NCHRP 17-113 COUNTERMEASURES

Install a pedestrian hybrid beacon (PHB or HAWK)

PEDESTRIANS AND BICYCLISTS

A Pedestrian Hybrid Beacon (PHB) is a pedestrian-activated signal that stops vehicles to allow safe pedestrian crossing at unsignalized locations.

Implementation Strategy

How and Where to Apply

- PHBs are typically installed at midblock crossings or unsignalized intersections with high pedestrian demand and inadequate gaps in traffic.
- They are most effective on multi-lane roads with high traffic volumes or speeds.
- According to **FHWA**, PHBs are recommended where marked crosswalks alone have proven insufficient to ensure safe crossing.

Use in a Safe System Approach

PHBs align with Safer People and Safer Intersections by controlling vehicle movement to create protected crossing opportunities. They compensate for gaps in driver yielding behavior and offer a predictable signal-based intervention that alerts both pedestrians and drivers. PHBs help reduce the likelihood of severe crashes at locations where complete traffic signals are not warranted.

Key Stakeholders

State and local DOTs
Urban safety and pedestrian planning agencies

Proactive Implementation

Agencies can implement PHBs proactively in areas with documented pedestrian crashes, near high pedestrian generators like schools, transit stops, or community centers. Systemic safety analysis can identify corridors with risky midblock crossings or long uncontrolled crossing distances. Integrating PHBs into pedestrian safety action plans supports broader Vision Zero and Safe Routes to School efforts.

Countermeasure Overview

Objective: Improve Sight Distance and/or Visibility Between Motor Vehicles and Pedestrians

Strategy: Signals to Alert Motorists That Pedestrians Are Crossing

Targeted Solution

CONTRIBUTING FACTORS	▪ Risky crossing behavior
TARGET CRASH TYPE	▪ Crossing-related
ROAD FACILITY TYPE	▪ All
AREA TYPE	▪ Urban ▪ Suburban

Safety Linkage

NCHRP 500 Series	SAFE SYSTEM APPROACH
Pedestrians and Bicyclists	Safe Road Users
AASHTO'S TOWARD ZERO DEATHS	SAFE SYSTEM ROADWAY DESIGN TIER 1 TIER 2 TIER 3 TIER 4
Safer Vulnerable Users	Tier 3

Selected Related Countermeasures

- CM1 Curb extensions or median refuge islands
- CM2 Rectangular Rapid Flashing Beacons (RRFBs)
- CM3 Raised crosswalks at unsignalized locations

Cost: $ (Moderate)

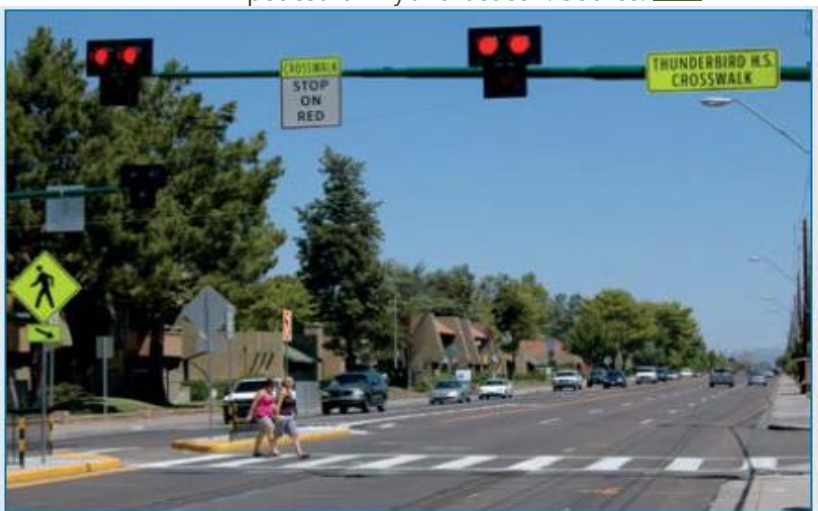
Service Life: 10 years

Safety Benefits

46% Reduce total crashes of all severity[1]

25% Reduce fatal and injury crashes [2]

[1] CMF ID: 10607
[2] CMF ID: 10602



pedestrian hybrid beacon. Source: PHB

Resources

- Pedestrian Hybrid Beacons
- Evaluation of Pedestrian Hybrid Beacons