

**As approved by the
National Committee
June 30, 2006.**

TECHNICAL COMMITTEE RECOMMENDATION

TECHNICAL COMMITTEE: Signals Technical Committee

DATE OF ACTION: January 19, 2006

TOPIC: **Sections 4A.02 Definitions Relating To Highway Traffic Signals, Section 4D.03 Provisions for Pedestrians, Section 4E.06 Accessible Pedestrian Signals, Section 4E.08 Pedestrian Detectors, and Section 4E.09 Accessible Pedestrian Signal Detectors**

ORIGIN OF REQUEST: Signals Technical Committee

DISCUSSION: The STC has been working for over six years to incorporate the results of research and practice regarding accessible pedestrian signals (APS) into the MUTCD. The 2000 MUTCD included new sections on APS (4E.06) and Accessible Pedestrian Detectors (4E.08—now 4E.09). The language in these sections was revised in the 2003 MUTCD, based on research results available at that time. Recommended modifications to the 2003 MUTCD have been reviewed and approved by the NCUTCD. Additional changes are now proposed based on results of research, practice, and technical development of APS.

Both the Rehabilitation Act of 1973 (Section 504) and the Americans with Disabilities Act of 1990 require that facilities, programs and services be accessible to persons with disabilities. Both require that all new construction and alterations be accessible to persons with disabilities. This requirement means that pedestrian signals in new construction and alterations must be accessible to persons with disabilities, including vision impairment, vision and hearing impairment, cognitive impairment, and mobility impairment. Pedestrian signals are required to communicate WALK signal information in both audible and vibrotactile modes so they are usable by pedestrians with vision, and vision and hearing impairment. Pushbuttons to actuate pedestrian signals must be able to be located by persons with vision impairments and able to be actuated by persons with mobility impairments. Proposed changes have been demonstrated to result in accurate communication of pedestrian signal information to pedestrians having vision, vision and hearing, or cognitive disabilities. Proposed changes also result in making accessible pedestrian

detectors easy to locate and actuate by persons with visual or mobility impairments.

Proposed changes to 4A.02, 4E.06, 4E.08, and 4E.09 are based primarily on additional research conducted under NCHRP 3-62 Accessible Pedestrian Signals, and a 5-year project sponsored by the National Institutes of Health, National Eye Institute, Blind Pedestrians' Access to Complex Intersections. Major changes are the following.

- Standards for the nature of audible and vibrotactile WALK indications
- Change from Guidance to Standard for volume of audible WALK indications
- Guidance on accessible pedestrian signal timing when pedestrian signals rest in walk
- Standard restricting the use of speech WALK indications to locations in which it is not technically feasible to locate two accessible pedestrian signal devices on separate poles at a corner
- Guidance on the use of audible beaconing to aid users in maintaining a straight direction of travel across a crossing
- Standards for ways to provide audible beaconing; Standard for location of tactile arrows on devices
- Change from Guidance to Standard requiring an additional accessible pedestrian detector on a median where pedestrian timing is sufficient only to cross from a curb or shoulder to a median
- Options for an alert tone at the onset of the walk interval and for a tactile map of the crosswalk

Additional changes clarify the intent of existing language, reduce redundancy, or provide more logical organization.

Since the 2000 MUTCD, 4E.06 has required that "The information provided by an accessible pedestrian signal shall clearly indicate which pedestrian crossing is served by each device," however at that time there were no Standards and little Guidance on how this should be accomplished. Research has documented that requirements for both the nature of the tone or speech message provided by an accessible pedestrian signal, and the location of accessible pedestrian signal devices are needed to avoid ambiguity in determining which crosswalk has the WALK signal. Further, a tactile arrow is necessary for pedestrians who are blind to determine which pushbutton should be used to actuate the WALK signal at a particular crossing.

