self-enforcing
- Duration of effectiveness is limited



Pavement Striping

Striping is used to create narrow lanes, which give the impression of a narrow street. This makes the motorist feel restricted, which helps reduce speeds. Striping can be at curb end or in the middle of the street to create a median. It is most applicable to long, wide residential streets where speeding traffic exists.



Positive Aspects

- Easy to install and modify as necessary
- Low cost of implementation

Negative Aspects

- May not be self-enforcing

Curb Markings

Curb markings are special curb paintings that restrict or limit parking along the curb to enhance safety and/or increase visibility of pedestrians and bicyclists. Some applications include:

- Red curb between driveways to increase visibility
- Red curb at crosswalk to increase visibility
- Blue curbs for accessible parking
- White, green and yellow curbs for passenger and freight loading
- Red curb at pedestrian ramps

Positive Aspects

- Provides for safer conditions for motorists, pedestrians and bicyclists
- Easy to install and maintain

Negative Aspects

- Could result in loss of parking



Stop Signs

Stop signs are intended to assign the right-of-way between motorists, pedestrians and cyclists at an intersection. Although many citizens believe that stop signs help reduce speeds on their street, studies have shown that by mid-block speeds are as high or higher than those locations without stop signs. Stop signs are typically used on non-arterial street intersections.

Positive Aspects

- Reduces right-of-way conflicts at an intersection
- Increases opportunities for pedestrians to cross the roadway
- May discourage cut-through traffic

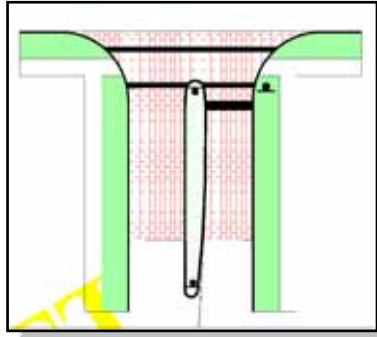
Negative Aspects

- Stop signs, not in conformance with the MUTCD/Caltrans Traffic Manual increase unnecessary delays
- Pedestrian safety compromised if motorists do not comply
- Penalizes all motorists on the main street even if obeying the speed limit
- Potential increase in noise and air pollution in the vicinity of the stop



Gateway Treatments

A gateway is a special entrance that reduces the width of a travel way, often implementing the use of islands. It is usually placed in a roadway to define the entry to a residential area and/or to narrow each direction of travel and interrupt the view path along the center of the roadway.



Positive Aspects

- High visibility to motorists to notify change in roadway nature
- May discourage cut-through traffic
- Helps slow traffic

Negative Aspects

- Will increase need for maintenance
- May necessitate removal of parking



Truck Restrictions

Restricting the entry of trucks into residential neighborhoods can be achieved through the posting of truck restriction signs. This method is most applicable on residential streets to reduce cut-through traffic of commercial vehicles.



Positive Aspects

- Redirects commercial traffic through main streets
- Reduces noise and air pollution due to trucks in residential streets

Negative Aspects

- Not self-enforcing



High - Visibility Signs

High visibility signs may include larger speed limit signs on the streets to ensure visibility to motorists. This measure is a basic method aimed at slowing traffic through visual reminders of the speed limits or other regulations. It can be applied to most streets that have speeding or other problems.

Positive Aspects

- Provides a clear definition of legal speed limit or other warnings
- Provides context for enforcement efforts

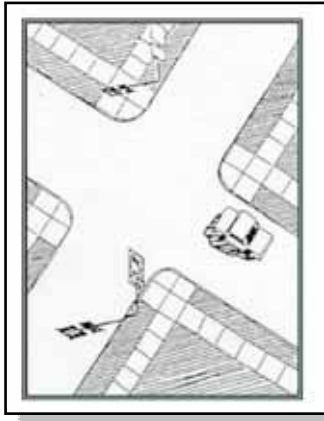
Negative Aspects

- Not self-enforcing
- Larger signs provide a negative impact on the aesthetics of the street



Signed Turn Restrictions

Signs may be installed which prohibit certain movements at an intersection, e.g., “No Left Turn”. This measure is applicable on streets where cut-through traffic exists. This method can be tailored to be applicable during the most problematic times by defining a time period for the restriction.



Positive Aspects

- Redirects traffic to main streets
- Reduces cut-through traffic
- Addresses time-of-day problems

Negative Aspects

- Not self-enforcing
- May increase trip length for some commuters
- May redirect traffic to other neighborhood streets



Minor Bulbouts

Minor bulbouts narrow the street width at intersections, and create smaller corner radii, creating a shorter and safer pedestrian crossing and encouraging drivers to slow down. Bulbouts may be striped or may be curbed islands containing special paving or landscaping which maintain current drainage patterns. Corner bulbouts are typically used adjacent to intersections where parking is restricted.

Positive Aspects

- Pedestrian crossing distance is reduced
- Narrowed roadway section may contribute to reduction of speeds
- Breaks up driver's view path

Negative Aspects

- May create a hazard for bicyclists who are less visible to turning vehicles and cross traffic
- May require partial or total removal of parking
- Could result in increased maintenance costs
- Care must be exercised to keep motorists from hitting bulbouts



Speed Reduction Measures

Speed reduction traffic calming measures are primarily designed to lower travel speeds on the streets where they are installed. The speed reduction devices there pros and cons are expressed below.

Speed Humps

Speed humps are areas of pavement raised 3 – 4 inches in height over a minimum of 12 feet in length. The combination of different heights, lengths and approach ramps will affect the speed a vehicle can comfortably go over the hump. Speed humps are marked with signs and pavement markings.



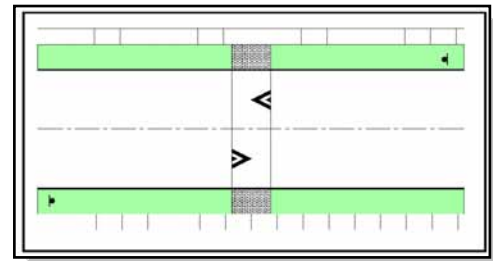
Speed humps are applicable on local streets where speed control is desired or where cut-through traffic is to be discouraged. Typically the City of Paso Robles Police and Fire Department must approve this feature on selected streets. Speed humps are not recommended for use on streets designated as primary response routes for emergency vehicles.

Positive Aspects

- Slows traffic
- Self-enforcing
- Requires minimum maintenance

Negative Aspects

- May increase emergency response times
- May damage emergency response vehicles if not carefully designed
- May increase traffic noise in the vicinity of the bump



Raised Crosswalk

Raised crosswalks are flat-topped speed humps, 22 feet in length, built as a pedestrian crosswalk, with vehicle ramps on the approaches.

