



# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

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**Date:** August 27, 1999

**In reply refer to:** R-99-46 through -48

Mr. Curtis Wiley  
Commissioner  
Indiana Department of Transportation  
Indiana Government Center North  
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About 4:31 a.m. central daylight time on June 18, 1998, a westbound Northern Indiana Commuter Transportation District (NICTD) two-car passenger train struck the second trailer of a long combination vehicle that consisted of a tractor pulling two flatbed semitrailers loaded with steel coils at a grade crossing near Portage, Indiana. When the vehicles collided, the second semitrailer broke away from the first semitrailer and was dragged by the front of the NICTD train while the chain securing a steel coil to the second semitrailer broke. The released steel coil entered the first train car through the front bulkhead and moved into the passenger compartment. Three fatalities and five minor injuries resulted from the accident.<sup>1</sup>

In a June 18, 1998, letter to National Transportation Safety Board Chairman Jim Hall, U.S. Senator Richard Lugar and U.S. Congressman Peter J. Visclosky cited three previous accidents that had involved the NICTD system and expressed concern about NICTD's long-term safe operation. The Safety Board reviewed the accident history of the NICTD system and determined that, given the series of incidents experienced on the NICTD line, an evaluation of NICTD's overall safety should be conducted.<sup>2</sup>

The intent of this special investigation was not to determine whether NICTD is a "safe" or "unsafe" railroad but to examine those elements of its overall operation known to affect safety and to indicate where improvements could be made in these areas. The Safety Board recognizes that factors not examined in this investigation may also affect NICTD safety, either positively or negatively.

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<sup>1</sup> National Transportation Safety Board, *Collision of Northern Indiana Commuter Transportation District Train 102 with a Tractor-Trailer, Portage, Indiana, June 18, 1998*, Railroad/Highway Accident Report NTSB/RAR-99/03 (Washington, D.C.: National Transportation Safety Board, 1999).

<sup>2</sup> For additional information, read *Northern Indiana Commuter Transportation District Railroad Safety Assessment*, Railroad Special Investigation Report NTSB/SIR-99/03 (Washington, D.C.: National Transportation Safety Board, 1999)

One of the major issues reviewed during the special investigation concerned safety at NICTD grade crossings. NICTD told the Safety Board that the NICTD system currently contains 151 crossings, of which 103 are public, 37 are private, and 11 are pedestrian railroad crossings at grade. Forty-two crossings have passive railroad warning devices (crossbuck signs), and 11 crossings have no warning devices. Thus, 53 crossings, about one-third of all NICTD grade crossings, currently have passive or no warning devices. Fifteen of the 42 locations with railroad crossbucks are on private crossings, and all 11 crossings with no warning devices are on private crossings.

On July 21, 1998, the Safety Board adopted a safety study of passive grade crossings that detailed the dangers inherent in many passive grade-crossing arrangements.<sup>3</sup> The study noted that

In 1996, passive grade crossings accounted for about three-quarters of all grade crossings in the United States; although there is less highway and train traffic at passive crossings than at active crossings, passive crossings accounted for 54 percent of all grade-crossing accidents and 60 percent of all grade-crossing fatalities in that year.<sup>4</sup>

The report further found that

A systematic and hierarchic approach to improving passive grade crossing safety is needed, an approach that does not depend primarily on the ability of the driver approaching the crossing to see an oncoming train. The hierarchic approach includes grade separation and closure, installation of active warning devices, improved signage, and intelligent transportation systems technology.<sup>5</sup>

The passive grade-crossing safety problems and possible solutions identified in the safety study are applicable to a wide range of rail operations, including NICTD. Eleven passive grade crossings on the NICTD system had no signage or advance warning devices. All were private crossings.

Advance signage and warning devices are not required at passive grade crossings, and the Safety Board understands that NICTD has only limited authority over and responsibility for private crossings. NICTD's main purpose, however, is to provide safe and reliable transportation services to the public. With this charge comes the responsibility to ensure the safety of NICTD's customers and vehicular traffic.

Poor or nonexistent signage provides insufficient information for motorists to make prudent decisions regarding safe courses of action at grade crossings. When motorists make uninformed decisions at grade crossings, the safety of both vehicle and train traffic is jeopardized. Therefore, the Safety Board concluded that the lack of adequate signage and advance warning

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<sup>3</sup> National Transportation Safety Board, *Safety at Passive Grade Crossings, Volume I: Analysis*, Safety Study NTSB/SS-98/02 (Washington, D.C.: National Transportation Safety Board, 1998).

<sup>4</sup> *Safety at Passive Grade Crossings, Volume I: Analysis*, Safety Study NTSB/SS-98/02, p. 61.

