20-1580 - T T SAFETY GUIDE DRA D

TOWN OF VIENNA since 1890

Town of Vienna
Guide To improving Street Safety

As prepared by the following:
Department of Public Works
Phone: 703-255-6380 Email: dpw@viennava.gov
Transportation Safety Commission
Phone Staff Representative: 703-255-6382 Email: tsc@viennava.gov

REPORTING MAINTENANCE CONCERNS

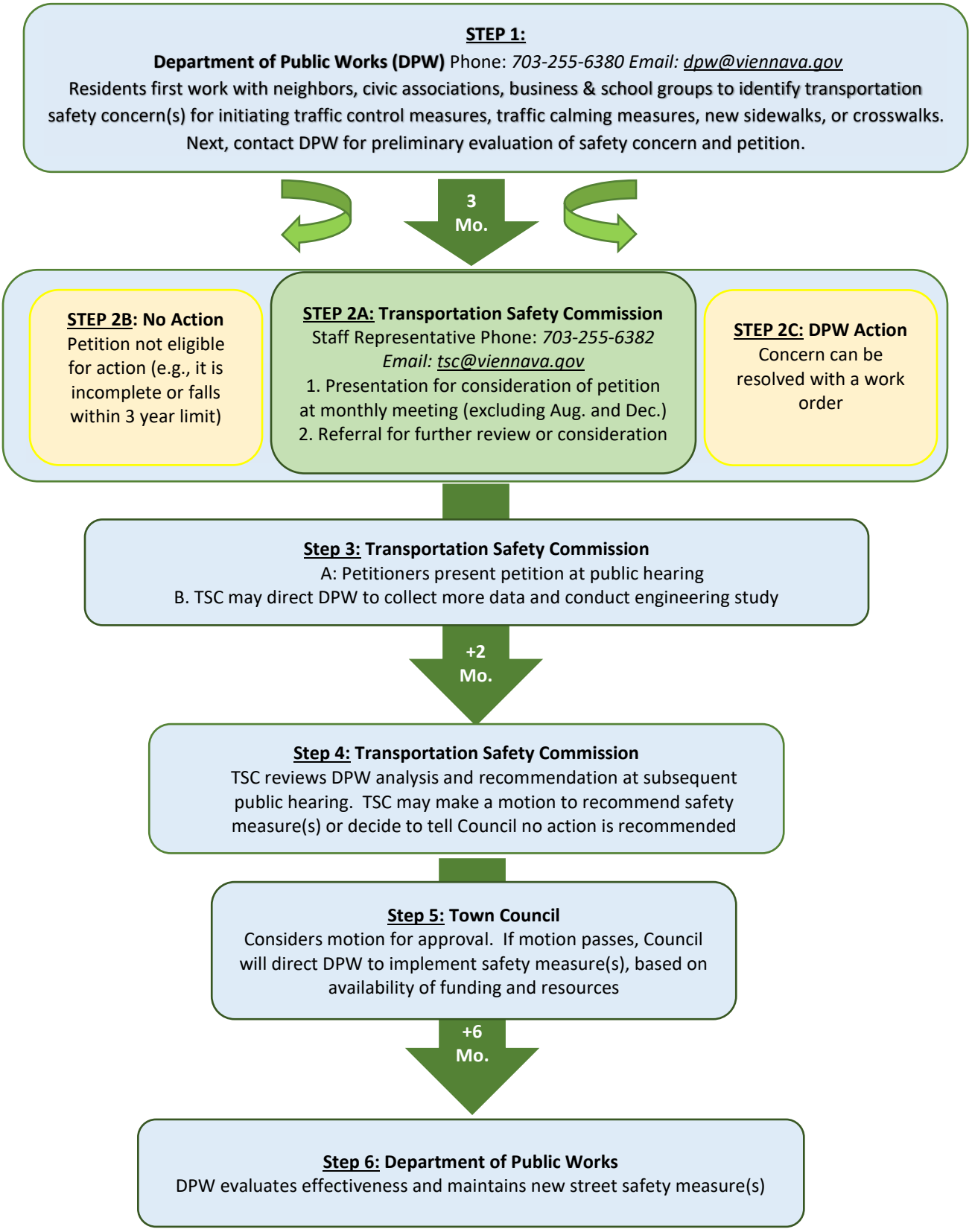
You do not need to go through this entire process. Contact DPW at 703-255-6380 or dpw@viennava.gov to report the problem. (Examples: Pothole, trip hazard, crack in sidewalk, repair to existing road striping, concern with existing traffic signal or signage). You can also use the Town's web portal or mobile app available at: https://www.viennava.gov/index.aspx?NID=1272. DPW will assess and address the problem or provide next steps for resolution.

Street light problems should be reported to Dominion Energy through their form: https://www.dominionenergy.com/outage-center/streetlight-outages/outdoor-lighting-email-form

Table of Contents

Appendices

Process for Addressing Street Safety Concerns



Scope and Objectives

The Town of Vienna seeks to be a safe, vibrant, and environmentally conscious community with small town character, strong single-family neighborhoods, and distinguished businesses and services. Its goals include providing for efficient and reliable movement for all transportation modes, and maximizing safety and dependability *(Town of Vienna Comprehensive Plan 2015).*

The *Citizen's Guide to Traffic Calming* was first prepared by the Transportation Safety Commission (TSC) in January 2002 and then revised in April 2011. Town of Vienna's *Guide to Improving Street Safety* (referred to hereafter as "*Street Safety Guide*") replaces the April 2011 document.

This guide aims to help residents and businesses understand the process involved in implementing measures to improve street safety. Improving street safety is defined as improving the safety of all forms of transportation available in the Town (e.g., vehicular, pedestrian, bike, etc.). All forms of transportation need to be addressed when reviewing safety concerns.

