City of Mankato Neighborhood

TRAFFIC-CALMING Program

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City of Mankato Neighborhood **TRAFFIC CALMING** Program

Section 1: TAKING ACTION

City of Mankato's Traffic Calming Program is proactive, community-based program designed to enhance the quality of life in Mankato neighborhoods. It is a common goal among City leaders and residents to calm traffic on local residential streets where speeding, accidents, and/or non local traffic are concerns, providing a safer environment for motorists, pedestrians and children.

Through this program residents will partner with the City of Mankato to evaluate traffic concerns in their neighborhood. While some areas in the City of Mankato are truly in need of traffic calming, others may be addressed with solutions outside the scope of this program.

This information will help residents determine whether a street qualifies for the City's Neighborhood Traffic-Calming Program and navigate them through the process of establishing traffic calming in their neighborhood. Should residents have further questions throughout this process or like additional information, contact the Department of Engineering at 507-387-8637.

Timeframe
Depending on the situation and level of community involvement, it could take six months to three years to development and implement a traffic-calming program.

STAGEONE

Education and **Enforcement**

Pre Traffic-Calming Solutions

There are several options residents can pursue to reduce speeding in their neighborhood before requesting traffic calming. Residents can request the following speed-reduction options for their neighborhood by calling the department of Public Safety at (507) 387-8780

Speed-Monitoring Trailers
Residents can request the use of automated speed-monitoring trailers, which display to drivers their "actual" speed to encourage their compliance with posted speed limits. The trailers monitor traffic patterns in a given neighborhood for several days at a time. The units record the number of vehicle and speed of each vehicle. This data is used to identify traffic related problems.

Neighborhood Speed Watch

Residents who live in neighborhoods perceived to have a speeding problem are eligible to participate in this educational program. The program requires that at least two adults from the association attend a radar training session with a police instructor. Upon completion of the program, residents are eligible to borrow radar equipment to use in their neighborhood. Reminder notices regarding speed limits are sent to motorist identified as violators. The notices are not citations, but reminders to obey the posted speed limit and the community concerns for safety.

StealthStat

City of Mankato's speed-measuring device called StealthStat monitors traffic volume, average speed, high speeds and low speeds of mortorist. The StealthStat collects, sorts and anlyzes data using a radar unit and computer. The results are used to help the Department of Public Safety prioritize enforcement and other responsive efforts, as well as to educate the public.

Enforcement

After a traffic analysis is completed, the Department of Public Safety may respond with increased enforcement to address the issue. Residents should be specific regarding the days and times of traffic concerns to help determine when enforcement is needed.

If the above tactics have been pursued and the Department of Engineering has determined these initiatives to be ineffective, staff will advise the residents to proceed with the Neighborhood Traffic-Calming Program.

Traffic-Calming Solutions

Getting Started

Before beginning this process the City of Mankato would like to inform residents that the Neighborhood Traffic-Calming Program requires a great deal of commitment. Active citizen participation is key to the success of all traffic-calming projects. Experience in other cities has shown that traffic calming projects installed without strong neighborhood participation are frequently unsuccessful, requiring the removal of some or all measures. This involvement instills a sense of ownership in the project once traffic-calming measures are installed.

Qualifying for Mankato's Neighborhood Traffic-Calming Program requires a multi-step process that may involve evening meetings and will require petitioning door-to-door. Additionally, the street being considered should meet the following pre-qualifications to be eligible for this program:

- Have a speed limit of 30 mph or less
- Be classified as a local or collector
- Have a right-of-way that is 66 feet wide or less
- Be at least 1,000 feet in length
- Cannot be a cul-de-sac.
- Cannot be along a bus route.
- Cannot be used as a critical emergency response route or provide direct access to a fire/EMS station or hospital.

This program applies only to existing streets. It does not apply to future roads or to new subdivisions streets under construction. If an existing subdivision street is intended to be extended in the future, then it must be at least 75 percent complete with the termination point known.

The Process
If the street being considered meets the above pre-qualifications, the Department of Engineering will advise residents to proceed with the Neighborhood Traffic-Calming Program. To begin this process, a neighborhood representative must first submit a letter to the Department of Engineering requesting the street be evaluated for traffic calming. Upon receipt of this request, the Department of Engineering will send the neighborhood representatives a map defining the affected area. The affected area consists of streets and/or cul-de-sacs whose primary access is directly off the affected street. This includes households, apartments, and/or businesses located on the affected street(s) and any households and apartments located on cul-de-sacs attached to the affected street(s).

