



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: NOV 2 1999

In reply refer to: H-99-43 and -44

Honorable Rodney E. Slater
Secretary
U.S. Department of Transportation
Washington, D.C. 20590

School bus and motorcoach travel are two of the safest forms of transportation in the United States. Each year, on average, nine school bus passengers and four motorcoach passengers are fatally injured in bus crashes, according to National Highway Traffic Safety Administration (NHTSA) and motorcoach industry statistics. In comparison, NHTSA statistics show that in 1998, over 41,000 people were fatally injured in highway crashes. Although much has been done to improve the safety of school buses and motorcoaches over the years, the safe transportation of bus passengers, especially students and senior citizens, continues to be a national safety priority. Children and seniors are predicted to be the fastest growing segments of our society, and these groups are the primary users of bus transportation. Therefore, the National Transportation Safety Board initiated a special investigation to determine whether additional measures should be taken to better protect bus occupants.

In addition to examining bus crashworthiness issues, the resulting special investigation¹ also addressed a number of data collection issues hampering effective accident study, including the discrepancies among different Federal bus definitions. Vehicle definitions, such as those within NHTSA's Federal Motor Vehicle Safety Standards (FMVSS), are important because the applicability of safety standards relating to occupant crash protection is based on these definitions. Vehicle classification within Federal accident databases is also important because public policy on vehicle safety is based in part on the analysis of these databases, especially NHTSA's Fatality Analysis Reporting System (FARS). NHTSA does not have separate definitions for different bus body types in the FMVSS other than to define them as either a bus or a school bus. In contrast, NHTSA uses five body type classifications in FARS for buses: intercity/cross country bus, school bus, transit bus, other bus, and unknown bus.

The FMVSS define a bus as a motor vehicle with motive power, except a trailer, designed for carrying more than 10 persons. They define a school bus as a bus sold or introduced in

¹ For additional information, read *Bus Crashworthiness Issues*, Highway Special Investigation Report, NTSB/SIR-99/04 (Washington, D.C.: National Transportation Safety Board, 1999).

interstate commerce for purposes that include carrying students to and from school or school-related events. The definition does not include a bus designed and sold for operation as a common carrier in urban transportation. A school bus is the only vehicle in the FMVSS that is defined by use; all other motor vehicles are defined by body type. In other words, according to the FMVSS, a bus is either a school bus or some other type of bus that is not further defined.

The body types that are not further defined in the FMVSS include what are commonly referred to in the industry as motorcoach/intercity buses and transit/urban buses.² Also included are what the Safety Board, in this special investigation, calls specialty buses. Examples of specialty buses include those that retain their originally manufactured cabs and chassis and that were later equipped with an after-market specially manufactured passenger body, as well as those that appear similar to motorcoaches but have a lower chassis and no lower luggage compartment. In addition, vehicles that can carry more than 10 passengers, which the public commonly refers to as vans, and that FARS places in the van-based light trucks category, are built to bus standards and thus are actually buses under FMVSS.

The Federal Motor Carrier Safety Regulations define a bus in two ways: as any motor vehicle, including taxicabs, designed, constructed, or used for the transportation of passengers (49 *Code of Federal Regulations* [CFR] 390.5) and as a vehicle designed to carry more than 15 passengers, including the driver (49 CFR 393.5). Thus, two Federal agencies (NHTSA and the Federal Highway Administration) in the Department of Transportation have three different definitions of a bus and also differ as to the minimum number of passenger seats in a motor vehicle defined as a bus. With the exception of a school bus, the classifications used by NHTSA for the FARS database are not consistent with any of these definitions. The Safety Board therefore concluded that the Department of Transportation does not have standard definitions or classifications for the various bus types.

As was discovered during the course of this special investigation, accident data collection can be hampered by the lack of standard bus definitions. Of the 40 bus accidents reviewed for this investigation, 27 had occurred since 1975, when FARS was established, and the information from those 27 accidents was compared to that in the FARS database. Based on FARS classifications, the appropriate body type for all the motorcoach accidents selected should have been *intercity/cross country bus*. However, because specific Safety Board accidents could not be located in FARS under this body type using the available definition or coding instructions, investigators had to request data for all five body types.

