

MITIGATING REFLECTIVE CRACKING USING STRESS ABSORBING MEMBRANE INTERLAYERS (SAMIs)

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ABSTRACT

Pavement rehabilitation is one of the most important issues facing highway agencies around the world. Rehabilitated pavements sometimes fail to meet their design life due to reflective cracking. In this study, a laboratory test was developed to study the effectiveness of using SAMIs to retard reflective cracking. The test involved manufacturing specimens (beams) in three layers. The bottom layer was 10 mm asphalt concrete with 10/20 straight run bitumen, the middle layer was stress absorbing membrane interlayer (SAMI) and the top layer was also 10 mm asphalt concrete with 40/60 straight run bitumen. A notch (crack) was created in the bottom layer. The specimen was supported by a 10 mm thick rubber sheet and trafficked using wheel tracking equipment. The numbers of wheel cycles for crack growth from the crack tip to the tops of the SAMI and the overlay were recorded. Specimens without SAMIs (control) were also tested. This paper describes the test equipment and also presents results for the number of load cycles for crack growth to top of SAMI and to top of overlay. Observations are made concerning the influence of SAMI type and thickness, temperature and load level on overlay performance.

KEY WORDS: Pavement, Reflective Cracking, Cracks, Overlay, SAMIs.