

Neighborhood Traffic Management Program (NTMP)



**December, 2005
FINAL DOCUMENT**

**City of Lynchburg
Virginia**

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City of Lynchburg

Neighborhood Traffic Management Program

1. Introduction

Speeding has become an increasing concern to neighborhood residents and to governing agencies charged with ensuring traffic safety. Excessive speed jeopardizes both the safety and “livability” of our neighborhoods. As a consequence, the City of Lynchburg has implemented this Neighborhood Traffic Management Program (NTMP) to address this important neighborhood concern. The NTMP enlists input from residents to help solve speeding problems and improve the residential environment. The program includes the components of public education, enforcement of laws and ordinances, and street and roadway engineering.

The program is adapted from the Virginia Department of Transportation’s (VDOT), “Residential Traffic Calming Guide,” with input from other programs throughout the Commonwealth and the nation.

Traffic calming is defined by the Institute of Transportation Engineers (ITE) as “the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users.” With the NTMP as a framework, City staff will work with neighborhoods to develop a plan to better manage speeding traffic. Although traffic calming is a major component in traffic management, this program was not called a “traffic calming” program as the term was considered to be too narrow. The term traffic management includes traffic calming as well as other strategies to slow speeds and make neighborhoods more livable.

Livability in neighborhoods is addressed in the City’s Comprehensive Plan, specifically relating to traffic conditions within neighborhoods. The City of Lynchburg’s *Comprehensive Plan, Transportation Element*, states:

Objective 1.D. Neighborhood Traffic. Ensure that traffic conditions do not degrade neighborhood quality.

1) Consider neighborhood-level impacts of transportation projects during preparation of Neighborhood Conservation Plans (see Chapter 4, Plan Framework) and employ traffic calming techniques to control...speeding traffic.

The NTMP is consistent with the City’s Comprehensive Plan. It should be noted that this program applies mainly to existing neighborhoods. New residential neighborhoods under review should be designed and constructed to include traffic management techniques. Guidelines for designing livable streets can be found in the documents Residential Streets, 3rd Edition (ISBN 0-874208-79-3), and Context Sensitive Street Design, APA. These documents are available from the Institute of Transportation Engineers and the American Planning Association, respectively.

2. Neighborhood Traffic Management Principles

The NTMP will be implemented and evaluated by Public Works Traffic Section staff with assistance from the Lynchburg Police Department. The intent of this program is to resolve traffic problems starting with the least restrictive measures, and proceeding through a step by step program. The program stresses a philosophy that incorporates the 3 E's in the following order of implementation:

- Education and Community Awareness
- Enforcement
- Engineering – Signage and other Physical Devices

These are explained in more detail below.

Education and community awareness – This is a critical first step. Residents should be made aware of speeding concerns and should be reminded of the importance of driving safely in their neighborhood. City staff is available to speak to homeowner associations and others about neighborhood traffic management techniques and to help raise community awareness about advantages, disadvantages, costs, and funding options of traffic management options.

Also, speeding is often due to increased traffic demands on crowded primary streets. In most cases, improvements to the primary arterial streets and the addition of new primary streets will be the only solution to traffic congestion and speeding in neighborhoods. The community must be aware of the plans, (e.g., major street plan for primary street improvements) and recognize the impact on their neighborhood. Also, implementation and expansion of bicycle and pedestrian plans, and the use of public transit will reduce congestion on neighborhood streets.

Enforcement – Speeding problems are traditionally addressed through police enforcement. Police officers monitor and enforce the posted speed limit. Enforcement efforts should be undertaken as much as possible prior to considering implementation of physical traffic management measures. Increased penalties for excessive speed is a low-cost measure that does not physically restrict driver maneuvers. An ordinance for increased penalties will increase the awareness that speeding within a specific neighborhood is a serious concern and that there is community support for increased speeding fines. City Council would have to adopt a procedure to accept and implement increased speeding penalties for selected streets within the City limits. A *Speed Watch* program conducted by trained citizens can be an effective tool for educating the motorist. Each of these items (education and enforcement) is discussed in greater detail in Appendix A and should be read by residents interested in the NTMP.

Engineering - Signage suggested by engineering studies may also help reduce speeds and will support law enforcement. It should be noted that unwarranted signs could be more of a problem than a solution. Please refer to Appendix C for some common questions regarding traffic control in neighborhoods. Physical Devices are designed to reduce speed by creating a vertical or horizontal shift in the roadway or travel lanes (See Appendix B for details of physical measures used to slow traffic in neighborhoods). Because they are indiscriminate and affect all motorists,

they should be used only as a last resort and with a majority of residents agreeing to this action. Since Fire and Emergency Medical Services (EMS) are affected by physical measures, they too must have an active role in the management plan. It should be noted that this policy does not prohibit the City to do what is necessary and in the timeframe necessary to correct a documented safety concern.

3. Neighborhood Traffic Management Process

The following explains how the NTMP works and how and when in the process the residents will need to participate. The flow chart figure on the following page graphically summarizes the NTMP process.

