

Proven Safety Countermeasures

Safety Edge_{SM}

The Safety Edge_{SM} is a proven technology that shapes the edge of a paved roadway at approximately 30 degrees from the pavement cross slope during the paving process. The Safety Edge_{SM} eliminates tire scrubbing, a phenomenon that contributes to losing control of a vehicle. It has been successfully constructed on both asphalt and concrete pavements. The Safety Edge_{SM} has minimal impact on project cost combined with the potential to improve pavement life.



Background

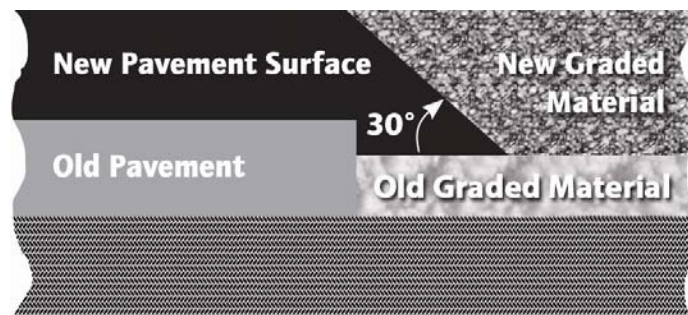
Vertical pavement edges are a recognized detriment to safety, contributing to severe crashes that frequently involve rollovers or head-on collisions. Studies in some States find that crashes involving edge drop-offs are two to four times more likely to include a fatality than other crashes on similar roads. Providing a flush, unpaved surface adjacent to the pavement resolves the issue temporarily, but the material is often displaced over time, recreating the dangerous drop-offs either continuously or intermittently along the pavement edge. Research in the early 1980s found a 45 degree pavement edge somewhat effective in mitigating the severity of crashes involving pavement edge drop-offs. However, constructing a durable edge was not perfected until the 1990s, and during development it was found that a flatter, 30 degree angle was easier to construct. Additional testing indicated that the 30 degree edge improved the chances of a safe recovery.

The Safety Edge_{SM} is one of the innovative technologies being deployed as part of FHWA's Every Day Counts initiative. The majority of State DOTs have built at least one project using the Safety Edge_{SM}, and approximately a dozen State DOTs now include it as a standard practice when paving.

An empirical Bayes evaluation published in the report Safety Evaluation of the Safety Edge Treatment (FHWA-HRT-11-024) indicates that the application of Safety Edge_{SM} led to an estimated reduction of 6 percent in total crashes on two-lane highways. Because of the low cost of the Safety Edge_{SM}, the benefit-cost ratio on two-lane roads ranges from 4 to 63.

Guidance

States should develop standards for implementing the Safety Edge_{SM} for all asphalt paving projects without curbs. Standard application should also be encouraged for concrete pavements. Local agencies should be



encouraged to use the Safety Edge_{SM} on their paving and resurfacing projects as well. For asphalt pavements, it is important to provide compression as the asphalt is shaped to produce a durable edge. This can be readily attained using a specially designed device. Shoulders should still be pulled up flush with the pavement surface at project completion.

Key Resources

The Safety Edge: A Pavement Edge Drop-Off Treatment, FHWA-SA-10-034

<http://www.fhwa.dot.gov/everydaycounts/technology/safetyedge/brochure/brochure.pdf>

FHWA Guide Specification for the Safety Edge

<http://www.fhwa.dot.gov/everydaycounts/technology/safetyedge/specs.cfm>

Frequently Asked Questions about the Safety Edge

<http://www.fhwa.dot.gov/everydaycounts/technology/safetyedge/faqs.cfm>

Safety Evaluation of the Safety Edge Treatment, HSIS Summary Report, FHWA-HRT-11-025

<http://www.fhwa.dot.gov/publications/research/safety/hsis/11025/>

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

<http://www.fhwa.dot.gov/publications/research/safety/11024/>

Influence of Roadway Surface Discontinuities on Safety, State of the Art Report, Transportation Research Circular, Number E-C134

<http://onlinepubs.trb.org/onlinepubs/circulars/ec134.pdf>

Safety Impacts of Pavement Edge Drop-offs

http://www.aaafoundation.org/pdf/PEDO_report.pdf

Construction of a Safe Pavement Edge: Minimizing the Effects of Shoulder Drop-off

<http://www.transtechsys.com/pdf/trb%20swm.pdf>

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FHWA Web site: <http://www.fhwa.dot.gov/everydaycounts/technology/safetyedge>