National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: August 10, 2010

In reply refer to: R-10-6

Mr. Matthew Bassett
Chair, Tri-State Oversight Committee
Virginia Department of Rail & Public Transportation
6363 Walker Lane, Suite 500
Alexandria, VA 22310

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. We are providing the following information to urge your organization to take action on the safety recommendation in this letter. The NTSB is vitally interested in this recommendation because it is designed to prevent accidents and save lives.

This recommendation addresses safety oversight of the Washington Metropolitan Area Transit Authority (WMATA). The recommendation is derived from the NTSB's investigation of the June 22, 2009, collision of two WMATA Metrorail trains near the Fort Totten station and is consistent with the evidence we found and the analysis we performed. As a result of this investigation, the NTSB has issued 23 safety recommendations, 1 of which is addressed to the Tri-State Oversight Committee (TOC). Information supporting this recommendation is discussed below. The NTSB would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendation.

On Monday, June 22, 2009, about 4:58 p.m., eastern daylight time, inbound WMATA Metrorail train 112 struck the rear of stopped inbound Metrorail train 214. The accident occurred on aboveground track on the Metrorail Red Line near the Fort Totten station in Washington, D.C. The lead car of train 112 struck the rear car of train 214, causing the rear car of train 214 to telescope[1] into the lead car of train 112, resulting in a loss of occupant survival space in the lead car of about 63 feet (about 84 percent of its total length). Nine people aboard train 112, including

[1] *Telescoping* occurs when a railcar body breaches the end structure of another carbody and passes into the structure of that carbody.

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the train operator, were killed. Emergency response agencies reported transporting 52 people to local hospitals. Damage to train equipment was estimated to be $12 million.[2]

The NTSB determined that the probable cause of the June 22, 2009, collision of WMATA Metrorail train 112 with the rear of standing train 214 near the Fort Totten station was (1) a failure of the track circuit modules, built by GRS/Alstom Signaling Inc., that caused the automatic train control system to lose detection of train 214 (the struck train) and thus transmit speed commands to train 112 (the striking train) up to the point of impact, and (2) WMATA's failure to ensure that the enhanced track circuit verification test (developed following the 2005 Rosslyn near-collisions) was institutionalized and used systemwide, which would have identified the faulty track circuit before the accident.

Contributing to the accident were (1) WMATA's lack of a safety culture, (2) WMATA's failure to effectively maintain and monitor the performance of its automatic train control system, (3) GRS/Alstom Signaling Inc.'s failure to provide a maintenance plan to detect spurious signals that could cause its track circuit modules to malfunction, (4) ineffective safety oversight by the WMATA Board of Directors, (5) the Tri-State Oversight Committee's ineffective oversight and lack of safety oversight authority, and (6) the Federal Transit Administration's lack of statutory authority to provide federal safety oversight.

Contributing to the severity of passenger injuries and the number of fatalities was WMATA's failure to replace or retrofit the 1000-series railcars after these cars were shown in a previous accident to exhibit poor crashworthiness.

One of TOC's oversight responsibilities is to conduct on-site safety reviews every 3 years to determine whether WMATA's safety practices and procedures are in compliance with the system safety plan. Any areas that are identified as those in need of corrective action are incorporated into a corrective action plan (CAP).

As of February 3, 2010, a total of 48 CAPs from previous triennial audits were still classified as open, that is, unresolved. This included 9 CAPs from events in 2004, 6 from 2005, 6 from 2006, 11 from 2007, and 13 from 2008. Of the 48 open CAPs, 2 were related to the Rosslyn near-collision incidents in 2005, and 15 were related to NTSB recommendations issued in connection with WMATA accidents occurring at the Woodley Park station in 2004,[3] at the Eisenhower Avenue[4] and Dupont Circle[5] stations in 2006, and at the Mt. Vernon Square station in 2007.[6]

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[2] See *Collision of Two Washington Metropolitan Area Transit Authority Metrorail Trains Near Fort Totten Station, Washington, D.C., June 22, 2009,* Railroad Accident Report NTSB/RAR-10/02 (Washington, DC: National Transportation Safety Board, 2010) on the NTSB website at <http://ntsb.gov/publictn/2010/RAR1002.pdf>.

[3] *Collision Between Two Washington Metropolitan Area Transit Authority Trains at the Woodley Park-Zoo/Adams Morgan Station in Washington, D.C., November 3, 2004*, Railroad Accident Report NTSB/RAR-06/01 (Washington, DC: National Transportation Safety Board, 2006).

