

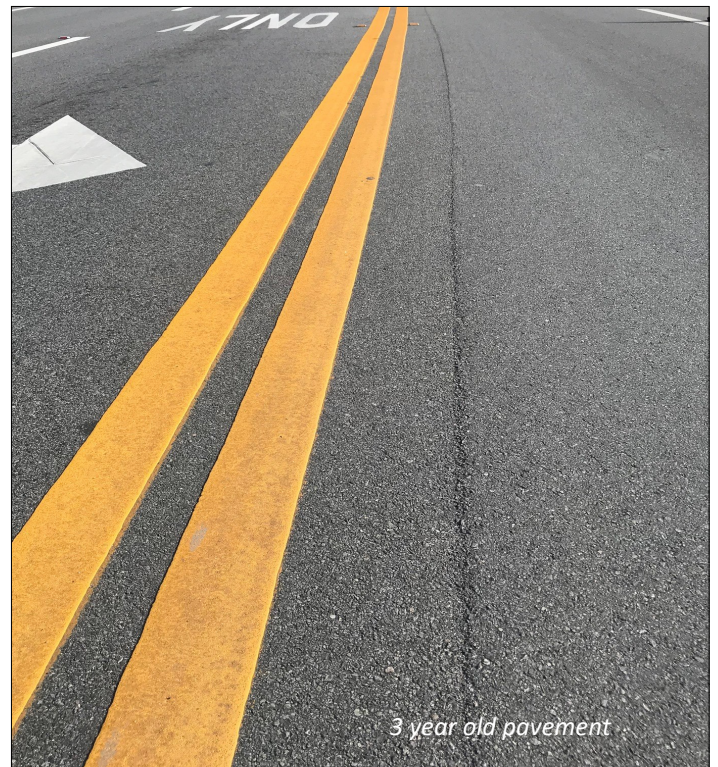
Technical Bulletin: Revolution™ for use on Longitudinal Joints and Rumble Strips

Penetrating Rejuvenator Spray for Asphalt Pavements

Background

Longitudinal joints, or often referred to as a cold-seam, is the joint between a parallel (HMA) hot mix asphalt mat where it is joined with the previous adjacent pass of HMA (width section). These pavement sections can exhibit significant raveling and loss of bond at these joints due to a variation in compaction density causing premature deterioration of pavements in the form of cracking and raveling.

Improper construction techniques are often the root cause of low densities (high air voids) at these joints and cause significant surface irregularities allowing accelerated pavement deterioration from oxidation and water intrusion (*photos 1 and 2 below*).



Construction Problems

Improving construction methods would seem the likely solution right? However improved methods of application will not eliminate the risk of mix segregation from the paver screed and auger systems at the far edge of the paver. Even if you managed to eliminate this event there's little you can do to effectively achieve the needed densities at unconfined edges, which results in deforming the joint rather than compacting it. So what's the solution?

Revolution™ is the solution...

Research performed on 3-4 year old pavements reveal the highest period of oxidative aging is between the first 2-4 years of the pavement service life (*Kandahl, Mallick—National Center for Asphalt Technology*), in the top 3/8" of the riding surface as compared to the time period depicted within the industries pavement life cycle curve (figure 1).

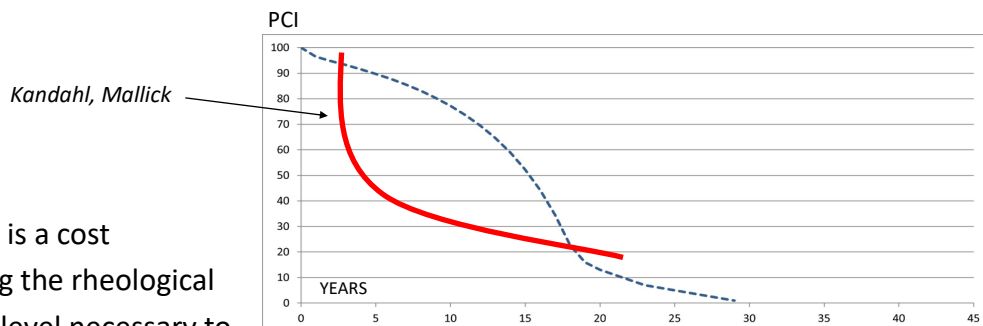


Figure 1

Revolution™ asphalt rejuvenator is a cost effective approach to maintaining the rheological properties of asphalt binder at a level necessary to retain relaxation properties and drastically slow the oxidation, raveling and propagation of cracks.

Independent laboratory testing of plant-based chemistries including, but not limited to, Soybean oils, Corn oils, Flax Seed oils, Linseed oils, and Pine extracts used in the rejuvenation of aged-oxidized bituminous materials to improve the rheological properties of asphalt binder are extremely effective in decreasing the viscosity to allow for a shift in Phase Angle necessary to improve the viscoelastic properties of asphalt binder. Test results are accredited by an American Association of State Highway Transportation Officials (AASHTO) Materials Reference Laboratory (AMRL). The test results should verify the ability of the proposed rejuvenation product to achieve the minimum changes in asphalt binder properties outlined within the current governing standard for performance of surface applied asphalt rejuvenator sprays detailed in specification FAA P-632.

Application rates from 0.08 gal/SY to 0.13 gals/SY are an effective range with the average shot-rate settling in at 0.10 gals/SY. Cure times are generally within 1 hour depending on temperatures and humidity levels on the day of application.

No restriping is required as Revolution™ penetrates and dries clear after applied to the asphalt surface.

This is a benefit to agencies that require minimal traffic interruption and without the need to re-stripe.



What we can do for you!

We understand the enormous task you have in managing the needs of your infrastructure against your available budget dollars. We have the solution to keep your pavement condition average high on your asphalt pavements while decreasing the money you spend to maintain them.

We have five decades of experience in pavement management and preservation, let us help you take your streets and roads to a 35+ year useful service life. It starts with a low cost early-stage preservation and maintenance plan to avoid seeing these examples of longitudinal joint failure (*Photos 1 and 2 below*).



Let's not forget about Rumble Strips!

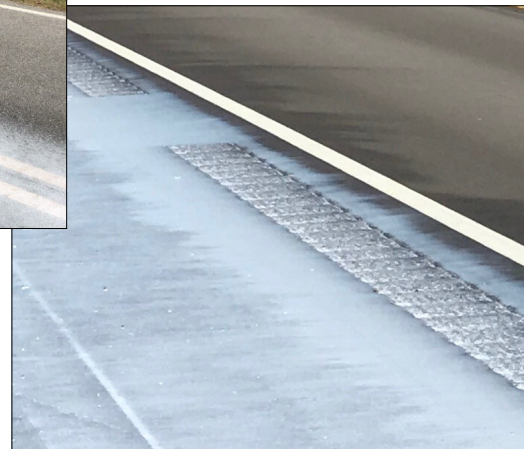
Rumble strips are vital in alerting drivers that drift from their travel lanes and have effectively reduced the number of vehicle accidents and fatalities when this happens. With more drivers becoming distracted with advancements in today's communication technologies, centerline rumble strips are becoming more and more common. Let's not ignore the need to stop accelerated water intrusion from these pooling pockets directly over our longitudinal joints.





Longitudinal Joints

Rumble Strips



Paved Trail Systems



County Roads/City Streets



GREENE TECHNOLOGIES

"making today's roads last longer"

Website www.Greenetechcorp.com