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ROADS, BUILDINGS AND GROUNDS

Clarksville Neighborhood Traffic Management Program



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I. Introduction

Residents are often concerned about excessive traffic volumes and speed through their residential neighborhoods. The primary function of local streets in residential neighborhoods is to allow for the safe ingress and egress of the local homeowners to the City's roadway network. When neighborhood streets are being used by "cut-through" traffic and are being used with excessive speed, the quality of life and the safety of residents is diminished.

In order to enhance the quality of neighborhood life and the safety of the residents of Clarksville, Roads, Buildings, & Grounds is establishing this Neighborhood Traffic Management Program. The goals of this program are:

- Deterrence of cut-through traffic from residential streets to collector streets.
- Reduction of traffic speed to a safe and appropriate speed limit.
- Maintain integrity of Emergency Vehicle Access.
- Limit Traffic Calming to Residential Streets.
- Use of effective, efficient, economical and environmentally sound Traffic Calming solutions.
- Involvement of Neighborhood Associations and residents.
- Multi-Discipline input from planners, Police, Fire Department, Community Development, and engineers.
- Continue monitoring and measurement of speeds, traffic volumes and accidents.
- Deterrence of truck traffic and other inappropriate vehicles from residential streets.

It is extremely important to realize that the approach taken by the Neighborhood Traffic Management Program is a systematic one. While each situation may be somewhat unique, the same definitions and criteria, as outlined in this guide, are applied. Also, the transportation system of the City must be considered as a whole. Solving one local problem should not cause another problem to appear somewhere else.

The Neighborhood Traffic Management Program is to be used **only** for residential streets as defined in the next section. Upon further study, it may be discovered that some residential streets existing posted speed limit need to be altered to a safe and appropriate speed limit for that particular roadway. Obtaining the 85th percentile speed of a roadway and weighing other factors relating to geometry, land use, and sound engineering judgment usually sets this speed.

In keeping with the general guidelines and recommendations, as set forth in the Manual on Uniform Traffic Control Devices and Institute of Transportation Engineers, it adds uniformity in the recognition and understanding of traffic control devices. Standardization of these devices will help ensure that any given traffic calming measures including the use of speed humps will be equally recognizable and require the same action on the part of the motorist regardless of where they are encountered.

II. TRAFFIC CALMING PROCESS

- Neighborhood group calls and reports apparent speeding problems, excessive cut thru traffic, etc., and request Roads, Buildings and Grounds address their concerns.
 - If there is a homeowner association (HOA), the (HOA) must initiate the request through a letter and clearly state their concerns.
 - If there is no homeowners associations (HOA), the community or an individual must submit a letter clearly state their concerns.
- The Traffic Engineer will make a field review of the area to determine what studies will be conducted.
- The Traffic Control Division will conduct speed studies, volume counts, and accident analysis (if necessary) to determine the extent of the problem.
- The Traffic Engineer will review the results of the studies. If the results of the studies indicate (“**No**”) there is not a traffic problem, he will inform the neighborhood in writing.
- If the results indicate (“**Yes**”) there is a traffic problem, the Traffic Engineer will, in conjunction with citizen input, develop solutions and present to the Clarksville Fire Department and Clarksville Police Department for approval.
- If the solutions are acceptable, the Traffic Engineer will require notification of those directly impacted or reasonably expected to be impacted property owners of the proposed traffic calming device(s). If a property owner does not respond, it will be counted as a no vote, **unless** the applicant chooses to send non-respondents the petition by certified mail, return receipt requested, at no cost to the City of Clarksville, giving them 30 days to respond or they will be considered a non vote, and **will not be counted** either for or against the traffic calming device(s). In this event, proofs of notification with “no response” are to be delivered to the City along with a petition signed by at least 80% of the responding property owners supporting the proposed Traffic Calming device.

- Once the Petition is received and verified, a final cost will be developed and presented to Mayor and City Council for approval of the Traffic Calming device. This applies to Stage Two Tools **ONLY**.
- Any needed modifications required before permanent fixtures may include some temporary safety measures before implementation of any Stage Two Tools.
- When approved and funded, implementation will begin on the Traffic Calming device within 60 days (weather permitting).
- Any necessary easement dedication will be funded by the neighborhood or Home Owners Association.
- 60 days after the installation of the Traffic Calming device, “after” studies will begin to determine if the Traffic Calming device was effective.
- If the community decides that they no longer want the Traffic Calming device, they must follow the same procedure to obtain 80% in favor of removal as they did in the original petition. (If there is a homeowners association (HOA), the petition for removal must come through the Association.) The device(s), such as speed humps, must remain at least 6 months before removal.