Under NCHRP 3-62, research was conducted to determine which device features best facilitated safe and independent street crossings by pedestrians who are blind. Four different types of pushbutton-integrated APS were used at one intersection in each of two cities. (Only pushbutton-integrated APS make pedestrian signal information

accessible to the large proportion of people who are blind and who also have hearing impairments.) All devices had a pushbutton locator tone, an audible actuation indicator, an audible WALK indication, a tactile arrow that vibrated during the walk interval, and automatic volume adjustment. Acoustic characteristics of the locator tone, the WALK signal, and the actuation indicator varied across devices, as did style of pushbutton and tactile arrow. In each city 20 blind participants made two or three crossings using each device. Objective data included participants': location at the onset of crossing and at the end of crossing, with relation to the location and direction of the crosswalk; heading at the onset of crossing; intervals during beginning and ending of crossing; starting delay; searching for, locating and using pushbuttons; use of particular device features; and independence in crossing.

Results of NCHRP 3-62, supplemented by research sponsored by the National Eye Institute, demonstrate that for pedestrians with varying amounts of visual impairment and varying types of cognitive impairment, the least ambiguous information was provided when two APS on a corner were located on separate poles close to the curb that were separated by a distance of at least 10 feet. Both speed and accuracy in determining which crosswalk had the walk interval were also significantly better when both APS on a corner, located as described above, had the same rapid tick tone as compared with two different tones. Although subjective preference for WALK indications revealed that speech WALK signals were preferred, in the interest of minimizing the occasions on which pedestrians who have visual or cognitive impairments begin crossing with the wrong signal, the Final Report for NCHRP 3-62 recommends that the WALK indication should be a rapid tick.

Nonetheless, it is not always possible to locate APS on two different poles at a corner. NCHRP 3-62 results indicated that where two pushbuttons were located on a single pole, speed and accuracy in determining which crossing has the WALK signal were greater when the WALK indication was a speech message providing the name of the street being crossed than when a different WALK tone was provided by each of the two APS on one pole. When it is technically infeasible to locate APS on two different poles, the only way to provide unambiguous information regarding which crossing has the WALK signal is a speech message. However, speech messages are not understandable to all pedestrians under all ambient sound conditions. Therefore the use of speech WALK indications should be restricted to those situations in which it is necessary to locate two pushbuttons on a single pole.

Devices having the vibrating tactile arrow located on the pushbutton were used more quickly and accurately, and were preferred over devices in which the vibrating arrow was not incorporated into the pushbutton.

Research on APS sponsored by the National Eye Institute indicates that safety and independence of pedestrians with visual impairments at street crossings is enhanced by some form of audible beaconing at some crossings having complex geometry. Sixteen blind pedestrians in each of four cities made crossings at two complex signalized intersections before and after installation of APS having different means of providing beaconing. Objective measures included participants' accuracy in locating the crosswalk, aligning for crossing, crossing within the crosswalk, starting within the walk interval, and completing crossings within the pedestrian phase, as well as completing crossing independently.

Based on results of this research, Guidance is proposed for identifying those crossings where audible beaconing should and should not be used. There are currently four potential ways of providing audible beaconing. Thus a Standard requiring the use of one of these four ways to provide beaconing is proposed, where audible beaconing is needed. All of the ways to provide beaconing require increased signal volume. To minimize the impact of increased signal volume on neighbors, while making it available to persons who need it, audible beaconing is provided only in response to an extended button press.

Also, the use of the term "speech" instead of "spoken" or "verbal" is recommended when referring to accessible pedestrian signals and has been incorporated into the proposed changes.

The Signals Technical Committee recommends that the National Committee submit the following proposed MUTCD changes to sponsors for comments.

COMMITTEE ACTION :

See following pages for proposed text. New text is shown in blue underline. Deleted text is shown as ~~red double strikethrough~~.

VOTE:

For	- 25
Opposed	- 0
Abstentions	- 0

REFERENCE TO AFFECTED PAGE NUMBERS IN MUTCD:

Pages 4A-1 to 4A-3, 4D-2, and 4E-3 to 4E-7, 2003 Edition of MUTCD, Rev. 1

Section 4A.02 Definitions Relating to Highway Traffic Signals

Standard:

Accessible Pedestrian Signal—a device that communicates information about pedestrian timing in nonvisual format such as audible tones, ~~verbal~~ speech messages, and/or vibrating surfaces.

Pedestrian Change Interval—an interval during which the flashing UPRAISED HAND (symbolizing DONT WALK) signal indication is displayed. ~~When a verbal message is provided at an accessible pedestrian signal, the verbal message is "wait."~~

Pushbutton Locator Tone—a repeating sound that informs approaching pedestrians that ~~they are required to push~~ there is a pushbutton to actuate pedestrian timing or to receive additional information and that enables pedestrians who have visual disabilities to locate the pushbutton.