3.1. Step 1 – Initiate Petition (Residents Responsibility)

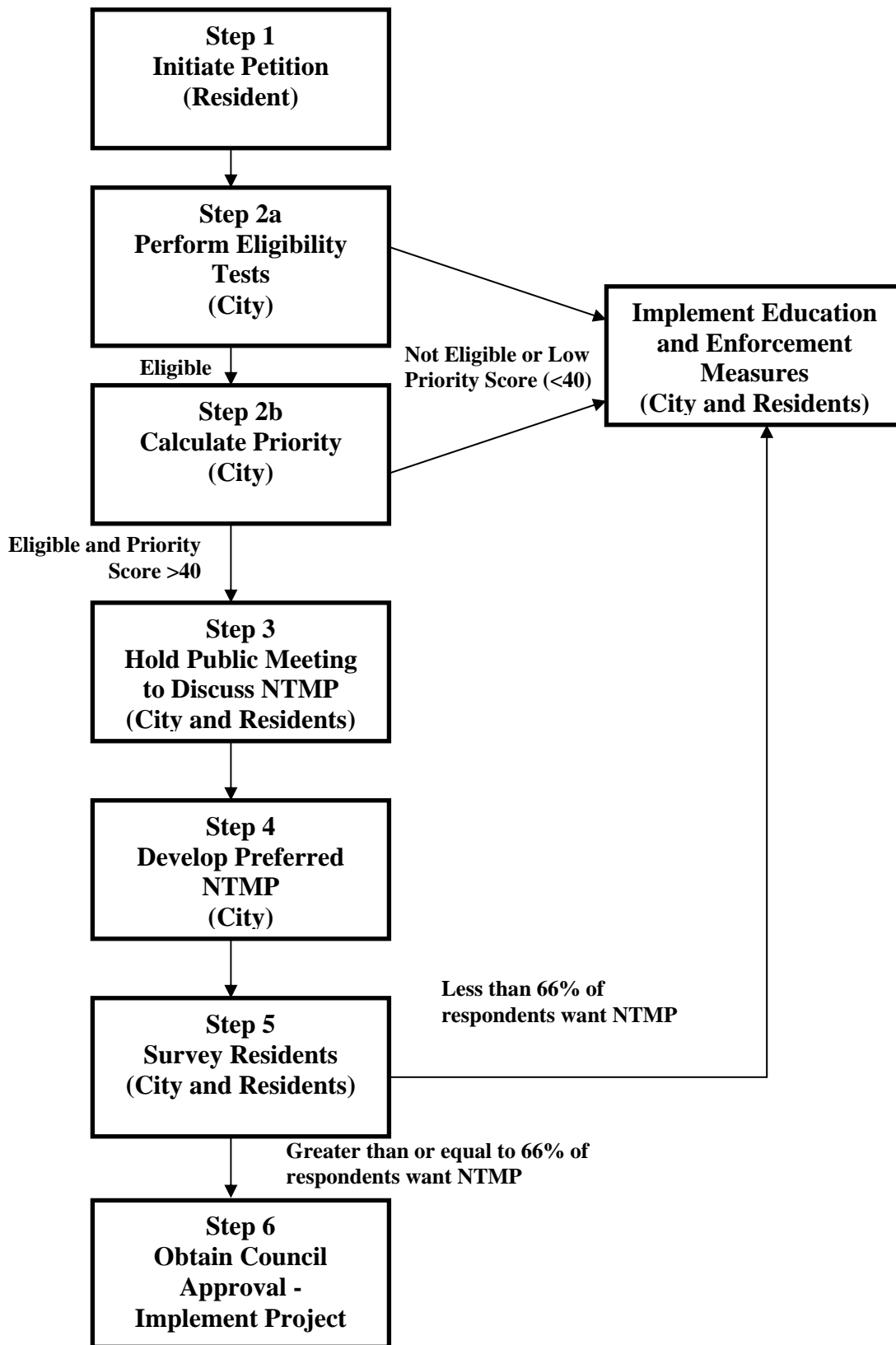
Any resident can initiate the NTMP. If a resident feels that the traffic moving through the area is creating an unsafe situation or adversely affecting their quality of life, that resident should contact the City’s Public Works Traffic Engineering Section (455-3950) and request a copy of this document.

To ensure that there is at least basic support for traffic management in the area in question, the resident initiating the process will be asked to obtain the signatures of at least three (3) other area residents living at three (3) different mailing addresses who support the request using the petition form presented on Page 6. This petition form must be used and returned to Traffic Engineering. This request should also include the opinion of any existing neighborhood homeowner’s association. Only one signature per property is allowed.

The petition should include all relevant data such as a description of the unsafe conditions, streets affected, time of day the safety concern is at its worst (if applicable), the speed limit of the roadway, possible causes of the problem, and other pertinent data to help Traffic Engineering staff identify and understand the problem.

<i>When Traffic Calming could help:</i>
<ul style="list-style-type: none">• Speeding• High Traffic Volumes• Vehicular Safety Concerns• Pedestrian Safety Concerns• Noise Pollution• Vibration

City of Lynchburg Neighborhood Traffic Management Program (NTMP) Process



**CITY OF LYNCHBURG
NEIGHBORHOOD TRAFFIC MANAGEMENT PETITION**

We, the residents of _____, are in favor of pursuing Traffic Management in our neighborhood, in accordance with the City of Lynchburg’s Neighborhood Traffic Management Program (NTMP), because of the following concern(s). (Please be specific and attach a separate sheet of paper if necessary.)

Note: Please state names of roads where you are concerned about safety from Begin Point to End Point. Also state whether the problem is excess speeds, geometric constraints (sight distance), or other.

