



# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

Date: NOV 14 1996

In Reply Refer To: H-96-40 through -42

Honorable Rodney E. Slater  
Administrator  
Federal Highway Administration  
400 Seventh Street, S.W.  
Washington, D.C. 20590

On October 25, 1995, at 7:10 a.m., the Northeast Illinois Regional Commuter Railroad Corporation (d/b/a Metropolitan Rail) express commuter train 624 struck the rear left side of a stopped Transportation Joint Agreement School District 47/155 school bus at a railroad/highway grade crossing in Fox River Grove, Illinois.<sup>1</sup> After the school bus crossed the railroad tracks and stopped for a red traffic signal, its rear extended about 3 feet into the path of the train. Of the 35 school bus passengers, 7, 24, and 4 passengers sustained fatal, serious to minor, and no injuries, respectively; the busdriver received minor injuries. The 120 passengers and 3 crewmembers aboard the commuter train were uninjured.

The National Transportation Safety Board investigation revealed that the school busdriver who was driving at the time of the accident was unfamiliar with the route that included the queuing area and the traffic light sequence at the intersection of Algonquin Road and U.S. Route 14 (US 14). She stated that she stopped the bus on the south side of the tracks, did not see any trains or the crossing warning devices activated, and then slowly crossed the railroad tracks. She added that the traffic light for Algonquin Road was displaying a red indication and she believed that she would need to proceed across the tracks to trip a sensor that would trigger the traffic light to display a green indication. The busdriver said that she drove over the stop line to wait for the light to change.

The distance between the crossing gate and stop line on the north side of Algonquin Road was about 20 feet. However, the school bus was 38 feet 4 inches long and the overhang of the train was about 3 feet on each side; therefore, at least 3 feet of the school bus was in the path of the train. The right and left side of the bus were, respectively, overlapping the tracks and in the

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<sup>1</sup>For more information, see Highway/Railroad Accident Report — *Collision of Northeast Illinois Regional Commuter Railroad Corporation (METRA) Train and Transportation Joint Agreement School District 47/155 School Bus at Railroad/Highway Grade Crossing in Fox River Grove, Illinois, on October 25, 1995* (NTSB/HAR-96/02).

path of the train because the bus was at a 75-degree angle to the tracks. No evidence indicates that the school busdriver ever attempted to determine whether her bus had adequate space. She stated that, "It never entered my mind that there wasn't enough room for the bus to fit," and that she did not know the rear of her bus was in the train path. The other school busdrivers who had traversed this crossing knew from their experience that the space was too short for a school bus, and they would stop on the south side of the railroad crossing.

The Safety Board investigation of a 1993 collision<sup>2</sup> in Fort Lauderdale, Florida, involving a gasoline tank truck and a train underscores the necessity that motorists be able to recognize where their vehicle is positioned when they are stopped at a railroad crossing. In this case, the truckdriver was stopped in congested traffic at a work zone at a railroad crossing when the crossing gate came down and struck his truck hood. As described by the witnesses, he was positioned such that the clearance between the truck and the train was about 5 feet. However, he proceeded to try and drive across the tracks and was struck by a passenger train. A fire subsequently erupted that killed the truckdriver and five motorists in the queue of vehicles at the crossing. Had the truckdriver remained in the position under the crossing gate, he would have avoided the collision. As a result of postaccident sight tests, the Safety Board concluded that the truckdriver probably had not been able to see the track and may have thought that he had encroached on it and needed to move forward.

The Illinois school busdriver training curriculum addresses the importance of recognizing the position of the school bus in relation to other vehicles and objects. No specific or practical instruction (except the road test administered when a driver first obtains a school busdriver permit) is provided to ensure that a busdriver understands positioning on the road. The school busdriver in this accident was trained and experienced, but she did not accurately judge the position of her vehicle and acknowledged that she did not know where the rear of her bus was in relation to the railroad tracks. Other drivers familiar with this route were aware of vehicle positioning, but not as a result of training. Therefore, the Safety Board concludes that the guidance provided in the Illinois school busdriver training curriculum about vehicle positioning is ineffective.

The Safety Board also found during its investigation that no specific guidance is provided at the national level about vehicle positioning and available space at railroad/highway grade crossings. Operation Lifesaver, Inc., (OL)<sup>3</sup> is developing a training videotape that addresses school bus vehicle positioning at railroad/highway grade crossings, and this should provide valuable guidance on this subject to those school busdrivers who receive OL training. However, many other school busdrivers throughout the United States who are exposed to short queuing areas near railroad/highway grade crossings may not be provided with the OL information.

