# **Improve Street Lighting Illuminance and Uniformity**



Improving street lighting illuminance and uniformity increases nighttime visibility, helping reduce run-off-road and other low-light crashes.

#### Implementation Strategy

#### How and Where to Apply

- This treatment is best suited for rural roads, curves, and segments with high rates of nighttime or runoff-road crashes.
- It can be implemented during corridor upgrades, safety retrofits, or lighting replacements.
- According to FHWA guidelines, uniform and sufficient lighting levels should be applied to minimize dark spots and contrast glare that impair driver recognition.

#### Use in a Safe System Approach

This countermeasure supports Safer Roads and Safer Drivers by increasing visibility and visual cues under lowlight conditions. Uniform lighting helps drivers detect road edges, curves, signs, and other users earlier especially at high speeds. It improves driver comfort and reduces visual fatigue, contributing to more forgiving roadway environments.

#### **Key Stakeholders**

State and local roadway agencies Traffic engineers and lighting designers

#### **Proactive Implementation**

Agencies can use crash data, night/day crash ratios, or visibility audits to identify corridors where poor lighting contributes to risk. Installing high-performance LED luminaires or retrofitting outdated fixtures can be part of systemic safety strategies, especially on road segments without ambient lighting

#### **Countermeasure Overview**

Objective: Reduce the severity of the crash

Strategy: Improve design of roadside hardware

## **Targeted Solution**



Reduced visibility



Nighttime



Arterial





Urban

Suburban

### Safety Linkage



Run-off Road



Safer Infrastructure



Safe Roads

SAFE SYSTEM



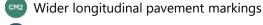
Tier 4

Improve Street Lighting. Source: Lighting

#### Selected Related Countermeasures



Intersection lighting upgrades



Delineators edge enhancements on curves

**Cost:** \$ (Moderate to High)

**Service Life:** 15 years

Reduce crashes in Urban and suburban<sup>1</sup>



Reduce urban crashes<sup>2</sup>

<sup>1</sup> CMF ID: 11027

<sup>2</sup> CMF ID: 11026



Safety Benefits

- FHWA Lighting Handbook
- NCHRP Report