Signature	Print Name	Address	Date

Three (3) individual resident signatures living at three (3) different addresses are required in addition to the petitioner. Only one (1) signature per address.

Name of Concerned Citizen (Petitioner)	Address
--	---------

Day Time Phone Number	Home Phone Number
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If a Homeowners Association exists, please state its collective opinion:

Homeowners Association Officer/Date	Day Time Phone Number
-------------------------------------	-----------------------

Title	Home Phone Number
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Please send Petition to:
City Traffic Engineer
Public Works – Engineering, City Hall
900 Church Street
Lynchburg, VA 24504

3.2. Step 2a – Perform Eligibility Tests (City Responsibility)

After a traffic management petition has been received by Traffic Engineering, City staff will determine whether the street(s) is (are) eligible for traffic management techniques. This will most likely require data collection efforts and could take up to 90 days to complete. City staff will also determine the study area as more than one road may be affected if traffic management techniques are applied to one street.

The following criteria must be used to determine if a street is eligible for traffic management techniques. If a street does not meet the criteria listed below, enforcement and education remain viable options to address neighborhood speeding.

A. *Local residential streets* (two-lane) are eligible for traffic management techniques provided the posted speed limit does not exceed 25 mph. A local residential street provides direct access to abutting residences and serves to provide mobility within the neighborhood. Motorists on these streets should be entering and exiting the residences. Typically, dead-end, no outlet and private streets are not eligible for physical measures unless there is a major attractor on the street (e.g., church, school, etc.). The following additional criteria must also be met:

1. Minimum Vehicular Volumes: Eligible streets should have one or both of the following:
 - a) Daily Traffic Volume greater than 500 vehicles, or
 - b) Peak Hour Volume greater than 100 (any one hour during the day)**and**
2. A Documented Speed Problem – the average speed is greater than 5 mph over the speed limit based on documented speed studies (greater than 30 mph).

B. *Certain residential collector streets*, although classified as collector roads, may have characteristics of a local residential street. (For purposes of this document, a collector street is defined as a roadway that can have lower speeds and volumes and usually connect major arterials with local streets.) Typically, dead-end, no outlet and private streets are not eligible for physical measures. These streets may be considered for traffic management techniques if they meet all the following conditions:

1. Posted speed of 25 mph
2. Two-lane roadway
3. Does not serve as the primary access to commercial, educational, or industrial sites.
4. Minimum of 12 dwelling units fronting the street per 1,000 feet of roadway, including both sides.
5. The volume of traffic is greater than 1,000 vehicles per day.
6. Documented Speed Problem – the average speed is greater than 5 mph over the speed limit based on documented speed studies (greater than 30 mph).

Due to the large number of requests that may be received each year, Traffic Engineering may perform a qualitative assessment in lieu of a more detailed quantitative assessment.

3.3. Step 2b – Calculate Priority (City Responsibility)

Once all the data outlined above has been collected and analyzed, the request will be prioritized. Requests scoring less than 40 points on the first chart below will automatically be considered low priority and not considered for physical measures (this threshold should be adjusted annually as more data becomes available). If a request is determined to be a low priority, consideration should still be given to addressing the issue through simple, alternative traffic management measures that can be implemented with City forces using available operating funds. These measures are typically low cost yet provide some support to the neighborhood to lessen the apparent problem.

Some alternative measures that may be considered include:

- Increased police enforcement and/or speed displays
- Education
- On-street parking
- Signing improvements
- Improvements or revisions to pavement markings, such as crosswalks or edgelines
- Changes to traffic regulations such as speed limits, or turn prohibitions

It is important that implementation of these alternative measures does not adversely impact adjacent streets or neighborhoods. If the anticipated impacts of a proposed measure cannot be easily identified or if the impacts are expected to extend beyond the study location, then the measure should not be considered except in conjunction with a full traffic management plan. For those neighborhoods not automatically categorized as low-priority, consideration must still be given to using simple, alternative traffic management measures before advancing to Step 3. If the issues cannot reasonably be addressed through any of the alternative measures identified above or if alternative methods have already been tried unsuccessfully, then the neighborhood will be considered for a more extensive traffic management project. All of the traffic management projects being considered will be prioritized based on their point totals according to the second chart below, available funding, and Council approval.

All streets must meet the requirements outlined under Step 2a above, and meet the following scoring requirements to move forward:

Criteria	Points	Basis for Point Assignment
Speed	0 to 50	85 th percentile traffic speeds more than 5 mph above the posted speed (5 points assigned for every mph over)
Volume	0 to 50	Average daily traffic volumes (2 points assigned for every 100 vehicles per day)
Total Points Possible	Varies	Must have at least 40 points to move on to the table below

Streets with a score of 40 or greater will advance to the detailed scoring process (see table below). Streets that score below 40 points will need to wait a minimum of three (3) years before starting the process over again. This timeframe can be adjusted if traffic patterns in the area change significantly before the three (3) year timeframe is over. These roadways are still eligible for education, enforcement, and possibly other low cost measures.

