VIRGINIA DEPARTMENT OF TRANSPORTATION

TRAFFIC ENGINEERING DIVISION

MEMORANDUM

GENERAL SUBJECT: Pedestrian Signals	**NUMBER:** TE-341
	DATE: March 6, 2006
SPECIFIC SUBJECT: Accessible Pedestrian Signals	**SUPERSEDES:**
DIRECTED TO: District Administrators	**SIGNATURE:** *Raymond J. Khoury*

The Department has developed "*Guidelines for the Retrofit Installation of Accessible Pedestrian Signals".* The purpose of this guideline is to establish a statewide, uniform methodology for retrofitting existing pedestrian signals with accessible pedestrian signals for the visually impaired in accordance the latest MUTCD. It is not intended to alter the interpretation of other policies or best practice statements regarding the accessible pedestrian signals.

The guideline was studied and prepared by the Virginia Transportation Research Council and was requested to be made into this memoranda by the Traffic and Safety Research Advisory Committee (TASRAC).

A copy of the "*Guidelines for the Retrofit Installation of Accessible Pedestrian Signals"* is available at the following web site:

http://www.virginiadot.org/business/trafficeng-default.asp

cc: Division Administrators
District Traffic Engineers
Regional Operations Directors
Resident Administrators
Ms. Constance S. Sorrell
Mr. Greg Whirley
Dr. Gary Allen
Mr. Malcolm T. Kerley, P.E.
Ms. Barbara W. Reese
Mr. Robert Fonseca
Mr. E. D. Arnold

GUIDELINES FOR THE RETROFIT INSTALLATION OF ACCESSIBLE PEDESTRIAN SIGNALS

Virginia Department of Transportation
Traffic Engineering Division

I. INTRODUCTION

An accessible pedestrian signal (APS), which is used in conjunction with standard pedestrian signals, makes signal information accessible to blind, visually impaired, and other disabled persons by providing information in a non-visual format, typically audible tones, verbal messages, and/or vibrotactile surfaces.

These guidelines provide the Virginia Department of Transportation (VDOT) a process with which to assess and evaluate the need to install (retrofit) an APS at an existing intersection. The goal is that all requests for APS installation receive a fair and equal assessment, that funds are expended in the most effective manner, and that all installations are undertaken as quickly as possible. The guidelines also provide information on the type of APS equipment to deploy and procedures for installing it. The goal is to install the most suitable equipment uniformly throughout the state and to ensure that the required and best installation procedures are followed.

The guidelines describe a process in which an intersection must first meet particular basic requirements in order to be considered for an APS. Then, if an APS is justified, an intersection must be evaluated to determine first hand the needs of the requesting blind or visually impaired individual, the estimated cost of installation, and the intersection's need for an APS relative to other intersections for which an APS has been requested. The scores received in the evaluation determine this relative need and, if needed because of limited funding, can be used to develop a prioritized list of intersections to be funded. Once the installation is scheduled, guidance is provided on the type of equipment to deploy and on procedures for installing it.

It should be noted that different guidelines that are not yet developed might be applicable at new intersections or at intersections undergoing major improvements.

II. BASIC REQUIREMENTS

1. There must be a formal request and a demonstrated need for an APS (as evidenced by Requirement 2).

2. The attached "Request for the Installation of Accessible Pedestrian Signals Form" must be completed and submitted to the appropriate VDOT District Traffic Engineer. Anyone having difficulty completing the form will be given the appropriate assistance needed either to complete it or to submit the required information. The requestor should be a blind or visually impaired individual or a person or agency filing on his or her behalf.
3. The intersection must be signalized and equipped with pedestrian signals on the crossing for which APS is being requested. The following procedure should be followed in implementing this basic requirement:

    a. If the intersection is signalized and the crossing for which APS is being requested is equipped with pedestrian signals, proceed with its evaluation.

    b. If there are plans for the installation of pedestrian signals on the crossing for which APS is being requested, revise them (unless shown to be an undue hardship) to include APS. In this case, the intersection need not be evaluated. If there is undue hardship, install the pedestrian signals without APS as planned and proceed with its evaluation.

c. If there are no pedestrian signals on the crossing for which APS is being requested and no plans for them, conduct a traffic engineering study at the intersection to determine if pedestrian signals are warranted. If warranted, include the appropriate APS when the pedestrian signals are installed. The intersection need not be evaluated.

