



# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

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**Date:** December 22, 2011

**In reply refer to:** R-11-2 and -3

To the 50 States and the District of Columbia  
(See attached list)

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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 recommendations in this letter. The NTSB is vitally interested in these recommendations because they are designed to prevent accidents and save lives.

These recommendations are derived from the NTSB's investigation of a November 28, 2008, accident in which a three-car automated people mover (APM) train operating at Miami International Airport near Miami, Florida, failed to stop at the passenger platform and struck a terminal wall. As a result of this investigation, the NTSB has issued five safety recommendations, two of which are addressed to the 50 states and the District of Columbia. Information supporting these recommendations 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 recommendations.

About 4:44 p.m., eastern standard time, on November 28, 2008, a three-car APM train operating along a fixed guideway<sup>1</sup> on E Concourse at Miami International Airport near Miami, Florida, failed to stop at the passenger platform and struck a wall at the end of the guideway. Although a maintenance technician was monitoring train operations from the lead car of the train when the accident occurred, the train was operating in fully automatic mode without a human operator. The maintenance technician and five passengers on board the train were injured in the accident. One person on the passenger platform also required medical attention.<sup>2</sup>

The National Transportation Safety Board determined that the probable cause of this accident was the installation by Johnson Controls, Inc., maintenance technicians of a jumper wire

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<sup>1</sup> A rail fixed guideway system is defined by Title 49 Code of Federal Regulations Part 659 as any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, or automated guideway.

<sup>2</sup> See *Miami International Airport, Automated People Mover Train Collision with Passenger Terminal Wall, Miami, Florida, November 28, 2008*, Railroad Accident Report NTSB/RAR-11/01 (Washington, DC: National Transportation Safety Board, 2011) on the NTSB website at [www.nts.gov](http://www.nts.gov).

that prevented the overspeed/overshoot system from activating to stop the train when the crystal within the primary program stop module failed. Contributing to the accident were (1) the failure of Johnson Controls, Inc., to provide its maintenance technicians with specific procedures regarding the potential disabling of vital train control systems during passenger operations, (2) ineffective safety oversight by the Miami-Dade Aviation Department, (3) lack of adequate safety oversight of such systems by the state of Florida, and (4) lack of authority by the U.S. Department of Transportation to provide adequate safety oversight of such systems.

Safety oversight of the APM system at Miami International Airport should have been provided by, at a minimum, the Miami-Dade Aviation Department (MDAD) and the state of Florida. The NTSB's investigation revealed, however, that neither entity was routinely providing detailed oversight with regard to safety issues.

The MDAD project manager/superintendent of contracts and construction was responsible for monitoring the safety and maintenance of the system while the MDAD Facilities Maintenance Division was responsible for oversight of the APM system contractor. Those oversight roles were largely carried out by notifying maintenance technicians employed by the system contractor, Johnson Controls, Inc. (JCI), when a train malfunctioned and relying on those maintenance technicians to take the actions necessary to return the trains to service.

JCI had taken over as maintenance contractor for the system (replacing the previous maintenance contractor, Bombardier—Automated People Movers) about 10 months before the accident. Based on maintenance records and employee interviews, the trains during that period had exhibited frequent and recurring problems that were addressed on an ad hoc basis. At no point did MDAD management evaluate the various safety risks inherent in the APM system and develop methods of managing and minimizing those risks. Nor did it seek to enforce the contract provision requiring that trains be taken out of service in the event of a malfunction that significantly degraded passenger safety.

Risk to passengers rose to unacceptable levels when trains were allowed to operate in passenger service with the overspeed/overshoot system bypassed by a jumper wire. However, the fact that the vital overspeed/overshoot system was being bypassed on some trains in passenger service was apparently not known by MDAD management, indicating a failure of the agency to fulfill its proper oversight role.

The NTSB concluded that the state of Florida and MDAD failed to exercise safety oversight of the Miami International Airport APM system, which resulted in trains being allowed to operate in regular passenger service with a vital safety system disabled.

The Florida Department of Transportation (Florida DOT) provides safety oversight of six fixed guideway transportation systems within the state, including APM systems at the Orlando and Tampa airports. The Florida DOT does not provide safety oversight of the APM system at Miami International Airport. In 1988, the Florida DOT asked that MDAD develop a system safety program plan for the Miami airport APM. Although MDAD acknowledged that the state partly financed the system, it declined to develop a safety plan stating that the system predated the state statute requiring such oversight.

The Florida DOT also does not provide safety oversight of the monorail APM system at Walt Disney World Resort in Lake Buena Vista, Florida, where a fatal accident occurred on July 5, 2009.<sup>3</sup> The state does not provide oversight because the monorail system did not receive state or Federal Transit Administration (FTA) funding.

External safety oversight of public transportation systems is critical to identifying and correcting systemic safety risks that may not be readily apparent or may not be effectively addressed by the operator or transit agency. The NTSB believes that higher level oversight of fixed guideway transportation systems, such as the Miami airport APM system, is necessary to help promote effective risk analysis and safety management of these systems and will lead to safer travel.

The NTSB has long seen the need to improve the oversight of rail transit operators by state oversight agencies; however, the FTA, which requires that such an oversight agency be identified, does not, and cannot, due to its limited statutory authority, provide the oversight agency with the authority to promulgate and enforce safety regulations or standards. Therefore, except for states such as California and Massachusetts, which have provided their oversight agencies with regulatory and enforcement authority, a state oversight agency is limited in its ability to compel a rail transit agency to comply with its system safety program plan or any other FTA requirement.

