

Neighborhood Traffic Calming Program Guide



Adopted by Action of City Council:

November, 2012

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City of Harrisonburg, Virginia
Neighborhood Traffic Calming Program (NTCP) Guide

Adopted by Action of City Council:

November 13, 2012

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Program Contact Information

Harrisonburg Police Department
(540) 434-4436

Harrisonburg Public Works
(540) 434-5928
publicworks@harrisonburgva.gov

Harrisonburg City Manager's Office
(540) 432-7701

<http://www.harrisonburgva.gov/neighborhood-traffic-calming-program>

<http://www.harrisonburgva.gov/team-up-to-slow-down>

1 Introduction

Speeding and cut-through traffic in residential neighborhoods is oftentimes a concern among Harrisonburg City residents because of its effect on the livability of our streets and neighborhoods. In response to citizen concerns, the City of Harrisonburg has developed the Neighborhood Traffic Calming Program (NTCP).

The purpose of traffic calming is to address problems related to speeding and cut-through traffic in residential neighborhoods and on streets classified as local residential streets. On a limited case by case basis, certain collector streets (such as Central Avenue or Wolfe Street) that have characteristics of local residential streets may also qualify for traffic calming strategies.

The NTCP was created by Harrisonburg City Council in 2001 to more effectively work with neighborhoods in developing appropriate traffic solutions. The NTCP is a collaborative effort by the Harrisonburg Public Works Department, the Harrisonburg Police Department, the Harrisonburg Transportation Safety and Advisory Commission (TSAC), and citizens to address speeding and cut-through traffic problems on public streets.

1.1 Program Realities

While this is a grassroots, community-driven effort, there are realities that should be understood by residents considering enrollment into the NTCP:

1. As a municipal organization the City must abide by regulations set forth by our state and federal government. The City cannot and will not install any traffic device that is in conflict with these regulations as it can potentially violate the law, safety and liability. See Appendix B: Additional References.
2. The NTCP is only administered on public streets. If you live in a neighborhood with private streets, you should contact your property management association or homeowners' association.
3. Since the NTCP is only applicable to public streets, residents and neighbors need to realize just that – these streets are open to the general public. Like other communities, the City's public street system receives

Benefits of Traffic Calming:

Reduces the severity of vehicle collisions.

Increases the safety of walking and biking on streets.

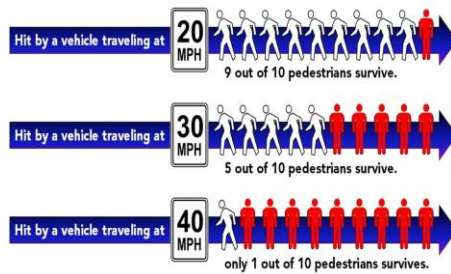
Decreases the frequency of cut-through traffic.

Increases livability in neighborhoods.

Decreases noise and air pollution.

Reduces crime in neighborhoods.

A Little Extra Speed Makes A Big Impact



Speeding is a major contributing factor in crashes of all types. Speeding has serious consequences when a pedestrian is involved. A pedestrian hit at 40 mph has an 85% chance of being killed, while at 20 mph the fatality rate is only 5%. Faster speeds increase the likelihood of a pedestrian being hit. At higher speeds, motorists are less likely to see a pedestrian, and are less likely to be able to stop in time to avoid hitting one. (Source: PEDSafe, www.walkinginfo.org).

maintenance funding from the Commonwealth of Virginia paid for by all citizens. Any physical restrictions to traffic flow may require payment by the neighborhood through their own funding abilities. This can be achieved any variety of ways, but should be anticipated by residents.

1.2 The 5 E's of Traffic Calming

The NTCP enlists the help of local neighborhood residents to reduce the amount of speeding and cut-through traffic in their neighborhood and utilizes a philosophy that incorporates the 5 E's:

- Education
- Encouragement
- Enforcement
- Engineering
- Evaluation

Education (Community Awareness): Education is a great first step for residents to help promote traffic calming in their neighborhoods. Motorists are made aware of community concerns and reminded of the importance of safe driving habits. The better motorists understand safety concerns and traffic laws in neighborhoods, the more likely they are to follow the rules. Neighbors are encouraged to share their concerns with one another and participate in the City's Team Up to Slow Down Program, see Section 3.2.

Encouragement: Part of helping people change their opinions about speeding is encouraging them to do so. The encouragement process is a positive approach to the issue of speeding in local neighborhoods. Motorists are encouraged by their neighbors and by the City to drive on primary and collector roads, rather than taking short cuts through neighborhoods. Encouragement uses neighborhood meetings, programs like “Team Up to Slow Down”, and speed radar displays to promote awareness and reinforce safe driving habits. Speed radar displays are placed on city streets by the Police Department and come in the form of speed trailers or portable speed radar displays. This equipment uses radar to determine the vehicle speed and then digitally displays the speed the vehicle is traveling to the driver. It is important to consider that one single family home generates an average of ten trips per day. Larger neighborhoods may have cut-through traffic concerns, but neighbors may contribute to speeding problems as well. The success of the Neighborhood Traffic Calming Program in any neighborhood is based on increased awareness amongst neighbors.

Enforcement: Speeding problems are traditionally addressed through police enforcement. Police officers can monitor and enforce the speed limits in neighborhoods. Enforcement efforts should be undertaken as much as possible prior to implementation of physical traffic calming devices. Citizens can call the Police Department at (540) 434-4436 and report areas where speeding is perceived to be a problem and request enforcement.

Engineering (Physical Devices): Engineering strategies can involve adding restrictive driving barriers such as signs, pavement markings, speed humps, chicanes, or traffic circles to the neighborhood. See Appendix A: Traffic Calming Measures Defined for examples of physical devices.

These physical devices are indiscriminate and affect all motorists; therefore, they are used after education, encouragement, and enforcement strategies have been tried. Alternatively, a landscaped neighborhood gateway and adding trees to front yards can also be considered to



The community must be aware of the plans for future development and street improvements, and recognize the impact on their neighborhood with their implementation.