Criteria	Points	Basis for Point Assignment
Speed	0 to 50 max	Percentage of vehicles traveling 10 mph over the posted speed (1 point assigned for every 1 percentage point)
Volume	0 to 5 max	Average daily traffic volumes (1 point assigned for every 100 cars over 500 vehicles per day)
Elementary Schools	0 to 10 max	5 points assigned for each school zone in study area
Pedestrian Generators	0 or 5	5 points assigned for public facilities (such as parks, community centers, and high schools) that generate a significant number of pedestrians on the street
Bicycle Route	0 or 10	10 points assigned if any part of the street is a designated bicycle route
Transit Streets	0 or 10	10 points assigned if any part of the street is a designated transit route
Pedestrian Facility	0 or 10	10 points assigned if there is no continuous sidewalk on at least one side of the street
Crash Frequency	0 to 5 max	5 points for injury accidents, 1 point for property damage (last 3 years)
Total Possible Points	Varies	

The qualifications and selection scores for each street segment are added together. All street segments are then compared with each other. Those with the most total points are ranked the highest. City Council must approve physical measures and may change priorities due to available funding. The priority of a project may be accelerated if it is compatible with an existing or scheduled overlay or other repair in the area.

3.4. Step 3 – Initiate and Hold Public Meeting (City and Residents Responsibility)

Based on the results of Step 2, City staff will hold a neighborhood design charrette to begin the development of the project. A charrette is a highly interactive public meeting in which facilitators educate participants and encourage their interaction through a variety of activities designed to allow the participants to express their opinion and to understand the opinions of others. The purpose of the charrette is to:

- Educate the residents about traffic management, available traffic management measures, and the process;
- Review the traffic data gathered about the project and restate the issues to be addressed;
- Brainstorm traffic management techniques that could be utilized for the project;

- Develop a rough draft traffic management plan that addresses the issues and is supported by the neighborhood and is economically feasible.

The group of local representatives from the petition area or the homeowners association will be responsible for scheduling and facilitating the meeting. City staff will provide technical support and advise the community of the potential advantages and disadvantages of traffic management techniques. Educating participants about neighborhood traffic management is important to a successful program.

All residents in the defined study area will be invited to participate in the charrette. The outcome of the meeting will give City staff a direction for the development of a Neighborhood Traffic Management Plan for the neighborhood. A plan may include enforcement and education only but also could include physical measures.

3.5. Step 4 – Develop Preferred Traffic Management Plan (City Responsibility)

After the neighborhood design charrette, City staff will take all of the information that has been gathered and develop a conceptual plan for the implementation of traffic management techniques in the neighborhood. It is critical that appropriate City departments are included in this process, especially emergency services. The plan will include sketches, as appropriate, depicting the proposed installation sites of the preferred management measures and a plan to evaluate the effects on the neighborhood one year from the time of implementation. City staff will circulate the conceptual plan for review and comment to the various City departments through the Technical Review Committee (TRC). The City departments that will need to review the final plan prior to implementation may include:

- Risk Management
- Fire Department
- Police Department
- Buildings and Grounds (if landscaping is anticipated)
- Waste Management Division
- Streets and Engineering Divisions
- Planning Department
- GLTC (if bus routes are in study area)
- Public School Transportation Department
- Historic District Review Boards (if applicable)

City staff will consider the various comments received from other City Departments and revise the conceptual plan accordingly. A preliminary cost estimate will be prepared for the final concept plan.

3.6. Step 5 – Survey Residents for Preferred Traffic Management Plan (City and Resident Responsibility)

The residents of the neighborhood will be given a copy of the preferred Neighborhood Traffic Management Plan and surveyed to determine what percentage agrees with the Plan. City staff will mail the survey out to all residents in the study area by mailing address. Each address in the study area will receive one survey. At this stage, there must be at least a 66% approval rating (a “yes” vote) of all potential/eligible properties for the preferred Neighborhood Traffic Management Plan to move forward. This percentage must be obtained regardless of the respondent rate. This survey requirement only applies to physical remedies within the road. There is no need to complete a survey prior to utilizing the approaches of enforcement and education.

Only one vote per address is allowed. If a property is an apartment complex with five or more units, only the property owner or management company may complete the survey. If an apartment has less than five units, it will be treated as individual properties. Respondents will have two (2) weeks to mail the survey back to the City.

3.7. Step 6 – Implement Project Based on Priority, Funding and Council Approval

The Neighborhood Traffic Management Plan will be implemented based on its priority score and available funding. If a project is very costly, it is conceivable that it may have to be carried over two (2) or more fiscal years to encumber enough funds to construct it. If a project can not be completed over a course of five (5) years due to funding constraints, it can be reconsidered again for traffic management techniques of lesser cost. If the NTMP’s funding is placed on hold by City Council, all traffic management projects that required funding will also be put on hold until such time as Council funds projects again. City Council has the authority to establish and/or change the priority of requested projects.

City staff will work with neighborhoods and interested parties to identify funding sources and to provide advice on obtaining project funds. Funding participation by neighborhoods or interested parties is welcomed and will be considered in prioritizing approved projects. A project that is fully funded could take up to 12 months to construct depending on the time of year and the complexity of the project.

After construction, a follow-up evaluation will be performed to ensure that the physical measures are effective. The City will determine the method to disseminate the findings and recommendations to those involved in the plan development, and obtain feedback as appropriate. If an unforeseen problem develops, the City may determine it appropriate to remove any installed physical devices. In this case, any private funding will not be refunded.

Appendix A

COMMUNITY AWARENESS, EDUCATION AND ENFORCEMENT

COMMUNITY AWARENESS, EDUCATION AND ENFORCEMENT

Community Awareness and Education

Many neighborhood traffic management programs include a community awareness and education component. This component is performed alone, as a first step before deciding to consider other actions, or in combination with other actions. A brochure has been developed for the City of Lynchburg which is presented on the following pages.