III. TRAFFIC PROBLEM DEFINITION

For the purposes of the Neighborhood Traffic Management Program, a traffic problem on a residential street exists if **any** of the following are found during a traffic study:

1. The **average** speed on a residential street is ≥ 35 mph.
2. The **85th percentile** speed on a residential street is greater than 10 mph over the posted speed limit. (This assumes that the Traffic Engineer determines that the posted speed limit is appropriate for a particular roadway.)
3. The average daily traffic on a residential street is greater than 1,500 vehicles.
4. The peak hour volume on a residential street is greater than 100 vehicles.
5. The number of accidents on a residential street is three or greater in one year.
6. The percentage of truck traffic is 2% or more of the total vehicles counted.

If the results of any traffic study show that a residential traffic problem exists, based upon the above criteria, Roads, Buildings, & Grounds will conduct a Traffic Calming Study as explained in the next Section.

IV. TRAFFIC CALMING STUDY

A. Requests for Traffic Study

Under the Neighborhood Traffic Management Program, the Home Owners Association (HOA) must submit a letter to Roads, Buildings, & Grounds when a problem is perceived. If however, there is no (HOA), anyone through a letter from the residents, any City agency, the City Council, or the Public Works Committee can request a traffic study. Roads, Buildings, & Grounds will then conduct a traffic study and report the findings to the requestor.

B. Traffic Calming Study

Roads, Buildings, & Grounds will analyze the results of the Traffic Study for a particular residential street segment and determine if a problem, as defined in Section III, actually exists. If there is no problem, a report is made and the results given to all interested parties. Roads, Buildings, & Grounds will also archive the results for comparison for future studies.

If a traffic problem, as defined in Section III, does exist, then the Roads, Buildings, & Grounds staff will analyze the data to determine: the severity of the problem, the cause(s) of the problem, whether the traffic problem is local or is regional, and to determine what feasible traffic calming solutions may solve the problem. Roads, Buildings, & Grounds will develop a preliminary Traffic Calming Study giving: the results of the Traffic Study, the identification of the problem(s) and the proposed Traffic Calming solutions in a prioritized list giving the solution, probable effectiveness and cost.

Copies of the study will be given to the Clarksville Fire Department, the Clarksville Police Department and any other appropriate agency or individual as determined by the Director.

V. FEASIBLE ALTERNATIVE SOLUTIONS

The feasible alternative solutions are classified into two categories. The first is a **Stage One Tool** solution and the second is a **Stage Two Tool** solution. In general, the Stage One Tool solution is easier to implement, easier to undo, costs less, and should have prior consideration than a Stage Two Tool solution. This section presents most of the probable traffic calming solutions that will be

used by Roads, Buildings, & Grounds in the Neighborhood Traffic Management Program. Roads, Buildings, & Grounds will continue to monitor other agencies' results for their Traffic Calming programs and will have staff attend seminars pertaining to Traffic Calming. Therefore, solutions presented here may be altered or deleted or new solutions added as experience in this field grows. Roads, Buildings, & Grounds reserve the right to refuse to install any device in the City's Right-of-Way that it deems unsafe, inappropriate, or potentially ineffective.

STAGE ONE TOOL SOLUTIONS

Stage One Tools do not involve the use of physical controls or impediments on the roadway system. They are comprised of actions and programs, which are primarily educational, and enforcement based.

Uniform Residential Speed

One Stage One Tool is for all residential streets to have a uniform speed limit set at 20mph - 25mph (if appropriate). As stated, this uniform speed limit will be evaluated to its suitability to a particular roadway. This will always be the first step taken in any Traffic Study.

Neighborhood Traffic Safety Program (Education)

This is a program comprised of neighborhood meetings, letters, pamphlets, etc., alerting residents within a neighborhood to speeding and other traffic/pedestrian safety concerns. Roads, Buildings, & Grounds, with the cooperation of the City Police Department, would conduct this program for any Neighborhood Association or other residential group requesting it. This neighborhood awareness program will hopefully result in neighbors more closely obeying existing traffic laws and result in improved safety for all roadway users.

Traffic Signing and Pavement Markings

This includes signs for residential zone designation, speed limits and other necessary information needed for motorists under the Neighborhood Traffic Management Program.