This type of crosswalk is applicable to local streets where speed control and pedestrian crossing designation are desired. It can be an effective safety tool near schools and recreation facilities and can also be used to discourage cut-through traffic. Raised crosswalks are well-marked and may contain special paving or textures.



Positive Aspects

- Slows traffic
- Increases pedestrian visibility in the crosswalks
- Requires minimal maintenance

Raised Crosswalk (continued)

Negative Aspects

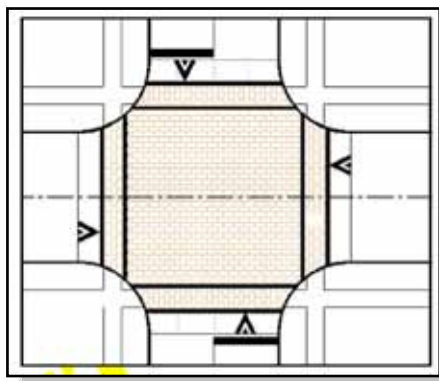
- May increase emergency response times
- May damage emergency response vehicles if not carefully designed
- May increase traffic noise in vicinity of crosswalk
- May create drainage issues where raised crossing extends from curb to curb
- May require extensive warning signs to be effective



Raised Intersection

Like raised crosswalks, the raised intersection is a flat-topped speed hump built over the entire area of intersecting streets at curb height, creating a flat surface over the entire intersection area. Raised intersections are constructed with ramps (gentle approaches 1:40) on all vehicle approaches, using bollards to define the pedestrian zone. They are often constructed with textured materials on the flat sections and the approach ramps. These are commonly used in area-wide traffic calming installations.

This type of installation is applicable to arterial and collector streets where speed control and pedestrian crossing designation are desired. It can be an effective safety tool near schools and recreation facilities and can also be used to discourage cut-through traffic. Raised intersections are used in locations where loss of on-street parking would be unacceptable.



Positive Aspects

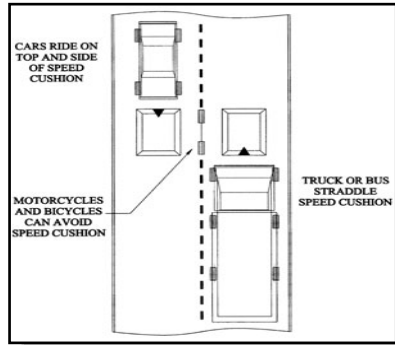
- Slows traffic
- Increases pedestrian visibility in the crosswalks
- Requires minimal maintenance
- No impact on access

Negative Aspects

- May increase emergency response times
- May increase traffic noise in vicinity of the intersection
- May create drainage issues where raised crossing extends from curb to curb

Speed Cushion

Speed cushions consist of either recycled rubber or asphalt, raised about 3 inches in height. The length of the cushion is about 10 ft. The spaces between the cushions allow emergency vehicles to partially straddle the device. These devices are most effective if used in a series at 300' to 500' spacing or in conjunction with other traffic calming devices.



Positive Aspects

- Reduces vehicle speed
- Can reduce vehicular volumes
- No restrictions to on-street parking
- Does not restrict access
- Requires minimum maintenance
- Minimal impacts to emergency response times

Negative Aspects

- May increase emergency response times
- Not aesthetically pleasing



Traffic Circles

Traffic Circles are raised circular medians that direct counterclockwise traffic flow through an intersection. Vehicles must change their travel path to maneuver around the circle, which may be controlled by “Yield on Entry” on all approaches. In some cases, stop signs can also be used in conjunction with circles.

Traffic Circles are applicable to control speed and side street access. These devices are relatively small and are applicable for the City of Paso Robles on local streets. Traffic circles may contain low growth landscaping and/or a tree.



Positive Aspects

- Provides increased access to street from side street
- Slows traffic as it drives around the circle
- Breaks up sight-lines on straight streets
- Opportunity for landscaping and visual enhancements to the neighborhood

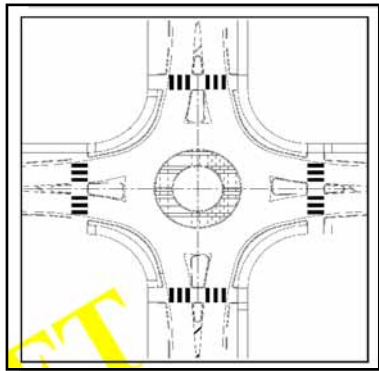
Negative Aspects

- Definition of right-of-way is contrary to the “Yield to the vehicle on the right” rule
- May impede left turns by large vehicles
- Bicyclists must merge with traffic around circle

Roundabouts

Roundabouts are high capacity, minimum delay safety features, designed for all levels of arterial and collector traffic conditions. The raised circular median (inner circle) directs traffic flow in a counterclockwise direction through an intersection. Vehicles must change their travel path to maneuver through the roundabout, which will be controlled by “Yield on Entry” on all approaches.

Roundabouts are applicable to control speed, increase capacity, reduce delay and improve side street access. Roundabouts include curbed approach “splitter” islands to direct traffic and create pedestrian refuge areas at the point of pedestrian crossing. Roundabouts must be designed to accommodate large vehicle turning radii. The intersection may contain special paving and the inner circle may contain landscaping or sculpture, or some other feature.



Positive Aspects

- Provides increased access to street from side street
- Slows traffic as drivers maneuver around the circle
- Breaks up sight-lines on straight streets
- Opportunity for landscaping and visual enhancements to the neighborhood
- Can be a cost effective alternative to traffic signals

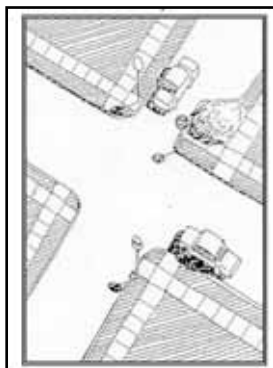
Negative Aspects

- Definition of right-of-way is contrary to the “Yield to the vehicle on the right” rule
- May impede emergency response
- May impede left turns by large vehicles
- May impact flow of pedestrians and bicyclists



Mid-Block Chokers

Chokers are raised islands in the parking zone that can be detached from the curb line to allow for drainage. Mid-Block chokers narrow the roadway and are most applicable on wide streets with speeding and cut-through problems.



