



Installation and Early Performance of Mastic Patches on City Streets

Project Number 2010-12

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Problem The transition from winter to spring normally causes the formation of potholes and other distresses as streets and highways weaken and adjust to warmer conditions. At times, this seasonal deterioration can be so widespread that maintenance crews are required to give full-time attention to the problem. Patching with asphalt mix often continues—or is repeated—as the seasons pass from spring to fall.

Solution The City of Bloomington partnered with the City of Minnetonka to compare the performance of mastic products to that of traditional bituminous patching. In spring 2011, the cities collaborated on a field investigation of the installation and performance of two mastic patching materials along with standard patches that were applied at the same time.

Procedure The materials were used to repair distresses on Minnesota Drive and East Bloomington Freeway in Bloomington and on Williston Road in Minnetonka. In Bloomington, most repairs were made to potholes at random locations in the lanes. The overwhelming distress type in Minnetonka was deteriorated transverse cracking. After the materials were installed, maintenance crews provided user feedback on preparation and application. The field performance of the repairs was monitored and evaluated after four months, and the mastic materials were compared to the standard treatment used by each city agency.

Results Mastic products were very successful in restoring ride quality to deteriorated transverse cracks and potholes on a short-term basis, and results indicate that the ride benefits of mastics may improve with time in transverse cracks. Patches did not lose mastic material over the four-month period, but cover rock was lost and should be considered temporary. Mastic materials also exhibited a waterproofing advantage over conventional asphalt mixtures. The labor force for mastic installation was similar to that of asphalt patching, but the mastic materials required extra cure time to ensure no-track conditions.

Approximate Cost \$5,000

OPERA Funding \$5,000

Implementation Additional monitoring of the test sections is recommended to verify long-term ride and durability benefits. For now, the City of Bloomington has no plans to continue using mastic patching in normal street maintenance activities.

Status Complete

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