

**CITY OF NORTH RICHLAND HILLS  
PUBLIC WORKS DEPARTMENT  
STREET/TRAFFIC DIVISION**

# **TRAFFIC CALMING POLICY**

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# CITY OF NORTH RICHLAND HILLS

## Traffic Calming Policy

### **Section 1.0 – Statement of Purpose**

City streets are for the use of all citizens. Occasionally streets are not used in the safe manner that they were designed for. When this occurs, traffic calming may be a way to reduce the unsafe driving of some motorists with minimal disruption to efficient traffic flow. The purpose of traffic calming is to limit the speed and/or the number of vehicles on residential streets and to safely move traffic from one point to another. This can involve measures from police enforcement and neighborhood watch programs to strategic physical changes to residential streets. The traffic calming measures identified in the policy are not intended to prevent the general public from using any city street.

This policy provides several traffic calming measures that can be utilized by the Public Works Department to help improve an existing traffic problem. The different traffic calming measures are divided into four levels (or categories). Level 1 represents those measures that require no physical changes to the streets. Level 1 measures would be Police Enforcement or the use of the radar trailer. Levels 2 and 3 represent traffic measures that require physical changes to the streets, with Level 4 representing measures that require the most changes.

Studies have shown that the majority of the traffic concerns on residential streets are caused by the residents (and/or their guests) living in the subdivision. Because of this, the primary focus of this policy will be to educate the residents in the subdivisions that have traffic concerns. Therefore, Level 1 measures will always be emphasized.

This policy shall not be deemed to limit the authority of the Public Works Department to remedy problems on their own initiative.

### **Section 2.0 - Qualifying Criteria**

Requests for implementation of traffic calming measures on public streets will be considered by the City for those streets meeting all of the following criteria:

- 2.1 The street will be primarily residential in nature;
- 2.2 Streets that are not designated on the City's Master Thoroughfare Map as C4U, M4U, M5U, M4D, M6D, and P6D, are eligible for traffic calming devices. C2U streets may be eligible;
- 2.3 Street must not be classified as a primary route for emergency response vehicles which would produce significant evidence of emergency response delay;
- 2.4 Vehicular traffic volumes are equal to or exceed 250 vehicles per day;
- 2.5 The changes in traffic flow will not result in unreasonable liability exposure for the City;
- 2.6 The changes in traffic flow will not divert significant amounts of traffic to other residential streets;
- 2.7 The requested action shall be in full compliance of Texas State Law.

2.8 Texas State Law - The State of Texas has preempted the field of traffic control (see "Texas Statutes" Chapter 544, Traffic Signs, Signals, and Markings). The section that applies to local roads or local agencies is noted as follows:

**§ 544.002. Placing and Maintaining Traffic Control Devices**

To implement this subtitle or a local traffic ordinance, a local authority may place and maintain a traffic control device on a street or road under the authority's jurisdiction. The traffic control device must conform to the manual and specifications adopted under Section 544.001.

The Texas Transportation Commission shall adopt a manual and specifications for a uniform system of traffic control devices consistent with this chapter that correlates with, and to the extent possible, conforms to the system approved by the American Association of State Highway and Transportation Officials.

No local authority is allowed to enact or enforce any ordinance on the matter covered by the Vehicle Code unless expressly authorized by the statute.

The City of North Richland Hills is consistent with State law. The City will carefully review each request to ensure that the proposed location and attending circumstances meet all the criteria outlined in this policy and in State law. The purpose of this policy is to set forth the process and criteria by which implementation of "Traffic Calming Measures" on public streets may be considered. The policy only applies to requests initiated by citizens.

Traffic calming measures by this policy include all "official traffic control devices" authorized by the Texas Vehicle Code.

**Section 3.0 - Traffic Calming Process**

The following process will be used by the City to address traffic concerns:

- 3.1 Resident(s) inform the City regarding a potential problem area. If the problem specifically involves speeding or cut-through traffic, the complaint will be processed through the Public Works Department. *This does not include Police enforcement of speeding issues on public streets.*
- 3.2 The resident(s) must complete and return the "Neighborhood Action Request Form" shown as attachment "1" in this policy. The form requires a written description of the resident's concerns and requires signatures from four (4) separate residents in the impacted area.
- 3.3 After receiving the Neighborhood Action Request Form, the City will prepare an existing condition traffic analysis. The results of the traffic analysis will identify the type of traffic problem that the neighborhood faces (i.e. speeding problem, "cut-through" traffic or both). The "type" of problem identified will provide Public Works the direction needed to select a traffic calming measure. If applicable, Level 1 or Level 2 traffic calming options will be recommended by City staff to the residents

living on the streets that have submitted the Neighborhood Action Request Form. Level 1 and Level 2 measures will be implemented by the City at the City's cost.

- 3.4 If, after the Level 1 or Level 2 measures are in place for a minimum of three (3) months, and the City determines that Level 1 or Level 2 measures do not adequately address the applicants' concerns, the City may conduct additional studies to determine whether Level 3 or Level 4 measures are appropriate. This will include consulting the Police and Fire Departments to determine if the street is critical to emergency vehicle response and, therefore, ineligible for certain measures.
- 3.5 If a Level 3 implementation plan is developed, the residents shall submit a petition as outlined in Section 4.0. If support, as defined in Section 4.0, is demonstrated through the petition process, the City will implement Level 3 measures at a 50-50 cost with the residents of the affected area. The residents' share of the cost will be collected on a volunteer only basis by the local residents and the total amount of the residents' share must be presented to the City prior to construction of the measures.
- 3.6 Approval of a Level 3 traffic calming measure does not guarantee that the City will have the funding available for its share of the cost. The City's share of the cost may need to be approved in future years. If this situation occurs, the property owners have the option of waiting until City funds are available or paying 100% of the cost of Level 3 traffic calming measures.
- 3.7 If a Level 4 implementation plan is developed, the residents shall submit a petition as outlined in Section 4.0. If support, as defined in Section 4.0, is demonstrated through the petition process, staff will take the request to the City Council for plan approval and funding. The residents' share could range from 0% to 100 % of the total cost. The residents' share of the cost will be collected on a volunteer basis by the local residents and the total amount of the residents' share shall be presented to the City prior to construction of the Level 4 measures.
- 3.8 If a traffic calming measure is determined by City Staff not to be eligible on a qualifying street, applicants will be notified in writing giving the reason. The applicants may appeal the decision to the City Manager within 21 days of the notification date. Such appeal shall be in writing, signed by the persons desiring to appeal, and shall state the reasons and basis of the appeal, listing any errors which formed the basis for staff decision. The City Manager will review the determination and respond to the applicants within 30 days of the appeal request. Streets that do not meet the qualifying criteria, as outlined in Section 2.0 of the Traffic Calming Policy, are not eligible for traffic calming measures. If the applicants disagree with the City Manager's decision on a Level 4 matter, the applicants may, by a written signed document, appeal to the City Council. Such appeal shall set forth the basis for such appeal.
- 3.9 If a Level 3 or Level 4 traffic calming measure is requested to be removed by the residents within a year of installation, the residents' cost share for the removal will be the same proportion as the installation. The removal of a Level 3 or Level 4 traffic calming

measure shall follow the same procedures as the installation process of the traffic calming measure.

