Neighborhood Traffic Management Program
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DEFINITIONS

85th Percentile Speed – Speed at which 85% of the traffic is traveling at or below.

ADT – Average daily traffic volume of a roadway, typically measured during a weekday.

Alignment – The horizontal alignment of a roadway is compromised of curves and tangents (straightaway).

Alley – A narrow service way that provides a permanently reserved but secondary means of public access not intended for general traffic circulation; typically located along rear property lines.

Appeal – The process by which an individual, group or entity obtains formal review of a decision.

Approach Volume – The volume of traffic that approaches an intersection.

Arterial – Major roadway mainly serving through-traffic; takes traffic to and from expressways and freeways; provides access to adjacent properties.

Capacity – The number of vehicles that can traverse a point or section of a lane or roadway during a set time period under prevailing roadway, traffic, and control conditions.

Chicanes – curb extensions that alternate from one side of the roadway to the other, forming an s-shaped curve.

Chokers – Narrowing of a street at an intersection, mid-block or a segment of a street in order to reduce the width of the travel way by construction of a wider sidewalk or landscape area.

Collector Street – Roadway that collects and distributes local traffic to and from arterial streets, and provides access to adjacent properties within a neighborhood.

Diverters – Barriers placed diagonally across an intersection, blocking certain movements.

Dynamic Speed Limit Sign – Displays the speed of the approaching vehicle.

Grade – The degree of inclination of the roadway.
Intersection – Any at grade connection with a roadway, including two roads or a driveway and a road.

Median – That portion of a divided highway separating the opposing traffic flows. A median may be traversable or non-traversable.

Neck-downs – Physical curb reduction of the roadway width at an intersection by widening of the street corner.

Non-traversable Median – A physical barrier in a roadway or driveway that separates vehicular traffic traveling in opposite directions. Non-traversable medians include physical barriers (such as a concrete barrier, a raised concrete curb and/or island, and a grass or a swale median) that prohibit movement of traffic across the median.

Pace speed – A 10 mph speed range containing the largest number of vehicles.

Parkway – An area between the edge of pavement and the right-of-way which is typically reserved for a landscape buffer or utilities.

Projected Traffic Volumes – The number of vehicles that are expected/calculated to exist on streets after completion of the project.

Residential Driveway – Provides access to a single-family residence, a duplex, or a multi-family building containing five or fewer dwelling units.

Right-of-Way (ROW) – A general term denoting land, property, or interest therein acquired for and devoted to transportation purposes.

Roadside Friction – Describes the density of the development adjacent to the roadway that generates traffic which effects traffic flow on the roadway.

Sight Distance – The distance visible to the driver of a passenger vehicle measured along the normal travel path of a roadway from a designated location and to a specified height above the roadway when the view is unobstructed by traffic.

Speed Cushions – A series of three small speed humps extending across a roadway that reduces vehicle speeds, but allows for emergency vehicles to straddle them as to not slow response time.

Speed Hump – A raised pavement area extending across a roadway for the purpose of slowing or discouraging traffic.
Stopping Sight Distance (SSD) – The distance required by a driver of a vehicle, traveling at a given speed, to bring the vehicle to a stop after an object on the roadway becomes visible.

Study Area – The boundaries in which the traffic study is conducted. An example if a study area is shown in Appendix D.

TMUTCD – TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES provides standards, guidance, and options for traffic control devices on public roadways.

Traffic Calming – Combination of mainly physical measures that alter driver behavior by reducing speeding or cut-through traffic.

Traffic Circle – A small circular island placed in the center of an existing street intersection. Some may also be referred to as a roundabout.
CHAPTER 1

INTRODUCTION

Local and collector neighborhood streets are multipurpose roadways, shared by pedestrians, bicyclists, passenger vehicles, public transit, and trucks. On a majority of neighborhood streets, these various users exist harmoniously. However, traffic problems can arise. These problems are often related to traffic volume, vehicle speed, roadway geometry, and vehicle / pedestrian conflicts. The Neighborhood Traffic Management Program was created to address these traffic problems in the residential areas throughout McKinney.

GOALS OF THE PROGRAM

Our primary goal is to design and create streets that are attractive, functional and safe. In order to meet this goal, it may be necessary to modify driver behavior through revisions to the street environment. The Neighborhood Traffic Management Program integrates street design with the local environment through an emphasis on community-based solutions that improve safety.

The Neighborhood Traffic Management Program goals:

- Promote public awareness with respect to causes and appropriate solutions for neighborhood traffic problems.

- Identify the roles of residents, resident representatives, and the City of McKinney in addressing traffic-related issues in neighborhoods and encourage neighborhood involvement as part of the solution to traffic-related problems.

- Create clear policies and guidelines for submission of resident traffic requests and the processing of those requests by City staff.

- Discuss advantages/disadvantages of potential solutions for traffic problems.

There are seldom simple solutions to the problems addressed in this document. For example, the Police Department does not have the resources to issue citations for every speeding or parking violation that occurs. Additionally, the need for short response times by emergency vehicles can be in conflict with local
residents' desires to make speedy travel on a street impossible. These are complex issues that have to be looked at from many different perspectives to come up with balanced solutions. The City of McKinney intends to establish a framework through this program that allows constructive relationships between local residents and the City for solving traffic-related problems in neighborhoods.