Vibrotactile Pedestrian Device—~~a device~~ an accessible pedestrian signal feature that communicates, by touch, information about pedestrian timing using a vibrating surface.

Section 4D.03 Provisions for Pedestrians

Guidance:

Safety considerations should include the installation, where appropriate, of accessible pedestrian signals (see Sections 4E.06 and 4E.09) that provide information in nonvisual format (such as audible tones, ~~verbal~~ speech messages, and/or vibrating surfaces).

Section 4E.06 Accessible Pedestrian Signals

Support:

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, ~~corresponding~~ which often corresponds to the onset of the green interval. ~~This technique is effective at many signalized locations.~~ The existing environment is often not sufficient to provide the information that pedestrians who have visual disabilities need to ~~operate safely~~ cross a roadway at a signalized location. ~~Therefore, many signalized locations will not require any accessible pedestrian signals.~~

Guidance:

If a particular signalized location presents difficulties for pedestrians who have visual disabilities to cross ~~safely and effectively~~ the roadway, an engineering study should be conducted that considers the ~~safety and effectiveness for~~ 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:

The factors that ~~might~~ 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. Further, low traffic volumes might make it difficult for pedestrians who have visual disabilities to discern signal phase changes.

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's ~~Document A-37, "Accessible Pedestrian Signals,"~~ (www.access-board.gov) provides various techniques for making pedestrian signal information available to persons with visual disabilities (see Page i for the address for the U.S. Access Board).

Accessible pedestrian signals provide information in nonvisual format (such as audible tones, ~~spoken~~ [speech](#) messages, and/or vibrating surfaces).

Information regarding detectors for accessible pedestrian signals is found in Section 4E.09.

Standard:

When used, accessible pedestrian signals shall be used in combination with pedestrian signal timing. The information provided by an accessible pedestrian signal shall clearly indicate which pedestrian crossing is served by each device.

Under stop-and-go operation, accessible pedestrian signals shall not be limited in operation by the time of day or day of week.

~~Guidance:~~

~~—The installation of accessible pedestrian signals at signalized locations should be based on an engineering study, which 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 and~~

~~E. The complexity of intersection geometry.~~

Support:

Accessible pedestrian signals that are located as close as possible to pedestrians waiting to cross the street provide the clearest and least ambiguous indication of which pedestrian crossing is served by a device. Technology that provides different sounds for each nonconcurrent signal phase has frequently been found to provide ambiguous information.

~~Some~~ Research indicates that a rapid tick tone for each crossing on separated poles located close to each crosswalk provides unambiguous information to pedestrians who are blind or visually impaired. Vibrotactile indications provide information to pedestrians who are blind and deaf and are also used by pedestrians who are blind or who have low vision to confirm the walk signal in noisy situations.

Standard:

~~When choosing audible tones, possible extraneous sources of sounds (such as wind, rain, vehicle back-up warnings, or birds) shall be considered in order to eliminate potential confusion to pedestrians who have visual disabilities.~~

Accessible pedestrian signals shall have both audible and vibrotactile walk indications.

Accessible pedestrian signals shall have an audible walk indication during the walk interval only. The audible tone(s) shall be audible from the beginning of the associated crosswalk.

Accessible pedestrian signals shall not provide an audible pedestrian change interval indication.

Audible walk indications shall be a percussive tone. Audible tone walk indications shall repeat at 8 to 10 ticks per second. Audible tones used as walk indications shall consist of multiple frequencies with a dominant component at 880 Hz.

Vibrotactile walk indications shall be provided by a tactile arrow on the pushbutton which vibrates during the walk interval (see Section 4E.09).

Guidance:

The sound level of audible pedestrian ~~tones~~ indications should be adjusted to be low enough ~~carefully selected~~ to avoid misleading pedestrians who have visual disabilities when the following conditions exist:

- A. Where there is an island that allows unsignalized right turns across a crosswalk between the island and the sidewalk.
- B. Where multileg approaches or complex signal phasing require more than two pedestrian phases, such that it might be unclear which crosswalk is served by each audible tone.
- C. At intersections where a diagonal pedestrian crossing is allowed, or where one street receives a WALKING PERSON (symbolizing WALK) signal indication simultaneously with another street.