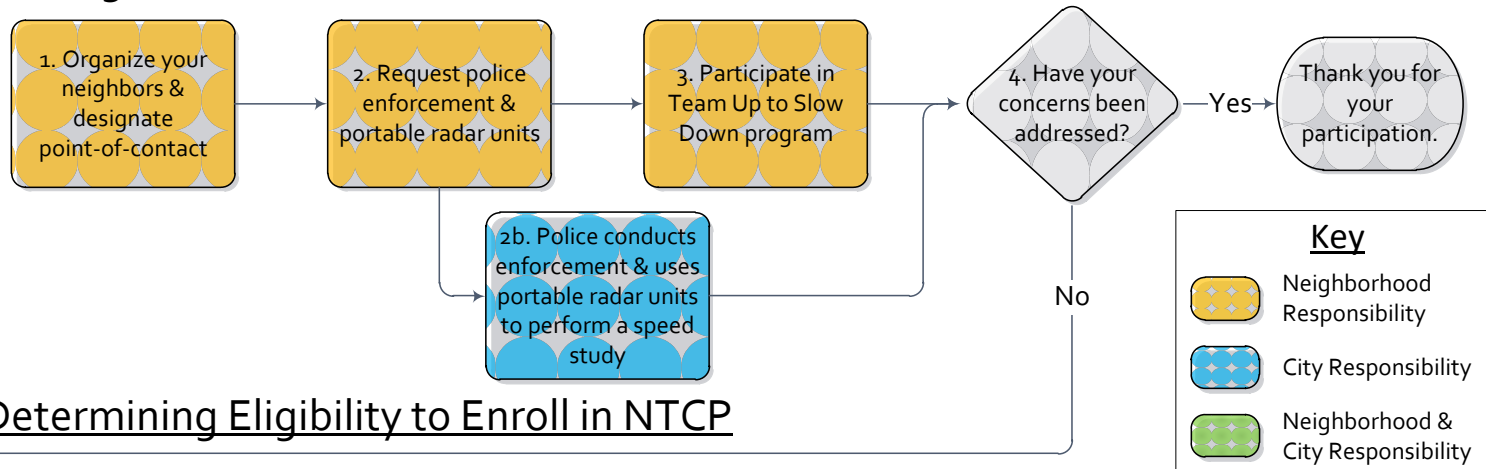
Often, speeding and cut-through traffic is due to increased traffic demands on primary streets that are crowded, and thus becoming less desirable to use. In some cases, improvements to the primary and arterial streets and addition of new primary streets will be the only solution to traffic congestion and routing through neighborhoods.

help slow down traffic.

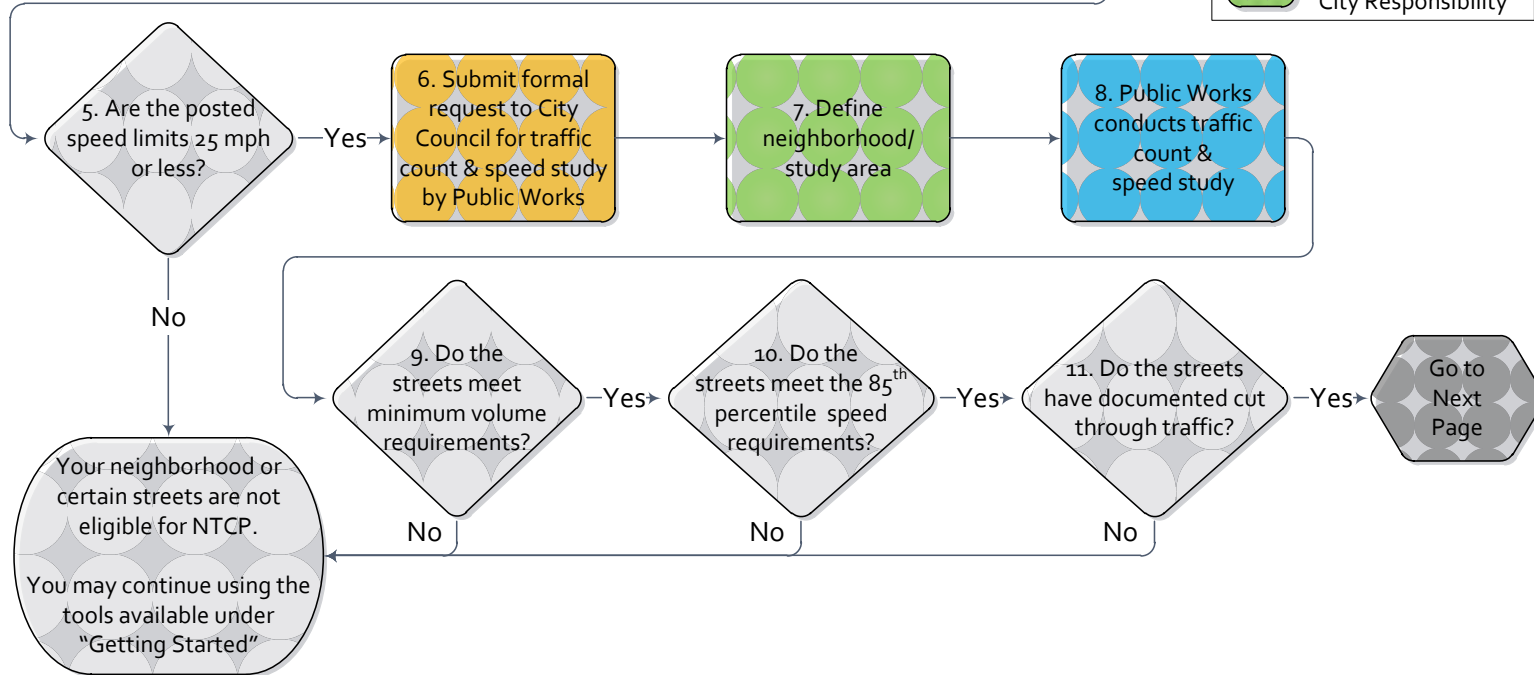
Evaluation: After a new traffic calming strategy has been implemented, the City of Harrisonburg and neighborhood residents will work together to evaluate if the strategy was successful. After a period of time has passed after which traffic patterns have normalized, Harrisonburg Public Works will complete another speed survey and traffic count and evaluate the data to determine if additional measures are needed to slow down traffic in the neighborhood or if the neighborhood can be “graduated” from the program.

