Kansas
LTAP Fact Sheet
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Safety Edge: Reports from the Field

By Lisa Harris

In the last year, Kansas LTAP has been loaning a Safety Edge "shoe" attachment to agencies interested in trying the technology on a paving project. The shoe creates a consistent wedge on the edge of the pavement at an angle proven to help vehicles recover back to the travel lane if they veer off the pavement. Experiences using the LTAP loaner shoe have been mixed, and mostly positive. In this article we'll profile those experiences and share lessons learned.

KDOT District 3. LTAP's safety shoe was first used by KDOT about a year ago on a project in District 3 in Norton County. That project had some technical problems, but it provided some good lessons learned.

The soil was moist and soft at the edge of pavement, which posed a problem. In order to maintain the desired paved shoulder width, the Safety Edge was placed on the soil. The paver end gate and shoe were lowered to come in contact with the soil, but both the paver end gate and the shoe plowed soil into the pavement wedge. To avoid this problem, the shoulder width was reduced so that the Safety Edge wedge would be constructed on the underlying asphalt. The edge shape was constructed satisfactorily. However, the contractor did not lower the paver's end-gate to contact the ground due to concerns about plowing soil, and this resulted in excess asphalt material outside the wedge (see photo at right).

Another consideration in the project was time. The project was done in the fall when paving conditions are highly variable and many times less than desirable. The contractor wanted to get as much production as possible each day, so additional fine-tuning with the shoe was not pursued.

FHWA

Problems in trying to work with soft soil conditions on a KDOT job resulted in excess paving material beyond the wedge.

Riley County

Safety Edge on a 2012 paving project in Riley County.

Miami County. Jeff McGuire, road supervisor for Miami County, reported great success in using the safety shoe. They used it to re-lay asphalt near railroad crossings on roads with paved shoulders. This was the first time the county had used a safety edge treatment of any kind. "The visual effect is really nice," said McGuire. "There is no straight up and down edge."

The only disadvantage to using the Safety Edge for Miami County, according to McGuire, is that it can't be used on their current paver on most of their county roads, because of the narrow width of the roads. They would need a narrower paver. Their 10 ft Caterpillar paver is too wide to accommodate the extra width needed to create the edge and retain the width of the pavement in the process. McGuire said that the shoe was easy to install on their paver and he would recommend it to any agency that has the ability to use it.

Johnson County. A contractor for the county, McAnany Construction, used LTAP's safety shoe on their 8 ft Caterpillar paver for 2-1/2 weeks in July 2012 on several paving projects. The shoe installed easily on their paver.

The company had used another kind of safety edge treatment in the past, but not recently.

Eric Wilson, general supervisor for the company, said their experience of using the shoe "was OK," but he's not a big fan. They did not add extra width to the pavement to create the edge, so they ended up making the driving surface more narrow during laydown. Wilson said he thinks that could have the effect of pulling vehicles off the road. In his opinion, it's better to have a higher, straight drop-off on a slightly wider pavement. [Safety research says otherwise, however.]

Wilson has no particular advice for agencies considering using the shoe, and he said he would definitely use it again if it were spec'd.

Riley County. Riley County used the safety shoe on a county road in May 2012. Rod Meredith, assistant public works director (now retired), said the edge produced on by the shoe works well for vehicle recovery after a road departure. "I tested it several times, including a test with the county commissioners in the vehicle," he said.

Meredith had an experience similar to Miami County with their 10 ft paver. He said "The problem with this particular model [of shoe] is we gain 12 inches of screed width that we can't avoid. The [shoe] will not let us close our 10 ft screed to the minimum width we need for most of our roads. To have a little flexibility in the lane we are paving, we need to be able to bring our screed in to 10 ft to match the centerline or changes in road width. With this [shoe] we can only come in to 11 ft. That means we can only use this brand of Safety Edge shoe on roads that are wider than 24 ft. Most of ours are 24 ft wide or less."

Meredith also noted that having two shoes would have been helpful—one on each side of the screed. "We frequently switch sides of the road to bring the lanes up equally. This is not handy to do since the brackets have to be reversed to change sides," he said.

Riley County is looking for a Safety Edge shoe model that fits inside their screed so they can have full range of mobility.

Coffey County. Coffey County used LTAP's safety shoe on all their asphalt overlay projects, about 12 miles total, this past June. Wayne Blackbourn, county engineer, is very pleased with the results and enthusiastic about the technology. He has added the Safety Edge to the county's paving specs. Their contractor used the shoe on a 10 ft paver on 24 ft roads with no problems. Blackbourn said the contractor was impressed with the Safety Edge as well, and plans to make it a part of how they do business.

In the past the county spec'd a chain-dragged edge. Blackbourn thinks the Safety Edge is better in terms of creating a smooth, uniform slope.

"Other local agencies need to see how simple it is," Blackbourn said. "That, in itself, will result in more use of the Safety Edge." He particularly recommends a Safety Edge for projects where additional shoulder work is not planned. "It's definitely the way to go," he said.

Conclusion

LTAP's Safety Edge shoe has been used in a variety of situations to date, with mostly positive results, and a few lessons learned. The counties and contractors that have tried it found it easy to install on their pavers. The width of the paver in relation to the road is something to consider when deciding whether to use the shoe. (To give our Safety Edge shoe a try in your area, call Pat Weaver at 785-864-2595 and request to borrow it.)

For more information on the Safety Edge technology, visit FHWA's webpage on the topic at http://www.fhwa.dot.gov/everydaycounts/technology/safetyedge/intro.cfm. ■

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Coffey County

Advant-Edge

Left, *Coffey County and their contractor were impressed with the edge created by the loaner shoe. The county has added the Safety Edge to their paving specs.* **Right,** *example of the type of shoe loaned by Kansas LTAP.*

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Sources:
- Federal Highway Administration PowerPoint presentation on the KDOT District 3 project.
- Interviews: T. Scott 12-7-12; J. McQuire 12-10-12; E. Wilson 12-10-12; R. Meredith 7-2-12; W. Blackbourn 12-20-12.