



## Ultra-thin Bonded Wearing Course over Micro-Milling Test Section

**Project Number** 2015-07

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**Problem** A portion of McLeod County State Aid Highway (CSAH) 115 near Hutchinson, MN, exhibited a marginal improvement in ride after it was micro-milled in 2014. To preserve the surface of the road and further improve ride quality, engineers needed to apply a surface treatment.

**Solution** McLeod County chose to surface the highway with a 5/8-inch-thick ultra-thin bonded bituminous wearing course (UTBWC) in lieu of a traditional seal coat. UTBWC consists of a thin gap-graded, polymer-modified hot-mix asphalt layer placed on a polymer-modified emulsified asphalt membrane. UTBWC should last longer, improve some surface distresses, and improve ride quality.

**Procedure** The UTBWC was applied to CSAH 115 in August 2015. Following the application, McLeod County conducted International Roughness Index (IRI) testing, which is the current MnDOT standard measurement of pavement smoothness, on the road in September 2015. IRI measurements had also been taken in July 2015, prior to the application, for comparison.

**Results** The UTBWC application provided a 57 percent improvement in ride quality in the eastbound lane and a 60 percent improvement in the westbound lane. County officials also noticed the UTBWC sheds water well during rainfall and provides a quiet ride.

**Approximate Cost** \$85,000

**OPERA Funding** \$10,000

**Implementation** The cost of the material was \$5.20 per square yard. The cost of a bituminous seal coat using granite and a fog seal is approximately \$1.50 per square yard. The cost of a typical 1.5-inch hot-mix overlay is approximately \$7.00 per square yard. Although the cost of the UTBWC is higher than a seal coat, McLeod County staff believe it is a good pavement management tool to consider because of its ability to improve ride, provide a quiet driving surface, and minimize reflective cracking.

**Status** Complete

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