City of Monterey
Neighborhood Traffic Calming Program

Approved by City Council on: **January 15, 2013**
Resolution Number: **13-010 C. S.**

City of Monterey
Neighborhood Traffic Calming Program

Introduction
The City of Monterey initiated a comprehensive approach to neighborhood traffic calming to address a variety of traffic concerns expressed by local residents. The program is designed to provide consistent, citywide policies to neighborhood traffic management to ensure equitable and effective solutions.

Neighborhood traffic concerns include a wide range of issues from site specific safety concerns to neighborhood-wide concerns with cut-through traffic speeding through the neighborhood on one or more streets. The program outlined here summarizes the process the City will use to address neighborhood traffic concerns in Monterey.

Goals
The goals of the Neighborhood Traffic Calming Program are to:

- Improve local residents' sense of well-being about their neighborhood streets and enhance traffic safety in residential areas.

- Evaluate Monterey's neighborhood traffic problems and produce adopted plans for each residential neighborhood.

- Provide a Neighborhood Traffic Calming Program format that is responsive to all neighborhoods in the City of Monterey.

Objectives
The objectives of the program are to:

1. Encourage positive driver behavior in residential neighborhoods.

2. Improve neighborhood livability by encouraging adherence to the speed limit.

3. Reduce speeds on residential streets without reducing safety.

4. Develop neighborhood traffic calming plans that meet the needs of residents and property owners.

5. Encourage citizen involvement through neighborhood workshops to identify concerns and calming devices for use in the neighborhood.

6. Provide a process that includes a clear opportunity for residents of the affected community to accept the plan.

7. Effectively balance the public safety interests, including traffic mitigation and emergency response. Any Neighborhood Traffic Calming Plan must clearly address provisions for emergency response.

8. Maintain emergency response routes by restricting the use of vertical devices (e.g. speed bumps).

9. Maintain capacity on collector and arterial streets.

10. Enhance and maintain primary visitor routes.

11. Integrate education, engineering, enforcement, and enhancement.

12. Continually evaluate the public acceptance of the program.

13. Provide a process for residents and property owners to amend their neighborhood traffic calming plan

Policies

The following policies were developed to guide traffic calming in the City of Monterey:

1.0 Compatibility with City plans

1.1 Traffic calming projects should be compatible with overall City transportation goals and objectives, as set forth in the General Plan, Bicycle Transportation Plan, and adopted Area Plans. Specific General Plan Circulation Element goals and policies that apply to neighborhood traffic calming include:

> 2.b.5 Limit through traffic in residential neighborhoods, but without restricting local access patterns.
>
> Streets & Highways:
> Policy 1. Provide an efficient, well-maintained, and environmentally sound street and highway system.
>
> > Program 1a. Implement the street classification system in Map H-1, which identifies the functions of streets. (See Figure 1)

Principle Arterial Streets	
Street	**Limits**
Aguajito Road	Fremont Street to Mark Thomas Drive / Highway 1 NB Exit Ramp
Del Monte Avenue	Lighthouse Avenue / Washington Street to East City Limits
Foam Street	Lighthouse Avenue to Reeside Avenue
Fremont Street	Highway 1 / Aguajito Road to Camino El Estero
Lighthouse Avenue	Washington / Del Monte Avenue to Reeside Avenue
Soledad Drive	Munras Avenue to Highway 1 NB Entrance Ramp

Minor Arterial Streets	
Street	**Limits**
Abrego Street	Eldorado Street to Pearl Street / Washington Street
Camino El Estero	Del Monte Avenue to Franklin Street
David Avenue	Wave Street to Divisadaro Street (West City Limit)
Del Monte Avenue	Washington Street to Pacific Street
English Avenue	Del Monte Avenue to Highway 1 NB Exit Ramp
Figueroa Street	Franklin Street to Del Monte Avenue
Foam Street	Reeside Avenue to David Avenue
Franklin Street	Van Buren Street to Camino El Estero
Fremont Street	Camino El Estero to Munras Avenue
Lighthouse Avenue	Reeside Avenue to North City Limit
North Fremont Street	Highway 1 to East City Limits
Munras Avenue	Fremont Street to Alvarado Street
Munras Avenue	Eldorado Street / Abrego Street to Highway 1 SB Ramps
Olmsted Drive	Highway 68 to Monterey Peninsula Airport Entrance
Pacific Street	Lighthouse Avenue to Del Monte Avenue
Pacific Street	Del Monte Avenue to Soledad Drive
Soledad Drive	Pacific Street to Munras Avenue
Tyler Street	Lighthouse Avenue to Franklin Street
Washington Street	Pearl Street / Abrego Street to Del Monte Avenue

Collector Streets	
Street	**Limits**
Aguajito Road	Mark Thomas Drive to Monhollan Road
Airport Road	Monterey Peninsula Airport to North Fremont Street
Alvarado Street	Munras Avenue to Del Monte Avenue
Camino Aguajito	Del Monte Avenue to Fremont Street
Camino El Estero	Franklin Street to Fremont Street
Cannery Row	Drake Avenue to Reeside Avenue
Casa Verde Way	Del Monte Avenue to Fairground Road
Del Monte Avenue	Pacific Street to Van Buren Street
Drake Avenue	Wave Street to Hawthorne Street
Eldorado Street	Munras Avenue to Pacific Street
English Avenue	Highway 1 NB Exit Ramp to Montecito Avenue
Fairground Road	Airport Road to Garden Road
Franklin Street	Van Buren Street to Presidio of Monterey Entrance
Garden Road	Fairground Road to Olmsted Road

