On Track for Railroad Crossing Safety

North Carolina's Sealed Corridor Program

PAUL C. WORLEY

In 1992, the U.S. Department of Transportation (DOT) designated five national high-speed rail corridors, including one connecting Washington, D.C., Raleigh, and Charlotte, North Carolina. Since then, North Carolina has received funds to improve at-grade railroad crossing safety along its portion of the Southeast High-Speed Rail (SEHSR) corridor.

North Carolina DOT's Sealed Corridor Program aims to improve or consolidate every public and private crossing along the section of the SEHSR corridor connecting Raleigh, Greensboro, and Charlotte. Although public agency involvement in private crossings—which generally are under the jurisdiction of the railroad companies—had no legal precedent, the Private Crossing Safety Initiative has focused on the same safety goals as for public crossings, has inventoried and evaluated all private crossings on the corridor, and has recommended signalization, signage, or closure.

North Carolina DOT also has conducted comprehensive traffic separation studies to identify crossings for near- and long-term improvements, including consolidation or replacement with bridges or with safer parallel crossings.

The Sealed Corridor Initiative has demonstrated devices to enhance safety at highway–railroad grade crossings. Video-monitored tests in the 1990s documented a 67 percent to 98 percent reduction in gate violations, depending on the treatments. An analysis by the U.S DOT's Volpe Center estimated that a potential 19.7 lives were saved as a result of the projects implemented on the corridor through December 2007.

The enhanced devices and strategies that were evaluated included the following:

◆ **Median separators**. Installed along the centerline of a roadway and extending approximately 70 to 100 feet from the crossing, the separators prevent motorists from crossing lanes to get around the activated gates. The median devices may be tubes, or flat delineator panels attached to a prefabricated island, or a concrete monolith with tubes. The devices have reduced crossing violations by 77 percent.

PHOTO: NORTH CAROLINA DOT

Four-quadrant gates block all lanes of travel across railroad tracks when signals are activated.

PHOTO: NORTH CAROLINA DOT

Median separators prevent motorists from crossing lanes to avoid activated gates.

◆ **Four-quadrant gates**. The gates block all lanes of travel across the railroad tracks when the signals are activated and have decreased violations by up to 86 percent.

◆ **Combinations of median separators with four-quadrant gates** have reduced violations by 98 percent.

◆ **Longer gates**. Extending across three-fourths of the roadway at a crossing, longer gates reduce a driver's ability to dodge around and have decreased violations by 84 percent.

In addition, special signage can indicate the stopping point for vehicles, provide a phone number for reporting signal outages, or remind drivers not to stop their vehicles on the tracks. Equipment monitoring was found to be a valuable part of a centralized communications system, notifying railroad personnel in a timely way about malfunctions in crossing equipment.

Federal Railroad Administration (FRA) grants and state funds supported the initial projects of the Sealed Corridor Program. Additional grade separations and closures are now being built through FRA's High-Speed Intercity Passenger Rail Program and are scheduled for completion by 2017. Copies of FRA research and development reports are available at www.fra.dot.gov/Page/P0001.

The author is Rail Division Director, North Carolina Department of Transportation, Raleigh.