

# Install Dynamic Signal Warning Flashers



Dynamic signal warning flashers are active warning devices placed in advance of signalized intersections that flash when the signal ahead is red or about to change.

## Implementation Strategy

### How and Where to Apply

- This countermeasure is used on high-speed arterial roads or rural highways approaching signalized intersections.
- Most effective where signal visibility is limited by curves, grades, weather, or where crash history shows frequent rear-end or signal violations.
- Dynamic flashers should be placed at a calculated distance upstream of the intersection to allow sufficient deceleration time based on approach speed, and are not recommended at low-speed or highly visible intersections.

### Use in a Safe System Approach

Support the Safe Speeds and Safe Roads elements of SSA by adding redundancy and predictability. Advance signal warnings help manage driver speed and accommodate mistakes, reinforcing that death and serious injuries are unacceptable.

### Key Stakeholders

State DOTs, MPOs, engineering consultants, urban planners and traffic engineers, law enforcement agencies.

### Proactive Implementation

Dynamic signal warning flashers can be implemented proactively based on systemic risk analysis, speed studies, or crash patterns near signalized intersections on high-speed corridors. They can also be added during signal upgrades or corridor ITS projects.

## Countermeasure Overview

**Objective:** Improve driver awareness of intersections and signal control

**Strategy:** Improve visibility of intersections on approach(es)

## Selected Related Countermeasures

- CM1 Install Dual Red Signal Lenses
- CM2 Install Intersection Lighting
- CM3 Apply Advance Intersection Warning Signs

**Cost:** \$\$ (Moderate)  
**Service Life:** 10 years  
**Benefit-Cost Ratio:** 10.0:1 to 27.0:1

## Targeted Solution



### CONTRIBUTING FACTORS

- Signal non-compliance
- Reduced visibility
- Driver inattention



### TARGET CRASH TYPE

- Angle
- Rear-end
- Turning



### ROAD FACILITY TYPE

- N/A



### AREA TYPE

- All

## Safety Linkage



### NCHRP 500 Series

Unsignalized 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

21%

Reduces rear end crashes across all severity levels on all road types (CMF ID: 4199)

18%

Reduces all crash types across severity levels K, A, B, and C on all road types (CMF ID: 4201)

### Resources

- FHWA Signalized Intersections: Informational Guide
- FHWA Traffic Signal Visibility and Signing Enhancements
- ITE Recommended Practice: Advance Warning Flashers



Dynamic Signal Warning Flashers Source: CMF Clearing House.