OVERVIEW OF POLICIES AND PROCEDURES

The City of McKinney receives an increasing number of requests each year from residents dealing with traffic-related issues. Neighborhood traffic issues generally fall into four categories:

1. Vehicles exceeding the legal speed limit
2. Cut-through traffic
3. Parked cars impeding the traffic flow
4. Occurrence of accidents or "near" accidents

The City of McKinney has adopted the following traffic management strategies, recommended by the Institute of Traffic Engineers (ITE)¹, for handling identified traffic concerns such as those mentioned above:

- Establishing (or revising) and enforcing general laws and ordinances pertaining to speed limits, intersection control, and parking regulations.
- Educating residents to better understand the causes of traffic problems, potential solutions to those problems, and the advantages/disadvantages of implementing these solutions.
- Installing traffic control devices that provide specific regulatory, warning, or guide messages to motorists judiciously and in conformance with the TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
- Installing traffic calming design features that manage the physical movement of vehicles or pedestrians within the roadway or within a neighborhood when the first three strategies have proven ineffective.

When a potential traffic-related problem is reported to the City of McKinney or is observed by City Staff, the first step that the City will take is to quantify the

situation. Depending on the site-specific circumstances, one or more of the following pieces of information will be required to fully assess the situation: traffic volume counts, traffic speed assessments, accident records, and reports of problems from City staff (e.g., traffic citations, difficulties responding to emergency calls, enforcement requests).

This information will be used to evaluate traffic requests and identify potential solutions to the problem.

If speeding is reported, staff will review the collected information and verify the speed limit, which is set by City ordinance. The next step would be to evaluate the problem in terms of the traffic management strategies described previously. The Police Department would be informed of the speed data and determine if an increased enforcement presence should be attempted. The installation of specific warning, regulatory, or guidance signage or markings could also be considered by the Engineering Department at this time.

If the actions described above are not effective in reducing the speeding problem, the Engineering Department would consult with neighborhood representatives to help establish a Neighborhood Traffic Volunteer Program. In this program, volunteers would pass out flyers around the neighborhood informing residents of the specific traffic problems that are occurring and behaviors that are needed to correct the problems. Any flyers will be prepared by neighborhood representatives with assistance from the Engineering Department.

The site could be eligible for installation of traffic calming devices to attempt to reduce vehicle speeds. The specific guidelines for the installation of traffic calming devices are presented in Chapter 4. In general, for a specific device to be installed, the following must occur:

1. The Engineering Department must determine the appropriate device for the identified problem.

2. The Engineering Department must determine where the proposed device should be located.

3. Residents potentially affected by the installation must indicate that they support the proposed location and installation of the device through a survey / petition prepared by the City of McKinney. The survey / petition would be distributed by a neighborhood representative. The survey will also contain information about any funding responsibilities the residents have for the installation of the device.
CHAPTER 2

TRAFFIC CONTROL DEVICES

The City of McKinney has the authority to set speed limits, locate intersection controls (stop signs and traffic signals), and designate areas for parking restrictions by ordinance. The Transportation Manager or designee recommends traffic control devices which are in compliance with the TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD). The TMUTCD provides statewide standards, guidance, and options for traffic control devices on public roadways. To be effective, traffic control devices should meet five basic requirements:

1. Fulfill a need
2. Command attention
3. Convey a clear, simple meaning
4. Command respect from roadway users
5. Give adequate time for proper response

The decision to use a traffic control device should be made on a basis of either an engineering study or the application of engineering judgment.

SPEED LIMITS

According to the TMUTCD, the following factors should be considered in an engineering investigation to determine the proper speed limit:

1. Road surface characteristics, shoulder condition, grade, alignment, and sight distance

2. The 85th percentile speed* and pace speed

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* The 85th percentile speed is the speed at which 85% of the drivers do not exceed on a specific road. This factor is used as the standard to establish speed limits on existing streets. The 85th percentile speed is used as the benchmark at which most drivers are comfortable driving. It is also deemed as the reasonable, prudent, and safe speed at which to drive on a roadway.
3. Roadside development and culture, and roadside friction

4. Safe speed for curves or hazardous locations within the zone

5. Parking practices and pedestrian activity

6. Reported accident experience for a recent 12-month period

By Texas motor vehicle laws and City ordinance, the prima facie speed limit on City streets is 30 miles-per-hour (mph), unless there is a specific ordinance that designates a different speed limit on a street. The City of McKinney utilizes the following speed limits on streets throughout the City in compliance with the TMUTCD, State law, and established roadway design criteria and factors:

- On local residential streets, 30 mph
- On collector streets, 30 – 35 mph
- On arterial roadways, 40 – 45 mph
- In school zones during designated hours, 20 mph

The Texas Department of Transportation sets speed limits on State-maintained roads within the City. The speed limit in public alleys has been designated as 10 mph. The City of McKinney generally does not install speed limit signs on residential streets since most drivers are aware of State Law. Also, the 30 mph provision signs can detract from the aesthetic appeal of a neighborhood and overuse of speed limit signs limits their usefulness.