2 Neighborhood Traffic Calming Program Overview

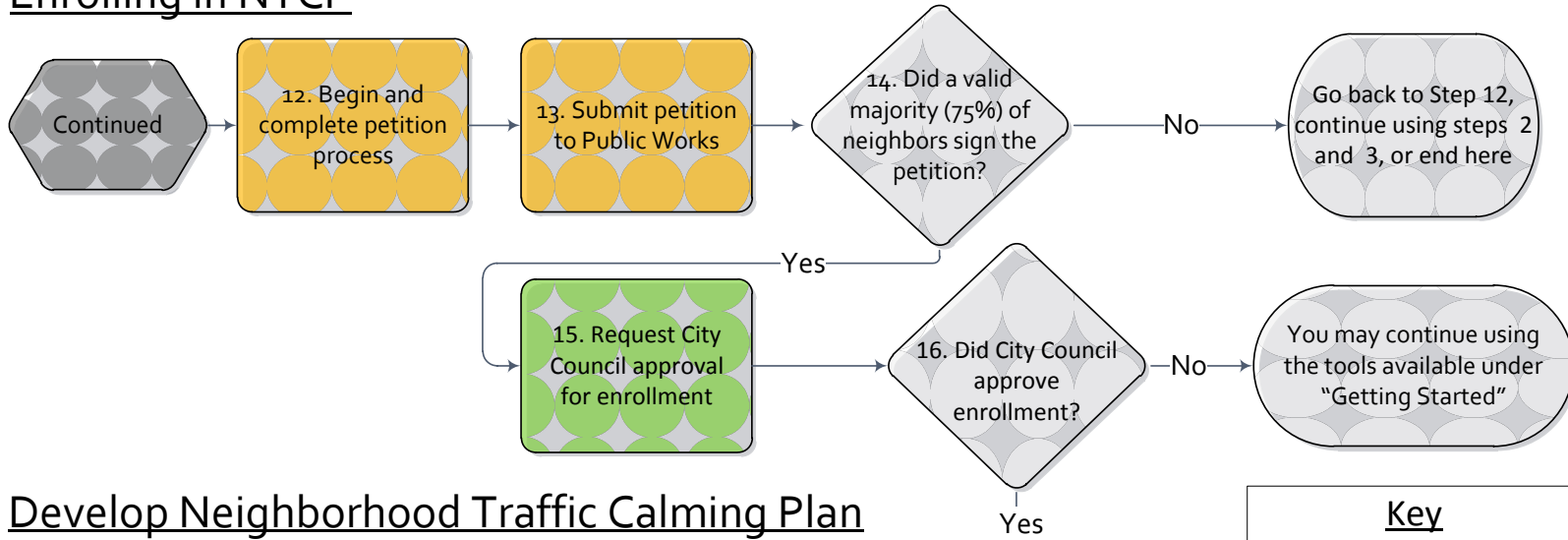
Getting Started



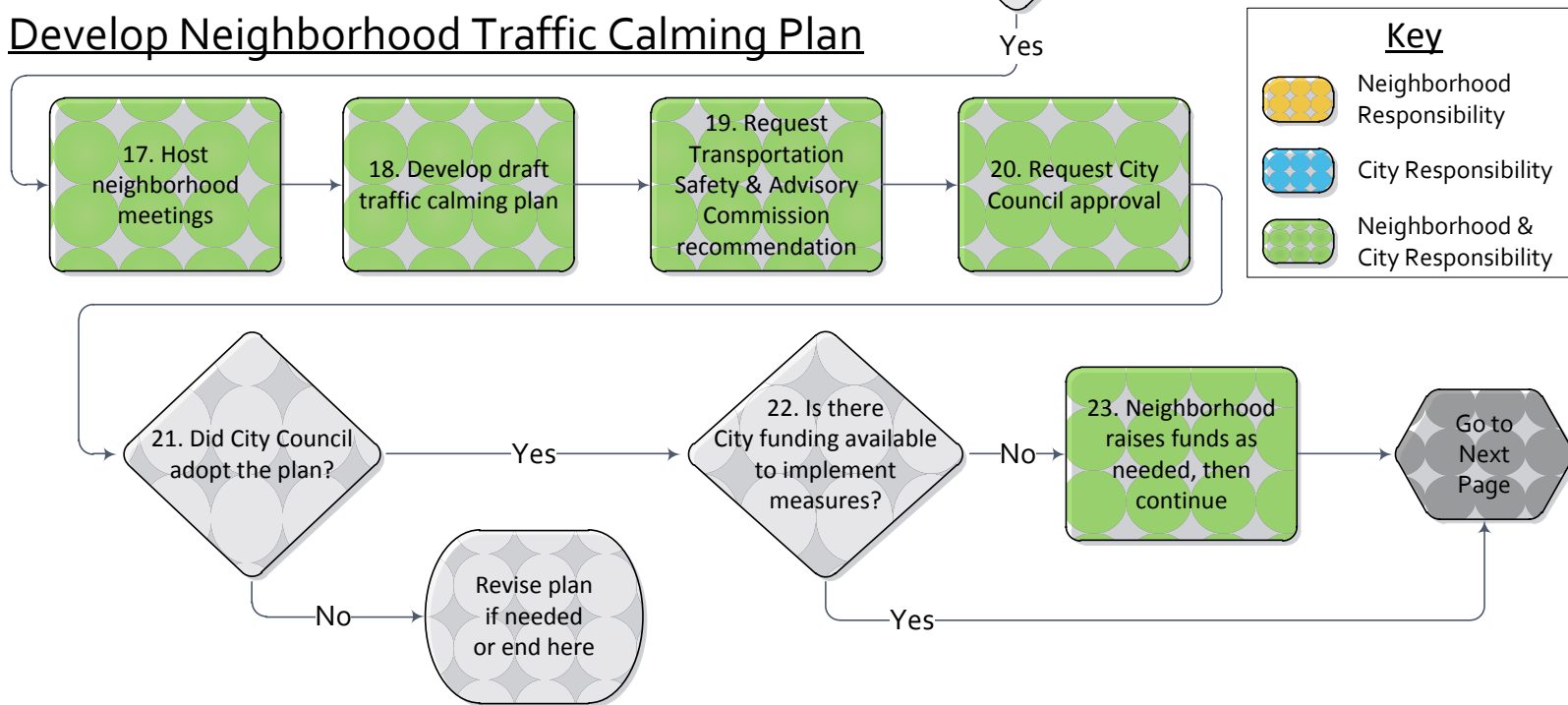
Determining Eligibility to Enroll in NTCP






Enrolling in NTCP



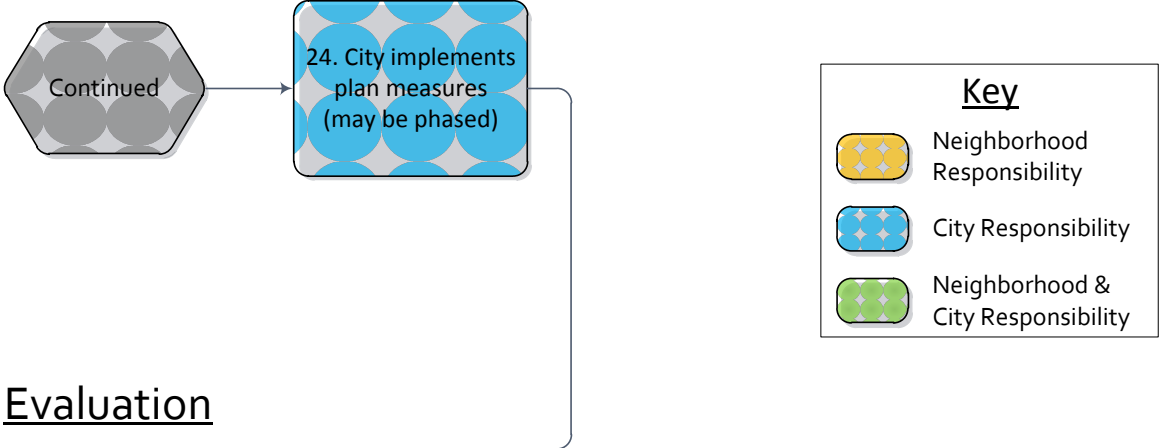
Develop Neighborhood Traffic Calming Plan



