Glenn CASE STUDIES

The following summaries highlight the details of road projects that included shingle byproduct from the manufacturing process – such as the cuttings from shingles composed of paper or fiberglass mat, an asphalt binder, and ceramic aggregate – as part of the pavement mix. Minnesota Department of Transportation (Mn/DOT) specifications allow for the use of up to 5 percent of shingle byproduct in hot-mix asphalt. Please note that pavement performance testing is under way for many of these projects. Contact those listed in each case study for updated information.

France Avenue – Hennepin County

Hennepin County used 5 percent shingle byproduct in the hot-mix asphalt for a mill and overlay project on France Avenue between 80th and 90th Streets.

The France Avenue project serves as a demonstration site for county, city, and state engineers who can evaluate the project. The county laid about 1,500 tons of asphalt pavement that contained 5 percent ground shingle byproduct and 25 percent ground recycled asphalt pavement (RAP), also approved by Mn/DOT specifications and commonly used in mixes, on the northbound lanes of the project. They also laid 1,500 tons of the same asphalt – with 30 percent RAP and no shingle byproduct – on the southbound lanes.

“This paving project on France Avenue allows our engineering staff to view firsthand the comparison in pavement performance between shingle-derived asphalt and pavement without shingles,” said James Grube, Hennepin County Transportation Department director. “If this works on France Avenue, we will look to the use of shingles on other projects in the future.” For additional information, contact Greg Chock, Hennepin County Transportation Department, 763-745-7550.

Residential Paving Projects – City of St. Paul

The City of St. Paul has used Mn/DOT specifications to add shingle byproduct to hot-mix asphalt for a variety of residential paving and reconstruction projects since 1999. In 2001, the city used 30,000 tons of the mix. Crews applied the mix to both base and wear course hot-mix asphalt layers. “The City of St. Paul continues to allow the use of shingle byproduct in its residential paving projects because it is cost-effective and because it is approved by Mn/DOT,” says Dan Haak, manager of the Residential Street Paving Program, St. Paul Department of Public Works. For additional information, contact Dan Haak at 651-266-6084.

Demonstration Projects – Bituminous Roadways

Bituminous Roadways Inc. (BRI) conducted a demonstration project with the following variations: shingle byproduct and recycled asphalt pavement (RAP), shingle byproduct only, and shingle byproduct and salvaged concrete. “In 2001, we inspected each of the three different sections with various mixes,” says Kent Peterson of BRI. “The shingle/RAP mix worked best.”

BRI also applied a shingle byproduct and RAP mix to other projects at the University of Minnesota's Rosemount Experiment Station and at access roads to its asphalt plants in Inver Grove Heights and Shakopee. Again, the shingle/RAP combination is holding up well. "We intend to continue using this shingle/RAP cold mix product on our own roads and are developing it further for private sales to select customers that demand shorter term cost-effectiveness." For additional information, contact Dusty Ordorff, Director of Quality Control, BRI, 612-366-2765.

Munger Trail

As part of a research project to investigate the performance of hot-mix asphalt that includes shingle byproduct, the Minnesota Department of Transportation (Mn/DOT) in 1990 paved part of Munger Trail in St. Paul with a mix that contained 9 percent shingle byproduct. The test strip continues to perform as well as the control strip. For additional information, contact Roger Olson, Mn/DOT, 651/779-5517.

Trunk Highway 25 and Highway 17 – Scott County

These two projects served as a demonstration of hot-mix asphalt that contained shingle byproduct in a highway environment. Mn/DOT took core samples to measure the performance of the asphalt. The tests showed no difference between the shingle-paved and control sections of the road after 11 years of service. For additional information, contact Roger Olson, Mn/DOT, 651/779-5517.

Demonstration Project – Allied Blacktop

Allied Blacktop, Inc., Eau Claire, Wis., began its own shingle recycling operations in 2002. In 2000, Allied applied a mix with 5 percent shingle byproduct to the parking lot near its fueling tanks. "We picked an area that gets some of the heaviest truck traffic and abuse," says Bob Ayres, president of Allied Blacktop. "Our non-scientific tests on the shingle-derived hot-mix asphalt pavement indicated that the recycled product was slightly stiffer and performed better than an all-virgin blacktop." For additional information, contact Bob Ayres, Allied Blacktop, Corp., 715-835-4858.

Dust Control Application – SKB Landfill

SKB decided to test shingle byproduct in a dust control application on a road into its industrial waste landfill in Rosemount. "The road receives heavy traffic from our own fleet of construction trucks and other heavy construction equipment," says John Domke, vice president, SKB Environmental. "Since the existing surface is gravel, and outbound trucks drive onto a busy state highway, we wanted to develop a cost-effective strategy to reduce, if not eliminate, road dust." Since its application in fall 2001, the dust control application is working well. For additional information, contact Ryan O'Gara, SKB Environmental, 651-224-6329.

September 2002