

Comments on Docket No. FHWA-2020-0001 National Standards for Traffic Control Devices; the *Manual on Uniform Traffic Control Devices for Streets and Highways*; Revision

Please use this form to provide comments on the Notice of Proposed Amendments for the MUTCD.

INSTRUCTIONS:

1. Add your name or organization name where indicated in the footer of this form.
2. Use Table 1 to provide your original comments.
3. Use Table 2 to indicate your agreement with a comment that another commenter has submitted to the docket.
4. Do not adjust formatting of the rows and columns; text will automatically wrap and expand the row height as you type.
5. To add rows to this form, use the "Insert Rows" function, or hover just outside the left edge of the row below which you would like to add a row and click the encircled "+" that appears.
6. If you choose to provide a letter to accompany this comment form, please **print the document as a PDF**; **please do not scan a hard copy**. This will assist FHWA with cataloging your comments.

TABLE 1. ORIGINAL COMMENTS ON PROPOSED CHANGES. Please indicate the applicable proposed Section numbers in the far-left column. In the next three columns, please indicate your agreement, disagreement, or whether the column is applicable to your response by placing a, "YES," "NO," or "N/A" in the appropriate column of the row. If you agree with a proposed change, then there is no need to fill out the additional columns beyond the first two. However, it can be helpful to explain why you agree with a proposed change based on your objective experience as a roadway operator and/or empirical data. If you disagree in part or in whole, then please provide additional information that FHWA may find helpful.

Propo sed Sectio n Numb er(s)	Agree with concept and text as proposed	Agree with concept; suggested rewording of text in Comments	Disagree with concept	Comments <i>Please include justification for your position based on objective experience and empirical data. If there is a specific statement with which you take exception, please provide the Page and Line numbers from the mark-up version of the proposed MUTCD text.</i>
PART 1				
1A.03, page 2, line 47-48	YES			Agree and would like to see this statement repeated in sections on APS and TTC related to pedestrians with disabilities
1A.05, page 4, line 28		YES		Update reference to 2017 revision of APS: Guide to Best Practice
1A.05, page 5, line 39		YES		Update to 2010 ADA Standards
1C.02. 1 Page 15, Line 34-35		YES		Definition of Accessible pedestrian signal. (subsequently referred to in this document as an APS) We believe the parenthetical list of non-visual formats "(such as audible tones, speech messages, and/or vibrating surfaces)" should be changed to "(such as audible tones and/or speech messages, and vibrating surfaces)". APS are required in Chapter 4 to have either audible tones or speech messages. They also could (and sometimes do) have both audible tones and speech messages, such as when a device provides an audible pushbutton information message but a percussive tone walk indication. Therefore and/or is appropriate between audible tones and speech messages. APS are required to have a vibrating tactile arrow. "Or" is not an option. Therefore the term and/or should not precede the mention of vibrating surfaces. This list appears numerous times in the MUTCD and it should be revised in each location.

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PART 2				
2A.11 page 50 line 30-31	YES			We support the later addition of RRFBs so we support this statement allowing the RRFB to supplement a sign
2B.19 page 73, lines 1-33	YES			Support clarification of use of pedestrian signs
2B.59 page 106, line 39 - 42	YES			Support the consistent location of signs near pushbuttons; makes it easier for pedestrians with low vision
2B.59 page 107, lines 20-22			YES	We do not agree with allowing sign R10-3j or the features associated with it. Such signs are inaccessible to individuals who are blind or who have low vision. In 4K.01, we disagree with allowing a pedestrian signal to require blind pedestrians to push a pushbutton when sighted pedestrians do not have to do that. Therefore, we don't believe this sign, R10-3j, should be allowed. We question the use of R10-3k and question the use of the features referred to by that sign since the information on that sign and the additional features are inaccessible to individuals who are blind or who have low vision.
Figure B-26, sign R10- 25			YES	Remove new language "Wait for gap in traffic". That information is inaccessible to pedestrians who are blind or who have low vision and is not accurate. The crosswalk establishes right of way for pedestrians and the addition to this sign seems to ignore that. This instruction could limit pedestrians' ability to take a step into the crosswalk to claim the crosswalk.
PART 3				
3C.01, page 368, line 2- 4	YES			We support the addition of this standard to clarify requirement for markings
3C.03, page 370, line 23-25	YES			ADA requires curb ramps to be within the crosswalk; good to have a standard here also
3 C.05, Page 370, lines 42 – 371, line 31		YES		We support more clarity about the types of crosswalks and markings. However, the names used in lines 4-5 are confusing and not the terms used by most agencies and engineers. Revise to use "continental" for what is labeled longitudinal bar and "ladder" for what is titled perpendicular. We are not sure what to suggest as most common term currently used for the for "double-paired
3C.05, page 371,		YES		The alignment of the bars of the crosswalk with traffic can be visually confusing to pedestrians, particularly those with low vision. We recommend a change to " <i>The individual longitudinal elements</i>