4. The attached "Accessible Pedestrian Signal Evaluation Form" must be completed as instructed for intersections requiring an evaluation. The form can be used by any office by writing in the appropriate contact information or revised electronically with the contact information.

III. FUNDING PROCESS

Generally, intersections approved for APS retrofit are funded on a "first come, first served" basis unless the funds are depleted. If the funds are depleted, the approved intersections are put on hold or carried over to the next funding cycle (typically a fiscal year). The new funds are distributed first to the carried over intersections based on a priority established by an evaluation score and then to any new intersections for which requests are received and approved. This basic process is repeated year after year. There is an exception involving intersections carried over into a third funding cycle that is explained in the following comprehensive explanation of the process.

More specifically, when a request for an APS retrofit installation is received, it is checked against the basic requirements. If the intersection is approved and requires an evaluation, a team is assembled to visit the intersection to conduct the evaluation. (The evaluation process is described later.) Funds are then allocated to the intersection based on an estimated cost, and the retrofit is scheduled for design and installation. This first come, first served process is repeated until the funding is depleted. At that point, further requests are evaluated and then put on hold or carried over until funding becomes available from the next funding cycle (typically at the beginning of the next fiscal year). Once the new funds are received, they are allocated to the carried over intersections based on a prioritized list established by the evaluation scores. If funds still remain after being distributed to the prioritized list, further requests for APS retrofit installations are once again funded, designed, and scheduled for implementation on a first come, first served basis until the funds are depleted. Again, further requests are evaluated and then put on hold or carried over until new funding becomes available.

The exception to this process is when intersections are carried over into a third funding cycle (typically the third fiscal year). Any such intersections will receive first priority for the funds, with their existing evaluation scores used if need be. They will not be combined with intersections that received approval during the second funding cycle (typically fiscal year), that is, were over only one cycle.

For the first year of the program only, an initial period of three months will be allowed to publicize and promote the APS program, assemble existing APS requests, collect an initial round of requests, and conduct intersection evaluations. After the three-month period, an initial prioritized list of intersections to receive APS retrofit installations should be developed, and then the procedures described in these guidelines should be followed.

IV. INTERSECTION EVALUATION

A. Overview of Procedure

Once a request is received for an APS and it is determined that the intersection meets the basic requirements and needs to be evaluated, an evaluation team should be assembled to visit the

intersection and conduct the evaluation described later in order to derive a priority score. This evaluation should be conducted within one month of the date the written request was received.

Team members should include the requesting blind or visually impaired person, an orientation and mobility specialist (possibly from the Virginia Department of Blind and Visually Impaired, and the VDOT District Traffic Engineer or designated representative. Both the local VDOT Resident Engineer and a representative from the local city, town, or county should be invited to be a member of the evaluation team and included if they accept. Finally, the requesting blind or visually impaired individual may, at his or her discretion, invite others to participate in the evaluation as a member of the evaluation team.

During the intersection visit, members of the evaluation team should thoroughly discuss all possible solutions to address the crossing needs of the requesting blind or visually impaired person. These discussions should include, but not be limited to, minor intersection improvements, installation of new crosswalks, installation of pedestrian signals with APS on crossings for which APS are not being requested, consideration of the needs of other potential blind or visually impaired individuals, and consideration of the intersection's characteristics after improvements are made.

At any point deemed appropriate and at the discretion of the VDOT District Traffic Engineer, an intersection may be reevaluated to account for changes that would influence the evaluation score and hence the ranking on the prioritized list. Similarly, if a significant amount of time elapses between the intersection's evaluation and the design or installation of the APS system, the VDOT District Traffic Engineer should ensure that there is a continued need for the APS. For example, the requesting blind or visually impaired person may have relocated since submitting the request.