ACRONYMS

DPW: Department of Public Works
DPZ: Department of Planning and Zoning
VPD: Vienna Police Department
TSC: Vienna Transportation Safety Commission
FHWA: Federal Highway Administration
ITE: Institute of Transportation Engineers
MUTCD: Manual on Uniform Traffic Control Devices
VDOT: Virginia Department of Transportation

Three categories of street safety mitigations are used for this guide: Traffic Calming (vehicular), Traffic Controls (vehicular/bike), and Pedestrian Safety Improvements. This guide defines, describes, and provides examples for each of the street safety mitigation categories. Once a safety concern is identified and petition submitted, the TSC along with DPW will analyze the potential safety concern. They will determine if the street safety concern can be mitigated, and if so, recommend appropriate action.

Proactive measures DPW can take regarding street safety include pavement maintenance, pavement marking maintenance, tripping hazards (sidewalks), signage, and vegetation removal/clearing. If the safety concern requires public input or a study then DPW will ask the concerned citizen to fill out a petition and to go to the TSC. The goal is to address safety concerns with an area-wide approach to ensure that problems take the entire community into account and do not simply shift to adjacent local streets and parallel roads.

The Vienna Police Department (VPD) plays an integral role in enforcing traffic laws and maintaining the safety of our pedestrians, bicyclists and drivers. As you consider whether to create a petition to address a street safety issue in your neighborhood, you should also raise any concern about traffic law violations, enforcement and other safety issues with the VPD. The Department routinely patrols Town streets to enforce street safety (e.g., mitigate speeding, ticket those failing to stop at stop signs, etc.) and welcomes resident feedback as to where officers are needed for such enforcement. VPD non-emergency

number is (703) 255-6366. For your reference, we have included the Virginia law pertaining to a pedestrian's right-of-way in Appendix H.

Achieving appropriate safety measures requires fostering collaborative working relationships among Town residents and businesses, Town staff, neighborhood and school organizations, and Town appointed commissions and committees with the following objectives:

A. Enhance the quality of life and safety of all citizens by improving street conditions throughout the Town of Vienna, to include:
- Reducing speeds of automobiles in excess of the speed limit within residential areas.
- Increasing pedestrian, bicycle and motorist safety.
- Improving road design, signage, striping, and pedestrian/bicycle passageways.
- Improving effective traffic calming measures and devices that consider current best practices and community needs.

B. Provide a process that will help the Town address concerns regarding traffic management and street safety in an objective, consistent manner, to include:
- Providing citizens appropriate methods by which street safety problems and concerns can be reported.
- Encouraging resident involvement in assessing and solving neighborhood street safety problems.
- Making efficient use of Town resources in responding to transportation management and safety issues.

C. Address limitations of traffic-related law enforcement by:
- Encouraging voluntary compliance with speed limits and other traffic control regulations.
- Informing and educating citizens of the benefits of proven street safety measures.

Residents and businesses should keep in mind, however, that any desired action may be subject to approval by Town of Vienna officials and resource constraints.

Section 1 - Petition Process to Address Street Safety[1]

Every situation is unique. Citizens have the opportunity to identify and communicate street safety concerns with the Town, but they are not expected to determine the solution. Town staff includes subject matter experts who will evaluate the concerns and recommend the best path forward. The process allows both citizens and Town staff to share information and collaborate to resolve street safety concerns.

ESTIMATED PETITION TIMELINE

- **Three months:** It can take up to three months to initiate petitions for traffic control measures, traffic calming measures, or new sidewalks, and requesting a TSC hearing. The timing of a hearing depends on the TSC agenda. The TSC meets monthly, excluding August and December.
- **Two Months added:** It can take an additional two months to analyze requests and conduct related studies (speed studies are conducted during the school year) plus any additional TSC action.
- **Six months added:** It can take an additional six months for Town Council to review and approve any motions passed by the TSC. Implementation of traffic calming, traffic control measures, or sidewalk requests that are approved depends on potential funding sources and related projects. Some approved sidewalk requests could take much longer to fulfill due to related infrastructure work, i.e. moving water and electrical utility lines.

Step 1 – **Identify street safety concern(s) and contact DPW to determine petition eligibility.**

1A - Residents and businesses should work with neighbors, civic associations, and other business and school groups to identify traffic and pedestrian safety concerns. Once issues have been identified and discussed, residents and businesses should inform DPW staff of their street safety concern(s).

1B – Following an initial discussion with concerned residents and businesses, DPW will examine the issues raised to determine whether a petition is needed. Some safety issues can be addressed without a petition. For example, pavement markings and minor

[1] *Note:* Petitions that have already been adjudicated by the TSC cannot be resubmitted until a three-year time limit expires. However, an exception to the time limit will be granted for petitions that were submitted prior to publication of this document.

pavement repairs can be resolved without a petition. Vegetation clearing and some sign removals and additions also can be handled without a petition. Some matters will not be eligible for either a petition or work order. For example, a matter may be subject to the three-year time limit on resubmitting petitions or DPW might already have work planned or scheduled for the street segment in question.

In general, sidewalk, traffic calming, traffic control, and crosswalk requests require a petition with few exceptions. The Town of Vienna adheres to the *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD), a Federal Highway Administration (FHWA) guide used by federal, state, and local agencies to ensure that traffic control devices are designed, installed, and applied consistently across the United States. DPW will thoughtfully consider the concerns and analyze them using the MUTCD and industry standards. DPW will consider factors such as pedestrian generators, bicycle use, traffic counts, roadway design (width and sight distance), existing and future projects as well as other relevant information. If after reviewing the information DPW determines that the street safety concern can be addressed through a work order, it will place a work order to have the request prioritized and completed pending funding crew/contractor availability. Once this is done, a work order will be implemented and later evaluated for effectiveness.

PETITION ELIGIBILTY REQUIREMENTS

Traffic Calming:
- Two Lane Road
- Speed limit: 25 mph
- Collector or local road
- No petition within past 3 years

Maple Avenue and Nutley St., SW
- Contact DPW directly

New Sidewalk or Crosswalk:
- No existing sidewalk
- No petition within the past 3 years

QUESTIONS TO CONSIDER WHEN IDENTIFYING CONCERNS

1. What is the problem? Is it traffic volume, traffic speed, pedestrian safety, bicycle safety or a combination of concerns?
2. What time of day does the problem occur? Does it happen during rush hour or all day?
3. What is the history of the problem? Are there accidents or anecdotes? Please provide details and dates if available.
4. What are the perceived dangers to pedestrians and bicyclists?
5. Does the street have sight distance issues?
6. Are there sidewalks on one or both sides?
7. Is the street near public transportation? Are there bus stops on the street? Do school buses stop to pick up children on the street?
8. Is the street near a school, park, shopping area, or community building? Is the street regularly used by pedestrians, bicyclists, and students?

