NCHRP 17-113 COUNTERMEASURES

# Install Edgeline Rumble Strips

ROADWAY DEPARTURE

Edgeline rumble strips are a series of milled or raised patterns placed just inside or along the painted edge line of a roadway.

## Implementation Strategy

### How and Where to Apply

- Edgeline rumble strips are typically applied on two-lane rural highways, curves, and other road segments with narrow shoulders and a high incidence of roadway departure crashes.
- They are especially effective where lane departure is a common crash type and where traditional shoulder rumble strips may not be feasible due to space or structural limitations
- Best suited for rural highways and high-speed corridors to prevent roadway departures; not suited for urban or residential streets where noise and cyclist safety are concerns.

### Use in a Safe System Approach

Supports the Safe System Approach by accommodating human error and offering cues that help prevent roadway departures and severe crashes.

### Key Stakeholders

State DOTs, MPOs, engineering consultants, construction contractors, freight/trucking associations, advocacy groups.

### Proactive Implementation

Edgeline rumble strips can be proactively installed during resurfacing or pavement rehabilitation projects, or identified through systemic safety analysis of corridors with frequent roadway departure incidents. They may also be prioritized in locations with night-driving risks, fatigue-related crashes, or low shoulder visibility.

## Countermeasure Overview

**Objective**: Keep vehicles from encroaching on the roadside.
**Strategy**: Install edgeline profile marking, edgeline rumble strips or modified shoulder rumble strips on section with narrow or no paved shoulders along the route.

## Targeted Solution

**Contributing Factors**
- Reduced visibility
- Driver inattention/ distraction

**Target Crash Type**
- Run-off-road

**Road Facility Type**
- Freeways
- Multilane divided / undivided

**Area Type**
- Rural

## Safety Linkage

**NCHRP 500 Series**
Run-off Road

**Safe System Approach**
Safe Roads

**AASHTO's Toward Zero Deaths**
Safer Infrastructure

**Safe System Roadway Design**
Tier 4

## Selected Related Countermeasures

- CM1 Roadway edge rumble strips
- CM2 High-contrast roadway markings
- CM3 Improved curve guidance treatments

**Cost:** $ (Low)
**Service Life:** 10 years
**Benefit-Cost Ratio:** 58.6:1 to 71.8:1

Edgeline Rumble Strips. Source: FHWA.

## Safety Benefits

**43%** Reduces run off road crashes for K, A, B, C severities on rural undivided two-lane roads (CMF ID: 3397)

**42%** Reduces run off road crashes for K, A, B, C severities on rural undivided two-lane roads (CMF ID: 3392)

### Resources

- FHWA Rumble Strips & Rumble Stripes Technical Advisory
- NCHRP Report 641: Design and Application of Shoulder and Centerline Rumble Strips
- FHWA Roadway Departure Safety Implementation Plan