B. Background on Evaluation Methodology

If the specified basic requirements are met, an APS should be installed at the requested intersection after an evaluation is undertaken. The evaluation will determine first hand the needs of the requesting blind or visually impaired person, the estimated cost of installation, and the intersection's need for an APS relative to other intersections for which an APS has been requested. Should funding be limited, the evaluation process will be used to prioritize multiple requests for installations to determine an appropriate order of the expenditure of funds and the design/installation of the retrofit APS. When this happens, new funds will be distributed and installations scheduled at intersections based on the scores received in the evaluation process.

A logical process to compare intersections should include an evaluation of factors that impact the ability of a blind or visually impaired pedestrian to cross an intersection and that specifically address the needs of the requesting party. Some factors are more important than others, and the evaluation process should allow the evaluation team to distinguish and account for this distinction through the use of the point system. The following factors will be used to establish a prioritized list of intersections to receive funding and to be scheduled for an APS installation in the case of limited funding. More details on the factors and the rating methodology to be used are provided in the next section.

Accessible Pedestrian Signal Evaluation Factors	
Evaluation Factor	**Brief Description**
1. Configuration of Intersection	Skewed, offset, lacking particular straight through movements
2. Width of Crossing	Width of approach used by requesting party
3. Maximum Posted Speed Limit on Street to Be Crossed	Maximum posted speed limit on street to be used by requesting party
4. Special Traffic Conditions I	Heavy right-turn volumes and right-turn signals or arrows
5. Special Traffic Conditions II	Free flow right-turn lane (with or without a right-turn island)
6. Special Pedestrian Signal Conditions	Lead or exclusive pedestrian phases, mid-block exclusive pedestrian signals
7. Proximity of Intersection to Key Facilities	Distance to pedestrian generators or attractors
8. Need to Cross by Visually Impaired	Work- or school-related trip purpose by requesting party
9. Time in Queue	Length of time intersection has been waiting for funding based on time since request
10. Other Special Traffic and Mobility Conditions	Catchall to account for other concerns, especially if low volumes are a problem

C. Details on Evaluation Factors and Rating Methodology

The following factors and rating methodology should be used to evaluate intersections for which an APS installation has been requested and that have met the basic requirements. The evaluation team should review this methodology, employ it when conducting an intersection evaluation, and complete the attached "Accessible Pedestrian Signal Evaluation Form." If needed due to limited funding, the total score tallied should be used to rank the intersection on a prioritized list of intersections that have been approved for APS installation.

It is very important to re-emphasize that the application of these factors and this rating methodology, and thus the scoring and point systems contained therein, are applied equally to all intersections. The final score is used only to establish a relative ranking of intersections that have already been approved for an APS; that is, the absolute value of the score has no bearing on the earlier justification process.

1. Configuration of Intersection

The number of approaches to an intersection and the geometric design (offset, skewed, etc.) can affect the ability of the blind or visually impaired pedestrian to cross the roadway safely. The blind or visually impaired pedestrian listens for the traffic going straight through the intersection that is close and parallel with the crosswalk being traversed to guide his or her passage across the roadway. Accordingly, when an intersection's configuration is skewed, offset, or does not have particular straight through movements (as is the case in a three-leg tee intersection), a crossing can become unsafe for the blind or visually impaired pedestrian. Points are assigned if there is no straight through traffic parallel with the crossing to be used by the requesting party or if the traffic is not close enough to be heard.

