



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

# Memorandum

Subject: ACTION: Consideration and Implementation of Proven  
Safety Countermeasures

Date: July 10, 2008

  
From: Jeffrey A. Lindley  
Associate Administrator for Safety

In Reply Refer To: HSSI

To: Division Administrators  
Federal Lands Highway Division Engineers

Improving safety is a top priority of the US Department of Transportation, and FHWA remains strongly committed to reducing highway fatalities and serious injuries on our Nation's highways. We know that a comprehensive mix of strategies is required—including stronger policies to support system-wide and sustainable improvements. We believe our area of greatest potential influence is how Federal funds are used and targeted to implement improvements that will have a positive impact on safety.

In our stewardship and oversight role for federally funded highway programs, we have the opportunity to strongly encourage Federal, State, local agencies, and tribal governments to include safety in their investment decision-making process. While there is still much work to do on determining the precise effectiveness of some safety countermeasures, we are highly confident that certain processes, infrastructure design techniques, and highway features are effective and should be encouraged whenever Federal funds are used. Safety should be considered at every stage of the project development process. Every investment decision should consider the impact on safety and every federally funded project should include appropriate safety enhancement features.

This guidance memorandum highlights when and where we believe certain processes, design techniques, or safety countermeasures should be used. This document also includes countermeasure descriptions and background on the proven effectiveness and benefits; a statement on when the countermeasure or process should be applied; links to reference documents; and current FHWA technical contacts for each topic. This guidance was developed based on effectiveness data for various crash types compiled from a variety of sources. It reflects the types of circumstances and situations that we are confident will yield high pay-offs and be cost beneficial for all projects.

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We need your leadership to encourage our partners to apply this guidance as they make investment decisions and develop projects. I am requesting that all Federal-aid and Federal Lands Division Offices review this guidance and meet with officials in their State and with tribal governments, as well as Federal partners, to determine how and when they can consider these measures to improve safety when federally funded investments are pursued. In discussing this guidance with your safety partners, it will be particularly important to address the need for comprehensive high quality safety data as a foundational element for facilitating project and program decisions. Data systems should be continually improved to help foster better decision-making.

The Office of Safety believes that widespread implementation of these safety countermeasures can serve to accelerate the achievement of local, State and national safety goals. We are currently considering whether to advance one or more elements of this guidance through a formal rulemaking process. As your office works with your State, tribal governments, and Federal partners in implementing your State's Strategic Highway Safety Plan and providing stewardship and oversight of federally funded investments, we would appreciate feedback on your experiences in using this guidance. We also invite your input on other potential safety guidance needs.

List of guidance documents included herein:

1. Road Safety Audits
2. Rumble Strips and Rumble Stripes
3. Median Barriers
4. Safety Edge
5. Roundabouts
6. Left and Right Turn Lanes at Stop-Controlled Intersections
7. Yellow Change Intervals
8. Medians and Pedestrian Refuge Areas in Urban and Suburban Areas
9. Walkways

Attachment

cc: Associate Administrators  
Directors of Field Services  
Resource Center Manager

## 2. Rumble Strips and Rumble Stripes (Rev. 6/05/08)

### Description:

Rumble strips are raised or grooved patterns on the roadway that provide both an audible warning (rumbling sound) and a physical vibration to alert drivers that they are leaving the driving lane. They may be installed on the roadway shoulder or on the centerline of undivided highways. If the placement of rumble strips coincides with centerline or edgeline striping, the devices are referred to as rumble stripes.

### Background:

Centerline Rumble Strips and Rumble Stripes: The 2005 NCHRP Synthesis 339 (data from the Insurance Institute for Highway Safety study on centerline rumble strips in September 2003) found that head-on and opposite direction sideswipe injury crashes were reduced by an estimated 25% at sites treated with centerline rumble strips or stripes. Centerline rumble strips/stripes have been shown to provide a crash reduction factor of 14% of all crashes and 15% of injury crashes on rural two-lane roads.

Shoulder Rumble Strips and Rumble Stripes: Continuous shoulder rumble strips (CSRS) can be applied on many miles of rural roads in a cost-effective manner. Studies have documented the following crash reduction benefits:

- Overall crash reduction of 13% and injury reduction of 18% on rural two-lane highways.
- Overall crash reduction of 16% and injury reduction of 17% on rural multi-lane divided highways.
- Reduction in run-off-road crashes of 38% on freeways.

Shoulder rumble stripes have not been studied to the same extent; however, they show great potential for reducing run-off-the-road crashes in addition to improving night-time visibility.

### Guidance Statement/Application:

Rumble Strips or Rumble Stripes should be provided on all new rural freeways and on all new rural two-lane highways with travel speeds of 50 mph or greater. In addition, State 3R and 4R policies should consider:

- Installation of centerline rumble strips (or stripes) on rural 2-lane road projects where the lane plus shoulder width beyond the rumble strip will be at least 13' wide; particularly roadways with higher traffic volumes, poor geometrics, or a history of head-on and opposite-direction sideswipe crashes.
- Installation of continuous shoulder rumble strips on all rural freeways and on all rural two-lane highways with travel speeds of 50 mph or above (or as agreed to by the Division and the State) and/or a history of roadway departure crashes, where the remaining shoulder width beyond the rumble strip will be 4 feet or greater, paved or unpaved.

Federal and local agencies and tribal governments administering highway projects using Federal funds should also be encouraged to adopt similar policies for providing rumble strips or rumble stripes.

### Reference Documents and Guidelines:

NCHRP Project 17-32, *Guidance for the Design and Application of Shoulder and Centerline Rumble Strips* (projected release date of August 2008) <http://www.trb.org/trbnet/projectdisplay.asp?projectid=458>

Technical Advisory 5040.35, *Roadway Shoulder Rumble Strips*

<http://www.fhwa.dot.gov/legsregs/directives/techadvs/t504035.htm>

NCHRP Synthesis 339, *Centerline Rumble Strips* [http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp\\_syn\\_339.pdf](http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_syn_339.pdf)

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