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<sup>2</sup>Highway Accident Report--*Gasoline Tank Truck/Amtrak Train Collision and Fire in Fort Lauderdale, Florida, March 17, 1993* (NTSB/HAR-94/01).

<sup>3</sup>An active, continuous public information and education program designed to help prevent and reduce railroad/highway grade crossing accidents. The OL is sponsored cooperatively by Federal, State, and local government agencies, highway safety organizations, and the Nation's railroads.

Illinois State law prohibits driving onto a railroad grade crossing unless there is sufficient space on the other side of the grade crossing to accommodate the vehicle without obstructing rail traffic. After road widening was completed at the US 14 and Algonquin Road intersection in 1989, the distances from the northern rail and crossing gate to the stop line were 35 and 20 feet, respectively. The Illinois Department of Transportation (IDOT) design for the road widening failed to allow for space in the queuing area sufficient to accommodate vehicles such as dump trucks, tractor-semitrailers, mobile homes, and school and commercial buses. The accident busdriver could have known about the short queuing area through a school district route hazard identification system, had such a system existed. However, other motorists would not have had the advantage of using a school district hazard identification system, even had one been in place.

Because no road signs were posted to provide information on the available space in the queuing area, these other motorists might be unable to determine whether the queuing area could adequately accommodate their vehicles. IDOT could have posted signs indicating the length of the queuing area, prohibiting motorists with vehicles in excess of that length from crossing the tracks during a red indication, and instructing those motorists to wait on the south side of the tracks for a green indication. Another traffic signal also could have been installed to coordinate with the intersection light. IDOT has installed a stop line, traffic signs, and traffic signals on the south side of the grade crossing since the collision. Therefore, the Safety Board concludes that IDOT had not employed sufficient measures before the accident to prevent vehicles from encroaching on the railroad tracks while stopped at the north side of the grade crossing.

This collision and the March 1993 Fort Lauderdale accident indicate that motorists often do not recognize the position of a vehicle in relation to an approaching train at a railroad/highway grade crossing. Automatic gates in the down position and stop lines offer visual references to define a train right-of-way. The *Manual on Uniform Traffic Control Devices for Streets and Highways*<sup>4</sup> specifies the location of the railroad warning devices and the stop lines relative to the railroad tracks. However, not all grade crossings have these visual references. These accidents illustrate that motorists may not be aware that they are in the train path, even at crossings equipped with warning devices and stop lines.

Based on the foregoing information, the National Transportation Safety Board makes the following safety recommendations to the Federal Highway Administration:

Develop guidelines and amend the *Manual on Uniform Traffic Control Devices for Streets and Highways* to provide methods to delineate the area (zone) that a train, or its cargo, or both, may occupy on the track or tracks of a railroad grade crossing so motorists have visual reference points that enable them to ascertain whether their vehicle is encroaching on the travel path of the train, or its cargo, or both. (H-96-40)

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<sup>4</sup>The national standard governing traffic control devices on streets or highways placed there by the authority of a public body or official having jurisdiction to regulate, warn, or guide traffic. Published by the U.S. Department of Transportation, Federal Highway Administration, 1988.

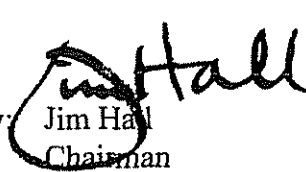
Disseminate safety information, in cooperation with the National Highway Traffic Safety Administration and Operation Lifesaver, Inc., once guidelines are developed, to national, State, police, public service, and safety agencies for them to use in developing a training and education module that informs motorists how to recognize the area (zone) that a train and/or its cargo may occupy on the track or tracks of a railroad grade crossing. (H-96-41)

Cooperate with the Federal Railroad Administration in the review and modification of the existing parameters of the National Highway-Rail Crossing Inventory to ensure that it meets the needs of both railroad and highway users. (H-96-42)

The National Transportation Safety Board is also making safety recommendations to the U.S. Secretary of Transportation, the Federal Railroad Administration, the National Highway Traffic Safety Administration, the State of Illinois, the Illinois Department of Transportation, the Transportation Joint Agreement School District 47/155, the National Association of State Directors of Pupil Transportation Services, the American Association of State Highway and Transportation Officials, the National Association of County Engineers, the American Public Works Association, the Institute of Transportation Engineers, the Association of American Railroads, the American Short Line Railroad Association, the American Public Transit Association, and Operation Lifesaver, Inc. (The Safety Board issued urgent action recommendations following this accident to the Federal Highway Administration, the Federal Railroad Administration, and the State Directors of Transportation.)

The Safety Board is interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter. Please refer to Safety Recommendations H-96-40 through -42. If you have any questions, you may call (202) 314-6448.

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

By:   
Jim Hall  
Chairman