Enforcement

In addition to the traditional role of enforcing speed limits through issuing tickets, the police may also increase the community's awareness of speeding problems. An example is announcing locations for speed monitoring by radar through public service announcements (PSAs).

Increase Speeding Fine

The Virginia State Code authorizes increased penalties for speeding in residential neighborhoods. A community's voluntary acceptance of increasing the maximum penalty for exceeding the speed limit to \$200 will emphasize their commitment to addressing the problem. The primary focus of this program is to resolve the problems at the source, the violators. This will require a program to be implemented by City staff and approved by City Council.

HOW CAN YOU MAKE YOUR NEIGHBORHOOD STREETS SAFER?

Studies have shown that motorists drive over 25 mph on residential streets. These studies also show that those who exceed the speed limit come from all age groups, not just teenagers or commuters, but everyone alike. What does this mean? The average motorist in Lynchburg drives faster than they should on residential streets. This usually occurs for two reasons:

- Local residents drive faster on their local streets because they feel familiar and comfortable.
- Outsiders use local streets as short cuts to busy arterial roads.

AS A DRIVER



SLOW DOWN

The maximum legal speed limit on residential streets is 25 mph (unless otherwise posted). Drive 25 mph or less to give yourself more time to react to the unexpected, such as a child darting out from behind a parked car. Unless you make a conscious effort, you may drive faster than you should on residential streets. Remind neighbors to drive 25 mph. Make sure that others who use your vehicles drive 25 mph. Do not speed on major streets either, and avoid bad driving habits. Studies show that driving at a lower and more responsible speed on residential streets has very little effect on the time it takes to complete your journeys. Besides, **IT IS THE LAW.**

AVOID USING NEIGHBORHOOD STREETS AS SHORT CUTS

The more we use residential streets as short cuts, the more we disrupt the quality of life in neighborhoods. Neighborhood cut-through traffic increases noise and pollution in residential areas and results in a greater threat to the safety of children.



OBSERVE ALL THE RULES OF THE ROAD

Don't take chances, even on short trips. As statistics show, most accidents occur close to home. In particular, make sure you and all your passengers buckle up.

CHANGE YOUR DRIVING PATTERN ON RESIDENTIAL STREETS

Learn to adopt a different attitude! You should expect the unexpected on residential streets. It may not be your fault if you have an accident, but imagine the pain you would live with if you hit a child or elderly pedestrian. Yield to pedestrians. Pedestrians have the right-of-way at intersections whether crosswalks are painted on the street or not.

AS A PARENT

Ensure that your children know and understand the rules of the road. Our children are the primary pedestrians on residential streets and are the most likely victims of careless drivers.



Studies have shown that smaller children have difficulty in making safe judgments about traffic dangers. Do not let your children play in the street. Warn them against darting into the road after pets or toys. Teach your children to stop, look both ways, and listen before crossing streets. Make sure your children know that even though cars are supposed to stop, they may not.

SUPERVISE YOUR CHILDREN’S TRIPS TO AND FROM SCHOOL

- Plan a safe walking route to school. Walk it with your child and point out areas where they should be especially careful.
- Take or arrange for transport of smaller children to and from school.
- Set a good example, drive the speed limit and drive with courtesy. Let children off on the correct side of the road when delivering or picking them up from school.
- Ensure that your children are properly equipped to ride bicycles on city streets.
- You need to equip them with two things:
 1. Bright clothing and a safety helmet
 2. A sound understanding of the Rules of the Road



AS A RESIDENT

DON’T RUSH!

Do not rush while driving. Be organized and leave a little earlier. In particular, do not rush getting children to and from school. Our urgency may cause them to disregard traffic safety and run headlong across the street.

TAKE THE INITIATIVE

If there are potential problem areas along your street let your Public Works Department staff know (by calling Citizen’s First), such as:

- Damaged or missing signs
- Pot-holes
- Landscaping that obscures a driver’s vision of signs or intersections.

TALK WITH THE LYNCHBURG POLICE DEPARTMENT

Speeding should be reported to your local police department. Let them know when the problem is more prevalent so they can conduct more effective enforcement. Ask for an occasional traffic patrol to deter speeders.



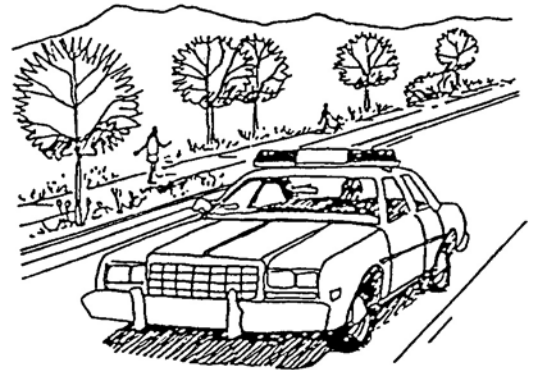
**GET INVOLVED AND DO YOUR PART
TO IMPROVE TRAFFIC SAFETY**



856-CITY (856-2489)

ENFORCEMENT
(Visible and Active Police Presence)

Enforcement is the periodic monitoring of speeding and other violations by police. Police officers can come out to a neighborhood for short periods of time to issue tickets. Additionally, police officers can “take a neighborhood under their wing,” and monitor traffic on a regular basis.