Glenwood Circle	Aguajito Road / Via Lavandera to Iris Canyon Road
Hawthorne Street	Reeside Avenue to Line Street / North City Limit
Herrmann Drive	Madison Street to Via Del Rey
Hoffman Street	Wave Street to Hawthorne Street
Jefferson Street	Pearl Street to Veterans Drive
Josselyn Canyon Road	Mark Thomas Drive to Highway 68
Madison Street	Hermann Drive to Calle Principal
Mar Vista Drive	Monte Vista Drive to Skyline Drive (south intersection)
Mar Vista Drive	Soledad Drive (north intersection) to Skyline Drive
Mark Thomas Drive	Aguajito Road to Garden Road
Martin Street	Pacific Street to Via Gayuba / San Bernabe Drive
Monhollan Road	Within City Limits
Monte Vista Drive	Mar Vista Drive to Soledad Drive
Montecito Avenue	English Avenue to Casa Verde Way
Olmsted Road	Monhollan Road to Highway 68
Pearl Street	Munras Avenue to Camino Aguajito
Pine Street	David Avenue to Drake Street
Polk Street	Calle Principal to Alvarado Street / Munras Avenue
Prescott Avenue	Divisadero Street / West City Limits to Wave Street
Ragsdale Drive	Highway 68 to Lower Ragsdale Drive
Reeside Avenue	Cannery Row to Hawthorne Street
Rancho Saucito Road	Upper Ragsdale Drive to South Boundary Road
Skyline Drive	Mar Vista Drive (south intersection) to Veterans Drive
Skyline Forest Drive	Skyline Drive to Highway 68
Sloat Avenue	Mark Thomas Drive to Del Monte Avenue
Soledad Drive	Mar Vista Drive to Pacific Street
South Boundary Road	York Road to West City Limits
Taylor Street	Prescott Avenue to Presidio of Monterey Entrance
Third Street	Camino Aguajito to Sloat Avenue
Van Buren Street	Del Monte Avenue to Madison Street
Veterans Drive	Jefferson Street to Skyline Drive
Via Gayuba	Martin Street to Mar Vista Drive
Wave Street	Drake Avenue to North City Limits
Wilson Road	York Road to Lower Ragsdale Drive
York Road	Highway 68 to South Boundary Road

FIGURE 1 Road Classification

Program 1e. Include the needs of buses, bicycles, and pedestrians when planning for street and highway improvements.

Policy 3. Route trucks and through traffic away from residential neighborhoods.

Program 3a. Whenever feasible, route trucks and through traffic onto the freeway and arterial streets, even where such routing is not the shortest distance between two points. Truck routes shall be maintained in an official list that will be consistent with the functional classification system.

Program 3c. Emphasize design and enforcement solutions rather than traffic control devices to slow and discourage through traffic in residential areas.

Program 3d. Physical devices should not unduly restrict access to neighborhood, particularly by emergency vehicles. In particular, avoid using stop signs and signals for speed control.

Program 3e. Street closures (converting a through street to a cul-de-sac) should be used only when there is substantial neighborhood support, when traffic is expected to divert onto an arterial or major collector (rather than on other local residential streets), when emergency vehicle access is maintained, and when the additional distance the through traffic would travel is limited. Prior to any street closure, consideration shall be given to restriction of turning movements to solve traffic problems, rather than full street closure.

3.b. Area Circulation Plans
This section of the General Plan provides specific policies and programs for neighborhoods in Monterey. These should be considered when considering any proposed changes to area circulation.

1.2 The implementation of traffic calming plans will be in accordance with the procedures set forward in this document, in keeping with sound engineering practices and within the limits of available resources.

2.0 Emergency response

2.1 Emergency vehicle access and response should be preserved. To this end, the Fire Department has developed a map of Primary Routes of Travel throughout the city. The use of traffic calming devices on these streets will be evaluated for their impact on the City's adopted emergency response times. (See Figure 2)

2.2 Fire Department representatives will work with Public Works staff to identify emergency response and access concerns within each neighborhood prior to the first neighborhood meeting. These will include critical routes within the neighborhood, special need facilities in the neighborhood, access issues, and necessary clearances.

