

School Bus Crash Investigation  
Dynamic Science, Inc.  
Case DS99011  
Contract DTNH22-94-D27058  
Task 131  
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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 1991 International School Bus (Vehicle 1) in an angle collision with a 1981 Buick LeSabre (Vehicle 2). The school bus was attempting to make a left turn heading in a northerly direction at an intersection. It was struck on the right front corner by the frontal plane of Vehicle 2 which was traveling westbound. The crash was selected for an additional follow-up investigation due to 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).

## **Summary**

This crash involved a 1991 International 3800 FBC 80 inch Steel Cab/Thomas School Bus. It was believed to be a 74 passenger bus with 13 rows of seats on each side, and 3 occupant positions per seat. The bus was driven by a 38 year old female driver, and reported to be in good condition prior to the crash. The bus was traveling on a four lane divided highway and initiating a left turn to proceed northbound onto a four lane median divided roadway. Vehicle 2, a 1981 Buick LeSabre driven by a 39 year old female driver was traveling westbound through the intersection. The collision occurred in the westbound travel lanes. The frontal plane of the Buick struck the right front corner of the bus, and as the vehicles remained engaged, the entire right side of the bus was damaged in a sideswipe type configuration.. Following the impact with Vehicle 2, the school bus continued through the intersection and struck a highway fence at an unknown location, causing minor damage to the vehicle.

The speed limit for both vehicles was reported to be 32 km/h (20 mph). The crash occurred during a spring weekday, in the mid-afternoon in an urban area. It was raining at the time of the crash and the road surface was reported to have been wet.

The repair estimate received for the school bus indicates that contact damage from the impact with Vehicle 2 extended from the right front corner of the bus, including fender and hood, to the rear axle area. The bus frame required rewelding at the right front corner. The right rear tire required repair as did the rear axle. Damage to the left front portion of the bus was apparently minor subsequent to its collision with the fence. No police photographs were taken of the crash.

Exemplar photographs were taken of a vehicle believed to be the same model and configuration as the case vehicle. The angles of the seats were measured as 79.3 degrees for the seat back, and 5.9 degrees for the seat cushion when compressed. The exemplar vehicle is a newer model year. The Board of Education did not have photographs or additional information available beyond the police

report and the repair estimate. They stated that more complete files would have been available had a child been involved in the crash.

Both drivers were reportedly injured and at least one driver was transported to an area hospital for treatment. The nature and extent of the injuries are unknown.

According to the police report, and the Board of Education, the school bus was not carrying any child passengers at the time of the crash. There were no additional occupants in Vehicle 2.

Both vehicles were towed from the scene of the crash. The school bus was repaired at a cost estimated to be about \$5,000. The final disposition of Vehicle 2 is unknown.

Injured Driver					
Row 1			Row 1		
Row 2			Row 2		
Row 3			Row 3		
Row 4			Row 4		
Row 5			Row 5		
Row 6			Row 6		
Row 7			Row 7		
Row 8			Row 8		
Row 9			Row 9		
Row 10			Row 10		
Row 11			Row 11		
Row 12			Row 12		

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