When a significant percentage of vehicles utilizing a roadway appear to exceed the speed limit, the Engineering Department can determine if a speeding problem exists by conducting a traffic study. A speeding problem is indicated on a residential street when the 85th-percentile speed is equal to or greater than 5 mph over the legal speed limit. If a speeding problem is determined from the traffic study, three potential steps will be taken to address the problem:

1. The Police Department will be informed of the problem and increased enforcement of the existing speed limit may be implemented.

2. The Engineering Department will determine if additional signage is needed, such as speed limit, warning signs, or pavement markings. Driver feedback signage can be installed temporarily on site. Guidelines for the installation of signage and markings are discussed later in this chapter.
3. The Engineering Department will consult with neighborhood representatives to set up a Neighborhood Traffic Volunteer Program. Details of this program are discussed in Chapter 3.

A street will be eligible for reevaluation of the speed limit on an annual basis or as changing roadway conditions dictate. All traffic studies are conducted in accordance with established engineering practices and guidelines.

KEEP KIDS ALIVE DRIVE 25 PROGRAM

This program is a non-profit organization founded in 1998 in Omaha, Nebraska and is a safety campaign educating neighborhood residential drivers to observe the speed limit. The neighborhood residents would be able to purchase the speed limit signs through the Keep Kids Alive website, and have the signs installed on their property. The 25–mph informational signs will not be enforceable.

INTERSECTION CONTROLS

Intersection controls establish the right-of-way for motorists, improve traffic flows, and reduce intersection delays. Examples of intersection control include yield signs, stop signs, traffic signals, and turn prohibition signs. The TMUTCD has very specific guidelines and criteria for the proper use and placement of intersection controls. For instance, the TMUTCD states that stop signs should not be used for speed control.

Requests for review of intersection controls will be referred to the Engineering Department. A traffic study will be conducted to determine if a change of traffic controls is warranted at an intersection utilizing the criteria in the TMUTCD. The traffic study will include the measurement of traffic volumes on all approaches, sight distance, motor vehicle delay, and accident records for the intersection. If the Engineering Department determines that changes to the controls at an intersection are warranted, appropriate action will be taken.

PARKING RESTRICTIONS

Traffic problems can also be caused by parking practices. For instance, traffic around schools can be problematic if parents double park or stand in driveways while dropping children off or picking them up. Parking restrictions may become necessary to keep streets open for emergency vehicles, or address sight visibility problems.
Most residential streets are designed to have on-street parking on both sides of the streets and one through traffic lane in the center. On-street parking has an added benefit of lowering traffic speeds on residential streets. Wide open streets tend to encourage drivers to drive more quickly.

Requests for parking restrictions will be referred to the Engineering Department. The Engineering Department will examine the situation and consult with the Public Safety Departments to determine if emergency service vehicles have been experiencing problems or if potential problems exist.

WARNING AND GUIDE SIGNS

Most traffic controls involve the use of signs (for example, stop signs, no parking signs, or speed limit signs). In addition, a number of warning and guide signs, such as "Dead End", "No Outlet", or street name signs, are also available for use by the City. The City of McKinney complies with the TMUTCD for proper size, pattern, and location of all traffic signs.

As mentioned in the speed limit section of this chapter, the City of McKinney does not place speed limit signs on all streets because sign installation and maintenance are costly, signs can detract from the aesthetic appeal of a neighborhood, and the overuse of speed limit signs limits their usefulness. The same philosophy applies to the use of other signs. The City of McKinney Engineering Department must carefully examine each request for signage to determine if it complies with the TMUTCD.

Requests for installation of traffic signs will be processed in the order they are received and as resources become available to investigate and perform the study.

PAVEMENT MARKINGS

Pavement markings enhance roadway delineation. The addition of audible and tactile features such as centerline stripes or raised reflective buttons alert the driver of his/her travel path.

Requests for installation of pavement markings will be processed in the order they are received and as resources become available to investigate and perform the study.
CHAPTER 3

RESIDENT ROLES IN THE NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM

Two of the goals of the Neighborhood Traffic Management Program are:

1. Promote public awareness as to the causes of and appropriate solutions to neighborhood traffic problems

2. Encourage residents to take an active role in achieving the solutions for neighborhood traffic problems

Neighborhood traffic problems are often complicated issues that require a great deal of patience and hard work to solve. When the City determines that measures are needed to solve a problem, support of the affected residences will be needed before proceeding.

NEIGHBORHOOD TRAFFIC VOLUNTEER PROGRAM

Upon completion of the traffic study, a City representative will review the findings of the study with neighborhood representatives. If remedial action is recommended, a Neighborhood Traffic Volunteer Program (NTVP) may be formed. If the neighborhood has an already established Homeowner's Association (HOA), the HOA will serve as the NTVP.

The intent of the NTVP is to assist in solving of traffic problems within their neighborhoods. The most successful programs are a shared effort with all the parties involved. The main responsibility of neighborhood volunteers will be to pass out information about the specific traffic problems and, if applicable, how neighborhood residents can help to correct the problems.

SURVEYS / PETITIONS

Circulation of surveys / petitions are an effective method to gage neighborhood support for a change in traffic control. When streets or alleys are to be physically altered by a traffic calming project, neighborhood representatives will pass out a two part survey prepared by the City of McKinney. The survey must be
distributed to potentially affected residents to determine the level of support for the proposal.

