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CITY OF KNOXVILLE

Program Guide

Neighborhood Traffic Safety Program (NTSP)

http://www.knoxvilletn.gov/trafficsafety

May 2, 2016

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I. Introduction

The City of Knoxville's Neighborhood Traffic Safety Program (NTSP) reflects the City's commitment to the safety and livability of its residential neighborhoods. Under this program, the Traffic Engineering Division will work with the Fire Department, Police Department, Office of Neighborhoods and residents to identify traffic problems in residential neighborhoods and seek appropriate solutions.

The goal of the NTSP is to promote safe and livable neighborhoods by reducing the negative impact of traffic in residential areas though Education, Enforcement, and Engineering. A livable neighborhood can be described as one in which residents enjoy the following:

- Ability to feel safe and secure when using the streets.
- Opportunity to interact with neighbors.
- Ability to experience a sense of home and privacy.
- A sense of community identification.

II. Program Overview

Experience in other cities has shown that traffic safety initiatives that are implemented without involving the neighborhood are frequently unsuccessful, and therefore citizen participation is a key component of this program.

Neighborhoods whose traffic situation meets certain threshold standards will receive one or more of the three benefits of this program:

> **Education**: The neighborhood gets City support to engage in a neighborhood-centric, neighborhood-run awareness campaign.
>
> **Enforcement**: A police officer is dedicated to speed enforcement in four-hour blocks for two to four weeks at a time on a rotating basis.
>
> **Engineering**: Depending on the individual neighborhood situation, the City makes route modifications or installs one or more traffic calming measures such as speed humps and traffic circles.

Under the NTSP, street classification is a key consideration. Streets in Knoxville are classified in one of seven ways: local, minor collector, major collector, minor arterial, major arterial, expressway and interstate. These classifications are determined by the Metropolitan Planning Commission as described in the Major Road Plan for the City of Knoxville and Knox County.

Local streets — those not listed in the Major Road Plan — are eligible to be considered for Engineering.

Minor collectors, major collectors and minor arterials located in residential neighborhoods may be included in a traffic safety study and are eligible to be considered for Enforcement and Education, just like local streets. However, collectors and arterials are not eligible for Engineering under this program. Under certain limited circumstances, the City may include minor collectors in its analysis of and response to speeding on adjacent local streets.

Private residential streets, also known as Joint Private Easements, are not eligible for this program. Typically these are streets within gated neighborhoods.

Please Note: The City may be unable to address some valid speeding and cut-through traffic concerns due to staff and budget limitations, constraints in the physical environment, and other factors. Not all traffic concerns can be mitigated permanently by Education, Enforcement, Engineering, or any combination of the three.

III. Education

The Education component of the NTSP seeks to reduce speeding and other negative traffic impacts in the neighborhood by appealing to drivers to alter their behavior.

Rather than trying to reach the general public via billboards or other mass media, the NTSP focuses primarily on drivers who live in the neighborhood or who regularly drive through the neighborhood. The program depends on the neighborhood organization and/or a group of concerned residents to manage their own neighborhood-centric campaign.

A **Traffic Safety Education Toolbox** is available for these campaigns. The Toolbox includes Basic and Advanced tools that are available to Neighborhoods depending on the degree to which their projects advance through the NTSP. See Appendix A.

IV. Enforcement

The Knoxville Police Department's Enhanced Neighborhood Speed Enforcement (ENSE) program (formerly known as "traffic calming") will continue to operate as a stand-alone program and will also be part of the NTSP.

Under KPD's program, off-duty police officers are dedicated to speed enforcement in four-hour blocks for two to four weeks at a time on a rotating basis (usually about three times per year).

Under the NTSP, KPD and the Traffic Engineering Division will work together to evaluate speeding in neighborhoods that have submitted a successful petition for a Neighborhood Traffic Safety Study. Data from patrol officers, counter hoses and crash history will help determine if a neighborhood should be added to the ENSE program if it is not already on the list. The data also will help determine if a neighborhood qualifies for more in-depth study for possible traffic calming devices or route modifications.

Based on available budget and staff availability, KPD may use its discretion to add or remove reported trouble spots from the rotation list, but under the NTSP, an affected neighborhood will be notified of the change. Random speed enforcement may then be applied to the area by on-duty patrol officers when feasible.

