

# HSIP Reaches Rural Roads

## Supporting a Safe System on Rural Roads

In 2020, 16,665 people died in crashes on rural roads, and although only an estimated 19 percent of the U.S. population lives in rural areas, 43 percent of fatal crashes occurred in rural areas that year.<sup>1</sup> The HSIP funds projects that improve safety and prevent fatal and serious injury crashes on rural roads.

People involved in crashes in rural areas have a significantly increased risk of death and serious injury.<sup>2</sup> Some of this increased risk comes from the challenges of responding to emergencies in remote areas. As key players in a Safe System, first responders in rural areas must travel greater distances to reach crash sites and transport injured people to hospitals. Other factors contributing to rural road fatality and injury rates include roadway characteristics, higher operating speeds, and driver error, among others.<sup>3</sup>

### In 2021

States obligated 30 percent of HSIP funds to 1,412 rural road projects that totaled \$979 million.

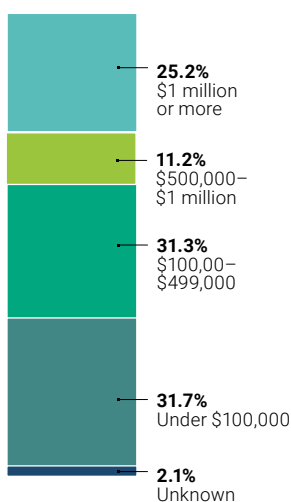
## High-Risk Rural Roads

The HSIP includes the High-Risk Rural Roads (HRRR) Special Rule (23 U.S.C. 148(g)(1)), which requires States to obligate funds for safety improvements on rural collector and local roadways identified as having significant safety risks in the State's Strategic Highway Safety Plan.<sup>4</sup>

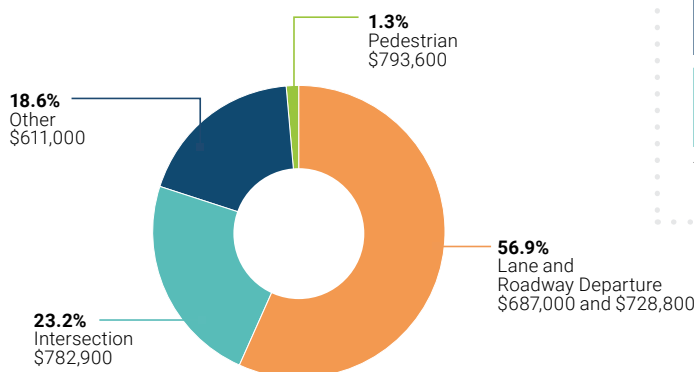
States can identify a high-risk rural road using crash rates and functional classifications, crash frequencies, roadway characteristics that correlate with severe crash types, and experiences such as field reviews, safety assessments, road safety audits, and local knowledge. For more on the HRRR special rule, visit [https://safety.fhwa.dot.gov/hsip/rulemaking/docs/Section148\\_SpecialRule\\_Guidance.pdf](https://safety.fhwa.dot.gov/hsip/rulemaking/docs/Section148_SpecialRule_Guidance.pdf).

## HSIP in 2021

### RURAL PROJECT COSTS



### RURAL PROJECT TYPES BY EMPHASIS AREA



**LEGEND**  
 Percent of Total HSIP Projects  
 Crash Type  
 Average HSIP Cost per Project

### RURAL VS. URBAN PROJECTS\*



\* includes only projects with identified area type

This information comes from 2021 State HSIP reports. To view individual reports, visit <https://safety.fhwa.dot.gov/hsip/reports/>.

