

Long-Term Field Performance of Paving Fabric Interlayer Systems to Reduce Reflective Cracking

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Abstract : The formation of reflective cracking of pavement overlays has confronted highway engineers for many years. Stress-relieving interlayers, such as paving fabrics, have been used in an attempt to reduce or delay reflective cracking. The effectiveness of paving fabrics in reducing reflection cracking is related to joint or crack movement in the underlying pavement, crack width, overlay thickness, subgrade conditions, climate, and traffic volume. The nonwoven geotextiles are installed between the old and new asphalt layers. Paving fabrics enhance performance through two mechanisms: stress relief and waterproofing. Several factors including proper installation, remedial work performed before overlay, overlay thickness, variability of pavement strength, existing pavement condition, base/subgrade support condition, and traffic volume affect the performance. The primary objective of this study was to conduct a long-term monitoring of the paving fabric interlayer systems to evaluate its effectiveness and performance. A comprehensive testing, monitoring, and analysis program were undertaken, where twelve 500-ft pavement sections of a four-lane highway were rehabilitated, and then monitored for seven years. A comparison between the performance of paving fabric treatment systems and control sections is reported. Lessons learned, and the various factors are discussed.

Keywords : monitoring, paving fabrics, performance, reflective cracking

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