#### **Section 4.0 - Traffic Calming Petition Requirements**

The following procedures must be followed in order to submit a petition for Level 3 or Level 4 measures to the City:

- 4.1 The City will recommend and examine the technical feasibility and anticipated impacts of the proposed traffic calming measures. This overview will include items such as State law, the Circulation Element of the City's General Thoroughfare Plan, the type of road or street involved, compliance with engineering regulations, existing traffic conditions, projected traffic conditions, discussions with Police and Fire services, the potential for traffic diversion to adjacent streets, impacts to emergency vehicle response times and the increased liability exposure for the City or conflicts with future planned improvements.
- 4.2 The Public Works Department will determine the boundary of the "affected area" to be petitioned. The affected area will include those property owners where necessary travel routes to and from their residential property are to be altered by the proposed neighborhood traffic calming measure(s), and/or properties which are likely to be significantly impacted by traffic that is to be diverted to their street through implementation of the measure(s). The Public Works Department will provide a map of the affected area and listing of all property owner's addresses. The Public Works Department will also determine the boundary of any surrounding areas that may be impacted by the implementation of a traffic calming measure.
- 4.3 The petition shall be approved by the Public Works Department prior to circulation for signatures. After receiving the approved petition form from the Public Works Department, the petition shall be circulated for resident signatures. The petition requesting the neighborhood traffic calming measure must be supported by a minimum of 80% of the total number of properties contacted for Level 3 measures and 85% for Level 4 measures. The petition should include property owners within the "affected area". Persons submitting petitions must attempt to contact all affected parties.
- 4.4 At a minimum, petitions submitted to the City for review must include the following:
  - 4.41 A statement that all persons signing the petition acknowledge it is the City's policy that they will be responsible for costs directly associated with the design and construction of Level 3 or 4 traffic calming measures.
  - 4.42 A current address and phone number for each property owner who signs the petition.
  - 4.43 The petition language must also clearly explain, and show on a drawing or plan, the location and the nature of the proposed traffic flow modifications and potential impacts.

- 4.44 The petition language and attached drawing must be reviewed and approved by the City prior to circulation to ensure its accuracy and ability to be clearly understood. A sample petition has been provided, shown as "Attachment 1" in this policy.

### **Section 5.0 - Traffic Calming Petition Review Process**

The following process will be used by the City to review all petitions associated with proposed neighborhood traffic management measures:

- 5.1 The City will review any petition to verify compliance with all petition requirements set forth above. Any petition not complying with these requirements will not be accepted for consideration and will be returned. If the petition contains all of the required information under this policy, a random sample phone call survey of those who signed the petition will be conducted by the City, requesting verification of their support or opposition to the proposed neighborhood traffic calming measures.
- 5.2 If the petition contains all of the required information under this policy and is properly verified, the City will proceed to the next step of implementing the Level 3 or Level 4 measure(s). The residents' share of the cost must be paid in full to the Public Works Superintendent. Do not mail the payment, it must be paid "in person" so that a receipt can be furnished. Before any Level 3 or Level 4 traffic calming measure is installed, the implementation plan must be approved by Public Works and the City's portion of the funding must be approved by the City.

### **Section 6.0 - Impacts of Traffic Calming Devices**

Before the City decides to pursue Levels 3 and 4 traffic calming options, Level 1 and 2 options need to be tested. It is important that the impacts of all Levels of traffic calming be carefully considered. While Levels 3 and 4 options can be successful, they can also result in problems more significant than the original concern. This section of the policy will describe the possible impacts of Levels 3 and 4 traffic calming measures. In most instances, the benefits are quite obvious and predictable, while the disadvantages can be much more unexpected. Consequently, a greater emphasis has been placed on the potential problems so that decisions can be made in a more fully informed manner.

- 6.1 Effectiveness of Traffic Calming Devices - Physical actions such as the installation of speed bumps, traffic circles, street closures, etc. are almost always successful in forcing traffic to behave in an intended fashion. In certain situations, they can achieve the desired result by utilizing a one-time capital expenditure and generally low ongoing maintenance costs. Levels 3 and 4 traffic calming actions are generally viewed as much more "permanent" solutions than Levels 1 and 2 actions. In more instances, the alternative approach to the desired result involves repetitive and costly ongoing Levels 1 and 2 traffic calming actions such as traffic enforcement and use of the radar display board. There are significant potential long-range benefits to utilizing Levels 3 and 4 traffic calming measures.
- 6.2 Effect on Emergency Vehicles Response Times - Any traffic calming measure that might be effective because it physically controls traffic, generally has a much more negative impact on several classes of emergency vehicles. The City, as well as its residents and

businesses, place a very high priority on minimizing emergency response times. Installation of most physical traffic calming tools can significantly worsen emergency response time. This is especially true for fire apparatus and ambulances. Because of the heavy weight of fire engines and the delicate instruments and patients within ambulances, these vehicles must almost come to a complete stop when they encounter a bump, dip or sharp curve. Creating bumps, dips and sharp curves is often precisely the objective being sought by many of the traffic calming tools. While these maneuvers will cause moderate discomfort and delay for normal passenger vehicles, they cause a much greater problem for emergency response vehicles.

