

H-0574

NATIONAL TRANSPORTATION SAFETY BOARD

Washington, D.C. 20594



Safety Recommendation

Date: February 25, 1994

In Reply Refer To: H-94-1 and -2

Honorable Rodney E. Slater
Administrator
Federal Highway Administration
400 7th Street, S.W.
Washington, D.C. 20590

About 3:13 p.m., Wednesday, March 17, 1993, an Amerada Hess (Hess) tractor-semitrailer hauling gasoline was struck by National Railroad Passenger Corporation (Amtrak) train 91. The truckdriver was attempting to cross a railroad/highway grade crossing on Cypress Creek Road in Fort Lauderdale, Florida. Traffic in the area of the crossing was congested because the left and center lanes were closed just over, or west of, the crossing. Traffic was being channeled into the right lane and later shifted into a right-turn lane. The truck, which was loaded with 8,500 gallons of gasoline, was punctured when it was struck. A fire erupted, engulfing the truck and nine other vehicles. The fire killed the truckdriver and five occupants of three stopped vehicles.¹

The National Transportation Safety Board determines that the probable cause of the accident was the inadequacy of the precautions taken by the Broward County project manager, the design engineer, and the contractor, which resulted in traffic congestion at the railroad/highway grade crossing, and the truckdriver's decision to cross the railroad track even though the warning system had been activated

Although the design engineer and the contractor involved in the construction near the grade crossing were required to comply with the *Manual on Uniform Traffic Control Devices (MUTCD)*,² the manual does not specifically address work zones near grade crossings.

¹For more detailed information, read Highway Accident Report--Gasoline Tank Truck/Amtrak Train Collision and Fire in Fort Lauderdale, Florida, March 17, 1993 (NTSB/HAR-94/1).

²The Florida Department of Transportation has adopted the MUTCD published by the U.S. Department of Transportation, Federal Highway Administration, for mandatory use on State maintained highway system.

Although the MUTCD does not explain how to taper near a crossing, the traffic congestion on the railroad track indicates that the tapering probably should have been completed on the east side of the railroad track. According to the MUTCD, combining two traffic control techniques, tapering and shifting, is contrary to the basic safety principles and goals governing the design of construction sites. Part 6A-5 states that "the goal is to route traffic through such areas with geometric and traffic control devices as nearly as possible comparable to those for normal highway situations."

When the tapering had been east of the crossing, traffic had become congested, which probably should have warned the design engineer and the contractor that when the tapering was shifted to the west of the crossing, it was likely that traffic congestion would continue. Moreover the congestion would be on a railroad track. Had the design engineer and the contractor recognized the potential for traffic congestion, they might have realized that such special precautions were required as hiring an off-duty police officer or a flagman to "supervise the traffic and maintain safety."

The MUTCD does not provide guidance for setting up work zones near railroad/highway grade crossings. Because the MUTCD sets forth minimum standards widely used by Federal, State, and local governments, as well as by private industry, the Safety Board believes that the Federal Highway Administration (FHWA) should include in the MUTCD minimum standards for tapering traffic at work zones in a way that minimizes traffic congestion at crossings. The Safety Board is aware that the MUTCD will not be revised until 1995. The Safety Board understands, however, that several training courses will be given and believes that the FHWA should incorporate guidance in its construction and maintenance training courses that addresses work zones near railroad/highway grade crossings.

The Safety Board is aware that following the accident, the FHWA sent a memorandum on June 28, 1993, to its regional administrators advising them of the accident. The memorandum stated that:

Designers or traffic engineers involved with the planning or designing of work zone traffic control layouts must take extra care to avoid creating conditions, either by lane reductions or flagging operations, where vehicles can unexpectedly be stopped on the railroad tracks. If the work phasing or physical layout cannot avoid the queuing of vehicles across the tracks, it may be necessary to provide a police or flag persons at the crossing to control the traffic at this point, even if it has automatic warning devices. Also, every effort should be made to have space available adjacent to the traveled surface for an escape route on the downstream side of the crossing in case of emergency.

On July 2, 1993, the Chief of the Highway Rail Crossing and Trespasser Division of the Federal Railroad Administration sent a memorandum to the regional directors advising them of the accident and recommending that they pass the word along to their State highway contacts. The memorandum listed several recommendations that he intended to pursue. One of the

recommendations was that the FHWA amend the MUTCD to address controlling highway traffic over railroad crossings in or near work zones.

The Safety Board is pleased that in December 1993, a final rule amending Part VI of the MUTCD was written, and as a result of the Safety Board's investigation of this accident, a paragraph was added that advises the users of the MUTCD to coordinate and communicate with other modes of transportation and entities, such as the railroads, the fire departments, the police, and utilities, affected by construction zones.

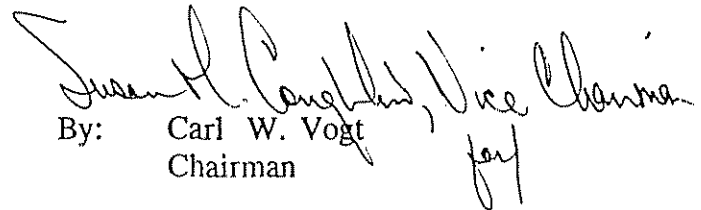
Therefore, the National Transportation Safety Board makes the following safety recommendations to the Federal Highway Administration:

Include in Part VI of the *Manual on Uniform Traffic Control Devices* minimum standards on channelization of traffic at work zones to minimize traffic congestion over railroad/highway grade crossings. (Class II, Priority Action) (H-94-1)

Incorporate guidance in your construction and maintenance training courses that addresses work zones near railroad/highway grade crossings. (Class II, Priority Action) (H-94-2)

Also, the Safety Board issued Safety Recommendations H-94-3 to the American Trucking Associations, Inc., and H-94-4 to the Amerada Hess Corporation. If you need additional information, you may call (202) 382-0672.

Chairman VOGT, Vice Chairman COUGHLIN, and Members LAUBER, HAMMERSCHMIDT, and HALL concurred in these recommendations.

 Susan A. Coughlin, Vice Chairman
By: Carl W. Vogt
Chairman