CITY OF REDWOOD CITY
POLICY AND GUIDELINES
FOR RESIDENTIAL TRAFFIC CALMING

INTRODUCTION

The City of Redwood City wishes to preserve the nature of its residential neighborhoods and to ensure that local streets, particularly those in residential neighborhoods, are as quiet and safe as possible. One method of doing this is through "traffic calming." This policy and guideline document describes methods for analyzing and implementing traffic calming measures on Redwood City's residential streets.

USE OF THIS POLICY AND GUIDELINES

The measures outlined in this document are intended to slow traffic to the posted speed limit and to discourage unnecessary through traffic on residential streets, while maintaining access for police, fire, emergency services, and local residents. Traffic calming on streets not specifically covered by this policy will be evaluated and addressed separately. Non-residential streets are typically evaluated on a case-by-case basis through engineering studies and analysis.

This document is to be used in combination with professional engineering judgement and best practices. Additionally, because every street in Redwood City has its own unique characteristics, these guidelines do not constitute either final or complete design or evaluation criteria for a traffic calming plan. Local site conditions must be evaluated for all traffic calming installations, and terrain, roadway, traffic or land use characteristics, or other unusual conditions may require case-specific modifications or exceptions.

A major factor in achieving successful traffic calming is public input, including comprehensive public education and participation. With the exception of cut-through traffic, the majority of residential speeding violations typically result from drivers who live in the neighborhood. Public education and participation encourage neighborhood residents to help identify the cause of the problem and to be accountable for the solution. Therefore, Redwood City requires that a majority of residents on a residential street be supportive of a traffic calming plan for it to be implemented.

The City of Redwood City reserves the right at its own discretion to analyze and implement traffic calming at a location should if feel it is necessary to increase roadway safety.

WHAT IS TRAFFIC CALMING?

The Institute of Transportation Engineers (ITE) defines traffic calming as "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." In less technical terms, traffic calming uses physical changes, either on or adjacent to the street, to encourage safer, more responsible driving and improve safety for motorists, pedestrians, and cyclists.

Typical physical measures that can have a traffic calming effect and that reduce vehicle speeds and volumes include:

- Warning and specialty signs
- Radar speed feedback signs

- Gateways
- Textured crosswalks, special striping, narrow lanes
- On-street parking
- Bulb-outs, chokers, curb extensions
- Median islands
- Traffic circles
- Serpentine streets, chicanes
- Speed tables and raised crosswalks
- Speed humps
- Turn prohibition signs
- Diagonal diverters, forced turn channelization, median barriers

GOALS AND OBJECTIVES

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

Objectives

- To promote safe and pleasant conditions for people who live, walk, bike, and drive on neighborhood streets
- To reduce the average speed of traffic on local neighborhood streets
- To reduce the amount of cut-through traffic on local neighborhood streets
- To preserve and enhance walking and biking access to neighborhood destinations
- To facilitate resident involvement in neighborhood traffic management activities
- To provide a process to prioritize neighborhood traffic calming requests

Policies

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

TRAFFIC CALMING GUIDELINES

Engineering Study

Traffic calming measures should only be installed where an engineering study concludes that:

- Traffic calming installations can address speeding or cut-through traffic;
- Judicious use of other guide, warning or regulatory control devices has been considered but does not address the issues;
- A reasonable level of enforcement has not solved or appears unlikely to solve the problem, or a necessary level of enforcement is unlikely to be made available; and
- Key design guidelines, as outlined herein for location, placement, configuration details, and related street and traffic conditions, can be reasonably conformed to at the site under consideration.
- The study location meets a combination of the following eligibility measures. With

emphasis on the speed, volume and collision data.

ELIGIBILITY

Street Classification and Use

Traffic calming can only be installed on those roadway facilities functionally classified as "Local Streets", "Pedestrian Streets", or "Bicycle Boulevards" in the Redwood City General Plan. Table 1 lists the street segments streets classified as "Connector" streets or higher classes of streets. Street segments on Table 1 are **not eligible** for residential traffic calming under this policy and guidelines.

