

Install Dual Red Signal Lenses



Install dual red signal lenses is a traffic signal improvement strategy that involves placing two red signal lenses for each approach lane.

Implementation Strategy

How and Where to Apply

- Dual red signal lenses enhance the visibility of red lights at signalized intersections, especially on high-speed or multilane approaches where a single indication may be obscured by glare or obstructions.
- They are suitable for any signalized approach and are particularly effective at locations with a history of red-light running.
- The MUTCD permits multiple signal faces based on factors like lane use, geometry, and traffic volume.

Use in a Safe System Approach

Installing dual red lenses aligns with the Safe System Approach principle of redundancy, providing multiple visual cues to support compliance. By improving the likelihood that drivers recognize the red indication, the treatment supports crash energy management by reducing the potential for high-speed red-light running crashes at intersections.

Key Stakeholders

Signal operations and maintenance personnel, Traffic engineering staff, Safety program coordinators

Proactive Implementation

Dual red lenses can be proactively installed at locations with signal visibility challenges, high-risk traffic patterns, or documented red-light violations. Agencies can identify potential sites through crash history analysis, public input, or proactive systemic reviews of intersection approaches with high volumes or poor signal visibility conditions.

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 signal ambiguity
- Delayed driver reaction
- Abrupt stopping



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

Selected Related Countermeasures

- CM1 Install Intersection Lighting
- CM2 Use LED Signal Modules
- CM3 Optimize Signal Timing

Cost: Low

Service Life: 10 years

Safety Benefits

- Installing dual red signal lenses at intersections is associated with an increase in crashes.
- To improve safety, combine this treatment with enhanced signal visibility measures, public education on signal changes, and complementary intersection safety strategies such as better signage and enforcement.

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Resources

- [Manual on Uniform Traffic Control Devices \(MUTCD\), Chapter 4D: Traffic Control Signal Features](#)
- [FHWA Signalized Intersections: Informational Guide \(FHWA-HRT-04-091\)](#)

Signal head with a double red signal indication. Source: FHWA

