



## Chip Seal over Gravel Road

**Project Number** 2013-03

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**Problem** Silver Creek Township has 44 miles of gravel roads to maintain. Costs associated with grading, controlling mud and dust, and adding gravel lost to grading, snow removal, and traffic are often high. However, the high cost of paving a gravel road with asphalt or concrete prevents this from being a reasonable alternative. The township wanted a more affordable solution to help reduce maintenance costs for gravel roads that have low traffic volumes and primarily serve residential homes and farms.

**Solution** The township applied a flexible chip-seal mat on four miles of gravel roads. The three roads chosen had been recently rebuilt for grade and soundness. The project included applying a 3/8-inch granite chip over an emulsion primer coat that was placed on top of the gravel surface. The cost to apply the chip-seal mat was approximately 75 percent less than the cost of applying a common bituminous asphalt mix.

**Procedure** Construction of the primer and chip-seal mat began on July 1, 2013, on Barton Avenue NW, 155th Street NW, and Curtis Avenue NW. The township applied a penetrating emulsion primer over the graded, prepared, and packed gravel road surfaces. It then applied a granite chip-seal mat over the primer. All primed areas were chip-sealed the same day to protect the surface from traffic damage. The completed mat is about 1/2-inch thick, flexible, and moves with freeze-thaw cycles.

**Results** Overall, the township and the residents living on the roads are happy with the design and performance of the improved gravel roads. The roads are smoother, ride well, and are not muddy or dusty. They have not required grading or chloride solution expenses. The township anticipates that the mat will be flexible and require little maintenance in its expected life of five to seven years.

Although several vehicles damaged the mat in the first month after its installation, the damaged areas were repaired easily, quickly, and much more affordably than asphalt or concrete.

**Approximate Cost** \$182,499

**OPERA Funding** \$10,000

**Implementation** The township continues to evaluate the roads involved in the project and is confident that the improved surface will hold up to wear for at least five years.

**Status** Complete

**Prepared by:**

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