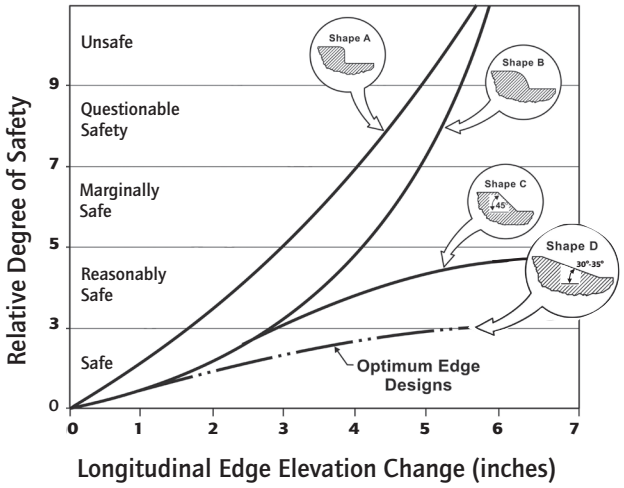
Relative Safety of Various Edge Elevations and Shapes

The chart below shows how various edge shapes relate to safety at speeds of up to 55 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 "Roadway 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-OFFS WITH 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 Risks

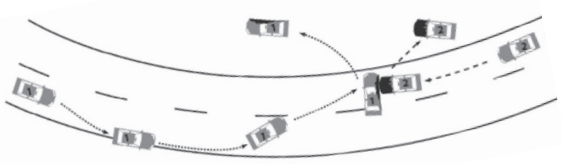
Roadway departures account for 53 percent of fatal crashes. While national data documenting the role of pavement edge configuration in the sequence of events leading to crashes are not available, some State-level studies point to the life-saving potential of safety edges. For example, researchers studying crashes in Iowa during 2002-2004 reported that pavement edges may have been a contributing factor in as many as 18 percent of rural run-off-road crashes on paved roadways with unpaved shoulders. This type of crash was four times more likely to include a fatality than rural crashes overall on similar roads.[1]

How Pavement Edges Affect Crash Severity

When a tire drops off a paved surface, sometimes just inches from the travel lane, a driver can have difficulty re-entering the roadway if the pavement edge is nearly vertical—especially if the height difference is significantly more than 2 inches. When a driver drifts off the pavement and tries to steer back on, the nearly vertical edge can create a "tire scrubbing" condition that may result in over-steering. If drivers over-steer to return to the paved surface without reducing speed, they are likely 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 roadway and crash.

Photo Source: FHWA

Sharp, steep pavement edge drop-offs 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

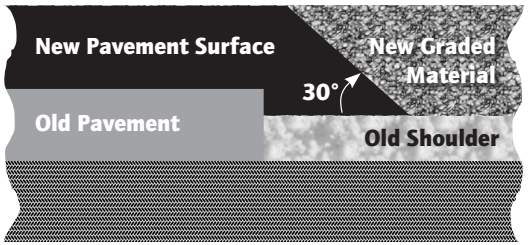
Increase Roadway Safety at No or Low Cost by Specifying the Safety Edge

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." After paving, the adjacent material is graded flush with the top of the pavement.

Solutions to the Pavement Edge Drop-off Risk

- Require a 30° - 35° angle asphalt wedge "Safety Edge" at the graded material interface in asphalt resurfacing projects.
- Routinely resurface shoulders when roadways are resurfaced, and add the Safety Edge.
- Maintain edge drop-off depths at 2 inches or less on high-speed highways.

The asphalt wedge provides a safer roadway edge, and a stronger interface between the pavement and the graded material. 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 risk posed by edge drop-offs as soon as the paving machine lays down the asphalt mat, allowing the highway agency reasonable time to restore the shoulder or other adjacent graded material.