TABLE 1: STREETS INELIGIBLE FOR TRAFFIC CALMING

Boulevards

Roadway:	From:	To:
El Camino Real (SR 82)	N. City Limit	S. City Limit
Marine Pkwy	U.S. 101	Bridge
Redwood Shores Pkwy	U.S. 101	Shoreline
Veterans Boulevard	U.S. 101	Woodside Road
Twin Dolphin Drive	Marine Pkwy	Redwood Shores Pkwy
Woodside Road	Alameda de las Pulgas	U.S. 101

Transit Streets

Roadway:	From:	To:
Broadway	El Camino Real	Fifth Avenue
Middlefield Road	Winslow Street	S. City Limit
Seaport Boulevard	U.S. 101	End of the Road
Winslow Street	Middlefield Road	Broadway

Connector Streets

Roadway:	From:	To:
Edgewood Road	I-280	Alameda de las Pulgas
Alameda de las Pulgas	N. City Limit	Woodside Road
Farm Hill Boulevard	I-280	Jefferson Avenue
Jefferson Avenue	Farm Hill Boulevard	Veterans Boulevard
Whipple Avenue	Alameda de las Pulgas	U.S. 101
East Bayshore Road	Seaport Boulevard	Haven Avenue
Bridge Pkwy	Marine Pkwy	Redwood Shores Pkwy
Redwood Shores Pkwy	Shoreline Road	Shearwater Pkwy
Marine Pkwy	Bridge Pkwy	Shearwater Pkwy
Shell Pkwy	Marine Pkwy	Redwood Shores Pkwy
Shearwater Pkwy	Marine Pkwy	Redwood Shores Pkwy
Main Street	El Camino Real	Middlefield Road
Winslow Street	Brewster Avenue	Whipple Avenue

Industrial Streets

Roadway:	From:	To:
Bay Road	Chestnut Street	Fifth Avenue
Spring Street	Chestnut Street	Second Avenue
Chestnut Street	Spring Street	Veterans Boulevard
Willow Street	Spring Street	Bay Road
Charter Street	Spring Street	Bay Road
Kaynyne Street	Spring Street	Bay Road
Sweeny Avenue	Spring Street	Bay Road
Douglas Avenue	Fair Oaks Avenue	Bay Road
Hurlingame Avenue	Fair Oaks Avenue	Bay Road
Warrington Avenue	Fair Oaks Avenue	Bay Road
Barron Avenue	Fair Oaks Avenue	Bay Road
Second Avenue	Fair Oaks Avenue	Bay Road

Number of Lanes

Traffic calming should only be used on streets with no more than two travel lanes. Streets with a center turn lane may still qualify for traffic calming.

Drainage Characteristics

Streets considered for traffic calming should have good drainage qualities. Potential drainage impacts must be considered when evaluating whether a traffic calming installation is appropriate.

Street Grades

Certain traffic calming measures should not be employed on streets with grades exceeding five percent. When traffic calming measures are installed on streets with sustained downgrades, special care should be taken to ensure that vehicles can navigate the installation safely at appropriate speeds.

Sight Distance

Traffic calming devices should generally be installed only where the minimum safe stopping sight distance (as defined in AASHTO's *A Policy on Geometric Design of Streets)* can be provided. For mid-block locations on typical residential streets, a minimum safe stopping sight distance allowance would normally be at least 200 feet, the nominal stopping sight distance for vehicles traveling at 30 mph. Depending on the character of the intersection and the traffic control, sight distance requirements might be less for installations located within the influence area of an intersection.

Traffic Speeds

When traffic calming is installed to address speeding concerns, studies will be performed to confirm the magnitude of the speeding problem. The number of vehicles exceeding speed limits, percentage of all vehicles exceeding speed limits, 85th percentile speed, and the speed of fastest vehicles may all be considered when evaluating whether a speeding problem exists.

Traffic calming devices should generally be installed only on streets where the posted or prima facia

speed limit is 30 mph or less. Where speed problems occur on streets with higher speed limits (such as streets posted for 35 mph experiencing 45-50 mph traffic), focused enforcement and combinations of other types of control measures should be considered instead of speed humps.

Speed humps should only be used on streets where traffic speeds are intended to be low. Speed humps should not be installed on streets where the posted speed limit is considerably greater than speeds at which most motorists feel comfortable traversing the speed humps.

In Redwood City, specific criteria to qualify for traffic calming are as follows:

- Eighty-fifth percentile speed exceeds 30 mph (35 mph on streets posted 30mph),
- 60 percent of the traffic exceeds the posted speed limit (normally 25 mph),
- The average speed of vehicles in the top 15^{th} percentile is 40 mph or greater.