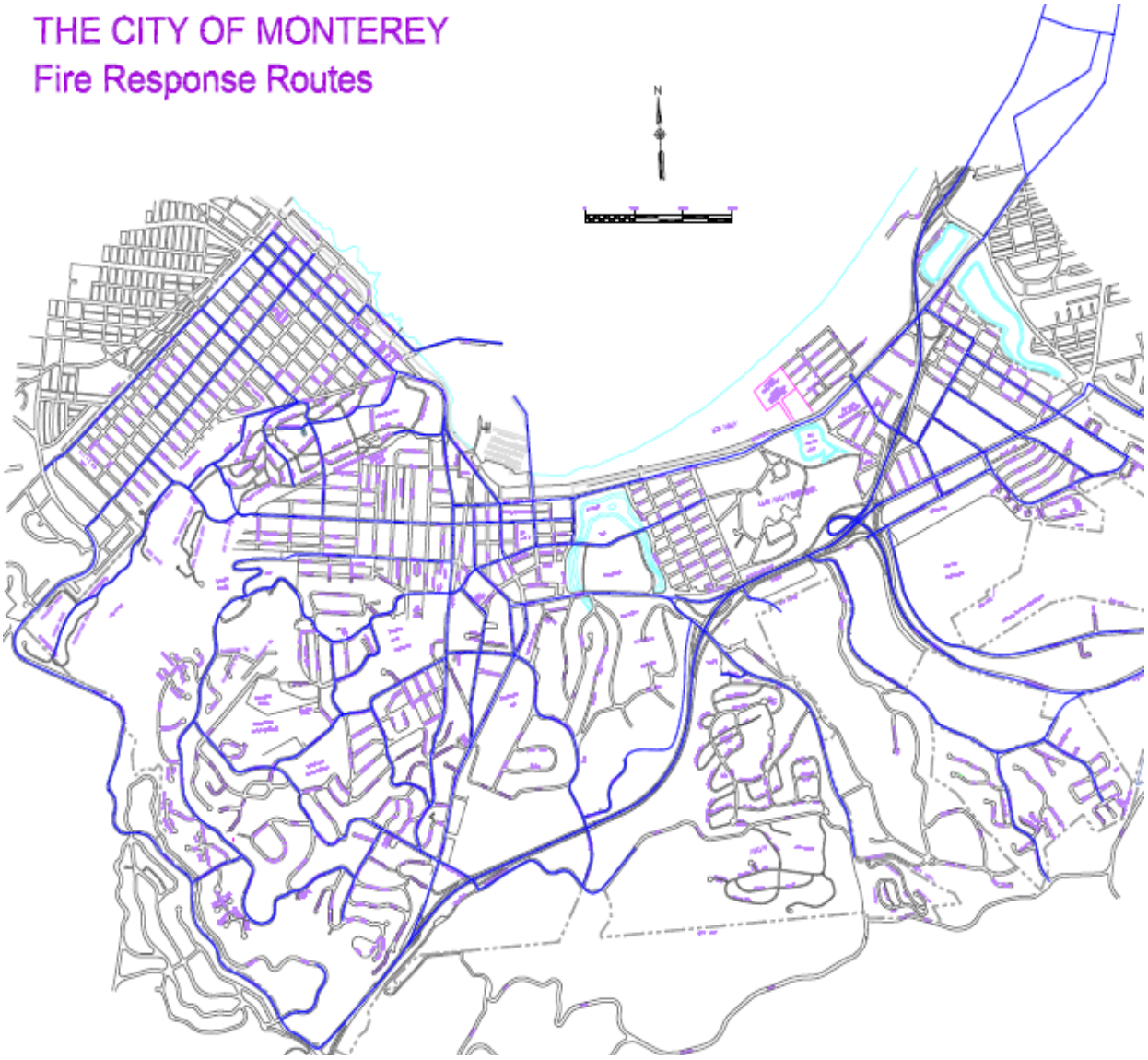


FIGURE 2: Emergency Response Routes

3.0 Neighborhood focus

3.1 The implementation of traffic calming in Monterey will be on a neighborhood basis, rather than on a site or street specific basis or citywide. This approach is necessary to maintain a comprehensive approach and to meet the goals and policies of this program.

3.2 To ensure that residents' issues and concerns are adequately addressed in the traffic calming planning process, significant involvement by the neighborhood is essential. The neighborhood traffic calming planning process outlined below will be used with each neighborhood to involve the residents and other interested parties in the process.

3.3 Neighborhood traffic calming is not designed to address hazardous intersections, mitigate noise from major arterials, redesign the overall transportation/street classification system, or affect a modal shift.

3.4 Traffic calming devices should accommodate pedestrian activity and integrate pedestrian considerations in the design.

3.5 Amendments to neighborhood traffic calming plans will follow the same procedure to ensure that residents' issues and concerns are adequately addressed in the process. Neighborhood residents will be notified and encouraged to participate in any amendment that could directly affect them.

4.0 Managing traffic on existing facilities

4.1 The intent of traffic calming is not to relocate the problem from one residential street to another. Traffic calming is intended to slow traffic that is driving too fast on residential streets and to re-route traffic that is using residential streets as an alternative route to an arterial street.

4.2 To the extent possible, existing neighborhood traffic should be managed in place and not diverted to adjacent neighborhood streets. Neighborhood residents will be notified and encouraged to participate in any plan that redirects traffic and could directly affect them.

4.3 Arterials are the most desirable facilities for through traffic. Feasible opportunities for re-routing traffic from one street to a higher classification street will be encouraged.

5.0 Funding

5.1 Though there are limited sources of funds that can be utilized to design and construct traffic calming projects and competition for those limited funds is keen, one source that has been utilized as a primary source of funding for projects is the Neighborhood Improvement Program (NIP). The NIP process may be used to identify neighborhood traffic calming priorities and funding. City staff will pursue other funding through grants when possible.

6.0 Landscaping

Landscaping improvements associated with traffic calming require ongoing maintenance and irrigation costs. Agreements may be made with residents and neighborhood associations to maintain the landscaping and pay for water taps where necessary in the improvements. After the establishment period, maintenance of landscaping adjacent to residences may be the responsibility of the adjacent property owner.

The Neighborhood Process

The overall Traffic Calming Program for the City of Monterey provides citywide goals, objectives, policies and procedures directed at the development and implementation of neighborhood traffic calming plans, and provides for consistency in process and devices throughout the city. The Neighborhood Traffic Calming Planning Process focuses on the specific needs and desired outcomes of individual neighborhoods. Because each neighborhood has its own concerns, planning must take place on a neighborhood level to develop effective plans. A neighborhood level process also provides a more

comprehensive approach than looking at traffic calming on a street-by-street basis. Issues and potential solution on one street in a neighborhood will impact adjacent streets. Therefore, the City of Monterey is committed to working on a neighborhood level to address neighborhood traffic concerns.

Review of Adopted Plans
When a planning process is initiated for a neighborhood, City staff will review the General Plan and any existing Area Plans for policy direction or commitments in that neighborhood.

Neighborhood Surveys
One of the most critical elements of developing an effective traffic calming program for a neighborhood is the clear identification of traffic behaviors and problems to be addressed. Each neighborhood will experience its own set of concerns, some more apparent than others. It becomes clear how complex many neighborhood issues are when representatives from throughout a neighborhood meet to share their various perspectives.

Surveys can be used as an initial tool to define the range of issues within a neighborhood and to solicit input from all area residents. This information is compiled and used as a starting point in defining the problem(s) the residents want to work on in their neighborhood. Information that is helpful to collect in advance through surveys includes how significant residents perceive various traffic problems to be, the way streets are currently being used, and preferences for different traffic calming tools.

City Staff Review
An important step in ensuring that neighborhood plans will be effective and implementable is acceptance by the various interests within the City. It is vital to the success of a neighborhood process that potentially affected agencies within the City be in agreement about what are viable alternatives for the neighborhood. This provides clear parameters and realistic expectations for the neighborhood from the beginning and reduces the potential for plans to be advanced that are not feasible or the implementation of devices that need to be removed at some future time.