Studies have shown the following average delays to emergency vehicles for certain types of devices:

	<u>AMBULANCES</u>	<u>FIRE TRUCKS</u>
<b>Each Speed Bump</b>	2.3-9.7 seconds	3-5 seconds
<b>Each Traffic Circle</b>	Not Available	1.3-10.7 seconds

- 6.3 The City's Fire Department is concerned about the affect these devices could have on response times and will have an initial review of all proposed changes involving Level 3 and 4 options with the ability to veto any changes affecting critical access streets. This impact will have to be addressed for each area for which Level 3 and 4 traffic calming options are requested.
- 6.4 Traffic Diversion - Another concern is that in many instances implementing traffic calming devices will likely move the problem rather than solve the problem. In most instances, the placing of impediments on a particular neighborhood street may merely divert some or all of that traffic to other neighborhood streets. In these cases, a neighborhood-wide approach may have to be taken.
- 6.5 Considerations for Other Roadway Users - In addition to the safety concerns already discussed in this report, Levels 3 and 4 traffic calming actions can often have unintended negative safety impacts on certain roadway users. Depending on the device, they can result in worsening the situation for a range of roadway users such bicyclists, pedestrians, and parked cars.
- 6.6 Noise Impacts - The noise impact to adjacent residents resulting from vehicles braking, going over and around some types of traffic calming devices can have a major impact on the acceptability of these devices by residents living close to them. The unanimous support of residents living immediately adjacent to locations where physical changes are proposed will be essential to the success of any project.
- 6.7 Loss of Parking - It is often necessary to prohibit on-street parking in the immediate vicinity of the intersection in order to accommodate the realigned vehicle path. There are also significant on-street parking impacts from several options in Levels 3 and 4. In these cases, the adjacent residents should be aware that a loss of on-street parking in front of their residence will occur.

- 6.8 Visual Impacts and Aesthetic Concerns - While some traffic calming devices can have favorable aesthetic impacts, others can be, by their nature, unsightly. Devices such as speed bumps and diverters must often pose no opportunity for the incorporation of aesthetics and can actually have negative visual impacts. Virtually all Level 3 and 4 traffic calming actions require reflective devices, signs and striping which may negatively affect the aesthetics of a neighborhood.
- 6.9 Increased Maintenance Costs -Street maintenance costs will increase in two areas. Landscaping associated with such devices as traffic circles, chokers, neckdowns, and slow points will require regular maintenance. Devices such as speed bumps will have to be reinstalled each time a residential street is overlaid.

### **Section 7.0 – Traffic Calming Measure; *Neighborhood Speed Watch Program***

#### **Description**

- The Neighborhood Speed Watch Program is a public awareness and education program that allows concerned citizens to actively participate in encouraging slower speeds in their neighborhood.

#### **Application**

- Used to help drivers become aware of the neighborhood's concern for speeding problems.

#### **Procedures**

- **Phase 1** – The Public Works Department loans out a radar unit, at no cost, to one designated person responsible for pick-up and return of the equipment. At the time the equipment is picked up, a loan and usage agreement is signed and the designated person will be trained to properly operate the radar equipment. The equipment may be used up to three calendar days. The Public Works Department provides forms to record information about the speeding vehicles, such as make, model, and license number. Two people are usually needed – one to clock the speeds and read out the license plate number and description of the cars, and the other to fill out the forms. The Public Works Department then sends a letter to the registered owner of the violating vehicle, informing the owner that the vehicle was seen on a specific street exceeding the legal speed limit. We explain that the local residents are concerned about safety for their families and encourage drivers using their street to drive in a safe and cautious manner.
- **Phase 2** – After letters are sent out to the registered owners of the speeding vehicles, the City uses a trailer equipped with a radar display board on the street. The radar display board flashes the speed of the vehicles so that drivers can see how fast they're traveling, in relation to the legal speed limit. The radar display board is operated during a time specified by residents as having the worst speeding problem. The North Richland Hills Police Department assists during the radar display by assigning a police officer to provide enforcement. Their presence during this phase of the program has proven to be valuable in emphasizing the City's partnership with the residents in combating the problem of speeding on neighborhood streets.
- **Phase 3** – We will ask the Police Department to provide follow-up enforcement.

## **Potential Impact**

- May have long-term effects as neighbors become more aware of who is speeding.
- Speeds may be reduced during short intervals when the radar gun is in use.
- An effective public relations and educational tool.
- Reduces the speed of the motorists who live in the neighborhood. Most people speeding in a neighborhood live in that neighborhood.
- Not effective on multi-lane roadways that have significant traffic volumes. In these cases, there is limited ability to differentiate between more than one approaching vehicle.

## **Section 8.0 – Level 2 Traffic Calming Measure; Rumble Strips**

### **Description**

- Ceramic buttons, bump strips, or dots are glued to the pavement to create a strip that causes the vehicle to rumble as it traverses through them.

### **Application**

- Used to cause vehicles to slow down.
- Used in advance of marked crosswalks.
- Can be used at school speed zones.

### **Design/Installation**

- Typically designed in strips consisting of 4 to 5 rows traversing the traveled path of the roadway.
- Strips are designed to cause the vehicle to rumble as it traverses through them.

### **Potential Impacts**

- Vehicles slow down by 5 miles per hour (MPH).
- Driver's attention is alerted to heightened safety.
- Low cost installation that can easily be removed or changed.
- Very high level of noise pollution for adjacent residents.
- High maintenance is required to reattach strips to the pavement.

## **Section 9.0 – Level 3 Traffic Calming Measures (Minor street changes)**

### **a. CHOKERS**

#### **Description**

- Curb extensions at mid-block or intersection corners that narrow a street by extending the sidewalk or widening the planting strip.
- Can leave the cross section with two narrow lanes or with a single lane.
- At mid-block, sometimes called parallel chokers, angled chokers, twisted chokers, angle points, pinch points, or mid-block narrowings.
- At intersections, sometimes called neckdowns, bulbouts, knuckles, or corner bulges.

#### **Application**

- Local residential and collector streets.

- Main roads through subdivisions.
- Works well with speed bumps, speed tables, raised intersections, textured crosswalks, and raised median islands.

### **Design/Installation**

- Typically designed to narrow road to 20 feet for two-way traffic.
- Provides opportunity for landscaping.
- Chokers are formed as islands extending from the existing curb line of the street.
- Drainage issues must be considered.

### **Potential Impacts**

- Reduce speeds from 4% - 14%.
- Discourages truck entry.
- Reduces pedestrian crossings width and increases visibility of pedestrians.
- Creates added streetscape area for pedestrians and/or landscaping.
- Potential obstacle for motorist to run into.
- Can impact parking and driveway access.
- Can impede legitimate truck movements.
- May require re-working of surface drainage.
- Preferred by emergency response personnel compared to other traffic calming measures.