After reviewing this information and pursuing other solutions with the Department of Public Safety, residents may want to take the first step to begin the traffic-calming process. Fulfillment of each step must be in place before proceeding to the next step

STAGETWO

Engineering/Study Process

StepOne – Petition Request
Residents requesting traffic-calming measures in their neighborhood will need to circulate a petition to be signed by residents in the affected area and submit it to the Department of Engineering.

- In order for the request to proceed, the petition must contain signatures from 67 percent of the households located in the affected area and 80 percent of the households on the affected street.
- If an apartment complex and/or business is located on the affected street or within the affected area, only the signature of the owner or owners's representative will be accepted for the purpose of achieving the required percentage for the petition.
- Once a petition is received the Department of Engineering will develop a schedule for completing the evaluation.

StepTwo – Petition Approval
Once the Department of Engineering receives this petition it will then be reviewed by staff to ensure its accuracy.

- Once staff verifies the petition, the request for a traffic-calming study is underway. The Department of Engineering will determine the traffic-calming study's priority for funding. As funding becomes available through the City Capital Improvement Program (CIP) or City Council directive the request will move forward with a comprehensive traffic study.
- If staff does not approve the petition, for lack of necessary signatures or other reasons, it will be sent back with an explanation of why it was not approved.

StepThree – Comprehensive Traffic Study
Phase One
The Department of Engineering will conduct a comprehensive traffic study for the affected area to determine if the street(s) meets the following criteria:

- Has a high daily volume of vehicles established through a formula based on the number of households in the affected area and the amount of trips generated by vehicles per day.
- The 85th percentile speed (the speed below which 85 percent of vehicles travel) must be higher than 33 mph.

This phase of the study will determine whether traffic calming is recommended. It will also determine if any neighborhood adjacent streets will be affected by traffic-calming measures on the affected street. If no significant adverse impact to the adjacent streets is found then residents can proceed to Stage Three. If there is an adverse impact, then residents will proceed to Phase Two of Step Three.

Phase Two
This phase of the study determines the impact to adjacent neighborhood street and the need for in-depth analysis and collaborative neighborhood involvement. Once this phase has been completed residents can proceed to Stage Three of the Neighborhood Traffic-Calming Program.

STAGETHREE

Engineering/Conceptual Plans and Implementation

StepOne – Selecting the Appropriate Traffic-Calming Measure
The Department of Engineering will recommend a plan for traffic-calming options that will best suit the neighborhood's needs.

- Affected residents will have input on which traffic-calming measure(s) they would like to have installed in their neighborhood.
- Although staff will present final recommendations to the affected neighborhood, they will certainly take into consideration the measure(s) suggested by residents in the affected area.
- Landscaping, for the purposes of this policy, will only be installed as a traffic-calming measure. Additional landscaping/aesthetic treatments will be installed as determined necessary by the City Engineer and at the direction of the City of Mankato City Council.

StepTwo – Neighborhood Consensus
Residents in the affected area will need to sign another petition agreeing on which traffic-calming measure(s) they would like installed in their neighborhood. This petition must contain signatures from 85 percent of the households (one signature per household/condo units or apartment/cooperative complexes) in both the affected area and on the affected street

StepThree – Traffic-Calming Installation
Once the Department of Engineering has received the necessary signature agreeing on the overall Neighborhood Traffic-Calming Program, the street will be placed on a priority list for funding through the CIP or a special request to City Council.

StepFour – Post Evaluation
After the traffic-calming measure(s) has been installed the Department of Engineering will conduct a follow-up study to ensure that it is effective. If necessary the Department will make recommendation to City Council for the adjustment or removal of traffic-calming measure(s).

Overview of Responsibilities

Resident's Responsibilities	City's Responsibilities
1) Submit a letter requesting traffic calming	1) Define affected area for applicant's neighborhood
2) Circulate petition, obtaining signatures from 80 percent of residents on the affected street(s) and 67 percent of those in the affected area to initate a traffic-calming study. The petition process must be completed and returned within a 12 month period to the Department of Engineering	2) Verify petition for accuracy and necessary signatures.
	3)Conduct comprehensive traffic-calming study
	4) Recommend Neighborhood Traffic-Calming Program (if study determines necessary)
	5)Make Final recommendation for appropriate traffic calming measure(s)
3) Gain neighborhood consensus on which traffic calming measure(s) to use. Must obtain signatures from 85 percent of the households in both the affected area and on the affected street.	6) Seek funding for program through the CIP or special request to City Council.
	7) Install traffic-calming measure(s)
	8) Evaluate effectiveness of program

Ineligible Street

This program focuses on local and collector residential streets with a speed limit of 30 mph or less. The following is a list of major streets in the City of Mankato that do not qualify for the Neighborhood Traffic-Calming Program.

