



Add 3-inch Yellow Retroreflective Sheeting to Signal Backplates

Backplates with yellow retroreflective borders enhance traffic signal visibility in all lighting conditions, aiding driver recognition and safety, especially during power outages.

Implementation Strategy

How and Where to Apply

- Install backplates with retroreflective borders at signalized intersections with high crash rates, poor visibility, complex backgrounds, or high volumes of older drivers or nighttime traffic.
- Mount backplates directly behind signal heads, ensuring a 1–3 inch yellow retroreflective border per **MUTCD** guidelines, with proper alignment to maintain visibility and contrast against the surrounding environment.

Use in a Safe System Approach

Adding 3-inch yellow retroreflective borders to signal backplates supports the Safe System Approach by improving signal visibility, enhancing driver awareness, and reducing crash risk in low-visibility conditions.

Key Stakeholders

Agency maintenance personnel, DOT, Local enforcement

Proactive Implementation

Proactive implementation involves identifying signalized intersections with visibility concerns, high nighttime crash rates, or frequent power outages. Traffic engineers should prioritize locations where improved signal conspicuity can enhance safety, especially for older drivers or in visually cluttered environments. Installing retroreflective backplates in advance of crash patterns strengthens intersection safety before problems escalate.

Countermeasure Overview

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

Strategy: Improve Reflectorization/Conspicuity of Pedestrians

Selected Related Countermeasures

- CM1** High-visibility signal heads
- CM2** Advance warning flashers
- CM3** Improved intersection lighting

Cost: \$ (Low)

Service Life: 10 years

Benefit-Cost Ratio: 10:1

Targeted Solution



CONTRIBUTING FACTORS

- Reduced Visibility
- Driver Inattention



TARGET CRASH TYPE

- Angle
- Rear-end
- Turning



ROAD FACILITY TYPE

- Not Specified



AREA TYPE

- Urban

Safety Linkage



NCHRP 500 Series

Signalized Intersection



AASHTO'S TOWARD ZERO DEATHS

Safer Infrastructure



SAFE SYSTEM APPROACH

Safe Roads

SAFE SYSTEM ROADWAY DESIGN

TIER 1
TIER 2
TIER 3
TIER 4

Tier 4

Retroreflective Backplate. Source: FHWA

15%

Reduce in all types of crash severities¹

¹ CMF ID: 1410

Resources

- FHWA [backplates-retroreflective-borders](#)
- USDOT [retroreflective-backplates](#)

