

PROWAG and MUTCD 2023: Implications for pedestrians who have vision disabilities

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What is PROWAG?

The *Accessibility Guidelines for Facilities in the Public Right-of-Way* (PROWAG) are accessibility guidelines for implementing the Americans with Disabilities Act (ADA) with regard to: sidewalks, crosswalks, pedestrian signals, and other public pedestrian facilities, to ensure they are equally accessible to and usable by all pedestrians.

PROWAG was published on August 8, 2023.



PROWAG becomes mandatory

- When the guidelines are adopted as standards under the ADA by the U.S. Department of Justice and the U.S. Department of Transportation.
- DOT will do a separate rulemaking to adopt PROWAG—notice of proposed rule-making expected in 2024
- DOJ and DOT may modify PROWAG
- Once DOJ and DOT rulemaking is completed, there will be a rulemaking to revise the MUTCD to reflect the PROWAG requirements. This will likely be Revision 1 of MUTCD 11th ed



The ADA is a law PROWAG are accessibility guidelines

Legal requirements for accessible public rights-of-way have been around for a long time

- Section 504 of the Rehabilitation act of 1973 and the ADA, passed in 1990, both required facilities receiving Federal funds to be accessible, but provided no technical specifications
- Finally, PROWAG (2023) gives technical specifications for what the legally required accessibility looks like for all streets and sidewalks



People with vision disabilities have been entitled to accessible public rights-of-way since 1973!

- Both New York City and Chicago have been found to be at fault because they have been slow to make pedestrian signals accessible
- Judgements were based not on PROWAG, but on the Rehabilitation Act of 1973 and the ADA of 1990.



General principles for when PROWAG applies (scoping)

- New construction—envisioned as a “green field”
- Alterations—PROWAG definition

“Alteration or altered. A change to or an addition of a pedestrian facility in an existing, developed public right-of-way that affects or could affect pedestrian access, circulation, or usability”

- No specific criteria for alterations triggering installation of accessible pedestrian signals—DOT may provide specific criteria when they adopt PROWAG



Limitations of this presentation

- It will not include details of all provisions impacting pedestrians with vision disabilities
- Will present limited rationale for provisions
- For rationale for requirements in PROWAG, see the preamble to PROWAG available at <https://www.access-board.gov/prowag/preamble.html>



What's the MUTCD?

- *The Manual on Uniform Traffic Control Devices*
- A Federal Highway (FHWA) publication
- "The purpose of the MUTCD is to establish uniform national criteria for the use of traffic control devices that meet the needs and expectancy of road users on all streets, highways, pedestrian and bicycle facilities, and site roadways open to public travel. "



PROWAG requirements affecting travel by pedestrians with vision disabilities

Numerous requirements and specifications related to accessible pedestrian signals (APS)



Photo credit: Polara



APS required wherever there are pedestrian signal heads

- At red/yellow/green traffic signals
- At pedestrian hybrid beacons (PHBs)
- Applies whether there is a pushbutton that actuates the pedestrian phase, or passive actuation