## **b. CENTER ISLAND NARROWING AND TWO LANE ANGLED SLOW POINT**

### **Description**

- Raised islands located along the centerline of a street that narrows the travel lanes at that location.
- Sometimes called mid-block medians, median slow points, or median chokers.
- Sometimes three islands are used to create an angled path of travel for vehicles. The effect of angling the travel path slows vehicles down.

### **Application**

- Are often nicely landscaped to provide visual amenity and neighborhood identity.
- Can help pedestrianize streets by providing a mid-point refuge for pedestrian crossing.
- Sometimes used on wide streets to narrow travel lanes.
- Works well when combined with crosswalks.

### **Design/Installation**

- Typically designed to narrow road to 20 feet for two-way traffic.
- Provides opportunity for landscaping.
- Typically three islands are used to create an angled path of travel for vehicles.

### **Potential Impacts**

- Slow vehicle speeds.
- Reduces pedestrian crossing width.

- May visually enhance the street through landscaping, but may also limit visibility of pedestrian crossings.
- Fire and emergency response vehicles are not impeded significantly.
- Loss of on-street parking.
- Landscaping and signing/stripping has to be regularly maintained.

### **c. RAISED INTERSECTIONS**

#### **Description**

- Flat raised areas covering entire intersections, with ramps on all approaches and often with brick or other textured materials on the flat section and ramps.
- Sometimes called raised junctions, intersections bumps, or plateaus.

#### **Application**

- Works well with curb extensions and textured crosswalks.
- Often part of an area wide traffic calming scheme involving both intersecting streets.
- Can be used on higher or lower volume streets.

#### **Design/Installation**

- Typically rise to sidewalk level.
- Storm drainage modifications as necessary.
- May require bollards to define edge of roadway.

#### **Potential Impacts**

- Effective speed reduction.
- Reduction in mid-block speeds of 10% - 15%.
- No effect on access.
- Good pedestrian safety treatment – makes intersection more pedestrian-friendly.
- Expensive to construct.
- Slows emergency vehicles to approximately 15 miles per hour (MPH).

### **d. NEIGHBORHOOD TRAFFIC CIRCLE**

#### **Description**

- Raised islands, placed in intersections, around which traffic circulates.
- Motorists yield to motorists already in the intersection.
- Requires drivers to slow to a speed that allows them to comfortably maneuver around them.
- Sometimes called intersection islands.

#### **Application**

- Intersections of local residential or minor C2U collector streets. Not intended for streets that are classified as major thoroughfare streets.
- One lane of traffic each direction entering intersection.
- Not to be used at intersections with a high volume of large trucks.

- Effective at solving neighborhood concerns surrounding speeding and traffic accidents.
- Enhances the street environment for non-motorists.

### **Design/Installation**

- Each traffic circle is individually designed to fit the intersection without having to modify the street width or corner radii.
- Traffic circles are circular in shape.
- Usually 13 to 21 feet in diameter.
- Designed to allow fire trucks to pass by them.
- Landscaping is included in all traffic circles. Landscaping plays two important roles, making the circle more attractive to the neighborhood residents and changing the character of the street to make it less appealing for high speed driving. Residents are allowed to add their own low growing plants that will not block pedestrian or driver visibility.

### **Potential Impacts**

- No effect on access.
- Reduction in mid-block speed of about 20%; area of influence tends to be a couple hundred feet upstream and downstream of intersection.
- Landscaping makes traffic circles an attractive addition to a street.
- Accident reduction – intersection collisions have been reduced on average by 70% and overall collision by 28%.
- Emergency vehicles typically slow to approximately 10-15 miles per hour (MPH); approximate delay of between 5 and 8 seconds per circle for fire trucks.
- Large vehicles may need to turn left in front of the circle.
- Landscaping needs to be designed to allow adequate sight distance.

### **e. SPEED BUMPS**

#### **Description**

- Rounded raised areas of pavement typically 12 to 14 feet in travel length.
- Often placed in a series (typically spaced 300 to 600 feet apart).
- Sometimes called road bumps or undulations.

#### **Application**

- Local residential streets only – street cannot be classified as a collector, arterial, major thoroughfare or as a primary route for emergency response vehicles.
- A street with less than 8% grade.
- The street must not have curves that prevent safe placement of the bumps.
- The elevation of property adjacent to a speed bump location must be above top of curb, as determined by the Department of Public Works.
- Used to reduce speed and enhance the street environment for non-motorists.
- No more than one moving lane of traffic in each direction.

#### **Design/Installation**

- Typically 12 to 14 feet in traveled length.

- Speed bump shapes include parabolic, circular, and sinusoidal.
- Speed bump height is 3½ inches maximum.
- Difficult to construct precisely – tolerance of +/- ½ inch on height.
- Signage (advance warning and sign or marker at each bump).
- Pavement markings on each bump (zigzag, shark's tooth, chevron, zebra).
- Taper edge near curb to allow gap for drainage.
- Speed advisory plates mounted to warning sign of 25 miles per hour (MPH).
- Public Works Staff will determine where the speed bumps will be placed on the street.
- Applicants cannot object to the location as to where the speed bumps can be placed on the petitioned street.

### **Potential Impacts**

- No effect on non-emergency access.
- Speeds determined by height and spacing – speeds between bumps have been observed to be reduced between 20% and 25% on average.
- Speeds typically increase approximately ½ or .5 miles per hour (MPH) midway between bumps for each 100 feet of separation.
- Studies indicate that traffic volumes have been reduced on average by 18 percent, depending on alternative routes available.
- Possible increase in traffic noise from braking and acceleration of vehicles.
- Traffic diversions to other residential streets can occur.
- Aesthetics of bumps and associated signs and markings create resident concerns.
- Speed bumps create concerns with emergency vehicle response times (approximate delay of 3 to 5 seconds per bump for fire trucks and up to 10 seconds for an ambulance with a patient).

### **f. SPEED TABLES**

#### **Description**

- Long raised speed bumps with a flat section in the middle and ramps on the ends.
- Sometimes called flat top speed bumps, trapezoidal bumps, speed platforms, raised crosswalks, or raised crossings.

#### **Application**

- Local residential and minor C2U collector streets.
- Typically long enough for the entire wheelbase of a passenger car to rest on top.
- Works well in combination with textured crosswalks, curb extensions, and curb radius reductions.
- Can include a crosswalk.

#### **Design/Installation**

- Typically 22 feet in the direction of travel with 6 foot ramps on each end and a 10 foot flat section in the middle.
- Most common height is between 3 and 4 inches.
- Ramps are typically 6 feet long and are either parabolic or linear.