V. Engineering

If the City determines that Education and Enforcement would be ineffective in slowing the speed of vehicles on local streets, then Engineering will be considered. In this program, the term “Engineering” is used to describe both route modifications and physical traffic calming measures. (See Appendix B.)

At the outset, it is important to emphasize what Engineering does not include:

- Rumble strips, whether glued down or grooved in, are not a deterrent to speeding and end up being a waste of resources, so they are not included in this program.

- Stop signs are NOT part of this program and are deemed ineffective and in some cases dangerous as a means of calming traffic and reducing speed.

- Lowering the speed limit to a point that is unenforceable or impractical is not good engineering or traffic calming practice.

Also, the elimination of cut-through traffic is not a primary goal of this program. The reduction of speeding is the primary goal. However, high volumes of cut-through traffic will be addressed where appropriate.

Traffic calming is characterized as the combination of mainly physical measures that reduce the negative effects of motor vehicles, alter driver behavior, and improve conditions for non-motorized street users. It is the retrofitting of physical measures into the roadway to reduce traffic speeds and cut-through traffic. Traffic calming measures are intended to be self-enforcing.

Along with or in lieu of traffic calming treatments, Traffic Engineering may recommend route modifications as a way to reduce speeding in a residential neighborhood. Examples include partial street closures (passable to pedestrians and bicycles only) and making a street or block one-way only.

Traffic calming treatments are typically the most expensive means of mitigation and have the most significant impact on residents. The implementation of any traffic calming treatment without overwhelming local support can have significant backlash. It is for these reasons that the neighborhood must be fully engaged in the process, and that the City will implement traffic calming only when the evidence clearly shows such measures are the only means for reducing speeding that endangers public safety.

VI. Steps toward Traffic Safety

The NTSP is a step-by-step process that starts with an inquiry from a Neighborhood and moves toward a solution involving Education, Enforcement, or Engineering — or some combination of those three key elements of neighborhood traffic safety.

In this document, “Neighborhood” is defined as either an established neighborhood organization registered with the City’s Office of Neighborhoods or a residential neighborhood with no neighborhood organization.

The following “lettered” steps (A-M) correspond to the same letters and steps in the Flow Chart in Appendix F of this document. It may be helpful to read this document with the Flow Chart handy.

A. Application for Traffic Safety Study

To start the process, a neighborhood organization or, if there is no active neighborhood organization, a group of three or more individual households may submit an application requesting a Neighborhood Traffic Safety Study.

The application, available on the City website or in hard copy form, will 1) identify the neighborhood and the area of concern (specific streets and/or sections of streets), 2) describe the perceived problem (e.g., excessive traffic speed), 3) note the times of day the problem occurs, and 4) provide contact information for a resident who will serve as the liaison with the City and help coordinate meetings with the City. See Appendix C.

Neighborhoods that received traffic calming treatments prior to 2016 are not eligible to apply under NTSP until the third year of the program. These neighborhoods are Cassell Drive, Crystal Lake Drive, Forest Glen, Forest Heights, Fourth and Gill, Hazelwood Road, Kingston Woods, North Hills, Old North Knoxville, Sequoyah Hills, Westwood, and Westmoreland Estates.

B. Kick-off Meeting

In response to the Application, City staff will coordinate with the Neighborhood to schedule a “Kick-off Meeting” between neighborhood residents and City staff.

Informing and involving neighbors is crucial to the success of this program, and the responsibility for this outreach falls on the Neighborhood. **The City will encourage organizers to reach out to their neighbors and inform them of this and all subsequent meetings with the City.** This outreach can best be accomplished with door-to-door visits and distribution of printed meeting announcements.

The Office of Neighborhoods is available to help both neighborhood groups and neighbors in unorganized neighborhoods plan this meeting and any subsequent meeting. Contact David Massey at 215-3232 or dmassey@knoxvilletn.gov.

At the meeting, the City will explain the NTSP, and neighbors will share their concerns and observations about speeding in the neighborhood.

C. Alternate Solutions

Either during or following this meeting, City staff may determine that the concerns raised by neighbors can be addressed partly or completely with alternate solutions — apart from the NTSP — that can be implemented in the near term.

Traffic Engineering may suggest that these alternatives be given a chance to work before the neighborhood applies for a Neighborhood Traffic Safety Study. In addition, the City may recommend that the neighborhood implement Education first, before applying for a traffic safety study.

Decision Point #1: Further Study Indicated?