Configuration of Intersection	Points
No straight through traffic flow parallel with crosswalk to be used by requesting party or traffic not close enough to be heard	15

2. Width of Crossing

Wider streets are more difficult for the blind/visually impaired pedestrian to safely cross. Points are assigned on the basis of the width of the crossing to be used by the requesting party. Crossing width is measured from the curb at the embarkation point to the curb at the destination point. Islands and medians should be included in the total crossing distance even if they are equipped with separate pedestrian actuators. Efforts should be made to permit blind/visually impaired pedestrians to cross in one continuous movement. Traffic signal timings should be extended to accommodate a full crossing. Divided streets with or without a pedestrian actuator in the median should be handled as a single crossing, with the width measured across the entire street.

Width of Crossing to Be Used by Requesting Party (feet)	**Points**
40 or less	2
41 to 52	4
53 to 68	6
69 to 78	8
79 or more	10

3. Posted Speed Limit on Street to Be Crossed

The speed of approaching traffic reflects the capability of approaching drivers to stop for pedestrians clearing the intersection as the traffic signals and pedestrian signals change. Points are assigned on the basis of the maximum posted speed limit on the street to be used by the requesting party. More points are assigned for higher speeds.

Maximum Posted Speed Limit on Street to Be Used by Requesting Party (mph)	**Points**
0 to 25	1
26 to 30	2
31 to 35	3
36 to 40	4
41 or more	5

4. Special Traffic Conditions I

There are special conditions found at intersections that are related to traffic flow and signals and signal timings that may hinder the capability of a blind/visually impaired pedestrian to cross the street. These conditions include heavy right-turn volumes (≥ 40 vehicles in the peak hour or the existence of a right turn lane) from the street parallel to the crossing and right-turn signals or arrows. Accordingly, points are assigned if these conditions impact the crossing to be used by the requesting party.

Special Traffic Conditions I	**Points**
Heavy right-turn volumes (≥ 40 vehicles in peak hour) from street parallel with crossing or right-turn signals or arrows that impact crossing to used by requesting party	15

5. Special Traffic Conditions II

Particular special conditions at intersections are related to geometric features that may hinder the capability of a blind or visually impaired pedestrian to cross the street. One of the most critical is a free flow right-turn lane (with or without a right-turn island). Special care must be taken when installing an APS to mitigate the problems associated with this

condition. Accordingly, points are assigned if this condition impacts the crossing to be used by the requesting party.

Special Traffic Conditions II	Points
Free flow right-turn lane (with or without a right-turn island) that impacts crossing to used by requesting party	15

6. Special Pedestrian Signal Conditions

Particular special conditions at intersections are related to pedestrian signals that may hinder the capability of a blind or visually impaired pedestrian to cross the street. These conditions include the presence of a lead pedestrian phase, an exclusive pedestrian phase, or a mid-block exclusive pedestrian signal. Accordingly, points are assigned if any of these conditions impacts the crossing to be used by the requesting party.

Special Pedestrian Signal Conditions	Points
Lead pedestrian phases, exclusive pedestrian phases, or mid-block exclusive pedestrian signals that impact crossing to be used by requesting party	15

7. Proximity of Intersection to Key Facilities

An APS system should be considered at intersections that are close to facilities that attract or generate significant amounts of pedestrian traffic. An APS would improve the safety and mobility of the blind or visually impaired pedestrian and make these facilities more accessible. Examples are medical, educational, social, recreational, commercial, shopping, public, governmental facilities, and transit stops. Pedestrian demand is based in part on how close the intersection is to these facilities; i.e., the closer a facility, the more the demand. Likewise, points are assigned based on the closeness of these facilities to the intersection; i.e., the closer a facility, the more the points. In the case of multiple facilities, points should be assigned using the closest facility to the proposed APS deployment site. An estimate of 400 ft can be used an average block length.

Proximity of Intersection to Key Facilities	Points
4 to 6 blocks	2
3 blocks	4
2 blocks	6
1 block	8
At subject facility	10

8. Need to Cross by Visually Impaired

A blind or visually impaired pedestrian has a trip purpose or reason for every crossing needed. Although all trips are important, those related to work/employment or school are considered much more important. Accordingly, points are assigned if the need to cross is related to work/employment or school.

