FINANCE AND COMMERCE

Improving safety on bridges in Minnesota

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Dolan Media Newswires

MINNEAPOLIS, MN -- The collapse last month of the I35W bridge in Minneapolis highlighted critical issues with bridge stability in Minnesota and across the country.

That's understandable.

But that's not the only issue regarding bridges and safety in Minnesota and anywhere else: The number of vehicular accidents on bridges is another.

And a new road-surface product from Minnetonka-based Cargill is showing great results in improving winter driving conditions on four test bridges in Minnesota that are prone to ice-related accidents.

In fact, Cargill announced last week that a test bridge in Hibbing reduced its accident rate to zero last winter, on a stretch that had previously averaged eight to 10 crashes per year.

John Bray, a spokesman with the Minnesota Department of Transportation, said the improvements he has observed on Highway 169's Mitchell Bridge in Hibbing have been remarkable.

"If this material works as well as Cargill's experience so far has shown it to work, this could be the biggest thing for winter maintenance in the 'snow belt' since the snow plow," Bray said.

The key ingredient in SafeLane is a special aggregate material that can absorb de-icing chemicals and release them when ice begins to form on the bridge surface.

It's applied to a bridge deck by a glue-like epoxy and behaves like a "hard sponge" that can retain de-icing salts in its pores.

The bridge structure is shielded from the corrosive nature of the chemicals by the epoxy, which forms a strong barrier on the deck surface and may even increase deck strength.

Cargill licensed the proprietary aggregate, which was developed at Michigan Tech University (in Houghton, Mich.), and first tested the product in 2003 on the Wolf River Bridge in Crandon, Wis.

The Hibbing bridge test began last July, when Minnesota joined two dozen state DOTs nationwide now testing and evaluating SafeLane.

This summer, three more Minnesota bridges were outfitted with the aggregate: in Barnesville, Alexandria and Bemidji.

Bob Persichetti, general manager of Cargill's SafeLane business unit, said close to 50 installations will be completed nationwide by the time the snow flies this winter.

And yet for all its promise, SafeLane remains a little-known program relegated to DOT test sites.

Cargill officials are working on a smaller-scale version of the material that could be used on parking lots, driveways and manufacturing facilities; that product should hit markets within a year or two.

But Cargill's main focus will continue to be state agencies, which could prove to be very lucrative clients as new funding flows to bridge safety programs.

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Improving safety on bridges in Minnesota (continued)

The primary advantage of SafeLane is that de-icing material can be sprayed before icy conditions exist. That's particularly helpful in the fall, when an unexpected freeze can create bridge ice and send unsuspecting drivers into the rail or worse.

On the four-lane Mitchell Bridge, officials used the northbound side as a control and found that the southbound lanes remained clear of ice for the majority of the winter.

The ice that did form didn't bond to the pavement and was easily removed by snow plow.

Bray noted that last winter was particularly mild for Minnesota, but the results mirror the findings in other states over the past several years.

The main question that Cargill still needs to address is determining exactly how long workers should wait to reapply de-icing chemicals.

However, some of the test sites in Wisconsin have shown that chemical applications could be reduced from twice weekly to once every two weeks while still reducing the number of accidents on the roadway, according to Persichetti.

"We think it's going to provide for a great deal more efficiency in the amount of chemical used," he said.

Indiana officials reduced the total amount of chemicals used on a test bridge by 50 percent last winter, though Persichetti expects that figure to vary depending on the location.

"If they can find a way to help us make our bridges safer, which will also help us reduce our costs, this could be a product that could have marketability all across the entire upper half of the United States," Bray said.

SafeLane is being tested in 24 of the 38 states considered part of the "snow belt."

Persichetti said he anticipates the product being widely adopted in some states within a few years, as the growing body of test data has piqued the interest of engineers nationwide.