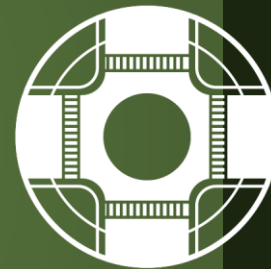


NCHRP 17-113 COUNTERMEASURES Implement Systemic Signing and Visibility Improvements at Signalized Intersections



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 like 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 improving the visibility of traffic control devices is a proven safety countermeasure that reduces crashes and improves compliance, though benefits may be limited where visibility is already good or volumes are low.

Use in a Safe System Approach

Systemic signing and visibility improvements support the Safe Roads and Safe Road Users elements of SSA by enhancing visibility and redundancy. They help accommodate mistakes and reinforce that death and serious injuries are unacceptable.

Key Stakeholders

State DOTs, MPOs, consultants, safety advocacy groups, active road users.

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.

Targeted Solution



CONTRIBUTING FACTORS

- Reduced visibility
- Driver inattention/distraction
- 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

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

Safety Benefits

25%

Reduces crashes of all types and K, A, B, C severities on two-lane roadways across all area types (CMF ID: 8968)

24%

Reduces crashes of all types and K, A, B, C severities on two-lane roads across all area types (CMF ID: 8948)

Resources

- FHWA Proven Safety Countermeasures
- Manual on Uniform Traffic Control Devices (MUTCD)

Systemic Signing and Visibility Improvements at Signalized Intersections. Source: FHWA.

