



School Bus Safety Report

Department of Highway Safety & Motor Vehicles
August 2004

Executive Summary

During 2002, there were more than 2.5 million children attending public schools, and almost 970,000 of them rode school buses. In that same year, there were approximately 19,453 school buses traveling 2.8 million vehicle miles in the state of Florida.

Despite the large number of children riding buses, there were no fatalities on Florida school buses in 2002. However, there were 6 fatalities and 56 injuries requiring a victim to be transported from the crash site during the five-year period (1998-2002) under study. In that same five-year period, national school bus data shows there were 150 fatalities. Although 4,830 school buses were involved in crashes in Florida during this five-year period, school bus drivers were not cited as being at fault in 69 percent of the crashes.

Overall, school bus transportation has proven to be a safe mode of travel for students to and from school. Serious crashes involving angular, side and rear impacts, and roll-overs would indicate that continued research into construction and safety equipment of school buses is a critical link in enhancing safety to school bus occupants when a crash does occur. Specific attention should be given to enhancing the safety of students getting on and off school buses.



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I. REPORT HIGHLIGHTS



I. Report Highlights

A school transportation-related crash is a crash which involves, either directly or indirectly, a school bus body vehicle¹, or non-school bus functioning as a school bus, transporting children to or from school or school-related activities. A cursory review of the Florida traffic crash data for the five-year period ending December 31, 2002, indicates that there have been a number of school bus crashes that have resulted in fatalities and serious injuries. Whereas each of these crashes and the consequences are tragic, it is important to study such crashes to identify areas for potential safety improvement. For the current analysis, several variables were selected based on literature from the National Highway Traffic Safety Administration (NHTSA). These variables encompass many aspects of school bus-related crashes. The variables include: driver's contributing cause, crash injury severity, point of impact, harmful events, driver's physical defect, type of weather, vehicle defect, and citations issued to drivers at fault.

- Between 1998 and 2002, a total of six children died in school bus related crashes in Florida. Two were killed while riding inside the school bus and four were killed while preparing to load or unload a school bus (see pp. 9-10).
- A higher percentage of the 4,830 school bus crashes were attributed to the fault of other drivers (see pp. 7-8).
- While proven to be an enhancement to passenger safety, there is an on-going debate about the potential effectiveness of seatbelts installed on school buses². The concerns are potential injuries caused by lap belts (two-point belts), reduced passenger capacity with lap/shoulder belts (three-point belts), type of bus (roll-over possibilities), type of crash, and cost (see pp. 20-22).
- Frontal impact in school bus crashes resulted in more serious injuries, and particularly, fatal injuries. Rear-end crashes allowed a higher percentage of children to escape injuries and had a smaller percentage of fatal injuries than frontal impact crashes. Of the total fatalities, approximately 40 percent were

¹ See Appendix 1

² Under current Florida law, school buses purchased new after 12/31/2000, must be equipped with safety belts and all passengers are required to wear safety belts while the bus is in operation.

from frontal impacts compared to 15 percent from rear-ending impacts. (see pp. 11-13).

- In 23 percent of all crashes involving school transportation, the principal point of impact was the rear of the bus, whereas only 17 percent involved frontal impact. (see pp. 11-13)
- Physical defects of the driver and poor weather conditions did not appear to be significant factors in school bus safety (see pp. 15-16).
- The National Traffic Safety Board (NTSB) and the National Academy of Sciences (NAS) have confirmed the effectiveness of compartmentalization in frontal and rear impact studies. However, after several studies the NTSB found that compartmentalization does not provide adequate protection for passengers in side impact collisions or roll-over crashes (see pp. 20-22).
- Training of school bus drivers is a critical link to safety. The safety and welfare of the students is to a large degree, the responsibility of the driver. Improvements to bus design (including better visibility, easier driver access to controls, and other safety features) have been incorporated into school buses to assist drivers with safely transporting students (see pp. 22-26).



II. ANALYSIS OF CRASH DATA

Facts and Figures

What Makes It A Crash and How Many Did We Have?

II. Analysis of Crash Data

Table 1 compares school bus drivers in crashes to other drivers with respect to driver contribution to crash. As the data indicate, school bus drivers were cited less often as being at fault in crashes involving school buses. For example, 65 percent of school bus drivers involved in crashes in 1998 were identified with “No Improper Driving” as compared to 40 percent for other drivers. This implies that 35 percent of school bus drivers were at fault compared to 60 percent of other drivers.

In 1999 and 2000, school bus drivers scored even better indicating that they are less of a contributing factor in crashes than other drivers. Bus drivers’ percentages were 72 percent and 71 percent, respectively, compared to 36 percent and 40 percent for other drivers. In short, school bus drivers involved in crashes are less at fault than other drivers.

While the data indicate that school bus drivers are safer drivers, they have been cited more often than other drivers in crashes for their “Improper Backing” and “Improper Turn” during 1998 through 2002. However, other drivers rated worse in other contributing causes throughout the five-year period.



Drivers' Contributing Cause in Florida School Bus Crashes

Table 1

1998 Through 2002

| Contributing Cause | 1998 | | | | 1999 | | | | 2000 | | | | 2001 | | | | 2002 | | | |
|--------------------------------------|------------|---------|--------------|---------|------------|---------|--------------|---------|------------|---------|--------------|---------|------------|---------|--------------|---------|------------|---------|--------------|---------|
| | Bus Driver | % Total | Other Driver | % Total | Bus Driver | % Total | Other Driver | % Total | Bus Driver | % Total | Other Driver | % Total | Bus Driver | % Total | Other Driver | % Total | Bus Driver | % Total | Other Driver | % Total |
| No Improper Driving/Action | 609 | 65.3 | 330 | 40.1 | 708 | 72.3 | 293 | 35.6 | 695 | 71.3 | 339 | 40.3 | 671 | 69.32 | 326 | 38.4 | 701 | 67.8 | 334 | 38.5 |
| Careless Driving | 102 | 11 | 192 | 23.3 | 96 | 9.81 | 228 | 27.7 | 95 | 9.74 | 215 | 25.5 | 107 | 11.05 | 217 | 25.6 | 118 | 11.4 | 213 | 24.5 |
| Failed to Yield Right-of-Way | 78 | 8.36 | 80 | 9.72 | 55 | 5.62 | 82 | 9.95 | 68 | 6.97 | 79 | 9.38 | 56 | 5.785 | 92 | 10.8 | 60 | 5.8 | 90 | 10.4 |
| Improper Backing | 26 | 2.79 | 2 | 0.24 | 18 | 1.84 | 6 | 0.73 | 15 | 1.54 | 10 | 1.19 | 14 | 1.446 | 11 | 1.3 | 26 | 2.51 | 8 | 0.92 |
| Improper Lane Change | 10 | 1.07 | 17 | 2.07 | 8 | 0.82 | 16 | 1.94 | 9 | 0.92 | 26 | 3.09 | 8 | 0.826 | 14 | 1.65 | 10 | 0.97 | 20 | 2.3 |
| Improper Turn | 16 | 1.71 | 10 | 1.22 | 21 | 2.15 | 13 | 1.58 | 16 | 1.64 | 16 | 1.9 | 19 | 1.963 | 12 | 1.42 | 18 | 1.74 | 14 | 1.61 |
| Followed Too Closely | 14 | 1.5 | 28 | 3.4 | 12 | 1.23 | 18 | 2.18 | 5 | 0.51 | 29 | 3.44 | 12 | 1.24 | 14 | 1.65 | 13 | 1.26 | 20 | 2.3 |
| Disregarded Traffic Signal | 10 | 1.07 | 31 | 3.77 | 5 | 0.51 | 40 | 4.85 | 3 | 0.31 | 30 | 3.56 | 9 | 0.93 | 28 | 3.3 | 3 | 0.29 | 28 | 3.23 |
| Exceeded Safe Spd Limit | 5 | 0.54 | 13 | 1.58 | 2 | 0.2 | 15 | 1.82 | 0 | 0 | 5 | 0.59 | 1 | 0.103 | 13 | 1.53 | 6 | 0.58 | 17 | 1.96 |
| Disregarded Stop Sign | 3 | 0.32 | 15 | 1.82 | 5 | 0.51 | 19 | 2.31 | 5 | 0.51 | 16 | 1.9 | 6 | 0.62 | 24 | 2.83 | 4 | 0.39 | 19 | 2.19 |
| Failed to Maintain Equipment/Vehicle | 6 | 0.64 | 10 | 1.22 | 0 | 0 | 9 | 1.09 | 1 | 0.1 | 6 | 0.71 | 1 | 0.103 | 1 | 0.12 | 4 | 0.39 | 4 | 0.46 |
| Drove Left of Center | 8 | 0.86 | 12 | 1.46 | 4 | 0.41 | 4 | 0.49 | 5 | 0.51 | 9 | 1.07 | 6 | 0.62 | 8 | 0.94 | 6 | 0.58 | 7 | 0.81 |
| Other* | 3 | 0.32 | 19 | 2.31 | 2 | 0.2 | 19 | 2.31 | 6 | 0.62 | 23 | 2.73 | 11 | 1.136 | 26 | 3.07 | 9 | 0.87 | 34 | 3.92 |
| All Other** | 43 | 4.61 | 64 | 7.78 | 43 | 4.39 | 62 | 7.52 | 52 | 5.33 | 39 | 4.63 | 47 | 4.855 | 62 | 7.31 | 56 | 5.42 | 60 | 6.91 |
| Total | 933 | 100 | 823 | 100 | 979 | 100 | 824 | 100 | 975 | 100 | 842 | 100 | 968 | 100 | 848 | 100 | 1,034 | 100 | 868 | 100 |

