

SUCCESS STORY

# **Rejuvenating Scrub Seal Overcomes Cold Weather to Protect Texas Roads**

900-8813

...



SCAN FOR MORE ROADWAY SUCCESS STORIES.

## CHALLENGE

Protect new road base during winter months.

### SOLUTION

eScrub rejuvenating scrub seal emulsion



LOCATION

in Texas

PROBLEM

Amarillo District Needed to protect new road base

Farm-to-market roads (low volume)

TRAFFIC



Texas Department

of Transportation



CONTRACTOR

(in-house crew)

Texas Department of Transportation



SUPPLIER

Ergon A&E eScrub

BACKGROUND: Farm Road 1057, in Deaf Smith County, Texas, had suffered severe edge damage due to heavy trucking and farm equipment used to transport silage and dairy products, requiring immediate widening of the road with a flexible asphalt base (flex base) to prevent further deterioration. Not only was a wider road more suitable for the large transportation vehicles, but flex base also provides the necessary movement in the pavement to resist cracking. A seal coat (chip seal) typically would be applied over the newly added base to serve as a protective barrier and enhance the road's appearance and texture. The application of this treatment is relatively uneventful; however, the flex base was placed during the winter, which is not ideal for traditional chip seal applications. The asphalt binder in a standard chip seal emulsion becomes stiffer in cold temperatures, preventing optimal adhesion of the chip seal aggregate and resulting in raveling.

**SOLUTION:** Faced with having to find an alternative cool-weather chip seal, the Texas Department of Transportation (TxDOT) determined a rejuvenating scrub seal emulsion would ensure enhanced protection and durability of the added base layer against moisture intrusion from ice and snow accumulation during the winter months until a final chip seal could be applied in warmer temperatures. The rejuvenating emulsion binder does not stiffen in cold temperatures thereby reducing the risk of significant aggregate loss. Thanks to Ergon Asphalt & Emulsions' (Ergon A&E) Tracy Cumby, TxDOT was already aware of the successful use of rejuvenating scrub seal emulsion on previous winter projects in Texas and wanted to put the treatment to the test on Farm Road 1057.



#### THE RIGHT TREATMENT

Ergon A&E's eScrub, CMS-2P, was the rejuvenating scrub seal emulsion selected for use on this chip seal project. Utilizing the eScrub rejuvenating scrub seal would provide greater protection of the base layer until the final chip seal could be applied. Additionally, eScrub's use of specific polymer modification and a rejuvenator allows for improved chip adhesion, reducing the chances of raveling due to application in colder weather.





#### A ROCKY SITUATION

In January 2024, after completing the base work on Farm Road 1057, TxDOT applied eScrub as a chip seal. During typical eScrub applications, emulsion is scrubbed into the cracks of a distressed road using a broom sled, followed by the application of aggregate, which is then compacted using a pneumatic roller. However, in this instance, the scrub seal emulsion was applied similarly to conventional chip seal, which does not require a broom sled. On Farm Road 1057, the initial application proved challenging, with aggregate becoming dislodged from the emulsion. To address this issue, Tracy Cumby, along with other Ergon A&E team members, worked closely with TxDOT to experiment with different application rates and temperature ranges, but the problem persisted.

#### SHERLOCK HOLMES OF ROAD MAINTENANCE

Determined to find a solution, Cumby collected an aggregate sample from Amarillo and from the Lubbock District in Texas, which previously had great success with eScrub in cooler temperatures, and sent the samples to Ergon's Paragon Technical Services laboratory for analysis. After extensive testing, Paragon found the problem to be twofold. First, in the Amarillo District, the aggregate being used was a volcanic rock with high porosity. As a result, a more than expected amount of emulsion was being absorbed into the aggregate, leaving less binder available to retain the aggregate. Secondly, the size of the rock was found to require a much higher application rate of 0.76 gallons of emulsion per square yard than typical projects, which ranged from 0.5 to 0.58 gallons of emulsion per square.

With this new information gained from laboratory testing, the application parameters were adjusted to account for the rock porosity and size, and the treatment was applied onto 10 lane miles of Farm Road 1057. Despite a cold front occurring on the day of application, which caused the intended emulsion temperature to be adjusted last minute, the project was successful, and no aggregate was lost during application. Once the treatment was applied, traffic resumed within two hours.

#### **GREENER AND GREATER ROADS**

In addition to successfully securing the integrity of the flex base, rejuvenating scrub seal is an environmentally friendly choice, as it is solvent-free, allowing for minimal hydrocarbon emissions, reduced energy consumption and safer work environments for both construction workers and the surrounding ecosystem. Additionally, cure time is significantly less for solvent-free treatments, reducing construction time and allowing a fast return to traffic.

Pleased with the project's success, TxDOT is continuing to choose rejuvenating scrub seal for other applicable maintenance sections in the Amarillo District.

Contact a local salesperson to find out if Ergon's eScrub rejuvenating scrub seal is the right solution for your roadways today.

ergonasphalt.com/locations