

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

REVISED

ISSUED: February 15, 1977

Forwarded to:

Mr. Victor Preisser
Director
State of Iowa Department
of Transportation
826 Lincoln Way
Ames, Iowa 50010

SAFETY RECOMMENDATION(S)

H-77-2 and H-77-3

At 1:35 p.m. on August 6, 1976, a Tri-Center Community Schools schoolbus left the roadway, struck and overrode a guardrail and concrete bridge parapet, fell about 15 feet onto a sloped embankment below the bridge, and landed on its roof. Three children were killed, and the driver and 29 children were injured. The accident occurred on Iowa Highway 191, at Iowa Bridge No. 7809, about 1,400 feet north of Neola, Iowa.

The 36-foot-long, flared section of single W-beam guardrail was mounted directly on 10-inch-diameter wood posts, which were spaced at 12-foot intervals.^{1/} The guardrail provided the bus little if any protection against exposure to roadside hazards at this location. At the time the guardrail and bridge parapet/rail were installed, no design had been developed and tested for a system that would have contained and safely redirected the bus. By today's standards, the guardrail would not offer an appropriate level of protection even to automobiles. The design deficiencies were the inadequate length of the approach guardrail, the lack of modification of the guardrail's approach end, the inappropriately wide post spacing, the substandard guardrail support system, and the lack of integration of this guardrail with the adjoining bridge parapet/rail system. Systems without these deficiencies are currently available yet, on the day after the accident, the State of Iowa replaced the damaged guardrail with one that had the same design deficiencies as the old guardrail.

Highway Safety Program Standard Number 12, administered by the Federal Highway Administration of the U.S. Department of Transportation, requires that "...State and local jurisdictions establish programs to correct safety deficiencies on all urban and rural roads with new

^{1/} The National Transportation Safety Board will not issue a report on this accident.

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construction, reconstruction and improved maintenance" and that "Procedures should be established, if they are not presently used, for a plan of operation to repair and correct crash-damaged highway safety features and to perform temporary repairs on an emergency basis to damaged highway features that may create a hazard to the traveling public."^{2/}

In keeping with this policy, the replacement guardrail should have met current design practices for W-beam guardrail. And, since there are guardrails of similar design in this area, the State of Iowa Department of Transportation should have prepared a new guardrail design for maintenance purposes before the accident occurred. This design should have provided for updating the damaged segment and should have insured that the replacement segment could function as an integral part of a future total update of the entire guardrail and bridge rail system.^{3/} Duplication of a substandard design is not considered in the interest of public safety.

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

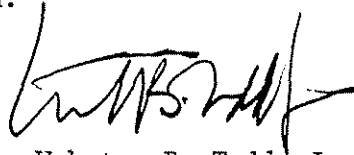
Adhere to the maintenance principles of Highway Safety Program Standard Number 12 and establish procedures that will insure appropriate, cost-efficient, and timely corrective repair of damaged highway safety equipment. (Class II, Priority Followup) (H-77-2)

Incorporate the general principles and standards identified in the Handbook of Highway Safety Design and Operating Practices and the National Cooperative Highway Research Program Report 118 into those designs established for corrective repair of damaged highway safety equipment. (Class II, Priority Followup) (H-77-3)

^{2/} Highway Design, Construction and Maintenance, Highway Safety Program Standard Number 12, U.S. Department of Transportation, Federal Highway Administration, February 1974.

^{3/} "Handbook of Highway Safety Design and Operating Practices," U.S. Department of Transportation, Federal Highway Administration, rev.ed. (1973). "National Cooperative Highway Research Board Report 118, Location Selection and Maintenance of Highway Traffic Barriers," Highway Research Board (1971).

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

A handwritten signature in black ink, appearing to read "Webster B. Todd, Jr.", written in a cursive style.

By: Webster B. Todd, Jr.
Chairman

