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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: October 27, 1982

Forwarded to:

Mr. Rubin H. H. Wilson
President
The Long Island Railroad
Jamaica, New York 11435

SAFETY RECOMMENDATION(S)

H-82-53 through -55

About 2:18 a.m., on Sunday, March 14, 1982, a privately owned southbound Ford van was struck by an eastbound commuter passenger train at a railroad/highway grade crossing on Herricks Road and the main line of the Long Island Railroad in Mineola, Nassau County, New York. The Ford van, occupied by a teenage driver and nine teenage passengers, had been driven around a properly functioning lowered gate with flashing lights onto the crossing. Following the impact, a minor fire was ignited in the van's motor compartment. The fire was quickly extinguished by a local fire department. Nine of the van occupants were killed and one passenger was critically injured. There were no reported injuries to the passengers or crew aboard the commuter train. 1/

The 6.5-foot space between the end of the gate arm and the centerline of the southbound approach to the Herricks Road crossing is more than one-half the width of the 11-foot-wide left lane. Because of the short gate arm, a driver is able to maneuver his vehicle around the lowered gate arm without much difficulty. On the south side of the grade crossing, a 3.5-foot space existed between the end of the lowered gate arm and the centerline on the northbound approach. In addition, the roadway changes direction (5 degrees) within the railroad right-of-way, off-setting the northbound centerline about 3 to 4 feet to the east of the southbound centerline. The 3.5-foot space, the change of direction in the roadway, and the fact that the gates are not perpendicular to the centerline created a gap between the end of the arms and a plane perpendicular to the southbound centerline of about 13 feet. The Safety Board believes that such a wide gap should not exist and that as a possible short term preventive measure longer gate arms should be installed.

The Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) does not make any recommendations on the length of railroad/highway crossing gate arms, and in the MUTCD's typical location plan (figure 8-7 of the MUTCD), the gate extends only partway to the centerline. Accompanying another figure in the MUTCD (figure 8-5) is the statement that the length of the gate is to be "...appropriate for approaching traffic," but there are no further specifications.

The Railroad Highway Grade Crossing Handbook (FHWA-TS-78-214) illustrates a maximum distance of 6 feet from the end of the crossing gate to the center of the road or the median; it does not recommend a minimum distance. Standards vary throughout the

1/ For more detailed information, read: "Highway Accident Report: Long Island Railroad Commuter Train/Ford Van Collision, Mineola, New York, March 14, 1982" (NTSB-~~HAR-82-6~~).

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country. The Santa Fe Railroad's Grade Crossing Warning Design Book indicates that the gap could vary between 6 inches and 3 feet. The Southern Pacific standard is 18 inches plus or minus 6 inches. The Long Island Railroad (LIRR) standard specifies that the gap between the end of the crossing gate and the center of the road or median be 6 inches.

The New York State Manual on Uniform Traffic Control Devices (NYS MUTCD) gives various criteria regarding the location of the end of the gate arm. Section 330.8(c) states: "When lowered, the gates...shall effectively block all lanes of approaching vehicular traffic." This section further refers to figure SS-5 which shows the lowered gate arm short of the roadway centerline with the difference to "...be determined as required." In an appendix to the NYS MUTCD, a figure (TS-8) shows the gate arm extending to the roadway centerline.

The Association of American Railroads (AAR) and the FHWA should collaborate in studying the problem of motorists driving around lowered gates and establish a standard that would set an appropriate gap spacing from the end of the crossing gate to the center of the roadway. This standard should then be incorporated into the FHWA's MUTCD and the AAR's recommended practices.

The six billboard support posts, located on the north side of the railroad right-of-way and west of Herricks Road obstruct the view to the west of a driver of a vehicle stopped at the transverse stop bar. The view obstruction covers an area of 200 feet to 400 feet west of Herricks Road as measured along the eastbound track. In terms of time, a train approaching at 65 mph (95.55 feet per second) would be obscured for about 2.1 seconds until the locomotive was within 200 feet (2.1 seconds) from the crossing. The witness to this accident stated that the van stopped at the downed gate and then "going very slowly...less than 5 mph" drove around the gate onto the crossing and was struck by the locomotive.

It was not possible to verify just where the van stopped in relation to the stop bar or the exact speed at which the van was driven around the gate onto the crossing. Assuming that the van stopped at the stop bar, it would have been almost 37.5 feet from the point of impact with the locomotive.

From this location and assuming an acceleration of 4.83 feet/second/second (normal acceleration for a passenger car), it would have taken the van 4.06 seconds to cover the distance to the point of impact.

If before the driver started the van, he had looked to the right from the stopped location, it would normally require about 0.24 seconds to turn his head, look and then shift his eyes back to the road while at the same time moving his foot from the brake to the acceleration. Add this time to the travel time and at 4.3 seconds before impact, the locomotive would have been about 411 feet west of the crossing and just entering the view of obstructed area (200-400 feet). Except for the headlight glow, the van driver may not have seen the locomotive if he looked.

If the van's maneuvering speed onto the crossing had been less than 4.83 feet/second/second (normal acceleration rate), as stated by the witness, (not over 5 mph), then the travel time would have been 1 to 2 seconds longer. Also, considering the fact of the alcohol impairment of the driver's skills, perception, and judgment, the time required to look for an approaching train would also be extended. Under these considerations, the locomotive could have been 475 to 545 feet (5 to 6 seconds) from the crossing. For 1 or 2 seconds, the locomotive headlights would have been visible. This

information together with the lowered gate arm should have confirmed the warning not to attempt to drive across the tracks.

If the driver did see the locomotive headlights even for the brief 2 seconds after the locomotive came out from behind the billboards, it would be a natural reaction to accelerate the van in an attempt to beat the train or to stop to avoid being struck. According to the testimony of the witness, the van driver did neither. It is assumed that the van driver never looked for the locomotive.

However, since the billboards supports and the trees and brush do present an obstruction to a clear view to the west along the tracks, they should be removed.

The Federal Railroad Administration's investigations of anomalous crossings demonstrated the high incidence of sight obstructions at those grade crossings studied. As with the Herricks Road crossing, signs and vegetation were commonly cited as obstacles obscuring the motorist's view of the track approaches. The removal of signs and vegetation would be a cost-effective means of improving railroad/highway grade crossing safety.

As a result of its complete investigation of this accident, the National Transportation Safety Board recommends that the Long Island Railroad:

Extend the length of the crossing gate arms at the Herricks Road grade crossing and where required at the other grade crossings of the main line of the Long Island Railroad so they will comply with your existing standards. (Class III, Longer Term Action) (H-82-53)

Remove the billboard and its supports in the northwest quadrant of Herricks Road and the main line of the Long Island Railroad and remove all extraneous matter, such as shrubbery, on the railroad right-of-way which interferes with the sight line of motorists. (Class II, Priority Action) (H-82-54)

Survey all other grade crossings on the Long Island Railroad system and remove extraneous obstacles on the railroad right-of-way which interfere with a motorist's sight line. Report extraneous matter, not on railroad right-of-way, which obstructs a motorist's sight line to the owner of the property on which such matter exists and request its removal. (Class II, Priority Action) (H-82-55)

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." (P.L. 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations. Therefore, we would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter.

BURNETT, Chairman, GOLDMAN, Vice Chairman, and McADAMS and ENGEN, Members, concurred in these recommendations. BURSLEY, Member, did not participate.



By: Jim Burnett
Chairman