The survey will detail what devices are under consideration, their proposed locations, the potential advantages and disadvantages of the device, and what funding is required from the neighborhood. Completed surveys will be returned to the City of McKinney for validation and further processing. Survey requirements are discussed in detail in Chapter 4.

Requests for removal of traffic calming devices must follow the same survey process used by the residents for installation of the traffic calming device.

FUNDING FOR INSTALLATION OF TRAFFIC CALMING DEVICES

When the installation of a traffic calming device is appropriate to address an identified traffic problem, it will be the responsibility of neighborhood representatives to gather the neighborhood signatures and any funding share for the project. The level of funding participation is determined based on the measured 85th percentile speed. All neighborhood funds must be provided to the City in the form of a cashier's check prior to preparation of the work order for installation. Timing for receipt of neighborhood funds is detailed in Chapter 4. If a neighborhood is requesting that a device be removed, funding for the removal must be gathered in the same manner as its installation.

The cost of installation of a traffic calming device can be very expensive. A typical speed cushion may cost $3,000 to procure and install the device at each location. More elaborate curb and median modifications can easily cost more than $10,000 per installation.

The cost of the traffic calming devices may be shared between the City and the residents according to the measured speed. The cost sharing is as follows:

Cost Sharing Table

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<tr>
<th>85th percentile speed</th>
<th>Resident's cost share</th>
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<tbody>
<tr>
<td>33 mph</td>
<td>90%</td>
</tr>
<tr>
<td>34 mph</td>
<td>80%</td>
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<tr>
<td>35 mph</td>
<td>70%</td>
</tr>
<tr>
<td>36 mph</td>
<td>50%</td>
</tr>
<tr>
<td>37 mph</td>
<td>50%</td>
</tr>
<tr>
<td>38 mph or above</td>
<td>0%</td>
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</tbody>
</table>
For a street located in the Community Development Block Grant (CDBG) area, the cost responsibility of the residents is 0%, regardless of the measured speed exceeding the speed limit. The cost of the transportation engineering studies and maintenance of the traffic calming device is the responsibility of the City, excluding any landscaping. Landscaping will be the responsibility of the HOA.

If the City traffic calming funds have already been exhausted in the current budget year, the neighborhood may elect to pay for the entire cost of the traffic calming devices. Or, the approved project will be placed on a waiting list and implemented when City traffic calming funds are available for the project.
CHAPTER 4

TRAFFIC CALMING DEVICES

Traffic calming devices are physical measures that alter driver behavior, and improve conditions for the non-motorized street users. Traffic calming devices are intended to be self-enforcing. There are numerous devices in use around the world, such as speed cushions, speed humps, traffic circles, and chokers. Appendix A contains many examples of traffic calming devices, lists some device specific criteria which go beyond the general requirements of this chapter, addresses some advantages and disadvantages for each device, and gives approximate costs for installing each device.

The City of McKinney receives numerous requests for installation of traffic calming devices. Neighborhood traffic problems reported to the City of McKinney will be processed as detailed in the preceding chapters. When the City of McKinney determines that the installation of traffic calming devices is appropriate the policies established in this chapter will govern.

OVERVIEW

The following factors should be considered prior to the installation of any traffic calming device:

1. Impact on vehicles, motorcyclists, bicyclists, and pedestrians

2. Drainage patterns

3. Vehicular speeds and volumes

4. Other streets or alleys from diverted traffic

5. Emergency response vehicles

6. Street maintenance activities

7. Neighborhood support of the device.
Traffic calming devices installed in public streets and alleys are designed to not inflict damage to passing vehicles or cause drivers to lose control of their vehicles if they are driving at a reasonable speed for the conditions.

ELIGIBLE STREETS

The first step in the device installation process is to determine whether a specific street is eligible for consideration. Streets meeting the following criteria shall be considered for traffic calming device installation:

1. The streets are paved and constructed on dedicated right-of-way.
2. The property adjacent to the street is either wholly or primarily residential.
3. The street is not adjacent to open space, parks, public school grounds, etc. where drive around problems are likely. (See Appendix B for examples of drive-around problems.)
4. The street is not scheduled to be repaired or reconstructed within the next two years.
5. The street is not designated as a primary emergency response route by the Public Safety Departments.*
6. The street is not designated as an arterial or major collector roadway on the current City of McKinney Thoroughfare Plan.† (Appendix C contains a copy of the Thoroughfare Plan, as of the publication date of this document.)

Streets that meet the six criteria listed above shall also meet one of the following volume and speed criteria to be eligible for traffic calming device installation:

a. The street has a minimum average daily traffic of 500 vehicles per day;

or

b. The 85th percentile speed of vehicles traveling on the street exceeds the speed limit by at least 3 mph.

* Certain devices may not affect emergency vehicle performance as severely as others and may, with the approval of the Public Safety Department, be considered for installation on designated emergency response routes.
† Residential collector streets which will not be expanded beyond one lane of traffic in each direction may, with the approval of the Engineering Department, be considered for traffic calming under this program.
ELIGIBLE ALLEYS

In order to maintain the drainage in an alley, the only current traffic calming device offered is a speed bump. The first step in the alley speed bump installation process is to determine whether a specific alley is eligible. Alleys meeting the three following conditions shall be considered for alley speed bump installation:

1. The alley is paved and constructed on dedicated right-of-way.

2. The property adjacent to the alley is either wholly or primarily residential.

3. The alley is not adjacent to open space, parks, public school grounds, etc. where drive around problems are likely. (See Appendix B for examples of drive-around problems.)