Working together, the Neighborhood and Traffic Engineering will determine if there are speeding problems that require further scrutiny. If that is the case, the City will ask the Neighborhood to circulate a Petition (see next step).

If the Neighborhood decides that further study is not necessary, it can still utilize the basic tools of the Traffic Safety Education Toolbox (see Appendix A).

D. Neighborhood Petition

City staff and the Neighborhood will work together to prepare a Petition for the Neighborhood to distribute. The Petition will define the impact area by listing the residential addresses on the street segment(s) that the Application reported as areas of concern. A street segment is defined as that part of a street between successive intersecting streets.

The Petition will explain the NTSP and make it clear that the end result of the process could be Education, Enforcement and/or Engineering.

Once provided to the applicant, the Petition must be returned to the City within 90 days. Only those residents within the impact area will be eligible to sign. Petition signatures will be reviewed and checked by City staff for validity.

Decision Point #2: More Than 50% Approve?

A petition signed by a majority of households demonstrates that the neighborhood organization or persons initiating this process have the support of their neighbors and that neighbors have been advised of potential solutions. It insures that organizers are working to involve the entire neighborhood at the outset. This outreach can also be the first step in helping raise awareness about speeding.

If the Petition is not returned within 90 days, or if the organizers fail to gain majority support for a study, then the Neighborhood can still utilize the basic tools of the Traffic Safety Education Toolbox (see Appendix A).

If more than fifty percent (50%) of eligible households request a Traffic Safety Study, then the Neighborhood and City can proceed to the next step.

E. Evaluation Meeting

Upon receipt of a valid Petition for a traffic safety study, the City will contact the neighborhood representative to arrange a follow-up "Evaluation Meeting" with neighborhood residents.

Staff will seek further clarification from residents about the nature and extent of the problems and locations, as well as times of day the problems are occurring. In addition, neighbors will have an opportunity to identify causes and propose solutions.

Depending on the details gathered by City staff at the kick-off meeting, an evaluation meeting may not be necessary, but in any case this meeting will be held if either the Neighborhood or the City believes it would be helpful to fully understand the issues.

F. Speed Data Collection and Evaluation

Following the Evaluation Meeting, the City will gather information from 1) KPD's observations of speeding and traffic patterns, 2) crash history, and 3) speed and volume data generated by counter hoses in the street(s).

Working together, KPD and Engineering will use their best judgment to determine whether speeding in the impact area exceeds acceptable levels. Their decision will be informed by input from the Neighborhood, by the assembled data, and by the score generated by the Point Criteria Chart below. Projects with scores exceeding ___ points have a strong likelihood of receiving additional study for possible traffic calming measures.

Point Criteria Chart: Speeding	
Criteria	**Measurable Factor**
Speed	__ pts for each mph that the 85th percentile speed is over the regulated speed limit [(85th percentile speed – regulated speed limit) x __ pts]
Volume	__ pts for every 50 vehicles of daily traffic [ADT/50]
Traffic Collisions	__ pts for each preventable collision in a three year period within 1000' of the project area along the subject street segment (__ pts if a disabling injury collision)

G. Speed Data Status Meeting

The City will notify the Neighborhood when the data collection and evaluation are complete so that the Neighborhood can schedule a Speed Data Status Meeting. At this meeting, staff from KPD and Traffic Engineering will provide detailed study results and explain their analysis of those results.

Decision Point #3: Speeding Threshold Met?

At the Speed Data Status Meeting, neighbors will learn if the impact area has qualified for Enforcement by KPD and/or further study by Traffic Engineering for possible traffic calming measures.

A project area could qualify for Enforcement but not further study, or vice versa. Whether or not the impact area qualifies for Enforcement or further study, the Neighborhood can utilize advanced Education tools (see Appendix A).

If the Neighborhood does not qualify for further study, another application into the program for the same area may not be submitted within three years from the date the Speed Data Study was completed, unless the City Traffic Engineer determines there have been significant changes to the transportation system and/or the neighborhood that would impact the recommendation.

H. Traffic Calming Feasibility Study

If the City concludes that traffic calming measures have a potential for curbing excessive speeding, then it will conduct a Traffic Calming Feasibility Study of the problem area identified by the Neighborhood. Traffic Engineering will gather more data and conduct in-depth analysis to determine if a proposed project qualifies for Engineering.