- Careful design is needed for drainage.

### **Potential Impacts**

- No effect on access.
- Speeds are reduced, but usually to a higher crossing speed than speed bumps (typically between 25 and 28 miles per hour).
- Traffic volumes have been reduced on average by 12% depending on alternate routes available.
- Collisions have been reduced on average by 45% on treated streets.

### **g. CHICANES**

#### **Description**

- A series of narrowings or curb extensions that alternate from one side of the street to the other forming S-shaped curves.
- Also called deviations, serpentine, reversing curves, twists, and staggerings.
- Can be landscaped.

#### **Application**

- Appropriate for mid-block locations only.
- Most effective with equivalent volumes on both approaches.
- Typically is used as a series of at least three curb extensions.

#### **Design/Installation**

- Unless well-designed, chicanes may still permit speeding by drivers cutting straight paths across the center line.
- Shifts in alignment of at least one lane width is recommended and deflection angles of at least 45 degrees along with center islands so that drivers cannot take a straight “racing line” through the feature.

#### **Potential Impacts**

- No effect on access.
- Limited data available on their effect on speed, volume, and collision.
- Street sweeping may need to be done manually.
- Can impact parking and driveway access.
- Provides opportunity for landscaping.
- Emergency response typically prefers two-lane chicanes to speed bumps.

### **Section 10.0 – Level 4 Traffic Calming Measures (Major street changes)**

- Half Closures** – Barriers that block travel in one direction for a short distance on otherwise two-way streets; they are sometimes called partial closures, entrance barriers, or one-way closures (when two half-closures are placed across from one another at an intersection, the result is a semi-diverter).
- Diagonal Diverters** – Barriers placed diagonally across an intersection, blocking

through movement; they are sometimes called full diverters or diagonal road closures.

- c. **Median Barriers** – Raised islands in the centerline of a street and continuing through an intersection that blocks the left turn movement from all intersection approaches and the through movement at the cross street.
- d. **Full Street Closures** – Barriers placed across a street to completely close the street to through-traffic, usually leaving only the sidewalk open, they are sometimes called cul-de-sac or dead-ends.

### **Application**

- Local residential streets only.
- Closures are typically applied only after other measures have failed or been determined to be inappropriate.
- Often used in sets to make travel through neighborhoods more circuitous – typically staggered internally in a neighborhood, which leaves through-movement possible but less attractive than alternative (external) routes.
- Used as a crime prevention tool.

### **Design/Installation**

- Legal issues associated with closing a public street.
- Can be placed at an intersection or mid-block.
- Barriers may consist of landscaped islands, walls, gates, side-by-side bollards, or any other obstruction that leave an opening smaller than the width of a passenger car.

### **Potential Impacts**

- Reduces speed.
- Can achieve a 20% - 70% reduction in traffic volumes.
- Can be landscaped for an attractive effect to convey street discontinuity.
- Improved traffic safety.
- Concern over effects on emergency response, street network connectivity and capacity, and parallel local streets that carry diverted traffic.
- Maintenance of the landscaped area will have to be provided for.
- Loss of on-street parking.
- Inconvenience for local residents who are forced to drive longer, more circuitous paths to/from their homes.

**ATTACHMENT 1**

**ACTION REQUEST FORM  
AND  
SAMPLE PETITION**

# City of North Richland Hills Traffic Calming Action Request Form

We, the undersigned, believe our neighborhood traffic situation warrants the City's Traffic Calming Program. The following signatures represent at least four (4) different residents in the neighborhood indicating the neighborhood's commitment to work with City Staff for a safer traffic environment within our neighborhood. We also understand that Level 1 and Level 2 measures will be tried prior to use of, or discussion of, Level 3 or Level 4 measures, and that if Level 3 or Level 4 measures are permanently installed, the residents of the neighborhood will be responsible for a portion of the installation costs.

Signature	Address	Phone (Day)
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____

Contact Name: \_\_\_\_\_ Phone (Day): \_\_\_\_\_

Address: \_\_\_\_\_ Date: \_\_\_\_\_

Location of Concern (Attach Map): \_\_\_\_\_

What concern do you have at this location: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

After completing this form, please return it to: **Public Works Superintendent/Streets, 7200A Dick Fisher Drive South, North Richland Hills, TX 76180.**

If you have any questions, please call (817) 427-6460.

# CITY OF NORTH RICHLAND HILLS TRAFFIC CALMING PETITION

*The top section to be completed by City Staff*

Petition to modify the traffic flow on \_\_\_\_\_

between \_\_\_\_\_ and \_\_\_\_\_

by the installation of \_\_\_\_\_

at (attach map) \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

**BEFORE YOU SIGN THIS PETITION, KNOW WHAT YOU ARE SIGNING! IT IS RECOMMENDED THAT YOU FIRST READ THE CITY'S TRAFFIC CALMING POLICY.**

We, the undersigned residents of the area shown on the attached map, do petition the City of North Richland Hills to install traffic calming devices as shown on the attached drawing.

All persons signing this petition acknowledge it is the City's policy that they will be responsible for costs directly associated with installing of Level 3 and Level 4 traffic calming measures.

All persons signing this petition do hereby certify that they reside within the area impacted by the proposed traffic flow change as shown on the attached map.

Designated Contact Person: \_\_\_\_\_ Phone: \_\_\_\_\_

<u>Print Name</u>	<u>Signature</u>	<u>Street Address</u>	<u>Phone</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____