Alleys that meet the three criteria listed above shall also meet one of the following volume and speed criteria to be eligible for alley bump installation:

a. The alley has a minimum average daily traffic of 150 vehicles per day;

or

b. The 85th percentile speed of vehicles traveling on the alley exceeds the speed limit by 5 mph. (The speed limit in residential alleys is 10 mph, unless otherwise indicated.)

LOCATION OF DEVICES

The locations for traffic calming device installation are subject to the following conditions:

1. Adequate stopping sight distance

Adequate sight distance must exist at the desired location to safely accommodate traffic operations after device installation.

2. Adjacent resident concurrence
A traffic calming device shall only be located adjacent to or within 100 feet, as measured along the right-of-way, of a property owner that approves the placement of the device.

3. Distance to driveways, alleys, streets, or other devices

Traffic calming devices shall be located at least 20 feet from the nearest driveway or intersecting alley segment, or 100 feet of an intersecting street.

Spacing of devices will be determined by the Engineering Department. Some device specific spacing criteria are listed in Appendix A. For example, street or alley speed cushions should typically be installed no closer than 300 feet to an adjacent speed cushion.

4. Grade of street or alley must be less than 6%

Some devices, such as speed cushions, can not be installed on steep streets or alleys.

5. Street alignment

Traffic calming devices will not be installed in locations where horizontal or vertical curves could cause a vehicle traveling at a prudent speed to lose control when traversing the device.

6. Drainage

Traffic calming devices may have a negative effect on storm water drainage. Care must be taken to ensure that the device does not cause an existing drainage problem to worsen or create a new and unacceptable drainage problem.

SURVEY PROCEDURE

Resident support is a major factor for traffic calming device installation. A minimum of 80% support of homes within a specified survey area, completed in two parts, must be achieved in order to demonstrate the required degree of resident support.

Survey Area

1. Survey Area 1 shall include all single-family homes whose front, rear, or side yard adjoins the street or alley segment in which a proposed device
would be located. The survey area will also include houses which adjoin streets or alleys on which traffic may be diverted if the proposed traffic calming device is installed.

The Engineering Department will determine the required survey area. (See Appendix D for an example of how a survey area will be determined.) A minimum of 80% support is required. A unanimous vote (for or against) is required for each household. If a unanimous vote is not received from the household, the vote will be registered as an oppose vote.

2. Survey Area 2 shall include all homes on the street or alley segment in which a proposed device would be located. This is to indicate support for the installation of the proposed device adjacent to or in front of their home. A minimum of 80% support is required. A unanimous vote (for or against) is required for each household. If a unanimous vote is not received from the household, the vote will be registered as an oppose vote.

Survey Form

- A survey form will be provided by the City for the collection of signatures. This form will include a brief description of the request, traffic operation considerations, and instructions to the residents.

- For each street address included in the survey area, the following information must be included: street address, printed name of resident, signature of resident, and preference (SUPPORT, OPPOSE, NO PREFERENCE).

- In order to provide each surveyed home the same level of input, a unanimous vote (for or against) is required for each household. If a unanimous vote is not received from the household, the vote will be registered as an oppose vote.

- Up to three months will be permitted for the collection of necessary signatures and survey submission to the City. If the necessary number of signatures is not collected within this time period, a new survey must be completed.

Required Percent of Support

- At least 80% of the homes in both survey areas must indicate support of the proposed traffic calming device. Only the "Support" preferences on the survey will be included in calculating the required support level. The
"oppose" and "no preference" indications will not be used in this calculation.

- The Engineering Department will review the submitted survey to verify that the required survey area was included and to determine that at least 80% of the addresses support the installation.

INSTALLATION APPROVAL

In order for the installation of a traffic calming device to occur on a street or alley, the following actions must occur:

1. When a submitted survey has been verified as meeting the required neighborhood support level, the Engineering Department will place the street or alley on a list of approved traffic calming projects. The neighborhood representative will be advised of the approved installation request. This letter will request that the neighborhood's share of the installation cost be paid to the City and will include the name and phone number of the neighborhood representative who will be responsible for collecting the funds.

2. After a traffic calming project is approved, the City will submit an invoice to the neighborhood representative that will include any neighborhood's funding share for the project. The neighborhood representative will be responsible for submitting a cashier's check to the City. Upon receipt of the neighborhood's full payment, the traffic calming project will be installed as scheduling permits.

3. The cost for each traffic calming device will be based on the actual cost for a typical installation, including any necessary pavement markings and/or signs. The cost will be established by the Engineering Department and will reflect current costs. Appendix A contains a number of typical traffic calming devices and lists the approximate cost of each device, as of the publication date of this document.

4. If full payment has not been received within 6 months from the invoice date, the street or alley will be removed from the list of approved projects. If this occurs, it will be necessary to repeat the entire approval process.

