

CASE STUDIES



Carolina's 11

S.C. bridges remain open through full-depth repairs

After more than 55 years and 40,000 vehicles traveling I-385 each day, it was inevitable that the bridges along this route would become worn and damaged.

Repairing frequently traveled roads can be quite a logistical and safety challenge, especially due to the major concern of making not only quality repairs, but completing the project quickly, safely and with minimal disruption of traffic flow.

In South Carolina, the South Carolina Department of Transportation bridge deck repair on I-385 was completed in just 30 days starting in early October 2012. Originally built as a two-lane highway in 1955, I-385 connects Greenville and Clinton in the northwest part of the state. After more than 55 years and 40,000 vehicles traveling this road each day, it was inevitable that the bridges along this route would become worn and damaged.

Contractor Rea Construction and sub-contractor Extreme Concrete Cutting used QUIKRETE FastSet DOT Mix-Extended to complete a full-depth repair of 11 bridge decks. This product was specifically chosen because it minimized disruption to traffic and allowed I-385 to remain open during prime commuting times. To further minimize traffic disruption, all the work on the project was done between 10 p.m. and 5 a.m. each day. The mix is formulated to provide 20-30 minutes of working time, which is an adequate time frame for mixing and placement. Once placed, the material exceeds 3,000-psi compressive strength in only an hour and a

half, 4,500 psi in three hours and more than 10,000 psi in 28 days.

Safely routing traffic through stretches of interstate lined with concrete barriers was a major concern in planning and completing the Virginia Department of Transportation's (VDOT) Jersey barrier replacement on I-295. This heavily traveled northeastern bypass around Richmond, Va., features exterior concrete Jersey barriers to prevent troubled vehicles from running off the road.

VDOT contracted with EV Williams to replace a half-mile stretch of the old concrete Jersey barriers near the Witch Duck exit to improve safety going both eastbound and westbound on I-295.

To ensure maximum adherence to the existing substrate, QUIKRETE Non-Shrink Precision Grout was poured into a 1-in. channel cut along the edge of the road before the new concrete Jersey barriers were inserted on top. A small notch on the bottom of the 20-ft barriers adhered to the grout in the channel, locking the barriers in place. The grout was specified due to its high-strength characteristics. Further, this portland cement-based grout provides the flexibility of a 25-minute working time, and it is commonly used in applications where multiple anchors are required. When finished, the grout achieves 12,500-psi compressive strength in 28 days and pull-out strength exceeding 35,000 psi. **R&B**