Positive Aspects

- speed reduction
- Breaks up driver’s sight-line
- Reduces pedestrian crossing
- Increases pedestrian and motorist visibility

Negative Aspects

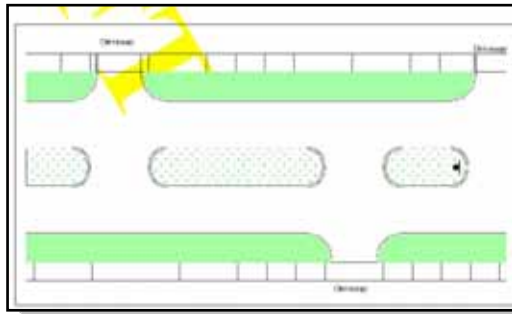
- May require partial or total removal of on-street parking
- Increases maintenance for areas where street sweeping equipment cannot reach between the choker and the curb line

Medians

Medians are raised islands in the center of the roadway that separate traffic directions. Medians are used on wide streets to narrow the travel lanes, interrupt sight distances down the center of the roadway, and ease pedestrian crossings.

Positive Aspects

- Narrowed travel lanes can slow vehicle speeds
- Shortens pedestrian crossing
- Opportunity for landscaping and visual enhancements to the neighborhood



Negative Aspects

- Long medians may interrupt emergency access and operations
- May interrupt driveway access and result in U-turns at the end of medians
- May require removal of parking
- High cost to construct and maintain



Major Bulbouts

Major bulbouts narrow the street width, and create smaller corner radii, creating a shorter and safer pedestrian crossing and encouraging drivers to slow down. Construction of major bulbouts requires altering the curb, gutter and sidewalk. Bulbouts may contain special paving or landscaping and are generally used at intersections where parking is restricted.

Positive Aspects

- Pedestrian crossing distance is reduced
- Narrowed roadway section may contribute to reduction of speeds
- Breaks up driver's sight-line
- Opportunity for landscaping and visual enhancements to the neighborhood



Negative Aspects

- May reduce visibility for cyclists who are less visible to turning and cross traffic
- May require partial or total loss of parking
- Could result in a minor increase on maintenance
- Care should be taken to keep motorists from hitting bulbouts



Chicanes

A curved street alignment that can be designed into new developments or retrofitted in existing right-of-ways is called a chicane. The curvilinear alignment requires additional maneuvering and shortens drivers' sight-lines, resulting in lower average speeds. This device can be applied to any street where speed control is desired, provided the street is wide enough to accommodate the curvilinear design.



Positive Aspects

- May slow down traffic
- Changes the look of the street, making it more aesthetically pleasing
- Has minimal impact on emergency response



Negative Aspects

- Involves extensive design and expensive implementation
- May require partial or total removal of on-street parking
- Additional maintenance for service vehicles to maneuver a curvilinear street
- May have little or no impact on cut-through traffic
- May require modification of drainage features and other utilities



Volume Reduction Measures

Volume reduction traffic calming measures are primarily designed to reduce the traffic level on the streets where they are installed. The volume reduction devices and their pros and cons are presented below.

Diverters

Diverters are raised areas placed diagonally across a four-way intersection that restrict through movements and force a turn in all directions. Diverters are most applicable to local streets where cut-through traffic is a major problem.



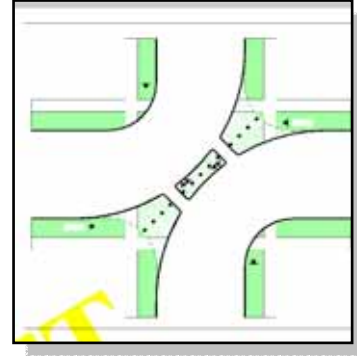
Positive Aspects

- Reduces cut-through traffic
- Channels traffic flow, thus eliminating conflicts at an intersection
- Can be designed to accommodate emergency vehicles
- Opportunity for landscaping and visual enhancements to the neighborhood
- Can accommodate bicycle traffic through intersection

Diverters (continued)

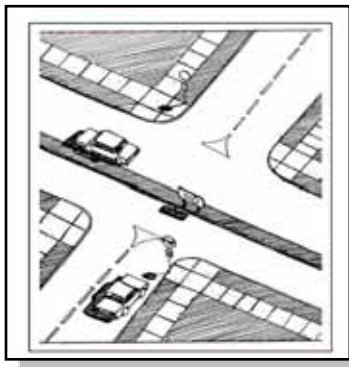
Negative Aspects

- Will re-direct traffic to other local streets
- Causes increased travel time for local residents
- Is a permanent measure, even though problem may be limited to certain times of day
- High installation costs
- May require partial or total removal of parking near intersection
- Needs significant warning and guiding signs



Extended Median

Medians are raised islands in the center of the roadway that separate traffic directions. Extended medians reach beyond cross street(s), thus eliminating left turns and through traffic. Medians are used on wide streets to narrow the travel lanes, interrupt sight distances down the center of the roadway, and ease pedestrian crossings. Extended medians can be used to discourage cut through traffic through the neighborhood.



Positive Aspects

- Narrowed travel lanes can slow vehicle speeds
- Opportunity for landscaping and visual enhancements to the neighborhood
- Reduces cut-through traffic

Negative Aspects

- Has a significant impact on emergency access and operations
- May interrupt driveway access and result in U-turns
- May require removal of parking
- High cost to construct and maintain

Partial Closure

A Partial closure is a physical barrier that restricts vehicles from turning into a street, while still allowing for bicycle access. The opposite lane is left open to allow vehicle exits. Two-way traffic is maintained for the rest of the block. Partial closures are applicable to local streets where cut-through traffic is a concern. It can also be a favorable traffic volume control measure.

Positive Aspects

- Restricts movements into a street while maintaining full access and movement within the street block for residents
- Reduces cut-through traffic
- Pedestrian crossing distance is reduced through a closure island
- Creates a space for street landscaping



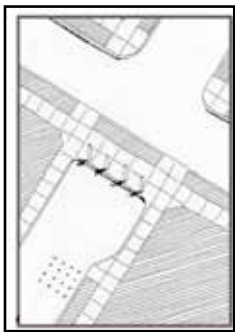
Negative Aspects

- May require partial or total removal of on-street parking
- May redirect traffic to other local streets
- May increase trip length for local drivers
- Is in effect at all times, even if cut-through problem exists only at certain times of day



Full Street Closure

A complete closure of the street blocks both lanes of travel, so that the street becomes a cul-de-sac. This device eliminates all through traffic and limits street access to local residents. This device is applicable to local streets with major cut-through concerns where an emergency vehicle response route does not exist. The closure location may be designed as a pocket park with through bicycle and pedestrian access.