* Refers to those categories of "Contributing Cause" where the entries in the table were too small to provide meaningful data for analysis.

Therefore, those categories were collapsed into one category called "Other" category.

** "All Other" refers to those contributing causes which were not listed on the crash report.

Note: "Bus Driver" refers to school bus driver and "Other Driver" refers to non-school bus driver.



Table 2

**Children Inside Bus by Injury Severity in School Bus Crashes
1998 Through 2002**

| Injury Severity | Year | | | | | Five Year Total |
|---------------------------|--------|--------|--------|--------|--------|--------------------|
| | 1998 | 1999 | 2000 | 2001 | 2002 | |
| No Injury | 6,525 | 6,141 | 5,193 | 5,474 | 5,329 | 28,662 |
| % | 89.22 | 88.74 | 88.53 | 88.58 | 89.90 | 88.99 |
| Possible Injury | 508 | 545 | 512 | 511 | 425 | 2501 |
| % | 6.95 | 7.88 | 8.73 | 8.27 | 7.17 | 7.77 |
| Non-Incapacitating Injury | 250 | 193 | 112 | 163 | 118 | 836 |
| % | 3.42 | 2.79 | 1.91 | 2.64 | 1.99 | 2.60 |
| Incapacitating Injury | 30 | 40 | 48 | 32 | 56 | 206 |
| % | 0.41 | 0.58 | 0.82 | 0.52 | 0.94 | 0.64 |
| Fatal Injury | 0 | 1 | 1 | 0 | 0 | 2 |
| % | 0.00 | 0.01 | 0.02 | 0.00 | 0.00 | 0.01 |
| Total | 7,313 | 6,920 | 5,866 | 6,180 | 5,928 | 32,207 |
| % | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

Table 2 indicates the percentages of children inside school buses involved in crashes between 1998 and 2002. During the five-year period there were 32,207 children involved in crashes while riding in a school bus. Of those children involved in crashes, 89% (28,662) sustained no injuries. Less than 1% (206) had visible signs of injury that required transportation to a hospital, while 0.01% (2) sustained fatal injuries.



Table 3

**Children Outside Bus by Injury Severity in School Bus Crashes
1998 Through 2002**

| Injury Severity | Year | | | | | Five Year Total |
|---------------------------|--------|--------|--------|--------|--------|--------------------|
| | 1998 | 1999 | 2000 | 2001 | 2002 | |
| No Injury | 0 | 1 | 0 | 1 | 0 | 2 |
| % | 0.00 | 7.69 | 0.00 | 10.00 | 0.00 | 3.77 |
| Possible Injury | 1 | 5 | 2 | 1 | 3 | 12 |
| % | 14.29 | 38.46 | 20.00 | 10.00 | 23.08 | 22.64 |
| Non-Incapacitating Injury | 6 | 1 | 5 | 5 | 4 | 21 |
| % | 85.71 | 7.69 | 50.00 | 50.00 | 30.77 | 39.62 |
| Incapacitating Injury | 0 | 3 | 3 | 2 | 6 | 14 |
| % | 0.00 | 23.08 | 30.00 | 20.00 | 46.15 | 26.42 |
| Fatal Injury | 0 | 3 | 0 | 1 | 0 | 4 |
| % | 0.00 | 23.08 | 0.00 | 10.00 | 0.00 | 7.55 |
| Total | 7 | 13 | 10 | 10 | 13 | 53 |
| % | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

In contrast to Table 2, **Table 3** reveals the percentages of children outside the school bus involved in crashes between 1998 and 2002. During five-year period there were 53 children involved in crashes outside the school bus. The number of children sustaining minor injuries that did not require transportation to a hospital was 21 (40%). The number of children sustaining injuries that required transportation to a hospital was 14 (26%). There were 4 (8%) fatal injuries during this time.



