

# CHIPSEAL DELIVERS ECONOMY, LONGER LASTING ROADS IN NEBRASKA PROJECT

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## QUICK FACTS:

### Project:

Nebraska Department of Roads

### Location:

Nebraska

### Notes:

Trinity's lightweight aggregate has half the density of conventional gravel, so the high performance material can be shipped from much longer distances without breaking the budget.



**When the Nebraska Department of Roads needed a way to economically extend the life of 6 ½ miles of pavement on State Highway 61, just south of Ogallala, they turned to a chipseal solution utilizing expanded shale lightweight aggregate from Trinity Lightweight, for both its excellent performance and its economical cost.**

"In this day and age," according to Matt Radke, Ogallala Maintenance Supervisor for the Nebraska Department of Roads, "it's all about preserving the life of the pavement. We've been moving to a program of more frequent maintenance. It's about keeping water out of the asphalt."

Chipseals -- used to extend the life of asphalt pavements -- are applied by evenly distributing a thin base of hot emulsion onto an existing pavement and then embedding well-graded aggregate.

The aggregate is evenly distributed over the seal spray, then rolled into a smooth pavement surface. In the case of the Highway 61 project, the Nebraska Department of Roads used a new technique -- a heavier application of emulsion, and a "fogging" of the road surface with another round of emulsion after the initial application of emulsion and aggregate had cured for 10 days.

"We shot the emulsion at a considerably heavier rate than we normally do with chipseals, and then we applied the fog coating of emulsion," Radke said.

After more than a year, the project, completed in June of 2015, made it through the tough Nebraska winter with flying colors and is performing and looking good, he said. "It's held up very well, with very little loss of aggregate and very little change in color. Because of the success of this project, we plan to do another eight miles of road with the same technique this year."

The initial emulsion, CRS-2P, was applied at a rate of 0.43 gallons per square yard. The expanded shale was applied at an average of 14 to 15 lbs. per square yard. "We started the application at 18 lbs. per square yard and dropped the rate until we had no loose material on top." Radke said.

"Compaction was key," he added. "We ran three rollers. The roller operators were instructed to never stop rolling even while waiting for oil. We had them roll the entire length of the surface we had covered. We also didn't sweep anything until the next day. What had been loose material the day before was now embedded in the oil." After the chip seal had cured for 10 days, a fog seal of CSS-1H 50 was applied at the rate of 0.14 gallons per square yard.

## **ANGULAR-FACED AGGREGATE MEANS BETTER RETENTION**

In north and central Nebraska, the supply of locally available coarse aggregate is very limited. And the aggregate that is available is typically river rock, which is spherical -- not ideal for use in road sealing projects.

Spherical or round-faced aggregates come loose more easily, meaning more chipped windshields and shorter pavement life. The angular faces of lightweight aggregates mean higher retention rates, and longer lasting pavements. "The angular faced aggregate seems to sit tighter, with better retention, Radke said. In addition, the lightweight aggregate particles are much less likely to chip windshields if they do come loose.

## **LIGHTWEIGHT AGGREGATE MEANS REDUCED SHIPPING COSTS**

When non-local aggregate has to be brought in, weight matters. Each additional pound means higher shipping costs. Trinity's lightweight aggregate has half the density of conventional gravel. So the higher performance material can be shipped from much longer distances without breaking the budget.



Trinity Lightweight is the largest producer of rotary kiln expanded shale and clay lightweight aggregate in North America and is a leading supporter of research, independent testing and field studies to improve the manufacturing process and expand the beneficial uses of the product.

[www.trinitylightweight.com](http://www.trinitylightweight.com)