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lines 30-31				<i>of a high-visibility crosswalk should be perpendicular to the direction of travel on the crosswalk.”</i>
3C.06, page 371, line 33-35	YES			But 3C.07 pattern is even better
3C.07, page 371, line 44		YES		Add support statement from line 33 – 35 Support: 34 The longitudinal bar crosswalk marking design provides for improved detection and recognition over the basic crosswalk for people with low vision and cognitive impairments. 3C.07 design, ladder crosswalk, in our experience is the one that works best for pedestrians with low vision
Figure 3C.01		YES		Like the figure and additional detail but the new names of crosswalks are confusing and are not the terms used by most agencies and engineers. They are not clear and immediately understandable. Revise to use “continental” for longitudinal bar and “ladder” for perpendicular. We are not sure what to suggest as most common term currently used for the for “double-paired”
3C.07 page 372, Line 12 - 16			YES	This option allows the bars within the crosswalk to be angled from the pedestrian perspective which can be disorienting, particularly to those with low vision. Is there research that indicates that the angling of the bars makes the crosswalk more visible for vehicle drivers? We are not aware of it.
Figure 3D.01		YES		Figure needs to be revised to show curb ramp and crosswalk configurations that are correct. The current figure shows ramps that are not perpendicular where they intersect the gutter; If built that way, it is an inaccessible ramp.
3C.12, Page 373, line 41 -42-		YES		Update reference to ADAAG to be to 2010 ADA Standards and/or proposed PROWAG
3H. Page 390, line 12 – page 391 line			YES	While we like artwork, various designs and graphics (aesthetic treatments) within the lines of the crosswalk can be disorienting to pedestrians with low vision. We do not agree with allowing additional colors or designs within the crosswalk and believe most of this section should be deleted and replaced with a standard requiring uniformity of pavement with in the crosswalk markings.
3J.07, page 400, lines 14-17			YES	Change to a Standard. Unless physical separation is required, and specified in such a way that it will be detectable to pedestrians who are vision disabled, the curb extensions will not be accessible to pedestrians who are vision disabled, and they are likely to either fail to use them, thus making their crossings longer than intended, or to enter the vehicular way inadvertently, placing them in danger of injury or death. Add the following language to the standard: Physical separation or delineation shall be provided where curb extensions are created by pavement markings and pedestrian travel can be expected within the area created by the curb extension. Elements used to provide physical separation or delineation shall have high visual contrast from adjoining pavement so they are visible to pedestrians having reduced vision, and be detectable by vision disabled pedestrians who