Potentially affected agencies will be encouraged to participate in all aspects of the planning process to understand the concerns of the residents and share their interests with the neighborhood.

Initial Neighborhood Meeting
City staff will meet with the neighborhood to discuss the neighborhood's desired outcomes for traffic calming. It is important that the residents and staff have an opportunity to express their different perspectives of the traffic problems in the neighborhood and to hear the different views and experiences of their neighbors. Through this process, a shared definition of the problem can be developed.

Through an understanding of the problem(s) to be addressed, the residents and staff can work together to define the desired outcomes and measures of success. If additional data are needed to define the problem or measure the effectiveness of the traffic calming effort, it should be identified at this time.

Although the focus of the neighborhood meetings is on the neighborhood and the experiences of the residents, it is critical to involve other stakeholders in this process from the very beginning. These stakeholders include emergency service providers and other individuals or organizations that may be directly impacted by any changes to the neighborhood streets. Their perspective is essential for developing a plan that effectively addresses existing concerns without creating new problems that cannot be overcome or that keep the plan from being implemented.

Data Collection

Traffic data will be used in developing neighborhood traffic calming plans. Data collection may include speeds, volumes, accident, and other information needed to define the problem and measure the success of the plan. If the initial neighborhood meeting indicates a need for additional data collection, City staff may conduct the additional studies. Enough data will be collected and evaluated to provide an adequate picture of the current conditions throughout the neighborhood.

It is important that traffic volume data be collected before and after on all adjacent residential streets that may experience redirected traffic due to calming measures in the area.

Neighborhood Meeting to Evaluate Alternatives

Based on the nature of the problem(s) identified in the first neighborhood meeting, and any additional information provided by the data collection step, City staff will review with the residents the various tools available to address the neighborhood's concerns. Different tools have different impacts on residential character and the behavior of neighborhood traffic. It is important to consider those tools that are best suited to the neighborhood's specific issues. For example, if traffic volumes are a major concern to residents, it is appropriate to examine traffic calming tools that mitigate cut-through traffic. If speeds are the neighborhood's main focus, tools specifically oriented to speed control should be considered.

This meeting is critical to shape the calming plan for the neighborhood. This step should also provide information to the area residents on the approximate cost of alternative calming measures.

Based on the range of appropriate tools, the neighborhood's preference for specific tools, and the functional or system limitations in the neighborhood, City staff will use the direction from this meeting to develop a traffic calming plan in cooperation with the Neighborhood Association.

Neighborhood Plan Development and Approval

City staff will develop a plan for the neighborhood based on the information gathered at the neighborhood meetings and the desires of the residents and other stakeholders in the process. This plan will be presented to the neighborhood for revisions and/or approval.

An important part of ensuring emergency response access is to test various design options in the field with response apparatus. The Fire Department will work with Plans and Public Works staff to test the design of the devices to maintain access. If access cannot be maintained, modifications may need to be made to the plan.

Plan approval is a very important step in the process. The plan must be acceptable to all affected parties in order to be effective and implementable. If the various stakeholders have been involved throughout the process, the plan should address their different needs and concerns. If the plan does not, it should be revised to be acceptable to all the stakeholders. All neighborhood traffic calming plans must be approved and adopted by City Council prior to implementation.

Individual Project Funding

Prior to design and construction of any element of an approved traffic calming master plan, funding must be identified. Individual projects may be funded by the Neighborhood Improvement Program (NIP), grants, or other sources of funding. For projects utilizing NIP funds, please refer to the latest edition of the NIP Policies and Procedures manual for instructions on funding traffic calming projects.

Plan Implementation

For projects funded with funds other than NIP funds, once funding is secured for an individual project, preliminary engineering drawings will be prepared and presented to the adjacent residents, property owners, and neighborhood association representative prior to actual construction. During this process, interested parties will have an opportunity to review the proposed design with staff and/or consultant and give input. This ensures that those who are immediately affected are well informed and approve of the project. If a directly affected property owner or resident does not approve of the design, the consultant or staff may suggest an amendment to the design to address their concern and meet their needs.

Once all stakeholders approve of a design they must sign the preliminary engineering drawing. The act of signing the preliminary engineering drawing is final. This will prevent loss of funding from last minute opposition to the project in the final design and initial construction stages.

If a resident or property owner directly impacted, (due to loss of access, parking, or visual intrusion) is opposed to the proposed project and suggested alternatives, they may veto the project at the preliminary engineering stage before final engineering.

For projects that are funded through NIP, please see the NIP Policies and Procedures manual for additional requirements.

Once affected parties agree to a project, residents will be informed in advance of the impacts of construction (noise, dust, potential traffic rerouting) and the anticipated construction schedule to minimize frustrations during the actual construction.

Plan Review Process

After the completion of each neighborhood traffic calming plan, the planning process will be reviewed and evaluated to identify appropriate changes that would enhance and improve the process. Because the process itself is so important to the success of the overall program and to the individual neighborhood traffic calming plans, the process will be reassessed after each plan is completed and revised as necessary.

Minor Amendments to Traffic Calming Plans
Minor amendments to existing plans which involve slight adjustments to traffic calming features or their location can be made at the discretion of the City Traffic Engineer or appointed staff with input from the NIP representative, neighborhood association representative and adjacent residents and property owners. Examples of minor amendments to Traffic Calming Plans are moving a traffic calming feature up or down a street within the same vicinity in order to avoid conflicts with driveways and substituting a Class I traffic calming device with another Class I device from the approved traffic calming toolbox that will achieve similar results.

Major Amendments to Traffic Calming Plans
Major amendments to traffic calming master plans are warranted when the character or condition of all or part of a neighborhood has significantly changed (such as a change in land use), and the existing plan no longer adequately addresses the needs of the neighborhood. Similarly, a major amendment will be required if a proposed traffic calming feature will result in a significant change to the neighborhood such as a partial street closure or the diversion of traffic to another neighborhood street. Such revision to a neighborhood traffic calming master plan will generally follow the same process as outlined for a new traffic calming master plan. Examples of major amendments to the traffic calming master plan include substituting a Class I device for a Class II device or replacing a Class II device with another Class II device from the traffic calming toolbox. A major amendment is also required whenever a new traffic calming device is added.

