

CPP: rebuilt to last

Diamond Grinding and Patching Restore U.S. 67 in Arkansas



Concrete Pavements Last
40+ Years; Treatment with
CPP Restores Rideability

A 120-MILE-LONG STRETCH OF U.S. 67 connects North Little Rock, Ark. to Walnut Ridge, Ark. It is part of a highway that is designated “Future I-57,” intended to eventually connect Chicago, Ill. to Little Rock via interstate. A road that is designated “future interstate” becomes a true interstate when it has been built to interstate standards and connected to other interstates. U.S. 67’s designation makes it a Congressional High Priority Corridor, which means it is eligible for National Corridor Planning and Development Funds, a discretionary governmental fund.

Construction on the original U.S. 67 began in the 1960s in Little Rock and proceeded northeast as funds became available. The entirety of the four-lane highway was constructed as portland cement concrete pavement (PCCP).

In the mid-2010s, the Arkansas Department of Transportation (ArDOT) collected pavement condition data on sections of U.S. 67 that had been built between the mid-1970s and mid-1980s; after 30-40+ years of service, some concrete pavement sections exhibited distress in the form of faulting, although there was very little spalling or cracking. This was the case despite the fact that little maintenance had been performed on the concrete pavement. Sections built in the 1980s had received no maintenance. Less than five percent of the pavement area evaluated was estimated to require patching—an amount well below the threshold of 10 to 15 percent that would trigger ArDOT to undertake an extensive rehabilitation project. Faulting that the Department did identify was attributed to the fact that the original pavement was built on an unstabilized base with no widened lane.

Concrete pavement preservation (CPP) was deemed appropriate for rehabilitating U.S. 67. Two separate preservation projects were undertaken, located in White County and Jackson County, Ark. Emery Sapp & Sons, Inc. of Columbia, Mo. was awarded both jobs. The first and northernmost job was let in December of 2018. The project was 27 miles long (containing 108 lane miles) and received 764,000 square yards of grinding. The second job was let in July of 2019 and was 25 miles long (containing 100 lane miles). On this section, diamond grinding was performed on 704,000 square yards of pavement. Construction records through mid-2020 indicated that approximately 2.1 percent of the 52-mile stretch of highway included in the CPP projects had been patched. Joint resealing was also performed.

“This project is a perfect example of how CPP can extend the life of a concrete pavement while improving its functionality,” said Kyle Miller, Operations Manager for Diamond Grinding at Emery Sapp & Sons. “Smoothness measurements prior to grinding were between 172 and 209 inches per mile. After patching and grinding, those numbers were reduced to an average of 41 inches per mile, about an 80 percent improvement. The restored pavement was smoother than it was on the day it was built—and this was all for a price less than that of a standard asphalt overlay.”

TEAM MEMBERS:

- ArDOT (Owner)
- Emery Sapp & Sons, Inc. (CPP contractor)