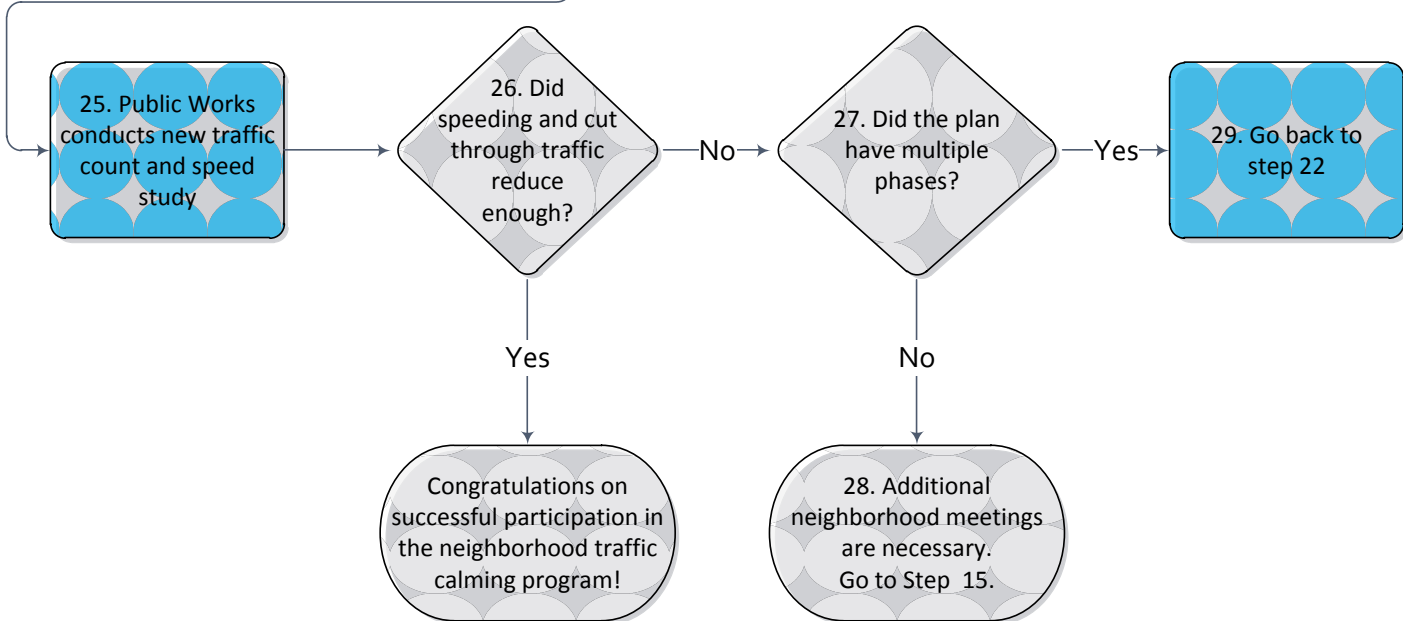
Key

-  Neighborhood Responsibility
-  City Responsibility
-  Neighborhood & City Responsibility

Implementation of Plan Measures



Evaluation





Portable speed radar displays act as a reminder to motorists to follow the speed limit.

3 Getting Started

Neighbors must complete these pre-requisites prior to requesting enrollment into the NTCP. In many cases, speeding and cut-through traffic will be reduced after these activities are completed. A flow chart is available in Section 2: Neighborhood Traffic Calming Program Overview.

3.1 Organize your neighbors

Begin talking with neighbors and discuss your concerns about neighborhood speeding and cut-through traffic. Begin with a small group of concerned neighbors and designate a neighbor who will act as the point-of-contact.

3.2 Designate a Point-of-Contact

Neighbors should designate a point-of-contact who will act as a liaison between City staff and other neighborhood residents.

3.3 Utilize Encouragement & Enforcement Measures

Prior to requesting enrollment into the NTCP, the neighborhood must document that they have made requests to the Harrisonburg Police Department for increased enforcement and have used encouragement tools, such as Team Up to Slow Down, within the last 12 months.

The following measures may be used by any neighborhood whether or not they are planning to enroll into the NTCP.

Increased Police Enforcement

To make a traffic complaint or request additional enforcement on your street, call Harrisonburg Police Department at their non-emergency number at (540) 434-4436. This increased enforcement will discourage motorists from speeding.

Portable Radar Units

The Harrisonburg Police Department owns portable speed radar displays that can be set up temporarily in your neighborhood upon request. This device tells motorists the

speed the vehicle is traveling as they pass the radar. It acts as a reminder to motorists to follow the speed limit. Call the Harrisonburg Police Department to request a radar display to be put up on your street.

Team Up to Slow Down

Prior to enrollment in the NTCP, neighborhoods must document their use of the City’s Team Up to Slow Down program. This program encourages neighborhood residents to discuss speeding concerns with each other and to encourage each other to slow down.

The Team Up to Slow Down program is a partnership initiative and is multifaceted, utilizing a variety of educational and encouragement tools including a combination of resident pledge cards, brochures, yard signage, bumper stickers, and neighborhood meetings to encourage people to slow down in residential areas.

This program is managed by the Harrisonburg Public Works Department with assistance from the Police Department. More information on the program is available at www.harrisonburgva.gov/team-up-to-slow-down. If your neighborhood wishes to become enrolled in this program they should contact the Harrisonburg Public Works Department at (540) 434-5928.

4 Determining Eligibility to Enroll in the NTCP

After completing the pre-requisites under Section 3 Getting Started, if a neighborhood perceives that there is still a speeding and cut-through traffic problem, the neighborhood’s point-of-contact should contact Harrisonburg Public Works to review the following eligibility requirements.

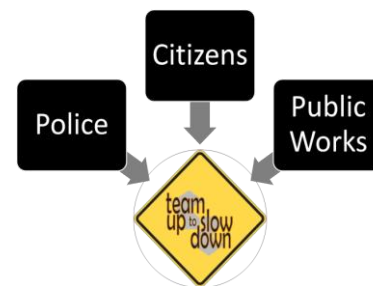
4.1 Posted speed limit must not exceed 25 mph.