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				travel with a long cane. Elements shall be separated by a maximum of 48 inches.
3J.07 , page 400, Lines 30-32			YES	Change to a Standard. We suggest the following wording: Where pedestrian travel can be expected within curb extensions created by pavement markings, physical separation or delineation shall be provided by elements that have high visual contrast from adjoining pavement so they are visible to pedestrians having reduced vision, and are detectable by vision disabled pedestrians who travel with a long cane. Elements shall be separated by a maximum of 48 inches.
PART 4				
4D.02, page 423, Lines 30-32			YES	Change to a standard. Complexity of modern signalization means that the onset of a vehicular green ball signal does not necessarily mean that the pedestrian walk interval has begun. The presence of a vehicular green ball signal does not always mean that the pedestrian phase is in effect, and the vehicular signal gives pedestrians no indication of how much pedestrian crossing time remains. Since there is no consistent association of vehicular green with pedestrian timing, it is essential to provide pedestrian timing information wherever there is a pedestrian crossing controlled by a signal.
4D.02 Page 423 II.36- 40			YES	<p>The ADA regulations (quoted and referenced in the Preamble in section 6 as noted below) require effective communication of information provided for sighted pedestrians and requires that information provided for travel in public rights-of-way be accessible to people who have disabilities. Pedestrian signals that do not have APS are not accessible to pedestrians who are vision disabled, and are therefore in violation of the ADA. No engineering study is needed. We request that this be changed to a Standard.</p> <p>Standard: Accessible pedestrian signals (see Chapter 4E.09 through 4E.13 4K) that provide information in non-visual formats (such as audible tones and/or speech messages, and vibrating surfaces) shall be provided with all pedestrian signal heads.</p> <p>“Under Title II of the Americans with Disabilities Act (ADA), all State and local governments are required to take appropriate steps to ensure that their communications with people with disabilities are as effective as communications with others. [28 CFR 35.160(a)]. Effective communication means that whatever information is conveyed by or on behalf of a public entity must be as clear and understandable to people with disabilities as it is for people who do not have disabilities. The ADA requires public entities to furnish auxiliary aids and services—which include the acquisition or modification of equipment or devices—where necessary to afford individuals with disabilities an equal opportunity to participate in, and enjoy the benefits of, a service, program, or activity of a public entity. [28 CFR 35.160(b)(1)]. The provision of pedestrian facilities in the public right of- way is generally recognized as a service provided by the public entity that owns such facilities.” Docket (FHWA-2020-0001) (/docket/FHWA-2020-0001) Item 463</p>

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				In addition, we have made this same comment and change request in our comments on the 2009 MUTCD. Research between 1998 and now have repeatedly shown safety problems, delayed starts, and finishing crossing after the vehicles have received green on the street being crossed for pedestrians who are blind or who have low vision at locations without APS. FHWA needs to seriously consider the safety of pedestrians who cannot see the pedestrian signal, including many elderly pedestrians, and require the installation of APS at all locations where pedestrian signals are installed. The increased flexibility of signal controllers and actuated intersections, and new pedestrian timing plans being used, such as LPIs, have made the information traditionally used by pedestrians who are blind or who have low vision unreliable.
4F.19 p.459 II.36-38	YES			Standard C. From the pedestrian safety perspective, it would be preferable to prohibit the shortening or omission of any pedestrian change interval under transition to preemption. However, boats approaching moveable bridges are unable to stop quickly for a signal, and the same is true for rail vehicles approaching a crossing.
4I.01 p.469 II.8-13			YES	If 4D.02 is changed to a Standard requiring APS at all pedestrian signal heads, This Guidance statement should be deleted.
4I.05 p.471 II.33-34	YES			We agree with proposed addition of language about touch-free activation of push buttons. However, as noted in the NPA, this is in addition to other required push button features. Not stated, but important, is that this include all required features of APS, where used, as well as standard push buttons.
4I.05 p.472 II.3-21	YES			We were significantly involved in development of these proposed changes in the section on location of pushbuttons, which have been approved by NCUTCD Council.
4I.05 p. 472 I. 22			YES	Disagree, in part, with this revised figure. NCUTCD Ped Control Task Force of Signals Technical Committee has labored for several years to improve the corresponding figure from the 2009 Manual, as it had been found to lead to misinterpretation and poor pushbutton location. The 2009 figure showed a large area in which push buttons could be located. However, within that area, not all locations are equally good, especially when considering that push buttons must be accessible to and usable by people with disabilities, including those who use wheelchairs and those who are vision disabled. Optimal locations for these two disabilities differ, so the figure needs to show the optimal location. We recognize that the NPA proposed figure attempts to do this, however, we think there are several problems with the proposed figure. NCUTCD Council has proposed a different figure, which we approve. The NPA shows a 4 ft. MIN Ped Access Route against the far side of the sidewalk. While there is no question that there needs to be this 4 ft. PAR, it does not need to occupy the width of the sidewalk immediately adjacent to the far side of the sidewalk. Placing the push button as close as possible to the side of the curb ramp (which is typically between 1.5 and 6 ft from the face of the curb—see II. 16-17) is preferred. However, the text on lines 26-29 permits the push button to be located as far as 10 ft from the face of the curb because constraints of corner construction often make it impractical to put the push button along the side of the curb ramp, but it can be placed at the far side of the sidewalk. Designing with this in mind, then, places the 4 ft PAR between the push button and the top of the ramp. This is a really good solution where sidewalk width is about 10 ft, and the perpendicular curb ramp is no more than 6 ft