Photo credit: NYC website



Photo credit: Mike Cynecki



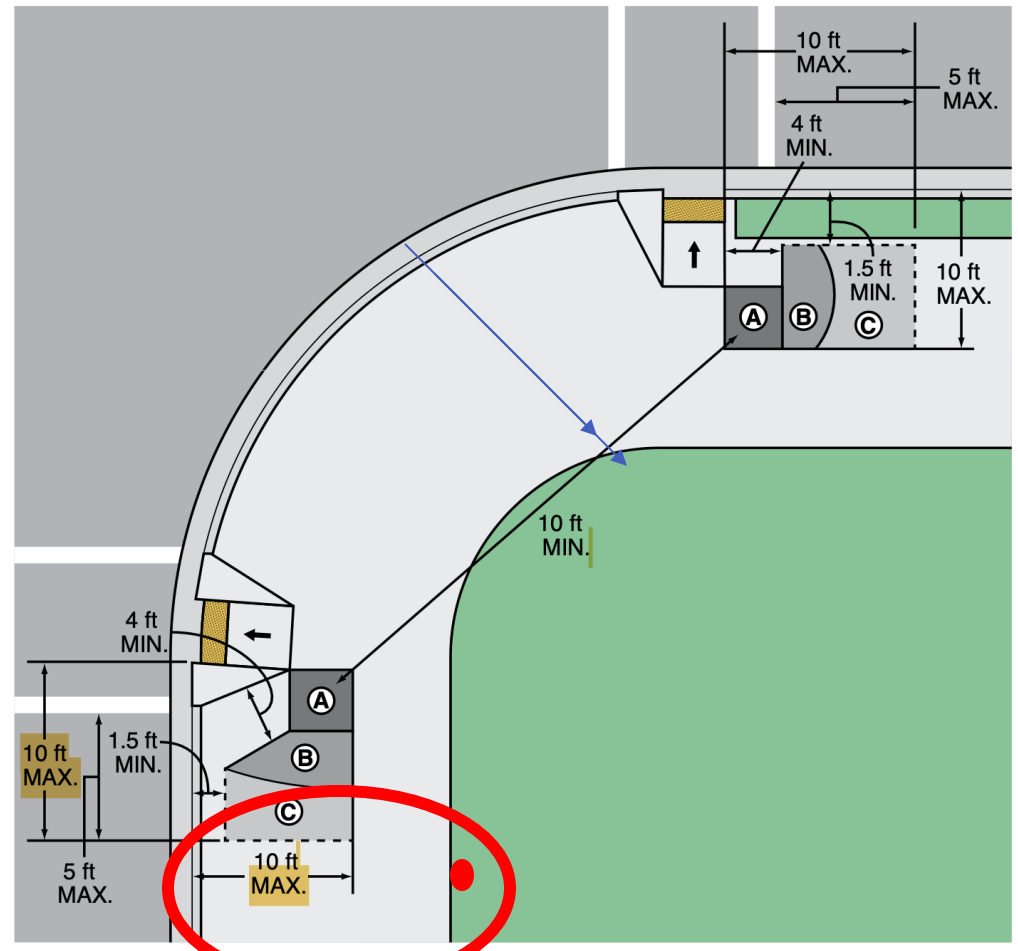
APS location—MUTCD 11th ed

Misunder- standing

10' max
push button
distance
from curb
should be
to grass
line



Figure 4I-2. Preferred Push Button Location Area



APS location where 10' between push buttons on a corner is not possible

In alterations, where it is technically infeasible to provide 10' separation between pedestrian push buttons on the same corner, the audible walk indication for each signal shall be a speech walk message, and a pedestrian push button information message shall be provided.



Technical specifications for APS-- Actuation

- Shall have pushbuttons or passive actuation
 - Actuate both the audible and vibrotactile indications
 - Hard to make passive actuation work with pedestrians with vision disabilities because they don't travel in expected paths
- Pushing the button must actuate the pedestrian phase, not just the APS
- Passive detection must actuate both the pedestrian phase and the APS



Technical specifications for APS-- Tactile arrow

Require high contrast tactile arrow on the push button

- Face of the push button must be oriented parallel to direction of travel on crosswalk
- Arrow enables user to know which crosswalk the pushbutton actuates
- Not a good cue for establishing a heading (aligning to cross)



Technical specifications for APS-- Audible walk indication

Default audible walk indication

- Percussive tone, repeating eight to ten times per second with multiple frequencies and a dominant component at 880 Hz.
- Sound level must adjust to ambient sound
- Tone must be audible 6'-12' from the pushbutton, or to the building line, whichever is less



Default walk indication is controversial

Organizations of people who are vision disabled advocate for speech walk indications for all APS.

- The requirement for the default percussive tone for the audible walk indication is based on results of research showing that pedestrians who are vision disabled respond faster and more accurately to the signal they want when the walk indication is a percussive tone than when it is a speech message.
- From the Preamble: “The Board will encourage additional research regarding speech messages at crosswalks.”