A local residential street provides direct access to abutting residences and serves only to provide mobility within the neighborhood. Traffic on these streets is expected to be



Team Up to Slow Down is a multi-faceted program that focuses on education and encouragement. It is available to all City neighborhoods.

More information at:
<http://www.harrisonburgva.gov/team-up-to-slow-down>



When starting your Neighborhood Traffic Calming Program, it is helpful to find a successful way to communicate with as many of your neighbors as possible whether that is by telephone, e-mail, social media, or mailings to your neighbor's homes.

Strong communication amongst neighbors can make a traffic program flourish. Communication with neighbors also makes the NTCP more likely to be a success.

entering or exiting from residences.

In accordance with Virginia State Code (§46.2-874), the City establishes 25 mph speed limits on residential streets.

Streets that have posted speed limit of more than 25 mph are not eligible for enrollment into the NTCP.

4.2 Request a Traffic Count and Speed Study and Define the Study Area

The neighborhood point-of-contact will submit, on behalf of the neighborhood, a formal request by letter to Harrisonburg City Council explaining your concerns and to request that a traffic count and speed survey be conducted. See Appendix C: Sample Request for Traffic and Speed Study.

Note: This letter may be submitted to Public Works who will facilitate placing this request on a City Council meeting agenda. Harrisonburg Police will provide documentation of their enforcement in the area to be provided with the request for enrollment.

If the request is approved by City Council, Public Works and Police staff will work with the neighborhood point-of-contact to define the neighborhood study area. The study area is likely to include more streets, and a larger area, than the streets of initial concern. It is important to include a larger study area because traffic calming measures enforced or installed on one street may have an impact on other neighbors who use that street to travel to and from home. Additionally, the program must ensure that measures do not shift problems onto adjacent streets.

Public Works will follow with a traffic count and speed survey and determine the number of vehicles per day and 85th percentile speeds of motorists driving in the neighborhood.

After Harrisonburg Public Works has collected the traffic count and speed data, a group of neighborhood representatives and City staff will meet to discuss the results and determine if the neighborhood is eligible for enrollment

into the NTCP.

4.3 Must meet minimum vehicular volume requirements

Minimum vehicular volumes to enroll in NTCP are:

- Daily traffic volume greater than 600 vehicles
- Peak hour volume greater than 100 vehicles

Streets that do not meet the vehicular volume requirement from the City are not eligible for enrollment into the NTCP.

4.4 Must meet 85th percentile speed requirements

The 85th percentile speed must be at least 10 mph over the posted speed limit to be eligible for enrollment into the NTCP. For example, for a street with a 25 mph posted speed limit, the 85th percentile speed must be greater than 35 mph for the neighborhood to be eligible for the NTCP.

See Appendix E to learn more about 85th percentile speeds.

4.5 Must have documented cut-through traffic

In general, traffic calming measures are not appropriate to limit traffic cut-through in a neighborhood unless,

- The overall traffic volume is significantly higher than would be expected given the number of residences in the neighborhood, and
- At least 40-percent of the vehicles in one or more of the peak hours during the day are using the street as a through street. Percentage of cut-through traffic can be determined by City staff by conducting an origin-destination study.

4.6 Exceptions for Collector Streets

Collector streets are intended support moderate to heavy levels of traffic, routing traffic from, and sometimes through residential areas to employment centers and shopping areas. Certain residential collector streets, although classified as collectors, have the characteristics of local residential streets. Collector streets may be considered for





traffic calming if they meet the following conditions:

1. 25 mph posted speed limit
2. Two-lane roadway with traffic traveling in two directions
3. Does not serve as the primary access to a commercial, higher education, or industrial site
4. Minimum of 12 dwellings fronting the street per 1000 ft. of roadway (total counted both sides)

5 Enrolling into the NTCP

5.1 Petition Process

After meeting eligibility requirements and meeting with Harrisonburg Public Works and Police, neighbors may begin the petitioning process to enroll in the Neighborhood Traffic Calming Program. The petition area and the study area are generally the same. Upon receipt of a valid majority (75 percent) of signatures, the neighborhood will become enrolled in the City's Neighborhood Traffic Calming Program.

A sample petition form is found in Appendix C: Sample Request for Traffic and Speed Study. Note: Only one signature per household is needed.

5.2 Submit Petition and Request City Council Approval for Enrollment

The neighborhood's point-of-contact will submit the petition to City Public Works who will confirm that a valid majority (75%) of the neighbors signed the petition.

Public Works will facilitate placing the request for enrollment into the Neighborhood Traffic Calming Program on a City Council meeting agenda.

6 Develop Neighborhood Traffic Calming Plan

6.1 Host Neighborhood Meetings

The City of Harrisonburg may employ a number of methods to help residents publicize the Neighborhood Traffic Calming Program, and more generally, residential traffic calming strategies. City staff is available for neighborhood meetings and will facilitate them. All-inclusive participation (neighborhood leaders and residents, Council, Public Works, Police, Fire, and Public Transit) is essential for proper problem solving. Neighborhood meeting dates will be determined mutually by city staff and the neighborhood's point-of-contact. Meetings are generally in the evenings. The City can assist with publicizing upcoming meetings through postcard mailings; however, neighbors are encouraged to talk to one another and invite others to the meetings. Some neighborhood groups have utilized social media outlets to publicize meeting events and planning progress.

Presentations made at meetings should enhance the neighborhood's understanding about the traffic calming process, including the amount of community involvement required and the advantages and disadvantages of traffic calming. Meetings are also an opportunity for the City to learn more about the concerns of the neighborhood as well as to help the neighborhood address its traffic concerns.

Neighborhood involvement is very important throughout this process.

6.2 Drafting the Traffic Calming Plan

Through neighborhood-wide meetings, and sometimes meeting with a smaller group of neighborhood representatives, a Neighborhood Traffic Calming Plan will be developed that will identify strategies to help reduce speeding and cut-through traffic. Resources illustrating possible physical devices are included in the Appendix A: Traffic Calming Measures Defined.



Neighborhood representatives and city staff meet to discuss traffic counts and studies.



City Council Meeting

6.3 Transportation Safety & Advisory Commission Recommendation & City Council Approval

The Neighborhood Traffic Calming Plan will be presented by city staff and neighborhood representatives to the Transportation Safety & Advisory Commission (www.harrisonburgva.gov/transportation-safety-advisory-commission), which is a City Council appointed commission. Upon receiving a favorable recommendation for the Neighborhood Traffic Calming Plan, city staff and neighborhood representatives will then present the Plan to City Council for approval.

The Council will vote on whether a physical device or other traffic calming measures proposed are appropriate and, if approved, they will determine how much City funding is available for the project(s). Neighborhood attendance at these meetings is encouraged.

The neighborhood may also be asked share the cost of installing physical devices.