Point of Impact

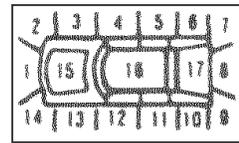


Table 4

**Number of Florida School Buses in Crashes by Point and Frequency of Impact
1998 Through 2002**

| Point of Impact* | Year | | | | | | | | | |
|---------------------|------|--------|------|--------|------|--------|------|--------|-------|--------|
| | 1998 | | 1999 | | 2000 | | 2001 | | 2002 | |
| | # | % | # | % | # | % | # | % | # | % |
| Front-1 | 153 | 16.56 | 164 | 16.89 | 159 | 16.53 | 179 | 18.72 | 175 | 17.21 |
| Right Front Angle-2 | 73 | 7.90 | 77 | 7.93 | 74 | 7.69 | 90 | 9.41 | 83 | 8.16 |
| Right Side-3 | 29 | 3.14 | 28 | 2.88 | 25 | 2.60 | 32 | 3.35 | 39 | 3.83 |
| Right Side-4 | 27 | 2.92 | 21 | 2.16 | 33 | 3.43 | 22 | 2.30 | 26 | 2.56 |
| Right Side-5 | 33 | 3.57 | 27 | 2.78 | 33 | 3.43 | 36 | 3.77 | 37 | 3.64 |
| Right Side-6 | 27 | 2.92 | 36 | 3.71 | 36 | 3.74 | 27 | 2.82 | 33 | 3.24 |
| Back Right Angle-7 | 35 | 3.79 | 38 | 3.91 | 36 | 3.74 | 33 | 3.45 | 40 | 3.93 |
| Rear-8 | 214 | 23.16 | 236 | 24.30 | 216 | 22.45 | 207 | 21.65 | 234 | 23.01 |
| Back Left Angle-9 | 63 | 6.82 | 72 | 7.42 | 61 | 6.34 | 52 | 5.44 | 72 | 7.08 |
| Left Side-10 | 39 | 4.22 | 28 | 2.88 | 30 | 3.12 | 29 | 3.03 | 35 | 3.44 |
| Left Side-11 | 45 | 4.87 | 53 | 5.46 | 49 | 5.09 | 42 | 4.39 | 49 | 4.82 |
| Left Side-12 | 45 | 4.87 | 43 | 4.43 | 40 | 4.16 | 60 | 6.28 | 43 | 4.23 |
| Left Side-13 | 50 | 5.41 | 47 | 4.84 | 51 | 5.30 | 45 | 4.71 | 57 | 5.60 |
| Left Front Angle-14 | 70 | 7.58 | 82 | 8.44 | 88 | 9.15 | 81 | 8.47 | 81 | 7.96 |
| Other** | 13 | 1.41 | 12 | 1.24 | 10 | 1.04 | 7 | 0.73 | 13 | 1.28 |
| Unknown | 8 | 0.87 | 7 | 0.72 | 21 | 2.18 | 14 | 1.46 | 0 | 0.00 |
| Total | 924 | 100.00 | 971 | 100.00 | 962 | 100.00 | 956 | 100.00 | 1,017 | 100.00 |

* Point of impact refers to location of initial vehicle damage involved in crash (see diagram at right). It does not reflect whether the school bus or the other vehicles involved were at fault.

** Refers to those categories of "point of impact" where the entries in the table were too small to provide meaningful data for analysis. Therefore, those categories were collapsed into "Other."

Table 4 shows that on the average, in 23 percent of all crashes involving school transportation, the principal point of impact was the rear-end of the vehicle. This is true throughout the five-year period (1998-2002) covered in this report. The second most frequent point of impact is the frontal impact as shown shaded on **Table 4**. On the average, 17 percent of school bus crashes involving injuries are attributed to frontal impact.



Point of Impact

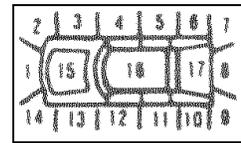


Table 5

**Point of Impact by Crash Injury Severity in School Bus Crashes*
1998 Through 2002**

| Point of Impact** | Crash Injury Severity | | | | | | | | | |
|---------------------|-----------------------|--------|-----------------|--------|---------------------------|--------|-----------------------|--------|--------------|--------|
| | No Injury | % | Possible Injury | % | Non-Incapacitating Injury | % | Incapacitating-Injury | % | Fatal Injury | % |
| Front-1 | 173 | 8.54 | 321 | 21.60 | 207 | 23.31 | 108 | 28.57 | 21 | 39.62 |
| Right Front Angle-2 | 135 | 6.67 | 141 | 9.49 | 73 | 8.22 | 42 | 11.11 | 6 | 11.32 |
| Right Side-3 | 74 | 3.65 | 38 | 2.56 | 28 | 3.15 | 12 | 3.17 | 1 | 1.89 |
| Right Side-4 | 51 | 2.52 | 45 | 3.03 | 22 | 2.48 | 9 | 2.38 | 2 | 3.77 |
| Right Side-5 | 63 | 3.11 | 56 | 3.77 | 36 | 4.05 | 10 | 2.65 | 1 | 1.89 |
| Right Side-6 | 82 | 4.05 | 42 | 2.83 | 22 | 2.48 | 12 | 3.17 | 1 | 1.89 |
| Back Right Angle-7 | 98 | 4.84 | 50 | 3.36 | 18 | 2.03 | 13 | 3.44 | 3 | 5.66 |
| Rear-8 | 521 | 25.73 | 325 | 21.87 | 187 | 21.06 | 66 | 17.46 | 8 | 15.09 |
| Back Left Angle-9 | 191 | 9.43 | 74 | 4.98 | 42 | 4.73 | 12 | 3.17 | 1 | 1.89 |
| Left Side-10 | 105 | 5.19 | 32 | 2.15 | 18 | 2.03 | 5 | 1.32 | 1 | 1.89 |
| Left Side-11 | 99 | 4.89 | 81 | 5.45 | 44 | 4.95 | 12 | 3.17 | 2 | 3.77 |
| Left Side-12 | 120 | 5.93 | 52 | 3.50 | 44 | 4.95 | 14 | 3.70 | 1 | 1.89 |
| Left Side-13 | 129 | 6.37 | 68 | 4.58 | 42 | 4.73 | 10 | 2.65 | 1 | 1.89 |
| Left Front Angle-14 | 146 | 7.21 | 124 | 8.34 | 81 | 9.12 | 47 | 12.43 | 4 | 7.55 |
| Other*** | 25 | 1.23 | 17 | 1.14 | 11 | 1.24 | 1 | 0.26 | 0 | 0.00 |
| Unknown | 13 | 0.64 | 20 | 1.35 | 13 | 1.46 | 5 | 1.32 | 0 | 0.00 |
| Total | 2025 | 100.00 | 1,486 | 100.00 | 888 | 100.00 | 378 | 100.00 | 53 | 100.00 |

* Entries in the table are the number of buses in crashes involving different levels of injuries.

** Point of impact refers to location of initial vehicle damage involved in crash (see diagram at right). It does not reflect whether the school bus or the other vehicles involved were at fault.

*** Refers to those categories of "point of impact" where the entries in the table were too small to provide meaningful data for analysis. Therefore, those categories were collapsed into "Other."

An average of 947 school bus crashes occurred statewide each year during the study period. Less than 550 of these crashes involved injuries to school bus occupants. Most of the injury-involved crashes were minor in nature. The most serious crashes involved frontal, angular, side, rear, and roll-over crashes. Unfortunately, very severe crashes resulted in serious injuries or fatalities to school bus passengers.

While *Table 4* shows the point and frequency of impact in crashes involving school transportation, the question of interest in **Table 5** is, “What is the distribution of injuries within individual categories of point of impact?” For example, crashes involving frontal impact resulted in “No Injury” only in 8.5 percent of school bus crashes, but it led to 21.60 percent of “Possible Injury,” 23.31 percent “Non-Incapacitating Injuries,” and 28.57 percent of “Incapacitating Injuries” in school bus crashes. There were 53 fatal school bus crashes during the five-year period of which 40 percent (21) were the result of frontal impact.

Rear-end impact crashes appear to be equally, if not more dangerous, in school bus crashes. Crashes involving rear-end impact resulted in “No Injury” in nearly 26 percent of school bus crashes compared to 8.54 percent of frontal impact crashes. “Possible Injury,” “Non-Incapacitating,” “Incapacitating,” and “Fatal” injuries accounted for 21.87 percent, 21 percent, 17.46 percent, and 15 percent, respectively.

Crashes involving left front angle impact caused “No Injury” in 7.21 percent of school bus crashes, but resulted in 8.34 percent “Possible Injury,” 9.12 percent “Non-Incapacitating Injury,” 12.43 percent “Incapacitating Injury,” and 7.55 percent “Fatal Injury.” Overall, frontal impact, rear-end impact, back left angle, and front left angle resulted in more serious injuries. The impact on the occupants from right side impacts resulted in the least injuries to occupants of school transportation.



