In Northeast, Contractor indus Applies Bio-Based Rejuvenating Fog Seals

BY MICHELLE GARRETT

Pavement preservation has long been a challenge for many municipalities striving to prolong the life of their roadways. Challenges range from environmental concerns, to the inconvenience of temporarily closing roadways, to selecting the right treatment for the job.

To extend the life of asphalt, pavement rejuvenating products sometimes are applied. indus, a provider of pavement and bridge preservation services working with municipalities, state and federal agencies, airports and general contractors for 65 years, has been applying a bio-based rejuvenating fog seal to existing asphalt in New England towns for the past several years with strong results.

PLACEMENTS NEARLY DOUBLE

indus increased its placement of the rejuvenating fog seal from just over 250,000 sq. yd. in 2021 to almost 450,000 sq. yd. in 2024. It projects the product will be used on 500,000 to 550,000 sq. yd. in 2025.

One of indus's projects involves **Agawam, Mass**. The city tried a small 15,000 sq. yd. project in 2023 and found the results so favorable when compared to the asphalt-based material it had tried that it increased usage to a 45,000 sq. yd. project in 2024.

The bio-based rejuvenator, *Delta Mist*, is a liquid, plant-based asphalt rejuvenator product that penetrates the surface and softens the asphalt binder to improve cohesion, while retarding crack propagation of the pavement surface.

Two of indus's Massachusetts clients have used the product annually for the past three years, including **Lexington** and **Bedford**, with several other municipalities such as **Westfield, Mass.** choosing to use it two of the past three years. **Concord, Mass.**, switched from using an asphaltic-based treatment to bio-based in 2024.

In the last three years, indus has applied the rejuvenator from as far south as **Harrison, N.Y.**, to as far north as **Montpelier, Vt.**

REDUCING GREENHOUSE EMISSIONS

Further, Massachusetts has a carbon emission reduction goal, as do all states in the Northeast. Its *Next Generation Roadmap Act* was signed into law in 2021, requiring the state to reduce greenhouse gas emissions by at least 50 percent by 2030 and reach net zero emissions by 2050.

Bio-based pavement preservation products favorably impact emissions because they require less material and energy to implement, and expand the life of existing roadways so that they don't need to be replaced as often.

Full reconstruction projects equate to a greater impact on carbon emissions. Preservation is considered a more sustainable approach.

BIO-BASED BENEFITS

As indus's experience shows, a bio-based pavement rejuvenator is a cost-effective approach to prolonging the life of asphalt. The earlier it's applied, the more value it brings, as it prevents deterioration by

Bio-based rejuvenator is applied in Lexington, Mass.

Westfield, Mass., has specified the bio-based rejuvenator in two of the last three years

INDUS

indus applies bio-based rejuvenator via distributor truck

Delta Mist is applied in Bedford, Mass.

protecting the pavement from moisture and UV rays.

The result is that rejuvenators cost-effectively extend pavement life. The major benefit of applying the rejuvenating seal is that it improves the flexibility of the asphalt surface by reversing the effects of oxidation in the asphalt binder and slowing the rate of aging.

It corrects pavements exhibiting minor segregation, raveling and poor compaction, while protecting the pavement surface from moisture intrusion and the effects of oxidation.

The pavement rejuvenator is best used to seal pavements ranging from one to four years old to extend their lives before wearing course seals are required. This improvement may delay the need for major maintenance or rehabilitation.

Not only does the rejuvenator improve road safety by enhancing color contrast between the pavement surface and road markings, but retroreflectivity measurements from centerline striping on the NCAT test track confirm this product is safe to be applied on roadways with statutory or posted speed limits of 70 mph or greater.

"Customers are finding this product provides value," said indus spokesperson Art Baker. "City officials are requesting to use it again and again because it's a good product. It's not just green or environmentally friendly; it's overall the best choice — societally, environmentally and fiscally."

According to Baker, bio-based rejuvenators assist with three types of asphalt distresses.

- **They prevent raveling.** Raveling is the most common type of pavement damage. This is when the individual aggregate particles contained in the pavement surface begin to dislodge and break free from the asphalt binder, causing a rough, uneven surface with loose gravel, and ultimately leading to the breakdown of the entire asphalt layer if left unaddressed. The rejuvenators improve cohesion, which helps reduce raveling.
- **They keep rain and snow** melt water out of the asphalt. Rejuvenated pavements shed moisture off the asphalt so that it doesn't seep in and start to deteriorate the pavement faster.
- **They slow the effects** of ultraviolet rays from deteriorating the asphalt. UV rays are the top factor to consider in pavement deterioration. Rejuvenated pavements slow that damage significantly, working like sunscreen for the asphalt.

"Some in the industry are used to waiting until the pavement falls apart to act," Baker continued. "Using a product like this requires them to take a leap of faith to do a treatment they're not used to.

"They're being asked to consider protecting pavement they've recently laid down, which involves doing work on the same road they've just recently worked on," Baker said "It's hard for them to make that leap to accept treating a newer road. But the minute they do it, they're saving money in the longer term. They're immediately preserving the road and saving money for the future, very similar to sealing your driveway at home."

Baker says municipalities that use bio-based fog seals could rejuvenate their asphalt within one year. "The earlier in the life of the asphalt you apply, the bigger benefit you receive," Baker says. "While you could use it on a road that's two to five years old, the sooner you apply it, the more benefit you'll see."

Edited from material contributed by Delta Mist of Collaborative Aggregates. Michelle Garrett is a freelance writer