

Log H-412

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: July 19, 1984

Forwarded to:
Mr. Robert Reeder
Executive Director
National Committee on Uniform
Traffic Laws and Ordinances
c/o Traffic Institute
Northwestern University
633 Clark Street
Evanston, Illinois 60201

SAFETY RECOMMENDATION(S)

H-84-58

At 1:30 a.m., e.d.t., on June 28, 1983, a 100-foot-long suspended span between piers 20 and 21 of the eastbound traffic lanes of the Interstate Route 95 highway bridge over the Mianus River in Greenwich, Connecticut, collapsed and fell 70 feet into the river below. Two tractor-semitrailers and two automobiles plunged into the void in the bridge and were destroyed by impact from the fall. Three vehicle occupants died, and the other three received serious injuries. 1/

Just before the span collapsed, eastbound traffic on the highway was light as it approached the bridge. An automobile was in the median lane of the three-lane eastbound roadway, a tractor-semitrailer was abreast in the center lane, and another tractor-semitrailer was in the curb lane and slightly ahead of the other two vehicles. According to the driver and passenger in a car following these three vehicles moving at highway speeds, there was a sudden flash of light and the highway overhead lighting on the bridge went out. The driver of the following car said that at the same time the brake lights of the two trucks came on, and the semitrailer of the truck in the curb lane began to change its alignment with the tractor as though it was starting to jackknife. Fearing an accident, the driver of the following car braked his vehicle hard, and suddenly the three vehicles ahead disappeared from view. The driver stopped the car in the center lane of the bridge. When he got out, he saw that the car was about 6 feet from the edge of a void where a section of the bridge had fallen.

Because the driver and passenger were concerned about their car being struck from the rear, they moved away from the car quickly. The driver, who was not the car owner, left the car lights on but did not switch on the hazard warning signals. The driver saw an eastbound automobile approaching and tried to flag it to a stop by waving his arms. The automobile did not slow until it was too close to the edge of the void to stop. It plunged into the void and landed upside down in the river below. The passenger of the stopped car on the bridge, who was the car owner, returned to the car and switched on its hazard warning signals before any other vehicles approached. A few minutes later, an eastbound tractor-semitrailer slowed and stopped in response to the car driver's flagging, and as other eastbound traffic approached, the vehicles stopped before reaching the void.

1/ For more detailed information read Highway Accident Report—"Collapse of a Section of Interstate Route 95 Highway Bridge Over the Mianus River, Greenwich, Connecticut, June 28, 1983" (NTSB/HAR-84/03).

The driver of the second automobile might have been able to stop his vehicle short of the span collapse if he had seen and reacted to the warning gestures of the driver of the stopped car sooner and had taken immediate evasive action. He might have been more readily warned or have better recognized the warning if the normal overhead bridge lighting had been illuminated or if the hazard warning signals on the stopped car had been activated. Given the circumstances of the emergency stop, the Safety Board believes that the car driver's failure to activate the hazard warning signals immediately was understandable.

The Safety Board has investigated other accidents where lack of visual cues needed by drivers as to the movement or nonmovement of vehicles ahead played a role in the crashes. ^{2/} In the area of reduced visibility (fog) accidents, the Board found that the fundamental problem was that drivers were overdriving their range of vision. One factor that influenced this overdriving was the inability of drivers to judge the speed (slow, moving, or stopped) of the vehicles ahead of them. As a result of one accident, the Board recommended the use of four-way emergency flashers as a driver aid when driving in reduced visibility.

In a Safety Board special study prompted by these accidents, ^{3/} research was cited that in daylight fog the visibility of taillights and turn signals is poor, but that in night fog (visibility about 200 feet) the combination of turn signals and taillights could be seen a distance of 670 to 840 feet depending on the lighting configuration (no lights, low beams, high beams) of the following vehicle. In regard to visual distance, it was found that the rear lighting of the lead vehicle is more important than are the following vehicle's headlights.