- Madison Avenue
- Riverfront Drive
- Main Street
- 3rd Avenue
- Cherry Street
- Warren Street
- Glenwood Avenue
- Hoffman Road
- North and South Victory Drive
- Monks Avenue
- Stadium Road
- Stoltzman Road
- Val Imm Drive
- Pohl Road
- Adams Street
- Raintree Road
- Hosanna Drive
- Timberwolf Drive
- Doc Jones Road
- Carney Avenue (7th Street to 90)
- Divison Street
- Dane/Dickenson Street
- Kennedy Street
- Bassett Drive

Streets on this list may be subject to applied forms of traffic calming more appropriate for high volume thru-routes. If calming or some amelioration is deemed to be required on these streets, the City's general obligation fund, grants, or Municipal State Aid funds would be used to make the determined improvements.

- St. Andrews Drive

- Augusta Drive
- Pfau Street (Adams Street to Madison Avenue)
- 2nd Street (Madison Avenue to Bryon Street)
- Bruels Street
- Thompson Ravine Road
- Marsh Street (6th Street to Dane Street)
- Balcerzak Drive
- Ledie Lane, Southbrook Circle
- Industrial Road
- County State Aid Highway 26

Section 2: Solutions

Why Stop signs and Children at Play signs are not used for Traffic Calming

A common request to address speeding in neighborhoods is the installation of Stop signs. This may seem like an easy way to reduce vehicle speeds, however, Stop signs used for traffic calming can actually create a less desirable situation.

Stop signs that are used as a traffic-calming measure can cause high incidences of drivers intentionally violating the stop and other traffic-related issues. When vehicles do stop, the speed reduction is often only effective in the immediate area, since motorist will then increase their speed to make up for lost time. This can result in increased mid-block speeds. There is often an increase in rear-end collisions near the inappropriate Stop sign, frequently called "cluster" accidents. In order to avoid the extra stops and starts on streets with these Stop signs, there can be a redistribution of traffic to adjacent streets.

For these reasons, the City of Mankato does not list Stop signs as an effective traffic-calming measure. Instead, the City uses Stop signs to improve safety at intersections where traffic volumes or accidents warrant their installation.

Another common request in neighborhoods is the installation of "Children at Play" signs. National and statewide traffic studies have shown that "Children at Play" signs are not effective in increasing a driver's attention to the point of reducing vehicle speeds or reducing pedestrian accidents. In fact, placement of these signs can increase the potential for accidents by conveying to children and parents that the area is safe for children.

For these reasons, the City of Mankato does not use "Children at Play" signs and we encourage parents and/or guardians to find alternative play areas for children, such as a backyard or local parks.

Acceptable Traffic-Calming Measures

Center Island Narrowings

A center island narrowing is a raised island located along the centerline of a street that narrows the travel lanes at that location. Center islands narrowings are often landscaped to provide a visual amenity. Placed at the entrance to a neighborhood, and often combined with a textured pavement, they are often called "gateway islands." Fitted with a gap to allow pedestrians to walk through at the crosswalk, they are also referred to as "pedestrian refuges." Center island narrowings are also found to be very effective in reducing speeds around curves.

Applications:

- Entrances to residential areas
- Wide street where pedestrians need to cross.
- Curves

Advantages:

- Increase pedestrian safety
- Can have positive aesthetic value
- May reduce traffic volumes.

Disadvantages:

- Speed reduction effect is somewhat limited because vehicles do not have to alter their path.
- May require elimination of some on-street parking.

Cost Estimate:
$8,000 - $15,000 per block

Chicanes

Chicanes are curb extensions that alternate from one side of the street to the other, forming S-shaped curves. Chicanes can also be created by alternating on street parking, either diagonally or parallel, between one side of the street and the other. Each parking bay can be created either by restriping the roadway or by installing raised landscaping islands at the end of each parking bay.

Applications:

- Locations where speeds are a problem but noise associated with the speed humps and related measures would be unacceptable.