During this period, the City will not only draw upon the data already in hand, but also examine street width; street parking; fronting land uses; presence of bicycle routes,

sidewalks, and greenways; location of parks, schools and other pedestrian generators; and other information relevant to vehicular traffic and the safety of pedestrians and bicyclists.

As part of the collection of data, the City may install temporary speed humps to determine the impact of speed humps on speeding and traffic volume.

Based on traffic patterns in the area, the City may elect to expand the impact area to include streets and street segments which may be affected by actions taken to mitigate the concerns expressed in the original application. For example, adding traffic calming measures to a single street in a grid pattern neighborhood might simply move the problem to the parallel street, in which case a more comprehensive solution would be required.

Given limited funds and the large number of local streets where speeding is reported, the City must use objective criteria to identify which streets have the most significant speeding problems that can be addressed by Engineering.

To be qualified for consideration of traffic calming measures, a project must score more than ___ points on a point rating system. Here is a Point Criteria Chart with sample criteria.

Point Criteria Chart: Traffic Calming Feasibility	
Criteria	**Measurable Factor**
Speed	__ points for each mph that the 85th percentile speed is over the regulated speed limit [(85th percentile speed – regulated speed limit) x __ points]
Volume	__ points for every 50 vehicles of daily traffic [ADT/50]
Sidewalks	__ points if no continuous sidewalk on either side of the street
Street	__ points if the street is a signed bicycle route as identified by the City's Bicycle Facilities Plan
Collisions	__ points for each preventable collision in a three year period within 1000' of the project area along the subject street segment
Pedestrian Generators	__ points for every school, park, community center, or bus line located within 1000' of the project area

Please Note: The City of Knoxville is seeking citizen input on which measurable factors should be included in this Chart — and how those factors should be weighted. To give your input, see the program website at http://www.knoxvilletn.gov/trafficsafety or contact Office of Neighborhoods at 215-3232.

I. Traffic Calming Status Meeting

The results of the feasibility research will be presented at a follow-up residents meeting scheduled by the Neighborhood in consultation with the City.

Decision Point #4: Qualifies for Engineering?

At the Traffic Calming Status Meeting, neighbors will learn if the impact area has qualified for Engineering.

If the identified concerns cannot be addressed by traffic calming measures or route modifications, then the target area will be reviewed again by KPD for Enforcement. Moreover, the Neighborhood can implement the advanced tools of the Traffic Safety Education Toolbox (see Appendix A).

If the City determines that Engineering will not be effective, another application into the program for the same area may not be submitted within three years from the date the feasibility study was completed, unless the City Traffic Engineer determines there have been significant changes to the transportation system and/or the neighborhood that would impact the recommendation.

If, however, the study does indicate that Engineering is warranted, then the City and the Neighborhood will proceed to a discussion of the Concept Plan.

J. Concept Plan Meeting

For projects that qualify for Engineering, Traffic Engineering will develop a concept plan that details the proposed location of traffic calming measures and route modifications.

Traffic Engineering will consult with the Fire Department, Police Department and Knoxville Area Transit to make sure that individual traffic calming measures do not interfere with emergency response or bus operations. For example, a decision on whether to install a traffic circle might depend on room for a turning radius that would accommodate fire trucks.

If not presented at the Traffic Calming Status Meeting, the concept plan will be unveiled at a later Concept Plan Meeting. Staff will receive input and ideas from neighbors at the meeting(s). Revisions may be made by the City as a result of neighborhood feedback. Careful consideration will be given to those residents whose properties are immediately adjacent to proposed locations of traffic calming devices.

If residents wish to reduce the number of proposed traffic calming measures to a point that, in the view of Traffic Engineering, the remaining devices would be ineffective, the City reserves the right to implement its original plan, with public safety being the deciding factor.

Decision Point #5: Project Ranking?

Determination of which qualified projects move on to the design stage in any given year is based on a ranking system, available funding, and other factors. The ranking system prioritizes projects based on the Point Criteria Score plus additional points for the following:

- A project is awarded 2 points if it includes a street segment on the Knoxville Police Department's "Top Twenty" list of speeding trouble spots.
- A project is awarded 2 points if it was among the neighborhoods that received Education and Enforcement, but not Engineering, in the City's traffic calming program in the 2005-2007 timeframe.
- A project is awarded 2 points for every year, up to 5 years (10 total points), that it remains unfunded on the priority list.
- If a project is partially or wholly funded by the applicant/neighborhood residents, a point is awarded for each 10 percent of the total estimated project cost, for a maximum 10 points if 100% funded.