No-Truck Enforcement

In general, no trucks are allowed on residential streets. If truck traffic is shown to be a problem, the City Police Department will be notified of the concern and asked to provide assistance in re-routing trucks. Roads, Buildings, & Grounds will make certain that the proper signing is in place to enforce the No-Truck tool.

Traffic Enforcement Actions

This is a traditional enforcement activity on the part of the Clarksville Police Department's traffic enforcement officers. Roads, Buildings, & Grounds will provide the Police Department data from the traffic study as to the severity of violations and as to the time of day when most violations occur.

Radar Speed Trailer Deployment

When appropriate, Roads, Buildings, & Grounds will request that the Clarksville Police Department deploy its radar speed trailer to educate motorists regarding the fact that they may be significantly exceeding the posted speed limit. The trailer deployment also sometimes results in allowing concerned neighbors to see that actual speeds may not be as high as what had been perceived.

Dynamic Speed Limit Message Signs

This is a new technology that combines the use of a regulatory speed limit sign with a dynamic speed limit display showing the actual speed of the approaching vehicle. This tool gives the motorists "information" as to what speed he/she is actually traveling compared to the posted speed limit.

STAGE TWO TOOL SOLUTIONS

Stage Two Tool solutions generally involve the "hard" physical modifications intended to control traffic speeds and/or volumes. These solutions are generally quite expensive and are often permanent. Therefore, before Roads, Buildings, & Grounds will implement any Stage Two Tool Solution, the following are required:

1. Approval by the City Police Department.
2. Approval by the City Fire Department.
3. Approval by the Mayor and the City Council.
4. Approval by 80% of those directly impacted or reasonably expected to be impacted property owners. The Traffic Engineer shall determine the impacted area(s).
5. Approval for funding by the City Council (if not currently budgeted).

Failure to obtain any of the above approvals will result in the proposed Stage Two Tool Solution not being implemented.

All Stage Two Solution Traffic Calming Projects will be designed to the standards of:

1. Institute of Transportation Engineers (ITE) or

2. American Association of State Highway and Transportation Officials (AASHTO) or
3. American Society of Civil Engineers (ASCE)
4. Federal Highway Administration (FHWA) or
5. Tennessee Department of Transportation (TDOT) or
6. Any other reputable organization involved in the design of traffic calming projects and specifications.

The following is a list of Stage Two Tool solutions. Specific designs are not provided in this document, but can be found in the publications of the above-mentioned organizations. Roads, Buildings, & Grounds will develop design standards and specifications for the City of Clarksville for these Stage Two tools as they are first implemented and the results studied.

Speed Humps

A speed hump is a raised portion of pavement designed to reduce speed. Speed humps will be designed for the 20 mph speed limit. In order to be effective, speed humps should be placed, in general, between 200 feet and 750 feet apart. The estimated cost for each speed hump is between \$2,500 and \$5,000 including the appropriate signing and pavement marking. Before any speed hump project is implemented, the street should be thoroughly examined for pavement deficiencies. Any pavement deficiencies should be corrected by a resurfacing project before implementing a speed hump project. Speed studies **must** show that the 85th percentile speed for the proposed street is greater than 10 miles over the posted speed limit before consideration of speed humps. Speed humps will only be considered for streets classified as residential streets. Please refer to the City's **Speed Hump Installation Policy** for further details regarding implementation of Speed Humps.

Rumble Strips

This device is raised strip of material (usually plastic) that is set in a series to create a distraction to the motorist. These devices have proven effective to warn motorists of impending changes in either the speed or geometry of the roadway.

Traffic Circles

This device is a raised circular island in the middle of a residential neighborhood intersection. Direct straight through movements are obstructed by the raised island causing traffic to move to the right (counter-clockwise) and around the circle. The intersection approaches are normally controlled by yield signs, which serve to alert motorists to the need to slow their speed entering the intersection.

Curb Extensions, Chokers, Chicanes

These are various methods of narrowing the roadway by extending raised curbs into the street. These can be done at street entries and exits as well as mid-block locations. The narrower street generally results in reduced traffic speeds and provides pedestrians with shorter crossing distances.

Median Entry/Exit Islands

These are traffic islands used to create narrower roadway passages at entry and exit points.

Median Barriers

These can be either a barrier or raised island along the center of a roadway to prohibit left turns or crossing traffic.

Mid-Block Raised Medians

This is a median placed in the center of a roadway to create a narrower travelway and also reduce pedestrian crossing distances.