Standard:

~~When accessible pedestrian signals have an audible tone(s), they shall have a tone for the walk interval. The audible tone(s) shall be audible from the beginning of the associated crosswalk. If the tone for the walk interval is similar to the pushbutton locator tone, the walk interval tone shall have a faster repetition rate than the associated pushbutton locator tone.~~

Support:

A pushbutton locator tone is a repeating sound that informs approaching pedestrians that ~~they are required to push~~ there is a push button to actuate pedestrian timing or to receive additional information, and that enables ~~visually impaired~~ pedestrians who have visual disabilities to locate the pushbutton (see Section 4E.09).

~~Guidance~~ **Standard:**

~~The accessible walk signal tone should be no louder than the locator tone, except when there is optional activation to provide a louder signal tone for a single pedestrian phase.~~

~~Automatic volume adjustment in response to ambient traffic sound level should be provided up to a maximum volume of 89 dBA. Where automatic volume adjustment is used, Tones should shall be set to be no more than 5 dBA louder than ambient sound except when a louder signal is provided in response to an extended button press. Automatic volume adjustment in response to ambient traffic sound level shall be provided up to a maximum volume of 100 dBA. The A-weighted sound pressure level should be measured according to "ISO 1996-1:1982" and "ISO 1996-2:1987" at a distance of 1 m (3.3 ft) from the transmitter (see Page i for the address for the International Organization for Standards).~~

The accessible walk signal shall have the same duration as the pedestrian walk signal except when the pedestrian signal rests in walk.

Guidance:

When the pedestrian signal rests in walk, the accessible walk signal should be limited to the first 7 seconds of the walk interval. The accessible walk signal should be recalled by a button press during the walk interval provided that the crossing time remaining is greater than the pedestrian change interval.

Option:

An alert tone, which is a very brief burst of high frequency sound at the beginning of the audible walk indication which rapidly decays to the frequency of the walk tone, may be used to alert pedestrians to the beginning of the walk interval. An alert tone may be particularly useful if the walk tone is not easily audible in some traffic conditions.

Support:

~~Spoken~~ Speech messages communicate to pedestrians which street has the walk interval. ~~Spoken~~ Speech messages might be either directly audible or transmitted, requiring a personal receiver to hear the message. To be a useful system, the words and their meaning must be correctly understood by all users in the context of the street environment where they are used. Because of this, tones are the preferred means of providing audible walk indications.

Where speech messages are used, pedestrians have to know the names of streets they are crossing in order for ~~spoken~~ speech walk messages to be unambiguous. In getting directions to travel to a new location, pedestrians who are blind do not always get the name of each street to be crossed. Therefore, it is desirable to give users of accessible pedestrian signals the name of the street controlled by the pushbutton. This can be done by means of a speech pushbutton information message during the flashing or steady don't walk intervals, or by raised print and Braille labels on the pushbutton housing.

Users must combine the information from the pushbutton message or Braille label, the tactile arrow aligned in the direction of travel on the relevant crosswalk, and the ~~spoken~~ speech walk message, in order to correctly respond to ~~spoken~~ speech walk messages, particularly if there are two pushbuttons on the same pole.

Standard:

When ~~spoken~~ speech messages are used to communicate the pedestrian interval, they shall provide a clear message that the walk interval is in effect, as well as to which crossing it applies. Speech walk messages shall be used only at intersections where it is technically infeasible to install two accessible pedestrian signals at one corner separated by a distance of 3 m (10 ft).

When ~~spoken~~ speech messages are used during the walk interval at intersections having concurrent pedestrian phasing they shall be patterned after the model: "Broadway. Walk sign is on to cross Broadway."

When ~~spoken~~ speech messages are used at intersections having exclusive pedestrian phasing they shall be patterned after the model: "WALK sign is on for all crossings."

Walk interval messages shall not contain any additional information, except they shall include designations such as "Street or "Avenue" where this information is necessary to avoid ambiguity in a particular locale.