Table 6

**Number of Florida School Buses in Crashes by 1st Harmful Event
1998 Through 2001***

| Harmful Event | Year | | | | | | | |
|------------------|------|--------|------|--------|------|--------|------|--------|
| | 1998 | | 1999 | | 2000 | | 2001 | |
| | # | % | # | % | # | % | # | % |
| Rear End | 353 | 38.20 | 374 | 38.52 | 383 | 39.81 | 353 | 36.92 |
| Head-on | 19 | 2.06 | 16 | 1.65 | 19 | 1.98 | 23 | 2.41 |
| Angle | 209 | 22.62 | 201 | 20.70 | 200 | 20.79 | 219 | 22.91 |
| Left Turn | 81 | 8.77 | 88 | 9.06 | 80 | 8.32 | 91 | 9.52 |
| Right Turn | 26 | 2.81 | 18 | 1.85 | 16 | 1.66 | 26 | 2.72 |
| Sideswipe | 103 | 11.15 | 137 | 14.11 | 138 | 14.35 | 122 | 12.76 |
| Backed Into | 33 | 3.57 | 29 | 2.99 | 28 | 2.91 | 26 | 2.72 |
| Parked Car | 7 | 0.76 | 15 | 1.54 | 9 | 0.94 | 6 | 0.63 |
| On other Roadway | 5 | 0.54 | 2 | 0.21 | 3 | 0.31 | 4 | 0.42 |
| Pedestrian | 12 | 1.30 | 15 | 1.54 | 12 | 1.25 | 19 | 1.99 |
| Bicycle | 9 | 0.97 | 10 | 1.03 | 4 | 0.42 | 5 | 0.52 |
| Other** | 38 | 4.11 | 39 | 4.02 | 28 | 2.91 | 26 | 2.72 |
| All Other** | 29 | 3.14 | 27 | 2.78 | 42 | 4.37 | 36 | 3.77 |
| Total | 924 | 100.00 | 971 | 100.00 | 962 | 100.00 | 956 | 100.00 |

* In 2002, "Harmful Events" were counted per vehicle instead of per crash as previously reported.

As a result, 2002 data were not included in this table due to incompatibility with prior years' data.

** Refers to those categories of "Harmful Events" where the entries in the table were too small to provide meaningful data for analysis. Therefore, those categories were collapsed into "Other."

*** "All other" refers to those "Harmful Events" which were not listed on the crash report form.

As shown in **Table 6**, collision with motor vehicles in transport (rear-end), collision with motor vehicles in transport (angle), and collision with motor vehicles in transport (sideswipe) are the most serious harmful events in school bus crashes. The findings of *Table 6* are supported by the data in *Table 4* relative to the serious points of impact in school bus crashes. The other harmful events listed in this table appear to be of less significance due to small percentages for each category of harmful event. The three most serious harmful events are highlighted in *Table 6*.

Table 7

**Number of Florida School Bus Drivers in Crashes by Physical Defect
1998 Through 2002**

| Drivers' Physical Defect | Year | | | | | | |
|-----------------------------|------|------|------|------|-------|-------|---------|
| | 1998 | 1999 | 2000 | 2001 | 2002 | Total | % Total |
| No Defect Known | 915 | 961 | 952 | 944 | 1,015 | 4,787 | 99.12 |
| Eyesight Defective | 8 | 9 | 6 | 7 | 1 | 31 | .64 |
| Fatigue/Asleep | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Hearing Defective | 0 | 1 | 0 | 0 | 0 | 1 | .02 |
| Illness | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Seizure, Epilepsy | 1 | 0 | 1 | 1 | 0 | 3 | .06 |
| Other Physical Defect | 0 | 0 | 2 | 1 | 1 | 4 | .08 |
| Unknown | 0 | 0 | 1 | 3 | 0 | 4 | .08 |
| Total | 924 | 971 | 962 | 956 | 1,017 | 4,830 | 100.00 |

As shown in **Table 7**, ninety-nine percent of school bus drivers in crashes had “No Known Physical Defect” during the five-year period in this report. There were 31 cases involving “Eyesight” as a physical defect in school bus crashes, with “Other Physical Defects” and “Seizure, Epilepsy” ranking second, and third, respectively. There were no school bus drivers involved in crashes reported in the categories “Fatigue/Asleep” or “Illness” during the five-year period.

Table 8

**Number of Florida School Buses in Crashes by Type of Weather
1998 Through 2002**

| Type of Weather | Year | | | | | | |
|-----------------|------|------|------|------|-------|-------|---------|
| | 1998 | 1999 | 2000 | 2001 | 2002 | Total | % Total |
| Clear | 672 | 744 | 720 | 736 | 714 | 3,586 | 74.24 |
| Cloudy | 161 | 152 | 146 | 143 | 181 | 783 | 16.21 |
| Rain | 76 | 57 | 72 | 63 | 99 | 367 | 7.60 |
| Fog | 8 | 14 | 17 | 11 | 15 | 65 | 1.35 |
| All Other | 7 | 4 | 7 | 3 | 7 | 28 | .58 |
| Unknown | 0 | 0 | 0 | 0 | 1 | 1 | .02 |
| Total | 924 | 971 | 962 | 956 | 1,017 | 4,830 | 100.00 |

Table 8 shows weather to be a factor in approximately 25 percent of Florida school bus crashes during the five-year period of the report. Sixteen percent of crashes, where weather was a factor, occurred during “Cloudy” weather, followed by almost eight percent during “Rainy” weather. “Fog,” “All Other,” and “Unknown” accounted for the relative insignificant remainder of weather-related crashes.

Table 9

**Number of Florida School Buses in Crashes by Vehicle Defects
1998 Through 2002**

| Vehicle Defects | Year | | | | | Total | % Total |
|---------------------------|------|------|------|------|-------|-------|---------|
| | 1998 | 1999 | 2000 | 2001 | 2002 | | |
| No Defect | 903 | 951 | 951 | 942 | 996 | 4,743 | 98.20 |
| Defective Brakes | 7 | 3 | 2 | 5 | 7 | 24 | .50 |
| Worn/Smooth Tires | 0 | 2 | 1 | 0 | 0 | 3 | .06 |
| Defective/Improper Lights | 1 | 0 | 0 | 0 | 1 | 2 | .04 |
| Puncture/Blowout | 0 | 0 | 0 | 0 | 1 | 1 | .02 |
| Steering Mechanism | 0 | 1 | 0 | 0 | 1 | 2 | .04 |
| Windshield Wiper | 0 | 1 | 0 | 0 | 1 | 2 | .04 |
| Equipment/Vehicle Defect | 1 | 2 | 2 | 1 | 2 | 8 | .17 |
| All Other | 11 | 8 | 3 | 5 | 8 | 35 | .72 |
| Unknown | 1 | 3 | 3 | 3 | 0 | 10 | .21 |
| Total | 924 | 971 | 962 | 956 | 1,017 | 4,830 | 100.00 |

Table 9 shows that vehicle defects were a factor in only approximately two percent of the school bus crashes for the five-year period. Of this percentage, “Defective Brakes” accounted for the majority (.5 percent) of individual known defects.

There were a total of 4,830 school bus crashes in Florida during the five-year period of which 87 were reported to involve vehicle defects. The highest number of defective school buses involved in crashes were in 1998 and 2002, numbering 21 for each year followed by 1999 (20), 2001 (14), and 2000 (11).