Step 2 – **Citizen(s) present petition to TSC.**

2A - Residents and businesses will submit completed petition identifying concern(s) (use template in Appendix A). A valid petition must adhere to the following requirements:

- Must be signed by one member of 75 percent of the households and businesses on the street segment where the measure is requested.
- Note that by signing the petition, residents and businesses agree to have the safety measure (e.g., traffic calming measure, sidewalk, crosswalk, or other device or measure) placed where the transportation expert recommends.
- Must be signed by one member of 50 percent of the households or businesses in cul-de-sacs or on dead-end streets that are accessed by way of the street segment in the petition.
- Include a map of the area. Maps can be found on the Vienna web site, but a Google Map image is acceptable. DPW can help with this if requested.
- Affirm that a notice of petition has been given to residents and businesses in the impacted area.

2B - DPW will determine whether the petition is complete and notify applicant of any deficiencies.

2C - Town will schedule petition for discussion at next available TSC meeting. Petitions will be scheduled in the order they are received. Town will notify public of TSC meeting and agenda items following regular notification procedures.

Step 3 – **TSC holds initial hearing to review petition**.

3A – Petitioners present their case to TSC at a public hearing. Each citizen has a three-minute time limit to present issues of concern. All street users and residents are welcome to provide public comment.

3B - TSC may direct DPW and VPD to collect additional data on existing conditions and conduct an engineering study to determine safety concern(s) and recommendations to improve safety. This will include traffic counts over a one-week period. If a sidewalk is being considered, DPW will complete the sidewalks rating system (See Appendix B). The review should include the following information (and be included in DPW's report):

(a) Street Segment Data:

- Street classification
- Traffic volumes
- Traffic speeds
- Posted speed limits
- Physical street segment data
- Accident data
- Bike route information
- School bus and student walking/biking information

What is a "street segment"? It is the portion of residential street for which traffic calming and pedestrian and bicycle safety measures are sought.

(b) Vicinity Data:

- Pedestrian and bike generators such as nearby community facilities and schools
- Emergency vehicle and snow emergency routes
- Bus routes
- Truck routes
- Impact on alternate routes that drivers may take if traffic-calming measures are installed

Step 4 – TSC reviews DPW recommendations and decides on the matter at subsequent public meeting.

4A - Public notification of TSC meeting agenda will be posted. Postings are made by mail. Public notice signs are placed at the site of the requested action. Information on the TSC meeting and agenda will also be placed on the Town's website.

4B - DPW will present findings and results from all data collected. (*Note*: As mentioned earlier, DPW can move forward with a street safety measure without a TSC motion in certain circumstances.)

4C - The TSC may make a motion to recommend a street safety measure(s) to Town Council. If the motion is approved (requires majority vote), then DPW will develop a cost estimate, estimated timetable, and funding source to present with motion at a future Town Council meeting.

4D - TSC will forward a summary of the hearing and conclusions to Town Council even if no motion passes or if no street safety action is to be taken. (Note: Citizens are always welcome to bring forward their concerns to Town Council whether a TSC motion passes or not.)

Step 5 – **Town Council considers motion for approval.**

5A - DPW presents motion to Town Council at a regularly scheduled Town Council meeting. Interested parties will be notified of the meeting in advance.

5B - If the motion receives majority Town Council approval, the DPW will be tasked with overseeing implementation of recommended street safety measures based on funding and crew/contractor availability.

Step 6 – **DPW evaluates and maintains new street safety measure(s).**

6A - DPW will maintain and evaluate safety measure(s) as necessary per state and federal guidelines. Note that for new and existing safety measures, Vienna uses VDOT Roadway Design Manual, VDOT Road and Bridge Standards, MUTCD, and Virginia Supplement to the MUTCD.

6B - If DPW finds that a measure (e.g., traffic calming device) creates a hazardous situation, DPW may modify or remove the device.

6C - Residents and businesses wishing to have a traffic calming device removed or modified may need to follow the same petition process as installing it.

Section 2 – Traffic Calming, Traffic Control, and Pedestrian Safety Measures

It is important to understand the basics of traffic calming measures and traffic control measures for vehicles and bicycles as well as pedestrian safety improvements such as sidewalks and crosswalks.

A. What is Traffic Calming?

Traffic calming is defined by the Institute of Traffic 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.″ Improving neighborhood street safety will involve effective traffic calming measures and smart sidewalk development. The primary purpose of traffic calming is to support the livability and vitality of residential and commercial areas through improvements in non-motorist safety, mobility, and comfort. (Federal Highway Administration ePrimer 2017).

EXAMPLES OF TRAFFIC CALMING:

- Education and Police enforcement
- Speed tables
- Traffic circles or roundabouts
- Signage
- Chokers
- Median strips
- Chicanes
- Lane narrowing striping (visually narrows road and discourage passing on residential streets)
- Radar speed indicators
- Raised crosswalks
- Bike lanes

Traffic calming measures consist of horizontal, vertical, lane narrowing, roadside, and other features that use self-enforcing physical or psycho-perception means to produce desired effects. Lowering vehicle speeds reduce the likelihood of fatal injury where there is potential for conflict between a pedestrian and a motor vehicle. The slower the speed of the motor vehicle, the greater the chances are for survival for the pedestrian. (Federal Highway Administration ePrimer 2017).

As a resident or business, understanding the appropriate measure(s) to correctly address the problem is very important. Details on available traffic calming measures can be found in the Guide Appendix. Road conditions and sight distance as well as traffic volume and speeds must be taken into consideration. Keep in mind that roads designated as emergency routes may not be suitable for traffic calming devices. For example, speed tables can slow the response time for emergency vehicles by as much as 10 seconds. See the Vienna street inventory and classification

map in the appendix and check the *Vienna Comprehensive Plan* for more details on street classification.