~~The spoken message shall be repeated for the first 7 seconds of the walk interval, unless the walk interval is less than 7 seconds in which case the spoken message shall be repeated for the duration of the walk interval. Pedestrian actuations occurring during walk intervals of longer than 7 seconds shall cause the spoken message to be repeated for up to 7 seconds.~~

Guidance:

Messages should not be worded in a way that seems to provide a command to the pedestrian, such as "cross Broadway Street now". Messages should not tell users that it is "safe to cross." It should always be the pedestrian's responsibility to check actual traffic conditions.

Standard:

A ~~spoken~~ [speech](#) message is not required at times when the walk interval is not timing, but, if provided:

- A. It shall begin with the term "wait."
- B. It need not be repeated for the entire time that the walk interval is not timing.

Support:

Section 4E.09 contains additional ~~material~~ [information](#) regarding ~~spoken~~ [speech](#) pushbutton information messages when the walk interval is not timing.

Option:

Accessible pedestrian signals that provide ~~spoken~~ [speech](#) messages may provide similar messages in languages other than English, if needed, except for the terms "walk sign" and "wait."

~~Support:~~

~~A vibrotactile pedestrian device communicates information about pedestrian timing through a vibrating surface by touch.~~

~~Standard:~~

~~Vibrotactile pedestrian devices, where used, shall indicate that the walk interval is in effect, and for which direction it applies, through the use of a vibrating directional arrow or some other means.~~

~~Guidance:~~

~~When provided, vibrotactile pedestrian devices should be located next to, and on the same pole as, the pedestrian pushbutton, if any, and adjacent to the intended crosswalk.~~

Option:

Pedestrians may be provided with additional features such as increased crossing time, audible beaoning, or a pushbutton information message as a result of an extended pushbutton press.

Standard:

If an extended pushbutton press is used to provide any additional feature(s), such as audible beaoning, a pushbutton press of less than one second shall actuate only the pedestrian timing and any associated accessible WALK signal, and a pushbutton press of one second or more shall actuate the pedestrian timing, any associated accessible WALK signal, and any additional feature(s).

Support:

Audible beaoning is the use of an audible signal in such a way that blind pedestrians can home in on the signal from the target corner as they cross the street.

Not all crosswalks at an intersection need audible beaoning; audible beaoning can actually cause confusion if used at all crosswalks at some intersections. Audible beaoning is not appropriate at locations with channelized turns or split phasing, because of the possibility of confusion.

Guidance:

Audible beaoning should only be considered following an engineering study at:

- A. Crosswalks longer than 21 m (70 ft), unless they are divided by a median that has another accessible pedestrian signal with a locator tone;
- B. Crosswalks that are skewed;
- C. Intersections with irregular geometry such as multiple legs;
- D. Crosswalks where audible beaoning is requested by an individual with visual disabilities; or
- E. Other locations where a study indicates audible beaoning would be beneficial.

Option:

Audible beaoning may be provided in several ways, any of which are initiated by an extended button press.

Standard:

If audible beaconing is used, the volume of the locator tone during the pedestrian change interval of the called pedestrian phase shall be increased and operated in one of the following ways:

- A. The louder locator tone comes from the target corner, as pedestrians cross the street; or
- B. The louder locator tone comes from both ends of the crosswalk; or
- C. The louder locator tone comes from an additional pedestrian-signal-head-mounted speaker aimed at the center of the crosswalk.

Section 4E.08 Pedestrian Detectors

Support:

The following guidance places pushbuttons within easy reach of pedestrians who are intending to cross each crosswalk and makes it obvious which pushbutton is associated with each crosswalk. This location also positions pushbutton poles optimally for ~~subsequent~~ installation of accessible pedestrian signals. Guidance regarding reach ranges can be found in the “Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)” (see Section 1A.11).

~~Guidance~~ Standard:

When pedestrian actuation is used, pedestrian pushbutton detectors ~~should~~ shall be capable of easy activation and conveniently located near each end of the crosswalks. Except as described in the ~~Option~~ Guidance below, pushbuttons ~~should~~ shall be located to meet all of the following:

- A. Unobstructed and adjacent to a level all-weather surface to provide access from a wheelchair;
- B. Where there is an all-weather surface, a wheelchair accessible route from the pushbutton to the ramp;
- C. Between the edge of the crosswalk line (extended) farthest from the center of the intersection and the side of a curb ramp (if present), but not greater than 1.5 m (5 ft) from said crosswalk line;
- D. Between 0.45 m (1.5 ft) and 1.8 m (6 ft), ~~but not greater than 3 m (10 ft)~~ from the edge of the curb, shoulder, or pavement; ~~and~~
- E. With the ~~control surface~~ face of the pushbutton parallel to the crosswalk to be used; and
- F. At a maximum mounting height of 1.2 m (4 ft) above the sidewalk.

