



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: August 8, 2002

In reply refer to: H-02-07

Honorable Mary E. Peters
Administrator
Federal Highway Administration
400 Seventh Street, S.W.
Washington, DC 20590

Ms. Leila Osina
Executive Director
National Committee on Uniform Traffic Laws and Ordinances
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On November 17, 2000, about 4:35 p.m., eastern standard time, near Intercession City, Florida, a 23-axle, heavy-haul vehicle, operated by Molnar Worldwide Heavy Haul Company, was delivering a condenser to the Kissimmee Utility Authority Cane Island Power Plant. The private access road to the plant crossed over a single railroad track owned by CSX Transportation, Inc. (CSXT). As the vehicle, traveling between 1 and 3 mph, crossed the tracks, the crossing warning devices activated and the gates came down on the load. Seconds later, Amtrak train 97, operated by the National Railroad Passenger Corporation, collided with the right side of the rear towed four-axle tractor. No injuries occurred. The collision destroyed the tractor and caused over \$200,000 damage to the train and crossing signals.¹

The National Transportation Safety Board investigated a similar accident that occurred on November 30, 1993, at the same location.² In that accident, an overdimension, low-clearance vehicle operated by Rountree Transport and Rigging, Inc., was en route to deliver an 82-ton turbine to the electricity generating plant. The cargo deck of the transporter bottomed out on the roadway surface as the vehicle moved across the tracks. To gain sufficient clearance, the four-member truck crew shimmed the transporter while the cargo deck was on the tracks. About 12:40 p.m., the lights and bells at the grade crossing activated; the crossing gates descended, striking the turbine. Seconds later, Amtrak train 88, carrying 10 crewmembers and 89 passengers, struck the side of the cargo deck and the turbine. Six people sustained serious injuries and 53 suffered

¹ For additional information, read National Transportation Safety Board, *Collision Between Amtrak Train 97 and Molnar Worldwide Heavy Haul Company Tractor-Trailer Combination Vehicle at Highway-Rail Grade Crossing in Intercession City, Florida, on November 17, 2000*, Highway Accident Report NTSB/HAR-02/02 (Washington, DC: NTSB, 2002).

² For additional information, read National Transportation Safety Board, *Collision of Amtrak Train No. 88 With Rountree Transport and Rigging, Inc., Vehicle on CSX Transportation, Inc., Railroad Near Intercession City, Florida, November 30, 1993*, Highway Accident Report NTSB/HAR-95/01 (Washington, DC: NTSB, 1995).

minor injuries. The vehicle and turbine were destroyed; the locomotive and first three railcars were damaged extensively. Total damage exceeded \$14 million.

The National Transportation Safety Board determined that the probable cause of the November 2000 collision of Amtrak train 97 with the tractor-combination vehicle was the failure of the Kissimmee Utility Authority, its construction contractors and subcontractors, and the motor carrier to provide for the safe passage of the load over the grade crossing.

In this accident, due to the intersection's proximity to the crossing and the elevated configuration of the vehicle, the maximum speed the vehicle could maintain near the crossing was between 1 and 3 mph. Based on this speed, the minimum time the vehicle would occupy the crossing was between 57 seconds and 2 minutes 50 seconds. Active railroad grade crossing devices are required to provide a minimum of 20 seconds of warning time to motorists before the arrival of a train, and typically these devices provide between 20 and 25 seconds of warning. The warning devices at this crossing provided a warning time of 25 seconds. Thus, the accident truck required at least two and as much as seven times more warning of an approaching train than the active warning devices provided, effectively neutralizing the active warning devices.

Additionally, although the train engineer applied the brakes prior to actually identifying the truck on the crossing, he had no opportunity to avoid the collision. His brake application and throttle reduction during the approximately 16 seconds before the accident reduced the train speed by 19 mph, delaying his arrival at the crossing by about 1.71 seconds. While the train's reduced speed and slightly delayed arrival at the crossing may have altered the collision dynamics, there was still not enough time to avoid the collision. The truck would have needed an additional 3.4 seconds to 10.27 seconds to clear the tracks.

Uniform Vehicle Code 11-703 and Florida State Statute (FSS) 316.170 specify that if a vehicle traversing a grade crossing has a normal operating speed of 10 mph or less or a ground clearance of $\frac{1}{2}$ inch-per-foot of the distance between any two axles, or a ground clearance of less than 9 inches, the operator of that vehicle must notify the railroad before crossing. The truckdriver indicated that the normal operating speed of the accident vehicle exceeded 10 mph. Safety Board investigators examined the accident vehicle at the scene; applying the formula provided in FSS 316.170 to this vehicle ($\frac{1}{2}$ inch per foot times 52 feet), the critical ground clearance was 26 inches. The accident vehicle's cargo bed could be raised to 32 inches. It is not clear that the accident vehicle would have met the definition for a vehicle required to notify the railroad in advance of crossing its tracks as found in the *Uniform Vehicle Code* and the Florida statute. However, due to the time this vehicle occupied the crossing, it clearly created a hazard.