Advantages:

- Discourage high speeds by forcing a change in path or direction.
- Easily negotiable by large vehicles (such as fire trucks)

Disadvantages:

- Must be designed carefully to discourage drivers from deviating out of the appropriate lane.
- Curb realignment and landscaping can be costly, especially if there are drainage issues.
- May require the elimination of some on-street parking.

Cost Estimate:
$14,000 per block

Chokers

Chokers are curb extensions at mid-block locations that narrow a street by widening the sidewalk or planting strip. If marked as crosswalks, they also known as safe crosses. Two-lane chokers leave the street cross-section with two lanes that are narrower than the normal cross section. One-lane chokers narrow the width to allow travel in only one direction at a time, operating similarly to one-lane bridges.

Applications:

- Areas with substantial speed problems and no on-street parking shortage.

Advantages:

- Easily negotiable by large vehicles (such as fire trucks).
- Can have positive aesthetic value.
- May reduce both speeds and volumes.

Disadvantages:

- Speed reduction effect is somewhat limited because vehicles do not have to alter their path.
- May require bicyclist to briefly merge with vehicualar traffic.
- May require the elimination of some on-street parking.

Cost Estimate:
$7,000 - $10,000 per block

Diversion

Diversion is a physical barrier of some type such as a straight curb, bollards or a landscaped area placed across a roadway to create two distinct sections of street. Diversion is often used to remove a through movement on a lower functional class of road traveling to a higher functional class of road, discouraging non-local traffic while maintaining access for local residents.

Applications:

- Inner neighborhoods locations with non-local traffic volume problems.

Advantages:

- Maintains access for local traffic while decreasing non-local volumes.
- Able to maintain full pedestrian and bicycle access.
- Will reduce traffic volumes.
- Provides landscaping opportunities.

Disadvantages:

- Create circuitous routes for local residents and emergency vehicle services.
- May be expensive
- May require reconstruction of corner curbs.
- May increase traffic volumes on adjacent streets.

Cost Estimate:
$10,000-$20,000 per intersection

Protected Parking

Protected parking consists of parking spaces and centerline striping used to narrow the perceived roadway width from curb to curb.

Applications:

- Areas where vertical traffic-calming measures would be unacceptable because of noise considerations.

Advantages:

- Perceived narrow driving width reduces speeds.
- Creates protected on-street parking bays.
- Inexpensive to install.

Disadvantages:

- Effectiveness is limited by the absence of physical obstacles.
- Inclemental weather (i.e. snow, rain, etc) may block the visibility of pavement markings.
- May encourage school-related parking.
- Requires continual maintenance to maintain visiblitiy of markings.

Cost Estimate:
$1,000 per block

Raised Crosswalks

Raised crosswalks are flat-topped speed humps often constructed with brick or textured materials on the flat section with crosswalk markings and signage to channel pedestrian crossings. They provide pedestrians with a level street crossing and by raising the level of crossing pedestrians they are more visible to approaching motorist.

Applications:
- Locations where pedestrian crossings occur at unexpected locations and vehicle speeds are excessive.

Advantages:
- Improve safety for both pedestrians and vehicles.
- Can have positive aesthetic value.
- Effective in reducing speeds, though not to the extent of speed humps.

Disadvantages:
- Textured materials, if used, can be expensive.
- Impacts on drainage should be considered.
- May increase noise and air pollution.
- Difficulty in snow removal

Cost Estimate:
$4,000 - $6,000 per crosswalk

Raised Intersections

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

Applications:

- Intersections with substantial pedestrian activity.
- Areas where other traffic-calming measures would be unacceptable because they take away scarce parking spaces.

Advantages:

- Improve safety for both pedestrians and vehicles.
- Can have positive aesthetic value.
- Can calm two streets at once.

Disadvantages:

- Tends to be expensive, varying by materials used.
- Impact to drainage needs should be considered.
- Less effective in reducing speeds than speed humps or raised crosswalks.

Cost Estimate:
$7,000 - $10,000 per intersection

Realigned Intersections

Realigned intersections are changes in alignment that convert T-intersections with straight approaches into curving streets that meet at right angles. A former "straight-through" movement along the top of the T becomes a turning movement. While not commonly used, they are one of the few traffic-calming measures for T-intersections, because the straight top of the T makes deflection difficult to achieve, as needed for traffic circles.

Applications:

- T-intersections.