Table 10

**Traffic Citations Issued – Bus Drivers vs. Other Drivers
1998 Through 2002**



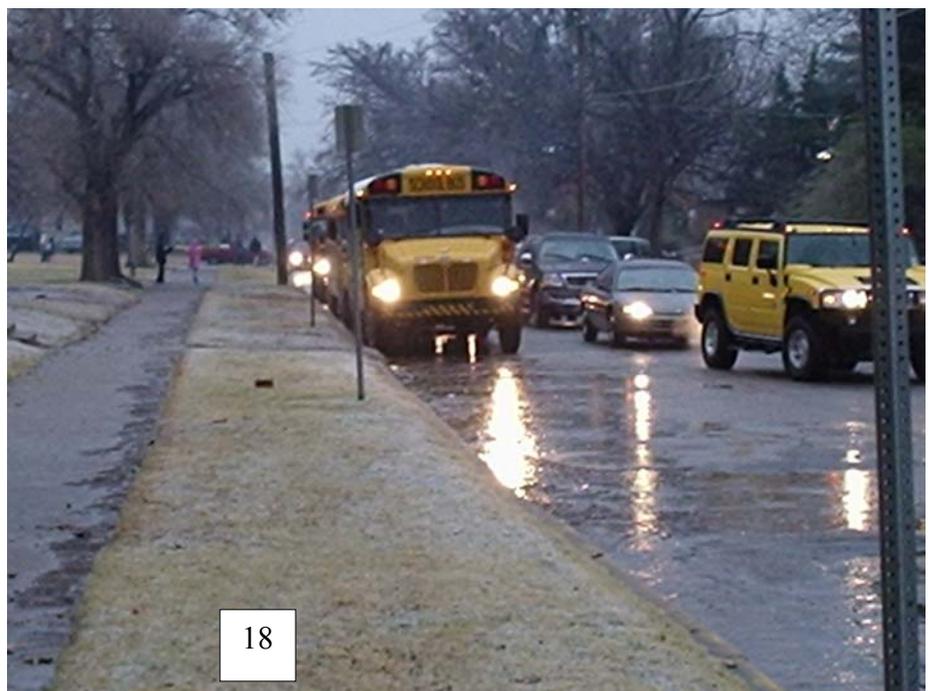
| Citations Issued | Year | | | | | | | | | | | | | | | | | | | | | |
|---|-------------|-------|---------------|-------|-------------|-------|---------------|-------|-------------|-------|---------------|-------|-------------|-------|---------------|-------|-------------|-------|---------------|-------|-------------|---------------|
| | 1998 | | | | 1999 | | | | 2000 | | | | 2001 | | | | 2002 | | | | Total | |
| | Bus Drivers | % | Other Drivers | % | Bus Drivers | % | Other Drivers | % | Bus Drivers | % | Other Drivers | % | Bus Drivers | % | Other Drivers | % | Bus Drivers | % | Other Drivers | % | Bus Drivers | Other Drivers |
| Failed To Obey Required Traffic Control | 3 | 1.31 | 21 | 4.62 | 3 | 1.67 | 25 | 4.87 | 3 | 1.53 | 16 | 3.20 | 5 | 2.50 | 19 | 3.80 | 3 | 1.46 | 17 | 3.14 | 17 | 98 |
| Improper Lane Change | 8 | 3.49 | 10 | 2.20 | 6 | 3.33 | 13 | 2.53 | 7 | 3.57 | 18 | 3.60 | 7 | 3.50 | 6 | 1.20 | 5 | 2.43 | 15 | 2.77 | 33 | 62 |
| Following Too Closely | 5 | 2.18 | 10 | 2.20 | 5 | 2.78 | 11 | 2.14 | 2 | 1.02 | 16 | 3.20 | 6 | 3.00 | 5 | 1.00 | 3 | 1.46 | 9 | 1.66 | 21 | 51 |
| Failed To Yield | 16 | 6.99 | 21 | 4.62 | 9 | 5.00 | 14 | 2.73 | 11 | 5.61 | 15 | 3.00 | 15 | 7.50 | 12 | 2.40 | 15 | 7.28 | 15 | 2.77 | 66 | 77 |
| Failed To Yield When Making Left Turn | 19 | 8.30 | 10 | 2.20 | 18 | 10.00 | 11 | 2.14 | 11 | 5.61 | 24 | 4.80 | 14 | 7.00 | 19 | 3.80 | 10 | 4.85 | 15 | 2.77 | 72 | 79 |
| Failed To Yield At Intersection | 26 | 11.35 | 35 | 7.69 | 21 | 11.67 | 29 | 5.65 | 30 | 15.31 | 36 | 7.20 | 27 | 13.50 | 56 | 11.20 | 20 | 9.71 | 40 | 7.39 | 124 | 196 |
| Special Hazard | 19 | 8.30 | 34 | 7.47 | 8 | 4.44 | 32 | 6.24 | 13 | 6.63 | 26 | 5.20 | 12 | 6.00 | 40 | 8.00 | 11 | 5.34 | 32 | 5.91 | 63 | 164 |
| Careless Driving | 68 | 29.69 | 141 | 30.99 | 66 | 36.67 | 172 | 33.53 | 71 | 36.22 | 172 | 34.40 | 60 | 30.00 | 174 | 34.80 | 90 | 43.69 | 182 | 33.64 | 355 | 841 |
| Right Turn on Red Light | 6 | 2.62 | 9 | 1.98 | 2 | 1.11 | 15 | 2.92 | 3 | 1.53 | 6 | 1.20 | 3 | 1.50 | 7 | 1.40 | 1 | 0.49 | 8 | 1.48 | 15 | 45 |
| Improper Backing | 20 | 8.73 | 2 | 0.44 | 7 | 3.89 | 4 | 0.78 | 9 | 4.59 | 9 | 1.80 | 6 | 3.00 | 10 | 2.00 | 16 | 7.77 | 8 | 1.48 | 58 | 33 |
| Driving With Unlawful BAC | 0 | 0.00 | 4 | 0.88 | 0 | 0.00 | 13 | 2.53 | 0 | 0.00 | 9 | 1.80 | 1 | 0.50 | 4 | 0.80 | 0 | 0.00 | 10 | 1.85 | 1 | 40 |
| All Other Citations | 39 | 17.03 | 158 | 34.73 | 35 | 19.44 | 174 | 33.92 | 36 | 18.37 | 153 | 30.60 | 44 | 22.00 | 148 | 29.60 | 32 | 15.53 | 190 | 35.12 | 186 | 823 |
| Total Citations Issued | 229 | 100 | 455 | 100 | 180 | 100 | 513 | 100 | 196 | 100 | 500 | 100 | 200 | 100 | 500 | 100 | 206 | 100 | 541 | 100 | 1011 | 2509 |
| Total Drivers In Crashes | 924 | | 781 | | 971 | | 789 | | 962 | | 816 | | 956 | | 802 | | 1017 | | 827 | | 4830 | 4015 |

Table 10 looks at the distribution of drivers within categories of citations which allows us to compare percentage of citations issued to each type of driver within individual years. Looking at percentages across Table 10, two distinct patterns of citations appear. For example, “School Bus Drivers” in three categories of citations exceed in the percentage of citations received over “Other Drivers.” These categories are “Failing to Yield,” “Failing to Yield when Making Left Turn,” and “Failing to Yield at Intersection.” This is consistent throughout the five-year period reported.