**ATTACHMENT 2**

**TRAFFIC CALMING MEASURES**

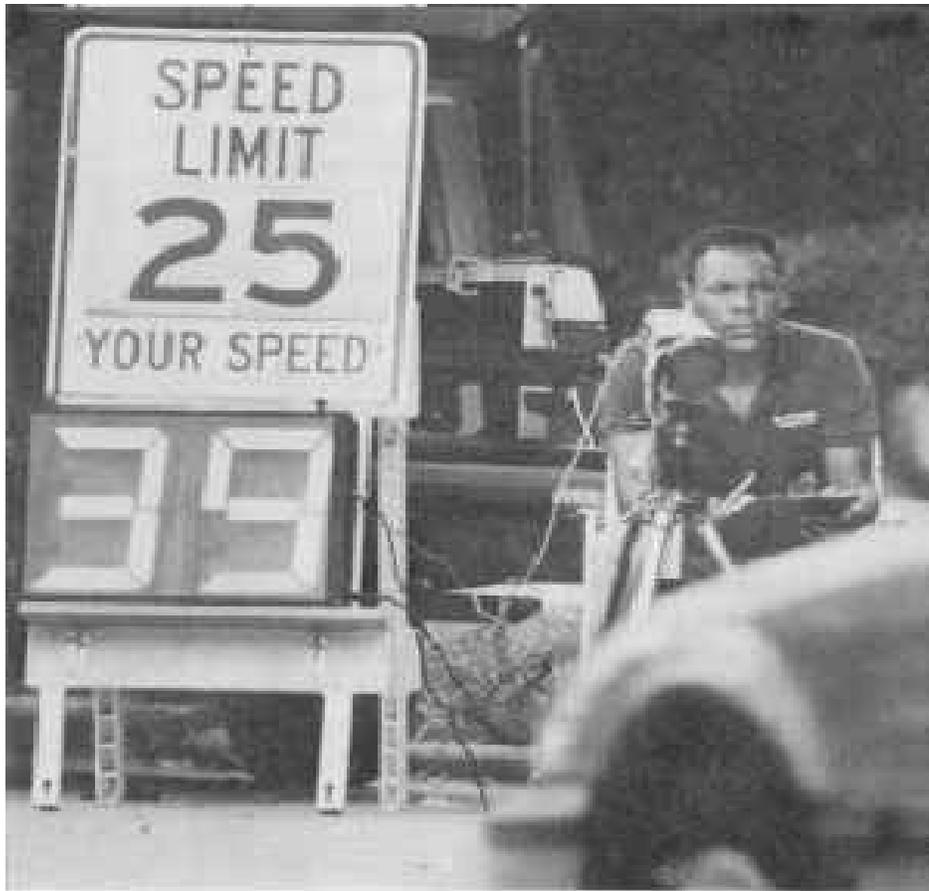
## CITY OF NORTH RICHLAND HILLS PUBLIC WORKS DEPARTMENT TRAFFIC CALMING MEASURES

Level	Traffic Calming Measure	Speed Reduction	Volume Reduction	Noise Pollution	Loss of On-Street Parking	Access Restriction	Emergency Vehicle Response Impacts	Increase In Street Maintenance	Cost
1	Neighborhood Speed Watch Program Page 7	Yes	No	No Change	None	None	None	No	\$100- \$500
1	Police Enforcement Page 7	Yes	Possible	No Change	None	None	None	No	N/A
1	Radar Trailer Page 7	Possible	No	No Change	None	None	None	No	N/A
2	Rumble Strips Page 8	Yes	Possible	Yes	None	None	None	Yes	\$2,000
3	Minor Street Changes Page 8	Yes	Yes	Increase/ Decrease	Yes	Yes	Yes	Yes	\$10,000- \$50,000
4	Major Street Changes Page 13	Yes	Possible	No Change	Yes	None	Some Constraint	Yes	\$15,000- \$50,000

**\*\*SELECTION OF TRAFFIC CALMING MEASURES WILL BE DETERMINED BY CITY STAFF.**

**ATTACHMENT 3**

**PICTURES AND DIAGRAMS**



# **Neighborhood Speed Watch Program**



# Police Enforcement

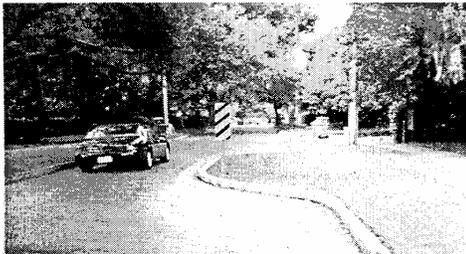
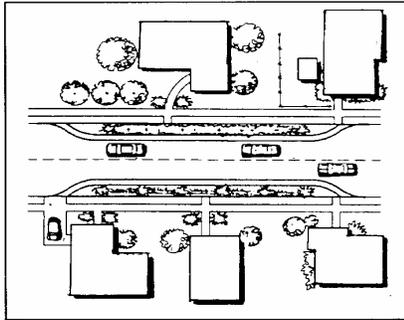


# Radar Trailer



# Rumble Strips

**CHOKERS**  
(pinch points, midblock narrowings, midblock yield points, constrictions)

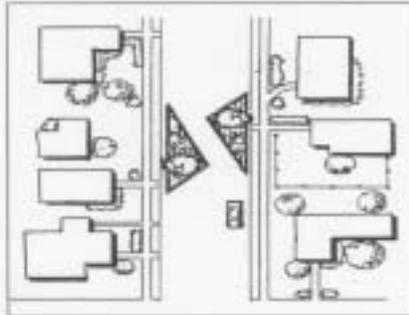


**CHOKERS**



# Center Island

**OTHER SPEED CONTROL MEASURES**  
(various names and designs)



Intersection Rumble Strips.



Hammerhead.



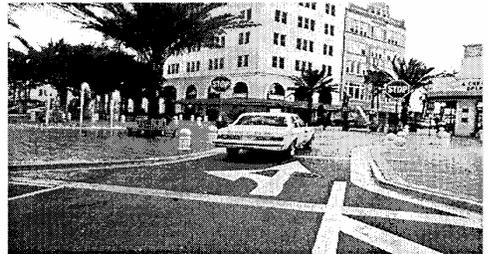
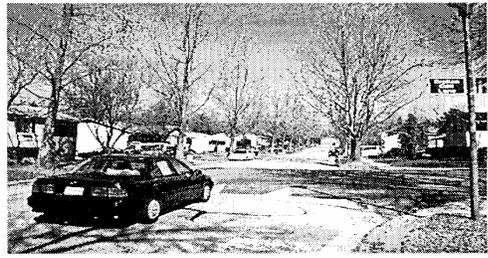
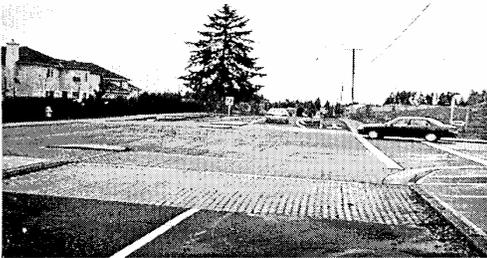
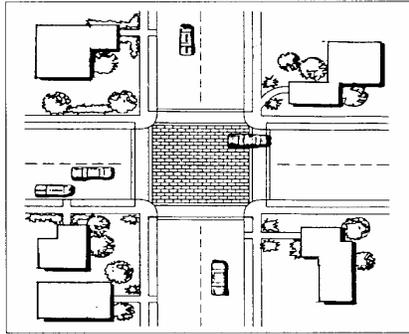
Angle Point.



