

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: October 13, 1977

Forwarded to:

Honorable Adrian Gianturco
Director of Transportation
California Department of
Transportation
P. O. Box 1139
Sacramento, California 95805

SAFETY RECOMMENDATION(S)

H-77-16

On May 21, 1976, a charter bus carrying 52 persons struck and mounted a section of the bridge rail system on the Marina Vista offramp of I-680, near Martinez, California. The bus rolled off the top of the curved bridge rail, fell 21 feet onto the ground below, and landed on its roof. The roof structure collapsed to the windowsill line and all of the occupants were trapped in the bus. Twenty-nine persons were killed and the rest sustained injuries ranging from minor to serious. The bus was owned and operated by the Student Transportation Lines, Inc., of Carmichael and Marysville, California. The bus was chartered by the Yuba City High School choir for a trip to Orinda, California. ^{1/}

The National Transportation Safety Board's investigation found that a badly deteriorated air compressor drivebelt on the bus had failed before the crash. As a result of the belt failure, air was not replaced in the airbrake system as it was used. The system's air pressure dropped to the point where the service brakes were unable to decelerate the bus on the curved ramp.

The investigation further revealed that the curvature of the ramp did not meet the minimum standards of the 1957 specifications of the American Association of State Highway Officials.

The Safety Board concludes that the design of the ramp's bridge railing system improved the ability of the bus to climb the parapet. Inadequate bridge rail systems have been a factor in many accidents investigated by the Safety Board. The Safety Board has previously

^{1/} For more detailed information on this accident read: "Highway Accident Report - Student Transportation Lines, Inc., Charter Bus Climbing of Bridge Rail and Overturn Near Martinez, California, May 21, 1976," (NTSB-HAR-77-2).

recommended that the Federal Highway Administration (FHWA) establish mandatory performance standards for bridge barrier rails and that these standards for various classes of vehicles be supported by vehicle crash-testing.

Based on available evidence, the effect on this accident of the design and placement of traffic control devices cannot be determined. The location of signing on the exit ramp suggests that earlier information to the driver on the severity of the ramp geometrics might have resulted in an earlier brake application. This should have alerted the driver to the ineffectiveness of his service brake system early enough to permit him to continue ahead on the main roadway and coast to a stop, or to use other braking capability available to him.

Therefore, the National Transportation Safety Board recommends that the California Department of Transportation:

Erect at the approach to the Marina Vista offramp an exit sign that incorporates a diagram of the curvature of the ramp to illustrate its severity and relocate or supplement the advisory exit speed sign to improve its warning to approaching drivers. (Class I - Urgent Followup) (H-77-16)

BAILEY, Acting Chairman, McADAMS, HOGUE, and HALEY, Members, concurred in the above recommendation.



By: Kay Bailey
Acting Chairman