Guidance:

Where there are constraints that make it infeasible to place the pedestrian detector adjacent to a level all-weather surface, the surface should be as level as feasible.

Where there are constraints that make it infeasible to place the pedestrian detector between 0.45 m (1.5 ft) and 1.8 m (6 ft) from the edge of curb, shoulder, or pavement, it should not be further than 3 m (10 ft) from the edge of curb, shoulder, or pavement.

A mounting height of approximately 1.1 m (3.5 ft) above the sidewalk should be used for pedestrian pushbutton detectors.

At corners of signalized locations where two pedestrian pushbuttons are provided, the pushbuttons should be separated by a distance of at least 3 m (10 ft) (see Figure 4E-2).

Option:

Where there are constraints that make it ~~impractical~~ infeasible to meet the Guidance on pedestrian detector separation in this Section, on a corner requiring pedestrian actuation of signals for two crosswalks, a single pole may be used.

Guidance:

Where two accessible pedestrian ~~detectors~~ pushbuttons are used ~~at corners having on~~ a single pushbutton pole, the accessible pedestrian ~~detectors~~ pushbuttons should have the features described in Section 4E.09 for this situation.

Option:

Pedestrian signal detectors may be pushbuttons or passive detection devices.

Standard:

Signs (see Section 2B.44) shall be mounted adjacent to or integral with pedestrian pushbutton detectors, explaining their purpose and use.

Option:

At certain locations, a sign in a more visible location may be used to call attention to the pedestrian detector.

~~Guidance~~ **Standard:**

~~If two crosswalks, oriented in different directions, end at or near the same location,~~
The positioning of pedestrian detectors and ~~for~~ the legends on the pedestrian detector signs ~~should~~ **shall** clearly indicate which crosswalk signal is actuated by each pedestrian detector.

Standard:

If the pedestrian clearance time is sufficient only to cross from the curb or shoulder to a median of sufficient width for pedestrians to wait and the signals are pedestrian actuated, an additional pedestrian detector shall be provided in the median.

Guidance:

The use of additional pedestrian detectors on islands or medians where a pedestrian might become stranded should be considered.

~~A mounting height of approximately 1.1 m (3.5 ft) above the sidewalk should be used for pedestrian pushbutton detectors.~~

If used, special purpose pushbuttons (to be operated only by authorized persons) should include a housing capable of being locked to prevent access by the general public and do not need an instructional sign.

Standard:

If used, a pilot light or other means of indication installed with a pedestrian pushbutton shall not be illuminated until actuation. Once it is actuated, it shall remain illuminated until the pedestrian's green or WALKING PERSON (symbolizing WALK) signal indication is displayed.

If a pilot light is used at an accessible pedestrian signal location, each actuation shall be accompanied by the speech message "wait".

Option:

At signalized locations with demonstrated need and subject to equipment capabilities, pedestrians with special needs may be provided with additional crossing time by means of an extended pushbutton press.

Section 4E.09 Accessible Pedestrian Signal Detectors

Standard:

An accessible pedestrian signal detector shall be defined as a device designated to assist the pedestrian who has visual or physical disabilities in activating the pedestrian phase.

At accessible pedestrian signal locations with pedestrian actuation, each pushbutton shall activate both the walk interval and the accessible pedestrian signals.

An accessible pedestrian pushbutton shall incorporate a locator tone.

Pushbutton locator tones shall have a duration of 0.15 seconds or less, and shall repeat at 1-second intervals.

Pushbutton locator tones shall be intensity responsive to ambient sound, and be audible 1.8 (6 ft) to 3.7 m (12 ft) from the pushbutton, or to the building line, whichever is less. Pushbutton locator tones shall be no more than 5 dBA louder than ambient sound.

Pushbutton locator tones shall be deactivated during flashing operation of the traffic control signal.