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				<p>long. We think it would be unfortunate if this figure implies that the push button can never be placed at the far side of the sidewalk.</p> <p>The NPA shows a landscaping strip adjoining the upper curb ramp that is not as wide as the curb ramp. Since the ADA permits no drop-off between a sidewalk and a ramp, the landscaping has to be as wide as the ramp is long, or else there has to be a partial flare, which is not shown on the NPA figure, and which would be very uncommon. When the figure is revised (per NCUTCD), the landscaping strip extends for the full length of the curb ramp. When this is the case, there is no reason that the preferred location of the pushbutton cannot be close to the top of the curb ramp, it does not need to be off-set by 2.5 ft as in the NPA drawing.</p> <p>It is not clear what the 1 ft MIN indications refer to on the NPA figure. At the “lower” curb ramp, the same area seems to be labeled as both 2.5 ft MIN and 1 ft MIN. There is no text or note that refers to this 1 ft MIN. We think the intent here is probably to indicate that it is optimal to off-set the push button a minimum of 1 ft from the top corner of the curb ramp. We agree with this concept, and have included it in the NCUTCD figure</p>
4l.05 p.472 ll. 27-29	YES			We think the NPA language about this Guidance regarding the distance of the APS from the face of the curb is clearer.
4l.05 p. 472 ll.33-37			YES	<p>We disagree with the Option allowing pushbuttons to be closer together or on the same pole when an exclusive pedestrian phase is used at an intersection and the pedestrian signals for both crosswalks provide the walk indication at the same time. Pedestrians who are vision disabled use the location of accessible pedestrian signals to help them determine a correct crossing location. Pedestrians who are deafblind need the vibrotactile indication to be near the crosswalk being signaled. When two pushbuttons are on the same pole, one of them will almost always be farther from the crosswalk being signaled and not close to the crosswalk line furthest from the center of the intersection</p>
4l.05 p. 472 ll.41-43			YES	If the location of the sign explaining the purpose and use of the push button is deleted in the Standard, as proposed, the following Option saying that a supplemental sign in a more visible location may be used makes no sense. We would prefer that the Standard remain unchanged, or that it simply require a sign in a highly visible location, and the following Option be deleted.
4l.05 p.473 ll.13-14	YES			We agree that this redundant statement about the use of a pilot light with an APS is not needed.
4l.05 p.473 l.21			YES	We believe it is important, for uniformity of user expectations, to specify the location of the sign indicating that extra crossing time may be requested by an extended button press.
4l.06 p.473 ll.32-35	YES			We agree with this proposed new paragraph that more fully describes the function of the vehicular signal at a pedestrian hybrid beacon.
4l.06 p.474 l.49- p.475, l. 1-2			YES	This Guidance should be a Standard. There can be no reasonable justification for not providing an APS where median-mounted pedestrian signals detectors are provided. The ADA clearly requires that signal information be clear and understandable to people with disabilities. A median-mounted pedestrian detector is effectively invisible to people who are vision disabled, and therefore not usable by them. There is no justification for failure to provide an APS, which potentially leaves them stranded in a median. Furthermore,