If a neighborhood requests that a Class II device be substituted for a Class I device it will be at the discretion of staff on whether it will constitute a major or minor amendment.

Follow-up Studies
A critical component of a successful traffic calming program is the evaluation of neighborhood plans and of specific traffic calming tools. Follow-up studies will be conducted to evaluate the measures of success defined in advance by the neighborhood and to learn more about how individual devices and systems of devices affect driver behavior. This information can be used to determine whether the neighborhood's desired outcomes have been achieved, and to what degree, and to define the appropriate use of specific devices better. Follow-up studies will also be used to determine if the traffic problem has shifted to other neighborhood streets.

The follow-up studies will provide valuable data that can be used to add or subtract certain devices from the toolbox. Experience in the field will give a better understanding of the advantages, disadvantages, and appropriate application of different tools. The studies and experience will allow the tools and their use to be modified to work better in the field. Actual construction costs will also be used to improve cost estimates for future plans.

Traffic Calming Toolbox

The City of Monterey has developed a toolbox of traffic calming devices for consideration and possible use on City streets. All of the devices are described below with some discussion on their application, advantages, disadvantages, variations, and special considerations. Many of the devices are effective because they incorporate

landscaping and other physical features that visually, as well as physically, alter the character of the roadway.

Some of the devices listed in the traffic calming toolbox have other applications and may be used throughout the city at the discretion of the City staff when warranted by engineering judgment or a traffic study.

TRAFFIC CALMING TOOLBOX

Restricted Movement Signing – Class I

Description:

Sign that prohibits certain movements at an intersection.

Application:

- Streets where reducing cut-through traffic is desired

Advantages:

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

Disadvantages:

- Not self enforcing (low voluntary compliance)
- May increase trip length for some drivers
- Increases number of downstream turning movements
- More visual pollution from signs in the neighborhood
- May lead to confusion at busy intersections

Special Considerations:

- Can be used on a trial basis
- Has little or no effect on speeds for through vehicles

Median – Class I

Description:

Raised island in the center of the roadway with one-way traffic on each side.

Application:

- Used on wide streets to narrow each direction of travel and to interrupt sight distances down the center of the roadway

Advantages:

- Narrowed travel lanes provide “friction” and can slow vehicle speeds
- Significant opportunity for landscaping and visual enhancement of the neighborhood
- Can utilize space which otherwise would be “unused” pavement
- Can be used to control traffic access to adjacent properties if desired

Disadvantages:

- Long medians may impact emergency access and operations
- May interrupt driveway access and result in downstream U-turns
- May require removal of parking

Variations:

- Medians of various lengths can be constructed
- Can be constructed mid-block only to allow all turning movements at intersection
- Can be extended through intersections to preclude left turns or side street throughs

Special Considerations:

- Vegetation should be carefully designed not to obscure visibility between motorists, bicyclists, and pedestrians at intersection and pedestrian crossing areas
- Maintain 12 foot wide lane minimum on each side
- Maximum length between access points should be 200 feet to accommodate emergency response
- Turning radii for a fire truck should be maintained at these breaks

Entry Island with Neighborhood Identification Sign – Class I

Description:

A raised island in the center of a two-way street that identifies the entrance to a neighborhood.

Application:

- Placed in a roadway to define the entry to a residential area and/or to narrow each direction of travel and interrupt sight distance along the center of the roadway

Advantages:

- Notifies motorists of change in roadway character
- Helps slow traffic
- Opportunity for landscaping and/or monumentation for aesthetic improvements
- May discourage cut-through traffic
- Can enhance neighborhood identity

Disadvantages:

- Need for maintenance (and irrigation)
- May necessitate removal of parking

Variations:

- Can incorporate neighborhood identification signing and monumentation

Special Considerations:

- Care should be taken not to restrict pedestrian visibility at adjacent crosswalk

Neckdown/Curb Extensions – Class I

Description:

Segments of roadway narrowing where curbs are extended toward the center of the roadway.

Application:

- Typically used adjacent to intersections where parking is restricted
- Can be used to narrow roadway and shorten pedestrian crossings

Advantages:

- Pedestrian visibility increased and crossing distance reduced
- Narrowed roadway section may contribute to vehicular speed reduction
- Can “reclaim” pavement for pedestrian and streetscape amenities
- Breaks up drivers’ line-of-sight
- May provide opportunity for decorative crosswalk treatment

Disadvantages:

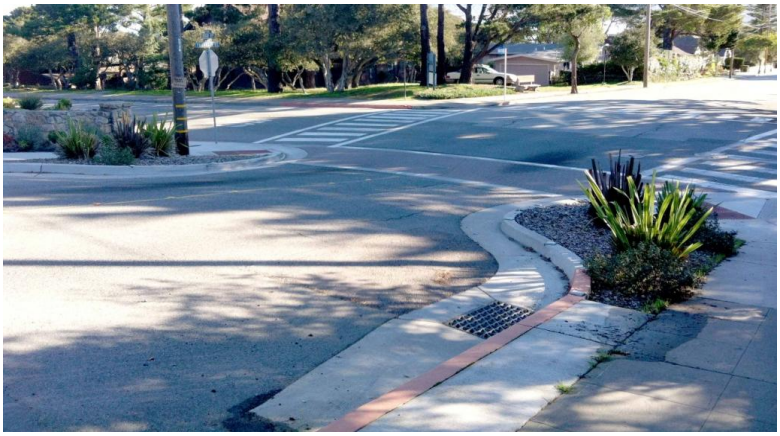
- Creates drainage issues where curb and gutter exist
- May create an obstruction for bicyclists

Variations:

- Mid-block neckdowns often used in conjunction with pedestrian crossing treatments
- Chokers, raised islands built to narrow the roadway, can be used where drainage is an issue

Special Considerations:

- Curb extensions should not extend into bicycle lanes where present or planned



Curvilinear Street – Class I

Description:

A curved street alignment can be designed into new developments or retrofitted in existing rights-of-way. The curvilinear alignment requires additional maneuvering and reduces drivers' line-of-sight.