Technical specifications for APS-- Speech walk message

- Speech walk message required in alterations (only) where it is technically infeasible to provide 10' separation between pedestrian push buttons on the same corner



Technical specifications for APS-- Model speech walk messages

Speech walk indications must follow model messages

- With concurrent phasing--"Broadway. Walk sign is on to cross Broadway."
- With exclusive pedestrian phasing--"Walk sign is on for all crossings."



Technical specifications for APS-- Pushbutton information message

Pushbutton information messages must follow model messages

- Must begin with the term “Wait,” followed by intersection identification information modeled after--“Wait to cross Broadway at Grand.”
- Information on intersection signalization or geometry may also be provided after the intersection identification information.



Technical specifications for APS-- Locator tone

Require locator tone other than in walk interval

- Percussive tone at 1/second
- Sound level must adjust to ambient sound
- Tone must be audible 6'-12' from the pushbutton, or to the building line, whichever is less
- Locator tone required during pedestrian clearance—not audible countdown



Controversy about locator tone during pedestrian change interval

- Requirement for locator tone during the pedestrian change interval is based on fundamental research in psycho-acoustics, not research with pedestrians who are vision disabled, who advocate for audible countdown
- Audible countdowns, because they occupy more of the interval, can be expected to interfere more with the ability to hear vehicle sounds than the brief, percussive, locator tone. Also, the sharp onset of locator tones can be expected to be more localizable than speech messages.
- From the Preamble: “The Board will encourage additional research regarding . . . the viability of an audible pedestrian countdown.”



Audible beaconing—What is it?

Purpose

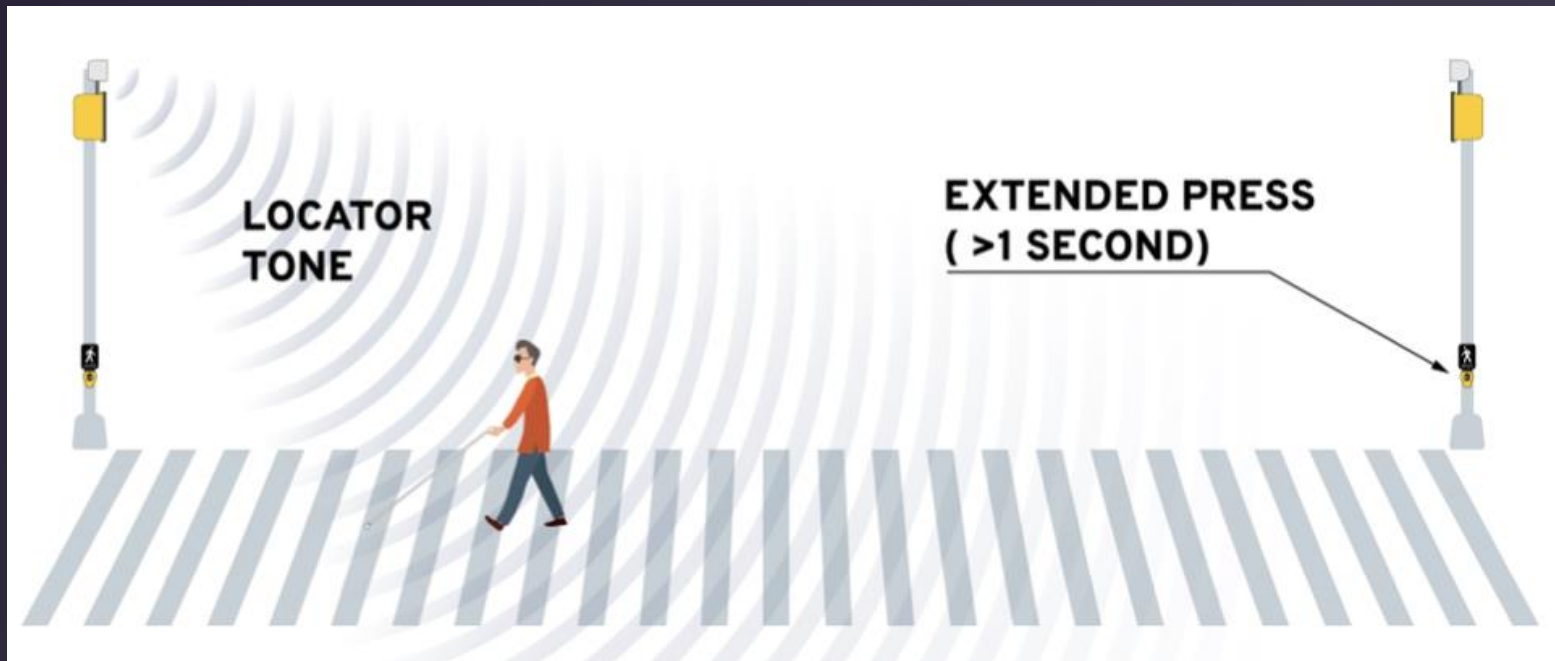
- To improve the ability of pedestrians who are vision disabled to cross streets without veering significantly outside the crosswalk

