



NTSB 2017-2018
MOST WANTED LIST OF
 TRANSPORTATION SAFETY IMPROVEMENTS

Strengthen Occupant Protection



RAIL

MWL
 MOST WANTED LIST

With regard to train accidents, we believe many fatal occupant ejections may have been prevented with improved railcar crashworthiness, including better window retention.

What is the issue?

We have investigated many accidents in which improved occupant protection systems (seat belts, child restraints, and the traveling compartment or vehicle body) could have reduced injuries and saved lives. With regard to train accidents, we believe many fatal occupant ejections may have been prevented with improved railcar crashworthiness, including better window retention. Additionally, our investigations have revealed that better evacuation procedures could have minimized injuries and prevented deaths.

In May 2015, an Amtrak train derailed in Philadelphia, Pennsylvania, after proceeding through a 50-mph turn at 106 mph. Of the 245 passengers, 8 were killed and 185 were transported to nearby hospitals. During the crash, the train's passenger car windows did not remain intact, resulting in ejections, injuries, and fatalities.

Larger passenger-carrying vehicles, such as school buses, motorcoaches, and rail passenger cars, use a design philosophy called compartmentalization, which features seats that are closely spaced, high backed, well-padded, and designed to absorb energy during a crash. However, compartmentalization may not protect passengers in severe side-impact crashes and high-speed rollovers, such as this Amtrak accident.

What can be done?

Safety improvements have been made to better protect occupants of rail passenger cars from injury and death but, as we saw in the Amtrak 188 accident, more still needs to be done. To minimize deaths and injuries in all modes of transportation, occupant protection systems need be better designed to preserve survivable space and ensure ease of evacuation.

When Amtrak 188 derailed, passenger car windows became dislodged and some passengers were ejected and killed. Additionally, when the cars overturned, passengers were thrown from their seats and struck by loose objects, resulting in severe injuries. Our investigators determined that current safety standards for rail passenger cars are inadequate. Had windows in Amtrak 188 remained in place, the ejected



Continued on next page

Strengthen Occupant Protection



NTSB 2017–2018

MOST WANTED LIST

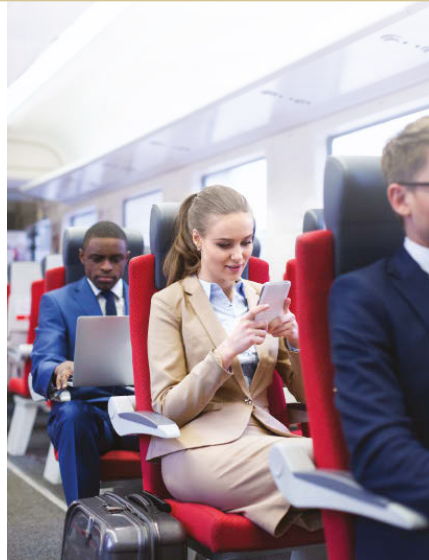
For more information visit
www.nts.gov/MostWanted
 or contact SafetyAdvocacy@ntsb.gov

Continued from previous page

passengers would likely have remained inside the train and survived. Further, had loose objects and passengers been contained, many passengers would have avoided most serious injuries.

All public transportation agencies should adopt existing voluntary standards that address crashworthiness and strengthen occupant protection for train passengers and crews. Protecting passengers and crews from injury requires keeping railcars' windows intact and maintaining their structural integrity during an accident.

Regulators and manufacturers can make a difference by incorporating design elements that optimize crashworthiness and enhance ease of evacuation in an emergency. ■



The NTSB Most Wanted List highlights safety issues identified from the NTSB's accident investigations to increase awareness about the issues and promote recommended safety solutions.

The NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant accidents in other modes of transportation – railroad, highway, marine and pipeline. The NTSB determines the probable cause of the accidents and issues safety recommendations aimed at preventing future accidents. In addition, the NTSB carries out special studies concerning transportation safety and coordinates the resources of the federal government and other organizations to provide assistance to victims and their family members impacted by major transportation disasters.

 @NTSB

 #NTSBMWL

Follow NTSB on 

Related Accidents*

Date	Location	Accident ID
December 1, 2013	Bronx, NY	DCA14MR002
May 12, 2015	Philadelphia, PA	DCA15MR010

*For detailed accident reports visit www.nts.gov

NTSB

MWL
 MOST WANTED LIST

**Critical changes
 needed to reduce
 transportation
 accidents and
 save lives.**