Application:

- Any street where speed control is desired
- Any street where reduced line-of-sight is desired

Advantages:

- Aesthetically pleasing
- Provides landscaping opportunities
- Minimal impact on emergency response

Disadvantages:

- Expensive
- May have little or no impact on cut-through traffic
- Needs to be combined with narrowing or other traffic calming tools to have significant impact on speeds
- May require additional right-of-way to be effective
- May require removal of on-street parking

Variations:

- Chicanes
- Off-set curb extensions
- Systems of devices alternating from the center to curbside of the road

Special Considerations:

- Cannot be used where right-of-way is limited
- Should consider operation and sight-distance at intersections

Realigned Intersection – Class I

Description:

Realigns T-intersection to make the “through movement” a turning movement.

Application:

- Streets where it is desired to redirect traffic to a higher classification roadway
- Streets where slowing traffic as it enters the neighborhood is desired

Advantages:

- Provides landscaping opportunities
- Discourages traffic from continuing through a neighborhood
- Slows traffic as it enters a neighborhood
- Breaks up sight-lines on straight streets

Disadvantages:

- May redirect traffic to another local street
- May increase queue lengths at intersections
- Fairly expensive

Variations:

- Stop sign control on one leg
- Stop sign control on all three legs
- Neckdowns in the intersection

Special Considerations:

- Drainage
- Potential for redirecting traffic to adjacent local streets
- May change stop configuration and affect emergency response times

Traffic Circle – Class II

Description:

Traffic circles are raised circular medians in an intersection with counterclockwise traffic flow. Vehicles must change their travel path to maneuver around the circle and are typically controlled by "Yield on Entry" on all approaches.

Application:

- Streets where speed control is desired
- Intersections where improved side-street access is desired
- Intersections with relatively low proportion of left turn movements

Advantages:

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

Disadvantages:

- Definition of right-of-way is contrary to the "yield to the vehicle on the right" rule
- May impede emergency response
- Relatively expensive if curb extensions are required
- May impede left turns by large vehicles
- On streets with bicycle facilities, bikes must merge with traffic around circle

Variations:

- With or without neckdowns
- With or without diverter islands
- Different sizes and dimensions
- Barrier curb and gutter face or tapered/mountable face

Special Considerations:

- Need to be used in series or in conjunction with other traffic calming devices
- Should not be used on emergency response routes
- May require extensive signing
- Maintenance concerns associated with sweeping and asphalt maintenance around circle
- May require educational campaign and learning period
- Should be used only at intersections with a relatively low proportion of left turning vehicles

Restricted Movement Barrier – Class II

Description:

Barrier island that prevents certain movements at an intersection.

Application:

- Streets where reducing cut-through traffic is desired

Advantages:

- Redirects traffic to main streets
- Reduces cut-through traffic
- Increases opportunity for landscaping in the roadway

Disadvantages:

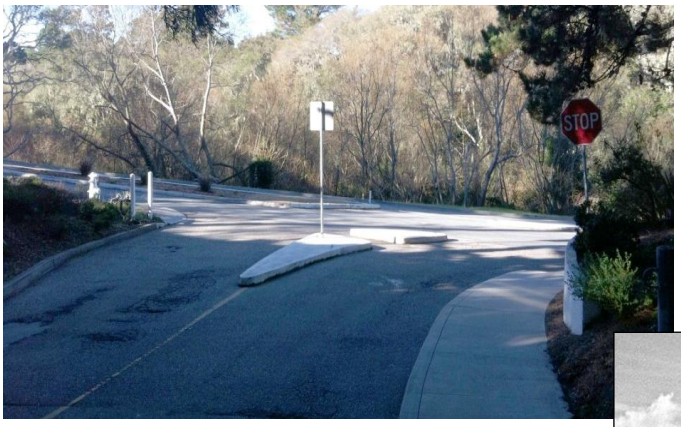
- May negatively affect emergency response
- May increase trip length for some drivers

Variations:

- Medians on main street that allow left and right turns in but restrict left turns out or straight across movement from side street

Special Considerations:

- Should not be used on emergency response routes
- Has little or no affect on speeds for through vehicles



Entrance Barrier – Class II

Description:

Physical barrier that restricts turns into a street. Creates a one-way segment at the intersection while maintaining two-way traffic for the rest of the block.

Application:

- Local streets where cut-through traffic is a concern
- Local streets where vehicles from nearby facility circulate looking for parking

Advantages:

- Restricts movements into a street while maintaining full access and movement within the street block for residents
- Reduces cut-through traffic
- Opportunity for increased landscaping
- More self enforcing and aesthetically pleasing than turn restriction signing

Disadvantages:

- May redirect traffic to other local streets
- May increase trip length for some drivers
- In effect at all times; even if cut-through problem exists only at certain times of day

Variations:

- Can be used in pairs to create a semi-diverter, restricting turns onto the street and movements across the intersection

Special Considerations:

- Should not be used on emergency routes
- Has little or no effect on speeds for local traffic
- Consider how residents will gain access to street

Diagonal Diverter – Class II

Description:

Raised areas placed diagonally across a four-way intersection that restrict through movements in all directions.

Application:

- Local streets where cut-through traffic is a problem

Advantages:

- Reduces cut-through traffic
- Self enforcing
- Maintains continuous routing opportunities
- Not as restrictive as street closure

Disadvantages:

- May redirect traffic to other local streets
- May increase emergency response times
- May increase trip length for some drivers
- In effect at all times - even if cut-through problem exists only at certain times of day

Variations:

- Traversable diverters that allow access for emergency response vehicles

Special Considerations:

- Provide pedestrian and bicycle access through barriers
- Should not be used on emergency response routes
- Consider how residents will gain access to street
- Has little or no effect on speeds for local traffic

Street Closure – Class II

Description:

Full closure of a street.

