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Asphalt & Emulsions

SUCCESS STORY

Rejuvenating Fog Seal Extends Pavement Life in the Northeast

CHALLENGE

Demonstrate the benefits of using rejuvenating fog seals as a cost-effective pavement management tool.

SOLUTION

Execute an insitu research project comparing the effects of applying timed rejuvenating fog seal treatments to the same pavement structure receiving no treatment.



LOCATION

Granite Street in Braintree, Massachusetts



DISTRESS

N/A – Fog seal case study following mill-and-fill



TRAFFIC

Approximately 20,000 ADT; 10% trucks



AGENCY

Town of Braintree, Massachusetts



CONTRACTOR

indus



SUPPLIERS

Ergon Asphalt & Emulsions and Suit-Kote (eFog)

Background: Agencies unfamiliar with the concept of pavement preservation typically take the “fix the worst first” approach to treating roads within their network. indus (formerly Sealcoating, Inc.), headquartered in Braintree, Massachusetts (just 12 miles south of Boston), has embarked on a journey to promote a different, more cost-effective approach – the strategic and systematic application of pavement preservation treatments over time to improve road conditions in the Northeastern U.S.

Challenge: As part of their commitment to promoting pavement preservation in the Northeast, indus set out to prove to agencies, including the Town of Braintree, the long-term cost-savings and performance benefits of applying regular surface treatments such as rejuvenating fog seals.

Historically, many road owner agencies in the Boston metro area and throughout the region would utilize mill-and-pave/mill-and-fill techniques every 10 to 12 years to address roadway distresses brought on by aging, traffic and environmental factors. That is, until indus representatives helped enhance the Town’s understanding of the concept of pavement preservation and various options available to improve road performance and cost-effectively extend service life. One of those options presented was rejuvenating fog seal.

Upon learning more about the benefits of fog sealing from long-time industry resource, Ergon Asphalt & Emulsions’ (Ergon

A&E) Scott Metcalf, indus approached the Braintree Engineering Department with what would become a years-long case study examining the impact of rejuvenating fog seal applications, including how they help delay the need for more costly maintenance over time. The Town Engineer agreed to allow indus to test the potential value of fog seals on a quarter-mile segment of Granite Street, a heavily trafficked road right around the corner from indus headquarters, applying the treatment every three years until the need for more costly maintenance presented itself. An overview of the application and present-day results follows.

eFog Rejuvenating Fog Seal Case Study

In September 2015, northbound and southbound lanes of Granite Street received a 2” HMA mill-and-pave. Indus planned to apply a fog seal the following year and then every three years thereafter to the southbound lane of the quarter-mile test segment. The northbound lane would be left untreated, allowing indus and the Town Engineer to compare the condition of treated versus untreated roadway sections.

Ergon A&E’s eFog rejuvenating fog seal was the emulsion selected for this study. Part of Ergon A&E’s exclusive eSeries product line, eFog helps restore essential elements to asphalt pavements that are lost due to the aging/oxidation process. “It’s like sunscreen for your road,” said Metcalf. “It reduces oxidation, kind of like sunscreen helps prevent burns to the skin.” Additionally, eFog helps prevent raveling caused by oxidation and can be used as a cold pour crack filler. Agencies see a typical life extension of 2-4 years for pavements treated with a single application of eFog.



As a leading industry resource committed to improving infrastructure across the U.S., Ergon A&E was happy to be part of this endeavor to not only highlight rejuvenating fog seal, but to show agencies how pavement preservation techniques can help make the best use of road budgets.

Application Highlights

In 2016, eFog, supplied by Ergon A&E, was applied on the southbound lane of Granite Street at a rate of 0.10 gallons per square yard. Three years later, eFog was applied to the same southbound section at 0.08 gallons per square yard and then again in 2022 at 0.08 gallons per square yard. Suit-Kote, a vertically integrated asphalt emulsion manufacturer, applicator and engineering/technical services company licensed to manufacture and sell eFog throughout the Northeast, provided the emulsion utilized for the 2019 and 2022 applications.

Results

Results to date clearly show eFog has delayed the need for milling and repaving. A comparison of treated versus untreated sections of Granite Street, seven years after the initial mill-and-pave, reveals noticeably more raveling and fine aggregate loss in the untreated lane than the treated lane. Whereas the Town of Braintree would expect to mill and pave aged and distressed pavements every 10 to 12 years, if not sooner, the treated section of Granite Street is showing no signs of the need for such invasive and expensive measures.

Additionally, a snowstorm highlighted another benefit of rejuvenating fog seal as a surface protection solution that helps prevent moisture intrusion. Following the storm, indus noted the treated southbound section of Granite Street dried much faster than the untreated northbound section. This is an important distinction as moisture in pavement, especially in a freeze-thaw environment like the Northeast, leads to accelerated deterioration.

"We have witnessed raveling occurring in new asphalt pavements very soon after their installation. With eFog rejuvenating fog seal, we have been able to help our clients slow this pavement distress and, in several cases, prevent raveling from occurring when applied early. As pavement managers search for cost-effective methods to maintain their asphalts, we have found eFog to not only extend the life of their pavements, but to do it at a very low equivalent annual cost."

– Art Baker, Client Services Manager for indus

The eFog applications and case study will continue every three years until the need for more in-depth treatment arises. The more times indus can successfully reapply eFog while achieving exceptional performance, the better for making the case for the use of rejuvenating fog seals as a cost-effective method for maintaining roadways in the region.

In addition to eFog, Ergon A&E offers conventional and high-performance fog seal emulsions for various road needs. Visit ergonasphalt.com/locations and contact one of our expert team members to learn how we can put our fog seal products to work for you.

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