THE SAFETY EDGE
A Pavement Edge Drop-Off Treatment

Roadway departures typically account for 53 percent of fatal crashes. State-level studies point to the life-saving potential of the Safety Edge. For example, researchers studying crashes in Missouri during 2002-2004 reported that pavement edges may have been a contributing factor in as many as 24 percent of rural run-off-road crashes on paved roadways with unpaved shoulders.

When a driver drifts off the roadway and tries to steer back onto the pavement, a 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 resulting crashes tend to be more severe than other crash types. The vehicle may veer into the adjacent lane, where it may collide with oncoming cars, overturn, or run off the opposite side of the roadway and strike a fixed object or overturn on a slope.

Inexperienced drivers are not the only victims of tire scrubbing. Smaller, lighter vehicles have a harder time climbing a steep pavement edge. At high speeds, the climb is particularly dangerous. According to in-service evaluators, a vertical or near vertical drop-off of 2.5 inches or greater has been shown to pose a significant risk, while pavements built with the Safety Edge showed reductions of more than 5 percent of total crashes.

What is the Safety Edge?

The safety edge is a simple but effective solution that can help save lives by allowing drivers who drift off highways to return to the road safely. Instead of a vertical drop-off, the Safety Edge shapes the edge of the pavement

A typical diagram for a crash caused by tire scrubbing
to 30 degrees. Research has shown that this is the optimal angle to allow drivers to re-enter the roadway safely. The asphalt Safety Edge provides a strong, durable transition for all vehicles. Even at higher speeds, vehicles can return to the paved road smoothly and easily.

**How does it work?**

A drop-off is created during most paving projects. Even when the unpaved shoulder is regarded to eliminate the drop-off, the edge often becomes exposed within a few months. The edge also may deteriorate.

The Safety Edge is an effective solution to reduce pavement edge-related crashes, by shaping the edge of the pavement to 30 degrees using a commercially available device (called a shoe) that can be attached to the paver. The asphalt is extruded under the shoe, resulting in a durable edge that resists edge raveling. Research has shown this 30-degree shape allows drivers to re-enter the roadway safely.

**Quick Facts about the Safety Edge**

- Can help decrease highway fatalities and serious injuries on our nation’s roads.
- Provides an additional level of consolidation on the edge; edge raveling is decreased, contributing to longer pavement life.
- Involves minimal time and cost to implement. Typically, less than 1 percent additional asphalt is needed.
- Best practice is to maintain a flush edge, so that no drop-off exists.
- Reduces roadway departure crashes, providing a safer transition back to the road.
- The Safety Edge shoe, which creates the edge, can be installed on existing equipment.
Safety Edge Implementation in Wyoming

The T² Center recently attended a Safety Edge workshop sponsored by FHWA. The workshop explained the technical and practical aspects of the Safety Edge Shoe, and participants were able to observe an actual pavement job using the Safety Edge.

WYDOT was first to use the Safety Edge Shoe in Wyoming. Recently, they used it on WYO Highway 91, Cold Springs Road, between mile posts 3 and 8. The road, located South of Douglas in T.32N, R.72W, is considered a rural collector. It was initially paved in the 30’s or 40’s and has a 24 foot top width with no shoulders.

The road is experiencing a high volume of truck traffic due to a quarry near mile post 8. Other traffic on the road is agricultural, recreational, and there is a rural school south of the project. The contractor was Concrete Foundations, Inc (CFI). After paving with the Safety Edge, material will be flush with the top of the pavement.

Use of the Safety Edge could be very beneficial for narrow rural county roads. The T² Center has a Safety Edge Shoe to loan for projects around the state. The Center would be happy to assist agencies in implementing this “Every Day Counts” technology.
The national Local Technical Assistance Program mission is to foster a safe, efficient, and environmentally sound surface transportation system by improving skills and increasing knowledge of the transportation workforce and decision makers.