Positive Aspects

- Restricts all through traffic
- Effective volume and speed control measure
- Improves the aesthetic quality of the street

Negative Aspects

- May re-direct traffic to other local streets
- May increase trip length for local drivers
- May require partial removal of on-street parking
- Not applicable for designated emergency vehicle response routes
- May result in difficult turnaround conditions

School Area Measures

Safe Routes to School Program

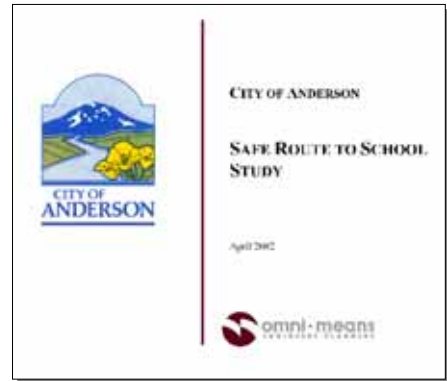
Research and inventory safe and effective walking and bicycling routes to each school based upon the potential students that could partake in these two alternative transportation modes. The study will include an evaluation of the entry points of all schools, working outwards towards residential locations to identify unsafe bicycling and pedestrian conditions. An inventory and report will be prepared of visual roadway obstructions and unsafe cycling and walking conditions. The result will be the production maps for each school that shows the "Safe Routes to School" cycling and walking routes.

Positive Aspects

- Provides needed improvements in physical roadway and school facilities prior to promoting these two mode choices, which improves safety and reduces the incidents of crashes

Negative Aspects

- May provide "false sense of security" and potential liability if promoted as "safe" and something negative happened to the commuter. This program should be called "Preferred Routes to School".



Bike Pools

Consists of a group of students that bicycle together to and from school. Bike pools for children in elementary schools should be parent supervised. This provides a safe alternative for students who live relatively close to school and have access to a route safe for bicycling

Positive Aspects

- Reduces congestion and pollution around school
- Increases safety around the school
- Saves time and money for parents
- Riding in groups is safer than riding alone

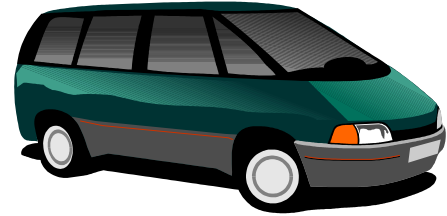
Negative Aspects

- May take longer than driving



Carpool to School Program

The school district would provide a Carpool Request Form/Flyer and send them out to all parents attending the, inviting the parent to register to participate in a school carpool.



In order to increase the number of potential carpoolers, the school district can facilitate the identification of parents living in specific zones, or areas that can support carpools. The school district can send a message to the parents that live close to participating carpool parents, informing them that other parents in their same neighborhood are looking to share rides and asking them to register.

This program can be effective for parents that don't know that another parent lives close by and is also wanting to carpool. This program is also applicable to college students, who are communicated to directly.

Positive Aspects

- Allows parents and college students to coordinate with other parents/college students willing to carpool
- Reduces trips and traffic congestion and pollution around school
- Improves traffic, bicycle and pedestrian safety
- Ability to gauge effectiveness of the program through service surveys
- Improves community and residential relationships around schools as the school neighbors (that don't have children attending the school) start seeing a difference in their neighborhood

Negative Aspects

- Initial reluctance at first with sharing rides with non-family members. This is reduced when parents meet the prospective carpool partner in an informal arrangement prior to the first carpool ride and works out any potential problems



Walk Pools

Consists of a group of students who walk together to and from school. Walk pools for children in elementary schools should be parent supervised. This is most useful for students who live relatively close to school and have access to a route safe for walking.

Positive Aspects

- Reduces congestion and pollution around school
- Increases safety around the school
- Saves time and money for parents
- Walking in groups is safer than walking alone

Negative Aspects

- May take longer than driving



Staggered Bell Times

School bell times changed to approximately 15-minute intervals between grade levels to extend the drop-off and pick-up times to reduce the number of vehicles at the school at the same time. The program would be implemented by the school district to extend the arrival and departure times of students.

Positive Aspects

- Extends the time frame for student drop-off and will reduce the number of vehicles arriving at same time

Negative Aspects

- Subject to collective bargaining with the Teachers Classified Unions with input from the parents and community
- Parent concerns due to work schedule or multiple children. A staggered bell schedule could actually increase the number of vehicle trips, when there are multiple children in a family attending school(s) at different times



Pick-Up and Drop-Off Procedures

Specific procedures developed for each school. Given the wide variation in each school's drop-off area, each school will have unique procedures developed by their school site traffic committee, and the city traffic engineering staff. The program is used when on-street and residential traffic is impacted by parents picking up and dropping off students.

Positive Aspects

- Allows site specific procedures to facilitate greater movement

Negative Aspects

- Initial training may be needed to have the procedure work effectively
- Need parent understanding and cooperation to have procedure work effectively



Redesign Parking Lots and Loading Areas

Review of efficiency and design of existing lots with recommendations as to how to increase available parking and loading areas. The program is used to increase the amount of on and off street parking as well as increase the loading zone capacity.

Positive Aspects

- Increases the amount of loading zone area of the parking lots
- Increases the efficiency of the drop-off procedure

Negative Aspects

- May have significant cost associated with recommended changes



Crossing Guard

The presence of a crossing guard serves as an easily recognized indicator to drivers that pedestrians are about to use the crosswalk and that all traffic must stop. These personnel should be placed at any location as deemed necessary by the school district and the city.



Positive Aspects

- Increases visibility and recognition of pedestrian crosswalk

Negative Aspects

- Difficult to keep crossing guards employed
- Are not allowed to control traffic



Safety Patrol and Escort Service

The Safety Patrol gives older elementary students (4th and 5th graders) the opportunity to assist in the loading and unloading of students during the pick-up and drop-off. The Escort Service is a program that takes the younger students from the vehicle and walks them to their classroom. This program is used to supplement the volunteers during the pickup-up and drop-off to further aid the students.



Positive Aspects

- Provides added measure of security for the younger students, without requiring the parents escort their child to class
- The members of the safety patrol will be able to educate the younger students on the proper safe loading and unloading procedures

Negative Aspects

- Elementary students in Safety Patrol will still need some level of supervision, especially when assisting in the unloading and loading of children

Effectiveness/Application of Traffic Calming Measures

Traffic calming measures have been studied to determine their general effectiveness, and appropriate application, in resolving issues presented on city streets. The following table provides a general assessment of the effectiveness of some of the measures under certain street conditions.

