MUTCD - The Future of Part 4 Highway Traffic Signals

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What will change in Part 4?

Until the NPA is published - and ultimately until the Final Rule is published - no one knows for sure, but....
What will change in Part 4?

- Concerns that MUTCD -
  - becoming too large and contains unnecessary information
  - has too many Standards
So, expect fewer Standards, and maybe less Support

But also expect some new items and some significant item revisions
• Expect a new Chapter on Bicycle Signal faces
  - IA issued in December 2013
  - NCUTCD approved recommendation on OPTIONAL use of bicycle faces at June meeting
  - Includes new “bicycle symbol indication”
Bicycle Signal Faces

**Bicycle Signal Face** –

A signal face, consisting of three or more signal sections, that exclusively controls a bicycle movement from a designated bicycle lane or from a separate facility such as a shared use path, and that displays signal indications that are applicable only to the bicycle movement.

**Bicycle Symbol Signal Indication** –

A red, yellow, or green signal indication that displays a bicycle symbol rather than a circular or arrow indication.
IA allows arrow indications in the same signal face as bicycle signal indications.

NC recommendation eliminates that combination of indications in a signal face.
**Bicycle Signal Faces**

Typical Arrangements of Signal Sections in Bicycle Signal Faces

**A - Vertical signal faces**

**B - Horizontal signal faces**

* BICYCLE SIGNAL sign required

** BICYCLE SIGNAL sign optional
Bicycle Signal Faces

- IA limits use to “situations where bicycles moving on a green or yellow signal indication in a bicycle signal face are not in conflict with any simultaneous motor vehicle movement at the signalized location, including right (or left) turns on red.
- NC feels this is too restrictive and will result in limited use, poor compliance, or both.
Bicycle Signal Faces

Guidance:

A bicycle signal face should only be used to control bicycle movements from a designated bicycle lane or from a separate facility such as a shared use path, and, other than as provided in the Option below, only where the bicycle movement controlled by the bicycle signal face is sometimes allowed to proceed or sometimes required to stop at times when other traffic, making the same movement, and controlled by other vehicular signal faces, is required to stop or allowed to proceed respectively.

Option:

A bicycle signal face may be used at a mid-block traffic control signal where there are no motor vehicle movements parallel to the bicycle crossing.
Bicycle Signal Faces

- No warrants - use based on engineering study (new signals) or engineering judgment (existing signals)
- Sign required unless face has all bicycle symbol indications
- 1 signal face required, can be 8” or 12”
- 4” indications allowed for near-side supplemental faces
Bicycle Signal Faces

• Should not be used with pedestrian hybrid beacons
  – Reduced from “shall not” in IA. Use at PHB considered OK assuming required PHB signal sequence is provided.

• Shall not be used to control exclusive and simultaneous bicycle movements from perpendicular directions
  – Reduced from “shall not be used to provide a bicycle phase that stops all motorized vehicles and pedestrians at the signalized location in order to allow multiple bicycle movements from multiple conflicting directions."
What will change in Part 4?

- Just prior to the January NC meeting, we received a “Fall 2013 Compilation of Draft Technical Updates” from FHWA.

- There were about 100 statements proposed to be reduced from a Standard.
What will change in Part 4?

- STC reviewed proposed changes and felt most were appropriate or at least acceptable, but also felt several should remain as Standards
- Prepared recommendation & sent to NC Sponsors prior to June NC meeting
The investigation of the need for a traffic control signal shall/should include an analysis of factors related to the existing operation and safety at the study location and the potential to improve these conditions, and the applicable factors contained in the following traffic signal warrants:
When a traffic control signal is not in operation, such as before it is placed in service, during seasonal shutdowns, or when it is not desirable to operate the traffic control signal, the signal faces shall/should be covered, turned, or taken down to clearly indicate that the traffic control signal is not in operation.
The inside of signal visors (hoods), the entire surface of louvers and fins, and the front surface of backplates shall/should have a dull black finish to minimize light reflection and to increase contrast between the signal indication and its background.
The countdown pedestrian signal shall/should be located immediately adjacent to the associated UPRAISED HAND (symbolizing DONT WALK) pedestrian signal head indication (see Figure 4E-1).
What will change in Part 4?

Signs (see Section 2B.52) shall/should be mounted adjacent to or integral with pedestrian pushbuttons, explaining their purpose and use.
What will change in Part 4?

