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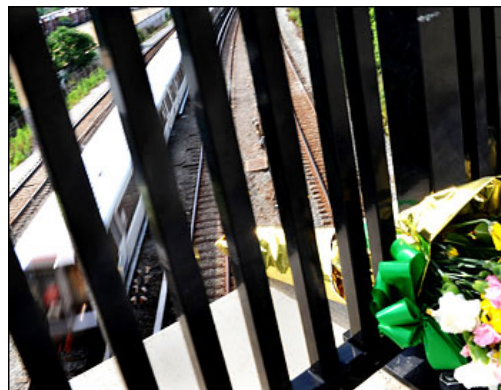
All the latest news from the District, Maryland and Virginia

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### A Metro Train Control System Fails a Post-Crash Test

The union and some members of Congress are also recommending that Metro sandwich its oldest cars, the ones that made up the striking train, between newer cars. The oldest cars, purchased more than 30 years ago, have been criticized as being prone to fold into themselves, like a telescope, during a crash. The lead car of the striking train in Monday's crash incurred the worst damage and was compressed by two-thirds. The cars, manufactured by Rohr Industries, make up more than 25 percent of Metro's fleet.

#### GALLERY



#### Deadliest Crash in Metrorail History

Two Red Line Metrorail trains crashed June 22, 2009 between the Fort Totten and Takoma Park stations, killing nine, including one train operator.

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#### THIS STORY

Metro Control System Fails Test  
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Metro's fleet of 1,128 rail cars is composed of six series of cars. Operations personnel say using the same series of cars in a train allows for smoother operations. No decision has been made about train configurations, officials said.

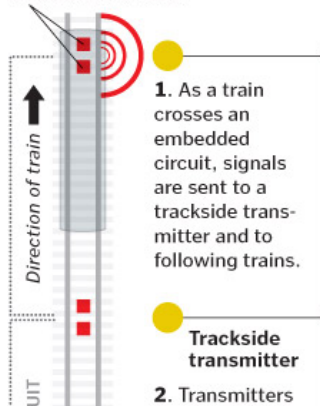
A House committee is scheduled to hold a hearing on the crash July 14.

Catoe said he will take action "at any suggestion of problems" and not wait for a formal report from the NTSB on the cause of the crash, which could take a year or more. Metro board chairman Jim Graham, while pledging full cooperation, questioned the daily release of investigation details by the NTSB.

"I believe it is very important to gather and determine the facts first and at an appropriate time release the facts," he said, instead of "putting out piecemeal information, theories and possibilities"

#### How the system works

##### Embedded sensors



about the crash.

Five to 10 percent of the track circuit inspections have been completed, and no immediate problems have been detected, Deputy General Manager Gerald Francis said yesterday. Federal investigators said maintenance crews were working on the track circuits in the area of the crash earlier this month. Metro's rail chief, Dave Kubicek, would not say what that work was or how frequently track circuits are inspected, saying personnel have "different levels and different strategies" for inspecting the circuits.

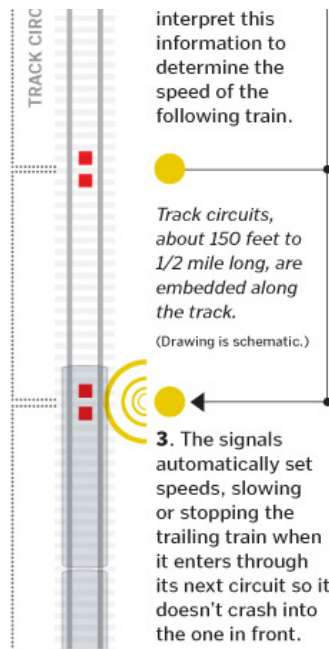
A track circuit is an electrical circuit that includes a length of running rail and allows the presence of a train to be detected. The circuit also communicates commands and instructions between the track and the train. If a train tries to approach too close to the rear of another train, information provided by the track circuits is used to slow or stop the second train before there is danger of a crash.

Metro's automated trains operate under several control systems. The train protection system is made up of circuits embedded along the track, which range from 150 feet to a half-mile long. As trains cross the circuits, signals are transmitted down the line to following trains. The signals automatically set speeds, slowing or stopping a train so that it doesn't crash into the one in front.

The railroad is divided into blocks, which are varying lengths of track, and computers are set to keep two blocks of distance between trains. As an added layer of control, another electronic system regulates train speeds and spacing and stops the trains as they enter stations. A third system controls overall train movements to maintain proper routing and keep trains on schedule; it is monitored by workers in Metro's downtown central control room.

If the train protection system is working as designed, when one train begins to enter the buffer zone, the computers deploy the brakes on the second train and force it to stop.

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SOURCE: WMATA | The Washington Post - June 26, 2009

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In the past decade, Metro has run into trouble with components in its signal system. In 1999, the agency discovered that a handful of key devices known as relays were prematurely failing. Relays, about the size of a hardcover book, transmit the signals that automatically control speed, braking and switches. They were designed to last 40 years, but some were malfunctioning after 25 years, sending erroneous signals to trains on at least four occasions.


Metro ripped out all 20,000 relays and demanded that the manufacturer, Alstom Signaling, replace them. Alstom installed signals at a cost of \$8 million to Metro, a process that took 20 months. In that time, Metro trains ran in manual mode. Neither Metro nor Alstom ever determined the cause of the failures.


Catoe and other top officials have been meeting with families of the victims and injured and writing checks to help cover funeral, medical and other expenses. Officials said the payments are not intended to avoid lawsuits against the agency.

*Staff writer Lyndsey Layton contributed to this report.*

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