APPEALS OR VARIANCES

The Executive Director of Development Services shall handle all appeals.
The following appeal guidelines will be used:

1. Requests for appeals or variances shall be submitted to the Engineering Department and shall specify why an appeal or variance is being requested.

2. The appeal or variance request will be forwarded to the Executive Director of Development Services for review.

3. A formal response to the appeal or variance request will be processed by the Executive Director of Development Services. The decision of the Executive Director of Development Services shall be final.

REMOVAL AND ALTERATION OF TRAFFIC CALMING DEVICES

The process for requesting traffic calming device removal or alteration is the same as the process for installation. A traffic engineering study must be preformed to determine the need for removal or alteration. A survey must be submitted to the City with at least 80% of the homes in the survey area supporting the requested removal or alteration. The neighborhood’s share of the cost of removal/alteration of the device will be determined in the same manner as a new installation.
CHAPTER 5

CITY TRAFFIC ASSISTANCE PROGRAM

PURPOSE

The City of McKinney intends to make the provisions of the Neighborhood Traffic Management Program available to all City residents. In Chapters 3 and 4, the responsibilities of residents for costs of installation of approved traffic calming devices were discussed. The total costs of installation of these devices can be high, ranging from $3,000 for a typical speed cushion to $10,000 or more for more elaborate traffic calming devices. The City of McKinney has established a program to help qualifying neighborhoods have appropriate traffic calming devices installed.

ELIGIBILITY REQUIREMENTS

Neighborhoods which are eligible to participate in the City Traffic Assistance Program will have average property values which are less than or equal to $75,000 or located in the Community Development Block Grant (CDBG) area. The average property value of the entire neighborhood will be determined using the tax appraisal records maintained by the Collin County Central Appraisal District.

SUBMISSION OF REQUESTS FOR WAIVER OF FEES

If the project is approved and the project is eligible for waiver the neighborhood’s share of the cost, the project will be placed on a waiting list for City funds and will be scheduled for construction when funds become available.

Projects which are approved but are not found to be eligible for City Traffic Assistance Program must be funded by the residents as described in Chapter 3 and Chapter 4.
APPENDIX A

DETAILS FOR SPECIFIC TRAFFIC CALMING DEVICES
RUMBLE STRIPS

Description:
- Dots or strips are glued to the pavement to create a strip that causes the vehicle to rumble as it traverses through them.

Purpose:
- To alert motorists to unusual conditions ahead.

Cost:
- Highly variable. Approximately $1,000 - $5,000 per location.

Locations:
- 30 mph posted speed - 200' in advance.
- 40 mph posted speed - 325' in advance.

Positive Aspects:
- Vehicles may be slowed down up to 5 mph.
- Driver's attention is alerted to heighten safety.
- Low cost installation than can easily be removed or changed.

Negative Aspects:
- Very high level of noise pollution for adjacent residents.
- High maintenance is required to reattach dots or strips to the pavement.
NARROWING LANES

Description:
- Striping is used to create narrow 10 feet wide lanes. This gives drivers the feel of a narrow street that does not lend itself to high speeds.

Cost:
- The costs vary depending on the length of street, but are not anticipated to exceed $3,000 per mile.

Positive Aspects:
- Changes can be quickly implemented.
- The striping can be easily modified if paint is used.
- Speed may decrease and safety is improved through the provision of positive guidance to drivers.

Negative Aspects:
- Would increase regular maintenance.
- Residents do not always perceive striping as an effective tool for speed reduction.
- Cost of resurfacing residential streets will increase.
**DYNAMIC SPEED SIGNS**

*Description:*

- Dynamic Speed Signs display the speed of the oncoming vehicle to make motorist’s aware when driving above the speed limit.

*Cost:* Approximately $3000 per sign

*Positive Aspects:*

- Can be quickly implemented.
- Slows vehicle speeds.

*Negative Aspects:*

- Would increase regular maintenance.
- Signs may detract from aesthetic quality.
**CHOKERS**

**Description:**
- Narrowing of a street at an intersection, mid-block or a segment of a street in order to reduce width of the traveled-way by construction of a wider sidewalk or landscape strip.

**Cost:**
- Highly variable, Approximately $5,000 – $20,000 per location.

**Positive Aspects:**
- Slight slowing is normally the result.
- Shorter pedestrian crossing distances and better motorist–pedestrian visibility of each other.
- Creates added streetscape area for pedestrians and/or landscaping.
- Can discourage truck entry.
- Allows signs to be placed closer to driver’s cone of vision.

**Negative Aspects:**
- Potential obstacle for motorist to run into.
- May impede bicycle mobility and safety.
- Can impede legitimate truck movements.
- May require reworking of surface drainage.
GATEWAYS

Description:

- A special entrance feature, similar to a choker, that narrows a street at the intersection in order to reduce width of the traveled-way. This is not a gate. Chokers are usually located within the block or at intersections. Gateways are considered more dramatic and provide identity to a neighborhood. The exact configuration of the gateway treatment will depend upon the location of the gateway, i.e., conflicts with driveways. Medians can also be added to street to slow turning movements and enhance the street.

Cost:

- Highly variable. Approximately $5,000 – $15,000 per location.

Positive Aspects:

- Creates an identity to a neighborhood.
- Creates added streetscape area for landscaping or monuments.
- Can discourage truck entry.
- Allows signs to be placed closer to driver’s cone of vision.