7 Implementation of Traffic Calming Strategies

Depending on the extent of the Neighborhood Traffic Calming Plan and the amount of funding available, either all or only some traffic calming strategies will be implemented. Sometimes traffic calming strategies are implemented in phases, with one or two being installed and evaluated prior to considering additional strategies.

Note that if physical devices are installed and the neighborhood decides later to remove them, the device can be removed after another petition request is submitted requesting removal. The cost to remove this device will be the responsibility of the petitioners.



Example speed hump installed on a residential street.

There are ways you, as a motorist, can help traffic calming without participating in the city program. For example, you can always drive the speed limit so that others driving behind you are also forced to drive the speed limit. You could also park on the street so that the road is narrower and forces people to drive more slowly and cautiously. Also by walking and bicycling around your neighborhood, you can help increase motorist awareness of you and other bicyclists and pedestrians.

8 Evaluation

A follow-up evaluation will be used to ensure that the strategies implemented are effective. The evaluation is made up of two parts and is completed after each phase of strategies is tried as part of the NTCP.

City staff will complete another traffic count and speed survey after each set of techniques has been implemented. If the 85th percentile speed has decreased to below 35 mph and cut-through traffic has decreased to less than 40% then the problem is considered to have been resolved.

If speeding and cut-through traffic has not improved, the City and neighborhood residents will have additional meetings to determine what further measures may be needed.

9 Graduation

Following a successful evaluation that shows appropriate reduction in speeding and cut-through traffic, the neighborhood will be graduated from the neighborhood traffic calming program.

Congratulations!

Note: Once graduated, if your neighborhood experiences speeding and cut-through traffic in the future, the neighborhood must re-enroll into the program by following the steps laid out in this guide.



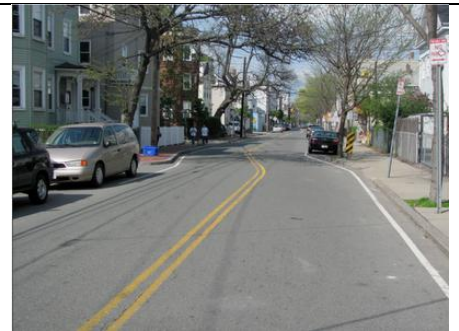
Appendix A: Traffic Calming Measures Defined

Below is information on various traffic calming strategies. Photos shown are for illustrative purposes only. Site conditions may require some modifications to the design of these devices. References listed at the end of this section provide additional information on advantages, disadvantages, and estimated costs for each device.

CHICANE

Chicanes are curb extensions that alternate from one side of the street to the other forming S-shaped curves. Chicanes must be well designed to prevent speeding drivers from cutting straight paths across the center line.

(Photo credit: Calm Streets Boston)



Advantages:

- Chicanes discourage high speeds by forcing horizontal deflection.
- They are easily negotiable by large vehicles (such as fire trucks) except under heavy traffic conditions.

Disadvantages:

- Curb realignment and landscaping can be costly, especially if there are drainage issues.
- They may require the elimination of some on street parking.

Effectiveness:

- Chicanes reduce the speeds of vehicles traveling on the streets.
- In a Seattle, WA study, there was an initial reduction in 85th percentile speeds of 8-13 mph, and an overtime initial speed reductions eroded by only 1-3 mph after the chicanes had been in place for a few years. Overall speeds remained 18-35% lower than before installation. Between sets of chicanes, speeds were reduced by up to 8 mph or 28%.¹

¹ Marek, John C. and Shauna Walgren. "Chicanes for Traffic Control"
http://www.walkinginfo.org/pedsafe/casestudy.cfm?CS_NUM=53

CURB EXTENSIONS

Curb extensions reduce the roadway width from curb to curb and can be at intersections or mid-block.

At intersections they “pedestrianize” intersections by shortening the crossing distances for pedestrians and drawing attention to pedestrians via raised peninsulas. They also tighten the curb radii at the corners, reducing the speeds of turning vehicles.

If marked at midblock crosswalks, they can make safer crossing for pedestrians.



(Photo credit: City of Surrey, British Columbia)

Advantages:

- At intersections, they improve pedestrian circulation and space.
- At intersections, they reduce speeds, especially for right-turning vehicles.
- They create protected on-street parking bays.
- They reduce both speeds and volume.

Disadvantages:

- Their effect on vehicle speeds is limited by the absence of vertical or horizontal deflection.
- At intersections, they may slow right-turning emergency vehicles.
- They may require the elimination of some on-street parking near the intersection.
- They may require bicyclists briefly merge with vehicular traffic.

Effectiveness:

- Average 7% decrease in the 85th percentile speeds, or from an average of 34.9 to 32.3 miles per hour (combined average for various narrowing measures, taken from a sample of 7 sites.²

² Source of effectiveness data came from Fehr & Peers, “Trafficcalming.org”, <http://www.trafficcalming.org/>

INCREASE POLICE ENFORCEMENT NEIGHBORHOOD-WIDE

This measure would place police officers on problem streets more often to enforce traffic laws in the neighborhood. Increased police enforcement is effective at targeting high speeds during specific times.

NOTE: Enforcement requests may be made at any time by calling Harrisonburg Police Department at (540) 434-4436.



Advantages:

- Rapidly reduces speed when a police officer is present.
- Officers can set speed monitoring devices more frequently. Results from the devices can be used to identify times for enforcement.

Disadvantages:

- The Police Department does not currently have sufficient resources to provide continuous enforcement over a sustained period in all neighborhoods. Additional resources would need to be budgeted.
- Speeds may return to their previous level when the targeted enforcement moves to other areas.

Effectiveness:

- Effectiveness varies with different levels of enforcement used.

RAISED INTERSECTION

Raised intersections are flat raised areas covering an entire intersection, with ramps on all approaches. Raised intersections are good for intersections with substantial pedestrian activity, and areas where other traffic calming measures would be unacceptable because they take away scarce parking spaces.

(Intersection of Franklin Street & Ott Street in Harrisonburg, VA. Photo credit: City of Harrisonburg)



Advantages:

- They can calm two streets at once.
- Raised Intersections improve safety for both pedestrians and vehicles.
- If designed well, they can have positive aesthetic value.

Disadvantages:

- They tend to be expensive, varying by materials used.
- Their impact to drainage needs to be considered.
- They are less effective in reducing speeds than speed humps, speed tables, or raised crosswalks.

Effectiveness:

- Average of 1% decrease in the 85th percentile travel speeds, or from an average of 34.6 to 34.3 miles per hour; (from a sample of 3 sites).³

³ Source of effectiveness data came from Fehr & Peers, "Trafficcalming.org", <http://www.trafficcalming.org/>

SIDEWALKS

Sidewalks provide a level, hard surfaced area, separated from the roadway where pedestrians can walk. Sidewalks must be at minimum 5-ft wide and should have a minimum 2-ft wide grass buffer strip that provides additional separation from moving traffic and keeps pedestrians outside of a car's door zone (when parked car doors open).

