



U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

Administrator

1200 New Jersey Avenue, SE  
Washington, DC 20590

December 18, 2015

The Honorable Christopher A. Hart  
Chairman  
National Transportation Safety Board  
490 L'Enfant Plaza East, SW  
Washington, DC 20594

Dear Chairman Hart:

This letter responds to the Safety Recommendations issued by the National Transportation Safety Board (NTSB) to the National Highway Traffic Safety Administration (NHTSA) on August 4, 2015, as a result of the April 10, 2014, multi-vehicle crash in Orland, California. In this crash, a Volvo truck-tractor in combination with double trailers, operated by FedEx Freight, Inc., collided with a passenger car and then a Setra motorcoach, resulting in 10 fatalities and more than three dozen injured. Two new Safety Recommendations were issued to NHTSA as a result of this study and seven existing Safety Recommendations were reiterated. Our response and status of each of the Safety Recommendations are discussed below, along with the requested designation.

**H-15-12:** Revise Federal Motor Vehicle Safety Standard 302 to adopt the more rigorous performance standards for interior flammability and smoke emissions characteristics already in use throughout the U.S. Department of Transportation for commercial aviation and rail passenger transportation.

Response: NHTSA is evaluating standards already in use in other transportation modes, such as commercial aviation and rail passenger transportation. NHTSA intends to initiate a new research project to inform our decision to upgrade FMVSS No. 302, "Flammability of interior materials." Components of that research will include vehicle interior material flammability and smoke emissions characteristics. We request that this recommendation be classified as "Open-Acceptable Action."

**H-15-13:** Require new motorcoach and bus designs to include a secondary door for use as an additional emergency exit.

Response: NHTSA is evaluating the feasibility of requiring a secondary floor level emergency exit for motorcoaches. We request that this recommendation be classified as "Open-Acceptable Action." In 2010, NHTSA completed human factors research studies with the Volpe National Transportation System Center to evaluate emergency evacuation designs in current motorcoaches and buses. This work simulated motorcoach and bus emergency evacuation drills from various types of egress portals including a secondary door as a floor level emergency exit. The final reports for this research work were completed in 2010 and are published in Docket No. NHTSA-2007-28793-22 and -24.

In addition to these two new recommendations, we provide the status of the other seven Safety Recommendations reiterated in the August 4, 2015, correspondence. The first three involve emergency evacuation and the remaining four address heavy vehicle event data recorders (HVEDRs).

**H-99-9:** Revise the Federal Motor Vehicle Safety Standard 217, “Bus Window Retention and Release,” to require that other than floor-level emergency exits can be easily opened and remain open during an emergency evacuation when a motorcoach is upright or at unusual attitudes.

**H-00-1:** Revise the Federal Motor Vehicle Safety Standards to require that all motorcoaches be equipped with emergency lighting fixtures that are outfitted with a self-contained independent power source.

**H-00-2:** Revise the Federal Motor Vehicle Safety Standards to require the use of interior luminescent or exterior retroreflective material or both to mark all emergency exits in all motorcoaches.

Response: We plan to address these Safety Recommendations (H-99-9, H-00-1, and H-00-2) in the 2016-2017 timeframe. The previously mentioned 2010 NHTSA sponsored emergency evacuation research evaluated various egress strategies, including egress through windows of motorcoaches, and determined factors affecting egress rates. Research was also conducted on ergonomics of operating and using emergency exits, and emergency lighting, signage, and markings of emergency exits in motorcoaches. The final reports of this research were completed in 2010 and are published in Docket No. NHTSA-2007-28793-22 and -24. NHTSA analyzed the results of this research and developed draft motorcoach emergency egress requirements to ensure evacuation in adequate time under different emergency situations for various occupant groups, including children and the elderly. We request that these three recommendations be classified as “Open-Acceptable Action.”

**H-99-54:** Develop and implement, in cooperation with other government agencies and industry, standards for on-board recording of bus crash data that address, at a minimum, parameters to be recorded, data sampling rates, duration of recording, interface configurations, data storage format, incorporation of fleet management tools, fluid immersion survivability, impact shock survivability, crush and penetration survivability, fire survivability, independent power supply, and ability to accommodate future requirements and technological advances.

**H-10-14:** Develop and implement minimum performance standards for event data recorders for trucks with gross vehicle weight ratings over 10,000 pounds that address, at a minimum, the following elements: data parameters to be recorded; data sampling rates; duration of recorded event; standardized or universal data imaging interface; data storage format; and device and data survivability for crush, impact, fluid exposure and immersion, and thermal exposure. The standards should also require that the event data recorder be capable of capturing and preserving data in the case of a power interruption or loss, and of accommodating future requirements and technological advances, such as flashable and/or reprogrammable operating system software and/or firmware updates.

**H-10-15:** After establishing performance standards for event data recorders for trucks with gross vehicle weight ratings over 10,000 pounds, require that all such vehicles be equipped with event data recorders meeting the standards.

**H-10-7:** Require that all buses above 10,000 pounds gross vehicle weight rating be equipped with on-board recording systems that: (1) record vehicle parameters, including, at minimum, lateral acceleration, longitudinal acceleration, vertical acceleration, heading, vehicle speed, engine speed, driver's seat belt status, braking input, steering input, gear selection, turn signal status (left/right), brake light status (on/off), head/tail light status (on/off), passenger door status (open/closed), emergency door status (open/closed), hazard light status (on/off), brake system status (normal/warning), and flashing red light status (on/off; school buses only); (2) record status of additional seat belts, air bag deployment criteria, air bag deployment time, and air bag deployment energy; (3) record data at a sampling rate sufficient to define vehicle dynamics and be capable of preserving data in the event of a vehicle crash or an electrical power loss; and (4) are mounted to the bus body, not the chassis, to ensure recording of the necessary data to define bus body motion.

Response: We intend no further activity for these four Safety Recommendations (H-99-54, H-10-14, H-10-15, and H-10-7) and request they be closed. These four reiterated recommendations request the agency develop and implement performance standards for HVEDRs in trucks and buses over 10,000 pounds. We have studied the issues relating to establishment of performance requirements for HVEDRs and decided not to pursue installation requirements for them. Our analysis found that many of the important heavy vehicle crash characteristics are obtainable through traditional crash investigation methods. For those data elements of most interest that are not available through investigative means (e.g., vehicle acceleration or advanced safety technology activation) recording such data on HVEDR would require installation of additional sensor systems. The added expense of installing sensors to collect these additional data and meet the requirements of a HVEDR rulemaking is likely to remain high for the foreseeable future. Current HVEDR installation rates are also very low and so their fleet-wide installation alone will add cost. All of these factors combined would make justification of a HVEDR mandate difficult through a cost-benefit analysis. We have drafted a white paper outlining these issues and expect to publish that paper this year. A copy of this paper will be provided to NTSB staff when it becomes available.

If you have any questions, or require additional information, please contact me or Ms. Melanie O'Donnell, our NTSB Liaison, at (202) 366-0689, or via e-mail at [melanie.odonnell@dot.gov](mailto:melanie.odonnell@dot.gov).

Sincerely,

A handwritten signature in black ink that reads "Mark R. Rosekind". The signature is written in a cursive, flowing style.

Mark R. Rosekind, Ph.D.