Other categories of citations are issued to both types of drivers unevenly. That is, in two categories of citations “Other Drivers” are issued a higher percentage of citations, in given years, than “School Bus Drivers.” These categories are “Improper Lane Change” in four out of five years and “Special Hazard” in three out of five years.

However, “School Bus Drivers” were issued a higher percentage of citations than “Other Drivers” in given years. These categories are “Following Too Closely,” and “Careless Driving.”

During the five-year period, there was a total of 4,830 “School Bus Drivers” involved in crashes. Of those school bus drivers 1,011 (21%) were issued citations. “Other Drivers” totaled 4,015 of which 2,509 (63%) were cited.





III. OTHER RESEARCH FINDINGS

a. Safety Belts

*When Does A Safety Belt Really Make A Difference
The Two-Point Lap Belt
The Three-Point Lap Belt*

b. Compartmentalization

*A Passive Occupant Protection System Where
Seat Backs In School Buses Are Enhanced*

c. School Bus Driver Training

What Do They Have To Know To Get Behind The Wheel?



III. Other Research Findings

Regulation of student transportation resides with multiple federal, state, and local agencies, including the National Highway Traffic Safety Administration (NHTSA), United States Department of Education, the Federal Motor Carrier Safety Administration, the Florida Board of Education, the Florida Department of Education, the Florida Department of Highway Safety and Motor Vehicles, the Florida Department of Transportation, and individual local county governments. (See Appendix 3 for specific areas of jurisdiction)

In 2002, there were 19,453 school buses traveling on Florida’s roadways, with 1,187 school bus crashes reported. Of those 1,187 crashes, there were no fatalities to persons while riding on the school buses. Although school buses are statistically the safest mode of transportation both nationally and in the state of Florida, three areas of concern arose during a review of state and national literature: Safety Belts, Compartmentalization, and Driver Training.



Safety Belts

Debate continues as to whether seat belts should be installed on school buses. A Transportation Review on School Bus Safety was conducted by the National Conference of State Legislators (NCSL) in August 2002. The study found that seat belts provide excellent protection in other types of motor vehicle crashes; however, the effects of installing seat belts on school buses are unknown. The study goes on to report that the types of seat belts that would be installed on school buses are not the same seat belts installed in other motor vehicles. Currently, only two-point lap belts are installed on certain school buses. The lap belt (two-point belt) fastens across the child’s lower abdomen and studies have concluded that lap belts have the chance of causing injuries to children. The lap belt has been attributed to what is referred to as the “seat belt syndrome.” It is believed that in certain instances a lap top belt may cause

contusion of the abdominal wall, intra-abdominal bleeding, and fracture of the lumbar spine.

According to a study conducted by the National Transportation Safety Board (NTSB), occupants who were restrained within the seating compartment benefited from compartmentalization, while those not restrained in the compartment impacted surfaces within the bus not designed to absorb energy. The NTSB concluded that injuries could be decreased if an occupant protection system was used to restrain passengers within the seating compartment and if hard surfaces within the bus sidewalls, window frames, and seat frames were protected. Currently, there are 2,699 school buses in Florida with lap belts which constitutes approximately 14 percent of the total school buses in the state.

In May 2002, the NHTSA sent a report regarding school buses to Congress. The report, a result of an extensive two-year study assessing occupant protection in school buses, shows that school bus travel is nearly eight times safer than travel by car. The report concluded that requiring lap belts on large, new school buses would have little, if any, benefit in reducing serious-to-fatal injuries in severe frontal crashes. However, the report stated that in small school buses, the benefit of using lap belts outweighs the potential for injuries because the buses are much smaller and more likely to roll over than large school buses.

The same report found that lap/shoulder belts (three-point belts), when used correctly, would provide some benefit in both large and small school buses. When not used correctly, the lap/shoulder belts offer no more benefit than the lap belts. The report also found that installing the lap/shoulder belts would reduce school bus capacity by up to 17 percent because of necessary seat redesign. This reduction in seating capacity would force some children to find other means of transportation, increasing their chance of being involved in a fatal crash in other types of motor vehicles. Also, according to the NHTSA report to Congress, this seat redesign would add approximately \$40 to \$50 per seating position to the cost of a new school bus.

NHTSA concluded in its report to Congress that if states did adopt seat belt requirements in school buses, the states should determine methods to ensure proper use of the seat belts and that no passengers are forced to find alternate means of transportation to and from school.

Compartmentalization

The concept of compartmentalization envisions children riding in a cocoon or compartment surrounded by an energy-absorbing, passive occupant protection system.

Under the compartmentalization concept, seat backs in school buses are made higher, wider, and thicker than before. All metal surfaces are covered with energy-absorbing padding.



The NTSB and the National Academy of Sciences (NAS) have confirmed the effectiveness of compartmentalization in frontal and rear impact studies.

However, after several studies, the NTSB found that compartmentalization does not provide adequate protection for passengers in side impact collisions or roll-over crashes. NTSB states that a new seating system needs to be developed to provide occupant protection in all types of crashes.

According to a 1999 position paper written by the National Association of State Directors of Pupil Transportation Services, Passenger Crash Protection in School Buses - An Update, compartmentalization in today's school buses is providing an extremely high level of crash protection for student passengers, considering all the different types of crashes involving school buses.

Driver Training

“The role of the school bus driver in ensuring the safe transportation of children to and from school and school-related activities is as important as any other link in the school

transportation safety chain.” (pg. 1, School Bus Drivers – Their Importance and Training, National Association of the State Directors of Pupil Transportation Services)

“While the construction and safety equipment of school buses is critical to providing safety to school bus occupants when a crash occurs, it is the school bus driver who often prevents incidents and crashes each school day.” (pg. 1, School Bus Drivers – Their Importance and Training, National Association of the State Directors of Pupil Transportation Services)

Specific Florida School Bus Driver Requirements:

The following is a summary of the requirements that each school board and charter school must ensure are met before school bus operators may transport students (please also see Sections 1012.32 and 1012.45, Florida Statutes, and Rules 6A-3.0141, 6A-3.0151, and 6A-3.0171, Florida Administrative Code):

- **Experience** - Each school bus driver shall have at least five years of licensed driving experience.
- **Commercial Driver License (CDL)** - Each school bus driver must hold a valid Class A or B CDL with a Passenger endorsement. Applicants must pass a written knowledge test and a driving skills test in the type of vehicle to be driven.
- **Pre-service Training** - If first hired after July 31, 1986, each driver must have completed a minimum of 40 hours of pre-service training, including 20 hours of classroom instruction using the Florida Basic School Bus Driver Curriculum, eight hours of behind-the-wheel instruction, and 12 hours at the local school district's option. Training is to be documented by the district on a certification form provided by the Commissioner of Education, and more detailed training records are also required.
- **In-service Training** - Each school bus driver must have received at least eight hours of annual in-service training related to school bus driving responsibilities if the pre-service training was completed more than a year ago.

