



Innovations in Microsurfacing Materials and Application Techniques

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Problem Wright County uses microsurfacing to seal and protect its pavements. Although it provides a smooth ride and skid resistance, microsurfacing is not designed for the low temperatures found in northern climates. Cracking typically occurs during the first winter after placement.

Solution In an effort to improve the properties of microsurfacing for better performance on county roadways, Wright County partnered with Road Science to test a new flexible microsurfacing product on portions of two county roads. The new material was designed to improve the crack resistance of pavement compared to traditional microsurfacing. When cracks do appear in the material, they should also have better integrity and thus reduce maintenance costs.

Procedure The flexible microsurfacing system consists of an emulsion formulation enhanced with a performance additive. The Texas Overlay Test was used in the lab mix design to provide assurance that better crack-resistant properties could be achieved with the new material. The microsurfacing product was then used on County State Aid Highways (CSAH) 18 and 37 in Wright County, both of which were experiencing slight rutting. Traditional microsurfacing was placed on the majority of each roadway, with a 1,500-foot section of flexible microsurfacing placed for comparison and evaluation on each road.

Results There was some construction difficulty with the flexible microsurfacing on CSAH 37, mostly associated with retarder pump and pugmill performance issues that affected the cure of the product. Surface treatment blemishes caused by the equipment problems were fixed by the contractor. Also, the performance additive sporadically clogged the additive machine. A shorter fiber additive was used, and the problem was eliminated.

Approximate Cost \$16,000

OPERA Funding \$8,000

Implementation The Texas Overlay Test showed that the flexible microsurfacing product could withstand more than five times the cycles before failing than traditional microsurfacing. CSAH 37 and 18 will be monitored to validate these test results and determine the additional crack resistance provided by the flexible material.

Status Complete

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