



MODOT RETURNS PAVEMENTS TO SERVICE AHEAD OF SCHEDULE

Project Type: Highway

Application: Panel replacement

Location: Wentzville, MO

Project Dates: April 7–10, 2020

Project Owner: Missouri Department of Transportation

Contractor: R. V. Wagner

Project Size: 7,500 sq. yds.

Product: Rapid Set[®] Cement Missouri has some of the oldest interstate highways in the U.S., with Interstate 70 built in the 1950s when the Dwight D. Eisenhower National System of Interstate and Defense Highways (a.k.a. the Interstate Highway System) was first created. Interstate 64 is just one mile south of I-70. Though designated an interstate in the 1980s, the road was constructed before the interstate system was developed. In Wentzville, Mo., I-64 overlaps U.S. 40 and becomes a busy route as it heads east through St. Louis.

To keep the state's aging interstates safe and serviceable, the Missouri Department of Transportation (MoDOT) regularly performs pavement patching. By April 2020, it was time to replace several cracked concrete pavement panels along I-64/U.S. 40 near Wentzville to increase the road's serviceability rating and safety to the traveling public.

MoDOT was dissatisfied with the service life of previous patches. The patching material typically used in MoDOT projects is made with a large volume of portland Type III cement. The repair material achieves high early strength gains, allowing crews to return repaired roads to service quickly and minimize traffic disruption. Yet the material also is subject to shrinkage, which can lead to early deterioration. MoDOT wanted a material that would provide better performance on high-volume roads. Working with MoDOT and general contractor R.V. Wagner, based in St. Louis, CTS Cement suggested Rapid Set[®] Cement for the patching material.

Rapid Set Cement is a fast-setting hydraulic cement that qualifies as very rapid hardening (VRH) per ASTM C1600, Standard Specification for Rapid Hardening Hydraulic Cement. After placement, it is ready for traffic in just one hour. What really sets it apart is it is engineered for low shrinkage to minimize cracking and for high sulfate resistance to withstand the salts and chemicals used for snow and ice control. These characteristics help to maximize service life and minimize maintenance, making the high-performance cement an ideal option for Missouri's highway pavements.

PROJECT DETAILS

The I-64/40 pavement patching project consisted of replacing 7,500 square yards of 11-inch-thick concrete panels. Rapid Set Cement was mixed with MoDOT-approved aggregates, rock and sand. Due to unseasonably warm temperatures reaching the high 80s/low 90s, a retarding admixture was added to the mix to extend working and setting times. The material was delivered via volumetric mixer by Concrete Strategies of St. Louis.

Work took place April 7-10 during the Covid-19 pandemic. Stay-home mandates in Missouri meant fewer cars were on the road, allowing eight-hour lane closures during the day, instead of the normal nightly work closures, with minimal impacts to traffic. By using the fast-setting material, the contractor was able to cover more ground during those eight-hour closures. Repaired areas were broom finished and covered with wet burlap for one hour of wet curing, reaching opening strengths of 4,000 psi within two to three hours after placement.

The I-64/40 patching project was the first large-scale, contract panel-replacement project where MoDOT used Rapid Set Cement. Work was completed ahead of schedule. As a result, MoDOT is now including the material in specifications for similar projects.

CTS Cement Manufacturing Corporation manufactures Rapid Set professionalgrade cement products for concrete repairs and new construction projects. Contractors, owners, engineers and architects choose Rapid Set to eliminate problems they have with other concrete repair materials, to save time and money, when superior durability is required and results need to be aesthetically pleasing. For more information about CTS Cement and Rapid Set, please visit www.CTScement.com.

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