Traffic Volumes

Traffic calming should be installed only on streets classified as "Local Streets", "Pedestrian Streets," or "Bicycle Boulevards." Such streets typically have an average daily traffic volume of 5,000 vehicles or fewer. Requests are occasionally received to install traffic calming on streets classified as "Local Streets," Pedestrian Streets," or "Bicycle Boulevards" that carry higher traffic volumes, indicative of a higher functional classification of street (nominally, above 5,000ADT, average daily trips). When considering such situations, the City must make a conscious policy decision. Is the street *really* a "local" street that is simply impacted by too much traffic which is traveling too fast? If so, traffic calming may be an appropriate response. Or is the street really fulfilling a necessary and appropriate "major collector" function in the City's circulation network - in essence, is its designation a misclassification? In the latter case, traffic calming is probably too restrictive and should not be used.

For cut-through traffic, the specific criteria to qualify for traffic calming is as follows:

- 40% or more ADT on a local street is cut-through traffic between arterials or major roadways

Traffic Safety

When traffic calming measures are installed to address documented or anticipated vehicle or pedestrian collisions, the causes of those collisions should be correctable by speed control.

Proposed traffic calming must be evaluated in the field to verify that such installations will not introduce or increase the potential for collisions.

Vehicle Mix

Typically, traffic calming should not be installed on streets that carry significant volumes of truck traffic unless there is a reasonable alternative route for those vehicles. Generally, heavy or long-wheelbase trucks constituting up to five percent of all traffic is considered normal. Special consideration may be given to a location where there is a significant generator of truck traffic.

Bicyclists, motorcyclists, low-riders, and operators of other types of special vehicles often consider traffic calming annoying. While potentially annoying to these types of roadway users, traffic calming does not constitute an unusual hazard or obstruction for these vehicles. For this reason, the possible presence of these vehicle types is **not** a reason to deny approval of traffic calming in circumstances where it would otherwise appear desirable or needed.

Emergency Vehicle Access

Traffic calming is typically not installed on streets that are defined or used as primary emergency vehicle access routes. If traffic calming is deemed necessary on any roadway identified as a primary response route, the design must be coordinated with the emergency responders. Primary emergency vehicle routes are comprised of two types of streets:

1. Routes used by emergency vehicles to cross large parts of the community or on paths logically used to service large numbers of potential destinations. Routes of this type are generally ineligible for traffic calming through this document based on their functional classification.

2. Streets of generally local character which also serve as the immediate egress route from an emergency vehicle dispatch point or as the immediate access route to a regular destination for emergency vehicles (such as where a fire station or a hospital emergency room access is located on a street classified "local"). Such circumstances will limit the eligibility of streets which would otherwise be eligible for traffic calming.

The City has a duty to maintain a street system which reasonably allows for timely emergency service response. However, on local streets the City also has other compelling duties which may to some degree conflict with maintaining the streets in a manner to optimize emergency service response. Those duties include maintaining local residential streets in a manner which will induce traffic behavior consistent with areas where children and pedestrians can be expected to be in or near the street, or maintaining the streets in a manner which induces traffic behavior that allows residents quiet enjoyment of their homes and that limits impacts from traffic. For residential streets which are **not** on primary emergency response routes, reasonable accommodation for timely emergency service response may be quite different from individual residential streets on the primary response routes. In those circumstances, traffic calming which causes minor increases to emergency service response time may be acceptable. Fire vehicles rarely if ever achieve speeds of over 20 mph on the local residential streets where traffic calming is normally employed. Traffic calming plans will be designed with this in mind to minimize the impact on response times.

The City will normally seek to identify and implement measures which offset the effects of neighborhood traffic management on emergency response and to avoid situations where the cumulative effect of neighborhood traffic controls dramatically alters emergency response.

Transit Routes

Traffic calming generally should be limited along streets with established, conventional bus transit with normal service frequency. School transit, shuttle vans, paratransit vehicles, and similar services of conventional transit are not included in this consideration because they can reasonably be expected to operate in the neighborhood environment at speeds where traffic calming would not pose problems. In addition, many of these vehicles are not exceptionally long wheelbase vehicles.