Vienna no longer uses turn and road entry restrictions as they often do not fully consider what is best for the community at large and just shift the problem on to other neighborhood streets. However, existing turn restrictions and road entry restrictions have been grandfathered.

B. What is a Traffic Control Device?

Traffic control devices are placed in set locations to inform, guide, and/or control vehicle and bicycle movement. Traffic control devices are not intended to be used for calming traffic. One purpose of traffic control is to assign right-of-way between motorists and among various modes of travel. They can be signs, signals, pavement markings, and other devices that are outlined by the *Virginia Supplement to the Manual of Uniform Traffic Control Devices* (MUTCD).

Community awareness and education, along with enforcement, are also key to improving neighborhood street safety. Town of Vienna describes its goals associated with these elements in the *Town of Vienna's Pedestrian Master Plan.*

Two-way stops may be implemented where safety considerations may justify stopping traffic to permit left-hand turns at heavily traveled intersections. All-way stop controlled intersections will be considered following VDOT and Federal standards and guidelines.

THE MORE YOU KNOW: STOP SIGNS

Stop signs are a traffic safety measure and are not appropriate for traffic calming. A number of studies have shown that unwarranted stop signs actually increase speeds on residential streets as motorists proceed through without stopping in an attempt to make up time lost at stop signs they perceive as unnecessary. Safety for pedestrians, especially for small children, is decreased due to their expectation that vehicles will stop as required when in reality drivers may fail to stop at signs they perceive as unnecessary. (Virginia Department of Transportation 2017)

Petitions for all-way stop signs should include all properties on both intersecting streets. This includes all properties from the intersection in question to the nearest through-street in all directions.

C. What is a Pedestrian Safety Improvement?

Walking is a fundamental form of transportation. Sidewalks, paths, trails, and street crossings are a significant component of the transportation network. As stated in the Town of Vienna Comprehensive Plan and the Pedestrian Master Plan, the Town desires to promote walking and bicycling for recreation and transportation. The Town is pursuing policies that will help fill gaps in the sidewalk network and expand on the walkways that already exist. For more information on the Town of Vienna's policies on the construction of sidewalks and filling the gaps in the pedestrian network please see the *Town of Vienna Comprehensive Plan and Pedestrian Master Plan (*See reference page for details).

Sidewalks: The goal is to provide safe and accessible sidewalks on both sides of every street in Town based on an objective priority rating system. Sidewalk projects are prioritized so that available funds are paired with projects that provide the most benefit to as many citizens as possible in the shortest time frame.

Note: If residents and businesses desire to fill in a gap on an existing walkway, then a petition is not needed and residents and businesses should contact the DPW to discuss the issue**.**

The Town's sidewalk rating system is maintained by DPW and allows for discretion-based flexibility to incorporate the professional judgment of staff. Please reach out to DPW for a current priority list. Prioritization is based on the following eight elements (See details in Appendix):

1) Safety
2) Sidewalk classification
3) Feasibility
4) Suitability analysis (i.e., proximity to Town infrastructure and commerce)
5) Road category
6) Vehicle volume
7) Proximity to metro stations
8) Proximity to transit stops

Sidewalk projects are prioritized so that available funds are paired with projects that provide the most benefit to the community. Many projects are partially funded with state and federal grants. Residents and businesses are encouraged to work with neighbors and community organizations such as the local school's PTA to help identify safety issues and sidewalk needs and to help secure funding through the Safe Routes to School program.

Please note that significant sidewalk projects can take years depending on the existing underground and surface utilities such as fire hydrants and poles, surface storm water drainage and right-of-way acquisitions.

Crosswalks: The Town has been installing crosswalks where the need has been identified. The Town installs two types of crosswalks, high visibility and two parallel lines. High visibility crosswalks are used at stop sign controlled intersections and mid-block crossings. Two parallel lines are used at intersections where traffic/pedestrian signals are present. These crosswalks generally are being placed at intersections that are controlled by either stop signs or traffic lights. Crosswalks placed in uncontrolled locations have been the subject of much debate and are considered by some to be unsafe because they provide a false sense of security to pedestrians in an area where drivers might not be expecting them to cross (Federal Highway Administration 2005).

Section 3 –Criteria for Evaluating Street Safety Measures

A. Street segment considerations.

1) **Traffic calming measures generally are limited to streets classified as collector or local.**
   - Streets that are designated emergency routes might not be suitable for some traffic calming devices.
   - Traffic calming devices are limited to streets with a maximum of one travel lane in each direction.
   - The grade of the street is also taken into consideration since certain traffic calming devices may not be suitable on hilly streets with a steep grade.
   - Certain traffic calming devices also may not be suitable if curves or other obstacles would create unsafe conditions for motorists driving at normal speed under average [consider "normal" or "typical" instead of "average"] conditions.

2) **Speed limits and traffic volumes are a consideration as well.**
   - Posted speed limit may not exceed 25 miles per hour.
   - Generally, the minimum street volume for physical traffic calming devices is 500 vehicles per day.
   - Typically, priority is given to streets that exceed 2,000 vehicles on an average weekday.
   - Posted speed limit by five or more miles per hour.
   - Physical traffic calming measures will be considered when the 85th percentile speeds average 31 miles per hour. *(See insert for more information).*

DEFINITION 85TH PERCENTILE

Results of a traffic study will note the 85th percentile speed for traffic. This is the speed at which 85 percent of free-flowing traffic is traveling at or below the posted speed limit. This reflects the collective judgement of the majority of drivers as to a reasonable speed for given traffic and roadway conditions. According to the Federal Highway Administration, most people don't drive according to the posted speed limit. They tend to account for the visual aspects of the street and a 'feel' for the street.

B. Location Considerations

1) Streets that are access routes for schools and community facilities will be considered priorities.
2) Streets that are primary routes for fire and rescue equipment are not suitable for certain traffic calming devices.
3) Streets that are bus routes and truck routes may not be suitable for traffic calming measures unless acceptable alternative routes are identified.

