

Widen Narrow Pavement



Widening narrow pavement improves traffic flow and capacity, and can accommodate adding features like shoulders, turn lanes, or passing lanes.

Implementation Strategy

How and Where to Apply

- Widen pavement widths on rural highways where lanes are narrow and maneuvering space is limited, particularly in areas with a history of run-off-road or head-on crashes.
- Pavement widening improves driver comfort and control, allowing safer passage of vehicles and reducing crash risk associated with constrained roadways.
- Priority locations include horizontal curves and segments with limited shoulder widths, where narrow lanes contribute to increased crash risk.

Use in a Safe System Approach

By expanding maneuvering space, widened pavement reduces driver workload and compensates for errors in steering or attention, thus enhancing overall roadway safety consistent with SSA principles.

Key Stakeholders

State DOTs, Local Transportation Agencies

Proactive Implementation

Focus widening efforts on rural roads exhibiting narrow lanes combined with high crash rates. Use crash and roadway inventory data to identify segments where narrow pavement contributes most to run-off-road and head-on crashes. Integrate pavement widening with other roadway improvements for cost efficiency and maximum safety benefit.

Countermeasure Overview

Objective: Keep vehicles from encroaching on the roadside

Strategy: Apply shoulder treatments (Widen and/or pave shoulders)

Selected Related Countermeasures

- CM1** Shoulder widening
- CM2** Centerline and rumble strips
- CM3** Clear zone improvements

Cost: \$\$ (moderate to high)

Service Life: 20 years

Benefit-Cost Ratio: 2:1

Targeted Solution



CONTRIBUTING FACTORS

- Reduced maneuvering space



TARGET CRASH TYPE

- Run-off Road
- Head-on



ROAD FACILITY TYPE

- N/A



AREA TYPE

- Rural

Safety Linkage



NCHRP 500 Series

Run-off Road Crashes



SAFE SYSTEM APPROACH

Safe Roads

SAFE SYSTEM ROADWAY DESIGN

TIER 1

TIER 2

TIER 3

TIER 4

Tier 1



AASHTO'S TOWARD ZERO DEATHS

Improved Safety management

Narrow Road, Source: lazoragency.com.

Safety Benefits

55%

Reduces the risk of head-on crashes in rural areas¹

36%

Reduces the risk of run-off-road crashes in rural areas²

¹ CMF ID: 6864

² CMF ID: 6863

Resources

- [Flexible Pavement Narrow Widening Best Practices and Lessons Learned](#)
- [Operational and Safety Characteristics of Lane](#)