Projects with a Concept Plan will be ranked no later than January 31 of each calendar year, giving the Engineering Department time to estimate and propose the NTSP capital budget for the next fiscal year.

Projects that receive a low ranking will be held back and ranked in the next round of projects. As noted above, these projects receive added points for each year of delay. A project that does not receive funding after three years on the waiting list may undergo additional review and analysis to make sure that conditions have not changed and that the proposed Engineering solutions are still appropriate.

Projects with a high ranking move on to the Design stage.

K. Detailed Design

Early in each calendar year, Traffic Engineering will perform detailed design work on projects with Concept Plans that have been fully vetted with the Neighborhoods. The projects will be designed according to standard City procedures, generally conforming to practices set forth by the Institute of Transportation Engineers.

L. Bidding and Construction

The number of designed projects that enter the bidding and construction phase will depend on the NTSP budget each year. To reduce costs, the city will bundle several projects together before putting them out to bid. Construction by a contractor and inspection by city staff will follow standard City procedures.

M. Post-Construction Evaluation

Following installation of traffic calming measures, Traffic Engineering will conduct follow-up evaluations to determine the effectiveness of the measures and identify the cause of any problems. Depending on the results, additional action may be required.

If the physical measures have resulted in unacceptable impacts, Traffic Engineering may remove or modify the devices following consultation with the Neighborhood. Such removal or modification generally would not occur until at least one full year following installation, but the timing is at the discretion of Traffic Engineering.

Appendix A

Traffic Safety Education Toolbox

Neighborhood Traffic Safety Program

The City of Knoxville is developing a series of tools that Neighborhoods can use in neighborhood-centric education campaigns to persuade drivers to reduce speeds in residential neighborhoods. Here are the ideas suggested so far. We welcome other suggestions. Basic tools are available to all neighborhoods, whereas advanced tools are available to neighborhoods that advance to a certain level in the Neighborhood Traffic Safety Program.

Features in this toolbox will be not be available until after the Neighborhood Traffic Safety Program is launched in mid-summer 2016.

Toolbox Item	Basic Level	Advanced Level
Templates for Fliers and Newsletter Articles • Neighborhood can modify for its needs. • Neighborhood responsible for distribution. • Covers speeding laws, stats, news, anecdotes, photos, appeals for safe driving.	√	√
Bumper Stickers • Messages and Designs to be determined.	Provided at full cost to the Neighborhood	Provided at half cost to the Neighborhood
Yard Signs • City provides 3-5 signs for each major entrance into the problem areas of the neighborhood. • Neighborhood responsible for upkeep, placement, and permission of property owner. • Signs are political style signs (corrugated plastic with wire anchors). • Messages and designs to be determined. • Placement cannot be in the right-of-way and must be temporary to comply with sign ordinance.	Provided at full cost to the Neighborhood	Temporary Loan or Provided at half cost to the Neighborhood
Visual Barriers • Possible on-street parking • Tree planting • Paint the Pavement projects	Not available under NTSP	Application Required
Portable Radar Display Units • Units record speed and other data. • Message to drivers can vary. • Units may be unsuitable on some streets.	Not available under NTSP	Deployed as available for a limited number of weeks, each use

Appendix B

Traffic Calming Toolbox

Neighborhood Traffic Safety Program

Under the Neighborhood Traffic Safety Program, the City of Knoxville will consider using any of the four measures investigated and approved by the Institute of Traffic Engineers (ITE) — vertical deflections, horizontal shifts, roadway narrowing, and roadway closures.

- Vertical deflections, horizontal shifts, and roadway narrowings are intended to reduce speed and enhance the street environment for non-motorists.

- Roadway Closures (diagonal diverters, half closures, full closures, and median barriers) are intended to reduce cut-through traffic by obstructing traffic movements in one or more directions.

Here is ITE's description of these measures. Visit http://www.ite.org/traffic/tcdevices.asp for photos and diagrams, along with an overview of how these measures are deployed, design and installation issues, potential impacts, emergency response issues, and cost. (Note that the cost estimates may be low in 2016 dollars.)

