



Pedestrian Hybrid Beacon (PHB)

The city of Tucson, AZ developed the High intensity Activated crossWalk(HAWK) in the 1990s to assist pedestrians at numerous unsignalized locations. The HAWK Signal was renamed the "Pedestrian Hybrid Beacon" in the 2009 MUTCD. A pedestrian hybrid beacon includes the following:

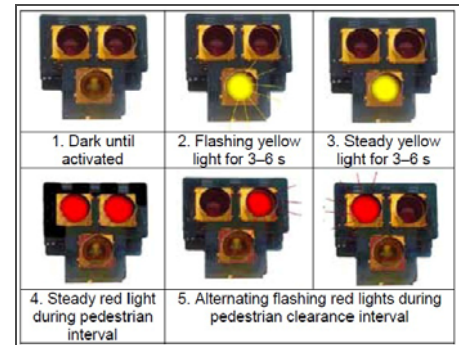
- Overhead beacons with three sections (circular yellow signal indication centered below two horizontally aligned circular red signals) facing both directions on the major street.
- Overhead signs labeled "CROSSWALK STOP ON RED" to indicate that the location is associated with a pedestrian crosswalk.
- A marked crosswalk on the major street.
- Countdown pedestrian signal heads to control pedestrian crossings at the crosswalk.
- Pedestrian detectors, such as pushbuttons.

The pedestrian hybrid beacon rests dark when not in use. When a pedestrian pushbutton or detector is actuated, the beacon begins with a flashing yellow light, followed by a solid yellow light, altering drivers to slow. A solid red light requires drivers to stop while pedestrians have the right-of-way to cross the street. When the pedestrian signals display a flashing DONT WALK indication, the overhead beacon flashes red, and drivers may proceed if the crosswalk is clear.

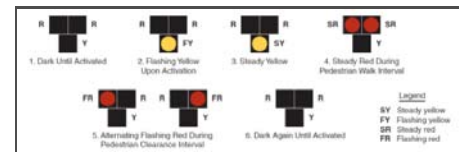
The MUTCD provides guidance on the pedestrian volume warrants, design features, and restrictions associated with the pedestrian hybrid beacon. The pedestrian volume thresholds required by the MUTCD for a pedestrian hybrid beacon are significantly lower than for a traffic signal, and this treatment may be installed at locations where traffic signals are not otherwise warranted.¹

Pedestrian hybrid beacons are best suited for uncontrolled crossings of multi-lane, higher speed or volume roadways where there is a need to provide occasional pedestrian crossings without inordinate delay to motor vehicles (i.e. school crossings, intermittent neighborhood street crossings of high volume, multi-lane arterials). A 2010 FHWA study indicates that a Pedestrian

View Other Signals and Signs Treatments



The progression of a pedestrian hybrid beacon.



The progression of a pedestrian hybrid beacon.

Hybrid Beacon reduces total crashes by 29 percent and pedestrian crashes by 69 percent.^{12,13}






Purpose

A pedestrian hybrid beacon is a special type of beacon used to warn and control traffic at an unsignalized location to assist pedestrians in crossing a street or highway at a marked crosswalk.

Considerations

- Pedestrian hybrid beacons should only be installed in conjunction with marked crosswalks and pedestrian countdown signals.
- Activated by pedestrian detectors, such as pushbuttons.
- May be appropriate where traffic signals are unwarranted.
- Can be used at corners and midblock locations.
- Works well to counteract multiple threat crashes.
- Have been successfully used at school crossings, parks, and senior centers.
- Original design places beacon over crosswalk; modified design places beacon to a different location, usually to the side. Original design is preferable.

Estimated Cost

| Signal Interval | Vehicle Signal | Pedestrian Signal |
|-----------------|--|---|
| 1 |  Blank for Drivers |  Steady Hand |
| 2 |  Flashing Yellow |  Steady Hand |
| 3 |  Steady Yellow |  Steady Hand |
| 4 |  Steady Red |  Steady "Walk" |
| 5 |  Wig-Wag |  Flashing Hand and Countdown |
| 6 |  Return to Blank |  Steady Hand |

Pedestrian hybrid beacon phases
Source: Adapted from FHWA Training Materials



A High intensity Activated crossWalk (HAWK).
Source: pedbikeimages.org - Mike Cynecki (2009)

| Infrastructure | Description | Median | Average | Min. Low | Max. High | Cost Unit | # of Sources (Observations) |
|--------------------------|--------------------------|----------|----------|-------------|--------------|--------------|--------------------------------|
| Pedestrian Hybrid Beacon | Pedestrian Hybrid Beacon | \$51,460 | \$57,680 | \$21,440 | \$128,660 | Each | 9(9) |

Pedestrian hybrid beacons are typically more expensive to implement and maintain than some devices, but less expensive than full traffic signals.

Safety Effects

A summary of studies that have looked at the safety effects of the pedestrian hybrid beacon can be found [here](#).

Case Studies

Tucson, AZ

Detroit, Michigan

Tucson, Arizona