

MULTIPLE TECHNIQUES, MATERIALS GET U.S. 84 OUT OF A RUT VANCE BROTHERS MIXES IT UP FOR 18 MILES IN LOUISIANA

It's amazing how pavement conditions can differ over the course of a few miles on the same highway. Even a prevalent problem like rutting can vary in degree from one mile to the next. The Louisiana Department of Transportation had plenty of it on U.S. Route 84. Vance Brothers knew it called for more than a one-size-fits-all solution.

MICROSURFACING MAGIC

U.S. 84 began 90 years ago as a short road between Georgia and Alabama but today is an east-west, two- to four-lane highway running hundreds of miles west to Colorado. The \$2.25-million contract awarded to Vance Brothers covered 18 Louisiana miles between the towns of Jonesville and Jena, including a three-mile section of Louisiana Route 28 running south from its intersection with U.S. 84.

After a thorough field survey of pavement conditions, LDOTD specified microsurfacing as the wearing course for most of the project route. Created on the job site by blending mineral aggregate, mineral filler, water and a polymer-modified asphalt emulsion, microsurfacing can be used on high-traffic volume roadways like U.S. 84.

"Microsurfacing doesn't require rolling and is usually ready to accept traffic within an hour," said Tim Harrawood, manager for Vance Brothers' Southern Contracting Division. "Since it can be spread to variable thicknesses, it's ideal for not only applying wearing courses but also for leveling surfaces and filling wheel ruts."

Vance Brothers employed a self-propelled Bergkamp Mobile Mix Paver to blend raw materials and apply the microsurfacing to each 12-foot lane in a single pass. Some 6,200 tons of densely graded sandstone were used, the coarsest gradation reserved for rut filling. It was



A feeder truck (above) supplies densely graded sandstone to the asphalt emulsion treatment being applied in a single pass with the Bergkamp paver (below).

applied at the rate of 15 to 30 pounds per square yard, depending on depth of rut, and 25 pounds per square yard for the wearing course. About 175,000 gallons of latex polymer-modified CSS-1HP asphalt emulsion treatment helped "glue" the asphalt, mineral aggregate and fines together in the microsurfacing.

TAILORED TREATMENTS

Other problem areas of the highway called for different solutions. Conditions in one road segment, for example, required a combination of pavement preservation treatments.

"There was a section a couple of miles long that had too much cracking for the microsurfacing alone to correct," said Ken Mason,

U.S. 64 NOW BETTER THAN OK

VANCE BROTHERS COVERS CRITICAL MILL-AND-OVERLAY IN THE OKLAHOMA PANHANDLE [CONT.]

design engineer for LDOTD. “So we cold-planed it first to get rid of surface cracks, and then put down a chip seal. We allowed traffic on this for a couple of days and then applied microsurfacing over the chip seal (a process known as “cape sealing”).”

For the area that was chip sealed, Vance Brothers applied approximately 10,000 gallons of CRS2-P asphalt emulsion. Vance distributed the emulsion, a cationic, rapid-setting product modified with BASF’s SBR latex, at the rate of .4 gallons per square yard.

Another area of pavement distress, the busy intersection of U.S. 84 and Louisiana 28, warranted a departure from the thin surface treatment approach. Heavy truck traffic and constant braking at the intersection had caused the pavement to shove. More pavement structure was needed to resist shoving, which called for cold-planing 1-1/2 inches off of the existing pavement and replacing it with hot mix asphalt.

COMPLEX JOB, HAPPY ENDING

The hot mix was kept to a minimum in the project, however, thanks to microsurfacing and the diverse, sometimes complex procedures utilized by Vance Brothers crews. Harrawood cited a number of benefits.

“I know from similar-sized projects we’ve done here that applying

an inch and a half of hot mix throughout would’ve added about \$1.5 million,” he said. “Plus, we have much fewer hours on the job, so it’s more convenient for the traveling public. And, the environmental gains are enormous.”

It’s safe to say LDOTD is pleased with the results.

“All of the objectives were accomplished and the project is performing as expected,” Mason said. “Other LDOTD districts are planning to use the same treatments. We appreciated the flexibility shown by Vance Brothers in ensuring the success of the project.”