<sup>5</sup> *Safety at Passive Grade Crossings, Volume I: Analysis*, Safety Study NTSB/SS-98/02, p. 64.

devices at some NICTD passive grade crossings poses a risk to NICTD's customers and motorists.

In its 1998 passive grade-crossing study, the Safety Board studied the use of stop signs at passive grade crossings in depth.<sup>6</sup> The Board found that

Despite concerns about the use of stop signs at passive crossings, the Safety Board believes that the benefits of stop signs at passive crossings outweigh the concerns. Foremost, in the Safety Board's opinion, is the need for a system-wide approach that provides consistent information and instruction to the driver. Specifically, (1) the action required by a stop sign is well understood by drivers, (2) a driver stopped at a crossing has more time in which to detect an approaching train, and (3) sight distance along the tracks when viewed from a stop sign is generally accurate, according to study accident data.

The safety benefits provided by use of stop signs at passive crossings are applicable to the passive grade crossings on the NICTD system that lack signage and advance warning devices. When a stop sign is placed at a passive grade crossing, the driver knows where the crossing is and what action must be taken. Such clear communication of critical information would improve safety at passive grade crossings.

Another area concerning grade-crossing safety examined by the Safety Board was physical improvements to grade crossings. The Safety Board found that NICTD has attempted to make its grade crossings safer through engineering. In 1994, the Indiana Department of Transportation (INDOT) allowed railroads under its authority to apply for corridor improvements. NICTD, through the Northwest Indiana Regional Planning Commission, proposed replacing all its 8-inch crossing signal light units with 12-inch units to make the crossings more visible to motorists. NICTD offered to pay all labor costs if the State would pay for the material. INDOT approved the project in August 1995 but did not provide NICTD with funding or materials to proceed. The Safety Board concluded that making grade-crossing signal lights more conspicuous would provide more effective warning and additional stopping time for motorists approaching grade crossings.

During the 4 years since NICTD proposed making its crossing signal lights more visible, Light Emitting Diode (LED) flashing lights have gained acceptance by the railroad industry because of the dramatically increased conspicuity and reliability they provide. NICTD personnel told investigators that when INDOT takes action on the light upgrading project, NICTD will propose using the newer LED flashing light technology.

In summary with regard to grade-crossing safety on the NICTD system, the Safety Board found through its investigation that several factors point to possible problems in this area. First, NICTD has a relatively high density of grade crossings on its system (approaching two crossings per mile of track), which provides substantial opportunity for grade-crossing accidents to occur. Also, about one-third of NICTD grade crossings have passive or no warning devices, and 11 passive grade crossings on the NICTD system have no signage or advance warning devices.

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<sup>6</sup> *Safety at Passive Grade Crossings, Volume I: Analysis*, Safety Study NTSB/SS-98/02, pp. 68-74.

Further, NICTD has experienced a number of grade-crossing accidents and incidents in recent years, and, despite steps taken by NICTD to improve grade-crossing safety, near-miss and other incidents continue to occur at NICTD grade crossings. In addition, NICTD personnel repeatedly expressed concerns about the risks posed by grade crossings. The Safety Board considered that all these factors indicate that a systematic effort on the part of those agencies best equipped to develop methods to improve NICTD grade-crossing safety is needed.

Therefore, the National Transportation Safety Board makes the following safety recommendations to the Indiana Department of Transportation:

Work with the U.S. Department of Transportation and the Northern Indiana Commuter Transportation District to develop and implement a strategic plan to improve safety at Northern Indiana Commuter Transportation District highway-rail grade crossings. (R-99-46)

Assist the Northern Indiana Commuter Transportation District in upgrading all 8-inch crossing signal light units on its territory. (R-99-47)

Work with the Northern Indiana Commuter Transportation District and Indiana's Lake, Porter, LaPorte, and St. Joseph Counties to install stop signs at all Northern Indiana Commuter Transportation District passive grade crossings, unless a traffic engineering analysis determines that installation of stop signs would reduce the safety of the crossing. Any Northern Indiana Commuter Transportation District crossings at which conditions are such that the installation of stop signs would reduce the level of safety should be upgraded with active warning devices or eliminated. (R-99-48)

Also, the Safety Board issued safety recommendations to the Northern Indiana Commuter Transportation District and Indiana's Lake, Porter, LaPorte, and St. Joseph Counties.

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you within 90 days regarding action taken or contemplated with respect to the recommendations in this letter. Please refer to Safety Recommendations R-99-46 through -48 in your reply. If you need additional information, you may call (202) 314-6435.

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

By: Jim Hall  
Chairman