1. Vertical Deflections

A. Speed Humps

- rounded raised areas of pavement typically 12 to 14 feet in length
- often placed in a series (typically spaced 300 to 600 feet apart)
- sometimes called road humps or undulations

B. Speed Tables

- long raised speed humps with a flat section in the middle and ramps on the ends; sometimes constructed with brick or other textured materials on the flat section
- sometimes called flat top speed humps, trapezoidal humps, speed platforms, raised crosswalks, or raised crossings

C. Raised Intersections

- flat raised areas covering entire intersections, with ramps on all approaches and often with brick or other textured materials on the flat section and ramps
- sometimes called raised junctions, intersection humps, or plateaus

2. Horizontal Shifts

A. Neighborhood Traffic Circle

- raised islands, placed in intersections, around which traffic circulates
- motorists yield to motorists already in the intersection
- require drivers to slow to a speed that allows them to comfortably maneuver around them
- sometimes called intersection islands
- different from roundabouts

B. Chicanes

- a series of narrowings or curb extensions that alternate from one side of the street to the other forming S-shaped curves
- also called deviations, serpentines, reversing curves, twists, and staggerings

3. Roadway Narrowings

A. Choker

- curb extensions at midblock or intersection corners that narrow a street by extending the sidewalk or widening the planting strip
- can leave the cross section with two narrow lanes or with a single lane
- at midblock, sometimes called parallel chokers, angled chokers, twisted chokers, angle points, pinch points, or midblock narrowings
- at intersections, sometimes called neckdowns, bulbouts, knuckles, or corner bulges
- if marked as a crosswalk, they are also called safe crosses

B. Center Island Narrowing

- raised islands located along the centerline of a street that narrow the travel lanes at that location
- sometimes called midblock medians, median slow points, or median chokers

4. Roadway Closures

- Closures are typically applied only after other measures have failed or been determined to be inappropriate.
- For all types of closures, provisions are available to make diverters passable for pedestrians and bicyclists.
- Often used in sets to make travel through neighborhoods more circuitous — typically staggered internally in a neighborhood, which leaves through movement possible but less attractive than alternative (external) routes.
- Closures have been used as a crime prevention tool.

Here are the different types of closures:

Diagonal diverters are barriers placed diagonally across an intersection, blocking through movement; they are sometimes called full diverters or diagonal road closures.

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

Full-street closures are barriers placed across a street to completely close the street to through-traffic, usually leaving only sidewalks open; they are sometimes called cul-de-sacs or dead-ends.

Median barriers are raised islands in the centerline of a street and continuing through an intersection that block the left turn movement from all intersection approaches and the through movement at the cross street.

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Appendix C

Application for a Neighborhood Traffic Safety Study

Neighborhood Traffic Safety Program

* * * * * **Request from a Neighborhood Organization** * * * * *

Organization Name _____

Mailing Address _____

_____

Contact Person _____

Position with the Organization_____

Phone _____ Email _____

This application must be approved by a vote of the organization's board of directors or membership. Has such approval been obtained? YES ___ NO ___

* * * * * **Request from Individuals** * * * * *

We three unrelated individuals, representing three separate households, request a Neighborhood Traffic Safety Study in our area. There is no neighborhood organization representing our area.

Contact Person _____

Address _____ Phone _____

Email _____

♦ ♦

Name _____

Address _____ Phone _____

Email _____

♦ ♦

Name _____

Address _____ Phone _____

Email _____

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* * * * * **Target Area** * * * * *

Please indicate the street segments where speeding is occurring and where you would like for a traffic safety study to be conducted. A street segment is defined as one or more blocks of the problem street between two cross streets. For example:

Problem Street	From	To
Maple Street	Oak Avenue	Elm Street
Elm Avenue	Maple Street	Persimmon Blvd.

Problem Street	**From**	**To**
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Note: Applicants may list any street, but only local streets — those not listed in the Major Road Plan for the City of Knoxville and Knox County — can be considered for traffic calming measures.

Please describe the problem. Is this occurring just at rush hour or at other times of the day as well? What else should the City know about the problem? Use additional sheets if necessary.

Please submit your application to traffic.calming@knoxvilletn.gov or by postal mail to David Massey, Office of Neighborhoods, City of Knoxville, P.O. Box 1631, Knoxville TN 37902. Questions should be directed to Office of Neighborhoods at 215-3232.

