

NATIONAL TRANSPORTATION SAFETY BOARD
 WASHINGTON, D.C.

ISSUED: June 18, 1979

 Forwarded to:

Honorable Edmund G. Brown, Jr.
 Governor of California
 State Capitol
 Sacramento, California 95814

SAFETY RECOMMENDATION(S)

H-79-36 through -39

About 3:40 p.m., p.s.t., on November 11, 1978, a stationwagon with 13 occupants exited from Interstate 10 (San Bernardino Freeway) onto a branch connection ramp which led to the southbound California State Route 7 (Long Beach Freeway). It was raining and the roadway was wet. As the stationwagon negotiated the ramp, the driver lost control of the vehicle, and it crashed through a bridgerail and fell to the roadway below landing on its roof. The driver and six passengers were killed and six passengers were injured. 1/

The branch connection ramp where the accident occurred consists of two lanes. The left lane, which curves right at a radius of 250 feet, connects eastbound I-10 with southbound Route 7. At the beginning of the curve, it is joined on the right by the Ramona Boulevard entrance ramp, which after a tapered paved safety area became the second lane of the connector ramp. After joining, the two lanes continue straight and parallel, separated by broken white lane lines, over Ramona Boulevard at a bridge overpass and begin to merge with Route 7 about 300 feet past the bridge overpass.

The branch connector ramp from I-10 was posted with four warning signs upstream of the Ramona Boulevard entrance ramp. The first sign was a 25-mph advisory exit speed sign; the second was a curve sign mounted above a 25-mph speed advisory sign; the third was a merge sign; and the fourth was an 8-foot by 8-foot, 25-mph speed advisory sign with a turn arrow. The only sign posted on the Ramona Boulevard entrance ramp was a "Landscape Construction Ahead" warning sign.

1/ For more detailed information read "Highway Accident Report--Stationwagon Penetration of Bridgerail, I-10, Near Alhambra, California, November 11, 1978" (NTSB-HAR-79-5).

From 1975 to November 1978 there were 46 reported traffic accidents at this location; 24 (52 percent) of these occurred during wet weather. From January 1978 through October 1978 there were 11 reported accidents at this location; 8 occurred in wet weather. Skid tests were conducted at this location by the California Department of Transportation (DOT) on July 14, 1978. The skid numbers at 25 mph for both lanes on the curve leading up to the bridge overpass were 29 for the outer lane and 28 for the inner lane. The minimum recommended skid number for this pavement is 38 according to an extrapolation of the data in the Federal Highway Administration's (FHWA) Highway Safety Program Manual No. 12. Although there were low skid numbers at this site and there was a history of wet-weather accidents, there were no "Slippery When Wet" warning signs posted.

The bridge overpass is elevated 22 feet above Ramona Boulevard. It is bordered on the left by a 9-inch concrete curb and a steel, panel-type bridgerail, and on the right by a California type-9 barrier rail. Originally both sides of the overpass had concrete curbing and the steel, panel-type bridgerail; but in 1973 when the overpass was widened 11 feet on the right, the right-side curbing and bridgerail were removed and replaced with the California type-9 barrier rail. Twelve of the 46 reported accidents from November 1975 to November 1978 involved the bridgerail. A local tow truck operator said that at least three vehicles had crashed through the bridgerail at this location and landed on the roadway below.

This bridgerail did not function to prevent the vehicle from going over the side of the bridge structure as recommended in AASHTO's "Guide for Selecting, Locating, and Designing Traffic Barriers." The guide also states that if a barrier installation is substandard, it is suggested that the barrier either be modified to conform to an operational system or be replaced by an operational system.

In a report sponsored by the FHWA, bridgerailing similar to that used at the accident site was cited as "...older bridgerailing installations that do not perform satisfactorily...." A photograph of an accident scene where a vehicle crashed through panel-type bridgerail and had landed on the roadway below was used as an illustration. A chart in this publication rated panel-type bridgerail as "P" for poor.

From January 1978 to September 1978, loss reports from the maintenance section of the California DOT indicate that the panel bridgerail at the crash site had been repaired eight times as a result of being struck by motor vehicles. The repairs included replacing fourteen 10-foot bridgerail sections. Maintenance personnel said that State policy is to replace in kind rather than upgrade the facility.

FHWA Highway Safety Program Standard No. 12 requires that "...State and local jurisdictions establish programs to correct safety deficiencies on all urban and rural roads with new 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 features that may create a hazard to the traveling public." It further states that highway appurtenances that are repeatedly damaged by vehicles should not be repaired without corrective action to reduce both hazards to the road user and frequency of maintenance. Although other vehicles had crashed through this bridgerail, the State of California had not eliminated the hazard, as suggested in the standard. Since there are bridgerails of the same or similar design throughout the State, the California DOT should have prepared an upgraded bridgerail design for maintenance purposes. The design should have provided for an update of substandard systems as they were damaged.

The California DOT had initiated a safety improvement project report for the crash site as part of its highway safety improvement program. The report, prepared during the summer of 1978, classified the location as a high-accident concentration location and proposed that the existing panel bridgerail be replaced and that the superelevation through the horizontal curve be increased by adding an asphalt pavement overlay. However, as of May 4, 1979, the safety improvement project has not been implemented. Since the accident another vehicle has crashed through the bridgerail at this site.

Accordingly, the National Transportation Safety Board recommends that the State of California:

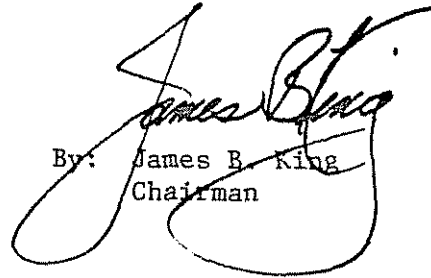
Until the accident site is improved, install "Slippery When Wet" warning signs at the Ramona Boulevard entrance ramp and the branch connection ramp from I-10, and install a 25-mph speed advisory sign at the Ramona Boulevard entrance ramp. (Class I, Urgent Action) (H-79-36)

Establish a policy and program consistent with Federal Highway Administration guidelines and safety standards that will provide for upgrading substandard bridgerailing that has been crash-damaged. (Class II, Priority Action) (H-79-37)

Expedite action to complete and adopt the California Department of Transportation safety improvement project for the accident location and make the recommended safety improvements to comply with current safety guidelines. (Class II, Priority Action) (H-79-38)

Establish a program to retrofit, on a priority basis, bridge-railing that does not meet Federal performance guidelines, which provide that bridgerailings be designed to minimize severity of impact, retain the vehicle, redirect the vehicle so that it will move parallel to the roadway, and minimize danger to traffic below. (Class II, Priority Action)
(H-79-39)

KING, Chairman, DRIVER, Vice Chairman, McADAMS and HOGUE, Members, concurred in these recommendations.


By: James B. King
Chairman