

# Install Shoulder Rumble Strips and Widen Shoulder



Installing shoulder rumble strips and widening the shoulder can improve the visibility and longevity of the pavement under adverse conditions.

## Implementation Strategy

### How and Where to Apply

- Install shoulder rumble strips on rural roads, especially in areas prone to run-off-road crashes and with limited visibility or horizontal curves. These rumble strips alert drifting drivers through vibration and noise, reducing lane departures.
- Widen shoulders to provide a safe recovery area that allows drivers space to regain control if they veer off the travel lane.
- Combining shoulder widening with rumble strips amplifies safety benefits by providing both immediate warning and physical recovery space.

### Key Stakeholders

State DOTs, Local Road Maintenance Agencies

### Proactive Implementation

Prioritize installation in rural corridors with high incidences of run-off-road and head-on crashes, particularly on segments with horizontal curves or poor visibility. Integrate these measures during resurfacing or shoulder improvement projects for cost efficiency. Use crash data and roadway characteristics to target locations with the greatest safety needs.

### Use in a Safe System Approach

By alerting drivers of unintentional lane departures and providing a forgiving roadside environment, shoulder rumble strips paired with widened shoulders align with the SSA's goal of mitigating human error and reducing crash severity.

## Countermeasure Overview

**Objective:** Keep vehicles from encroaching on the roadside

**Strategy:** Provide improved highway geometry for horizontal curves

## Selected Related Countermeasures

- CM1 Clear zone improvements
- CM2 Enhanced pavement markings
- CM3 Guardrails and barriers

**Cost:** \$\$\$ (high)

**Service Life:** 20 years

**Benefit-Cost Ratio:** 100:1

## Targeted Solution



### CONTRIBUTING FACTORS

- Reduced visibility
- Driver inattention



### TARGET CRASH TYPE

- Run-off Road



### ROAD FACILITY TYPE

- Not specified



### AREA TYPE

- Rural

## Safety Linkage



### NCHRP 500 Series

Run-off Road

### SAFE SYSTEM APPROACH

Safe Roads

### SAFE SYSTEM ROADWAY DESIGN

TIER 1

TIER 2

TIER 3

TIER 4

Tier 1



### AASHTO'S TOWARD ZERO DEATHS

Safer Infrastructure

Wide Shoulder on Road, Source: [Wikipedia](#).

## Safety Benefits

46%

These improvements help reduce crash severities in all crash types in rural areas<sup>1</sup>

40%

Reduces fatal, serious, minor, and possible crash severity in rural areas<sup>2</sup>

<sup>1</sup> CMF ID: 6667

<sup>2</sup> CMF ID: 6665

### Resources

- Study of KDOT Policy on Lane and Shoulder Minimum Width for Application of Centerline Rumble Strips
- Studies to Determine the Operational Effects of Shoulder and Centerline Rumble Strips on Two-Lane Undivided Roadways