Forced Turn Islands, Barriers, Channelization

These are traffic islands or curbs specifically designed to prevent traffic from making specific movements at an intersection.

Diagonal Dividers

These are barriers placed diagonally across an intersection to force drivers to make a particular turn, but not allow other movements.

One-Way Streets

This solution is self-explanatory. However, there should be a dual one-way street going in the other direction for efficient system operation.

One-Way Chokers, Half Closures or Semi-Diverter

These are barriers to traffic in one direction that permit traffic in the opposite direction to proceed.

Street Closures

This effectively closes a street from through traffic. It can be constructed to allow emergency vehicles and Police to pass. Closing of a street will only be considered after receiving a legal opinion from the City Attorney.

Cul-de-sacs

This is a type of street closure that involves constructing an effective turn-around for traffic. A cul-de-sac will only be considered after receiving a legal opinion from the City Attorney.

Edgelines

Pavement markings or white lines used to narrow the traveled lane and designate bike lanes.

VI. TRAFFIC CALMING PROPOSAL

After input from all parties, Roads, Buildings, & Grounds will select an appropriate solution. The recommended solution will be either a Stage One Traffic Calming tool or a Stage Two Traffic Calming tool as explained in Section V. Roads, Buildings, & Grounds will incorporate the recommended solution in a Traffic Calming Proposal. This proposal will include: the results of the traffic study, all comments and suggestions made by any party, how and why the recommended solution was chosen as being preferred, how the recommended solution will be implemented, what the expected results of the solution are, and the estimated cost of the solution.

If the recommended solution is a Stage One traffic calming tool, Roads, Buildings, & Grounds will implement the solution with any necessary assistance from the City Police Department and/or the appropriate Neighborhood Association. The funding of a Stage One tool solution will come from the general Traffic Calming Fund.

If the recommended solution is a Stage Two tool, then Roads, Buildings, & Grounds will:

1. Obtain the other necessary approvals from Fire and Police.
2. Require the neighborhood approve the solution through a petition.
3. Prioritize the need with other Stage Two requests.
4. Finalize the design of the Stage Two solution.
5. Request approval and funding from the City Council (if not currently budgeted).
6. Implement the solution either in-house or by Contract.

7. Study the effectiveness of the solution.
8. Report back to the Neighborhood Association or organized Citizen Group and the City Council the results of the solution.

As explained in Section V, Stage Two solutions must be implemented with care and consensus. Once installed, it may be difficult and expensive to remove a Stage Two tool.

VII. DEFINITIONS

For the Neighborhood Traffic Management Program, the following definitions apply:

<i>Term</i>	<i>Definition</i>
<i>85th Percentile Speed</i>	Measured speed at or below which 85% of motorized vehicles are traveling.
<i>Average Daily Traffic:</i>	The average amount of traffic, measured in both directions during a 24-hour period. For residential streets the ADT (Average Daily Traffic) should be 1,000 vehicles or less.
<i>Bike Lane:</i>	A designated part of the roadway or separate paved area delineated exclusively for the operation of bicycles.
<i>Bulb-Out:</i>	A bulbous extension of the curb, usually at an intersection, that narrows the vehicular pathway and inhibits fast vehicle turns.
<i>Chicane:</i>	Series of fixed objects, usually extensions of the curb that alter a straight roadway into a zigzag or serpentine path to slow vehicles.
<i>Choker:</i>	A narrowing of the street, often in mid-block, sometimes at an intersection. May be done with curb extensions, landscaping or islands in the street.
<i>Circle:</i>	A small island in mid-intersection, as small as 16 to 25 feet in diameter that forces traffic to slow and negotiate the curve. Mostly used in residential areas, they can be landscaped or islands in the street.
<i>Collector Street:</i>	A street that collects and distributes traffic from residential streets to arterial streets and usually has an ADT of 1,000 to 5,000 vehicles.
<i>Curb Extensions:</i>	Curbs that stick out into the roadway, narrowing the path for vehicles. They reduce pedestrian crossing distances, prevent the passing of turning vehicles and require no deviation from straight line.
<i>Diagonal Diverter:</i>	A partition that connects two diagonally opposite curbs, bisecting the intersection, to force motor vehicles to slow down