(East Gay Street in Harrisonburg, VA. Photo credit : City of Harrisonburg)



Advantages:

- Sidewalks draw attention to the presence of pedestrians in the neighborhood.
- Walkable and pedestrian friendly neighborhoods often have higher property values because homes are in locations where residents can safely walk to schools and other nearby destinations are desirable.^{4 5}
- Reduced crime through increased pedestrian traffic – “more eyes on the street” as promoted by the International Crime Prevention Through Environmental Design Association (www.cpted.net)

Disadvantages:

- Adding sidewalks to existing neighborhoods often has challenges. In some cases, the City does not own enough right-of-way (property) to construct sidewalks necessitating the donation of or sale of enough private property to the City.
- Many property owners have planted trees and landscaping along street frontages, which may be impacted and may require removal for sidewalk construction.
- In Harrisonburg, residents are responsible for clearing snow on sidewalks in front of or on the side of their property.

Effectiveness:

- Sidewalks do not have a direct effect on slowing down vehicular traffic.
- Sidewalks reduce the likelihood of pedestrian crashes by more than half the likelihood in areas where sidewalks do not exist.

⁴ US Department of Transportation - Federal Highway Administration. “A Resident’s Guide for Creating Safe and Walkable Communities.” http://safety.fhwa.dot.gov/ped_bike/ped_cmunity/ped_walkguide/resource7.cfm

⁵ CEO’s for Cities. “Walking the Walk: How Walkability Raises Home Values in U.S. Cities.” http://www.ceosforcities.org/pagefiles/WalkingTheWalk_CEOsforCities.pdf

SPEED HUMP

Speed humps are rounded raised areas placed across the roadway. They are generally 12-ft long (in the direction of travel), and are 3- to 4-inches high.

(East Bruce Street between Myers Avenue & Ott Street in Harrisonburg, VA. Photo credit: City of Harrisonburg)



Advantages:

- Speed humps are relatively inexpensive.
- They are relatively easy for bicycles to cross if designed appropriately.
- They are very effective in slowing travel speeds.

Disadvantages:

- They may divert traffic to parallel streets. However, a good Traffic Calming Plan will have reviewed a neighborhood area holistically and has taken this into consideration. Some streets are better at accommodating higher volumes of traffic.
- They may cause a “rough ride” or cause damage to vehicles that do not slow down.

Effectiveness:

- Average of 22% decrease in the 85th percentile travel speeds, or from an average of 35.0 to 27.4 miles per hour; (from a sample of 179 sites).⁶
- Average of 11% decrease in accidents, or from an average of 2.7 to 2.4 accidents per year (from a sample of 49 sites).⁷

⁶ Source of effectiveness data came from Fehr & Peers, “Trafficcalming.org”, <http://www.trafficcalming.org/>

⁷ Source of effectiveness data came from Fehr & Peers, “Trafficcalming.org”, <http://www.trafficcalming.org/>

SPEED TABLE

Speed tables, also known as raised crosswalks, are flat-topped speed bumps often used at mid-block crosswalk locations.

(Franklin Street between Monticello Avenue & Myers Avenue in Harrisonburg, VA. Photo credit: City of Harrisonburg)



Advantages:

- They are smoother on large vehicles (such as trucks) than speed humps.
- They are effective in reducing speeds, though not to the extent of speed humps.

Disadvantages:

- They may divert traffic to parallel streets. However, a good Traffic Calming Plan will have reviewed a neighborhood or are holistically and taken this into consideration. Some streets are better at accommodating higher volumes of traffic.
- They may cause a “rough ride” or cause damage to vehicles that do not slow down.

Effectiveness:

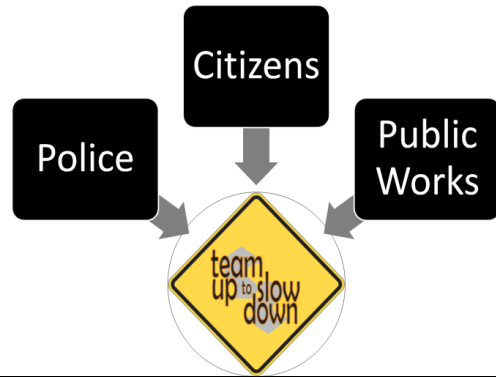
- For a 22-ft speed table:⁸
 - Average of 18% decrease in the 85th percentile travel speeds, or from an average of 36.7 to 30.1 mph (from a sample of 58 sites).
 - Average of 45% decrease in accidents, or from an average of 6.7 to 3.7 accidents per year (from a sample of 8 sites).
- Reported to increase pedestrian visibility and likelihood that driver yields to pedestrian.

⁸ Source of effectiveness data came from Fehr & Peers, “Trafficcalming.org”, <http://www.trafficcalming.org/>

TEAM UP TO SLOW DOWN PROGRAM

Team Up to Slow Down is a multi-faceted program that focuses on education and encouragement. It is available to any City neighborhood regardless of enrollment in NTCP.

Available to residents are brochures, bumper stickers, pledge cards, and yard signs.



Advantages:

- Encourages neighborhood residents to discuss speeding concerns with each other and to encourage each other to slow down. Studies have shown that in most cases, the majority of speeders on residential streets are residents of the neighborhood.
- Is low in cost to the City and free to participating neighborhoods.
- Does not require neighborhood petitioning and enrollment into NTCP.

Disadvantages:

- None.

Effectiveness:

- No data available.

TRAFFIC CIRCLES (NEIGHBORHOOD)/ MINI-ROUNDBABOUTS

Traffic circles are raised islands, placed in intersections, around which traffic circulates. They are good for calming intersections, especially within neighborhoods, where large vehicle traffic is not a major concern, but speeds, volumes, and safety are problems.

(Photo credit: Richard Drdul)



Advantages:

- Traffic circles are very effective in moderating speeds and improving safety.
- If designed well, they can have a positive aesthetic value.
- Placed at an intersection, they can calm two streets at once.

Disadvantages:

- They are difficult for large vehicles (such as fire trucks) to circumnavigate.
- They must be designed so that the circulating lane does not encroach on the crosswalks.
- They may require the elimination of some on-street parking.
- Landscaping must be maintained, either by residents or by the municipality.

Effectiveness:

- Average of 11% decrease in the 85th percentile travel speeds, or from an average of 34.1 to 30.2 mph (from a sample of 45 sites).⁹
- Including a large sample from Seattle, an average 73% decrease in accidents, or from an average of 2.2 to 0.6 accidents per year (from a sample of 130 sites).¹⁰
- Excluding the large sample from Seattle, an average 29% decrease in accidents, or from an average of 5.9 to 4.2 accidents per year (from a sample of 17 sites).

