



## **Introduction to Residential Traffic Control and Safety Concerns**

Streets are public spaces for many activities and functions. They permit the diffusion of light and circulation of air. They offer opportunities for providing landscaped vistas, trees and shrubs, paths for walking, places for talking, rights-of-way for utilities, and--among all these other activities--facility for the movement, stopping, and storage of motor vehicles. Some streets open up into squares, others narrow into alleys. Some achieve fame or notoriety, most are known only to their residents and those who pass through regularly.

The first function of residential streets is to serve the land that abuts them. They provide for access to homes by all who enter and leave, and all who deliver and collect. But they are also routes for those who wish only to pass through the area. It is here that conflict arises, for there is a basic discrepancy between the impact of vehicular traffic and the tranquillity of a residential street. The inherent kinetic energy of a moving vehicle produces noise, and contact with a hapless person, a fixed object, or another vehicle may cause a disastrous dissipation of that energy. If propelled by an internal combustion engine, the vehicle emits noxious and polluting fumes. If parked, it takes up space and blocks views and sight lines.

The street might well be a place not only for walking and mechanical transportation, but also for social activities: outdoor play of young children in front of their homes, the elderly sunning themselves on park benches, residents crossing to drop in on neighbors, joggers and cyclists partaking of healthful exercise. All of these and more activities are imperiled by fast or heavy traffic streams.

Three specific forms of "unwanted traffic" are recognized on residential streets:

- Traffic using the streets as shortcuts, detours or overflows from a congested arterial.
- Excessive traffic speeds.
- Use of curb parking spaces by drivers whose destinations are outside the neighborhood.

Often, such intrusion is possible because the geometry of street networks and of individual streets was fixed long before such conflicts had been visualized. But even "modern" residential subdivision streets may experience neighborhood traffic problems. While newer designs may have mitigated the problem of unwanted through traffic, they

have, with their generous radii of curvature and ample parking lanes, done little to reduce problems of speeders and unwanted parkers.

The pervasive conflict between traffic and residential uses has been tolerated to a greater or lesser degree throughout the world. However, demands of residents for amelioration of their environment have been growing; since 1960, considerable literature in the planning and transportation fields has been devoted to analyzing the problem and outlining possible solutions.

In moving toward a solution to neighborhood traffic problems, the skills of the politician, lawyer, and budget analyst are often needed. But the solutions tend to be those of planning, design, and operations.

The urban planner will bring to this effort a recognition of the importance of healthy, vital residential neighborhoods to the well being of the urban environment, as well as an understanding of the social role of the street in the daily life of its residents. The traffic engineer will recognize the role of the street as an artery and as a foot and cycle path, and the relevance of residential street problems to the basic goals of traffic control, which are to enhance:

- safety
- efficient movement of vehicles consonant with local conditions and the safety objective
- environmental goals, such as accessibility for local traffic, minimization of unnecessary traffic, and encouragement of changes in modal choice where this promotes the quality of life and/or specific objectives of a neighborhood

The residents must be part of the process; their contribution is the articulation of values and priorities, their response to proposed plans and designs--perhaps offering ingenious alternatives of their own--and their willingness to assist in the eventual implementation.

Neighborhood traffic management does require ways of thinking that may be new to both planners and engineers. Planners, who have usually focused on land uses, will find a need to pay closer attention to the traffic impacts of their work. Engineers, whose tradition has emphasized maximizing capacity and offering fast, direct routes for the movement of vehicles, will need to give greater consideration to the effects of transportation operations on affected land uses. Both will need to learn to work together

to produce coordinated, effective strategies that simultaneously protect residential districts and offer a safe, convenient, efficient circulation system.

Often, opportunities arise to design a new residential neighborhood. Probably even more frequently there may be a call to redesign an old one and to retrofit it with changed geometric street and intersection design elements and with changed traffic controls.

The basic problem is not limited to any one town, city, state or even country. It is recognized that legal systems, political institutions, and economic conditions vary greatly. It is a challenge to enhance the quality of life on and around residential streets by the use of creativity and imagination.

