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PREVENTIVE AND CORRECTIVE MAINTENANCE WITH HOT MIX ASPHALT

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Prithvi (Ken) Kandhal, a former engineer with the Pennsylvania DOT (now with the National Center of Asphalt Technology at Auburn University), performed a study (Kandhal, P.S., Low-Temperature Ductility in Relation to Pavement Performance. ASTM STP 628, 1977) on the low temperature (60° F) ductility of asphalt cement, extracted from hot mix asphalt (HMA) pavements.

From studies of the asphalt cement from cores taken, it became evident that when the asphalt age hardens to approximately a ductility of 10 cm, there was a loss of surface fines in the mixture evident.

When the ductility of the asphalt dropped to around 5 cm, he noticed cracking in the pavement. As the asphalt age hardened, it showed signs of failure.

To establish preventative maintenance, the objective is to protect the asphalt (binder) before it hardens to the point that the pavement begins deteriorating.

Thin overlay (3/4" to 2" compacted thickness) will delay age hardening caused by oxidation, increase skid resistance, add some structural strength, fill/seal working and non-working cracks, obliterate and/or retard reflectance cracking of most non-working cracks, and provide better pavement cross slope for drainage. HMA will <u>not</u> act like a vapor seal to cause capillary vapor action. It's designed and placed with a controlled in-place air void level thus economically maximizing the life of an HMA pavement system.