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National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: January 13, 1988

In reply refer to: H-87-58 and -59

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Director
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On April 4, 1987, a 70-passenger double-decked sightseeing bus carrying a driver and 65 passengers en route to Mount Vernon, Virginia, was traveling southbound in the right lane of the Mount Vernon Memorial Highway portion of the George Washington Memorial Parkway approximately 3 1/2 miles south of Alexandria, Virginia. About 7:15 p.m. e.s.t., the top of the bus struck the Alexandria Avenue arched stone overpass. The bus was estimated to have been traveling between 22 and 42 mph. As a result of the impact, the bus roof was sheared off rearward, exposing the upper seating level. One passenger was killed and 33 passengers were injured. 1/

At the accident site, the concrete-surfaced parkway is an undivided, four-lane roadway, 40 feet wide with 9-foot-wide left lanes and 11-foot-wide right lanes. The overpass was not illuminated nor was it marked with reflectorized delineators to assist in identifying the size and shape of the underpass. Due to the arched configuration of the stone overpass, the outside lanes have less clearance because the arch tapers from approximately 14 feet 6 inches at the center line to 10 feet 2 inches at the edge of the roadway. The 13-foot 2-inch bus went under the bridge in the right lane. There were no tire marks on the approach to the overpass. Postimpact tire marks, 34 feet long, began 15 feet past the southern exit of the overpass. The tire marks indicated that the busdriver applied the service brakes after the bus exited the overpass. The bus came to rest 200 feet south of the overpass.

The parkway has a posted speed limit of 45 mph. On the southbound side of the parkway at the time of the accident there was a reflectorized 18- by 24-inch "Low Clearance" sign posted about 345 feet before the overpass. An identical sign was posted on the northbound side of the parkway. Visibility with respect to the sign in the southbound direction was partially obscured by low hanging branches. A turn-around road for vehicles unable to clear the underpass is located near each "Low Clearance" sign.

1/ For more detailed information, read Highway Accident/Incident Summary Report—"Collision of Tour Bus with Bridge Overpass on the George Washington Memorial Parkway, Alexandria, Virginia, April 4, 1987" (NTSB/HAR-87/4/SUM).

National Park Service (NPS) regulations prohibit trucks from using the parkway. Despite the prohibition, some trucks have used the parkway and according to the NPS superintendent and U.S. Park Police, have struck the underside of the arched overpass. In response to this problem, the NPS superintendent on December 18, 1986, requested that height-clearance signs conforming with the W12-2 specifications of the "Manual on Uniform Traffic Control Devices" (MUTCD) 2/ be acquired and installed in advance of and over each lane at the overpass. The design and ordering of the signs was in the NPS procurement process when the accident occurred. As an interim measure, the NPS installed temporary "Low Clearance" signs in advance of both approaches to the overpass on December 19, 1986. These signs, however, were not in conformance with the MUTCD.

On April 10, 1987, 6 days after the accident, the NPS replaced the temporary advance warning signs on the approaches to the overpass with signs that meet the MUTCD W12-2 specifications. The W12-2 warning signs were installed in advance of and on the overpass over each of the northbound and southbound lanes. The sign over the left southbound lane indicates a 13-foot 4-inch clearance and the sign over the right southbound lane indicates a 10-foot 2-inch clearance. The signs are positioned so that vehicles with dimensions in excess of those posted clearances can take alternate routes.

The "Park Road Standards" state that for new bridges, the vertical clearance at underpasses should be at least 14 feet above the entire roadway width. This is consistent with the American Association of State Highway and Transportation Officials bridge standards which are the Federal standards for bridge and road specifications. This overpass was built before the adoption of these standards by the NPS.

The accident site was located in an area without any ambient lighting which may have prevented the busdriver from identifying the arched stone overpass. The dark, grey color of the stones in the overpass helped it to blend into the darkness of the night. The overpass was not illuminated nor were there any reflective devices on the structure. The busdriver stated that he failed to see the overpass in time to move his bus to the left lane where there was sufficient clearance. The busdriver had made this trip in this bus 20 to 30 times and should have recognized the previous intersection of Morningside Drive as a clue that he was getting close to the overpass. However, he had not previously driven the route at night.

According to the Federal Highway Administration, there are 79 NPS structures in the NPS eastern region that have clearances less than 14 feet. The National Transportation Safety Board is aware that generally the NPS does not allow commercial vehicles on park roads. In this case, the carrier was permitted by the NPS to operate on the George Washington Memorial Parkway. The Safety Board believes that it is important to evaluate the structures in the National Park System open to public travel to provide sufficient and appropriate warnings to prevent similar accidents. If high-clearance vehicles are going to be permitted to use park roads, the low-clearance structures should be appropriately signed.

2/ The MUTCD contains standards and specifications for the design, usage, and placement of traffic control devices on roadways, streets, and highways. It is promulgated by the Federal Highway Administration and is for use on all public streets and highways regardless of which agency has jurisdiction.

Therefore, the National Transportation Safety Board recommends that the National Park Service:

> Inform all park superintendents of the facts, conditions, and circumstances of the accident near Alexandria, Virginia, on April 4, 1987. Identify any low-clearance structures over roadways in the National Park System. Determine the extent and severity of any low-clearance problems in relation to the vehicles that use the park roads and provide information to roadway users about the low-clearance problems. (Class II, Priority Action) (H-87-58)
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> In cooperation with the Federal Highway Administration, identify and implement appropriate countermeasures for low-clearance structures over all park roadways including, but not limited to, roadway and low-structure signing, lighting, or the prohibition of vehicles on the roadway that cannot clear the lowest clearance structures. (Class III, Longer Term Action) (H-87-59)

Also as a result of its investigation, the Safety Board issued Safety Recommendations H-87-60 to the Webb Tours, Inc., and H-87-61 and -62 to the American Bus Association and the United Bus Owner's of America.

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 recommendations in this letter. Please refer to Safety Recommendations H-87-58 and -59 in your reply.

BURNETT, Chairman, and LAUBER, NALL, and KOLSTAD, Members, concurred in these recommendations. GOLDMAN, Vice Chairman, did not participate.

By: Jim Burnett
Chairman