Need to Cross by Visually Impaired	Points
Need to cross is related to work/employment or school	15

9. Time in Queue

APS retrofit installations should be undertaken as soon as possible, and this factor enhances the score of intersections that have been waiting the longest to be funded. Points are assigned based on when during the fiscal year the request for an APS retrofit installation was received. More points are assigned as the wait time increases. As noted previously, once an intersection is carried over the second year (into the third year),

however, it is automatically placed on a priority list to receive funding regardless of how its score compares with the scores of intersections requested during the second fiscal year.

Time in Queue	**Points**
Month in fiscal year request received	
July	24
August	22
September	20
October	18
November	16
December	14
January	12
February	10
March	8
April	6
May	4
June	2

11. Other Special Traffic and Mobility Conditions

This factor is intended to provide the orientation and mobility specialist on the evaluation team an opportunity to add 15 points based on special conditions not adequately covered by previous factors or based on special needs of the requesting party. In particular, the orientation and mobility specialist should consider adding the points if traffic volumes are so low as to result in crossing conditions that are a problem for the requesting party.

Other Special Traffic and Mobility Conditions	**Points**
Special traffic and mobility conditions	15
Comments:	

V. EQUIPMENT

Unless site-specific factors dictate otherwise, the APS equipment installed at the intersection should have the characteristics described in this section of the guidelines. Any exceptions should be left to engineering judgment, and the VDOT District Traffic Engineer should most likely be the one to make the decision for an exception.

A. Description of Main APS Unit

The basic APS unit should be a pushbutton integrated unit with a raised (tactile) arrow that vibrates when the walk signal is on. The unit should have a locator tone, a walk tone, and the capability of providing a voice message, with all sounds typically coming directly from a speaker in the unit. The pushbutton should be a minimum of 2 in (51 mm) across in one dimension and should contrast visually with its housing or mounting[2]. The following are specific details of its operation.

Pushbutton Locator Tone

The APS unit should have a locator tone at the pushbutton to alert the visually impaired user of its presence and location. The locator tone should be similar to the walk tone if one is used for the walk indication; however, it should repeat at a slower rate. The locator tone can best be defined as a tick or percussive tone; a buzz, cuckoo, beep, or chirp is not considered acceptable for the walk interval. It should have a duration of 0.15 sec or less and should repeat at 1-sec intervals[1]. The locator tone should always operate during the "Don't Walk" interval of the pedestrian signal and during the flashing "Don't Walk" interval[2] if the countdown feature is not being used. See the later section that describes this additional feature. The locator tone should be deactivated if the traffic signal is in a flashing operation[1] or if the pedestrian signal system is otherwise inoperative[2]. The locator tone should have the following characteristics:

1. Tones should consist of multiple frequencies with a dominant component at 880 Hz.[2]

2. The volume measured at 36 in (915 mm) from the pedestrian signal device should be 2 dB minimum and 5 dB maximum above ambient noise level[2] with a maximum of 89 dB[1] and should be responsive to ambient noise level changes.

3. Tones should be audible 6 to 12 ft (1.8 to 3.7 m) from the pushbutton or to the building line, whichever is less[1].

Confirmation of Pedestrian Signal Timing Activation

Once a pedestrian locates and engages the pushbutton, a confirmation light should come on to confirm that a request has been received and that pedestrian signal timing has been activated. In order to provide this confirmation to a visually impaired pedestrian, some form of immediate audible indication should be emitted, e.g., a beep, tick, or other percussive tone. A pushbutton information message may also serve as this confirmation if it starts immediately upon engaging the pushbutton. See the later section that describes this additional feature.

Walk Interval Tone

The walk tone of the APS unit should be similar to the locator tone except that it should repeat at a faster rate. The tone is best defined as a tick or percussive tone; a buzz, cuckoo, beep, or chirp is not considered acceptable for the walk interval. The duration of the tone should be 0.15 sec and should repeat at intervals of 0.15 sec[2]. The unit should have the capability of emitting the selected sound for as long as the walk signal is on at the pedestrian signal head. The walk interval tone should have the following characteristics:

1. Tones should consist of multiple frequencies with a dominant component at 880 Hz.[2]

2. The volume measured at 36 in (915 mm) from the pedestrian signal device should be 2 dB minimum and 5 dB maximum above ambient noise level[2] with a maximum of 89 dB[1] and should be responsive to ambient noise level changes.

