

I-95 Accelerated Bridge Construction

Richmond, VA | Off-Peak Work Zone Widening



ROAD ZIPPER™

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CASE STUDY
FOR CONSTRUCTION

The Road Zipper Facilitates Accelerated Bridge Construction

When VDOT decided to rehabilitate 20 bridges along I-95 in the Richmond, VA area, there were a number of challenges to overcome. I-95 carries 160,000 vehicles per day, and disrupting traffic on this heavily traveled metro corridor would have a massive negative impact on commuters. User delay costs from the extensive traffic queues would be unacceptable, and there were additional concern about delays for emergency service providers. Without access to the roadway during peak commuting hours, construction would fall behind and extend over additional seasons. It was decided that the road would be left open for traffic during the day, while an Accelerated Bridge Construction program was implemented.

The ABC program included an off-site construction yard where the exact geometric layout of the existing substructure for each bridge could be recreated. This allowed the contractor to prefabricate sections of the new bridge for delivery during off-peak hours. During a 10-hour night shift from 8:00 pm to 6:00 am, the Road Zipper was used to narrow the roadway from three lanes in each direction down to one lane while keeping an emergency lane clear. This significantly widened the work zone, allowing the bridge deck sections to be delivered and installed the same night.

VDOT estimates that combining the prefabricated bridge elements with repairs to the existing substructure will extend the service life of the

bridges for at least 50 years. Through the use of ABC methods and moveable barrier for traffic control, the project finished four months ahead of schedule and \$16 million under the \$106 million dollar budget.

VDOT's aggressive public communication plan helped motorists find alternate routes during the heaviest construction, reducing traffic volumes by an average of 30% and raising public approval of their project management from 28% to 62%. Jack Berry, CEO of Richmond Region Tourism, summed it up well: "VDOT developed an innovative plan that minimized congestion and the impact on the tourism community and the residents of the region."

Project Highlights

- Managing Agency: VDOT
- Contractor: Archer Western
- Engineering Consultant: Michael Baker
- Barrier used for Accelerated Bridge Construction
- All lanes open to traffic during peak periods
- Road Zipper deployed during off-peak traffic periods
- Project was completed four months early and \$16 million under budget



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