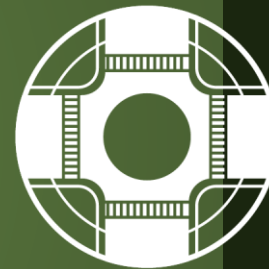


# NCHRP 17-113 COUNTERMEASURES Implement Systemic Signing and Visibility Improvements at Signalized Intersections



INTERSECTIONS

Systemic signing and visibility improvements enhance intersection safety using low-cost, network-wide upgrades to signage, signals, markings, and lighting.

## Implementation Strategy

### How and Where to Apply

- Implement systemic upgrades such as larger signs, high-visibility signal backplates, and improved lighting across multiple intersections based on network-wide crash patterns, not just individual sites.
- Apply at high-crash intersections, corridors with poor visibility, urban areas, and during resurfacing or routine signal upgrades.
- The **FHWA** states that this marking can be used "Improving the visibility and conspicuity of traffic control devices at intersections is a proven safety countermeasure that can reduce crashes and enhance compliance."

### Use in a Safe System Approach

Supports the Safe System Approach through Safer Intersections and Safer People. These improvements help reduce crash risk by enhancing early recognition of conflict points and traffic control messages. They also improve crash survivability by reducing the likelihood of high-speed violations.

### Key Stakeholders

State and local transportation agencies, Metropolitan Planning Organizations (MPOs), Pedestrian Advocacy Groups and Community Organizations

### Proactive Implementation

Proactive implementation involves using systemic safety analysis to identify high-risk intersections before crashes occur. Agencies apply improvements such as enhanced signage, lighting, and signal visibility across networks based on patterns of risk, not just crash history. This forward-looking approach ensures broader safety coverage and optimizes resources by addressing potential hazards early.

## Countermeasure Overview

**Objective:** Improve driver awareness of intersections and signal control  
**Strategy:** Improve visibility of signals and signs at intersections

## Selected Related Countermeasures

- CM1** High-Visibility Signal Backplates
- CM2** Lighting Improvements at Intersections
- CM3** Advance Street Name Signs and Directional Signing

**Cost:** \$ (Low)

**Service Life:** 15 years

**Benefit-Cost Ratio:**

## Targeted Solution



**CONTRIBUTING FACTORS**

- Reduced visibility
- Driver inattention
- Failure to stop or yield



**TARGET CRASH TYPE**

- Angle
- Rear-end
- Turning



**ROAD FACILITY TYPE**

- All



**AREA TYPE**

- All

## Safety Linkage



**NCHRP 500 Series**

Signalized Intersections



**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

Source: Driven2Drive

Safety Benefits

49%

Reduce angle crashes for all types of roads <sup>1</sup>

24%

Reduce angle crashes for all types of crash severity <sup>2</sup>

<sup>1</sup> CMF ID: 8970

<sup>2</sup> CMF ID: 8948

## Resources

- [FHWA Proven Safety Countermeasures](#)
- [Manual on Uniform Traffic Control Devices \(MUTCD\)](#)