[4] *Washington Metropolitan Area Transit Authority Train Strikes Wayside Workers Near Eisenhower Avenue Station, Alexandria, Virginia, November 30, 2006*, Railroad Accident Brief NTSB/RAB-08/02 (Washington, DC: National Transportation Safety Board, 2008).

During the Federal Transit Administration's (FTA) 2007 audit of TOC, the audit team developed 12 findings, 8 of which were for noncompliance. Two of the noncompliance findings were that (1) WMATA had not conducted internal safety audits according to the schedule specified in its system safety program plan and (2) WMATA CAPs were not being reviewed and approved according to the time frame required by TOC program procedures. These were findings that had been identified during the FTA's 2005 audit of TOC and that were carried forward in the 2007 audit report.

The FTA's audit of TOC in 2009 again found shortcomings with the way TOC and WMATA handled issues related to safety. The 2009 FTA findings and recommendations for TOC and WMATA focused on a number of general safety issues noted with both agencies.

For TOC, the FTA's findings addressed, among other issues, (1) providing the resources, financial and personnel, necessary for TOC to carry out its responsibilities and ensuring that TOC members possess the technical and professional skill necessary for the job; (2) improving coordination and communication between WMATA and TOC; (3) resolving previously identified safety issues as well as open CAPs; (4) improving the safety audit process; and (5) ensuring that WMATA has an effective system safety program plan and hazard management program. The NTSB concludes that the results of this investigation, as well as the FTA's audit of TOC and WMATA, determined that TOC has been ineffective in providing proper safety oversight of and lacks the necessary authority to oversee the WMATA Metrorail system.

For WMATA, the FTA's recommendations addressed, among other issues, (1) providing the resources and expertise necessary for the WMATA safety department, (2) ensuring that the safety department is actively involved in all operations and maintenance decisions and activities, (3) providing the chief safety officer with direct access to the WMATA general manager, (4) performing a systemwide hazard analysis that involves all WMATA departments, and (5) implementing and providing employee training in new rules to increase worker safety along the WMATA right-of-way.

The NTSB concludes that the results of this investigation and the findings and recommendations contained in the FTA's March 4, 2010, Final Audit Report of its 2009 safety audit of TOC and WMATA, if implemented, will enhance WMATA Metrorail passenger and employee safety.

The National Transportation Safety Board therefore makes the following safety recommendation to the Tri-State Oversight Committee:

> Work with the Washington Metropolitan Area Transit Authority to satisfactorily address the recommendations contained in the Federal Transit Administration's

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[5] *Washington Metropolitan Area Transit Authority Train Strikes Wayside Worker Near Dupont Circle Station, Washington, D.C., May 14, 2006*, Railroad Accident Brief NTSB/RAB-08/01 (Washington, DC: National Transportation Safety Board, 2008).

[6] *Derailment of Washington Metropolitan Area Transit Authority Train near the Mt. Vernon Square Station, Washington, D.C., January 7, 2007*, Railroad Accident Report NTSB/RAR-07/03 (Washington, DC: National Transportation Safety Board, 2007).

March 4, 2010, final report of its audit of the Tri-State Oversight Committee and the Washington Metropolitan Area Transit Authority. (R-10-6)

The NTSB also issued safety recommendations to the U.S. Department of Transportation, the Federal Transit Administration, the Washington Metropolitan Area Transit Authority Board of Directors, the Washington Metropolitan Area Transit Authority, Alstom Signaling Inc., the Massachusetts Bay Transportation Authority, the Southeastern Pennsylvania Transportation Authority, the Greater Cleveland Regional Transit Authority, the Metropolitan Atlanta Regional Transportation Authority, the Los Angeles County Metropolitan Transportation Authority, and the Chicago Transit Authority.

In response to the recommendation in this letter, please refer to Safety Recommendation R-10-7. If you would like to submit your response electronically rather than in hard copy, you may send it to the following e-mail address: correspondence@ntsb.gov. If your response includes attachments that exceed 5 megabytes, please e-mail us asking for instructions on how to use our secure mailbox. To avoid confusion, please use only one method of submission (that is, do not submit both an electronic copy and a hard copy of the same response letter).

Chairman HERSMAN, Vice Chairman HART, and Members SUMWALT, WEENER, and ROSEKIND concurred in this recommendation.

[Original Signed]

By: Deborah A.P. Hersman
Chairman