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Appendix D

Frequently Asked Questions (FAQ)

Neighborhood Traffic Safety Program

1. Why is this program confined to local streets? Why not collectors and arterials as well?

There is no question that speeding is a problem on collectors and arterials, and that many such roads are in residential areas. However, there are several reasons this program is confined to local streets:

Local First: We have a very large unmet need to slow speeding on local streets in the interior of neighborhoods. It makes sense to tackle these needs first. Generally, projects on these streets will be more cost effective, and therefore more projects can be designed and built in more neighborhoods.

Unintended Consequences: By their nature, collectors and arterials are part of a larger network of roads. The impact of traffic calming measures placed on collectors and arterials is harder to predict.

Limited Budget and Staffing:

- Traffic calming treatments for non-local streets are more complex and more costly to design, plan, engineer and construct.
- Because of staff and funding limits, the City has to draw the line somewhere — and in a way that guarantees every neighborhood is being treated fairly and equitably. The road classification system provides that transparency.

Emergency Response Time: Traffic calming devices and street modifications have a measurable impact on emergency response time. On local streets, this impact can be measured in seconds and affects fewer citizens. But on collectors and arterials, this impact can be and usually is significant, affecting more people and making the impediments harder to justify.

2. Who determines street classification?

The Metropolitan Planning Commission (MPC) — in consultation with the city and county engineering departments — determines street classifications as part of its overall responsibility for maintaining the "Major Road Plan for the City of Knoxville and Knox County." The plan was last updated in 2011 and can be found on the MPC web site here: http://archive.knoxmpc.org/zoning/Major_Road_Plan.pdf.

The main purpose for the Major Road Plan is to determine the right-of-way dedication requirements, which are generally based on roadway classification.

For example, a greater right-of-way width will typically be required for an Arterial than a Collector roadway. The Major Road Plan also includes information about specific future improvements and new roadway connections (where identified in transportation plans) so that appropriate rights-of-way can be preserved. Road classification can also be a determining factor in certain zoning matters.

There is no set timetable for reviewing classifications, but the next review likely will take place in 2017.

3. Why can't the City install stop signs to reduce speeding?

Stop signs function to regulate traffic flow and traffic interaction. They do not control speed.

Stop signs — as well as traffic lights — are installed based on criteria developed by the Federal Highway Administration. These criteria are called "warrants," which are benchmarks for the number of vehicles traveling on the main street and side streets. Other warrants include the proximity of schools and pedestrians, as well as the history of crashes preventable by stop signs or traffic lights. These warrants have been adopted by the State of Tennessee and have the force of law.

Engineering studies have shown that motorists over time tend to ignore unwarranted signs, increasing the risk of collisions and doing little or nothing to reduce speed.

Consider, for example, a 4-way stop installed at an intersection where one street is very busy and the cross street has very little traffic. Motorists who regularly travel the busy street will learn there is usually no cross traffic, and some motorists will tend to roll through the stop sign or ignore it altogether. A driver on the lightly traveled street may trust the stop sign, only to be broadsided by the cross-street driver who believes there is no reason to stop.

If a stop sign is not warranted, the Engineering Department will not recommend it. Some sign requests do result in new signs, but for other reasons. If no sign is warranted, the Department will still investigate to see if other solutions might address the problem.

4. How long will it take for our Neighborhood to get traffic calming measures?

Since this is a brand new program, with a lot of backlog demand, the timing is hard to predict. How quickly a Neighborhood and the City are able to bring a project to a conclusion depends on the number of applicants, the time required to schedule and advertise neighborhood meetings, how quickly a Neighborhood can gather required petition signatures, how many situations are verified for in-

depth study, the complexity of any identified traffic calming solutions, limitations on staff time and funding, and perhaps other factors.

Without any undue delays or waiting in line, the City anticipates that it would take 12-18 months to complete a project, starting with the Kick-off Meeting and ending with the completion of construction.

Recognize, however, that some Neighborhoods will not qualify for traffic calming measures, and projects that do qualify may be ranked low and may not go to the design stage right away.

5. How much money is budgeted for this program?

The FY 2017 capital budget — this excludes staff time — is proposed at $200,000 and is subject to City Council approval in May. That figure is based, in part, on the fact that there is already $250,000 set aside for traffic calming. Thus the initial budget is about $450,000. However, this is not necessarily the funding level that can be expected in subsequent years. As is true for any City program, the amount that can be funded from one year to the next depends on tax revenues and many other competing needs.