Lateral Shift.

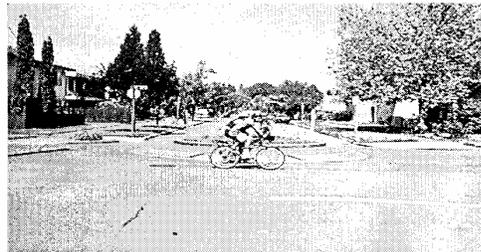
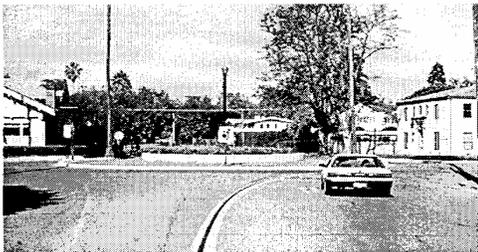
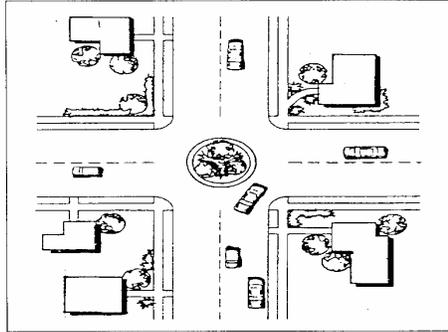
**ANGLE POINTS/  
RUMBLE STRIPS**

**RAISED INTERSECTIONS**  
(raised junctions, intersection humps, plateaus)



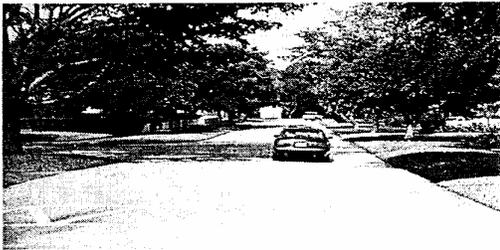
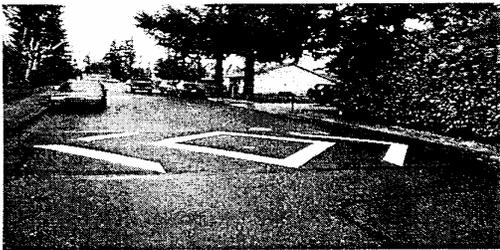
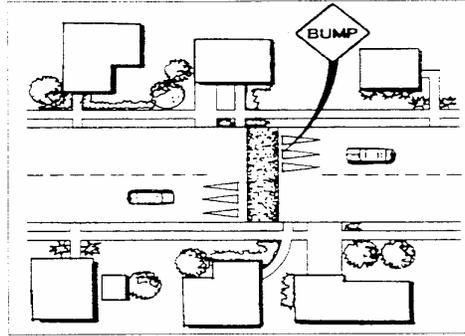
**RAISED INTERSECTIONS**

**NEIGHBORHOOD TRAFFIC CIRCLES**  
*(intersection islands)*



**NEIGHBORHOOD  
TRAFFIC CIRCLES**

**SPEED BUMPS**  
(road humps, undulations)

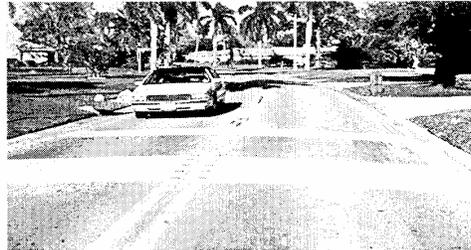
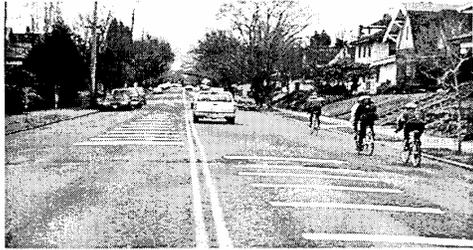
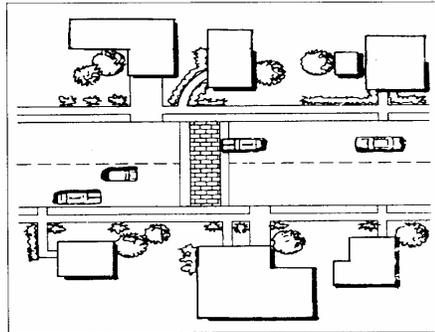


**SPEED BUMPS**



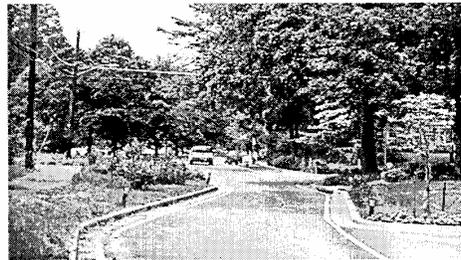
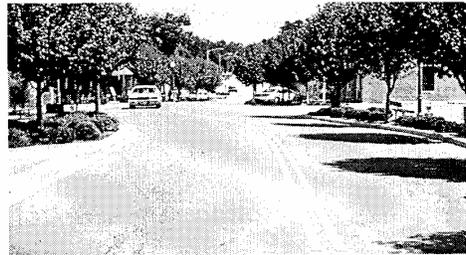
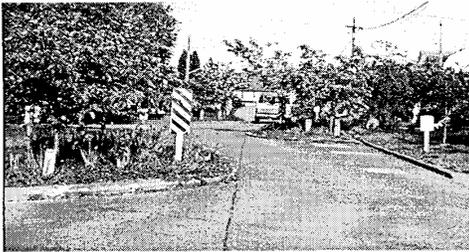
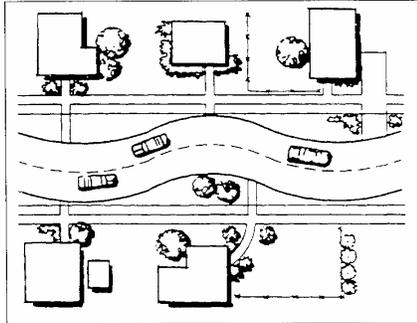
# Rubber Speed Bumps

