



Decatur Road, Cass County, 2019. The top half of the road has been treated with a soybean additive.

Cracking the case: Cass County uses soybeans to rejuvenate roads

You've heard of soymilk. You've heard of soy sauce. But did you know soybeans are being used in asphalt?

Soybeans are a key component of BIORESTOR®, which is sprayed on roads in liquid form and absorbed into the asphalt surface to act as a rejuvenator. It re-softens pavement that has been hardened by the asphalt production process.

The Cass County Road Commission (CCRC) began using this innovative technology in 2015 and has applied the road treatment every year since. Their first project – a 2½-inch overlay on a two-mile stretch of Decatur Road – was a success.

"We'd been experimenting and looking at other treatment alternatives," Joe Bellina, PE, CCRC chief engineer, said. "The standards are thin overlays, asphalt overlays and chip seals. We wanted to see if there were any other marketable items that would suit our purposes and give us additional longevity in our pavement life. At the same time, we wanted it to be cost effective and friendlier to the motoring public."

At two-thirds the cost of standard chip seal, the soybean-based rejuvenator was a winning solution. CCRC has already seen a reduction in cracking and raveling on the surface layer of asphalt.

"So far the product has done exactly what we hoped it would do," Bellina said. "We'll continue to evaluate as we make our secondary applications to see if this product maintains its life."

Best of both worlds

CCRC performed a series of water infiltration tests to make sure BIORESTOR® was keeping the pavement sealed and blocking water from getting in.

Bellina noted that in the first year of application, CCRC didn't see the kind of cracking they'd find in a normal surface roadway. "The cracking was far less prevalent and less water was coming back through from the underlying pavement," he said.



According to Lisa Harris, owner of Roadway Bioseal, CCRC's supplier, BIORESTOR® is known for enhancing asphalt performance properties and longevity.

Compared to traditional sealants, the pavement rejuvenator has also performed well in terms of visual appeal.

"This road treatment is a clear substance, so it doesn't affect the appearance of the roadway," Bellina said. "It keeps the pavement a little darker than the normal oxidation process as viewed by the traveling public, but unlike seal coat or chip seal, there isn't a visible difference. I think so far it's a little more friendly to the traveling public than some of the standard procedures."

Looking to the future

The Jackson County Department of Transportation (JCDOT) is also testing out the product; after extensive research, they

began their first project in fall 2019. Like CCRC, JCDOT was looking for alternatives to the traditional chip seal.

"Our research has shown that bio-based rejuvenator helps with pavement aging and softens the binder and asphalt," **Bret Taylor**, PE, JCDOT senior civil engineer, said. "We're pretty confident it's going to work here, too."

JCDOT's goal is to treat 35-40 miles of road; in 2019, they completed 18.6 miles. The department has plans to continue the process this year.

In Cass County, Bellina is pleased with the results so far.

"Any product we can use that can cut down the cracking and prevent water infiltration into the pavement at a reasonable cost is helpful to our roads and the public as a whole," Bellina said. "If we can reduce water infiltration and lengthen the lifespan of the treatments we apply, that's all for the better." 

 *Truck applies material to road.*