Walk Interval Voice Message

The APS unit should have the capability of emitting a voice message during the walk interval for as long as the walk signal is on at the pedestrian signal head. The words and their meanings must be clear and concise and correctly understood by the visually impaired user. The basic model to be used for the message is[3]:

- "Howard. Walk sign is on to cross Howard" walk message for Howard Street).

- "Walk sign is on for all crossings" (walk message for intersections with exclusive pedestrian phase).

The voice message should normally be used for the walk interval. Its volume measured at 36 in (915 mm) from the pedestrian signal device should be 2 dB minimum and 5 dB maximum above ambient noise level[2] with a maximum of 89 dB[1] and should be responsive to ambient noise level changes.

Vibrating Tactile Arrow

The APS unit should have a raised (tactile) arrow that is installed to point parallel with the direction of travel on the crosswalk. It should vibrate during the walk interval. The arrow can be part of or above the pushbutton or located on top of the unit.

The arrow should be raised at least 1/32 in (0.8 mm) and should be at least 1½ in (38 mm) in length. The arrowhead should be open at 45 degrees to the shaft and should be 33 percent of the length of the shaft. Stroke width should be from 10 to 15 percent of the length of the arrow. The arrow should contrast with the background[2].

B. Additional Features

The APS unit should provide the following optional features.

Pushbutton Information Message

A pushbutton informational speech message should advise the visually impaired user of the need to wait for a walk signal. The message can also provide information about other features at the intersection. The message should be activated immediately upon engaging the pushbutton or upon pushing and holding it up to but not more than 0.5 sec. The volume of the message measured at 36 in (915 mm) from the pedestrian signal device should be 2 dB minimum and 5 dB maximum above ambient noise level[3] with a maximum of 89 dB[2] and should be responsive to ambient noise level changes. Once activated, the information message should repeat itself until being immediately truncated by the initiation of the walk interval tone or message. The term "wait" should always be used[2]. Examples of messages are the following[3]:

- Model pushbutton message: *Wait to cross Howard at Grand.*

- Model pushbutton message for intersections having an exclusive pedestrian phase with right turns-on-red prohibited: *Wait to cross Howard at Grand. Wait for red light for all vehicles.*

- Model pushbutton message for intersections having an exclusive pedestrian phase with right turns-on-red permitted: *Wait to cross Howard at Grand. Wait for red light for all vehicles. Right turn on red permitted.*

- Model pushbutton message for angled crosswalks: *Wait to cross Howard at Grand. Crosswalk angles right.*

- Model pushbutton message for crosswalks to medians where a second button push is required: *Wait to cross Howard at Grand. Short WALK phase. Raised (or cut-through) median with second pushbutton.*

- Model pushbutton message for signalized crosswalks to splitter islands: *Wait to cross right turn lane to island for Howard and Grand crosswalks.*

If the information message is activated immediately upon engaging the pushbutton, this message may serve as confirmation to the visually impaired pedestrian that his or her request was received and that pedestrian signal timing was activated.

Pedestrian Countdown

The APS unit should be capable of providing a voice message countdown for the visually impaired pedestrian. The pedestrian signal head may have a pedestrian interval countdown display to inform sighted pedestrians of the number of seconds remaining until the termination of the pedestrian change or clearance interval. This display typically accompanies the flashing raised stop hand in the pedestrian head. The intent is simply to inform pedestrians of the timing of the clearance interval so they can make practical decisions regarding either entering the crossing or speeding up their walk rate to ensure clearing the crosswalk prior to the onset of traffic flow. The APS unit provides this capability via a voice message.