Resident Support

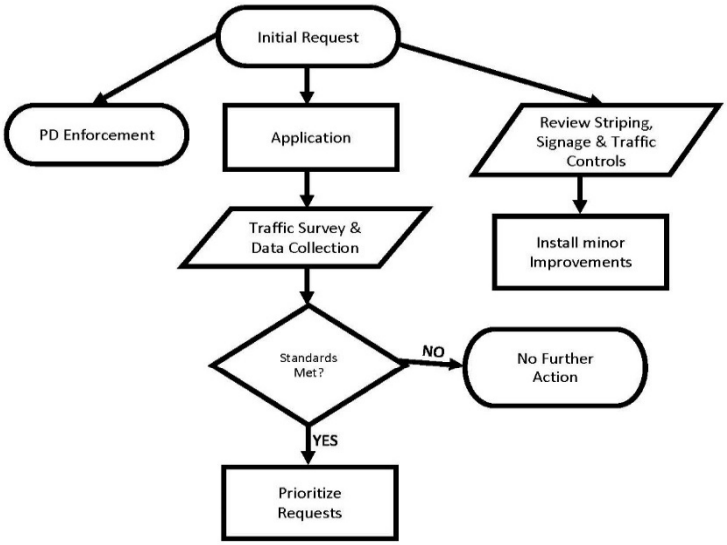
Where traffic calming is initiated by resident request, a petition requesting traffic calming signed by representatives of 50 percent of the properties in the primary impact zone of the traffic calming shall be considered sufficient indication of community support for the City to act on the request (impact zone to be defined by the City staff).

TRAFFIC CALMING REQUEST PROCESS

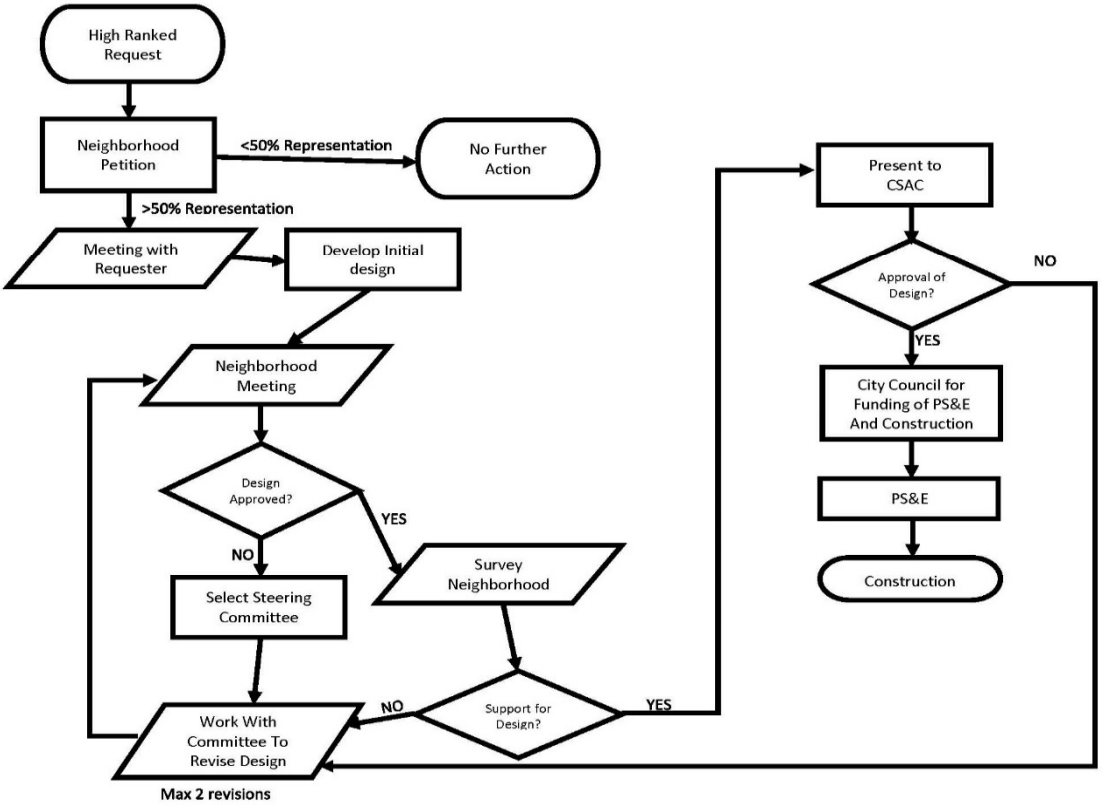
A traffic calming plan goes through two processes from initiation to implementation. The request process must be completed before the application may move into the development process. A flow chart showing the path of an application through each of these processes is seen in Chart 1 and the processes are described further below:

Chart 1:

TRAFFIC CALMING REQUEST PROCESS



TRAFFIC CALMING DEVELOPMENT PROCESS



THE REQUEST PROCESS

In most circumstances a resident or a group of residents requests that the City lower the speed or volume of traffic on a street. Following this request the requestor will receive a copy of this policy and the attached application, Exhibit B. Requestors wishing to continue the process must fill out the traffic calming application and obtain a signature of support from one additional property owner on the requested street, then submit it to the City.

At the time of the initial request the Police Department will be notified of the requestor's traffic concerns. Engineering will review the existing signage and striping along the requested street to see if minor modifications can mitigate the concerns.

Following receipt of the application City staff will schedule data collection and complete a traffic evaluation of the requested street(s). Once collected the data will be analyzed to see if the City's minimum traffic calming standards are met. If they are, the request will be prioritized and the results reported to the applicant. If the minimum standards are not met and there are no special circumstances that warrant additional consideration, the request will be closed with no further action and the applicant notified. A location that has been evaluated cannot be re-evaluated for at least one year.

Upon successfully passing the request process, the application will be placed on the City's active traffic calming application list. Placement within the list will be determined by the score the project receives based on the data collected for the location.

Due to staff and financial resources required for these type of projects, Redwood City must prioritize requests to address the areas of highest need first. The application with the highest score will be placed at the top of the list and will be first to receive funding for development and implementation. The scoring criteria are listed in Table 2.

THE DEVELOPMENT PROCESS

Once a request reaches the top of the priority list it will move into the Development Phase of the process and the applicant will be notified.

First step is for the requestor to confirm neighborhood support by providing the City a petition signed by residents in the traffic calming area. Greater than 50 percent representation of the properties in the area is required to move forward with the design of a traffic calming plan. If greater than 50 percent support cannot be obtained, the request will be closed with no further action by the City and the applicant notified.

Following the successful submittal of the petition, the requestor and the City will meet to discuss initial design ideas and concerns. The City will use feedback from this meeting along with the previously-completed analysis to develop an initial design for the traffic calming plan. Depending on the size and scope of the requested traffic calming area the City may request the assistance of a consultant to develop the plan. If this is necessary, additional time will be needed to secure the services of the consultant.

At the completion of the initial design the City will schedule a neighborhood meeting to review the design and allow the neighborhood to provide comments and feedback. This meeting may be held at a resident's house or at an offsite location depending on what is most convenient and accessible for the neighborhood. At the meeting residents will be asked to approve the design of the plan. If a general consensus is obtained the process will move forward. If there is no consensus on the plan design at the meeting, the residents will be asked to select a steering committee to work with City staff on the redesign of the traffic calming plan. Upon completion of a revised plan with the help of the steering committee, the City will hold a second neighborhood meeting to share the plan and solicit resident

feedback. Residents will be asked to approve the revised design of the plan. If a general consensus is obtained the process will move forward. If there is no consensus on the plan design at the second meeting the design process will closed with no further action by the City. The design will be passed back to the steering committee to work with the neighborhood to find a solution that is supported by consensus, for resubmittal to the City.

Once a plan is approved at a neighborhood meeting, the City will mail a survey to all the residences in the plan area. If there is majority support for the plan the process will move forward. If there is not majority support the City will work with the steering committee to revise the plan based on feedback received. The revised plan will be resurveyed to the neighborhood to obtain support for the traffic calming plan. If support cannot be found on a second survey then the process will be closed for no further action from the City. If there is disagreement between the neighborhood and City staff the proposed plan will be brought before the Complete Streets Advisory Committee for discussion and recommendations.

When the traffic calming plan is approved by the neighborhood with majority support, it will be scheduled for review by Redwood City's Complete Streets Advisory Committee at its next available meeting. City staff will collect any feedback and ask the Committee to approve the traffic calming plan and authorize it to go to the City Council for approval and funding.

The traffic calming plan will be presented to City Council for approval of the project plan and funding for the construction documents and construction.