POLICE SPEED WATCH
(Speed Wagon/Trailer)

Police speed watches are the use of a portable radar speed meter capable of measuring vehicle speed graphically and then displaying the speed to passing drivers.



Appendix B

PHYSICAL TRAFFIC MANAGEMENT DEVICES

(Commonly Referred to as Traffic Calming Devices)

Source: Walkable Communities, Inc.

Traffic Calming -- Intersection Tools

Tool Description	Added Benefits	Cost / Other	Plan View		
Curb Extensions					
<p>Curb extensions are great tools for slowing speeds at intersections and midblock locations. They are often used in combination with other tools, such as refuge islands, or part of a modified intersection. They are very helpful to inset parking, meet ADA requirements and reduce pedestrian crossing times and distances.</p>	<p>Main Street</p> 	<p>Helps protect and preserve sight lines, eliminates illegal parking, helps assure emergency responder access to critical streets. Can be used for emergency responder operations area. Use to create chokers, chicanes, neckdowns.</p>	<p>Neighborhood</p> 	<p>Costs range from \$5-30,000 per corner. Costs are reduced if drainage is left open. This can increase maintenance costs, so these details must be worked out by a city/county team.</p>	<p>Curb Extension</p> 
Refuge Islands					
<p>Refuge islands slow traffic in three ways. They visually tighten the road, slow turning speeds, and help create narrow channels. They separate conflicts, create 10' wide driving lane channels (when used with curb extensions), minimize pedestrian crossing conflict speeds.</p>		<p>Minimum preferred width 8.0 feet. Best when landscaping is used to help motorist see treatment in advance. Keep ADA ramps at grade or with light crown for drainage. Use full width ADA ramps, and create 45 degree bend, if midblock.</p>		<p>One of the most affordable tools. Does not affect drainage. Can be landscaped at added cost with or without irrigation. Used effectively in high pedestrian areas, such as schools, parks, stores.</p>	<p>12' WIDE MEDIAN</p> 
Modified Intersections					
<p>Modified intersections take back unwarranted asphalt, returning it as green space. Often motorists turn too fast when curb radii were made too wide for safety. Some intersections can be turned into small parks, greatly increasing safety, beauty and a gateway appearance.</p>		<p>Vastly improves sight distances. Helps many motorists get into difficult or unsafe intersections. Can serve as a small neighborhood park or gathering place, thus increasing association and security of the neighborhood.</p>		<p>Very popular as a gateway to a neighborhood, or any place where excessive asphalt exists. Very high return on investment, especially where pedestrian crossings are risky. Avoid ugly temporary treatments.</p>	
Raised Intersections					
<p>Raised intersections provide a colorful vertical intersection effect. They slow traffic in three ways. First they create an attractive, distinct shape. Second, they create a vertical deflection forcing a low speed approach. Third, they highlight the area as a pedestrian space.</p>		<p>Can be used with very tight and narrow intersections. Used where roundabouts cannot fit. Highly attractive. Requires good coordination with engineering, landscaping and architectural specialists.</p>		<p>Very popular as a gateway to a neighborhood, or any place where excessive asphalt exists. Very high return on investment, especially where pedestrian crossings are risky.</p>	
Roundabouts, Mini- Roundabouts					
<p>Roundabouts and mini-roundabouts are the most effective and popular traffic calming feature. These horizontal deflection tools lower speeds to 15-20 mph, shorten pedestrian crossings to 12-14 feet at a time, decrease injury crashes about 90%, reduce noise and pollution, and increase area property values.</p>		<p>Roundabouts are excellent for entrances, intersections near schools, parks, gateways to downtowns, and many other locations. Always consider any time a signalized intersection is being funded.</p>		<p>Great range in costs. Mini-roundabouts can be \$10-50,000, while roundabouts can be \$50-500,000 for many sizes. Greatest safety benefit of all traffic calming tools.</p>	

Traffic Calming -- Mid Block Tools

Tool Description

Speed Tables (Flat Top Tables)

Speed Tables slow traffic through vertical deflection. They are a best tool for pedestrian and bicyclist crossings. Although they are not desired where volumes are high (above 10,000), on bus routes or prime emergency response routes, they have great utility. Their most common placements are at schools, parks, many local streets, and on some moderate volume roads.



Major Street

Speed tables are highly effective on narrow streets where parking must be maximized, and where other tools take away valuable land or parking. They can be colorized, enhanced with advance markings and made of asphalt or concrete.



Added Benefits

Costs range from \$4-15,000. Costs are reduced if drainage is left open. This can increase maintenance costs, so these details must be worked out by a city/county team. They can be stamped or patterned for added attractiveness.

Neighborhood



Cost / Other

Plan View

Chokers

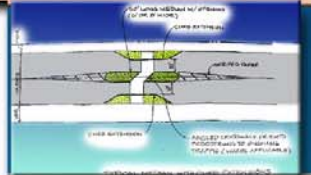
Chokers reduce speeding by narrowing passageways at appropriate points. They are highly effective when set at 10' width. Sometimes additional visual narrowing is applied. Chokers demand landscaping, so that they can be seen from a distance. Low, slow growth ground cover and tall trees are useful.