Source: Institute of Transportation Engineers

## EDMOND

### Residential Traffic Control

#### Management Program

August 1996

#### **A. General**

Good transportation is essential to the life and development of an urban community. Today it is not enough to keep citizens informed of what their public servants are doing about street transportation, and why they are doing it, the citizens want more. Citizens want evidence that their concerns are receiving serious consideration and that actions are being taken; they want to have a significant part in the decision-making process.

The City of Edmond receives many complaints about speeding vehicles on residential streets and is inundated with requests to post stop signs in an effort to “slow” down speeders. Many citizens have concerns about the lack of safety for their children and their neighbors due to this problem. While police enforcement remains the most effective way to deal with speeders, police resources are limited and they cannot cover the entire problem areas at all times.

In response to this concern, the City has developed a *Residential Traffic Control Management Program* in order to minimize speeding, encourage, and promote safety. This program provides an opportunity for residents to participate in a process that leads to the installation of traffic safety improvements.

In order for improvements to be effective, they should be located selectively in accordance with defined transportation engineering criteria for the purpose of ameliorating documented problems. Proper installation will also minimize driver frustration and encourage safe driving practices.

The following “Traffic Safety Improvements” are appropriate devices for physically restricting vehicle movements and in some cases reducing vehicle speeds on certain types of streets when installed in accordance with this program. The following improvements are not all inclusive.

- Chokers

A choker is a narrowing of a street, either at an intersection or at a midblock location, in order to reduce the width of the traveled way. Chokers reduce the distance over which pedestrians are exposed to vehicular traffic, and provide areas for people to walk or areas for landscaping thereby improving the appearance of the neighborhood.



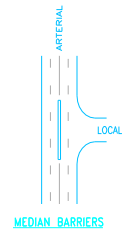
- Traffic Circles

A traffic circle is usually 10 feet in diameter and installed in the middle of an intersection of two local streets, requiring vehicles into a weaving maneuver.



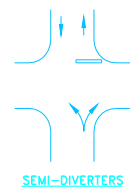
- Median Barriers

Median barriers are used at the intersection of a major street (arterial) and a minor street (residential) to make all left turns and the through movements on the minor street impossible. Median barriers which reduce accessibility to neighborhood streets may exclude a driver, which formerly used the street as a speedy shortcut.



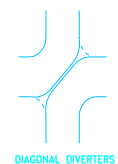
- Semi-diverters

A semidiverter is a barrier to traffic in one direction of a street which permits traffic in the opposite direction to pass through. It is a physical reinforcement to the “Do Not Enter” sign. It is an alternative to using a one-way street designation for the same block, and allow residents on the block limited two-way travel opportunity.



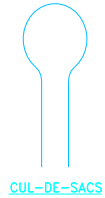
- Diagonal Diverters

A diagonal diverter is a barrier placed diagonally across an intersection to convert the intersection into two unconnected streets, each making a 90 degree turn. The primary purpose of a diagonal diverter is to break up through traffic, making travel through a neighborhood difficult, while not actually preventing it.



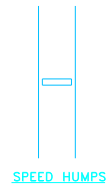
- Cul-de-sacs

An intersection cul-de-sac is a complete barrier of a street at an intersection, leaving the block open to local traffic at one end, but physically barring the other. A cul-de-sac placed within a block (midblock), rather than at one end, performs the same function as an intersection cul-de-sac.



- Speed Humps

Speed humps are used for the primary purpose of reducing vehicle speeds. It is not the typical *bump* you see in a shopping center parking lot. They are raised areas in the pavement surface extending across the traveled way. They are usually 8 to 12 feet in length and about 3 to 4 inches high. The ends are tapered to be flush with the street at the curbs and gutter to allow water to drain.



- Raised Intersections

The entire intersection is raised 3 to 4 inches above the normal grade level, with ramps to conform to the grades of the adjacent streets.

## **B. Eligibility Requirements**

The following criteria must be satisfied for a street to be considered eligible for traffic safety improvements; in lieu of or after conventional traffic control devices that are requested are determined to be unwarranted based on the Manual of Uniform Traffic Control Devices (MUTCD).