Once funding is in place, construction plans and specifications will be developed and the project will be constructed.

This policy and guideline was prepared by and for the City of Redwood City Community Development Department-Engineering and Transportation.

TABLE 2: Redwood City Traffic Calming Priority Scale

Criteria	Point Value
Speed	2 points for each mph difference between the 85th percentile speed and the posted or prima facie speed limit
Volume	1 point for each 500 vehicles over 1,000 vehicles per day; 5 points if 40 – 65% or more ADT on local street is cut through traffic between arterials or major roadways; 10 points if higher than 65%
Crash History	5 points for each speed-related crash in the past 3 years 8 points for each injury crash in the past 3 years 8 points for each crash involving a pedestrian or a cyclist in past 3 years
Pedestrian Generators (15 points max.)	5 points for each school, park, library or community center along roadway; 3 points if within 1 block; 2 points if within 2 blocks
Support	8 points for 80% representation of neighborhood 5 points for 70% representation of neighborhood
Unique Conditions (15 points max.)	5 points for designation as a Bike Route or as a General Plan pedestrian corridor, or for proximity to neighborhood business district or existing/planned transit hub; 5 points for evidence of crashes or speeding, such as long skid marks or broken glass; 5 points for missing sidewalk section; 5 points for unique roadway geometry that substantially restricts visibility; 5 points for high crash rate

Exhibit A

REDWOOD CITY
TRAFFIC CALMING
POLICY SUMMARY

Definitions
Traffic Calming: the combination of physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users.

Eligibility Conditions

Eligible for Traffic calming	**Ineligible/Questionable for Traffic calming**
Persistent speed problem: 85th percentile speed 30 mph or greater or 60% of all vehicles exceed speed limit or average of top 15th percentile speeds observed is 40 mph or	Speeds unremarkable: Criteria opposite not met.
Local or minor collector street.	Arterial or collector street.
Two-lane street. (may have center turn lane)	Street with more than two lanes.
Street less than 40 feet wide.	Street wider than 40 feet.
Drainage satisfactory.	Poor drainage/ ponding.
Grades less than 5 percent in area of installation.	Grades greater than 5 percent or sustained downgrade present.
Straight and level or mild horizontal and/or vertical curves.	Horizontal curves of less than 300 foot centerline radius or vertical curves with less than safe stopping sight distance.
Streets posted 30 mph or less.	Streets posted 35 mph or more.
Low volume streets (generally below 5000 ADT).	Moderate to high volume streets (generally more than 5,000 ADT). Less than 40% cut through traffic.
Streets used by <5% of long wheel based vehicles (trucks).	Streets used by >5% of long wheel based vehicles.
Streets used occasionally by emergency vehicles operating at low to moderate speeds.	Streets used as primary emergency vehicle circulation routes.
Streets not used for frequent, regularly-scheduled public transit. Use by school transit, paratransit and infrequent conventional transit tripper service is	Regular, frequently served conventional transit routes.

Exhibit B
Traffic Calming Request Form

The purpose of this form is to enable residents to request the possible initiation of a traffic calming warrant analysis in accordance with the City of Redwood City's adopted Policy and Guidelines for Residential Traffic Calming. This form must be filled out in its entirety and submitted with any traffic calming request to:

The City of Redwood City
Community Development – Engineering **or** rwcengineering@redwoodcity.org
1017 Middlefield Road
Redwood City, California 94064

Feel free to attach additional sheets containing pictures, maps, diagrams, or additional text if the space provided is insufficient.

1. Requesting Individual's Contact Information

Name: _____

Address: _____

Phone Number: _____

Email: _____

2. Signature of Support

Signature: _____

Name: _____

Address: _____

Phone Number/email: _____

3. Please describe the location of the traffic concern (feel free to include pictures or a map):

_____

_____

_____

_____

4. Please describe the nature of the traffic problem you are concerned with:

_____

_____

_____

_____

_____

5. Please describe how traffic calming will be able to eliminate or reduce your traffic concerns:

_____

_____

_____

6. **Is there neighborhood support, including support from the Home Owners Association, for the installation of traffic calming at this location? Can you demonstrate these supports if required?**

7. **Are there any facilities (churches, schools, shopping malls, etc.) near this location that generate a high concentration of vehicle or pedestrian traffic?**