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				the Standard in 4K.01, p.481, II.35-37 requires an APS at a median if the pedestrian clearance time is sufficient only to cross from the curb to a median. In both places, this should be a Standard.
4I.06 p.475 I.10-12			YES	This Guidance should be a Standard. A leading pedestrian interval without an APS sets up a well-known conflict, as stated in the following Support, that can be expected to place pedestrians who are vision disabled at risk of injury or death. Unless a signal providing a leading pedestrian interval includes an APS, it fails to comply with the ADA requirement for accessible and effective communication.
4I.06 p.475 II.24-27			YES	We do not think this new Standard regarding locations where a leading pedestrian interval is used without APS should apply only to locations without APS. Even with APS, pedestrians who are vision disabled have longer latency in beginning to cross than pedestrians who are not vision disabled. (NCHRP 3-62). We agree with the substitute text approved by NCUTCD.
4J.01 p.477 II.36			YES	This Guidance should be a Standard. "Accessible pedestrian signals shall be installed in conjunction with a pedestrian hybrid beacon." A pedestrian hybrid beacon that does not effectively communicate its presence (by a locator tone) and provide accessible walk indications (rapid percussive tone and vibrating arrow) fails to provide clear and understandable signal information to people who are vision disabled as required by the ADA.
4K.01, p 480, lines 11-34			YES	Delete this guidance and require the installation of APS wherever pedestrian signals are installed.
4K.01 p.480 II.43-47		YES		<p>The information from the APS should be the same as the information provided by the visual pedestrian signals. Blind pedestrians should not have to push a button at locations where the visual pedestrian signals is displayed each cycle. Change to Standard and add a guidance or option statement regarding length of audible signal.</p> <p>Standard: At locations with pretimed traffic control signals or non-actuated approaches where it is not necessary for pedestrians to push a push button detector to receive a WALKING PERSON signal indication, accessible pedestrian signals shall provide the accessible walk indication whenever the walk indication is displayed.</p> <p>Guidance: As described in 4K.03, page 482, lines 8-11, the length of the audible walk indication should be limited to 10 seconds with the option to recall the audible signal if there is adequate time remaining in the pedestrian clearance time.</p>
4K.01 p.481 II.12-15	YES			In order to comply with the ADA requirement for accessible communication, any activation of the walk interval must provide accessible walk indication information, regardless of how the walk indication is activated. Good to reinforce that information here.
4K.02 p.481 II.24-34		YES		We are concerned that deletion of A and B in the 2009 MUTCD implies that two APS less than 10 feet apart do not require pushbutton locator tones and a tactile arrow. We doubt that this is the intent of FHWA. These features must be provided on all APS.
4K.03 p.481 I.41		YES		Important editorial comment. This line uses the term "rapid tick tone." Elsewhere the term "rapid percussive tone" is used. This is more accurate.
4K.03 p.482 II.1-3			YES	NCHRP 3-62 found that when the vibrotactile arrow was not located on the push button, it was less likely to be found and used. We

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				object to the MUTCD permitting the vibrotactile arrow to be located elsewhere on the speaker box.
4K.03 p.482 II.13- 38		YES		<p>While we agree with the concepts in this section, we consider the order of information in this section to be unfortunate in that the exception to the rule, that is, the use of speech messages when it is not possible to place push buttons at least 10 feet apart, is mentioned before the default operation of the audible walk indication—the rapid percussive tone. NCUTCD 3-62 was the basis for making the rapid percussive tone the default walk indication.</p> <p>We are concerned that this is likely to lead to even more incorrect use of speech walk indications than we are seeing now. The history of speech walk indications is complex, and may not be in the institutional memory of the MUTCD team. When audible countdowns were becoming popular, APS manufacturers in the US introduced audible countdowns (never permitted by MUTCD), and began shipping APS set on speech walk indications as well as audible countdowns. Signal techs, seldom well-versed in MUTCD provisions, frequently installed the APS out-of-the-box, failing to set the audible walk indication to the rapid percussive tone. After a good many months, and considerable advocacy by researchers, most manufacturers changed to ship APS with the default settings for rapid percussive tone walk indications, and the locator tone during the pedestrian clearance interval. We continue to see considerable use of APS with speech walk indications where they are not appropriate, however.</p> <p>We offer an alternate order of this information to FHWA for consideration as an editorial change.</p> <p>Standard:</p> <p>The audible walk indication shall be a percussive tone, except that where two accessible pedestrian signals on one corner, or in a median, that are associated with different phases are placed less than 10 feet apart, the audible walk indication shall be a speech walk message (see Paragraph 3 in Section 4K.02). The audible walk indication shall be a percussive tone at midblock crossings, on corners where only one accessible pedestrian signal is present, in a median, and on corners where two accessible pedestrian signals are separated by a distance of at least 10 feet.</p> <p>Audible tone walk indications shall repeat at eight to ten ticks per second. Audible tones used as walk indications shall consist of multiple frequencies with a dominant component at 880 Hz.</p> <p>Automatic volume adjustment up to a maximum volume of 100 dBA in response to ambient traffic sound level shall be provided. [note—all the Standard sections have been combined]</p> <p><i>Guidance: [note--2 Guidance sections have been combined]</i></p> <p><i>The volume of audible walk indications and push button locator tones (see Section 4K.04) should be set to be a maximum of 5 dBA louder than ambient sound, except when audible beaconing is provided in response to an extended push button press.</i></p> <p><i>The sound level of audible walk indications and push button locator tones should be adjusted to be low enough to avoid misleading pedestrians who have visual disabilities when the following conditions exist:</i></p>

