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FHWA Showcases Innovative Method Of Protecting Bridges from Corrosion

The U.S. Department of Transportation's Federal Highway Administration (FHWA) and the District of Columbia Department of Public Works (DCDPW) today showcased a fast, economical approach to rehabilitating and protecting bridge structures, a process engineers believe can extend a bridge's service life by as much as 20 years.

"President Clinton and I are pleased that, in the spirit of good neighbors, the federal government is able to partner with the District of Columbia in demonstrating this project," U.S. Transportation Secretary Rodney E. Slater said. "As we prepare to enter the 21st century, we must find better, smarter ways to improve the safety and efficiency of the transportation system that is already in place."

The District will save more than \$250,000 by using the new technique, electrochemical chloride extraction (ECE), to expedite rehabilitation of the Eastern Avenue bridge in northeast Washington, D.C. The process, in lieu of replacing the bridge abutments, will also allow the project to be completed six months ahead of schedule.

"I applaud the District of Columbia for taking a strong leadership role in adopting cutting edge technologies like ECE," FHWA Administrator Kenneth R. Wykle said. "It is a technique that offers a promising alternative to conventional approaches to bridge rehabilitation."

ECE stops and prevents corrosion damage in two ways. First, it uses electrical currents to draw chloride ions (salt) away from the reinforcing steel bars embedded inside the concrete. This eliminates the corrosive environment caused by de-icing salts and prevents further deterioration of the structure. Second, it restores the alkalinity of the concrete, recreating a corrosion-resistant barrier to protect the steel from future damage.

ECE can be used to rehabilitate structures that have experienced minor corrosion such as the abutments on Eastern Avenue bridge. It eliminates the need to totally reconstruct the damaged sections, providing substantial cost and time savings and minimizing commuter delays caused by construction activity. It can also be used to preserve historical structures.

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FHWA and District officials held an "open house" to allow state transportation agencies from Virginia, Pennsylvania and Delaware as well as transportation consultants from other regions of the country to witness the procedure first-hand on the Eastern Avenue bridge. The bridge, which was built in 1934, has suffered major corrosion on its deck, which is currently being replaced through conventional construction methods. The bridge abutments, however, have experienced only minor corrosion which can be remedied through ECE.

The entire project is scheduled to be completed in July 2000. Normally, commuter traffic would have to be redirected around the construction site for at least an additional six months if the abutments had to be removed and replaced.

The innovative technique was patented in Europe where it has been used extensively. It has been gaining interest in the United States, particularly in states in the Northeast and upper Midwest. The Eastern Avenue project is viewed by the FHWA as an example of the technique's potential for successful nationwide application.

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