To compound this deficiency, not all transit and fixed guideway systems—as is the case with the Miami airport APM—are subject even to state oversight. The state of Florida is not alone in this regard. The NTSB investigation revealed that at least 22 other states have fixed guideway systems that fall outside the regulatory authority of the designated state oversight agencies.

The NTSB is concerned that the lack of safety oversight of some APM systems creates a situation in which adequate risk management and safety standards may not exist or may be ineffectively applied, which could lead to an inconsistent level of safety and risk management and a heightened risk to passengers. The NTSB concluded that a lack of state and Federal safety oversight of fixed guideway transit systems can permit those systems to operate with ineffective safety standards, which could, in turn, lead to failures of safety-critical operations and procedures.

The NTSB has attempted to address the lack of safety oversight of rail transit systems by issuing a series of safety recommendations over a number of years. For example, as a result of the safety oversight issues raised in its investigation of the July 11, 2006, derailment of a Chicago Transit Authority train in Chicago, Illinois,<sup>4</sup> the NTSB recommended that the FTA develop and implement an action plan, including provisions for technical and financial resources

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<sup>3</sup> *Collision of Two Monorails in Walt Disney World Resort, Lake Buena Vista, Florida, July 5, 2009*, Railroad Accident Brief NTSB/RAB-11/07 (Washington, DC: National Transportation Safety Board, 2011). <<http://www.nts.gov>>.

<sup>4</sup> *Derailement of Chicago Transit Authority Train Number 220 Between Clark/Lake and Grand/Milwaukee Stations, Chicago, Illinois, July 11, 2006*, Railroad Accident Report NTSB/RAR-07/02 (Washington, DC: National Transportation Safety Board, 2007). <<http://www.nts.gov>>.

as necessary, to enhance the effectiveness of state safety oversight programs, to identify safety deficiencies, and to ensure that those deficiencies are corrected.<sup>5</sup>

Less than a year after the accident at Miami International Airport, the NTSB investigated a much more serious accident involving a collision of two Washington Metropolitan Area Transit Authority Metrorail trains in Washington, DC.<sup>6</sup> Based on the findings from that investigation, as well as from its investigations of previous rail transit accidents, the NTSB concluded that the structure of the FTA's oversight process leads to inconsistent practices, inadequate standards, and marginal effectiveness with respect to the state safety oversight of rail transit systems in the United States.

In an attempt to place renewed emphasis on this important safety issue, the NTSB has reiterated Safety Recommendation R-10-3 to the U.S. Department of Transportation (DOT).

On December 7, 2009, the secretary of the DOT submitted draft legislation to the Congress that, if enacted, would provide the FTA with a significant increase in its ability to provide oversight of the rail transit system. The proposed legislation would (1) authorize the secretary to establish and enforce Federal safety standards for rail transit systems that receive Federal transit assistance—effectively eliminating the statutory prohibition against imposing broad safety standards that have been in place since 1965, (2) allow states to be eligible for Federal assistance in hiring and training state oversight personnel to enforce the new Federal regulations, and (3) require the state agencies conducting oversight to be fully financially independent from the transit systems they oversee. The FTA would enforce all Federal regulations where states choose not to participate in the program or where the state program is found to lack the necessary enforcement tools. The DOT has not submitted comparable draft legislation to the current Congress. However, on March 10, 2011, Senator Barbara A. Mikulski introduced similar legislation, titled the “National Metro Safety Act.” The proposed legislation would, among other things, direct the Secretary of Transportation to develop, implement, and enforce national safety standards for transit agencies operating heavy rail on fixed guideways.

As noted earlier, 22 states are known to have, within their jurisdictions, fixed guideway transportation systems that fall outside the regulatory authority and oversight of the designated state safety oversight agency. Other states may also have fixed guideway systems that are not subject to state safety oversight. The first step in addressing this deficiency is to identify all fixed guideway transportation systems within each state as a precursor to obtaining the regulatory authority to provide the necessary safety oversight. The NTSB, therefore, recommends that the DOT, the 50 states, and the District of Columbia work together to identify all fixed guideway transportation systems within each jurisdiction. As a followup to that effort, the NTSB recommends that each of the 50 states and the District of Columbia obtain the statutory authority to provide safety oversight of all fixed guideway transportation systems that operate within its jurisdiction, regardless of their funding authorization or the date they began operation.

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<sup>5</sup> Safety Recommendations R-07-9 and -10.

<sup>6</sup> *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). <<http://www.nts.gov>>.

The National Transportation Safety Board makes the following safety recommendations to the 50 states and the District of Columbia:

Working with the U.S. Department of Transportation, identify all fixed guideway transportation systems within your jurisdiction. (R-11-2)

Obtain the statutory authority to provide safety oversight of all fixed guideway transportation systems that operate within your jurisdiction, regardless of their funding authorization or the date they began operation. (R-11-3)

The NTSB also issued safety recommendations to the U.S. Department of Transportation, Miami-Dade County, and Johnson Controls, Inc. Additionally, the report reiterated a previously issued recommendation to the U.S. Department of Transportation.

In response to the recommendations in this letter, please refer to Safety Recommendations R-11-2 and -3. 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](mailto: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, ROSEKIND, and WEENER concurred in these recommendations. Vice Chairman HART filed a concurring statement, which is attached to the railroad accident report for this accident.

*[Original Signed]*

By: Deborah A.P. Hersman  
Chairman

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