The positioning of pedestrian pushbuttons and the legends on the pedestrian pushbutton signs shall/should clearly indicate which crosswalk signal is actuated by each pedestrian pushbutton.
What will change in Part 4?

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

Under stop-and-go operation, accessible pedestrian signals shall/should not be limited in operation by the time of day or day of week.
What will change in Part 4?

At accessible pedestrian signal locations where pedestrian pushbuttons are used, each pushbutton shall/should activate both the walk interval and the accessible pedestrian signals.

The audible walk indication shall/should be audible at from the beginning of the associated crosswalk.
Automatic volume adjustment up to a maximum volume of 100 dBA in response to ambient traffic sound level shall/should be provided up to a maximum volume of 100 dBA.
If a pilot light (see Section 4E.08) is used at an accessible pedestrian signal location, each actuation shall/should be accompanied by the speech message “wait.”
To enable pedestrians who have visual disabilities to distinguish and locate the appropriate pushbutton at an accessible pedestrian signal location, pushbuttons shall/should clearly indicate by means of vibrotactile arrows which crosswalk signal is actuated by each pushbutton. Vibrotactile arrows shall/should be located on the button (plunger) of the pushbutton assembly or immediately adjacent to the button (plunger) on the same surface of the pushbutton assembly housing, should have high visual contrast (light on dark or dark on light), and shall/should be aligned parallel to the direction of travel on the associated crosswalk.
What will change in Part 4?

Pushbutton locator tones shall/should have a duration of 0.15 seconds or less, and, except as provided in Paragraph 6, pushbutton locator tones shall/should repeat at 1-second intervals at all times that the audible walk indication is not active, including during the pedestrian change interval and during the time that the pedestrian signal is resting in walk (see Paragraph 6 in Section 4E.11).
If an extended pushbutton press is used to provide any additional feature(s), a pushbutton press of less than one second shall/should actuate only the pedestrian timing and any associated accessible walk indication, and a pushbutton press of one second or more shall/should actuate the pedestrian timing, any associated accessible walk indication, and any additional feature(s).
What will change in Part 4?

- In-Roadway Warning Lights at Crosswalks
  - Proposed to be relocated Part 3.
  - STC recommends that this chapter be retained in at Part 4.
What will change in Part 4?

Signals Technical Committee also recommended some changes which were approved by the National Committee Council.
What will change in Part 4?

• For Flashing yellow arrow applications –
  – OK to keep using 4-section face (RY,YA,FYA,GA)
  – OR use 3-section RA, YA/FYA, GA face

• Disallow use of dual-arrow section for FYA applications, but continue its use where desired for protected/permissive operation
What will change in Part 4?

- Proposed revisions to the crash warrant based on a research project

<table>
<thead>
<tr>
<th>Area Type</th>
<th>Number of Through Lanes on Each Approach</th>
<th>Minimum Number of Reported Crashes in One-Year Period</th>
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<tr>
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<td></td>
<td>Total of Angle Crashes and Pedestrian Crashes (all severities)</td>
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<td>Major 1, Minor 2+</td>
<td>4</td>
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</tbody>
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Notes:

a - "Rural" values apply to intersections where the major-road speed exceeds 40 mi/h or intersections located in an isolated community with a population of less than 10,000.

b - Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major road and one or more vehicles on the minor road.
What will change in Part 4?

STC also proposed modifications –

• audible beaconing
• audible information device
• APS SHOULD be provided at PHBs

NC previously recommended that the Guidance against installing a PHB within 100’ of a STOP controlled intersection or driveway be eliminated.
What will change in Part 4?

Audible Information Device -
Eliminate reference to APS for in-roadway warning light and for flashers supplementing a pedestrian actuated warning beacon supplementing a sign installed at a pedestrian crossing.

Revise to address an “audible information device which would use a “yellow lights are flashing” speech message rather than a vibrotactile or percussive indication.
STC ultimately agreed with FHWA to modify pedestrian head mounting height to Guidance –

**Standard Guidance:**

Pedestrian signal heads *shall* be mounted with the bottom of the signal housing including brackets not less than 7 feet or more than 10 feet above sidewalk level, and shall be positioned and adjusted to provide maximum visibility at the beginning of the controlled crosswalk.

If pedestrian signal heads are mounted on the same support as vehicular signal heads, there *shall* be a physical separation between them.
QUESTIONS

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