C. Engineering Considerations

1) Traffic calming devices should not be placed closer than 200 feet from any stop sign, yield sign, or traffic signal.
2) Devices should be at least 300 feet apart. Also, any traffic calming device shall not adversely affect street drainage.

D. Other Considerations

1) Pedestrian and bicycle safety are a top priority and any traffic-calming measure should not adversely affect the safety of pedestrians or bicyclists, and should aim to improve pedestrian and bicycle safety.
2) As noted earlier, traffic calming efforts should take a broad approach to avoid shifting problems to adjacent local streets and parallel roads.

Appendices

Appendix A - PETITION TEMPLATE

We, the residents and/or businesses of _____ (*name of affected street(s)*), as signified by our signatures below, hereby request the evaluation of the concerns identified in this request.
It is the opinion of the residents and/or businesses there should be improvement to _____ (identify perceived street safety concerns) along this section of roadway. This concern arises _____ (identify time of day and/or direction of traffic when problem occurs, if appropriate). As such, we would like to ask the Vienna Transportation Safety Commission and the Vienna Town Council to evaluate the concerns identified in this request and consider appropriate action. Signatories acknowledge that the Town, per the guidance of DPW, will put any measures deemed appropriate in the most effective location.
We understand this request will be evaluated and any modifications will be assessed based on availability of funding or grants as well as the guidelines set forth in the "Guide to Improving Street Safety" and the "Pedestrian Master Plan."

SIGNATURE	PRINTED NAME	ADDRESS

PETITION, Page ____ of ____

We, the residents and/or businesses of _____ (*name of affected street(s)*), as signified by our signatures below, hereby request the evaluation of the concerns identified in this request.

SIGNATURE	PRINTED NAME	ADDRESS

Petition, Page ____ of _____

Appendix B - Traffic Calming Measure Examples

TRAFFIC CALMING MEASURE EXAMPLES

(APPENDIX B)

This document provides background information on potential traffic calming measures. Traffic calming measures may be added or removed from this presentation as determined by the Department of Public Works.

Traffic Calming Measures

Types of Measures:

- Vertical Deflections
- Horizontal Shifts
- Roadway Narrowings
- Miscellaneous

TOV Documents:

- The Citizen's Guide to Traffic Calming in Vienna
  January 2002 (Revised April 2011)
- Traffic Calming Study
  April 2008

Sources:

- ITE, FHWA MUTCD (VA Supplement), NACTO, VDOT (Traffic Calming Guide for Local Residential Streets)

Speed Table

Long raised speed humps with a flat section in the middle and ramps on the ends

Pros: low cost, low maintenance, self enforcing

Cons: increased noise, drainage impacts, increased emergency response time, point reduction, snow removal, street sweeping

VERTICAL DEFLECTION

Speed Table (cont.)

Alternative materials can be used to enhance safety and speed-reduction for users, but may require additional maintenance.

Material Options:

- Rubber composite
- Pavers/brick
- Stamped asphalt or concrete

VERTICAL DEFLECTION

Raised Crosswalk

Essentially a speed table with a flat portion the width of a cross walk.

Pros: low cost, low maintenance, self enforcing, clear pedestrian crossing

Cons: increased noise, drainage impacts, increased emergency response time, point reduction, snow removal, street sweeping

VERTICAL DEFLECTION

Speed Cushion

Speed table that includes wheel cutouts to allow large vehicles to pass unaffected, while reducing speed of passenger cars.

Pros: low cost, low maintenance, self enforcing

Cons: increased noise, drainage impacts, potential increased emergency response time, point reduction, snow removal, street sweeping

VERTICAL DEFLECTION

Raised Intersection

Essentially a speed table for the entire intersection raising it to flush with the sidewalk

Pros: low maintenance, self enforcing, clear pedestrian crossing

Cons: increased noise, drainage impacts, potential increased emergency response time, point reduction, snow removal, street sweeping

VERTICAL DEFLECTION

Neighborhood Traffic Circle

Raised circular island constructed in center of intersection. Vehicles travel in CCW direction.

Pros: improves access from side streets, minimal diversion of traffic, breaks up sight lines

Cons: increased emergency response time, additional maintenance, turning movements for large vehicles, bikes to merge with traffic

HORIZONTAL SHIFT

Chicanes

A series of narrowings or curb extensions that alternate from one side of the street to the other forming s-shaped curves

Pros: utilize on-street parking, breaks up sight lines, lower impact on emergency response time

Cons: require design to be effective, drainage impacts, access to driveways

HORIZONTAL SHIFT

Choker

Curb extensions at midblock or intersection corners that narrow a street by extending the sidewalk or the planting strip

Pros: breaks up sight lines, lower impact on emergency response time, increased pedestrian visibility

Cons: require design to be effective, drainage impacts, impact to parking and access to driveways, additional maintenance

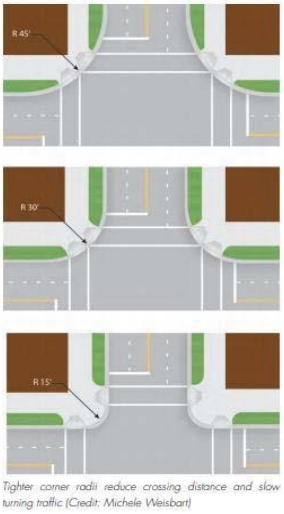
ROADWAY NARROWINGS

Reduced Corner Radii

Reduced corner radii at an intersection forces drives to slow for turning movements (TOV standard for new intersections is 25')

Pros: self enforcing, minimal maintenance

Cons: increased emergency response time, large vehicle turning movements, drainage impacts, snow removal



Tighter corner radii reduce crossing distance and slow turning traffic (Credit: Michele Weisbart)

ROADWAY NARROWINGS

Center Island Narrowing

Raised island placed in the center of a roadway to separate opposing traffic

Pros: breaks up sight lines, lower impact on emergency response time, pedestrian refuge

Cons: require design to be effective, drainage impacts, access to driveways and parking, additional maintenance, potential U-turns, snow removal

ROADWAY NARROWINGS

Lane Narrowing/ Parking

Narrowing travel lanes through pavement markings

Pros: inexpensive, lower maintenance, lower impact on emergency response time, create delineated parking and bike lanes

Cons: potential eradication of existing pavement striping

ROADWAY NARROWINGS

Textured/ Colored Pavements

Delineate entry to a traffic calming area or pedestrian zone (colored pavements, brick, stamped concrete, etc.)