1 NTSA, "Traffic Safety Facts: Rural/Urban Comparison of Motor Vehicle Traffic Fatalities" (July 2022), <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813336>.  
 2 Christine Peura, Joseph A. Likch, and David E. Clark, "Evaluating Adverse Rural Crash Outcomes Using the NHTSA State Data System," *Accident Analysis & Prevention*, Vol. 82 (September 2015), 257–262. <https://doi.org/10.1016/j.aap.2015.06.005>.  
 3 FHWA, "High Risk Rural Roads Overview" (July 2014), <https://safety.fhwa.dot.gov/hsip/hrrr/manual/ch2.cfm>  
 4 FHWA, "High Risk Rural Roads (HRRR)" (February 2022), <https://safety.fhwa.dot.gov/hsip/hrrr>

# Preventing Rural Roadway Departure Crashes

Roadway departures on rural roads account for one-third of all traffic fatalities in the United States. FHWA initiatives like FoRRRwD (Focus on Reducing Rural Roadway Departures) promote a systemic integration of the proven safety countermeasures—such as rumble strips, high friction surface treatment (HFST), and clear zones—that keep vehicles in their lanes and protect passengers in the event of a crash.<sup>5</sup> Other countermeasures that can help prevent roadway departure crashes before they happen include lighting, local road safety plans, Safety Edge<sup>SM</sup>, wider edge line markings, median barriers, and road safety audits.<sup>6</sup> For more on FoRRRwD, see <https://safety.fhwa.dot.gov/FoRRRwD/>.

In 2021, for all roadway departure projects, HSIP funded\*

**84** RUMBLE STRIP  
PROJECTS

**25** ROAD SAFETY AUDIT  
PROJECTS

**20** HFST  
PROJECTS

**23** LIGHTING  
PROJECTS

**8** CLEAR ZONE  
PROJECTS

**8** LOCAL ROAD SAFETY PLAN  
PROJECTS

\*The database counts projects reported with these countermeasure codes. These projects may have treated multiple locations or several lengths of roadway; other projects may have incorporated these strategies into larger efforts without coding the countermeasure. FHWA estimates the number of projects that incorporate these countermeasures to be much higher. To view individual reports, visit <https://safety.fhwa.dot.gov/hsip/reports/>.

## HSIP in Action

### High-Friction Surface Treatments for Rural Roadway Departures

MISSOURI DEPARTMENT OF TRANSPORTATION (MODOT)

With long stretches of curvy, rural roads made slick by the State's wet climate, Missouri's transportation network is particularly susceptible to roadway departures.

FHWA's Proven Safety Countermeasures offer States like Missouri ways to cost-effectively retrofit existing rural roadways. In 2021, using HSIP funding, MoDOT explored how HFSTs could increase safety on rural roads with a high incidence of roadway departure crashes.

The very first treatment site, on US 54, saw a nearly tenfold reduction in crashes.<sup>7</sup> On wet pavement, the treatment reduced crashes by approximately 86 percent. Statistical modeling of before/after crashes from MoDOT's HFST sections suggests that, on average, HSFT can reduce crashes by more than 50 percent!<sup>8</sup>

**PROBLEM**  
Road  
Departure  
Crashes



**SOLUTION**  
High Friction  
Surface  
Treatment



**RESULT**  
More than  
50% Crash  
Reduction



<sup>5</sup> FHWA, "Focus on Reducing Rural Roadway Departures" (June 2022), <https://safety.fhwa.dot.gov/FoRRRwD/>.

<sup>6</sup> FHWA, "Proven Safety Countermeasures Filter Tool" (February 2022), <https://safety.fhwa.dot.gov/provencountermeasures/PSCFilter>.

<sup>7</sup> MoDOT, e-mail to Kittelson and Associates, 18 October, 2022.

<sup>8</sup> MoDOT Construction, Materials, and Research, "Research Summary: HFST Before and After Safety Analysis," (April 2021), [https://spexternal.modot.mo.gov/sites/cm/CORDT/cmr21-003\\_sum.pdf](https://spexternal.modot.mo.gov/sites/cm/CORDT/cmr21-003_sum.pdf), 1-2.

To find out how HSIP can help save lives in your community, contact your State DOT:

<https://www.fhwa.dot.gov/about/webstate.cfm>



Have an HSIP success story? Share your projects on Facebook, Twitter, and Instagram with #HSIPsavesLives.

**ZERO IS OUR GOAL**  
A SAFE SYSTEM IS HOW WE GET THERE



U.S. Department of Transportation

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Federal Highway Administration