- **Criminal Background Checks** - All drivers are required to submit fingerprints for the purpose of required background checks for criminal records through state and federal law enforcement, pursuant to Section 1012.32, F.S.
- **Pre-employment Drug Screen** - Each driver must receive a pre-employment drug screen (federal Omnibus Transportation Employee Testing Act of 1991, or OTETA).
- **Substance Abuse Background Check from Previous Employers** - If a driver was previously employed or volunteered in a position requiring a Commercial Driver License (CDL) during the two years prior, the new employer must provide documentation of a request for drug and alcohol testing results from previous employers who employed this individual in a CDL position.
- **Periodic Random and Other Drug and Alcohol Testing** – All school bus drivers and other CDL holders are in a pool for random selection and testing for drug use and prohibited alcohol level (.02 percent blood alcohol content or greater) without prior notice. The selection rate is 50 percent of drivers' names annually for drug use and 10 percent for alcohol. The other types of drug and alcohol testing required under the Omni Transportation Employees Testing Act of 1991 (OTETA) are reasonable suspicion, and rigorous return-to-duty testing (if allowed locally; some districts prohibit drivers found positive for drug or alcohol use from returning to duty, even after the federally prescribed rigorous schedule of negative test results). Each county school board administers the drug and alcohol testing via a third party administrator contracted at the state level through the Department of Education.
- **Current Physical Examination and Medical Examiner Certificate and Dexterity Test (ESE 479)** - Each driver must pass a state-prescribed annual physical examination meeting United States Department of Transportation (USDOT) requirements, and hold a valid Medical Examiner Certificate (Department of Education Form ESE 479), retained in the school district transportation department. Also included as part of Form ESE 479 is the annual dexterity and reflex test that

must be completed successfully by each driver to ensure key abilities relating to the operation of the bus.

- **FDHSMV Driving History Record** - The district is required to request a driving history record provided by the Florida Department of Highway Safety and Motor Vehicles (DHSMV) on a specified schedule (at least three times annually or via weekly exceptions reports) for each person driving a school bus with students. These records are to be obtained using the Automated School Bus Drivers' License Record Check System. For any driver licensed in another state, the district shall obtain and review the driver's history record from the appropriate state.
- **Safe Driver Plan** - The district shall establish a school board policy that specifies which infractions of the traffic code deem an applicant unqualified for hire and which cause any employee to be subject to a prescribed follow-up action.

Driving the school bus is not the only task required of school bus drivers. In addition to driving the school bus, drivers must physically check various vehicle systems, discipline and provide any medical assistance to children, and attend to any students with special needs.

In 1998, NHTSA, with the assistance of the pupil transportation industry, continued efforts to develop and improve school bus driver training by developing the training program "School Bus Driver In-Service Safety Series." This provides all states and local school districts with training information in the following training modules, which are intended to provide refresher training on the important topics and are not intended to be the training for new school bus drivers:

- Driver Attitude
- Student Management
- Loading and Unloading
- Vehicle Training Knowing Your Route
- Highway-Rail Grade Crossing Safety
- Transporting Infants and Toddlers

In 2000, NHTSA developed and distributed two additional in-service training modules:

- Driving in Inclement Weather
- Wheelchair Securement and Wheelchair Lifts

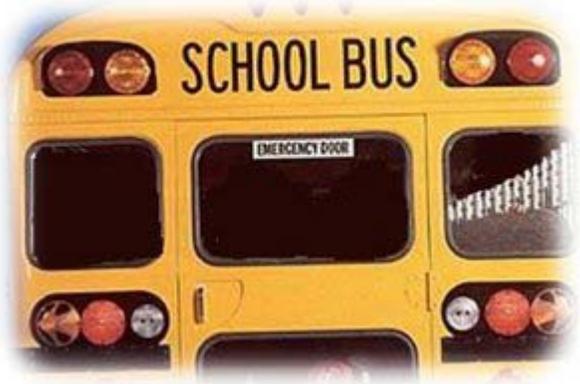
Selecting and training school bus drivers is an important task. Since the students see the same school bus driver every school day, the driver usually becomes a “friend” to the children. For the parents of the children, especially those with children just starting school, the school bus driver is the person they entrust with the safety of their children.

A modern, safe, well-maintained school bus operating on the best possible terrain with ideal loading zones cannot compensate for an ill-trained school bus driver. Likewise, today’s highly-trained school bus drivers cannot provide the safest possible transportation to students with out-of-date, poorly-maintained school buses traveling over illogical routes, and stopping at undesirable loading zones.



IV. RECOMMENDATIONS

Where Can We Go From Here?



IV. Recommendations

- To address the high number of children struck (Table 4) while getting on or off a school bus, training and education programs should be developed and/or enhanced that target parents, children, and drivers on ways to safely get passengers on and off school buses.
- Since school bus crash data indicate that private school buses fared better than public school buses with respect to crash injury severity, further studies of public and private school bus crashes may identify areas for potential safety improvements. This is only one of many areas of exploratory research.
- Further considerations should be given to installation of lap belts in small school buses (driver and seats for 9-15), since the use of lap top belts reduces the potential for injuries in small buses that are more likely to roll-over than larger buses.
- Since “compartmentalization” is effective in frontal and rear impact, but does not provide adequate protection for passengers in side impact collisions or roll-over crashes, a new seating system should be developed to provide occupant protection in all types of crashes.



V. DATA SOURCES

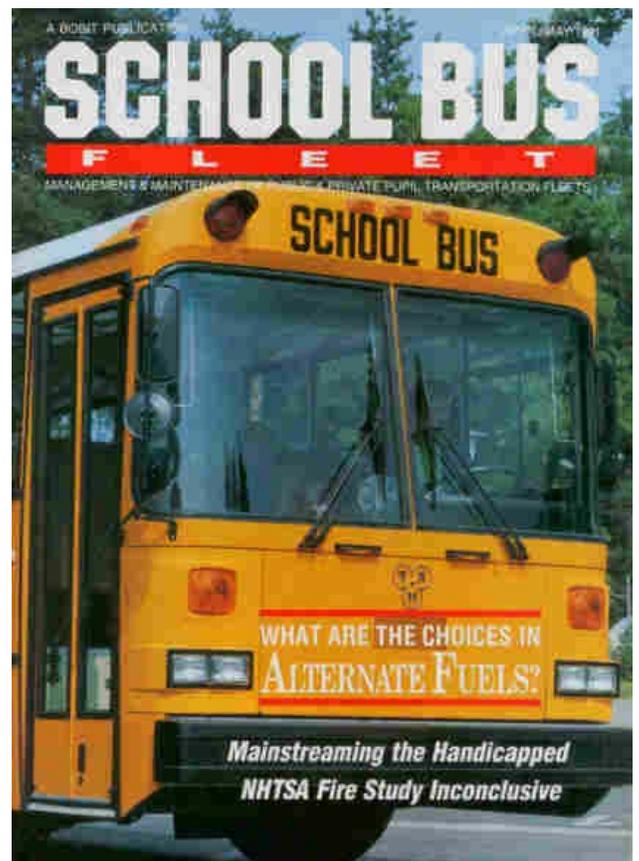
V. Data Sources

The following data sources were used in the research study:

1. Code of Federal Regulations relating to school transportation
2. Florida Crash Records Database for statistical crash data
3. Florida Department of Education, School Transportation Section, relating to Florida school transportation
4. National Academy of Sciences (NAS) for research on bus transportation
5. National Association of State Directors of Pupil Transportation Services relating to national data on school transportation
6. National Conference of State Legislatures (NCSL)
7. National Highway Traffic Safety Administration (NHTSA) / National Center for Statistics and Analysis
8. National Transportation Safety Board (NTSB)
9. School Bus Information Council – www.scholbusinfo.org
10. SafeGuard4Kids – www.safeguard4kid.com
11. U. S. Department of Transportation

VI. APPENDIX 1

What Actually Is A School Bus, Anyway?



CODE OF FEDERAL REGULATIONS (CFR)

Federal Motor Vehicle Safety Standards (Title 49-Part 571)

School bus means a bus [a motor vehicle with motive power, except a trailer, designed for carrying more than 10 persons] that is sold, or introduced in interstate commerce, for purposes that include carrying students to and from school or related events, but does not include a bus designed and sold for operation as a common carrier in urban transportation.