Pros: change in drivers perspective

Cons: maintenance cost, increased nois[illegible] [illegible] pe[illegible]

MISCELLANEOUS

Radar Speed Display

Portable signs that use radar to provide electronic display to alert drivers of speed

Pros: inexpensive, portable

Cons: residual effects are negligible when removed, long- term placement has mixed results

MISCELLANEOUS

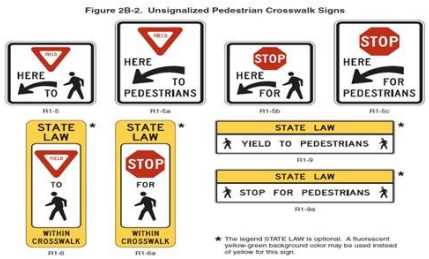
Signage

Signs may be installed where appropriate and in accordance with the MUTCD

Pros: inexpensive, low maintenance, placement options

Cons: requires police enforcement

Note: Stop signs are not used for speed control



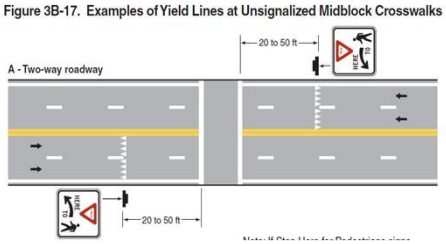
MISCELLANEOUS

Markings

Pavement markings may be installed where appropriate and in accordance with the MUTCD to supplement signage

Pros: inexpensive, low maintenance, placement options

Cons: requires police enforcement



Enforcement

Utilize police to target specific areas of known speeding

Pros: Can be used where engineering solutions are problematic, low impact to normal traffic flow

Cons: long-term efforts are required to make substantial changes

VIENNA POLICE HIGHLIGHTS

Zig Zag Ped Crossing

Implemented by VDOT with good success rate for W & OD Crossings. Not yet included in Virginia Supplement to the MUTCD.

Pros: lower impact on emergency response time, inexpensive

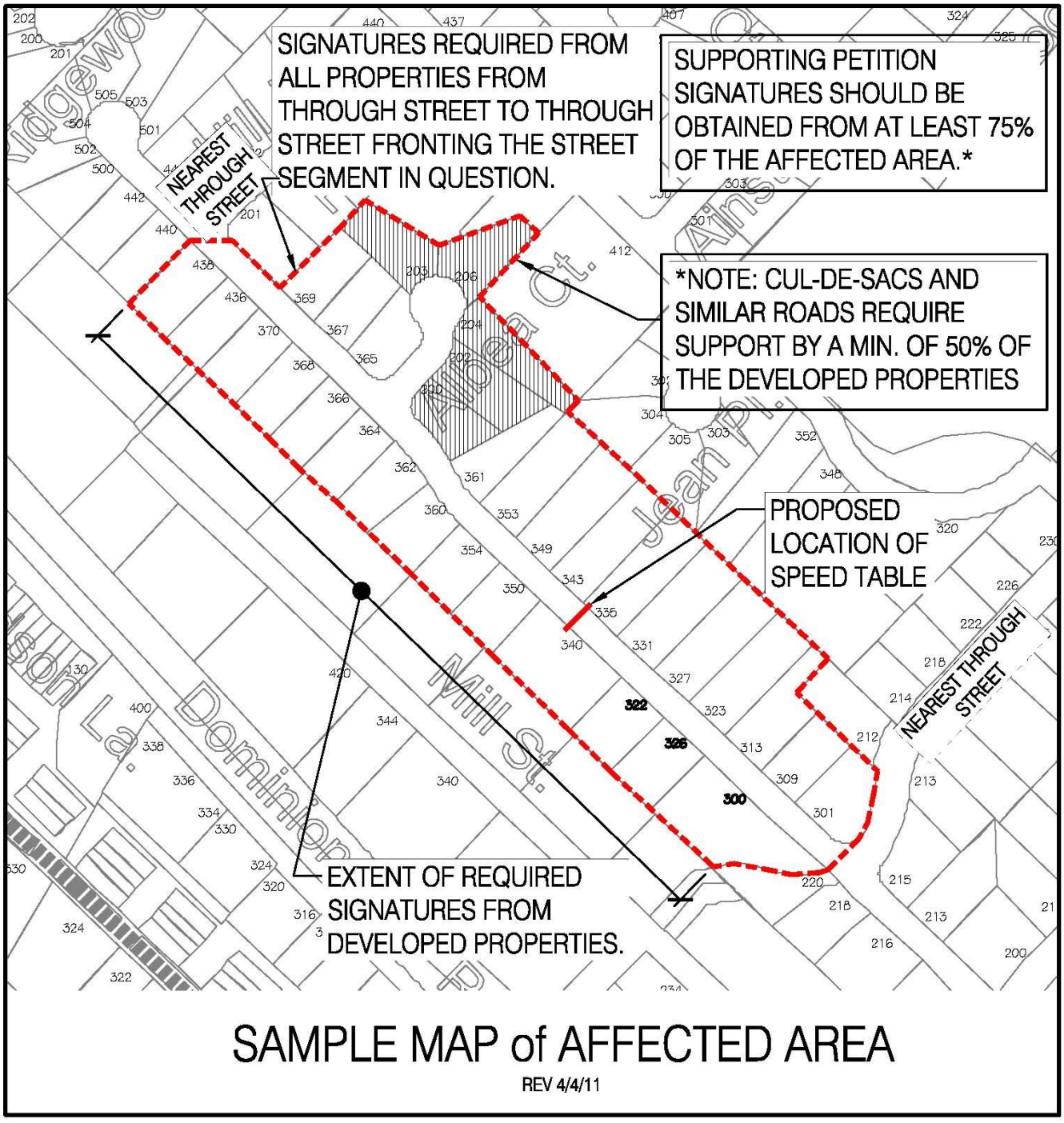
Cons: requires police enforcement

MISCELLANEOUS

Pace Car

Pace Cars promote safety by encouraging drivers to drive courteously and obey the speed limit. Pace Car program participants have specific decals for public awareness. Implemented in DC and FCC (in progress).