Table 1A
Effectiveness of Basic Measures

Basic Measures:	Reduces speed	Reduces Traffic	Noise	Loss of Parking	Restricts Access	Emergency Impacts	Maint.	Cost
Safety Education Program	Maybe	Maybe	No Change	No	No	No	No	Low
Police Enforcement	Yes	Maybe	No Change	No	No	No	No	Low
NASCOP Enforcement	Yes	Maybe	No Change	No	No	No	No	Low
High-Visibility Crosswalks	Maybe	No	No Change	No	No	No	Yes	Medium/High
Radar Application	Maybe	No	No Change	No	No	No	No	Low
Permanent Striping	Maybe	No	No Change	Maybe	No	No	Yes	Low
Curb Markings	No	No	No Change	Maybe	No	No	Yes	Low
Stop Signs	Maybe	Maybe	Increase	No	No	Yes	Occasional	Low
Gateway Treatments	Maybe	Minimal	No Change	No	No	No	Yes	Medium/High
Truck Restrictions	No	Yes	Yes	No	No	No	Occasional	Low
High-Visibility Signs	Maybe	Maybe	Increase	No	No	Yes	Occasional	Low
Signed Turn Restrictions	No	Yes	No Change	No	Yes	Maybe	Occasional	Low
Minor Bulbout	Yes	Maybe	No Change	Maybe	No	No	Yes	Medium

**Speed humps and raised crosswalks must be reinstalled each time a street is resurfaced.
Cost = "Low" is less than \$1,000, "Medium" is \$1,000 to \$10,000, "High" is greater than \$10,000*

Table 1B
Effectiveness of Speed Reduction Measures

Speed Reduction Measures	Reduces speed	Reduces Traffic	Noise	Loss of Parking	Restricts Access	Emergency Impacts	Maint.	Cost
Speed Humps	Yes	Maybe	Increase	No	No	Yes	Yes	Medium
Raised Crosswalk	Yes	Maybe	Increase	Yes	No	Yes	Yes	Medium/High
Raised Intersection	Yes	Maybe	Increase	Maybe	No	Yes	Yes	High
Speed Cushions	Yes	Maybe	Increase	No	No	Yes	Yes	Medium
Traffic Circles	Yes	Maybe	No Change	Yes	Yes	Yes	Yes	Medium/High
Roundabouts	Yes	Maybe	No Change	Yes	Yes	Yes	Yes	High
Mid-Block Chokers	Yes	Maybe	No Change	Yes	No	Some	Yes	Medium
Median	Yes	Maybe	Decrease	Yes	Yes	Yes	Yes	Medium/High
Major Bulbout	Yes	No	No Change	Yes	No	Some	Yes	High
Chicane	Yes	Maybe	No Change	Yes	Maybe	Some	Yes	Medium/High

**Speed humps and raised crosswalks must be reinstalled each time a street is resurfaced.
Cost = "Low" is less than \$1,000, "Medium" is \$1,000 to \$10,000, "High" is greater than \$10,000*

Table 1C
Effectiveness of Volume Reduction Measures

Volume Reduction Measures	Reduces speed	Reduces Traffic	Noise	Loss of Parking	Restricts Access	Emergency Impacts	Maint.	Cost
Diverter	Maybe	Yes	No Change	Maybe	Yes	Yes	Yes	High
Extended Median	Maybe	Yes	Decrease	No	Yes	Yes	Yes	Medium/High
Partial Closure	Maybe	Yes	No Change	Maybe	Yes	Maybe	Yes	High
Full Street Closure	Maybe	Yes	No Change	Maybe	Yes	Yes	Yes	High

**Speed humps and raised crosswalks must be reinstalled each time a street is resurfaced.
Cost = "Low" is less than \$1,000, "Medium" is \$1,000 to \$10,000, "High" is greater than \$10,000*

Table 1D
Effectiveness of School Area Measures

School Area Measures:	Reduces speed	Reduces Traffic	Noise	Loss of Parking	Restricts Access	Emergency Impacts	Maint.	Cost
Safe Routes to School Program	No	No	No Change	No	No	No	No	Medium
Carpool to School Program	Maybe	Yes	No Change	No	No	No	Yes	Low
Bike Pools	No	Yes	Decrease	No	No	No	Yes	No
Walk Pools	No	Yes	Decrease	No	No	No	No	No
Staggered Bell Times	No	Maybe	No Change	No	No	No	No	Low
Pick-Up and Drop-Off Procedures	Maybe	No	No Change	No	No	No	No	Low
Redesign Parking Lots and Loading Areas	Maybe	No	No Change	Maybe	Maybe	No	No	Medium/High
Crossing Guard	No	No	No Change	No	No	No	No	Medium
Safety Patrol and Escort Service	No	No	No Change	No	No	No	No	Low

**Speed humps and raised crosswalks must be reinstalled each time a street is resurfaced.
Cost = "Low" is less than \$1,000, "Medium" is \$1,000 to \$10,000, "High" is greater than \$10,000*

Selection of Traffic Calming Measures

Some of these traffic calming measures are suitable for nearly all applications, while others are far more suitable for specific application. The following guide as to the potential use of these traffic calming measures is provided below:

Table 2A
Selection of Basic Measures

	Local Residential Street (two lanes)	Arterial Collector Streets (four/six lanes)	School Area Streets
Safety Education Programs	X	X	X
Police Enforcement	X	X	X
NASCOP Enforcement	X	X	X
High-Visibility Crosswalks	X	X	X
Radar Application	X	X	X
Striping Changes	X	X	X
Permanent Striping	X	X	X
Curb Markings	X	X	X
Stop Signs	X	X	X
Gateway Treatments	X	X	X
Truck Restrictions	X	X	X
High-Visibility Signs	X	X	X
Signed Turn Restrictions	X	X	X
Minor Bulbouts	X	X	X

Table2B
Selection of Speed Reduction Measures

	Local Residential Street	Arterial Collector Streets	School Area Streets
Speed Humps	X		X
Raised Crosswalks	X	X	X
Raised Intersection		X	X
Speed Cushions	X		X
Traffic Circles	X		X
Roundabouts		X	X
Mid-Block Chokers	X	X	X
Medians	X	X	X
Major Bulbouts	X	X	X
Chicanes	X	X	X

Table 2C
Selection of Volume Reduction Measures

	Local Residential Street	Arterial Collector Streets	School Area Streets
Diverters	X		X
Extended Median	X	X	X
Partial Street Closure	X		X
Full Street Closure	X		X

**Table 2D
Selection of School Area Measures**

	Local Residential Street	Arterial Collector Streets	School Area Streets
Safe Routes to School Program	X	X	X
Carpool to School Program	X	X	X
Bike Pools	X	X	X
Walk Pools	X	X	X
Staggered Bell Times	X	X	X
Pick-Up and Drop-Off Procedures	X	X	X
Redesign Parking Lots and Loading Areas	X	X	X
Crossing Guard	X	X	X
Safety Patrol and Escort Service	X	X	X

Guidelines for Installation of Traffic Calming Measures

The City of Paso Robles will continually develop recommended guidelines for the installation of various traffic calming tools. This chapter will be updated from time to time to provide new and/or revised guidelines for the installation of traffic calming devices. Generally speaking the “Basic Measures” are of a lower cost nature, and may be installed where a traffic engineering analysis indicates that:

- A problem exists, and
- There is an expectation of a successful result

If this expectation is without merit, or a “basic measure” installation has failed, more restrictive measures may be appropriate. The guidelines discussed below can be used in these circumstances. However, deviations from these criteria may only occur when a traffic engineering study identifies needed adjustments.

