NCHRP 17-113 COUNTERMEASURES

Improve Pavement Friction (Increase Skid Resistance)

ROADWAY DEPARTURE

Improving pavement friction enhances tire grip, especially in wet conditions, reducing skidding and crash risks.

Implementation Strategy

How and Where to Apply

- Apply at curves, intersections, downhill grades, or locations with high crash rates related to skidding or loss of control, especially during wet conditions.
- Use high friction surface treatments (HFST), grooving, or textured overlays, following **FHWA** guidelines to ensure proper material selection, surface preparation, and application methods.
- Follow **FHWA** guidelines, ensuring proper surface preparation, use of approved high-friction materials, and installation under dry conditions with temperatures above manufacturer-recommended minimums for effective bonding.

Use in a Safe System Approach

Improving pavement friction supports the Safe System Approach by enhancing control and reducing crashes, especially in wet or curved areas, aligning with Tier 3 conflict management.

Key Stakeholders

State DOTs, local law enforcement agencies

Proactive Implementation

Proactive implementation involves identifying high-risk locations like curves, intersections, or downhill segments with crash patterns related to skidding or loss of control. Agencies should use skid resistance testing and crash data to prioritize sites for treatment before severe incidents occur. Applying high-friction surface treatments in advance improves safety and prevents future crashes, especially under wet conditions.

Countermeasure Overview

Objective: Keep vehicles from encroaching on the roadside.

Strategy: Provide skid-resistant pavement surfaces.

Targeted Solution

CONTRIBUTING FACTORS	▪ Reduced vehicle control ▪ Inadequate skid resistance
TARGET CRASH TYPE	▪ Run-off road ▪ Head-on
ROAD FACILITY TYPE	▪ N/A
AREA TYPE	▪ All

Safety Linkage

NCHRP 500 Series: Run off road collision

SAFE SYSTEM APPROACH: Safe Roads

AASHTO'S TOWARD ZERO DEATHS: Safer Drivers and Passengers

SAFE SYSTEM ROADWAY DESIGN: Tier 3

Selected Related Countermeasures

CM1 Pavement grooving

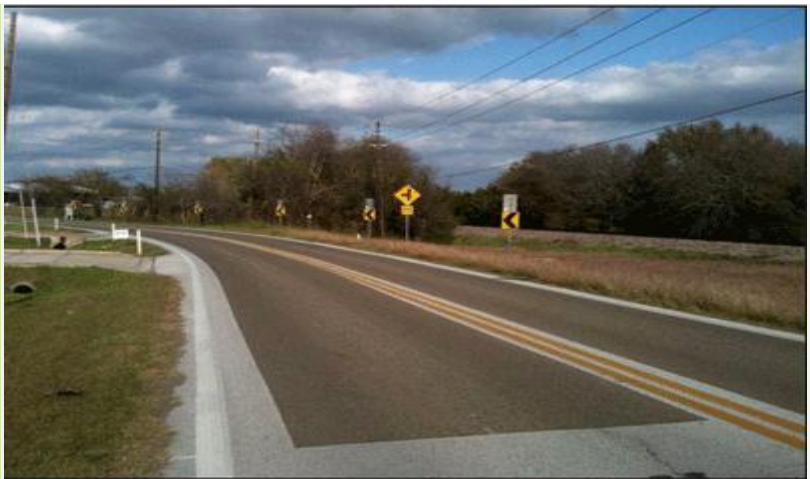
CM2 Rumble strips

CM3 High-friction overlays on bridge decks

Cost: Moderate

Service Life: 10 years

Benefit-Cost Ratio: 26.7:1



HFST on a horizontal curve Source: FHWA

Safety Benefits

78% Reduce all wet road crashes on all road types.

6% Reduce all rear-end crashes on all road types.

[1]CMF ID: 2269

[2]CMF ID: 2278

Resources

- FHWA Proven Safety Countermeasure
- USDOT highway safety