⁹ Source of effectiveness data came from Fehr & Peers, "Trafficcalming.org", <http://www.trafficcalming.org/>

¹⁰ Source of effectiveness data came from Fehr & Peers, "Trafficcalming.org", <http://www.trafficcalming.org/>

TRAFFIC ISLAND

A traffic island, or center-island narrowing, is a raised island located along the centerline of a street that narrows the travel lanes at that location. Traffic islands are good for entrances to residential areas and wide streets where pedestrians need to cross.

(Photo credit: Richard Drdul)



Advantages:

- Traffic Islands increase pedestrian safety.
- If designed well, they can have positive aesthetic value.
- They reduce traffic volumes.

Disadvantages:

- Their speed-reduction effect is somewhat limited by the absence of any vertical or horizontal deflection.
- They may require elimination of some on-street parking.

Effectiveness:

- An average of 7% decrease in the 85th percentile travel speeds, or from an average of 34.9 to 32.3 miles per hour (combined average for various narrowing measures, taken from a sample of 7 sites).¹¹

¹¹ Source of effectiveness data came from Fehr & Peers, "Trafficcalming.org", <http://www.trafficcalming.org/>

Appendix B: Additional References

Virginia Department of Transportation, “Traffic Calming” webpage and “VDOT’s Traffic Calming Guide for Local Residential Streets”, <http://www.virginiadot.org/programs/faq-traffic-calming.asp>

US Department of Transportation, Federal Highway Administration, Manual on Uniform Traffic Control Devices (MUTCD), <http://mutcd.fhwa.dot.gov/>

Federal Highway Administration (FHWA), “Traffic Calming” website, http://safety.fhwa.dot.gov/speedmgt/traffic_calm.cfm

Institute of Transportation Engineers, “Traffic Calming Library”, <http://www.ite.org/traffic/>

Fehr & Peers, “Trafficcalming.org”, <http://www.trafficcalming.org/>

Appendix C: Sample Request for Traffic and Speed Study

Dear Harrisonburg City Council,

Out of concern for the vehicular behaviors present on our streets, the residents of _____ neighborhood request that the City of Harrisonburg conduct a traffic and speed study for consideration of our neighborhood's enrollment into the City's Neighborhood Traffic Calming Program. We have specific concerns with speeding and cut-through traffic on the following streets (list all street names):

Enclosed is our documentation showing the dates we have made requests to Harrisonburg Police Department for increased enforcement on our neighborhood streets, dates which we have utilized the Team Up to Slow Down Program, dates we have discussed our concerns with our neighbors, and other encouragement measures we have used in the last 12 months.

We understand that City staff will assist us with identifying the study and petition area and that following the completion of the traffic and speed study, we may begin the petitioning process.

I, _____, will be the point of contact and will act as a liaison between City staff and my neighborhood. I will represent my neighborhood interests and get information about community meetings to my neighbors.

Sincerely,

Signature

Printed Name: _____

Address: _____

Phone Number: _____

E-mail Address: _____

Date: _____

Attachments: Neighborhood documentation (to be attached by neighbors, Police enforcement report (to be attached by City staff)

CC: City Manager, Public Works, Harrisonburg Police

Appendix D: Sample Petition Form for Enrollment into NTCP

Dear Harrisonburg City Council,

Out of concern for the vehicular behaviors present on our streets, the residents of _____ neighborhood submit this petition to the City of Harrisonburg for active consideration for enrollment in the Neighborhood Traffic Calming Program. We understand that the City will, upon receipt of a valid majority (75 percent approval) petition, analyze relevant conditions to determine the impact of the proposed action. I understand the City must reserve the right to overrule the petition if there are extenuating circumstances detrimental to public safety, traffic operations, and/or neighborhood interests.

We recognize that if physical devices are recommended and installed as a result of this study and later deemed unwanted by the effected community, the responsibility for the cost of removal of these devices may be the responsibility of the neighborhood.

We have received _____ approval signatures out of _____ residents, thus satisfying the 75% needed.

Neighborhood point-of-contact:

Name: _____

Address: _____

Phone Number: _____

E-mail Address: _____

Date: _____

CC: City Manager, Public Works, Harrisonburg Police

Full Name	Home Address	Phone Number	E-Mail	Signature

Note: One signature per household.

Appendix E: 85th Percentile Speeds

Definition: The speed at which 85 percent of all traffic is traveling at or below.

What is the 85th percentile speed and why do we use it?

The 85th percentile speed is the speed that separates the bottom 85% of vehicle speeds from the top 15%. The 85th percentile speed statistic is of particular interest in planning because the 85th percentile speed is often located at the upper end of a range of speeds that includes the majority of motorists who select “safe and proper speeds.”

How does the 85th percentile speed relate to speed limits?

The most widely accepted method by state and local agencies is to set the speed limit at the nearest 5 mph increment to the 85th percentile speed. For instance, if the 85th percentile speed on a road were measured at 27 mph, then the speed limit on the road would typically be set at 25 mph.

Studies have shown crash rates are lowest around the 85th percentile speed. Drivers traveling significantly faster or slower than this speed are at greater risk of being in a crash. It is not high speeds alone that relate to crash risk; it is the variation of speed within the traffic stream.¹² Other considerations such as accidents and real dangers not perceivable by drivers may suggest a need for a lower speed limit. Since speed limits are generally set using the 85th percentile speed, it is *expected* that 15 percent of the vehicles will exceed the speed limit on a regular basis. On the other hand, traffic department administrators and/or elected officials may decide to set speed limits reflecting adjacent land use. For example, non-arterial streets in residential neighborhoods are posted at 25 mph.

How does the 85th percentile speed relate to speeding problems?

City traffic studies may show that the 85th percentile speed exceeds a residential speed limit of 25 mph. Because it is extremely rare and generally counterproductive to cite drivers operating slightly over the speed limit, if the 85th percentile speed falls within a range of 25.0-34.9 mph, the street is not considered to have a speeding problem since the speed is reasonably close to the posted speed limit on residential streets.

However, once the 85th percentile speed is greater than 35 mph, the situation is considered to be a speeding problem under the policies and procedures of the Neighborhood Traffic Calming Program. Additionally, flagrant violators (i.e. drivers operating at very high speeds) pose the greatest risk and are generally the focus of police enforcement.¹³

¹² Institute of Traffic Engineers, “Speed Zoning Information”, http://www.ite.org/standards/speed_zoning.pdf.

¹³ Federal Highway Administration, “Speed Concepts: An Informational Guide”, http://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa10001/