Vertical Deflection Guidelines (Speed Control)

The following guidelines (warrants) shall govern the installation of vertical deflection installations, following a comprehensive traffic engineering study. Some or all of these guidelines may apply, depending upon the individual street characteristics.

1. Vertical Deflection measures shall not be installed on streets or street segment identified within the Circulation Element of the General Plan.
2. The streets or street segment shall be a two lane residential local or collector street not identified within the Circulation Element of the General Plan.
3. The street or street segments shall be fully improved, (i.e. includes curb and gutter), or curb and gutter shall be constructed as part of the traffic calming project cushions. Streets without full improvements may be considered if physical conditions exist that will allow the measure to operate effectively.
4. The street segment shall be at least 600’ long.

5. The installation should not adversely affect response time for emergency service vehicles. The Public Works Department staff in conjunction with City Fire and Police Departments shall determine if there is any affect to existing response times.
6. Guidelines apply only to streets with a speed limit of 30 miles per hour or less.
7. The critical speed (i.e., the 85th% speed) shall be at least seven miles per hour above the posted speed limit.
8. The median speed should exceed the speed limit.
9. The average daily traffic volume, excluding cut-through traffic, should be more than 1000 vehicles per day.
10. Vertical deflection devices should not be placed on curves.
11. Vertical deflection devices should be located at or near residential property lines and away from driveways, when possible.
12. Vertical deflection devices should be located near street lights to illuminate them for safe bike and pedestrian activity at night.
13. Vertical deflection devices should be accompanied by the appropriate advanced signage.
14. Spacing between vertical deflection devices should be as even as possible to produce uniform speed along an entire street. When placed in a series they should be placed between 200 and 600 feet apart. Spacing should allow at least one installation on each block.
15. Vertical deflections shall not be installed at locations with street grades in excess of 6%, except under conditions where there are very short sections with grades up to 8%-10%.

Horizontal Shift Guidelines (Volume Control)

The following guidelines (warrants) shall be followed when considering the installation of horizontal shift traffic calming devices, following a comprehensive traffic engineering study. Some or all of these guidelines may apply, depending upon the individual street characteristics.

1. The installation shall not adversely affect response time for emergency service vehicles. The Public Works Department staff in conjunction with City Fire and Police Departments shall determine if there is any affect to existing response times.
2. The average daily traffic volume should exceed 500 vehicles per day.
3. Cut through traffic exceeds 25% of total daily and/or peak hour traffic.
4. Traffic circles are restricted to two lane neighborhood streets.
5. Roundabouts shall be considered on collector and arterial streets.

Traffic Circles Guidelines

In addition to the *Horizontal Shift* and *Vertical Deflection* criteria, the following guidelines (warrants) shall be considered for the installation of traffic circles. These guidelines should be applied following a comprehensive traffic engineering study. Some or all of these guidelines may apply, depending upon the individual street characteristics:

1. Traffic circles are a traffic calming measure suitable for installation on local residential neighborhood streets ONLY.
2. Intersections should be a minimum of 55 feet diagonally across (both directions, measured from curb face).
3. Crosswalk should be located a minimum of 12 feet from the inscribed circle (measured from curb face of circle to white stripe of crosswalk).
4. Device should allow for a minimum 22 foot wide travel lane for circulating traffic (measured curb face of interior circle to the curb return).

5. Interior diameter of circle should be a minimum of 10 feet (measured curb face to curb face).
6. Traffic circles should not be used in conjunction with stop signs at a given location.
7. Device should be installed with vertical curb (not rolled curb).

Roundabout Guidelines

In addition to the *Horizontal Shift* and *Vertical Deflection* criteria, the following guidelines (warrants) shall be considered for the installation of roundabouts. These guidelines should be applied following a comprehensive traffic engineering study. Some or all of these guidelines may apply, depending upon the individual street characteristics:

1. Roundabouts are a traffic control measure, suitable for installation on collector and arterial streets.
2. Roundabouts shall be installed for the express purpose to reduce delay and congestion and to increase safety.
3. Roundabouts shall be installed only where a comprehensive traffic engineering evaluation indicates.
4. Roundabouts shall be designed and installed per the FHWA guide on Modern Roundabout Installations.
5. Consistent with Caltrans Design Bulletin – DIB 80-01 dated October 3, 2003.

Crosswalk Guidelines

Crosswalks shall not be installed unless the location demonstrates a high concentration of pedestrians and shall be installed in conjunction with traffic control devices such as traffic signs. New crosswalks at uncontrolled intersection or mid-block locations shall be strictly limited and shall be allowed only in the most urgent circumstances and if pedestrian safety can be provided, following a comprehensive traffic engineering study.

Stop Sign Guidelines

Stop sign installation shall be guided by the MUTCD stop sign warrants or the “Multi-Way STOP Installation Criteria for Neighborhood Street” as found in the January-February 1999 issue of the Western ITE magazine, following a comprehensive traffic engineering study.

Section 5 – The Process

It shall be the mission of the City of Paso Robles to provide traffic calming solutions where motor vehicular use of city streets adversely impact the neighborhood quality of life and the safety of the residents and/or businesses within that neighborhood.

The city will work closely with the community to properly identify the concerns, conduct appropriate studies to quantify any problems and develop options for dealing with the quantified problems.

Traffic Calming Program Procedures

Traffic calming is the application of techniques at a specific location which will likely result in a reduction in vehicular traffic speed, volume, noise and/or accidents. The techniques may include one or several of the traffic calming measures identified previously. The support of the residents and/or businesses where traffic calming is being considered is critical to the success of any neighborhood traffic management program and therefore must be an integral part of any process.

It is the goal of the city to achieve solutions to traffic related problems in a manner least intrusive to the neighborhood. To accomplish this goal, the city has developed this procedure to assure a systematic and comprehensive approach to each neighborhood request.

A study will likely be necessary in order to determine if, and to what magnitude, there is a traffic concern, which can be effectively addressed by installing traffic calming measures. The three (3) most common concerns the program addresses are:

- Speeding and cut-through traffic in residential areas; and,
- Speed, congestion and safety along arterial and collector streets in commercial areas
- School area safety caused by excessive speed and congestion

The City of Paso Robles' Residential and Arterial/Collector Street Traffic Calming Program is based on substantial community participation. Because residents and/or adjacent businesses are primarily the initiators of traffic calming requests and must live day-to-day with the resulting actions, the city, strongly encourages, community participation throughout the process. Development of successful traffic calming programs depends on a strong interaction between the community and city staff. One of the intents of the program is to provide a clear structure for addressing traffic concerns in the city's neighborhoods.