Advantages:
- Realigned intersections can be effective in reducing speeds and improving safety at a T-intersection that is commonly ignored by motorists.
- Provides landscaping opportunities.

Disadvantages:
- Curb realignment can be costly.
- May require some additional right-of-way to cut the corner.

Cost Estimate:
$200,000 - $400,000 per intersection

Speed Humps

Speed humps are rounded, raised area placed across the roadway. They are generally 10-14 feet long (in the direction of travel), making them distinct from the shorter "speed bumps" found in many parking lots, and are 3 to 4 inches high. The profile of a speed hump can be circular, parabolic or sinusoidal. They are often tapered as they reach the curb on the each end to allow unimpeded drainage.

Applications:
- Locations where very low speeds are desired and reasonable, and noise and fumes are not a major concern.

Advantages:
- Relatively inexpensive
- Relatively easy for bicycles to cross if designed appropriately.
- Very effective in slowing travel speeds.

Disadvantages:
- Cause a "rough ride" for all drivers, and cause severe pain for people with certain skeletal disabilities.
- Force large vehicles, such as emergency vehicles and those with rigid suspensions, to travel at slower speeds.

- May increase noise and air pollution.
- Have questionable aesthetics.
- Spaced between 300-500 feet apart, so there may be several on a roadway.

Cost Estimate:
$5,000 per block

Traffic Circles

Traffic Circles are raised islands, placed in intersections, around which traffic circulates. They are designed according to the existing geometry of each intersection and sized to accommodate the passage of an emergency vehicle.

Applications:
- Calming intersections, especially within neighborhoods where large vehicles are not a major concern, but speeds, volumes and safety are problems.

Advantages:
- Traffic circles are very effective in moderating speeds and improving safety.
- Can have positive aesthetic value.
- Can calm two streets at once.

Disadvantages:
- Difficult for large vehicles (such as fire trucks) to circumnavigate.
- May require the elimination of some on street parking.
- Landscaping must be maintained, either by the residents or by municipality.
- Expensive to install.

Cost Estimate:
$5,000 – $12,000 per intersection

Roundabouts

Roundabouts are raised circular structures constructed in an intersection designed to deflect the flow of traffic entering the intersection in a counter-clock wise direction around the circle.

Applications:

- Calming intersections, especially within neighborhoods where larger vehicles, speeds, volumes and safety are problems.

Advantages:
- Roundabouts are very effective in moderating speeds and improving safety.
- Can have positive aesthetic value.
- Can calm two streets at once.
- Designed to accommodate wider range of vehicles.

Disadvantages:
- Additional right-of-way will likely be needed.
- May require the elimination of some on street parking.
- Landscaping must be maintained, either by the residents or by municipality.
- Expensive to install.

Cost Estimate:
$50,000 – $200,000

Semi-Diverters

Semi-diverter is a curb extension or barrier that restricts movement into a street. The semi-diverter is constructed to approximately the center of the street, effectively obstructing one direction of traffic. Creates a one-way segment at the intersection while maintaining two-way traffic for the rest of the block.

Applications:
Neighborhoods locations with non-local traffic volume problems

Advantages:
- Restricts movements into a street while maintaining access and movement within the street block for residents.
- Reduces cut-through traffic.
- More self-enforcing and aesthetically pleasing than turn restriction signing.
- Reduces crossing distances for pedestrians and typically allow bicycles to travel through in each direction.
- In emergency situations, emergency vehicles can travel in the restricted direction

Disadvantages:
- May divert traffic to parallel streets without traffic calming measures.
- May increase trip length for some residents.
- Curbside parking must be prohibited adjacent to the device.

- May increase emergency response time as they maneuver around the semi-diverter.
- Maintenance responsibility.

Cost Estimate:
$20,000 per intersection

Force Turn Islands

Force Turn Islands or known as turn channelizations, pork chops, or right turn islands which prohibit certain vehicle turning movements.

Applications:
- Neighborhoods locations with non-local traffic volume problems.

Advantages:
- May reduce both speeds and volumes.
- Can have positive aesthetic value.
- Increase pedestrian safety.

Disadvantages:
- May increase traffic volumes on adjacent streets.
- Create circuitous routes for local residents and emergency vehicle services.

Cost Estimate:
$1,500– $5,000 per island

Definitions

Affected Area
The area in which the placement of traffic-calming measures will have an effect. This shall be determined by defining the area significantly affected by street modifications. At a minimum this will include households, apartments, and/or businesses located on the affected street and any housholds located on cul-de-sacs attached to the affected street.

