The safety edge calls for a tapered edge between the pavement and the graded shoulder.

Inside This Issue:

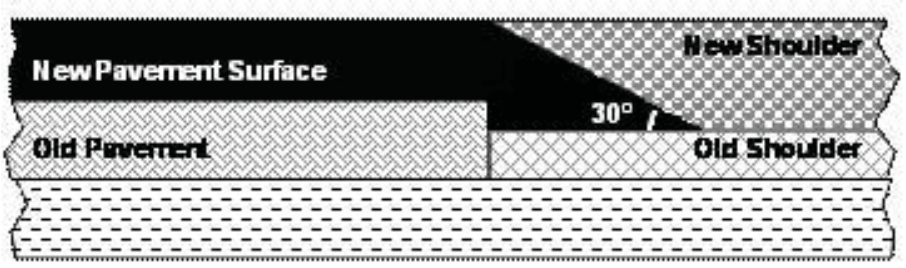
Safety Edge Catches On as Life-Saving Technique

An asphalt paving technique called the safety edge is gaining momentum across the country as state transportation departments strive to protect motorists from run-off-the-road crashes. The Federal Highway Administration recommends that states use the safety edge technique—particularly on two-lane roads with unpaved shoulders.

The safety edge calls for the interface between the roadway pavement or paved shoulder and the graded shoulder to be paved at an optimal angle to minimize vertical drop-off and provide a safer roadway edge. In other words, the edge of the pavement tapers down into the shoulder instead of dropping off vertically. The recommended angle of the taper is about 30 to 35 degrees from horizontal.

The newest Highways for LIFE Vanguard Technology, the safety edge is not an extra procedure, but merely requires a slight change in the

continued on page 2



On the safety edge, the pavement tapers upward from the edge at a 30-to 35-degree angle.

paving equipment and has little impact on project costs. In addition, the safety edge improves the consolidation of the pavement near the edge, enhances pavement durability, and mitigates pavement drop-off until the contractor can pull the graded shoulder up over the tapered edge.

The Vanguard Technology initiative uses dedicated teams, marketing techniques and designated funding to deploy high-payoff innovations quickly and broadly. The safety edge team is developing a marketing plan with goals, implementation tactics and communication tools to move the technology into mainstream use across the country. Other Vanguard Technologies are road safety audits, prefabricated bridge elements and systems, precast concrete pavement systems and techniques for making work zones work better.

Fewer Fatalities

"We believe the safety edge is a focused solution that will reduce fatalities on rural two-lane roads where run-off-the-road crashes are most prevalent," said Chris Wagner, pavement and materials engineer at the FHWA Resource Center. "The safety edge also shows great promise in increasing the durability of the outside pavement edge, thereby increasing the service life of the pavement."

Wagner estimates that the safety edge has been used by about 15 state departments of transportation, including those in Alabama, California, Georgia, Indiana, Iowa, Missouri, New York, Texas and Utah. "We recently completed a demonstration project in Iowa, and they now want to use it on two more projects," said Wagner. "And the Georgia DOT uses it on all their overlay projects."

Crash data show that roadway departures account for 53 percent of fatal crashes. When a tire drops off a paved surface, sometimes just inches from the travel lane, a driver can have difficulty reentering the roadway if the pavement edge is nearly vertical—especially if the height difference is significantly more than 2 inches (50.8 millimeters). When the driver drifts off the pavement and tries to steer back on, the nearly vertical edge can cause "tire scrubbing," a condition that may result in oversteering. The driver can lose control of the vehicle and crash into oncoming traffic, roll over or hit a fixed object.

Safety Edge Evolution

The safety edge concept was developed in 2003 through discussions between Wagner and Frank Julian of the FHWA Resource Center's Safety and Design team. Previous research by a Texas Transportation Institute team led by Dr. Don Ivey indicated that a tapered transition between the paved roadway and the unpaved shoulder would help errant vehicles maintain control as they reenter the travel lane.

Wagner and Julian began formulating ideas on how to create such a tapered edge at the pavement–graded shoulder interface. Wagner had experience at the National Center for Asphalt Technology with using a tapered wedge concept to create longitudinal joints in asphalt pavements along the lane line joint. That experience provided a starting point for developing the safety edge.

At that point, Wagner and Julian began partnering with the Georgia DOT Office of Maintenance. Office staff such as Director Bryant Poole and Project Manager Lynn Bean were involved in the design and planning of a project to study the constructability of a safety edge on a resurfacing project.

Poole was instrumental in planning and coordinating the project, and Bean was a key player in building the project and developing the hardware the Georgia DOT used to form the safety edge. Industry was also a partner in the concept, and two companies now produce and sell a shoe that attaches to the paver and forms the safety edge.

For more information on the safety edge, go to safety.fhwa.dot.gov/roadway_dept/pavement/fhwasa09023.

You can also contact Frank Julian at (404) 562-3689 or frank.julian@dot.gov, Chris Wagner at (404) 562-3693 or christopher.wagner@dot.gov, or Cathy Satterfield at (708) 283-3552 or cathy.satterfield@dot.gov.