Audible Beaconing

The APS unit should be capable of providing beaconing. *Beaconing* is defined as providing directional orientation (homing) to a visually impaired pedestrian through the use of an audible sound or signal. The volume of the walk message or tone and the subsequent sound that occurs during the flashing or change interval (either the locator tone or the countdown message) may be increased. The system could also be set such that the sounds alternate back and forth from one end of the crosswalk to the other. The system may also have a separate speaker oriented in line with the appropriate crosswalk to focus the sound.[3]

Beaconing may be needed at intersections having skewed crosswalks or irregular geometry such as multiple legs, at crosswalks longer than 70 ft (unless another APS is installed in an existing median), and at crosswalks used by a visually impaired pedestrian with a severe veering problem. It is not appropriate at locations with free right turns or split phasing[3].

VI. INSTALLATION PROCEDURES

A. Manual on Uniform Traffic Control Devices for Streets and Highways

Sections 4E.06 and 4E.09 of the MUTCD provide guidance on accessible pedestrian signals[1].

B. Miscellaneous Practices

The following practices should be followed to ensure successful installation of APS at an existing intersection.

Coordination with Requesting Citizen

Meeting with the visually impaired citizen who requested the APS to determine his or her specific needs and concerns is a critical first step to a successful installation. (Note that this is required in Section IV.) Likewise, it is critical to meet with him or her after the APS

is first installed to provide instruction on how to use the APS and, if needed, to fine-tune its operation.

Location of APS Pushbuttons

Successful operation of the APS is highly dependent on the pushbutton being installed at the appropriate specific location. Information on proper location is provided in both the MUTCD[1] and the NCHRP synthesis and guide to best practices regarding APS[4].

Removal of APS Units Not Being Used

Once VDOT district staff learns that an APS unit is no longer needed at a location (e.g., the user has moved), immediate steps should be taken to disengage the unit and remove it for use at another site. Since there is no practical way that VDOT can routinely monitor usage, non-usage will typically be reported by adjacent residents or business owners (primarily via complaints) or possibly by social service agencies. In addition, VDOT maintenance crews responding to equipment problems might determine that an APS is not being used.

Rest in Walk Operation

At intersections where the pedestrian signal on certain crossings (primarily on the side or minor street) "rests" in the "Walk" interval, the APS walk interval indications should operate for only one timing cycle when the pushbutton is activated; i.e., the APS pushbutton should normally "rest" in locator tone operation unless a pedestrian actually pushes the button and calls for the APS walk interval.

REFERENCES

1. Federal Highway Administration. *Manual on Uniform Traffic Control Devices for Streets and Highways,* Part 4: Highway Traffic Signals, Chapter 4L: Pedestrian Control Features, Section 4E.06: Accessible Pedestrian Signals, Section 4E.09: Accessible Pedestrian Signal Detectors. Washington, D.C., 2003.

2. The Access Board. *Draft Guidelines for Accessible Public Rights-of-Way*, June 17, 2002. http://www.access-board.gov/rowdraft.htm#1106. Accessed December 10, 2004.

3. Barlow, J.M., Bentzen, B.L., and Tabor, L.S. *Accessible Pedestrian Signals: Synthesis and Guide to Best Practice*. An Interim Product Prepared for National Cooperative Highway Research Program Project 3-62 Guidelines for Accessible Pedestrian Signals. Transportation Research Board, Washington, D.C., 2003.

ATTACHMENT A

ACCESSIBLE PEDESTRIAN SIGNAL EVALUATION

ACCESSIBLE PEDESTRIAN SIGNAL EVALUATION FORM

Location:		
Date:	Day:	Time of Day:
Weather Conditions:		
Evaluation Team Members:		
Specific Needs of Requesting Party:		

EVALUATION FACTOR	**POINTS**
1. Configuration of Intersection	

Points are assigned if the intersection's configuration causes there to be an absence of straight through traffic that is parallel to the crossing to be used by the requesting party or that is close enough to be heard. For example, the intersection may be skewed, offset, or does not have certain straight through movements (as is the case in a 3-leg tee intersection). Accordingly, if there is *no* straight through traffic flow that is parallel with the crosswalk to be used by the requesting party or close enough to be heard, assign 15 points.