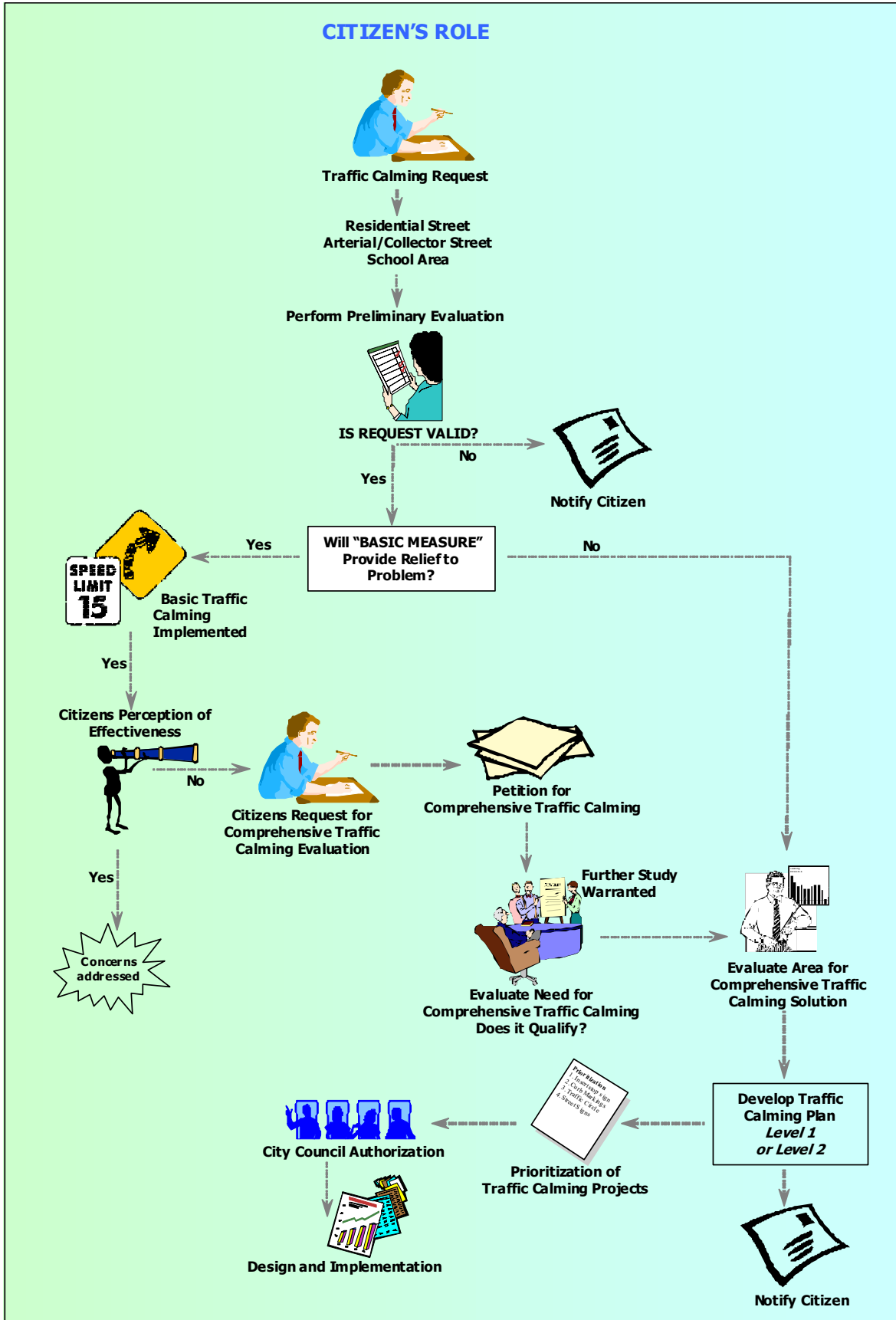
Traffic concerns may exist throughout an entire neighborhood, or may be specific to a:

- Particular street or segment(s) of roadway - such as a single street, or series of neighboring streets
- Spot location - such as a schools
- Several city blocks - such as downtown or commercial neighborhoods

The city's implementation process consists of three levels, as shown in section 4. Each level requires, as a first step, community or city staff identification of an existing problem. The process allows implementation of traffic calming tools in a timely manner in conditions where problems could be addressed with fairly routine solutions (Basic Measures).

The entire process is illustrated on the following page.

Traffic Calming Decision Making Process



Community Identification of the Problem

The traffic calming process begins once the Department of Public Works receives a request from a neighborhood to initiate a study, or the Department identifies a traffic problem through its regular review of traffic statistics. In the case of a neighborhood-initiated request, a single citizen, or a group of citizens must submit a Traffic Calming Request form. The form must include a discussion of the current traffic problems. This form, which includes a petition, must be circulated by the requesting party(ies), and be returned containing the names and signatures of at least 50% plus one of the affected residents (in a residential neighborhood), or business owners/managers (in a commercial neighborhood) supporting the request to initiate a study. The petition shall be limited to one signature per household or business.

Initial City Evaluation and Findings

Upon receipt of the Traffic Calming Request form, the City's Public Works Department will document the neighborhood concern, conduct a field investigation, and collect data, as appropriate (e.g., traffic volumes, collision data, travel speeds, etc.). After collecting the study information, the city will make a determination as to the validity of the stated request. If the problem stated cannot be confirmed, and the normal criteria for the implementation of traffic calming measures is not supported by the data collected, a report will be issued to the requesting party('s), describing the reasons for the denial of the request.

Determination of Potential Traffic Calming Measures

If the traffic studies confirm that the stated problem is valid, and finds that the problem may be reduced alleviated through the implementation of "basic measure(s)", the city will implement the most appropriate Basic Measure(s). If the city evaluation determines the potential need for "speed reduction, or volume reduction or school area" traffic calming, the Public Works Department will contact the requesting party('s) and provide a petition form for circulation within the neighborhood area. The neighborhood area will be determined by the city to represent the potential area, which may be effected by the implementation of traffic calming devices.

Neighborhood Meeting/Committee Formation

The city will then request that a neighborhood meeting be held to discuss the findings and to form a Neighborhood Traffic Calming Committee (NTCC) to work with the city on this request. The NTCC will be a volunteer group of residents/business representatives chosen by the neighborhood participants. The NTCC will be responsible for arranging subsequent group meetings and shall keep their neighborhood constituents informed as to progress. The goal is to have members that represent the various geographical areas and interests within the potential project neighborhood. City staff will arrange and provide the location for the initial meeting.