Affected Street
The street on which traffic-calming measures are being requested.

Collector Street
A street that provides both access and circulation within a residential neighborhoods and commercial or industrial areas. This system collects traffic from local streets and disperses it to the arterial system. The collect street may also carry local bus routes.

Cul-De-Sac
A local street, one end of which is closed and consists of a circular turn around.

Traffic Volumes
The number of vehicles passing a given point on a street in both directions during a 24hour period of time

85th Percentile Speed
The speed below which 85 percent of vehicles travel.

Non-Local Traffic
Traffic that uses local or collector streets to travel through a residential neighborhood without having an origin or destination within the neighborhood.

Condo (Condominium)
A multi-unit dwelling where each unit is individually owned.

Apartment/Cooperative Housing
A dwelling unit with in a house or building with 2 or more units which are rented or leased from a company or individual.

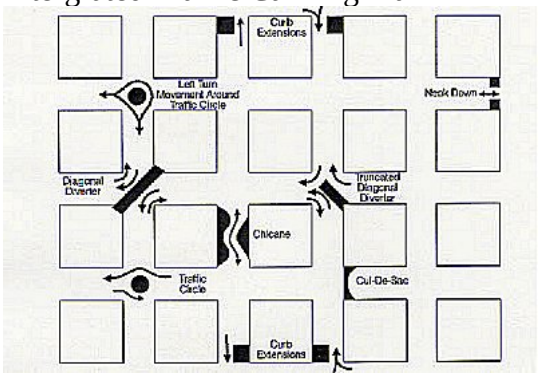
Examples of Various Traffic-Calming Techniques.

Bumpouts

Chicanes

Diagonal Diverter

Intergrated Traffic Calming Plan



Roundabout

Raised Crosswalk

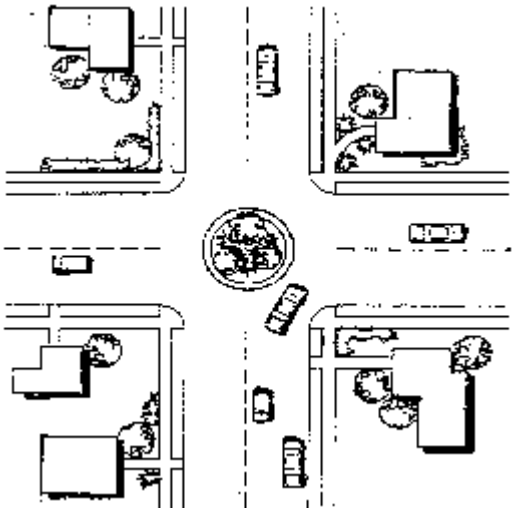
Semi Diverter – Egess Only

Speed Hump

Traffic Circle

Traffic Circle

Traffic Circle Plan View



Traffic Circle with Emergency vehicle in route

Raised Intersection

Center Island Narrowings

City of Mankato Traffic Calming Program

Stage One: Taking Action

1. Education and Enforcement
   a. Speed Monitoring Trailers
   b. Neighborhood Speed Watch
   c. Stealth Stat
   d. Enforcement

Stage Two: Engineering Study Process

1. Petition Requests
2. Petition Approval
3. Traffic Study

Stage Three: Engineering/Conceptual Plans and Implementation

1. Selection of Appropriate Traffic Calming Measure
2. Neighborhood Consensus
3. Traffic Calming Installation
4. Post Evaluation

Overview of Responsibilities

Resident's Responsibilities	**City's Responsibilities**
1) Submit a letter requesting traffic calming	1) Define affected area for applicant's neighborhood
2) Circulate petition, obtaining signatures from 80 percent of residents on the affected street(s) and 67 percent of those in the affected area to initate a traffic-calming study. The petition process must be completed and returned within a 12 month period to the Department of Engineering	2) Verify petition for accuracy and necessary signatures.
	3)Conduct comprehensive traffic-calming study
	4) Recommend Neighborhood Traffic-Calming Program (if study determines necessary)
	5)Make Final recommendation for appropriate traffic calming measure(s)
3) Gain neighborhood consensus on which traffic calming measure(s) to use. Must obtain signatures from 85 percent of the households in both the affected area and on the affected street.	6) Seek funding for program through the CIP or special request to City Council.
	7) Install traffic-calming measure(s)
	8) Evaluate effectiveness of program