

Hennepin County Uses Delta S for Higher Recycling Content

By Sandy Lender

From NCAT to MnROAD and beyond, researchers at esteemed pavement research facilities seek ways to incorporate higher percentages of recycle content in asphalt mixes without compromising long-term pavement performance. That research often involves adding a rejuvenator or recycling agent to the mix to restore youth to the RAP or RAS replacement binder.

For Trudy Elsner, P.E., Road & Bridge Program Development Engineer at Hennepin County Public Works, this research came in handy for her County Route 61 pavement maintenance project from Sept. 11-15, 2017. Paul Nolan, the Research Project Supervisor in the Office of Materials and Road Research for MnDOT learned that the county used 35% RAP in its pavement mixes without any additive, so he offered to Elsner a

tote of Delta S asphalt rejuvenator that he had from Collaborative Aggregates LLC, Wilmington, MA, to try out.

The 1.3-mile stretch of CSAH 61 wasn't in poor condition, but the proactive public works team had reasons to select it for both maintenance and a rejuvenator proving ground.

"This section of road was originally constructed in 1992, chip sealed in 1996, and the last treatment was a 2-inch mill and overlay in 2005," Elsner shared. In 2016, it received a pavement condition rating (PCI) of 37 on a scale of 0 to 100, and a pavement surface rating (PSR) of 2.55 on a scale of 0 to 4.00. "Moderate transverse cracking and minor rutting were noted along with oxidation of the mat," Elsner shared.



The roller operator on the County Route 61 project has 35 years of experience and reported an easier time of rolling out marks from cross-traffic when working with the Delta S-dosed mat than the control mat.



Delta S Makes Compaction Easier

Nolan explained that before paving began, no one told the paving crew that they would be working with a treated mix for part of the project. But one crew member knew something was up. “The roller operator claimed to notice something,” Nolan said. “He has 35 years of experience. He said the compaction was easier on the southbound lanes. Cross-traffic was putting marks in the mat, but he could get the marks out better and easier with the Delta S than the sections without it.”

Delta S Ups the RAP

Elsner hopes to be able to use an even higher percentage of RAP in future mixes. “The fact that Delta S is a green, sustainable product is a factor; however, the primary concern is to extend the life of the overlay by delaying the reflective cracking,” Elsner said. “That’s the

primary benefit we hope to see. With the side-by-side comparison, we will be observing if there is a difference in the oxidation rate with the Delta S.”



The Delta-S rejuvenator is blended inline at a rate of about 1.5 pounds per finished ton, which Nolan described as “an exceptionally small amount.” For the Hennepin County project, Commercial Asphalt Company loaded out the material at temperatures between 290 and 300 degrees F

Project Parameters

- The section of Northwest Blvd. (CSAH 61) from just north of Schmidt Lake Rd. to Bass Lake Rd. (CSAH 10) in Plymouth involved a side-by-side test
- 2 lanes northbound used the typical mix with 35% RAP as the control
- 2 lanes southbound used the mix treated with Delta S
- The dense-graded mix was paved at 1.5 inches compacted
- The county wishes to reduce reflective cracking in pavements with high RAP mixes
- The county wishes to increase the life expectancy of pavements with high RAP mixes

