

School Bus Crash Investigation  
Dynamic Science, Inc.  
**Case 99004**  
Contract DTNH22-94-D27058  
Task 131  
Ohio  
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*The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.*

*Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.*

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## Background

This crash involved a 1985 Chevrolet C-60 School Bus (Vehicle 1) which ran off the road and overturned in a single vehicle collision. The school bus was traveling in a northerly direction when it went off the road on the right side. The driver overcorrected, steering to the left, and the bus then traveled across the road and went off the road on the left side, overturning, and coming to final rest position in a ditch. Approximately 35 people received minor injuries. The crash was selected for an additional follow-up investigation due to the reported injuries. A remote-style investigation was conducted during which information was sought from the investigating police jurisdiction and the bus owners (the school district). This report is based upon an abbreviated police report, and newspaper clipping provided by the school district, which claimed it had no additional information in its files.

## Summary

The crash occurred during the early morning hours of a summer weekday in a suburban area. There were no viewing restrictions, and no adverse weather conditions were reported on the police report; however, the newspaper article quotes the transportation director as saying that the bus wheels were wet at the time of the crash. The bus was traveling northbound at approximately 81 kph (50 mph) on a flat, straight, two way, two lane undivided paved roadway. For an unknown reason, the right side wheels of the bus left the pavement, and the driver of the bus steered left to bring the bus back onto the roadway. The driver over-steered, and the bus veered to the left, traveling across both travel lanes, and entering a ditch on the west edge of the roadway. The front of the bus struck an embankment, and the bus rolled 1/4 turn onto its ride side before coming to final rest.

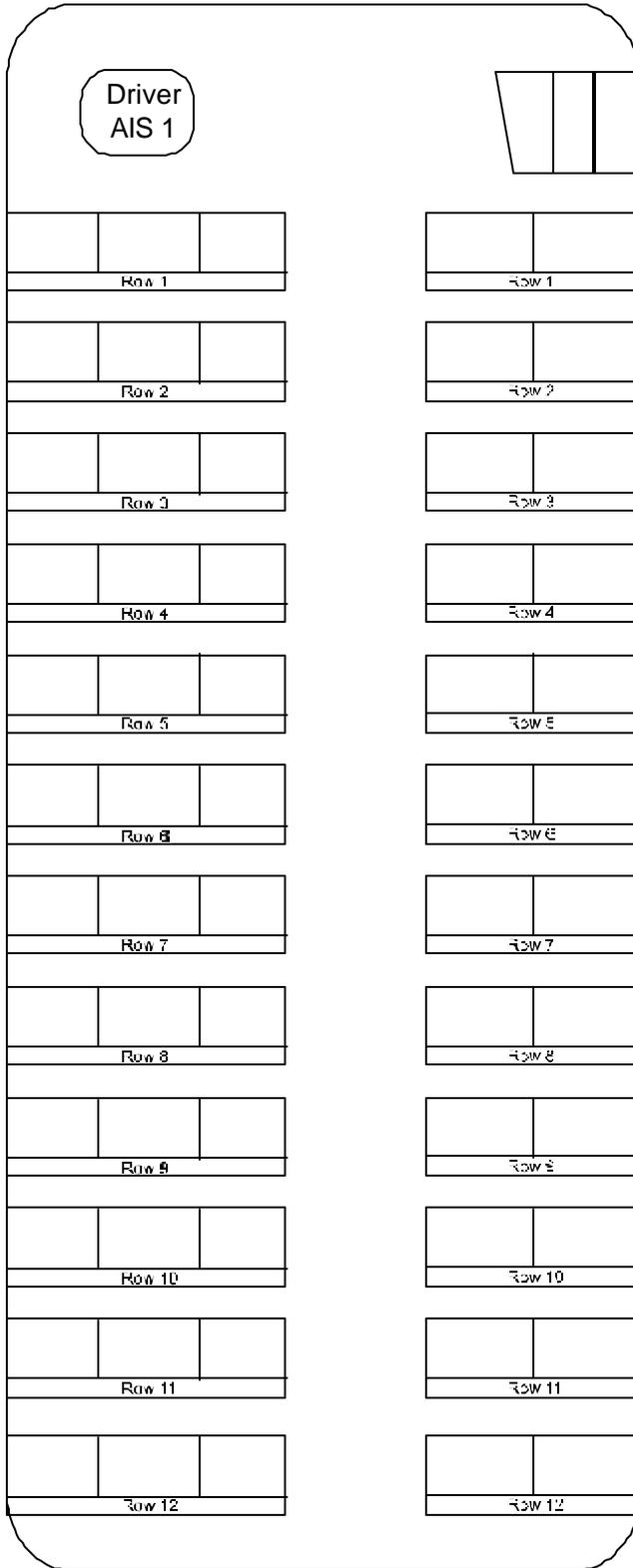
Vehicle 1 was a 1985 Chevrolet C-60 full size school bus. The bus was driven by a 53 year old female with 10 years experience driving a school bus. This was not the bus normally operated by this driver. The bus was reported to have been in good condition prior to the crash, having passed an inspection two weeks prior to the crash. The driver was wearing the available lap belt. There were 35 occupants ranging in age from middle school to senior high school students. None of the students were restrained.

Following the initial impact with the embankment, the bus rotated slightly in a counterclockwise direction as it overturned. Damage to Vehicle 1 is shown on the reproductions of photographs enclosed. It includes the right front fender, and extensive damage along the right side of the bus including the roof area. There was extensive intrusion on the right side of the mid-section of the bus in the roof area as a result of the rollover.

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The school bus was carrying 35 child passengers. Only the driver was restrained by a seat belt. The seating positions of the students are unknown. The driver received facial injuries resulting in swelling around one eye. All other occupants were described as having received bumps and scratches. All occupants exited the bus without assistance. Several of the children required stitches as treatment for minor lacerations. All occupants were transported to the two area hospitals for diagnosis and treatment. All occupants were treated and released by the afternoon of the crash.

The bus was towed from the scene due to the extent of damage.



There were 35 occupants, the precise seating positions are unknown. All occupants allegedly received AIS 1 injuries

