

Log A. 333B
SP-20

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: October 27, 1982

Forwarded to:

Honorable Ray Barnhart
Administrator
Federal Highway Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

SAFETY RECOMMENDATION(S)

H-82-51 through -52

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. 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 country. The Santa Fe Railroad's Grade Crossing Warning Design Book indicates that gap

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-82-20).

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length may vary from 6 inches to 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	507	82	202
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.

As a result of its complete investigation of this accident, the National Transportation Safety Board recommends that the Federal Highway Administration:

In coordination with the Association of American Railroads, study the problem presented by the lack of a standard distance gap between the end of crossing gates and the middle of the road or median, and establish and incorporate such a standard into the Manual on Uniform Traffic Control Devices. (Class III, Longer-Term Action) (H-82-51)

Review the effectiveness of guidelines in the 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-82-52)

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

By: 
Jim Burnett
Chairman