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				<p>A. Where there is an island that allows unsignalized right turns across a crosswalk between the island and the sidewalk.</p> <p>B. Where multi-leg 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.</p> <p>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.</p>
4K.03 p.483 II.14-16		YES		We think it is important to keep the second sentence regarding the use of speech walk messages only at intersections where it is technically infeasible to install APS at one corner separated by a distance of 10 feet. We realize that this is redundant with prior text about where speech messages should be used. However, because speech messages are greatly over-used, and there is no mechanism used for enforcement, we really want the MUTCD to make very clear that there is only one situation in which speech walk messages should be used.
4K.03 p.483 I.39	YES			We support the proposed deletion of existing Option language that speech walk messages in languages other than English, should nevertheless, use the terms “walk sign” and “wait.”
4K.03 p.483 II.40-42	YES			We strongly support the proposed additional Standard requiring that, if used, speech walk messages in a language other than English shall be stated first in English and then stated in the other language and then repeated, alternating back and forth while the walk interval is timing.
4K.03 p.483 II.43-45	YES			We support the proposed deletion of the Standard requiring that APS revert to the push button locator tone during the pedestrian change interval because it is now relocated into the new Section 4K.04.
4K.04 p.484 I.2	YES			The NPA adds “and to help them align with the crosswalk.” However, the tactile arrow is not intended as the sole cue for alignment. If a pedestrian with a vision disability requests that additional wayfinding information be provided for them at a crossing that has visual information, such as crosswalk lines, corners, and/or pedestrian signal heads, the ADA requires that similar information be communicated to the person with a disability by non-visual means. One of the effective ways to do this is to provide audible beaconing as described in 4K.05.
4K.04 p.484 II.4-5			YES	We disagree with the concept that the vibrotactile arrow may be located anywhere other than on the push button. Research in NCHRP 3-62 found that vibrotactile arrows that were not on the push button itself were not found as quickly or used as frequently as vibrotactile arrows on the push button.
4K.04 p.484 II.7-12		YES		We support the concept and the wording. However we think an editorial change is needed in line 11. “tactile arrow” should be “vibrotactile arrow.”
4K.04 p.484 II.18-21	YES			We support moving text requiring that the APS revert to the push button locator tone during the pedestrian change interval from its previous location in 4K.03, and we think the proposed explanation of when the locator tone shall be used is clearer.
4K.04 p.484 II.22-29	YES			We support this new Option for the operation of the push button locator tone when there is passive pedestrian detection. We note, however, that it seems unlikely that passive detection of pedestrians that is in a 12-ft radius, as needed to accommodate blind