Option:

Accessible pedestrian signal detectors may be pushbuttons or passive detection devices.

Standard:

At accessible pedestrian signal locations, pushbuttons shall clearly indicate by means of tactile arrows which crosswalk signal is actuated by each pushbutton. ~~by means of~~ Tactile arrows shall be located on the pushbutton, having have visual contrast (light on dark or dark on light), and ~~Tactile arrows~~ shall be aligned parallel to the direction of travel on the associated crosswalk.

Guidance:

At corners of signalized locations with accessible pedestrian signals where two pedestrian pushbuttons are provided, the pushbuttons should be separated by a distance of at least 3 m (10 ft) such that they clearly indicate which crosswalk has the WALK indication.

Pushbuttons should be located as close as possible to the crosswalk line farthest from the center of the intersection and as close as possible to the curb ramp.

Standard:

Where it is impractical to install accessible pedestrian detectors on two separate poles at a corner, each accessible pedestrian detector shall have the following features, in addition to the pushbutton locator tone and tactile arrow: ~~pushbutton locator tone, a verbal~~ speech walk message for the WALK indication (see Section 4E.06), ~~tactile arrow aligned parallel to the direction of travel on the crosswalk,~~ and a speech pushbutton information message.

~~Guidance:~~

If the pedestrian clearance time is sufficient only to cross from the curb or shoulder to a median of sufficient width for pedestrians to wait and accessible pedestrian detectors are used, an additional accessible pedestrian detector ~~should~~ shall be provided in the median.

~~Standard:~~

~~When used, pushbutton locator tones shall be easily locatable, shall have a duration of 0.15 seconds or less, and shall repeat at 1 second intervals.~~

~~Guidance:~~

~~Pushbuttons should be audibly locatable. Pushbutton locator tones should be intensity responsive to ambient sound, and be audible 1.8 to 3.7 m (6 to 12 ft) from the pushbutton, or to the building line, whichever is less. Pushbutton locator tones should be no more than 5 dBA louder than ambient sound.~~

~~Pushbutton locator tones should be deactivated during flashing operation of the traffic control signal.~~

Option:

At locations with pretimed traffic signals or nonactuated approaches, pedestrian pushbuttons may be used to activate the accessible pedestrian signals.

~~Pedestrians may be provided with~~ Additional features [may be provided for pedestrians](#) such as increased crossing time, audible beaconing, or a [speech](#) pushbutton information message as a result of an extended pushbutton press.

Standard:

If an extended pushbutton press is used to provide any additional feature(s), a pushbutton press of less than one second shall actuate only the pedestrian timing and any associated accessible WALK signal, and a pushbutton press of one second or more shall actuate the pedestrian timing, any associated accessible WALK signal, and any additional feature(s).

Option:

The name of the street to be crossed may also be provided in accessible format, such as Braille or raised print.

[Tactile maps of crosswalks may be provided.](#)

~~Spoken~~ [Speech](#) pushbutton information messages may be made available by actuating the accessible pedestrian signal detector when the walk interval is not timing. These messages may provide intersection identification, as well as information about unusual intersection signalization and geometry, such as notification regarding exclusive pedestrian phasing, leading pedestrian intervals, split phasing, diagonal crosswalks, and medians or islands.

Standard:

If ~~spoken~~ [speech](#) pushbutton information messages are made available by actuating the accessible pedestrian signal detector, they shall only be actuated when the walk interval is not timing. They shall begin with the term “Wait,” followed by intersection identification information modeled after: “Wait to cross Broadway at Grand.” If information on intersection signalization or geometry is also given, it shall follow the intersection identification information.

Guidance:

~~Spoken~~ [Speech](#) pushbutton information messages should not be used to provide landmark information or to inform pedestrians with visual impairments about detours or temporary traffic control situations.

Support:

Additional information on structure and wording of pushbutton messages is included in ITE's "Electronic Toolbox for Making Intersections More Accessible for Pedestrians Who Are Blind or Visually Impaired", which is available at ITE's website.

Note: Figure 4E-2 is recommended to illustrate examples of pushbutton installation at various intersections. It is proposed to be referenced in Section 4E.08. Following are some possible examples for the figure. The final figure will be developed based on the approved text.