**SPEED TABLES**  
(trapezoidal humps, speed platforms)



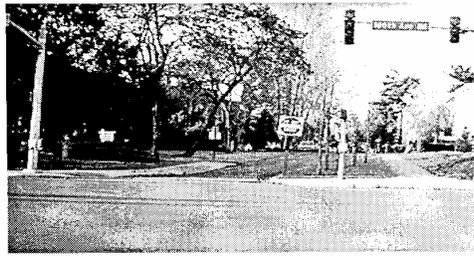
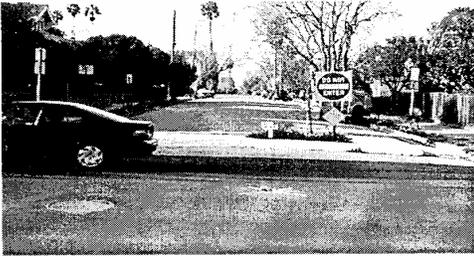
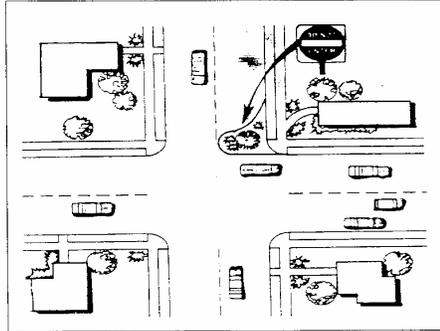
**SPEED TABLES**

**CHICANES**  
(deviations, serpentine, reversing curves, twists)



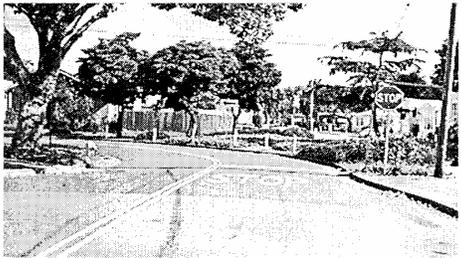
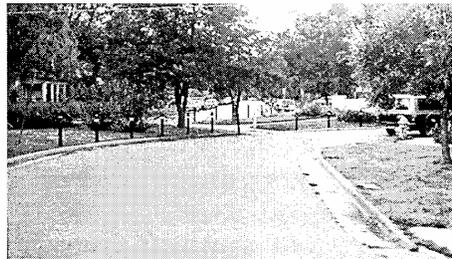
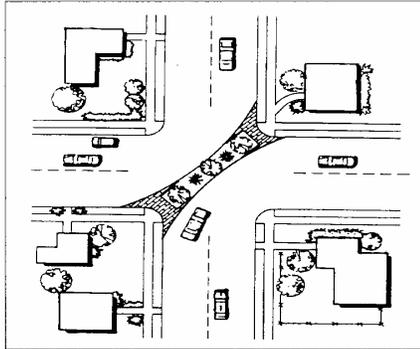
**CHICANES**

**HALF CLOSURES**  
(partial closures, one-way closures)



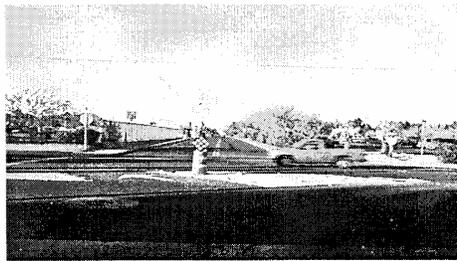
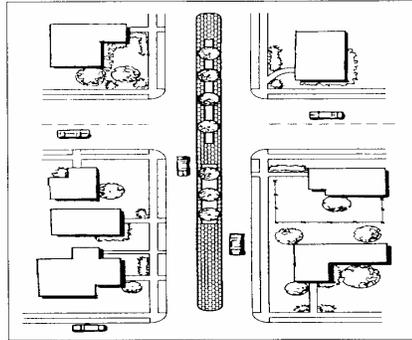
**HALF CLOSURES**

**DIAGONAL DIVERTERS**  
(full diverters, diagonal road closures)



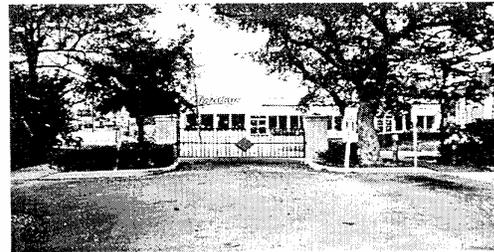
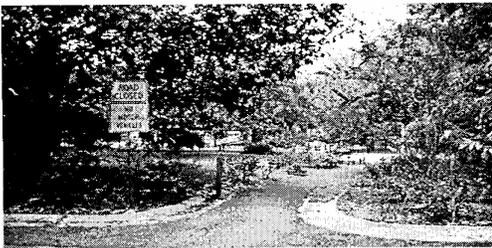
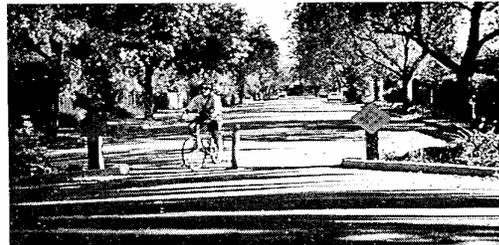
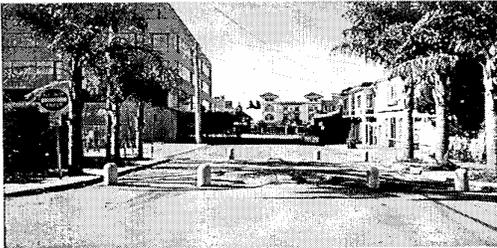
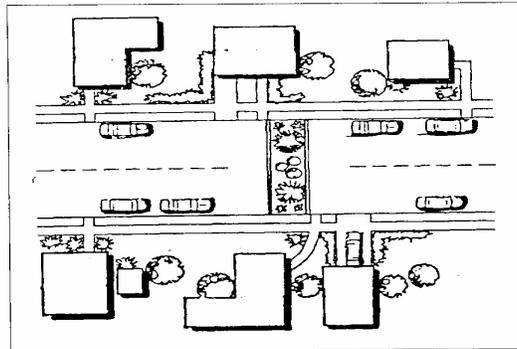
**DIAGONAL  
DIVERTER CLOSURE**

**MEDIAN BARRIERS**



**MEDIAN  
BARRIER CLOSURE**

**FULL CLOSURES**  
(cul-de-sacs, dead ends)



**FULL CLOSURES**