FLORIDA STATUTES

State Uniform Traffic Control (Chapter 316)

SCHOOL BUS -Any motor vehicle that complies with the color and identification requirements of Chapter 1006, F.S. and is used to transport children to or from public or private school or in connection with school activities, but not including buses operated by common carriers in urban transportation of school children. The term "school" includes all pre-elementary, elementary, secondary, and postsecondary schools.

Driver Licenses (Chapter 322)

“School bus” means a motor vehicle that is designed to transport more than 15 persons, including the driver, and that is used to transport students to and from a public or private school or in connection with school activities, but does not include a bus operated by a common carrier in the urban transportation of school children. The term "school" includes all pre-elementary, elementary, secondary, and postsecondary schools.

Support for Learning (Chapter 1006)

For the purpose of this part, a "school bus" is a motor vehicle regularly used for the transportation of pre-kindergarten disability program and kindergarten through grade 12 students of the public schools to and from school or to and from school activities, and owned, operated, rented, contracted, or leased by any district school board, except:

(a) Passenger cars, multipurpose passenger vehicles, and trucks as defined in Title 49 C.F.R. Part 571.

(b) Motor vehicles subject to, and meeting all requirements of, the United States Department of Transportation, Federal Motor Carrier Safety Regulations under Title 49, Code of Federal Regulations and operated by carriers operating under the jurisdiction of these regulations, but not used exclusively for the transportation of public school students.

(2) SPECIFICATIONS - Each school bus as defined in Title 49 C.F.R. Part 571 and subsection (1) that is rented, leased, purchased, or contracted for must meet the applicable federal motor vehicle safety standards and other specifications as prescribed by rules of the State Board of Education.



VII. APPENDIX 2

Types of School Buses



School buses are grouped into four types: A, B, C, and D. The majority of school buses in use in Florida are of the type C and D, with the most common being Type C, the nose-out-front bus with which people are the most familiar. Type D is the flat-nose front bus, either with a front, midship, or rear engine. The type is determined by the following:

- size of the bus,
- weight of the bus,
- occupant capacity,
- location of the front exit in relation to the front wheel,
- number and location of additional exits, and
- engine location.

The following definitions of school bus types are from the Florida Department of Education's Florida School Bus Specifications:

Type A. Type A school bus is a van conversion or bus constructed utilizing a cutaway front-section vehicle with a left side driver's door. The entrance door is behind the front wheels. This definition includes two classifications:

Type A1. A school bus with a gross vehicle weight rating (GVWR) of 14,500 pounds or less. These buses are configured as 19-29 capacity units with dual rear wheels.

Type A2. A school bus with a GVWR greater than 14,500 pounds. These buses are configured as 30-47 capacity units with dual rear wheels.

Type B. Type B school bus is constructed utilizing a stripped chassis. The entrance door is behind the front wheels. This definition includes two classifications:

Type B1. A school bus with a GVWR of 14,500 pounds or less.

Type B2. A school bus with a GVWR greater than 14,500 pounds.

Type C. Type C school bus is

| |
|----|
| 35 |
|----|

 constructed utilizing a chassis with a

hood and front fender assembly. The entrance door is behind the front wheels. This type is commonly known as a conventional school bus.

Type D. Type D school bus is constructed utilizing a stripped chassis. The entrance door is ahead of the front wheels. The engine may be behind the windshield and beside the driver's seat, or may be at the rear of the bus, behind the rear wheels, or midship between the front and rear axles. This type is also known as a transit-style or forward-control vehicle.

In addition to these four types, there are two other school transportation vehicle types that can be manufactured to federal motor vehicle safety standards:

Allowable Alternate Vehicle - Meets all federal school bus crashworthiness standards, but do not meet conspicuity regulations or traffic control standards, i.e. flashing red lights, school bus yellow paint, and left side stop arm.

School Van - Vans converted to full school bus specifications. Major alterations are made to the vehicle including cutting the roof off and welding in a full roll cage, along with dozens of other major alterations. When complete, the vehicle rides like a regular van, but meets the Federal Motor Vehicle Safety Standards for school buses.

One vehicle is often used for school transportation purposes, but does not meet federal safety standards:

Nonconforming Van – Vans which do not conform to the applicable Federal Motor Vehicle Safety Standards for school buses. Most 15-passenger vans are little more than cargo vehicles converted to passenger application. Most do not even have the basic safety features of traditional passenger vehicles.

VIII. APPENDIX 3

Regulatory Transportation Agencies



(CONTINUED)

Regulatory Transportation Agencies

1. Federal Authority For Student Transportation:

- a. NHTSA promulgates Federal Motor Vehicle Safety Standards (FMVSS) for school buses and other motor vehicles manufactured for sale in the US.
- b. NHTSA provides technical assistance and training materials in all areas of school transportation safety, including walking, bicycling, and transport in passenger vehicles and school buses.
- c. Federal Motor Carrier Safety Administration (FMCSA) administers and promulgates rules for the Commercial Driver Licensing (CDL) program and the drug and alcohol testing program (the Omnibus Transportation Employees Testing Act of 1991).
- d. Environmental Protection Agency (EPA) promulgates rules for the airborne emissions performance of motor vehicles, including school buses.
- e. Health and Human Services (HHS) promulgates rules for Head Start Transportation, including the recent requirement that Head Start children be transported on school buses.
- f. US Department of Education promulgates rules relating to public school performance and the education of students with disabilities, including required transportation services.
- g. NTSB investigates major crashes and makes related recommendations to various federal, state, and local agencies, associations, and groups.

2. State Authority For Student Transportation:

- a. The State Board of Education promulgates rules to implement state legislation relating to transportation of public school students.
- b. The Florida Department of Education provides technical assistance, training, and other services to assist school districts and other parties in maintaining and improving student transportation safety and cost control. Specific areas of assistance include training of school bus driver instructors, required certification of school bus inspectors, administration

of volume purchasing programs for new school buses and for drug and alcohol testing services, student transportation funding calculation and disbursement, public school bus automated accident reporting, the automated school bus driving history records system, and all types of assistance with transportation operations and fleet management.

- c. FDHSMV administers the state's CDL program, statewide crash records, records of traffic violations by drivers, motor vehicle titling and registration procedures, and other programs.
- d. Florida Department of Transportation (FDOT) administers the state's school crossing guards training program, provides assistance with bicycling and pedestrian safety, the Safe Routes to Schools Program, engineering and maintenance of state roadways and intersections, and federal grants for countermeasures to reduce traffic injuries and fatalities.

3. Local Authority For Student Transportation:

- a. County school districts are responsible for all aspects of providing statutorily required and discretionary transportation to students of the public schools, including routing and scheduling of buses, training of bus riders, school bus evacuation procedures and drills, safety of school bus stops and school loading zones, safety training and other requirements and qualifications of school bus operators, and purchasing, inspection, and maintenance of safe school bus fleets.
- b. County and municipal law enforcement authorities are responsible for traffic enforcement around schools and school buses, safety of children while walking to and from school or school bus stops and while waiting at stops, and other aspects.
- c. County and municipal traffic engineers and road departments are responsible for the maintenance of local sidewalks, roads, and intersections.
- d. Community Traffic Safety Teams in most counties, comprising representatives from multiple agencies, meet monthly to discuss local traffic safety problems and devise solutions.