Application:

- Local streets where cut-through traffic is the major concern

Advantages:

- Restricts all through traffic
- Self enforcing

Disadvantages:

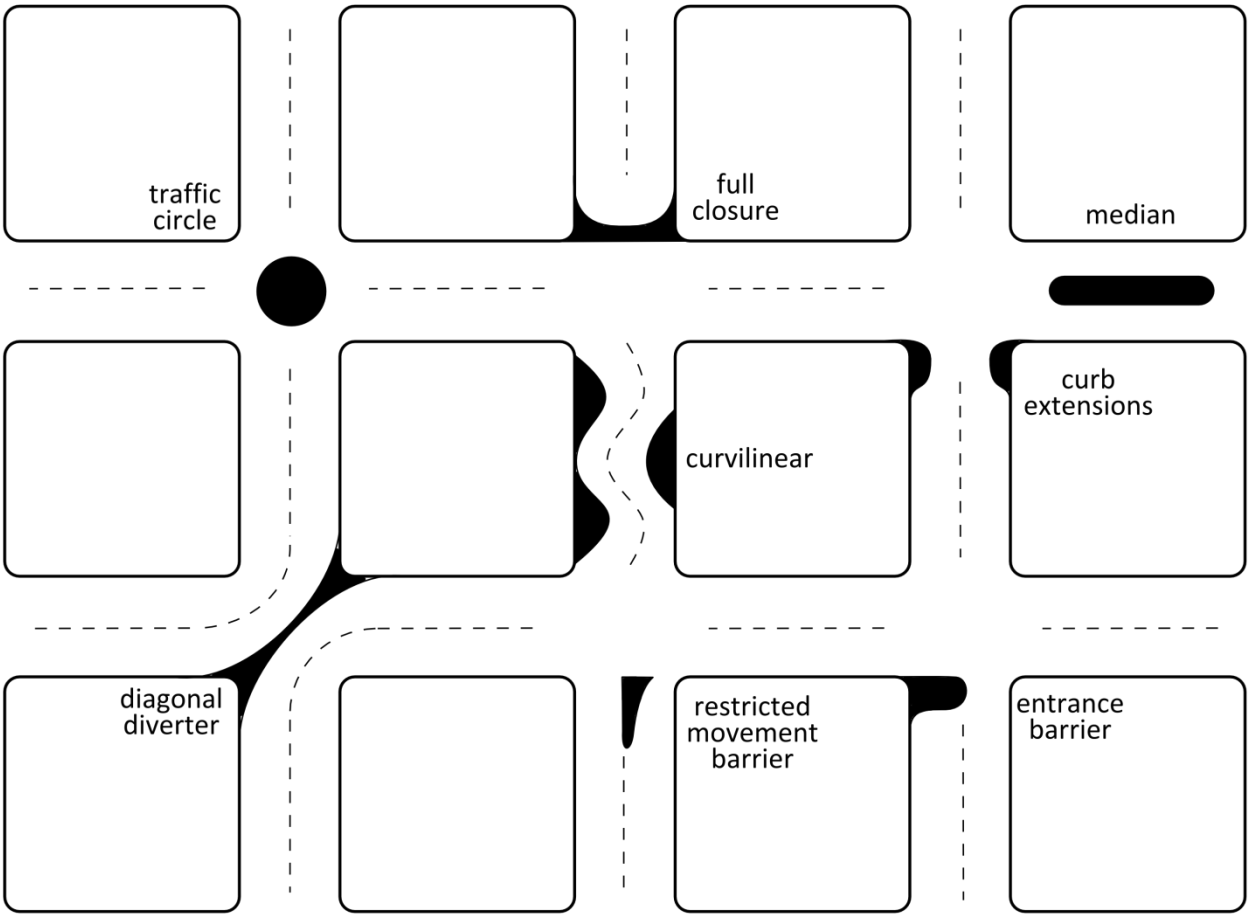
- May redirect traffic to other local streets
- May increase trip length for some drivers
- May increase emergency response times

Variations:

- Mid-block closure
- Intersection closure
- Pocket parks
- Maintain emergency access
- Provide bicycle and pedestrian access

Special Considerations:

- Should not be used on emergency response routes
- Consider impacts to adjacent streets
- Consider emergency response requirements


traffic circle
full closure
median
curb extensions
curvilinear
diagonal diverter
restricted movement barrier
entrance barrier

The following Traffic Calming Measures, while having a traffic calming effect, do not need to be incorporated into the approved traffic calming master plan.

Speed Limit Sign

Description:

Signs that define the legal driving speed under normal conditions.

Application:

- Streets where speeding is a problem and ongoing enforcement is realistic.

Advantages:

- Provides clear definition of legal speed limit
- Provides context for enforcement efforts
- Provides goal for traffic calming efforts

Disadvantages:

- Typically not effective in and of itself
- Not self enforcing
- Requires on-going police enforcement
- Unrealistically low speed limits are difficult to enforce and tend to be disregarded
- More visual pollution from signs in the neighborhood

Special Considerations:

- Speed limits set by an engineering analysis tend to be higher than limits set by political pressures

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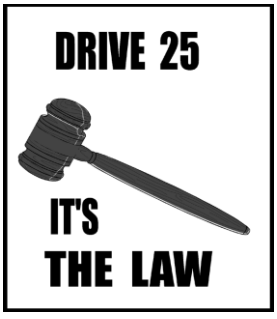
Neighborhood Sign Program

Description:

Signs provided to the neighborhood to inform and encourage motorists to observe the posted speed limits. These include large signs designed to adhere to trashcans brought to the curb by residents.