	and turn. A traversable barrier allows emergency vehicles, as well as bicycles and pedestrians, to cross over.
<i>Diverters:</i>	Road barriers that force traffic to turn. Semi-diverters, one-way chokers or half-closures are all used to prevent entrance into an otherwise two-way street.
<i>Entry Treatments or Gateways:</i>	These are mostly alterations in the pavement surface, such as brick, stamped concrete or different colors, which signal to the driver that he or she is entering a residential neighborhood that has a 25 mph speed limit. Pillars and archways are also used.
<i>Emergency Vehicle:</i>	Any vehicle such as police or fire, which if delayed or blocked could result in loss of property or life, or both.
<i>Major Arterial Street:</i>	A street that connects major activity centers and usually has an ADT of 15,000 to 50,000 vehicles.
<i>Median:</i>	An island in the center of a street or intersection to protect pedestrians and provide landscaping. Medians prevent passing and left-turns, separate opposing travel lanes and provide visual enhancement.
<i>Median Slow Points:</i>	Center-located barriers dividing opposing roadway travel lanes at either intersections or mid-block.
<i>Minor Arterial Street:</i>	A street which collects and distributes business and commercial traffic and usually has an ADT of 3,500 to 15,000 vehicles
<i>Neckdown:</i>	Curb extensions at the corner of intersections to slow motor vehicles and give pedestrians a shorter distance to cross. Also called a "Bulb-Out".
<i>No Right Turn On Red:</i>	Allows unimpeded pedestrian crossing and paces the traffic flow into the cross street.
<i>Pavement Marking:</i>	Markings on the street or roadway that designate travel lanes, no passing areas, pedestrian crossings and bike paths
<i>Peak Hour Volume:</i>	The maximum amount of traffic measured in both directions during one hour of the day. For residential streets the PHV should be 100 vehicles or less.
<i>Residential Cut-Thru Traffic:</i>	Traffic that uses residential streets to travel through a neighborhood without having an origin or destination within the neighborhood.
<i>Residential Street:</i>	A street whose primary function is to provide ingress-egress access to neighbor residents along the street.
<i>Rumble Strips:</i>	Paving or device that creates a change of texture in the road surface, alerting the motorist of a roadway condition; stop ahead, sharp curve ahead, etc.
<i>Raised Crosswalk:</i>	A traditional pedestrian crossing area purposely raised like a long flat-topped speed hump to give better vision of the crossing area. It interrupts a driver's momentum and signals a yielding to pedestrians.
<i>Speed Board, Speed Trailer,</i>	Unmanned units that automatically measure speed of approaching vehicles. Speed boards and wagons display the

<i>Speed Wagon:</i>	measured speed to the driver on a large electronic sign
<i>Speed Bumps, Speed Humps, Speed Tables:</i>	Raised pavement designed to slow traffic speeds. The public and many municipalities use the terms interchangeably, but most traffic engineers insist that a speed bump is a narrow abrupt strip found mostly in parking lots; speed tables/humps have a 6' taper and a 10-foot flat-topped section. A standard speed humps is 3 5/8" high.
<i>Stage One Tool:</i>	A traffic calming tool that is relatively inexpensive to implement and does not radically alter the roadway. Such tools include traffic enforcement, education program, Neighborhood Speed Watch Program, pavement marking, installation of signs and radar speed trailer deployment.
<i>Stage Two Tool:</i>	A traffic-calming tool that is rather expensive to implement and permanently alters the roadway. Such tools include: installation of speed humps or speed tables, traffic circles, curb extensions, chokers, chicanes, median entry/exit islands, median barriers, diagonal diverters, one-way streets, one-way chokers, half-closures or semi-diverters, street closures and cul-de-sacs.
<i>Traffic Calming:</i>	Methods used to reduce vehicular speed and volume, and increase the sharing of streets by pedestrians and other users. Generally refers to physical measures and roadway design changes, but enforcement and education can be components.
<i>Traffic Calming Device:</i>	An approved element of the traffic calming plan which maybe selected to solve a residential traffic problem.
<i>Traffic Calming Study:</i>	A study, based upon a traffic study, which determines if a problem exists and what traffic calming device(s) is appropriate, if any.
<i>Traffic Mitigation:</i>	Used interchangeably with "traffic calming".
<i>Traffic Study:</i>	A study conducted by the Roads, Buildings, & Grounds that measures vehicle speed, types of vehicles, vehicle volumes and accidents for a particular street and/or intersection.
<i>Traffic Sign:</i>	A sign placed along the roadway to warn motorist of speed limits, traffic laws or other information.
<i>Truck:</i>	A vehicle as defined under City Ordinance, which must legally travel on designated routes, generally not residential streets unless making a delivery.