Comments:

2. Width of Crossing to Be Used by Requesting Party

Width (feet)	Points	Comments:
40 or less	2	
41 to 52	4	
53 to 68	6	
69 to 78	8	
79 or more	10	

3. Maximum Posted Speed Limit on Street to be Used by Requesting Party

Speed (mph)	Points	Comments:
0 to 25	1	
26 to 30	2	
31 to 35	3	
36 to 40	4	
41 or more	5	

4. Special Traffic Conditions I

If there *are* heavy right-turn volumes (≥ 40 vehicles in the peak hour or the existence of a right-turn lane) from the street parallel with the crossing or right-turn signals or arrows that impact the crossing to used by the requesting party, assign 15 points.

Comments:

5. Special Traffic Conditions II

If there *is* a free flow right-turn lane (with or without a right-turn island) that impacts the crossing to be used by the requesting party, assign 15 points.

Comments:

6. Special Pedestrian Signal Conditions

If there *are* lead pedestrian phases, exclusive pedestrian phases, or mid-block exclusive pedestrian signals that impact the crossing to be used by the requesting party, assign 15 points.

Comments:

7. Proximity of Intersection to Key Facilities

Proximity to Facility	Points	Comments:
4 to 6 blocks	2	
3 blocks	4	
2 blocks	6	
1 block	8	
At the Facility	10	

(Use 400 feet as an estimate of an average block length.)

8. Need to Cross by Visually Impaired

If the requesting party's need to cross *is* related to work/employment or school, assign 15 points.

Comments:

9. Time in Queue		
Month in fiscal year request received	Points	
July	24	
August	22	
September	20	
October	18	
November	16	
December	14	
January	12	
February	10	
March	8	
April	6	
May	4	
June	2	
10. Other Special Traffic and Mobility Conditions		
If special traffic and mobility conditions *do exist* as determined by the Orientation and Mobility Specialist (including intersections at which traffic volumes are so low as to result in crossing conditions that are a problems for the requesting party), assign 15 points. Comments:		
TOTAL POINTS		
Additional Comments by Evaluation Team:		

ATTACHMENT B

REQUEST FOR THE INSTALLATION OF ACCESSIBLE PEDESTRIAN SIGNALS FORM

Requesting Party's Name:
_____
(Blind or visually impaired pedestrian)

Address:
_____City:_____
_

State: _____Zip Code: _____

Telephone (Home): _____ Telephone (Work): _____

I request that the Virginia Department of Transportation install Accessible Pedestrian Signals (APS) to cross _____ (*route number/street name*) at the intersection of _____ and _____ in _____ *(city, town, or county).*

Please describe the difficulty you have in crossing:
_____
_____
_____
_____

Signature: _____ Date: _____

Please call _____ at _____ with questions and/or mail form to:

For Office Use Only

Date Received: _____ Received by: _____

a. If the intersection is signalized and the crossing for which APS is requested is equipped with pedestrian signals, evaluate the intersection.
b. If there are plans to install pedestrian signals on the crossing, revise them (unless shown to be undue hardship) to include APS and do not evaluate the intersection. If undue hardship, install pedestrian signals without APS as planned and evaluate the intersection.
c. If there are no pedestrian signals on the crossing and there are no plans for pedestrian signals, conduct a study to determine if pedestrian signals are warranted. If warranted, include appropriate APS when pedestrian signals are installed, and do not evaluate the intersection.

Evaluation Date: _____ Evaluation Team: _____
_____
_____
_____

Recommendations: _____

Signature (District Traffic Engineer): _____

Date: _____

Signature (District Civil Rights Manager): _____

Date: _____

Attach Evaluation Sheets and All Supporting Documentation.