



# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

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**Date:** January 5, 2005

**In reply refer to:** R-04-13 and -14

Mr. Michael J. Ward  
President  
CSX Transportation, Inc.  
500 Water Street, J-100  
Jacksonville, Florida 32202

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The National Transportation Safety Board is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable causes, and making recommendations to prevent similar accidents from occurring. We are providing the following information to urge you to take action on the safety recommendations in this letter. The Safety Board is vitally interested in these recommendations because they are designed to prevent accidents and save lives.

The recommendations address CSX's inadequate record-keeping procedures with respect to maintenance and inspection activities in the Howard Street Tunnel and the inadequate interaction between CSX and the city of Baltimore on construction and maintenance activities in and near the Howard Street Tunnel. The recommendations are derived from the Safety Board's investigation of the railroad accident involving hazardous materials that took place when a CSX freight train derailed in the Howard Street Tunnel and released a hazardous material, resulting in a fire in Baltimore, Maryland, on July 18, 2001, and are consistent with the evidence we found and the analysis we performed.<sup>1</sup> As a result of this investigation, the Safety Board has issued four safety recommendations, two of which are addressed to CSX. Information supporting the recommendations is provided below. The Safety Board would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendations.

On Wednesday, July 18, 2001, at 3:08 p.m., eastbound CSX freight train L-412-16 derailed 11 of its 60 cars while passing through the Howard Street Tunnel in Baltimore, Maryland. Four of the derailed cars were tank cars: one contained tripropylene, a flammable liquid; two contained hydrochloric acid; and one contained di(2-ethylhexyl) phthalate, which is a plasticizer and an environmentally hazardous substance. The derailed tank car containing tripropylene was punctured, and the escaping tripropylene ignited. The fire spread to the contents of several adjacent cars, creating heat, smoke, and fumes that restricted access to the tunnel for

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<sup>1</sup> For additional information, see National Transportation Safety Board Railroad Accident Brief NTSB/RAB-04/08, *CSX Freight Train Derailment and Subsequent Fire in the Howard Street Tunnel in Baltimore, Maryland, on July 18, 2001*.

several days. A 40-inch-diameter water main directly above the tunnel broke in the hours following the accident and flooded the tunnel with millions of gallons of water. Five emergency responders sustained minor injuries while involved with the on-site emergency. Total costs associated with the accident, including response and clean-up costs, were estimated at about \$12 million. Although the Safety Board could not identify convincing evidence to provide a probable cause for the accident, it found that the most likely scenario that could have resulted in the derailment involved an obstruction between a car wheel and the rail, in combination with changes in track geometry.

CSX record-keeping, with respect to both maintenance and inspection, was identified as an issue during the investigation. No CSX records were found that described or defined the extent or nature of the repairs and modifications that had been made to the Howard Street Tunnel over the years. One CSX official told investigators that no records were kept of general maintenance for the Howard Street Tunnel. At least some repairs in the tunnel apparently went unrecorded. For example, there was a void in the tunnel's arch at station 63+15, immediately below the 40-inch water main that broke following the accident. At some time before the accident, the void appears to have been filled with bricks or repair materials, such as concrete patches. However, no records of such repairs could be found.

CSX tunnel inspection records were also deficient. The CSX tunnel inspection procedures and documentation were neither thorough nor detailed.

Therefore, on the basis of the lack of CSX maintenance and inspection records, the Safety Board believes that CSX should maintain historical documentation of maintenance and inspection activities affecting the Howard Street Tunnel.

During the course of the investigation, it also became apparent that information about modifications and construction in or near the tunnel had not been reliably documented or exchanged among interested parties. For example, there was the previously noted void in the tunnel's arch immediately below the 40-inch water main where a repair had at least been started. Safety Board investigators attempted to obtain information about this void and repair, but neither CSX nor the city of Baltimore knew of or had documentation about when the void was first discovered or who had initiated the repair.

In another instance, information used by the city of Baltimore indicated that a storm sewer was 19 feet below the surface near a test drilling. However, during the drilling project, the drill struck the storm sewer, which was actually only about 8 feet below the surface. Also during the drilling project, it was discovered that a manhole had been moved and the move was not documented.

Documentation and information regarding construction and other alterations to the infrastructure near the Howard Street Tunnel are unreliable, and the exchange of such information between CSX and the city of Baltimore is inadequate. CSX railroad structures, portions of the Maryland Transit Administration light rail system and the Metro subway, and municipal and private utility lines and structures all coexist within a relatively compact area around the tunnel. Repairs and modifications to structures and utilities near the tunnel could have a significant effect on the tunnel's structural integrity and therefore on the structures of other nearby facilities. Consequently, the Safety Board believes that CSX should take action necessary

to enhance the exchange of information with the city of Baltimore on maintenance and construction activities within and in the vicinity of the Howard Street Tunnel.

Therefore, the National Transportation Safety Board makes the following safety recommendations to CSX Transportation:

Maintain historical documentation of inspection and maintenance activities affecting the Howard Street Tunnel. (R-04-13)

Take action necessary to enhance the exchange of information with the city of Baltimore on maintenance and construction activities within and in the vicinity of the Howard Street Tunnel. (R-04-14)

The Safety Board also issued two safety recommendations to the city of Baltimore, Maryland. In your response to the recommendations in this letter, please refer to Safety Recommendations R-04-13 and -14. If you need additional information, you may call (202) 314-6177.

Chairman ENGLEMAN CONNERS, Vice Chairman ROSENKER, and Members CARMODY, HEALING, and HERSMAN concurred in these recommendations.

By: Ellen Engleman Connors  
Chairman