Application:

- Any street where speeding is a problem



Advantages:

- Educational tool
- Effective for temporary speed reduction needs

Disadvantages:

- Duration of effectiveness may be limited
- Not self enforcing

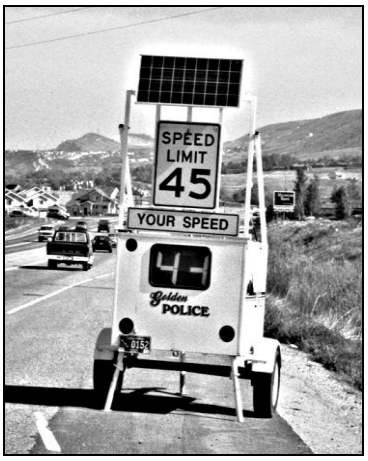
Special Considerations:

- Longer lasting benefit is achieved when police enforcement is used in conjunction with signs.

Speed Monitoring Trailer

Description:

Mobile trailer mounted radar display that informs drivers of their speed.



Application:

- Any street where speeding is a problem

Advantages:

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

Disadvantages:

- Some motorists may speed up to try to register a high speed
- Duration of effectiveness may be limited
- Not self enforcing

Special Considerations:

- Longer lasting benefit is achieved when police enforcement is used immediately after speed trailer use.

Radar Speed Display Signs

Description:

Radar speed display signs are a permanent version of the radar trailer. As drivers approach the sign, they are detected by radar and their speed displayed in flashing or static lights on the sign panel. These signs are intended for residential streets with moderate traffic volumes.

Application:

- Residential streets where speeding is a problem

Advantages:

- Increases driver awareness of speed and the posted speed limit
- can be turned off at a higher speed threshold in order to discourage deliberate speeding
- Drivers driving at the speed limit or less don't trigger the sign
- Educational tool
- Solar powered
- Collects speed data

Disadvantages:

- Added cost to install and maintain
- Long-term effectiveness may be limited for everyday drivers
- Duration of effectiveness may be limited
- Not self enforcing

Special Considerations:

- Finding a location for the permanent radar speed sign might be challenging due to resident's/home owner's opposition to having a permanent sign adjacent to their property.

Pavement Treatment

Description:

Varied pavement texture or color to create visual and tactile focus point. Treatments may include colored pavement, pavers, or textured concrete.

Application:

- Streets where speeding is a problem
- Locations where pedestrian crossings are a concern

Advantages:

- Provides enhancement opportunities
- May improve pedestrian safety at intersection

Disadvantages:

- Minimal impact on traffic speeds

Special Considerations:

- Should be used in conjunction with other devices
- Shall follow the same standards for installing marked crosswalks

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Police Enforcement

Description:

Police presence to monitor speeds and issue citations.

Application:

- Streets with documented speeding problem and need for quick mitigation
- Locations where restrictions are being violated

Advantages:

- Effective while officer is actually monitoring speeds
- Flexible measure that can be implemented in almost any location at short notice

Disadvantages:

- Not self enforcing; temporary measure
- Fines do not typically cover cost of enforcement
- Disrupts efficient traffic flow on high volume streets
- Short “memory effect” on motorists when enforcement officer no longer present

Special Considerations:

- Often helpful in school zones
- May be used during “learning period” when new devices or restrictions first implemented

The following are NOT approved for use as traffic calming tools on City streets:

It should be noted that the City receives requests for several devices that are not included in the toolbox.

Stop Signs:
Stop signs are traffic control devices intended to control the right-of-way at intersections. Stop signs have not been found to be effective for use as speed control devices; in fact, they have been found to aggravate speeding conditions between stop locations. In addition to a number of negative environmental impacts from excessive use of stop signs (noise, air quality, fuel consumption), stop signs penalize all drivers, those driving the speed limit as well as those speeding. The City of Monterey follows state and federal warrants for the use of stop signs and, as stated in the Circulation Element of the General Plan, emphasizes "design and enforcement solutions rather than traffic control devices to slow and discourage through traffic in residential areas." Unwarranted stop signs have been found to create more problems than they solve.

Children at Play Signs:
Although commonly requested, these signs are not standard traffic control devices or warning signs. Studies made in cities where *Children at Play* signs were widely posted in residential areas show no evidence of having reduced pedestrian accidents or vehicle speed. Because there are children in most residential areas, the signs would warn of common conditions and could arguably be placed on every residential block. In fact, signs installed to warn motorists of normal conditions in residential areas usually fail to achieve the desired safety benefits. Even though some parents believe "children at play" signs increase safety, they cannot provide any degree of protection. The "children at play" sign is a direct and open suggestion that it is acceptable for children to play on residential streets. Obviously, children should not be encouraged to play in the roadway. Children at play signs on City streets do not meet adopted signing standards. Specific warnings for schools, playgrounds, parks, and other recreational facilities are available for use where warranted.

Traffic Signals:
Traffic signals are not included in the traffic calming toolbox. Traffic signals, like stop signs, are traffic control devices intended to control the right-of-way at intersections. Traffic signals are designed to improve safety and are installed where significant traffic conflicts require them. Traffic signals are generally used on higher volume, higher classification roadways and diminish the residential feel of a street. The City of Monterey follows state and federal warrants for the use of traffic signals based on traffic volume and accident history. Additionally, the Circulation Element of the General Plan emphasizes "design and enforcement solutions rather than traffic control devices to slow and discourage through traffic in residential areas."

Speed Humps:
Speed humps are vertical changes to the roadway that require drivers to maintain the posted speed to traverse them comfortably. Speed humps are designed to slow traffic and are popular where low-cost options are desired. The City of Monterey has not included speed humps in the traffic calming toolbox for two reasons. First, speed humps have been found to have a significant impact on emergency response times, increasing fire truck response times by up to 10 seconds per hump. They have also

been found to damage fire apparatus and slow ambulance response. The second concern is with liability. Courts have held public agencies liable for personal injuries resulting from faulty design. It may not be legal to install speed humps that do not meet state or federal standards. Based on legal considerations and impacts to emergency vehicles, the City is unwilling to take on the potential liability issues associated with speed humps.