The only way it can function to achieve the purpose

- The volume of the push button locator tone during the pedestrian change interval is increased and
- The louder locator tone comes from a loud speaker on the far end of the crossing only, that is aimed at the center of the crosswalk and that is mounted on a pedestrian signal head.



How audible beaconing works



Drawing credit: Polara

1. Button pressed for 1 sec or more
2. Walk indication from APS at normal volume
3. Loud locator tone from speaker on the opposite end of the crosswalk during pedestrian change interval



Technical specifications for APS audible beaoning— PROWAG different from MUTCD 2023

PROWAG—locator tone is increased in volume during pedestrian change interval

- 3 ways possible

MUTCD 11th ed--locator tone is increased in volume during pedestrian change interval

- 1 way only
- Louder locator tone comes from auxiliary speaker at far end of crosswalk only



Traffic signals in flashing mode require locator tones and speech messages communicating operating mode of the signal--New

Not possible at this time!

- None of the 3 North American APS manufacturers can meet this standard
- Power comes from the pedestrian signal, which is dark
- Signal information can't be communicated to the APS
- The speech message is not specified
- Doubtful that it is helpful to people with vision disabilities

Recommendation from the Access Board—

State and local jurisdictions should implement accessible pedestrian signals to the maximum extent feasible.



Compliant APS are available from 3 manufacturers in North America



PedSafety



Polara



Pelco

They all have vibrotactile buttons with high-contrast raised arrows, locator tones, and audible WALK signals.



Non-compliant APS are still common in some jurisdictions, and some are still marketed in the US



They do not have high contrast vibrotactile arrows on the push button. Research shows that arrows need to be on the button.



Pedestrian activated warning devices, such as RRFBs, require audible information devices)

- With a speech message describing the status of the indication—but the message is not specified (See MUTCD 2023—“Warning lights are flashing”)
- Without audible or vibrotactile walk indication



Roundabouts

- Sidewalk separated from curb requires landscaping or other nonprepared surface between crosswalks, min. 24 inches wide, or
- Sidewalk not separated from curb requires a continuous and detectable vertical edge treatment along the street side of the pedestrian circulation path, from crosswalk to crosswalk
- Multi-lane crossings require a traffic control signal with a pedhead, PHB, ped actuated RRFB, or a raised crossing



Channelized turn lanes

Multi-lane crossings at channelized turn lanes require a traffic control signal with a pedhead, PHB; pedestrian actuated RRF B, or a raised crossing.



Detectable warning surfaces

Not covered in MUTCD

Much more detailed information in PROWAG
than in ADAAG

- Intended to indicate to pedestrians with vision disabilities the boundary between the pedestrian and vehicular way
- Not intended to provide directional information



Questions?

Contact Beezy Bentzen

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See <https://www.accessforblind.org>