Negative Aspects:

- Can impede legitimate truck movements.
- Increased maintenance costs.
INTERSECTION CHANNELIZATION

Description:
- T-intersections are channelized so that vehicles are not traveling in a straight path. This has the effect of slowing vehicles down.

Cost:
- Approximately $30,000 per location.

Positive Aspects:
- Slows vehicle speeds.
- No significant impedance of fire and transit service.

Negative Aspects:
- Landscaping and signing/striping maintenance will be required.
- Loss of on-street parking will occur.
**MEDIAN BARRIER**

Description:

- A physical barrier on a non-local street which can effectively eliminate local street straight-through and left turn traffic across the non-local street. A median barrier can take many forms, ranging from a closely-spaced row of flexible delineator posts to a series of pre-cast curb sections affixed to the pavement to a temporarily-placed but immovable 3' high concrete barrier (K-Rail) to an asphalt/concrete curbed island with or without a decorative landscaping and surface treatment. Costs vary widely among those options. The device is also known as a "warm."

- A full median with no breaks can also be used to prohibit all left turns.

Cost:

- Highly variable. Approximately $5,000 to $20,000 per location.

Positive Aspects:

- Makes the intersection safer by reducing the number of conflicting movements.
- Reduces local street volumes.
- Negates the possible need for future expensive traffic signal.

Negative Aspects:

- The physical barrier may shift traffic to other locations where left turn opportunities exist.
- This tool may inconvenience local residents who will be forced to drive longer more circuitous paths to reach their destination.
**NECK DOWNS**

*Description:*
- Physical curb reduction of road width at intersections by widening of street corner to discourage cut through traffic and to help define neighborhoods.

*Cost:*
- Highly variable. Approximately $10,000 to $30,000 per location.

*Positive Aspects:*
- May be aesthetically pleasing, if landscaped.
- Good for pedestrians due to shorter crossing.
- Can be used in multiple application.

*Negative Aspects:*
- Increased landscaping maintenance.
- Landscaping may cause sight distance problems.
**ONE-WAY STREET(S)**

**Description:**
- One or more streets designated as "one-way".

**Cost:**
- Approximately $1,000 to $5,000 per location.

**Positive Aspects:**
- May reduce total volume on subject street.
- Adds vehicle capacity to a street.
- Safety is inherently greater on one way segments, but care must be taken to handle intersection treatments properly.

**Negative Aspects:**
- Can encourage increased speeds.
- Adverse travel distance results for local residents.
- May shift diverted traffic to another street.
RAISED INTERSECTIONS

Description:

- A raised plateau of roadway where roads intersect. The plateau is generally about 4" higher than the surrounding streets. This application is best for locations with high pedestrian volumes with significant safety concerns related to traffic speeds.

Cost:

- Approximately $50,000 to $100,000 per location.

Positive Aspects:

- Effective speed control.
- Aesthetically pleasing if well designed.
- Good pedestrian safety treatment.
- Can be used on higher or lower volume streets.

Negative Aspects:

- Expensive to construct and maintain.
- Affects emergency vehicle response time.
**TRAFFIC CIRCLE**

*Description:*  
- A small circular island placed in the center of an existing local street intersection. Some may also refer to this device as a "roundabout".

*Cost:*  
- Approximately $10,000 to $20,000 per location.

*Positive Aspects:*  
- A noticeable reduction in speeds.  
- Reduces accident potential.  
- Under certain conditions capacity can be increased.  
- Can be used instead of stop signs.

*Negative Aspects:*  
- Required safety signing may detract from its aesthetic quality.  
- Pedestrians and bicyclists must adjust to less traditional crossing patterns.  
- Some parking may be lost on approaches to accommodate vehicles' deflected paths.  
- May increase accidents until drivers become accustomed to change.
SERPENTINE

Description:
- A narrow serpentine road is created for several hundred feet using curbs and landscaping.

Cost:
- Approximately $50,000 to $75,000 per location.

Positive Aspects:
- Reduces vehicle speed.
- May reduce through traffic volumes.

Negative Aspects:
- Increased maintenance for landscaping and pavement.
- Significant loss of on-street parking.
- Most residents would have driveway affected by this type of installation.
- Fire and transit services would be affected.
SPEED CUSHIONS

Description:
- Mounds of paving material placed across a roadway for the purpose of causing motorists to reduce their operating speed while driving on the roadway.

Cost:
- Approximately $3,000 to $4,000 per speed cushion.

Locations:
- Short block, single mid-block hump usually adequate.
- Longer blocks and continuous street sections, two or more humps spaced approximately 200 feet to 600 feet apart.

Positive Aspects:
- Reduces speed.
- Can cause traffic to shift to arterial system and no longer cut through the neighborhood.

Negative Aspects:
- Can cause traffic to shift to parallel residential streets.
- Contents of vehicle can be jarred.
- Increase in noise adjacent to speed cushion.
TURN RESTRICTION USING DELINEATORS

Description:

- Delineators glued or doweled to the pavement surface are used to create a barrier to prevent vehicles from making certain movement in and out of a local street. The delineators are typically placed along the centerline of the major collector street.

Cost:

- Approximately $1,000 to $10,000 depending on the number and types of delineators.