1. The existing traffic control devices (if any) on the street in question will be evaluated to determine whether the devices conform to the MUTCD.
2. Any existing devices that do not conform to the MUTCD will be removed after the new improvements are installed.
3. The street must be used to provide access to abutting low-density residential (local residential streets) properties and/or to collect traffic for such streets (residential collector).
4. Traffic volumes must exceed 500 vehicles per day but less than 4000 vehicles per day.
5. There must be no more than one moving lane of traffic in each direction.
6. The street must have a 85 percentile speed exceeding 25 mph. The 85<sup>th</sup> percentile speed is that speed below which 85% of all traffic travels. It is an accepted principle that the majority of drivers on a roadway select safe and proper speeds based on roadway and traffic conditions. For determining a speeding problem on a specific roadway, the 85<sup>th</sup> percentile speed is often used because it is on the high end of a “normal” bell curve distribution. Typically, recorded speeds above the 85<sup>th</sup> percentile occur much less frequently than the speeds below it because the highest speeds are often erroneous readings or the result of a few drivers who are either unperceptive of roadway conditions or irresponsible. The generally accepted traffic engineering practice is to set speed limits at the nearest increment to the 85<sup>th</sup> percentile speed unless other considerations such as accidents and real dangers not perceivable by drivers may indicate the need for a lower speed limit. Since speed limits are generally set using the 85<sup>th</sup> percentile, it is expected that 15% of the vehicles will exceed the speed limit on a regular basis.
7. The street must not be scheduled for resurfacing within the next two years.

## **C. Cost Responsibility**

The entire cost of any traffic safety improvement, which is not consistent with the MUTCD, is the residents’ responsibility. The cost for transportation engineering studies and maintenance of the improvements is the responsibility of the City. The term resident, when used in cost sharing, does not necessarily refer to the petitioners. It is used to define the share of the cost that **is not** the responsibility of the City and could be paid by one or more of the residents or from other private sources.



#### **D. Removal or Alteration of Improvement**

The process of removal or alteration is the same as the process for installation. The cost is the residents' responsibility. Any device installed will be maintained by the city and no person or persons have the authority to remove or alter the devices in any way.

#### **E. Improvement Location**

The improvement will not be located in front of a property if the occupant objects to its placement. Fulfillment of this requirement is the responsibility of the applicant(s).

#### **F. Design Standards and Procedures**

The City Engineering Department shall prepare and maintain current design standards and installation procedures for traffic safety improvements in accordance with this program.

## PROCEDURES FOR INSTALLATION

1. A written request from a citizen, homeowners association or representative must be forwarded to:

Traffic Planner  
Engineering Department  
City of Edmond  
PO Box 2970  
Edmond Oklahoma 73083-2970

2. A determination of eligibility will be made based on available or collected traffic data. If the street is determined not eligible the applicant(s) will be notified in writing giving the reason. If the street is eligible for consideration, a meeting will be arranged between the applicant and the city staff to define the problems and discuss solutions. Follow up meetings will be held if necessary.
3. It is the responsibility of the applicant to provide a signed petition indicating seventy-five percent of the residents agree to, and approve of, the proposed improvements. All petitions will be provided to applicant by the city. If the improvements are throughout the entire subdivision, seventy-five percent of all residents must sign the petition. If the improvements are proposed on only one street, then seventy-five percent of residents addressed on that street must sign the petition. If the improvements are proposed on a small portion of a long street, then 75 percent of the residents in that portion must sign the petition.
4. Upon receipt of the petition, staff will verify the legitimacy of signatures and conduct any additional traffic studies.
5. After all parties agree on the type of improvements, location of improvements, and cost of improvements the city will mail a notification to the homeowners. The notification will include a return form to indicate support or objection to the proposed improvements. Seventy-five percent of the residents must be in favor of the proposed improvements.
6. The City will prepare a detailed cost estimate and forward it to the applicant.
7. Upon receipt of payment of the cost, the improvements will be installed as scheduling permits. If payment is not received within one year from the statement date the proposed improvements will be canceled.