6. How many traffic calming projects will the City be able to install in any one year?

Some traffic calming projects can cost $100,000 or more in a single neighborhood. Others may cost a lot less. The City's best estimate at this time is that four to five traffic calming construction projects can be completed annually.

Because of the time required to verify speeding, determine the feasibility of traffic calming measures, develop a concept plan and create detailed engineering design drawings, the first construction projects are not likely to occur before 2017.

7. How are speed limits established?

Speed limits on local (neighborhood) streets are established by City ordinance (Section 17-262 in the City Code of Ordinances). The current limit is 30 miles per hour. Traffic Engineering has the discretion to consider requests to reduce the speed limit to 25 miles per hour. This can be done only after a speed study justifies the reduction.

Speed limits on larger streets (collectors and above) are established by street design or by speed studies. In a speed study, the City surveys traffic characteristics such as speed using specialized equipment such as stationary radar detectors. The data are analyzed by traffic technicians, and then Traffic Engineering sets the speed limit.

6. What is the 85th percentile speed, how is it calculated, and how is it used?

The 85th percentile speed is the speed that 85% of drivers do not exceed. In other words, 15% of drivers will exceed this speed, and 85% of vehicles will travel at or below this speed.

Across the country, municipalities generally use the 85th percentile speed (as measured by specialized equipment) as the basis for setting the speed limit on the theory that most drivers behave in a safe and prudent manner, do not drive at excessive speeds, and wish to avoid crashes.

In addition to the 85th percentile speed, Traffic Engineering also takes into account roadway design, adjacent land uses, crash history and other data when setting the speed limit on a particular road.

In the Neighborhood Traffic Safety Program, the 85th percentile speed is also used as a basis for determining excess speed.

9. Why doesn't the City increase speeding fines?

The Tennessee State Constitution establishes the limit on how much local jurisdictions can fine citizens for misdemeanor offenses. That limit is $50 per violation.

10. What are the pros and cons of traffic calming measures such as speed humps?

Benefits of Traffic Calming:

- Reduces speeds.
- Reduces volume.
- Reduces collision frequency and severity.
- Increases the safety for non-motorized users of the street.
- Enhancing the street environment (streetscape).
- Reduces cut-through vehicle traffic.
- Increases the quality of life.
- Reduces the negative impacts of vehicles on the environment and the neighborhood.
- Reduces the need for police enforcement, hence reducing costs.

Disadvantages of Traffic Calming:

- Slight increase in emergency response time on local streets.
- Vehicles may be damaged and people injured by inappropriate driver behavior (e.g., driving too fast or inattentively).
- Snow removal is more difficult and time consuming.

- Installation cost.
- Additional signs and lighting may be required.
- Increased maintenance, especially where landscaping is included.
- Annoying to some residents (noise and inconvenience).
- Some treatments can restrict resident access.
- Some treatments (e.g. speed humps) may be considered unsightly.

Appendix E

Glossary

Neighborhood Traffic Safety Program

85th Percentile Speed — the speed at or below which 85% of all vehicles are observed to travel under free flowing conditions past a certain point.

Concept Plan — a brief description, accompanied by a map, showing the proximate location of traffic calming devices and/or roadway closures.

Education — One of the three E's of neighborhood traffic safety, Education refers to efforts to persuade drivers to drive at reasonable and rational speeds. See Appendix A.

Enforcement — One of the three E's of neighborhood traffic safety, Enforcement involves police stake-out of a street to enforce traffic laws, including speed limits.

Engineering — One of the three E's of neighborhood traffic safety, Engineering refers to traffic calming measures, including a range of physical traffic calming devices as well as roadway modifications. See Appendix B.

Neighborhood — For purposes of this NTSP, a Neighborhood (capitalized) is defined as an established neighborhood organization registered with the City's Office of Neighborhoods or a residential neighborhood with no neighborhood organization.

Neighborhood Traffic Safety Study — A two-part study conducted by the City's Traffic Engineering Division to address neighbor concerns about speeding. The first part will focus on whether there is, in fact, a significant speeding problem. If there is, the second part of the study will focus on whether traffic calming can be effective.

NTSP — Neighborhood Traffic Safety Program.

Traffic Calming — the use of physical measures and roadway modifications to reduce speeding in a residential neighborhood.

Traffic Engineering — the Traffic Engineering Division of the City of Knoxville's Engineering Department.

Appendix F — Flow Chart / Neighborhood Traffic Safety Program