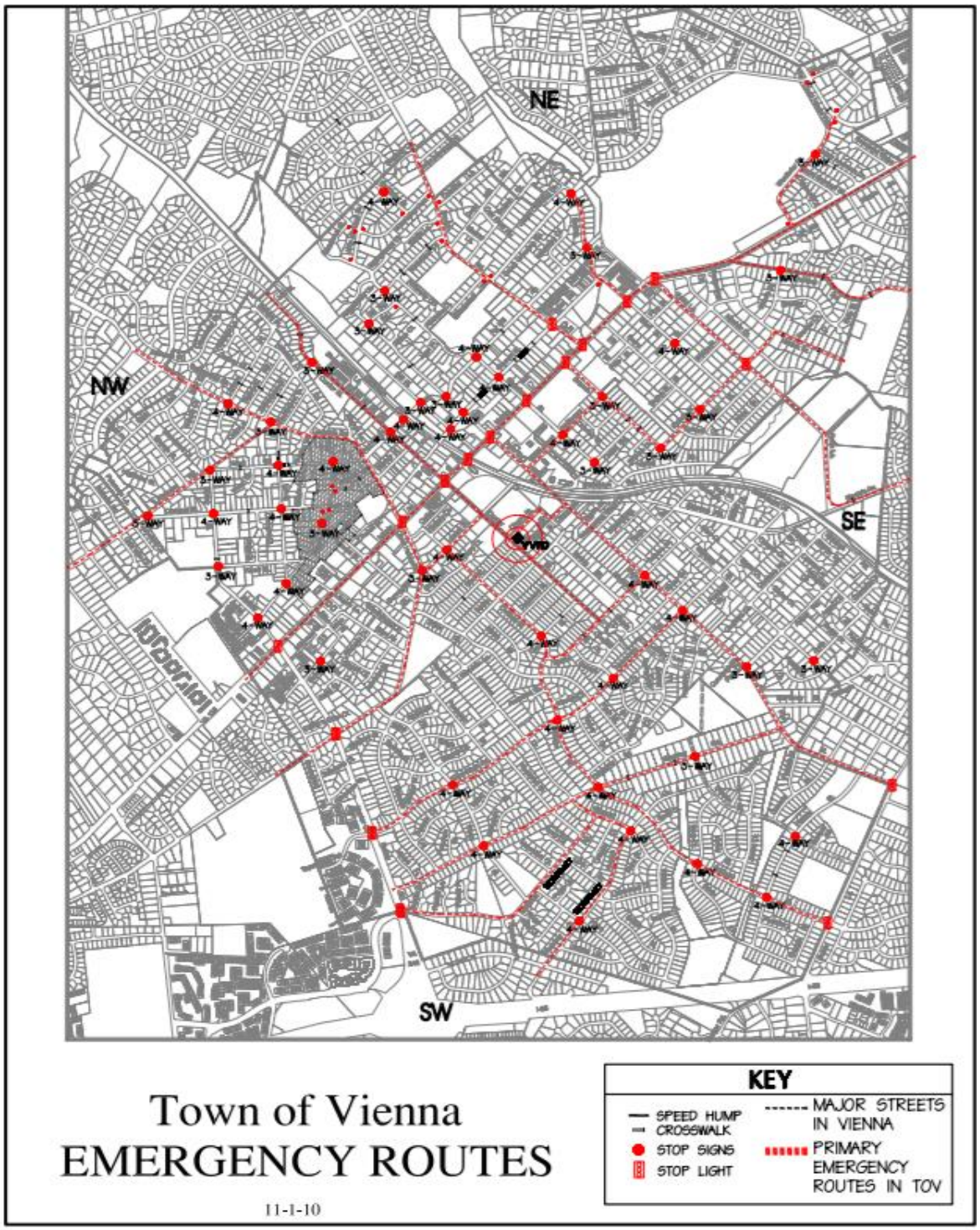
Appendix C - Sample Map



SAMPLE MAP of AFFECTED AREA

REV 4/4/11

Appendix D – Emergency Routes Map



Appendix E – Sidewalk Rating System (detailed in Pedestrian Master Plan)

	DESCRIPTION
SAFETY	SAFETY WILL CONSIDER ITEMS INCLUDING SIGHT DISTANCE, LACK OF REFUGE AREAS OR OTHER UNSAFE CONDITION, AGE IN PLACE, SPECIAL NEEDS
SIDEWALK CLASSIFICATION	DETERMINE WHETHER AND HOW MUCH EXISTING SIDEWALK EXISTS
FEASIBILITY	FEASIBILITY CAN RANGE FROM POTENTIAL CONSTRUCTION ISSUES, OFF SITE IMPACTS, AND ENVIRONMENTAL IMPACTS. 0 POINTS FOR LESS FEASIBLE AND 20 POINTS FOR VERY FEASIBLE.
GIS HEAT MAP (SUITABILITY ANALYSIS)	GIS HEAT MAP SHOWING WEIGHTED CHURCHES, W&OD TRAIL, ACTIVE PARKS, PASSIVE PARKS, COMMERCIAL / RETAIL, OFFICE SPACE, SCHOOLS, GOVERNMENT FACILITIES, AND POPULATION DENSITY.
ROAD CATEGORY	ROAD CATEGORIES
VEHICLE VOLUMES	VEHICLE VOLUMES BASED ON DATA OR ENGINEERING ESTIMATES
METRO STATION	DISTANCE FROM VIENNA OR GREENSBORO METRO STATION
TRANSIT STOP	PUBLIC TRANSPORTATION STOP STATIONS

