

Safety Edge (1 of 2)

ROADSIDE

DESCRIPTION AND DEFINITION

The safety edge is a treatment that allows drivers who drift off roadways to return to the road safely. Instead of encountering a vertical dropoff, the safety edge shapes the edge of the pavement to 30 degrees. Vertical dropoffs greater than 2 inches have been found to cause drivers to lose control when attempting to re-enter the highway. The 30-degree angle allows drivers to re-enter the roadway safely and prevents the tire-scrubbing on vertical surfaces that causes vehicles to lose control.



Without Safety Edge



With Safety Edge

TYPICAL CHARACTERISTICS OF CANDIDATE LOCATIONS

Typically, the safety edge is most appropriate on rural two-lane roadways without paved shoulders, but the safety edge is appropriate on all primary highways unless one of the following conditions is met:

- The paved shoulder width is 4 feet or greater
- The roadway or shoulder is curbed

SAFETY CHARACTERISTICS

“The safety edge treatment is suitable for use by highway agencies under a broad range of conditions on two-lane highways. While the evaluation results for total crashes were not statistically significant, there is no indication that the effect of the safety edge treatments on total crashes is other than positive.”—*Safety Evaluation of the Safety Edge Treatment*, FHWA-HRT-11-024.

“That the overall effectiveness of the safety edge treatment found in this study was not statistically significant is not surprising given that the magnitude of that safety effects appears to be small (approximately 5.7 percent). However, the safety edge treatment is so inexpensive that its application under most conditions appears to be highly cost-effective. The effect of the safety edge treatment would be cost-effective for two-lane highways with traffic volumes over 1,000 vehicles per day even if its effectiveness were 2 percent rather than 5.7 percent.”—*Safety Evaluation of the Safety Edge Treatment*, FHWA-HRT-11-024.

PROVEN, TRIED, INEFFECTIVE, OR EXPERIMENTAL

- The safety edge is considered a **TRIED** strategy.
- The overall effectiveness of the safety edge treatment found in the FHWA's Safety Evaluation of the Safety Edge Treatment Study was small at around 6 percent; however, the safety edge treatment is so inexpensive that even with this small reduction in crashes it is highly cost-effective.

Safety Edge (2 of 2)

ROADSIDE

TYPICAL COSTS

Implementation Costs = \$500 to \$2,000 per mile

ROADWAY OPERATIONS

Installation of the safety edge does not affect roadway traffic operations.

DESIGN FEATURES

The safety edge is installed during paving using a special, commercially available shoe that attaches to existing equipment in just a few minutes. Typically, less than 1 percent additional asphalt is needed.

FHWA recommends grading the material that is adjacent to the pavement edge flush with the top of the pavement. The safety edge takes effect as the graded material settles, erodes, or is worn down.

The safety edge is also recommended for concrete pavements adjacent to graded materials. There are some additional costs and special considerations for concrete application.

BEST PRACTICE

Include safety edge installation as part of bid packages on all reconstruction and resurfacing projects.



The shoe that creates the safety edge

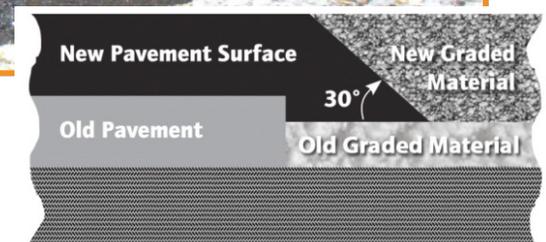


Diagram of how the Safety Edge is created

SOURCES

Safety Evaluation of the Safety Edge Treatment, FHWA-HRT-11-024. 2011. March.

Safety Evaluation of the Safety Edge Treatment, Year 1 Interim Report. 2008. University of North Carolina, MRI Project No. 110495.1.001. April.

The Safety Edge, FHWA Publication Number FHWA-SA-09-023.

The Safety Edge Brochure, FHWA Publication Number FHWA-SA-10-034.

"Effects of Pavement Shoulder Drops-Offs on Highway Safety." 1986. *TRB State of the Art Report 6*. John Glennon.



Safety Edge Policy

ROADSIDE

POLICY PURPOSE/INTRODUCTION

The purpose of this policy is to establish uniformity and consistency in the application of the safety edge on **<Insert Agency>**'s roadway system.

DEFINITIONS

The safety edge is a treatment that allows drivers who drift off roadways to return to the road safely. Instead of encountering a vertical dropoff, the safety edge shapes the edge of the pavement to 30 degrees. Vertical dropoffs greater than 2 inches have been found to cause drivers to lose control when attempting to re-enter the highway. The 30-degree angle allows drivers to re-enter the roadway safely and prevents the tire-scrubbing on vertical faces that causes vehicles to lose control.

POLICY

The policy of **<Insert Agency>** is to use the safety edge on all reconstruction or maintenance overlays with gravel shoulders or paved shoulders equal to or less than 4 feet wide.

POLICY CRITERIA

Design criteria for the safety edge can be found in MnDOT's technical memorandum titled "11-01-T-01—Pavement Edge Treatment—Safety Edge."

FINANCIAL CONSIDERATIONS

The additional cost of implementing the safety edge as part of a reconstruction or maintenance overlay project is associated with the less than 1 percent additional asphalt that is needed.