



*Seattle Department of Transportation*

## Technical Memorandum-FINAL DRAFT

**To:** FILE

**From:** SDOT ADA Committee

**Date:** February 24, 2014

**Re:** Accessible Pedestrian Signals (APS) Design Guidance

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### **Statement of Purpose**

The purpose of this Technical Memorandum is to summarize the current ADA requirements, available guidance, and SDOT's approach for providing APS equipment.

For further guidance see:

<http://www.apsguide.org/index.cfm>

### **Requirement and Guidance**

**1) Federal Requirements: American Disabilities Act Accessibility Guidelines (ADAAG)**

- A) New Construction Requirements, CFR 35.151: Each facility or part of a facility constructed by, on behalf of, or for the use of a public entity shall be designed and constructed in such a manner that the facility or part of the facility that is readily accessible to and usable by individuals with disabilities, if the construction was commenced after January 26, 1992.
- B) Alteration Requirements, CFR 35.151: Each facility or part of a facility altered by, on behalf, or for the use of a public entity in a manner that affects or could affect the usability of the facility or part of the facility shall, to the maximum extent feasible be altered in such a manner that the altered portion of the facility is readily accessible to and usable for individuals with disabilities, if the alteration was commenced after January 26, 1992.
- C) No specific guidance/requirement provided for APS in alteration or new construction. However it can be interpreted that a pedestrian signal is a facility that is integral to a pedestrian facility in the Right of Way, and thus needs to be accessible.

**2) Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition**

**A) Section 4E.09:**

- 01 Accessible pedestrian signals and detectors provide information in non-visual formats (such as audible tones, speech messages, and/or vibrating surfaces).
- 02 The primary technique that pedestrians who have visual disabilities use to cross streets at signalized locations is to initiate their crossing when they hear the traffic in front of them stop and the traffic alongside them begin to move, which often corresponds to the onset of the green interval. The existing environment is often not sufficient to provide the information that pedestrians who have visual disabilities need to cross a roadway at a signalized location.
- Guidance:*
- 03 *If a particular signalized location presents difficulties for pedestrians who have visual disabilities to cross the roadway, an engineering study should be conducted that considers the needs of pedestrians in general, as well as the information needs of pedestrians with visual disabilities. The engineering study should consider the following factors:*
- A. Potential demand for accessible pedestrian signals;*
  - B. A request for accessible pedestrian signals;*
  - C. Traffic volumes during times when pedestrians might be present, including periods of low traffic volumes or high turn-on-red volumes;*
  - D. The complexity of traffic signal phasing (such as split phases, protected turn phases, leading pedestrian intervals, and exclusive pedestrian phases); and*
  - E. The complexity of intersection geometry.*

*Support:*

- 04 The factors that make crossing at a signalized location difficult for pedestrians who have visual disabilities include: increasingly quiet cars, right turn on red (which masks the beginning of the through phase), continuous right-turn movements, complex signal operations, traffic circles, and wide streets. Furthermore, low traffic volumes might make it difficult for pedestrians who have visual disabilities to discern signal phase changes.
- 05 Local organizations, providing support services to pedestrians who have visual and/or hearing disabilities, can often act as important advisors to the traffic engineer when consideration is being given to the installation of devices to assist such pedestrians. Additionally, orientation and mobility specialists or similar staff also might be able to provide a wide range of advice. The U.S. Access Board ([www.access-board.gov](http://www.access-board.gov)) provides technical assistance for making pedestrian signal information available to persons with visual disabilities (see Page i for the address for the U.S. Access Board).

**3) Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG DRAFT 2011)**

NOTE: This document is currently a **DRAFT** guideline at this time, and is not legally binding.

- A) R209.1 General: Where pedestrian signals are provided at pedestrian street crossings, they shall include accessible pedestrian signals and pedestrian pushbuttons complying with sections 4E.08 through 4E.13 of the MUTCD (incorporated by reference, see R104.2). Operable parts shall comply with R403.
- B) R209.2 Alterations: Existing pedestrian signals shall comply with R209.1 when the signal controller and software are altered, or the signal head is replaced.

**4) WSDOT Design Manual Section 1510 (July 2013)**

- A) Section 1510.12 Pedestrian Pushbuttons at Signals: When pedestrian signals are newly installed, replaced, or significantly modified, include accessible pedestrian signal (APS) pushbuttons and countdown pedestrian displays as described in 1510.12(2).
- B) Section 1510.12(2) Accessible Pedestrian Signals (APS): At all locations where pedestrian signals are newly installed, replaced, or significantly modified, the installation of accessible pedestrian signals and countdown pedestrian displays is required.