Chokers take up only moderate space, keeping parking toward a maximum. Chokers require low ground cover and tall trees for maximum safety and benefit. They are very attractive enhancements to neighborhoods, and quite popular.



Costs range from \$4-15,000. Costs are reduced if drainage is left open. This can increase maintenance costs, so these details must be worked out by a city/county team. They can be stamped or patterned for added attractiveness.



Chicanes

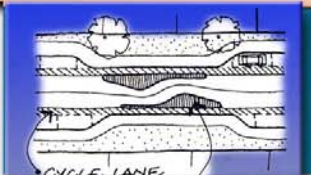
Chicanes divert traffic from its intended course. Deflection speeds are held to 15-20 mph. These tools are highly effective and can be made very attractive. These tools work for all size vehicles. On low volume streets no treatments are needed for bicycles, but on higher volume Avenues it may be appropriate to channel bikes along their own independent course.



Chicanes take up longer sections of roads than most tools and must be carefully set between driveways. Meanwhile, they are very popular since they can create attractive mini-parks. Landscaping greatly enhances their performance.



Costs range from \$12-35,000. Costs are reduced if drainage is left open. This can increase maintenance costs, so these details must be worked out by a city/county team. They can be stamped or patterned for added attractiveness.



Medians

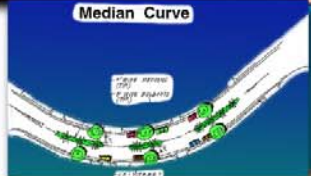
Raised medians are especially useful around curves and on any overly wide street. Medians are the most attractive and least intrusive treatment. Their benefit to pedestrians is noteworthy. Medians can have openings for driveways, and so fit in many tight locations. Use care to keep medians in plain view, especially around curves and on hills.



Medians may restrict parking, especially on narrower roads. Medians can add significant beauty to neighborhoods. A variety of materials can be used. Concrete curbs are essential to their success.



Costs range from \$4-15,000. Costs are low, since they do not impact drainage. Using xeriscaping or other alternative landscaping materials can keep maintenance costs low. Light crowning aids detection and beauty.



Short Medians

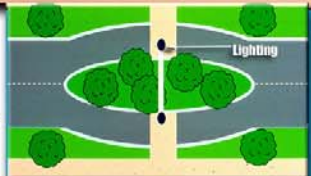
Short medians are best described as a pregnant median, or a mis-located roundabout. They are highly effective tools, slowing traffic to about 15-20 mph. Short medians are very attractive. However, they remove parking, and often appear to take land away from adjacent properties. Best for local streets.



Short medians can be neighborhood focal points or mini-parks. When parking, driveway placement and other land issues are not an issue they are exceptionally well liked by the entire neighborhood. Tall trees should be planted.



Costs range from \$10-25,000. They are often free if added as part of normal street construction. They rarely have impact on drainage. Often short medians are used to preserve a historic tree, cactus, boulder or other feature.



Appendix C

COMMON MYTHS OF TRAFFIC CONTROL

Common Questions of Traffic Control

Why can't we have a 4-way stop to reduce accidents?



Many people believe that installing STOP signs on all approaches to an intersection will result in fewer accidents, however, this is not always the case. Although the accident severity may be lessened, drivers are penalized by the additional delay and higher vehicle operating costs (fuel, brakes, etc.). There is no real evidence to indicate that STOP signs decrease the speed of traffic.

Impatient drivers view the additional delay caused by unwarranted STOP signs and begin to disregard their importance. Unwarranted STOP signs breed disrespect by motorists who tend to ignore them or slow down without stopping. This can sometimes lead to tragic consequences.

The Manual on Uniform Traffic Control Devices (MUTCD) published by the U.S. Department of Transportation is the national standard for Traffic Control Devices. The Virginia Department of Transportation has adopted the MUTCD as the State standard. The installation of a multi-way stop condition must first meet the warrants as set forth in the MUTCD. Any of the following conditions may warrant a STOP sign installation (sec. 2B-4):

1. Where traffic signals are warranted and urgently needed, the multi-way STOP is an interim measure that can be installed quickly to control traffic while arrangements are being made for the signal installation.
2. An accident problem, as indicated by five or more reported accidents of a type susceptible to correction by a multi-way STOP installation in a 12-month period. Such accidents include right and left-turn collisions as well as right-angle collisions.
3. Minimum traffic volumes:
 - (a) The total vehicular volume entering the intersection from all approaches must average at least 500 vehicles per hour for any 8 hours of an average day, and
 - (b) The combined vehicular and pedestrian volume from the minor street or highway must average at least 200 units per hour for the same 8 hours, with an average delay to minor street vehicular traffic of at least 30 seconds per vehicle during the maximum hour, but
 - (c) When the 85th percentile approach speed of the major street traffic exceeds 40 miles per hour, the minimum vehicular volume warrant is 70 percent of the above requirements.

STOP signs should not be viewed as a cure-all for solving all safety problems but, when properly located, can be useful traffic control devices to enhance safety for all roadway users. Stop signs will not be used solely for speed control within the City of Lynchburg.

'Won't a 'children at play' sign help protect our kids?'



At first consideration, it might seem that this sign would provide protection for youngsters playing in a neighborhood. It doesn't.

Studies made in cities where such signs were widely posted in residential areas show no evidence of having reduced pedestrian accidents, vehicle speed or legal liability. In fact, many types of signs which were installed to warn of normal conditions in residential areas failed to achieve the desired safety benefits. Further, if signs encourage parents with children to believe they have an added degree of protection - which the signs do not and cannot provide - a great disservice results.

