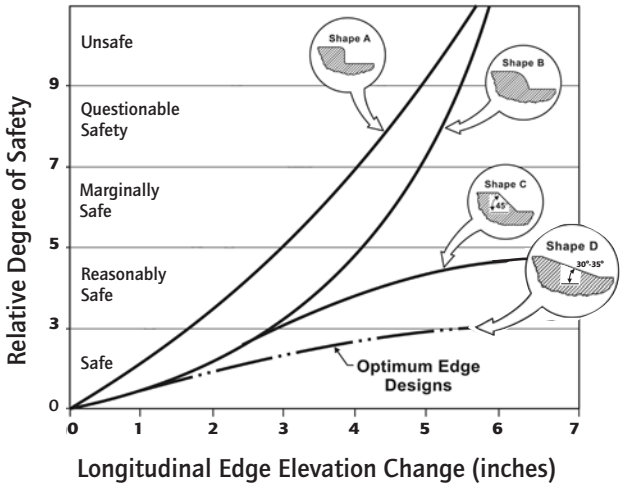
Relative Safety of Various Edge Elevations and Shapes

The chart below shows how various edge shapes relate to safety at speeds of up to 70 mph.



Graphic Source: Zimmer and Ivey, Texas Transportation Institute

The Safety Wedge Shoe is a special edging device that asphalt paving contractors can install on new or existing resurfacing equipment to shape the Safety Edge.

Contact the FHWA for More Information about the Safety Edge and other Roadway Departure Crash Countermeasures

For more information about Roadway Departure issues and effective countermeasures to prevent Roadway Departure crashes, go to the FHWA Office of Safety's Web site at **http://safety.fhwa.dot.gov/** and click on "Road Departure." FHWA contacts for technical assistance with the Safety Edge are listed below.

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1. Hallmark et. al: Safety Impacts of Pavement Edge Drop-Offs, AAA Foundation for Highway Safety, Washington, DC, September 2006.

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YOU CAN REDUCE PAVEMENT EDGE DROP-OFF HAZARDS

THE SAFETY EDGE

PAVEMENT EDGE TREATMENT

Saves Lives

Reduces Tort Liability

Reduces Maintenance Expense

Costs Less than 1 Percent of Pavement Resurfacing Budget

Safe Roads for a Safer Future
Investment in roadway safety saves lives

Pavement Edges Can Pose Serious Safety Hazards

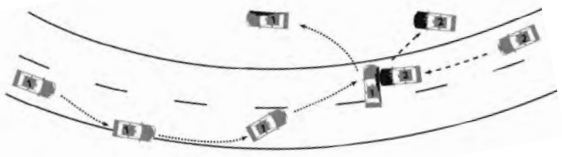
Run-off-the-road (ROR) crashes account for 58 percent of highway fatalities. While national data documenting the role of pavement edge configuration in the sequence of events leading to crashes are not available, some State-level studies sponsored by the AAA Foundation for Highway Safety point to the life-saving potential of safety edges. For example, researchers studying crashes in Iowa during 2002-2004 reported that pavement edges may have been a contributing factor in as many as 18 percent of ROR crashes, and crashes caused by pavement dropoffs resulted in fatalities more often than other types of ROR crashes.[1]

How Hazardous Pavement Edges Contribute to Crash Severity

A vehicle that has departed a paved surface can have difficulty re-entering the roadway if the pavement edge is vertical—especially if the edge of the pavement is significantly higher than 2" above the shoulder. When a driver drifts onto the roadway shoulder and tries to steer back onto the pavement, the vertical pavement edge can create a "tire scrubbing" condition that may result in over-steering. If drivers over-steer to return to the roadway without reducing speed, they are prone to lose control of the vehicle. The vehicle may veer into the adjacent lane, where it may collide with, or sideswipe oncoming cars; overturn; or run off the opposite side of the road and crash.

PHOTO SOURCE: FHWA

Sharp, steep pavement edge dropoffs can contribute to crashes.



This is a typical diagram for a crash caused by tire scrubbing. The vehicle at left scrubbed the edge of the pavement, and when it returned, the driver overcorrected, lost control, crossed into the adjacent lane, and struck an oncoming vehicle.

Graphic Source: AAA Foundation for Highway Safety

Increase Roadway Safety at No or Low Cost by Specifying the Safety Edge

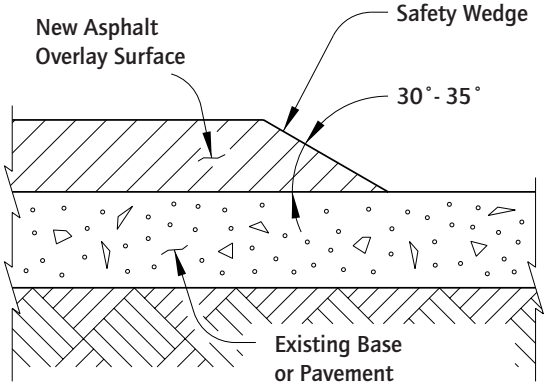
A simple and cost-effective way to promote pavement edge safety is to adopt a standard specification for all resurfacing projects that requires a 30° - 35° angle "Safety Edge" that interfaces with the graded shoulder.

Solutions to the Pavement Edge Drop-off Hazard

- Require a 30° - 35° angle asphalt wedge "Safety Edge" at the graded shoulder interface in asphalt resurfacing projects.
- Routinely resurface shoulders when roadways are resurfaced, and add the Safety Edge.
- Many highway agencies aim to maintain edge dropoff depths at 2" or less on high-speed highways.

The asphalt wedge provides a safer roadway edge, and a stronger interface between the roadway and the graded shoulder. The additional cost of the asphalt wedge is minimal when included as part of resurfacing projects. Benefits include the avoided economic and social impacts of fatalities, injuries, and property damage.

The placement of the asphalt wedge during resurfacing operations mitigates the hazard posed by edge dropoffs as soon as the paving machine lays down the asphalt mat, allowing the highway agency reasonable time to restore the shoulder.



Graphic Source: J. Pitzer