### **Proposed SDOT Approach**

As described in the MUTCD, there are multiple aspects of a pedestrian signal that make it accessible to pedestrians who have visual disabilities. These aspects include, but are not limited to: signal controller, location of pedestrian pushbuttons with respect to sidewalk, curb ramps, and edge of the curb, shoulder, or pavement, height of pushbutton, pedestrian signal head location, auditory indications, and vibrotactile indications.

At this time there is draft federal guidance (PROWAG) that notes requirements for when non-visual message formats (vibrotactile and audible) for WALK signal intervals shall be provided for new construction and alteration projects. In response to the most recent issuance of the PROWAG, and previous draft versions, the current WSDOT Pedestrian Design Manual requires all new and altered pedestrian signals include non-visual message formats.

In the absence of an adopted federal PROWAG, SDOT has deferred to the 2009 MUTCD (Section 4E.09(03)) for guidance with respect to providing APS. SDOT proposes providing APS in a different manner for new versus alteration projects as noted below:

#### **Traffic Signal and/or Pedestrian Signal Modification:**

Where an existing traffic signal and/or pedestrian signal is significantly altered or modified, SDOT proposes to continue providing APS in a manner consistent with current MUTCD, and assessing the justification for non-visual formats on a case by case basis, until PROWAG or a similar Federal requirement is adopted. At a minimum, an engineering study should be conducted to determine if APS should be installed at any existing signal modification locations within a project that meet any of the following conditions: existing traffic signal adjacent to an existing transit stop (bus or street car), existing or proposed cycle track facility at the existing traffic signal; or pedestrian activity at the existing traffic signal at peak period, 24-hour period, or the number of pedestrians related accidents exceeds per year what would warrant a pedestrian signal improvement.

Traffic and pedestrian signal modifications shall at a minimum install pedestrian pushbuttons with a latching mode with a LED indicator light and audible feedback. The LED and audible feedback will actuate each time the pushbutton is pressed and shall terminate at the beginning of the WALK pedestrian interval. Pedestrian pushbuttons shall be installed per the current MUTCD requirements and manufacturer's specifications.

When feasible, it is generally considered a good practice to provide conduit and other related infrastructure for the future APS signal installation as part of any pedestrian signal modification.

See Figure 1 for further clarification on APS implementation approach for signal alterations.

#### **New Traffic Signal or Complete Replacement:**

Where an existing traffic signal is replaced or a new traffic signal is installed, SDOT proposes to provide an APS consistent with the current PROWAG and WSDOT requirements. The pedestrian signal and pushbuttons shall be installed per the current MUTCD requirements. The new APS equipment shall include all the auditory cue capabilities but the auditory features will only be activated if there is a request for auditory cues, or based on an engineering study that auditory cues are required at the intersection. An engineering study should be conducted to determine if APS should be activated when conditions meets the criteria as described in the Traffic Signal and/or Pedestrian Signal Modification section.



**FIGURE 1: APS Equipment Requirements and Project Scope for Local AND Federally Funded Improvements**

APS Improvement	Project: Sidewalk or curb ramp improvement requires existing PPB <sup>2</sup> be relocated	Project: Existing pedestrian signal head replaced	Project: Existing Traffic and/or Pedestrian Signal Significantly Modified	Project: New Signal or Completely Replaced Signal
Pedestrian Countdown Head and Companion		<b>X</b>	<b>X<sup>1</sup></b>	
All Pedestrian Heads Countdown at the Intersection			<b>X<sup>1</sup></b>	<b>X</b>
Pedestrian Pushbutton (PPB) per COS Std Plan 522A	<b>X</b>			
Companion Pushbutton (PPB) upgraded per COS STD Plan 522A	<b>X</b>			
Pedestrian Pushbutton located per MUTCD	<b>X</b>		<b>X<sup>1</sup></b>	<b>X</b>
Pedestrian Pushbuttons per COS Std Plan 522B for all crossing of the intersection			<b>X<sup>1</sup></b>	<b>X</b>

<sup>1</sup>Number of crossings and extent of equipment upgraded to be determined on a project by project basis based on scope of modification and type of intersection. At a minimum, arterial crossings shall be upgraded to Pedestrian Countdown Head and PPB per COS Standard Plan 522B.

<sup>2</sup>Pedestrian Pushbutton