This procedure will also serve as the first step in the case of a city initiated traffic calming project. The city will work with the NTCC in an attempt to identify as many stakeholders that will be directly affected as possible. Their perspective is essential for developing a plan that effectively addresses existing concerns without creating new problems.

Develop Traffic Calming Project Plan

The NTCC will work with the city in an advisory role and will meet to review existing problems, determine community goals, review the neighborhood study boundary, discuss and evaluate various measures, and gain community acceptance on which measures to implement as means of addressing the problems. The NTCC will work with the city to identify the most effective solutions to the traffic related problem. Solution consensus within the NTCC will advance the project to the level of neighborhood acceptance confirmation.

Neighborhood Acceptance Evaluation

Once the NTCC has agreed with the city on the potential traffic calming implementation project a second petition will be circulated within the project area previously defined, or as modified through the course of these evaluations. This petition form must be circulated by the requesting party('s), and must be returned containing the names and signatures of at least 66 ^{2/3} % of the affected property owners (in a residential neighborhood), or business owners/managers (in a commercial neighborhood) supporting the proposed project. This petition shall also be limited to one signature per household or business. In addition, 100% of the residents or businesses immediately adjacent to the proposed traffic calming installation must be in agreement, and have executed the petition.

Traffic Calming Project Prioritization

The prioritization process provides the city with clear guidelines on how to manage its limited resources effectively and appropriately when dealing with citywide traffic calming needs. It is also allows the city to work with the neighborhoods that have the most pressing problems first.

The need to prioritize projects arises when the demand for traffic calming exceeds city resources. This includes staff time to work on the project as well as construction funding. A common approach used by most other cities to efficiently utilize city resources is to prioritize projects so that the neighborhoods with the greater problems are addressed first.

This program recognizes the need for traffic calming in our residential and our commercial neighborhoods. Since most neighborhood traffic problems involve speeding vehicles or a high volume of vehicles relative to the street type, these criteria are weighted heavier in the ranking. Another factor that is considered in defining the extent of the problem is the average annual reported accidents.

Additionally, the impact traffic will have on a neighborhood depends upon the character of the street in the neighborhood and the amount of pedestrian activity within the neighborhood. Streets that have a greater percentage of fronting homes or commercial/businesses are impacted more than streets that are lined with backing lots or controlled access designs.

Neighborhoods that have a higher number of pedestrian generators, such as parks, schools and other public facilities, will be impacted greater than those neighborhoods without pedestrian generators. Due to the high concentration of school-aged pedestrians and localized traffic congestion associated with elementary, middle and high schools, these pedestrian generators are weighted double that of other non-school pedestrian generators.

For the purposes of the prioritization criteria, the data collected will be rounded up to the nearest whole number. This prioritization scoring criteria allows 35 maximum points and is as follows:

**Table 3
Prioritization Ranking Process**

Speed - 85th Percentile speed

MPH above Legal speed Limit	Points
7 mph	2
9 mph	4
11 mph	6
13 mph	8
15 mph	10 maximum

Volume – (Average Daily/Peak Hour)

Non-Circulation Element		Circulation Element		Points
Local Street (2 Lane)	Collector (2 Lane)	Arterial/Collector (4 Lane)	Arterial/Collector (6 Lane)	
1000 -1100	2500 -2600	24,001-25,000	36,001-37,000	1
1101 -1200	2601 - 2700	25,001-26,000	37,001-38,000	2
1201 -1300	2701 - 2800	26,001-27,000	38,001-39,000	3
1301 -1400	2801 - 2900	27,001-28,000	40,001-41,000	4
1401 -1500	2901 - 3000	28,001-29,000	41,001-42,000	5
1501 -1600	3001 - 3100	29,001-30,000	42,001-43,000	6
1601 -1700	3101 - 3200	30,001-31,000	41,001-42,000	7
1701 -1800	3201 - 3300	31,001-32,000	43,001-44,000	8
1801 -1900	3301 - 3400	32,001-33,000	44,001-45,000	9
1901 -2000	3401 - 3500	23,001-34,000	45,001-46,002	10 max

Fronting Uses/Access (includes homes, businesses, etc.)

Percent of street with fronting uses/access	Points
10% or less	1
11 - 25%	2
26 - 50%	3
51 - 75%	4
76 - 100%	5 max

Pedestrian Generators (parks, schools¹, public facilities)

Number of generators within study boundaries	Points
1	1
2	2
3	3
4	4
5	5 max

1. Elementary, middle and high schools will gain double point

When a particular location reaches the top of the city’s prioritization list, it will enter into the next phase of the traffic calming process, project funding.

Project Implementation

If approved, the proposed speed reduction, volume reduction, or school area traffic calming plan may be implemented on a test basis using temporary control devices, where possible, for a period determined by

the City's Public Works Department. In most cases, the test program will last one year - with the ultimate duration agreed to by the NTCC in conjunction with city staff.

Following the test period, city staff will collect new data (e.g., traffic volume counts, speed surveys, etc.) in order to determine the effectiveness of the measures put into place. These results will be provided to all of the neighborhood residents and property owners. Then the devices may be installed in a permanent manner, removed, or a further vote may be taken using the same process as described previously. Again, city staff will notify residents and property owners about the ballot results. If approved, and funded the permanent devices will be installed. City staff will give notification to the neighborhood prior to construction. After construction of the permanent volume reduction measures, the City's Public Works Department will continue monitoring the effectiveness of the plan for up to one year. City staff will prepare a report of the findings for presentation to the neighborhood. Depending on the nature of the measures, this report could include a maintenance plan for residents and property owners.

Funding Considerations

Traffic calming devices will normally be installed at the city's expense subject to availability of funds. Consideration of the funding limitations of the city should be considered throughout the plan development process. If funding limitations will impact the range of options available, this needs to be identified early in the process and the variety of appropriate devices should reflect these limitations. It must be reiterated that speed reduction and/or volume reduction devices are expensive.

Furthermore, the City's of Paso Robles Residential and Arterial/Collector Street Traffic Calming Program operates on a limited budget. The budget is approved annually and is contained in the City's Capital Improvement Program. Given these limitations, if a neighborhood desires to implement a more extensive plan than developed through this process the City Council will have two options; approve the plan with additional funding; and/or, require the neighborhood to participate in funding all or a part of the project.

Projects for which a 100% funding commitment by the neighborhood is received will be moved forward to implementation by the city upon completion of the design process.

Traffic Calming Project Design/Construction

When a traffic calming project is authorized for design by the city council, the city staff will either design the project "in-house" or have the design prepared by consultant. The city and/or the consultant will work with the NTCC to assure that the plan developed is the plan designed and implemented.