Uniform Vehicle Code, Section 11-703, "Moving Heavy Equipment at Railroad Grade Crossings," and the various State laws that are modeled after it do not cover the situation found in this accident, in which the proximity of an intersection to a grade crossing limits vehicle speed to less than 10 mph. The Safety Board has investigated several accidents (1993 Intercession City, Florida; Glendale, California; and Sumner, Washington)³ involving transporters of oversize loads

³ (a) NTSB/HAR-95/01. (b) National Transportation Safety Board, *Collision Between Metrolink Train 901 and Mercury Transportation, Inc., Tractor-Combination Vehicle at Highway-Railroad Grade Crossing in Glendale, California, January 28, 2000*, Highway Accident Report, NTSB/HAR-01/02 (Washington, DC: NTSB, 2001). (c) On December 23, 2000, near Sumner, Washington, a truck, towing a house, had stopped on the tracks to adjust tow dollies when it was struck by an Amtrak train. The load was being escorted by a pilot car and three uniformed, off-duty county police officers. No permit had been obtained to cross the tracks. (National Transportation Safety Board Docket No. Highway-01-IH013).

whose normal operating speed was greater than 10 mph, but, due to the proximity of intersections, had to reduce their speed through the turn and over the grade crossing. In addition, unless a low-clearance vehicle stops well in advance of a crossing to raise the cargo deck to clear the crossing, it cannot reach highway speed. The relevant speed is the actual speed over the crossing. The Safety Board concludes that the definition of a vehicle required to notify the railroad of its intention to cross a highway-rail grade crossing found in the FSS 316.170⁴ and *Uniform Vehicle Code*, Section 11-703, is inadequate because it is based on normal operating speed rather than the actual speed over the crossing.

The National Committee on Uniform Traffic Laws and Ordinances (NCUTLO) maintains the *Uniform Vehicle Code*. The Federal Highway Administration (FHWA) Office of Safety currently has a contract with the NCUTLO to develop a model law on grade crossing safety, and the FHWA Office of Freight Management and Operations provides limited Federal oversight on the transportation of oversize/overweight loads. Therefore, the Safety Board believes that the FHWA and the NCUTLO should revise *Uniform Vehicle Code*, Section 11-703, to define which vehicles, under what circumstances, need to notify the railroad before crossing a highway-rail grade crossing. The Specialized Carriers & Rigging Association (SC&RA) represents the heavy-hauling or oversize/overweight industry, and the Truck Trailer Manufacturers Association has knowledge of the operating characteristics of the specialized trailers used in the heavy-hauling industry. The Safety Board encourages the FHWA and the NCUTLO to work with the Federal Railroad Administration, Federal Motor Carrier Safety Administration, American Association of State Highway Transportation Officials, SC&RA, Truck Trailer Manufacturers Association, American Short Line and Regional Railroad Association, and representatives from all class 1 and regional railroads to meet the intent of this recommendation.

The National Transportation Safety Board recommends that the Federal Highway Administration and the National Committee on Uniform Traffic Laws and Ordinances:

Revise *Uniform Vehicle Code*, Section 11-703, to define which vehicles, under what circumstances, need to notify the railroad before crossing a highway-rail grade crossing. (H-02-07)

⁴ FSS 316.170 states:

No person shall operate or move any crawler-type tractor, steam shovel, derrick, or roller, or any equipment or structure having a normal operating speed of 10 or less miles per hour or a vertical body or load clearance of less than 1/2-inch per foot of the distance between any two axles or in any event of less than 9 inches, measured above the level surface of a roadway, upon or across any tracks at a railroad grade crossing without first complying with this section.

Notice of any such intended crossing shall be given to a station agent or other proper authority of the railroad, and a reasonable time shall be given to the railroad to provide proper protection at the crossing.

Before making any such crossing the person operating or moving any such vehicle or equipment shall first stop the same not less than 15 feet nor more than 50 feet from the nearest rail of the railroad and while so stopped shall listen and look in both directions along the track for any approaching train and for signals indicating the approach of a train, and shall not proceed until the crossing can be made safely.

The Safety Board also issued safety recommendations to the Federal Motor Carrier Safety Administration, American Association of State Highway and Transportation Officials, Kissimmee Utility Authority, and all class 1 and regional railroads.

Please refer to Safety Recommendation H02-07 in your reply. If you need additional information, you may call (202) 314-6177.

Chairman BLAKEY, Vice Chairman CARMODY, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in this recommendation.

Original Signed

By: Marion C. Blakey
Chairman