NCHRP 17-113 COUNTERMEASURES

Provide Flashing Beacons at Stop-controlled Intersections

INTERSECTIONS

A pedestrian safety device with flashing yellow LEDs that activate at marked, uncontrolled crosswalks to alert drivers and improve pedestrian visibility.

Implementation Strategy

How and Where to Apply

- Install at uncontrolled, marked crosswalks on multilane roads or locations with high pedestrian activity and insufficient gaps in traffic, as recommended by FHWA guidance.
- Mount RRFBs on both sides of the roadway, aligned with the crosswalk and pedestrian signs, with activation via push button or passive detection, ensuring visibility and compliance
- The **MUTCD** requires that must follow Interim Approval IA-21, including placement with pedestrian signs, yellow LED lights, and push-button or automated activation.

Use in a Safe System Approach

Flashing beacons at stop-controlled intersections align with the Safe System strategy by enhancing driver awareness, and reducing stop sign violations through better visibility and speed management.

Key Stakeholders

Agency maintenance personnel, DOT, Local enforcements

Proactive Implementation

Flashing beacons should be proactively installed at stop-controlled intersections where limited visibility, high approach speeds, or increasing crash trends indicate a need for enhanced driver alertness. Selection of appropriate sites should be based on detailed analysis of crash history, approach volumes, sight distance limitations, and field conditions to ensure the beacons effectively reduce the risk of stop sign violations and collisions.

Countermeasure Overview

Objective: Reduce Pedestrian Exposure to Vehicular Traffic

Strategy: Install or Upgrade Traffic and Pedestrian Signals

Targeted Solution

CONTRIBUTING FACTORS	▪ Reduce Visibility ▪ Driver Inattention ▪ Failure to yield
TARGET CRASH TYPE	▪ Angle ▪ Rear-end ▪ Turning
ROAD FACILITY TYPE	▪ Not Specified
AREA TYPE	▪ All

Safety Linkage

NCHRP 500 Series

Signalized Intersection

AASHTO'S TOWARD ZERO DEATHS

Improved Safety Management

SAFE SYSTEM APPROACH

Safe Roads

SAFE SYSTEM ROADWAY DESIGN

TIER 1
TIER 2
TIER 3
TIER 4

Tier 4

Selected Related Countermeasures

- CM1 LED-enhanced stop signs
- CM2 Advance stop sign warning signs
- CM3 Rumble strips on approaches

Cost: $ (Moderate to High)

Service Life: 10 years

Benefit-Cost Ratio: 2:1

Flashing Pedestrian Beacon. Source: FHWA

Safety Benefits

58% Reduce fatal and injury crash severities[1]

16% Reduce angle crashes on intersections [1]

[1] CMF ID: 456
[2] CMF ID: 450

Resources

- FHWA pedestrian safety
- TechSheet_RRFB_2018.pdf