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**NATIONAL TRANSPORTATION SAFETY BOARD**  
WASHINGTON, D.C.

ISSUED: October 27, 1982

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Forwarded to:

Honorable William C. Hennessy  
Commissioner  
New York State Department  
of Transportation  
Albany, New York 12228

SAFETY RECOMMENDATION(S)

H-82-45 through -48

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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.

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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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 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 be incorporated into the FHWA's MUTCD and the AAR's recommended practices.

National statistics show that most accidents at railroad/highway grade crossings with gates occur when motor vehicles are driven around gates (as compared to malfunctioning equipment, for example). The following statistics are from the "Rail-Highway Accident/Incident and Inventory Bulletin" for the years 1978, 1979, and 1980, and are for grade crossings controlled by gates where the driver drove around or through the gate:

<u>Year</u>	<u>Accidents/Incidents</u>	<u>Killed</u>	<u>Injured</u>
1978	596	77	201
1979	596	68	241
1980	<u>507</u>	<u>82</u>	<u>202</u>
Total	1,699	227	644

The frequency of such accidents in the United States suggests that an alternate deterrent may be necessary at certain grade crossings, where feasible. The use of divisional islands to deter motorists from driving around lowered gate arms appears to have been successful in a number of locations throughout the United States.

Both the American Association of State Highway and Transportation Official's publication "A Policy on Design of Urban Highways and Arterial Streets" and the FHWA's MUTCD give guidance on the types and placement of divisional islands. However, no guidance is given on the use of such islands as a means to deter motorists from driving around lowered railroad crossing gates. The Safety Board believes that such islands should be considered at the Herricks Road crossing and at other hazardous crossings in Nassau County and Suffolk County where similar site conditions, highway traffic volume, and train traffic volume exist.

The traffic situation and safety hazards at the Herricks Road crossing and other crossings in the area will be exacerbated in the years ahead, since both highway and rail traffic is expected to increase. A LIRR official said that passenger trains are expected to increase by 10 percent and that an increase in the use of the tracks by freight trains is expected by the end of the present decade.

The Safety Board believes that the short term measures of extending the gate arms and construction of a divisional island are necessary at the Herricks Road crossing and at similar crossings on the LIRR. However, because of the expected increase in traffic, the accident exposure, and the variations in train speeds in this area, grade separation would be a more effective long term solution to the problem of conflicting highway and rail traffic at the Herricks Road crossing.

The present method of allocating crossing safety funds provides that 50 percent of the money be apportioned to the States according to the ratio of the number of public crossings per State to the total number of such crossings in the nation. The remainder is apportioned on the basis of population and road mileage. This method does not consider such factors as need for grade separation structures. Densely populated States such as New York may, thus, get much less funding than is needed. Future formulae for apportioning funds should consider need as a factor. The FHWA requires that priorities be established for railroad/highway grade crossing improvement. These priorities are based on: (1) the physical characteristics of the crossing and volume of highway and rail traffic, and (2) the exposure of people and hazardous materials at the crossing. Similar factors should be employed in apportioning available funds to the States.

As a result of its complete investigation of this accident, the National Transportation Safety Board recommends that the New York State Department of Transportation:

Expediently proceed with plans and financing arrangements for the construction of grade separation structures at the Herricks Road crossing of the Long Island Railroad main line and other nearby crossings. (Class II, Priority Action) (H-82-45)

Analyze the operational aspects of all grade crossings on the Long Island Railroad system and determine what, if any, short and long term improvements should be made for each crossing to improve safety. (Class II, Priority Action) (H-82-46)

Based on the Federal Highway Administration's study to be carried out regarding the lack of a standard distance gap between the ends of crossing gates and the middle of the road or median, establish and incorporate such a standard into the State Manual on Uniform Traffic Control Devices. (Class II, Priority Action) (H-82-47)

Provide guidelines in the New York State Manual on Uniform Traffic Control Devices on the use of traffic divisional islands to deter motorists from driving around lowered railroad crossing gates. (Class II, Priority Action) (H-82-48)

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