Pedestrian Hybrid Beacons

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Pedestrian WHAT? What is it and why are we talking about it?

- FHWA issued new MUTCD - December 2009
- TxDOT revising the Texas MUTCD as required
- Pedestrian hybrid beacons are included in the proposed Texas MUTCD
A pedestrian hybrid beacon is a special type of hybrid beacon used to warn and control traffic at an unsignalized location to assist pedestrians in crossing a street or highway at a marked crosswalk.
Where are pedestrian hybrid beacons (PHB’s) installed?

- where typical traffic control signal not justified based on MUTCD warrants and engineering study, but
- pedestrian crossings occur that may be difficult due to vehicular volumes
A pedestrian hybrid beacon -

shall be used in conjunction with signs and pavement markings

shall only be installed at a marked crosswalk

shall have 3 signal sections - a CIRCULAR YELLOW indication centered below two horizontally aligned CIRCULAR RED indications

shall be pedestrian actuated
<table>
<thead>
<tr>
<th>Dark</th>
<th>Fully Illuminated</th>
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<tbody>
<tr>
<td><img src="image1" alt="Dark Diagram" /></td>
<td><img src="image2" alt="Fully Illuminated Diagram" /></td>
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</table>
MUTCD includes figure showing the sequence for a PHB

Figure 4F-3. Sequence for a Pedestrian Hybrid Beacon

1. Dark Until Activated
2. Flashing Yellow Upon Activation
3. Steady Yellow
4. Steady Red During Pedestrian Walk Interval
5. Alternating Flashing Red During Pedestrian Clearance Interval
6. Dark Again Until Activated

Legend
SY Steady yellow
FY Flashing yellow
SR Steady red
FR Flashing red
The MUTCD includes GUIDANCE figures regarding conditions under which the need for a pedestrian hybrid beacon should be considered.
**“Low” speed roads**

- ≤ 35 MPH
- ≥ 20 peds in an hour with vehicular volumes from 600 to 1700 depending on crossing length

**“High” speed roads**

- > 35 MPH
- ≥ 20 peds in an hour with vehicular volumes from 350 to 1150 depending on crossing length
How do PHB’s operate?

- Have yellow & red signal indications to control vehicular traffic on roadway being crossed.
- Have pedestrian signal heads for pedestrian traffic crossing the roadway.
- Vehicular indications dark between actuations.
- Pedestrian indications display steady DON’T WALK between actuations.

Note - there is an OPTION for pedestrian heads to be dark when located near roundabouts.
Pedestrian Hybrid Beacon Sequence

Following the flashing circular yellow –
Vehicular heads - steady circular yellow
Pedestrian heads - remain steady DON’T WALK
Pedestrian Hybrid Beacon Sequence

Following the steady circular yellow –

Vehicular heads - steady circular red
Pedestrian heads - WALK
Pedestrian Hybrid Beacon Sequence

Following the WALK/steady red indications –
Vehicular heads - alternating flashing red
Pedestrian heads - flashing DON’T WALK & countdown

then returns to “rest state”
PHB – the Austin Experience

- Crosswalks with various types of flashing yellow devices – poor driver yielding behavior
- Developed and installed 2-section displays at 5 locations that flashed yellow between actuations due to “dark” signals law
- City staff developed logic commands for NextPhase for existing 2070 controllers
- Have since modified to MUTCD PHB operation
- Thanks to Eric Nelson for assistance with current NextPhase logic commands
18 PHB’s are in operation

Where?
- 12 - existing crosswalks with flashing devices
- 4 - existing crosswalks with no flashing devices
- 2 - new crosswalk locations
- 15 at or within 100’ of intersections or driveways
- 3 at mid-block locations

Road Type
- 16 of 18 on 4 lane or wider roadways

7 more pending installation

11 additional under consideration
Before/after photos

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Changed from overhead flashing beacon to a pedestrian hybrid beacon

Photo by Hank Usher, ATD
Developed typical traffic control sketch

Typical Traffic Controls for Pedestrian Hybrid Beacon Installation

Notes:
1. STOP lines to be a minimum of 40" from the signal heads for that direction of travel.
2. The specific location and spacing of the roadside signs will be determined based on the presence of any driveways, intersections, or other existing features.
3. Although shown with a single lane in each direction, this sign and signal combination may be used for multi-lane and/or divided roadways.
4. Only one pedestrian push button sign is shown on the pedestrian signal pole assembly. Pedestrian push button signs may be installed on both sides of the pole if desired.
5. The timing of the signal intervals is to be determined for each specific site. However, the flashing yellow interval will be from 3 to 5 seconds and the steady yellow interval will be from 6 to 10 seconds.
6. This sketch is diagrammatic only; it is not intended to be to scale or proportional.

Austin Transportation Department

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### Driver & Pedestrian Response

- Some drivers do not stop at the steady red.
- Some drivers remain stopped on the flashing red rather than treating it as a STOP sign.
- Some pedestrians begin crossing after the WALK has ended.
- Some pedestrians push the button and begin to cross without waiting for the WALK indication.
Outreach Efforts

- developed a PHB Fact Sheet describing the operation
- discussed with Police Department and Municipal Court so they are aware of the device and its operation
Cost

Varies from a few hundred dollars to about $25,000 depending on your conditions –

- Do you have to install foundations and poles?
- Do you have to pay for new cabinet/controller or do you have an existing (paid for) one you can redeploy?
- Is there an existing crosswalk?
- Is sidewalk or curb ramp work needed?
Other items of interest

FHWA recently issued interpretation

- A steady red clearance interval may be displayed immediately prior to the display of the WALK indication.

- The alternating flashing red display may be extended past the end of the flashing DONT WALK before returning to dark.
MUTCD includes GUIDANCE that “the pedestrian hybrid beacon should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs”

The NCUTCD is recommending to FHWA that this GUIDANCE be deleted.
HB 885 passed in the recent legislative session addresses PHB’s and ramp control signals when dark:

An operator of a vehicle facing a traffic-control signal, other than a freeway entrance ramp control signal or a pedestrian hybrid beacon, that does not display an indication in any of the signal heads shall stop as provided by Section 544.010 as if the intersection had a stop sign.

Thanks to the following for supporting this bill:

- Ted Marquez, City of El Paso
- Norman Hogue, City of Waco
- Mark Titus, City of Dallas
- Jeff Weatherford, City of Houston
- Gilmer Gaston, TexITE
- Gary Schatz, City of Austin
- Robert Wunderlich, City of Garland and ITE
QUESTIONS