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				pedestrians whose travel paths are much less predictable than the travel paths of non vision disabled pedestrians, is likely to be used much because it is likely to result in many pedestrian phase requests for major streets when it is only the minor street that pedestrians wish to cross.
4K.04 p.484 II.30-34	YES			We support the proposed change to this Standard, clarifying that the push button locator tone shall be deactivated when a traffic control signal or pedestrian hybrid beacon is operating in a flashing mode.
4K.04 p.484 II.37-39	YES			We support proposed addition of this Guidance statement that push button locator tones should be audible 6 to 12 feet from the push button, or to the building line, whichever is less. This is not a new concept, but locating it here, with other information about the push button locator tone is appropriate.
4K.05 p.485 II.4-6			YES	We believe the deleted Standard requiring an explanatory sign about the use of an extended button press to request additional crossing time needs to be retained.
4K.05 p.485 II.7-43		YES		<p>These proposed changes regarding audible beaconing are based on research [Scott, A. C., Bentzen, B. L., Barlow, J. M., Guth D. A., & Graham, J. (2014). Far-side beaconing for accessible pedestrian signals: Is it confusing? <i>Transportation Research Record: Journal of the Transportation Research Board</i>, No. 2464, 135-143. doi: 10.3141/2464-17 and Barlow, J. M., Scott, A. C., Bentzen, B. L., Guth, D. A., & Graham, J. (2013). Effectiveness of audible and tactile heading cues at complex intersections for pedestrians who are blind. <i>Transportation Research Record: Journal of the Transportation Research Board</i>, No. 2393, 147-154. doi: 10.3141/2393-17], and are supported by the NCUTCD Council. We support these changes in concept and text with the following exception.</p> <p>The Support statement at II. 37-40 statement doesn't quite capture the functioning of the audible beacon as used in the research. It is correct that the audible beaconing loudspeaker and the accessible pedestrian signal emit the locator tone during the pedestrian change interval, but the <u>loud</u> locator tone must come only from the audible beaconing loudspeaker on the far end of the crosswalk. The locator tone from the APS should be at its normal setting. If both are increased in volume, the user may not be able to hear the audible beacon, thus negating the wayfinding benefit of the audible beacon. Because this is new technology, little implemented to date, it is very important that it function as intended. Please clarify the language in the text.</p> <p>We suggest:</p> <p>Support:</p> <p>When the locator tone is active during the pedestrian change interval at a traffic control signal or pedestrian hybrid beacon where audible beaconing is used, both the locator tone from the audible beaconing loudspeaker is elevated in volume, while and the locator tone from the accessible pedestrian signal is at its normal, quiet, setting. emit the tone.</p>

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4L.03 p.488 ll.37-38		YES		The Guidance, now located at page 488, lines 37-38, should be a Standard and located with the standard and guidance text at page 489, lines 39-44. <u>Standard:</u> <u>An audible information device shall be used with pedestrian-actuated Warning Beacons to assist pedestrians with visual disabilities.</u>
4L.03 p.489 lines 39-44	YES			We support proposed additional Standard and Guidance text specifying the function of an audible information device used in conjunction with an RRFB.
4S.03, page 503, lines 6-8		YES		The Guidance statement should be a Standard.
4S.03 p.503 ll.9-16	YES			We support proposed additional Standard and Guidance text specifying the function of audible information devices.
4U.02 p.509 ll.24-25		YES		The Guidance statement should be a Standard.
4U.02 p.509 ll. 33-38	YES			We support proposed additional Standard and Guidance text specifying the function of audible information devices
PART 5				
				We would caution that much more needs to be understood about how automated vehicles will safely interact with pedestrians, bicycles, and other vulnerable road users and that the evolving AV guidance needs to focus as much on the safety of these users as on the operation of the automated vehicles themselves.
PART 6				
6A.02, Page 520, Lines 6-8 and 12-14			YES	Change to Standard Should needs to be shall to meet ADA requirements for effective communication
6C.02, page 531, lines 28-37	YES			Support these clarifications
6C.02, Page 533,	YES			Support

**Comments on Docket No. FHWA-2020-0001 National Standards for Traffic Control Devices;
the *Manual on Uniform Traffic Control Devices for Streets and Highways*; Revision**

ine 43 - 48				
6C.03, page 534, line 16	YES			We strongly support this deletion. The previous wording was confusing and easily used to support not providing appropriate barriers.
6G.09 , Page 549, line 1- 3	YES			support
6K.02, page - 566, line 27 - page 567, line 34	YES			Support changes
TA 28, page 639, Lines 8 -25	YES			We strongly support this standard. Believe it should also appear in text in 6C.03, rather than just as a note on a TA
TA 29, page 641, Line 8-14	YES			We strongly support this standard. Believe it should also appear in text in 6C.03, rather than just as a note on a TA
Parts 7, 8 & 9				
Pages 667 - 781				We did not have time to adequately review these sections. We urge FHWA to carefully consider the needs of all users, particularly those who are blind or who have low vision, in making changes to Part 7, 8, and 9.