



Log - H-58A

National Transportation Safety Board
Washington, D. C. 20594
Safety Recommendation

Date: June 15, 1988

In reply refer to: H-88-25

Mr. James W. Conlon, P.E.
Chief Engineer
New Jersey Highway Authority
Garden State Parkway
Woodbridge, New Jersey 07095

On September 6, 1987, about 5 a.m., an intercity bus operated by Academy Lines, Inc., (ALI) ran off the northbound local lane of the New Jersey Garden State Parkway at milepost 111 near Middletown, New Jersey, struck a guardrail and bridge rail, and overturned onto its right side. The busdriver and one passenger sustained fatal injuries, and 32 of the remaining 33 bus passengers sustained minor to moderate injuries. ^{1/}

The available evidence leads the National Transportation Safety Board to believe that after passing several vehicles to its left, the bus traveled straight ahead on a line tangent to the 3,200-foot-radius curve and struck the guardrail. Because the curve at the accident site has a relatively large radius, the Safety Board concludes that the bus struck the guardrail at a relatively shallow angle estimated to be about 10°. If the bus struck the guardrail at a 10°-angle while traveling about 70 mph, the deceleration forces experienced by the bus occupants at the time of this first impact would not have been severe. When the bus left the guardrail and struck it a second time, the impact angle was again probably shallow, which again resulted in low deceleration forces.

The bridges for the express roadways were constructed with 32-inch-high New Jersey-type concrete barriers topped with chainlink fence at the accident site. If the bridge for the local roadway had been similarly equipped with a New Jersey-type concrete barrier rather than the steel bridge rail, the Safety Board believes that, given the relatively shallow collision angle, the New Jersey barrier may have successfully redirected the bus back into the travel lanes before it encountered the chainlink fence. The New Jersey Highway Authority reported that it plans to replace the existing steel bridge rail at the accident site with a 32-inch-high New Jersey-type barrier.

A number of bridge rail designs have been successfully crash tested and were approved for use in 1986 by the Federal Highway Administration for new or reconstructed bridges. The 42-inch-high concrete barrier used by the New Jersey Turnpike Authority is on the approved list.

^{1/} For more detailed information, read Highway Accident Report--"Academy Lines, Inc., Intercity Bus Run-Off Roadway and Overturn, Middletown, New Jersey, September 6, 1987" (NTSB/HAR-88/03).

While the 32-inch-high barrier has been proven effective for redirecting vehicles at shallow angles, higher barriers are more effective in redirecting large vehicles such as buses at larger impact angles and at higher speeds. In view of this, the Safety Board believes that the New Jersey Highway Authority should replace existing steel bridge rail on the Garden State Parkway with 42-inch-high extended New Jersey Safety Shape bridge rail.

Therefore, the National Transportation Safety Board recommends that the New Jersey Highway Authority:

Replace existing steel bridge rail on the Garden State Parkway with 42-inch-high extended New Jersey Safety Shape bridge rail.
(Class II, Priority Action) (H-88-25)

Also, as a result of its investigation, the Safety Board issued Safety Recommendation H-88-24 and reiterated H-85-20 to the Federal Highway Administration.

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 regarding action taken or contemplated with respect to the recommendation in this letter. Please refer to Safety Recommendation H-88-25 in your reply.

BURNETT, Chairman, KOLSTAD, Vice Chairman, and LAUBER and NALL, Members, concurred in this recommendation.


By: Jim Burnett
Chairman