Positive Aspects:

- Reduces through volume of traffic.
- Reduces rear-end and left-turn accidents at major or collector street intersection with local streets.
- Low cost installation that can easily be removed or changed.

Negative Aspects:

- Little reduction in traffic speeds.
- Could potentially make it more circuitous for residents to reach their destinations.
- May divert traffic onto adjacent streets.
TWO LANE ANGLED SLOW POINT

Description:

- Three islands are used to create an angled path of travel for vehicles. The effect of angling the traffic path slows vehicles down. The volume of traffic may well be unaffected. The islands adjacent to the curb are typically landscaped.

Cost:

- Approximately $10,000 to $20,000 per location.

Positive Aspects:

- Slows vehicle speeds.
- Fire and transit vehicles are not impeded significantly.

Negative Aspects:

- Loss of on-street parking.
- Landscaping and signing/striping has to be regularly maintained.
CUL-DE-SAC

Description:
- Complete closure of a street either at an intersection or at a mid-block location.

Cost:
- Approximately $50,000 per location.

Positive Aspects:
- Very effective at eliminating most of the previously speeding traffic on the block.
- Very effective at reducing volumes.
- Can be landscaped for an attractive effect to convey street discontinuity.
- Mid-block type can be effectively used where abutting land uses change.
- Improved traffic safety.

Negative Aspects:
- Can negatively affect response times for emergency service.
- In large neighborhoods, can shift a problem elsewhere unless a strategic pattern of cul-de-sacs are used.
- Can generate confusion on the part of users unless signed carefully.
- May inconvenience local residents.
**DIAGONAL DIVERTER**

**Description:**
- Barriers between diagonally opposite corners of a 4-legged intersection, thus creating two unconnected L-shaped intersections.

**Cost:**
- Approximately $10,000 to $30,000 per location.

**Positive Aspects:**
- Reduces speed.
- Can achieve a 20% to 70% reduction in volumes.
- Reduces accident potential by eliminating conflicting traffic movements.
- Advantage over complete street closure (cul-de-sac) in that it has a lesser impact on circulation, as it actually creates no dead-end streets. Local residents and service vehicles may view this as a benefit in that their routes can be more direct.
- Can be attractively landscaped.

**Negative Aspects:**
- In a large neighborhood, can shift problems elsewhere unless a strategic pattern of diverters is used.
- May inconvenience local residents who are forced to drive longer more circuitous paths to/from their homes.
- Can generate confusion on the part of users unless signed carefully.
- May inconvenience local residents.
HALF CLOSURES

Description:

- The street is partially closed to traffic by the construction of a physical barrier at the entrance to the neighborhood to reduce cut through traffic.

Cost:

- Approximately $15,000 per location.

Positive Aspects:

- Reduces cut through traffic.
- May reduce traffic speeds.

Negative Aspects:

- May require additional maintenance.
- Could be violated, especially in the late evening.
**MID-BLOCK ROAD CLOSURE**

**Description:**
- Cul-de-sacs are created by closing the street mid-block using a landscaped island. Pedestrian access is provided across the island.

**Cost:**
- Approximately $20,000 to $50,000 per location.

**Positive Aspects:**
- Reduces through traffic volumes.
- Reduces speeds in the vicinity of the closure.

**Negative Aspects:**
- Traffic may be diverted onto adjacent parallel streets.
- Maintenance of the landscaped areas will have to be provided for.
- Emergency access will be impeded.
- Local residents may be forced to drive more circuitous routes.
- There is a loss of on-street parking.
APPENDIX B

EXAMPLES OF DRIVE-AROUND TRAFFIC

Drive-around traffic could be a potential problem with some traffic calming schemes. Two examples have been provided to illustrate the potential problems.

In both examples, the drive-around problem would not be completely fixed by placing a post at the edge of the traffic calming device. There would still be open space to drive through to get around the device.

In general, drive-around should not be a problem on streets with standard 6-inch curbs. However, in locations that have mountable curbs (curbs that can be driven on) or along streets and alleys that have no curbs at all, the potential for drive-around should be considered in any traffic calming design.
APPENDIX D

SURVEY AREA EXAMPLE AND SURVEY EXAMPLE

A hypothetical example of how a survey area would be developed for a proposed traffic calming project has been provided in this section. The proposed project is the installation of two speed cushions on a section of Street D to lower traffic speeds. The following figure illustrates the situation:

Homes that lie along the section of Street D (where the speed cushions will be installed) and Cul-de-sac E will be included in the survey area because these residents will be directly affected by the installation (both positive aspects, such as lower speeds, and negative aspects, such as noise from braking then accelerating). Sections of Streets A, B, C, and F will also be included in the survey area because of the potential for traffic to be diverted from Street D onto those other streets if drivers attempt to avoid the speed cushions.
Proposal to Install Neighborhood Traffic Management Devices along Street D

In an attempt to address residential speeding issues, the neighborhood has requested installation of speed cushions along Street D in ABC neighborhood.

The City of McKinney would like to know your stance on this proposal since you may be affected by the installation. Your signature on this form will indicate that you have been informed of the proposal. Please indicate whether you suppose or oppose the installation. The City of McKinney will not install a neighborhood traffic management device unless 80% are in support of the proposal.

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