Appendix F – Example Application of Sidewalk Rating System (for illustrative purposes)

MARSHALL ROAD SW

600 - 700 BLOCK (SCHOOL)

NO.	CATEGORY	POINTS	NOTES
1	SAFETY	15	NO REFUGE, PAVEMENT WIDTH (36'), LOW SIGHT DIST
2	SIDEWALK CLASSIFICATION	5	SIDEWALK ONE SIDE
3	FEASIBILITY	10	MINOR DRAINAGE IMPROVEMENTS, EXISTING UTILITIES
4	GIS HEAT MAP	5	COLOR 2
5	ROAD CATEGORY	0	LOCAL ROAD
6	VEHICLE VOLUME	10	2000 - 3999 VPD
7	METRO STATION	10	VIENNA METRO
8	TRANSIT STOP	15	2 TRANSIT STOPS
	TOTAL POINTS	**70**	

AYITO ROAD SE

300 BLOCK

NO.	CATEGORY	POINTS	NOTES
1	SAFETY	10	NO REFUGE, PAVEMENT WIDTH (24')
2	SIDEWALK CLASSIFICATION	5	SIDEWALK ONE SIDE
3	FEASIBILITY	15	MINOR DRAINAGE IMPROVEMENTS
4	GIS HEAT MAP	5	COLOR 2
5	ROAD CATEGORY	0	LOCAL ROAD
6	VEHICLE VOLUME	0	< 1000 VPD
7	METRO STATION	0	NO METRO
8	TRANSIT STOP	0	0 TRANSIT STOPS
	TOTAL POINTS	**35**	

JOHN MARSHALL DRIVE NW

600 - 700 BLOCK

NO.	CATEGORY	POINTS	NOTES
1	SAFETY	15	NO REFUGE, PAVEMENT WIDTH (36')
2	SIDEWALK CLASSIFICATION	15	NO SIDEWALKS
3	FEASIBILITY	15	MINOR DRAINAGE IMPROVEMENTS AND TREES
4	GIS HEAT MAP	10	COLOR 3
5	ROAD CATEGORY	0	LOCAL ROAD
6	VEHICLE VOLUME	0	< 1000 VPD
7	METRO STATION	0	NO METRO

8	TRANSIT STOP	10	1 TRANSIT STOP
	TOTAL POINTS	**65**	

BEULAH ROAD NE

300 BLOCK

NO.	CATEGORY	POINTS	NOTES
1	SAFETY	10	NO REFUGE, PAVEMENT WIDTH (24')
2	SIDEWALK CLASSIFICATION	15	GAP FILL IN
3	FEASIBILITY	10	DRAINAGE IMPROVEMENTS AND SLOPES
4	GIS HEAT MAP	5	COLOR 2
5	ROAD CATEGORY	5	COLLECTOR STREET
6	VEHICLE VOLUME	15	> 4000 VPD
7	METRO STATION	0	NO METRO
8	TRANSIT STOP	20	3 TRANSIT STOPS
	TOTAL POINTS	**80**	

DRAFT RATING RESULTS

RATING NO.	POINTS	NAME	SEGMENT	DATE
1	80	BEULAH ROAD NE	300 BLOCK	6/8/2017
2	70	MARSHALL ROAD SW	600 - 700 BLOCK (SCHOOL)	6/8/2017
3	65	JOHN MARSHALL DRIVE NW	600 - 700 BLOCK	6/8/2017
4	35	AYITO ROAD SE	300 BLOCK	6/8/2017
5				
6				
7				
8				
9				
10				

Appendix F – Helpful References

Federal Highway Administration ePrimer
https://safety.fhwa.dot.gov/speedmgt/ePrimer_modules/module2.cfm#mod21

Town of Vienna Comprehensive Plan
https://www.viennava.gov/DocumentCenter/View/3124)

Manual of Uniform Traffic Control Devices (MUTCD)
(https://mutcd.fhwa.dot.gov/kno_2009r1r2.htm).

Town of Vienna Pedestrian Master Plan
https://www.viennava.gov/DocumentCenter/View/2636

Citizen's Guide to Traffic Calming
https://www.viennava.gov/DocumentCenter/Home/View/712

TRAFFIC CALMING GUIDE FOR NEIGHBORHOOD STREETS
http://www.virginiadot.org/programs/resources/Traffic-Calming-Guide-For-Neighborhood-Streets.pdf

Additional links on Street Safety Best Practices:

https://safety.fhwa.dot.gov/speedmgt/traffic_calm.cfm

https://www.fairfaxcounty.gov/transportation/sites/transportation/files/assets/documents/pdf/parking/rtap-general-operating-procedures.pdf

https://www.fairfaxva.gov/home/showdocument?id=5660

http://www.virginiadot.org/business/locdes/rdmanual-index.asp

http://www.virginiadot.org/business/resources/LocDes/RDM/Appendix_a_Sec5.pdf

Appendix G— Right-of-Way of Pedestrians Law

Section 46.2-924, Right-of-Way of Pedestrians, of the Virginia Criminal and Traffic Manual reads as follows:

A. The driver of any vehicle on a highway shall yield the right-of-way to any pedestrian crossing such highway:

1. At any clearly marked crosswalk, whether at mid-block or at the end of any block;

2. At any regular pedestrian crossing included in the prolongation of the lateral boundary lines of the adjacent sidewalk at the end of a block;

3. At any intersection when the driver is approaching on a highway or street where the legal maximum speed does not exceed 35 miles per hour.

B. Notwithstanding the provisions of subsection A, at intersections or crosswalks where the movement of traffic is being regulated by law-enforcement officers or traffic control devices, the driver shall yield according to the direction of the law-enforcement officer or device.

No pedestrian shall enter or cross an intersection in disregard of approaching traffic.

The drivers of vehicles entering, crossing, or turning at intersections shall change their course, slow down, or stop if necessary to permit pedestrians to cross such intersections safely and expeditiously.

Pedestrians crossing highways at intersections shall at all times have the right-of-way over vehicles making turns into the highways being crossed by the pedestrians.