

Install Intersection Conflict Warning Systems (ICWS) for Two-lane at Two-lane Intersections



Sharpening the angle of a channelized right-turn lane, bringing it closer to 90 degrees, slows turning vehicles, improves visibility of pedestrians and cyclists, and reduces crash severity at intersections.

Implementation Strategy

How and Where to Apply

- Install at rural intersections where high-speed approaches and limited sight distance increase angle crash risk.
- Apply at two-lane by two-lane unsignalized intersections with moderate side-road volumes and crash history.
- The **FHWA** states "Intersection Conflict Warning Systems are part of a systemic safety approach that addresses driver awareness and decision-making at rural unsignalized intersections."

Use in a Safe System Approach

ICWS aligns with the Safe System Approach by supporting Safer Intersections and Safer Road Users. These systems reduce crash likelihood by enhancing driver awareness and support survivable outcomes through early hazard recognition and more informed decision-making.

Key Stakeholders

State and Local Departments of Transportation (DOTs), Traffic Engineers and Planners.

Proactive Implementation

ICWS enables proactive safety management by identifying intersections with angle or turning crash patterns and deploying real-time alert systems before crashes occur. This forward-thinking strategy enhances rural intersection safety without delays caused by signalization, reducing severe crashes through early conflict warnings and improved driver decision-making.

Countermeasure Overview

Objective: Reduce the frequency and severity of intersection conflicts through geometric design improvements

Strategy: Install larger regulatory and warning signs at intersections

Selected Related Countermeasures

- CM1** LED-enhanced stop signs
- CM2** Rural intersection lighting
- CM3** Dynamic speed feedback signs

Cost: Moderate

Service Life: 10 years

Benefit-Cost Ratio: 27:1

Targeted Solution



CONTRIBUTING FACTORS

- Failure to yield
- Misjudgment of safe gaps
- Limited sight distance



TARGET CRASH TYPE

- Angle
- Rear-end
- Turning



ROAD FACILITY TYPE

- N/A



AREA TYPE

- Rural

Safety Linkage



NCHRP 500

Unsignalized Intersection

SAFE SYSTEM APPROACH

Safe Roads



AASHTO'S TOWARD ZERO DEATHS

Safer Infrastructure

SAFE SYSTEM ROADWAY DESIGN

TIER 1

TIER 2

TIER 3

TIER 4

Tier 4

Street Lighting . Source: [eco ledmart](#)

Safety Benefits

47%

Reduce injury crashes for all types of crashes at rural roads ¹

31%

Reduce injury crashes for at rural roads.²

¹CMF ID: 8433

²CMF ID: 8439

Resources

- FHWA: [Safety Evaluation of Intersection](#)
- NCHRP Report 841: [Development of Crash Modification Factors](#)
- FHWA: [Proven Safety Countermeasures](#)