During the Safety Board's August 1998 public hearing on bus crashworthiness, a representative from NHTSA stated that the agency is concerned about inconsistencies in the classification of buses under FARS, which the representative attributed to the variety of bus types used in the United States. He specifically referred to the classification of "chopped" vans and the approximately 20 percent of buses categorized as *unknown bus*. NHTSA reported that it is working with the bus industry to develop a better classification system for buses that will

² A transit bus, as defined in the Safety Board's special investigation, is a vehicle that frequently loads and unloads passengers and operates primarily in local, scheduled route service at lower-than-highway speeds. These buses are manufactured with space and accommodations, such as support bars or straps to use as hand-holds, for standing passengers.

incorporate the classification into the vehicle identification number (VIN). NHTSA has the authority to specify a character and incorporate it into the VIN; but according to the NHTSA representative, modifications would take years. Therefore, NHTSA prefers that the manufacturers voluntarily incorporate the change to the VIN.

Safety Board staff met with NHTSA representatives to discuss their concerns about the Safety Board's findings on bus data collection. NHTSA acknowledged that bus classification data in FARS are incomplete, noting that source documents used to code FARS data do not provide specific details about the bus body type. According to NHTSA, the agency is working with the manufacturers to identify bus make, model, and body type, using the VIN, particularly buses that have previously been coded as either *unknown* or *other bus*. NHTSA is also expanding the *special use* category to identify how a bus is being used. For instance, if a motorcoach is used to transport pupils for a school function, it will be coded as an *intercity bus with special use as a school bus*. With regard to NHTSA's initiatives to improve bus data, the Safety Board concluded that the incorporation of bus identification into the VIN and the expansion of the use category will correct some of the inaccuracies in FARS data, but without standard definitions and accurate classification of buses within FARS, incomplete data and inaccuracies will still exist.

The Safety Board also addressed methods used by the States to collect source data on bus accidents. In discussing the findings of the Safety Board's special investigation with Safety Board staff, NHTSA representatives indicated that source data collected by the States may be incomplete due to a lack of specificity on accident reporting forms and in vehicle registration files. For example, Alabama's accident reporting form defines a bus as "a motor vehicle providing seats for **16** or more persons including the driver and used primarily for the transportation of persons." New Mexico's form defines bus as a vehicle that has seats for more than **15** people (including the driver).

The Model Minimum Uniform Crash Criteria (MMUCC) were developed in 1998 with the cooperation of NHTSA, the Federal Highway Administration, and the National Association of Governors' Highway Safety Representatives. They developed the model in an attempt to address the disparate accident data being collected by the States and to provide requested Federal guidance to States that were revising their accident data reporting forms. One purpose of the model was to ensure that the States were collecting at least the minimum amount of information needed for FARS.

The MMUCC's definition of a bus, however, is different from other Federal definitions. The MMUCC's data collection requirement for an accident involving a bus includes an indication of whether the accident was school bus-related and whether the vehicle configuration was one of two bus types, that is, either a bus with seats for more than 15 people, including the driver, or a bus with seats for 7 to 15 people, including the driver. If States are being advised that school bus involvement and vehicle capacity are the only bus data that need to be collected, then NHTSA may have difficulty accurately identifying the bus body type of an accident vehicle for use in the FARS database.

Because of these factors, the Safety Board concluded that the MMUCC do not provide specific enough guidance to the States on bus body type coding. Therefore, the Safety Board recommends that the U.S. Department of Transportation:

In 1 year and in cooperation with the bus manufacturers, complete the development of standard definitions and classifications for each of the different bus body types, and include these definitions and classifications in the Federal Motor Vehicle Safety Standards. (H-99-43)

Once the standard definitions and classifications for each of the different bus types have been established in the Federal Motor Vehicle Safety Standards, in cooperation with the National Association of Governors' Highway Safety Representatives, amend the Model Minimum Uniform Crash Criteria's bus configuration coding to incorporate the FMVSS definitions and standards. (H-99-44)

The Safety Board also issued Safety Recommendations to the National Highway Traffic Safety Administration, the National Association of Governors' Highway Safety Representatives, and the bus manufacturers. Please refer to Safety Recommendations H-99-43 and -44 in your reply. If you need additional information, you may call (202) 314-6169.

Chairman HALL, Vice Chairman FRANCIS, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations.

By: Jim Hall
Chairman