Obviously, children should not be encouraged to play in the roadway. The "children at play" sign is a direct and open suggestion that it is acceptable to do so.

Federal standards discourage the use of "children at play" signs.

Specific warnings for schools, playgrounds, parks and other recreational facilities are available for use where clearly justified.

"Why not lower the speed limit to reduce hazards in our area?"



An unrealistically low speed limit can actually lead to accidents. Here's why:

First, many studies conducted over several decades in all parts of the country have shown that a driver's speed is influenced more by the appearance of the roadway and the prevailing traffic conditions than it is by the posted speed limit.

Second, some drivers will obey the lower posted speed while others will feel it's unreasonable and simply ignore it. This disrupts the uniform traffic flow and increases accident potential between the faster and the slower drivers.

Third, when traffic is traveling at different speeds as mentioned above, the number of breaks in traffic to permit safe crossing is reduced. Pedestrians also have greater difficulty in judging the speed of approaching vehicles.

Finally, setting the speed limit to an unrealistic threshold as compared to the geometrics and appearance of the roadway will create a significant enforcement problem with the Police Department.

Appendix D

COMPARISON OF TRAFFIC CALMING POLICIES FROM DIFFERENT AGENCIES

TRAFFIC CALMING COMPARISONS

		ELIGIBLE STREETS				APPROVING CRITERIA				PHYSICAL MEASURES ALLOWED ¹															
AGENCY	STATE	WRITTEN POLICY	ACTIVE PROGRAM	COMMENTS	AVERAGE SPEED/CUT-THRU %	% CITIZEN APPROVAL	FUNDING PER YEAR	PRIORITIZATION PROCEDURE	COMMUNITY AWARENESS PROGRAM	SPEED WATCH PROGRAM/ ENFORCEMENT CONSIDERATION	PAVEMENT MARKINGS	SPEED HUMP	SPEED TABLE	CHOKER	TRAFFIC CIRCLE	MEDIAN ISLANDS	CHICANE	CLOSURES	SPEED ZONES	FOLLOW-UP EVALUATION					
1	VA Dept of Transportation	VA	Y	Y	Local - 25 MPH	30 MPH	75%	Varies	Y - Point System	Mentions as first step		mentions enforcement	Y	Y	Y	Y	Y	Y	Y	Y	Y				
					Collector - 25 MPH																				
					2-Lane																				
					Not primary																				
					12 dwellings per 1,000 ft.																				
2	City of Harrisonburg	VA	Y	Y	Same as VDOT's with small variation	≥ 31 MPH (85%)	75%	Varies	Y - Point System	Y - Written program		Y - Written program		Y	Y	Y	Y			Y - specific guidelines	Y				
3	City of Bedford	VA	N	N	Comprehensive plans mentions design modifications to calm traffic					N/A		N/A								N/A					
4	Chesterfield County	VA	N - Have draft policy	N	VDOT	≥ 30 MPH	75%	\$50,000 If active	Y - own method	N/A		N/A	Y	Y	Y	Y	Y	Y	Y	N/A	N/A				
5	City of Hampton	VA	N	Y - (past 7 years)	N/A	> 8 MPH over posted (85%) 40% cut-thru during peak	2/3	Varies	N/A	N/A		N/A		Y		Y			Y	N/A	N/A				
6	City of Chesapeake	VA	Y (recent)	Y	VDOT	≥ 32 MPH	75%	Varies	VDOT	Y		Mention enforcement		Y	Y	Y	Y	Y	Y	Y					
7	City of Alexandria	VA	Y	Y - includes dedicated program manager	Classification Designation by City - Specific volumes	15% of motorists going 5 MPH over speed limit	65%	\$400,000 - \$600,000	Y - own method	N/A		N/A		Speed cushions		Y			Y		No more speed tables - Fire & EMS issue				
8	Town of Blacksburg	VA	Y	Y	N/A	N/A	N/A	Cost share program	First come-First serve	N/A		N/A	Y	Y		Y	Y	Y	Y		N/A				
9	City of Charlottesville	VA	Y	Y	All roadways up to minor arterial	use speed charts	50% response rate 2/3 agree	N/A	N/A	Y		Y	Y	Y	Y	Y	Y	Y	Y		Y				
10	City of Sarasota	FL	Y	Y	Neighborhood Streets	10 MPH over posted speed limit (85%)	Letter from Associations	\$300,000	Y - point system	N/A		N/A		Y	Y	Y	Y	Y	Y						
11	City of Winston-Salem	NC	Y -draft	Case by Case	Neighborhood Streets	N/A	2/3 - non-responsive are "no"	N/A In CIP	Y - point system	Y		Y	Y	Y	Y	Y	Y	Y	Y		N/A				
12	City of Fayetteville	AK	Y	Y	locals and collectors ≤ 30 MPH posted speed	Ranking system	75%	N/A In CIP	Y - point system	N/A		N/A	Vote on preferred strategy with citizens - 60% or more must sign to remove												N/A
13	City of Portland	OR	Y	Y - some elements on hold	≤ 4000 AADT - locals and some collectors	Point System	30% return - 51% approval		Y - point system	Y		Y	Y		Y	Y	Y				Y				

¹ VDOT provides design guidance for each