In two recent multiple-vehicle collisions, one in fog ^{4/} and another in smoke, ^{5/} the Safety Board's investigation revealed the same problems. Drivers entered the fog or smoke at varying speeds. Once in the area of reduced visibility, some drivers maintained their original speeds while others slowed. Some switched on their hazard warning signals while others did not. These two accidents resulted in 12 fatalities and 53 injuries.

The importance of vehicle rear lighting was demonstrated in another accident investigated by the Safety Board in which eight passengers in a van were killed. ^{6/} In that accident, a van traveling about 55 mph overtook and struck a slow-moving (5 to 10 mph) farm vehicle. The farm vehicle was being operated with two white headlamps on the front of the machine and one white work lamp ^{7/} on the rear. The vehicle was

^{2/} Highway Accident Reports—"Multi-Vehicle Collisions Under Fog Conditions, Followed by Fires, New Jersey Turnpike North of Gate 2, November 29, 1969" (NTSB-HAR-71-3); "Interstate Bus-Automobile Collision and Rollover on Indiana Route 57, South of Petersburg, Indiana, November 24, 1969" (NTSB-HAR-71-4); "Series of Multivehicle Collisions and Fires Under Limited Visibility Conditions, New Jersey Turnpike Gate 15 and U.S. Route 46, October 23 and 24, 1973" (NTSB-HAR-75-2).

^{3/} Highway Special Study—"Reduced-Visibility (Fog) Accidents on Limited-Access Highways" (NTSB-HSS-72-4).

^{4/} Highway Accident Report—"Multiple-Vehicle Collisions and Fire in Fog, Interstate 15 Near San Bernardino, California, November 10, 1980" (NTSB-HAR-80-5).

^{5/} Highway Accident Report—"Multiple-Vehicle Collisions and Fire Under Limited Visibility Conditions, Interstate 75, Ocala, Florida, February 28, 1983" (NTSB/HAR-83/04).

^{6/} Highway Accident Report—"Van/Slow-Moving Farm Vehicle Collision, U.S. Route 6/50, Near Delta, Utah, September 12, 1979" (NTSB-HAR-80-2).

^{7/} A work lamp provides illumination around the machine while it is operating in the field.

equipped with two double-faced hazard warning lamps, designed to signal a flashing amber light both to the front and the rear. These lights were not operable when tested after the accident, and the driver of the farm vehicle acknowledged that they were not operable at the time of the accident. The State traffic code did not require flashing amber or flashing red signal lamps on this vehicle. The Uniform Vehicle Code (UVC), the comprehensive model for State motor vehicle and traffic laws, requires that farm vehicles be equipped with hazard warning signals and that they be used whenever the vehicle is operated on the highway.

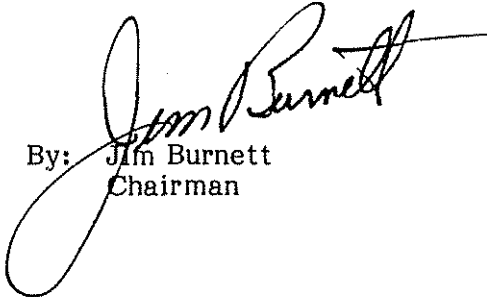
Although the inappropriate use of hazard warning signals may lead to driver misconceptions in some cases, the Safety Board believes that the majority of drivers understand that sighting hazard warning signals operating on vehicles ahead of them signifies that an unusual situation exists and that caution is required. Section 12-220 of the UVC authorizes the use of hazard warning signals on all vehicles that present a traffic hazard to other motorists on the highway. However, the model statute is permissive rather than mandatory, and many States do not require the use of hazard warning signals

Therefore, the National Transportation Safety Board recommends that the National Committee on Uniform Traffic Laws and Ordinances:

Modify Section 12-220 of the Uniform Vehicle Code to require the use of hazard warning signals whenever a motor vehicle becomes a hazard to motorists on a highway. (Class III, Longer Term Action) (H-84-58)

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 actions taken as a result of its safety recommendations and would appreciate a response from you regarding action taken or contemplated with respect to the recommendation in this letter.

BURNETT, Chairman, GOLDMAN, Vice Chairman, and BURSLEY and GROSE, Members, concurred in this recommendation.


By: Jim Burnett
Chairman

