

**Testimony of the Honorable Deborah A.P. Hersman  
National Transportation Safety Board  
Before the  
Subcommittee on Federal Workforce, Postal Service, and the District of Columbia  
Committee on Oversight and Government Reform  
United States House of Representatives  
Washington, D.C.**

**Hearing on Washington Metropolitan Area Transit Authority Metrorail Accident  
July 14, 2009**

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Good morning, Chairman Lynch, Ranking Member Chaffetz, and Members of the Subcommittee. Thank you for the opportunity to appear before you today on behalf of the National Transportation Safety Board (NTSB) regarding the recent collision between two Washington Metropolitan Area Transit Authority (WMATA) Metrorail trains. Today, I am pleased to provide you information about our investigation of this accident and facts that we have determined to date. However, the investigation is ongoing and our staff has much work to do before we can draw conclusions or determine probable cause.

On Monday, June 22, 2009, about 4:58 p.m., eastern daylight time, southbound Metrorail train 112 was travelling in a curve when it struck the rear end of train 214 before reaching the Fort Totten station in Washington, D.C. Train 214 had stopped before entering the station to wait for another train to leave the platform. The District of Columbia Fire and Emergency Medical Service reported 9 fatalities and that it transported about 52 persons to local hospitals.

The NTSB was notified about the collision between the two Metrorail trains about 5:30 p.m. An investigative team was launched promptly to the accident site, including staff from the NTSB's headquarters in Washington, D.C. and our regional offices in Chicago, Illinois, and Los Angeles, California. The NTSB team included an investigator-in-charge and technical investigative staff for transit operations, track, signals and train control, mechanical factors, crashworthiness, human performance, event recorders, survival factors, and emergency response. Additional investigators from NTSB's Offices of Research and Engineering, Highway Safety, and Aviation Safety responded to assist in the investigation. NTSB's Office of Transportation Disaster Assistance provided passengers and families of those involved in the accident information about NTSB investigation activities and access to support services. I also launched to the accident site as the NTSB Member on duty. During the on-site investigation as many as 27 NTSB personnel were involved.

A Federal Bureau of Investigation forensic team assisted in the documentation of the accident site and passenger car interiors, and worked with fire and rescue personnel in the recovery process. WMATA, the Federal Transit Administration, the Amalgamated Transit Union, and the Tri-State Oversight Committee are parties to the NTSB accident investigation.

There was no communication between the train operators and the Metrorail Operations Control Center before the collision. During the collision, the lead car of train 112 telescoped and overrode the rear car of train 214 by about 50 feet. Investigators found rail streak marks

consistent with heavy braking that were approximately 125 feet long and began approximately 425 feet prior to the point of collision.

The stopped train, 214, was a 6-car train in passenger service consisting of two 2-car sets of 3000-series transit railcars and one 2-car set of 5000-series transit railcars. The train 214 operator told investigators that he was operating in manual mode at the time of the accident. The striking train, 112, was a 6-car train in passenger service consisting of three 2-car sets of 1000-series transit railcars being operated by the train operator in the automatic mode.

Trains operate under the direction of WMATA's Operations Control Center and utilize an automatic train control system supplemented by wayside signals at interlockings. WMATA procedures require trains to operate in automatic mode on the mainline during the morning and evening rush hours, unless an operator requests permission to operate manually. During off-peak hours, trains operate in manual mode. Maximum authorized speed in the accident area is 59 mph. The automatic train control system is designed to prevent collisions regardless of whether a train is operated in manual or automatic mode by generating speed commands for individual train movements that should not allow more than one train to occupy a track circuit.

Postaccident testing by NTSB investigators showed that the track circuit at the accident site intermittently failed to detect a train stopped at the location where train 214 was stopped when the collision occurred. Under such circumstances, the train control system would not be aware of the train's location, and thus a following train would not receive a command to slow or stop in order to maintain train separation. Investigators are continuing to examine train control system circuitry and recorded data to better understand how the train control system was functioning at the time of the accident.

WMATA maintenance records showed that an impedance bond for the track circuit where the accident occurred was replaced on June 17, 2009, 5 days before the accident. The impedance bond was replaced as part of a scheduled multi-year program to upgrade train control circuitry. After a postaccident review of recorded track circuit data, WMATA reported that the track circuit had been intermittently failing to detect trains after June 17. The NTSB has not uncovered any evidence to suggest that WMATA was aware of this track circuit problem prior to the accident.

The Operations Control Center computer system continuously receives real-time train location data and displays this information on a monitor in the control center. Recorded track circuit data showed errors in train detection for several days before the accident. The investigation has found that there is no automatic monitoring that would identify and promptly report a situation in which a train stops being detected by the system. WMATA has informed the NTSB that since the accident it has assigned personnel to review recorded data once a day to identify track circuit anomalies systemwide.

The striking train did not have any onboard event recorders that would have recorded train speed and other parameters. Investigators have collected recorder data from the struck train. Data was recovered from eight of the nine recorders on the struck train. Data could not be downloaded from one recorder. Two of the eight recorders did not contain data related to the

accident; data collection ended before the accident for undetermined reasons. The accident data is now being examined by investigators in the NTSB laboratory.

NTSB's technical groups are examining and documenting factors in the following areas.

**Signal and Train Control.** Testing and inspection of the in-track signal components and their function with the automatic train control system is ongoing. This includes evaluation of the design, monitoring, and operational characteristics of the automatic train control system and the system communications between the signal circuitry and the Operations Control Center. The group is also examining the installation process for the replacement of components of the wayside track signal circuitry. The train control system is complex and will require a thorough investigation of all components.

**Crashworthiness.** This group is documenting and evaluating the performance of passenger equipment involved in this accident and comparing the information with previous NTSB accident investigations on the Metrorail system, including collisions at Shady Grove in 1996 and Woodley Park-Zoo/Adams Morgan in 2004.

**Transit Operations.** This group is documenting and reviewing the activities, responsibilities, and procedures for train operators and the Operations Control Center; management oversight; and safety oversight from Federal and state organizations.

**Mechanical.** This group is testing and inspecting passenger car components including brake condition, wheel condition, and equipment operation from the operator's compartment. It is also reviewing maintenance and repair records for equipment.

**Human Performance.** NTSB investigators are examining the work experience, health, work/rest schedule, qualification, training, and activities of each train operator involved in the accident. They are also examining the qualification, training, and experience of signal personnel involved in the maintenance and replacement of components of the automatic train control system.

**Track.** We are mapping and documenting the accident site for equipment location, relation to stations, wayside signal components, track characteristics, physical characteristics of the area, and physical evidence at the accident site.

**Survival Factors.** This group is documenting and evaluating injury-producing features of the interior of the passenger equipment, interviewing passengers, and examining hospital records and injury reports. It is also evaluating emergency response efforts in the extrication of passengers, accessibility to injured passengers, and site access.

**Event Recorders.** We are evaluating data downloaded from event recorders onboard the train that was struck. We are also evaluating data recorded at signal and train control wayside installations and the Operations Control Center for the automatic train control system.

The NTSB accident investigation will continue for several months; however, the Board may issue safety recommendations anytime before the completion of the final accident investigation report if it believes action is needed to prevent future accidents.

Thank you for the opportunity to appear before you today, and I am happy to answer questions that you may have.