
The People Have Spoken, Are We Listening?

A position paper on lap/shoulder belt restraints in school buses

By Cal LeMon
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Since its inception, the school bus has been in a constant state of change; no other motor vehicle has more visibility or receives more scrutiny from the American people, particularly parents, and the media than a school bus. In the minds of parents, the school bus is a symbol of safety, health and security for the children on board. That mind set was created through the efforts of hundreds of thousands of school bus drivers and pupil transportation professionals to build confidence and trust between parents and the pupil transportation community.

Change comes about in a variety of ways, sometimes through individual or industry leadership, sometimes from Federal or State regulatory actions, and sometimes by unforeseen or tragic events. As a result of the passage of the National Traffic and Motor Vehicle Safety Act of 1966 and the School Bus Safety Amendments of 1974, the National Highway Traffic Safety Administration (NHTSA), which is the Federal motor vehicle safety regulatory agency representing the people, currently has 38 Federal Motor Vehicle Safety Standards (FMVSS) that apply to school buses. In 1974, NHTSA was directed by Congress, which represents the legislative wishes of the people, to establish or upgrade school bus safety standards in eight areas. On April 1, 1977, several FMVSSs became effective. These new federal standards were designed to directly address safety problems identified by the National Transportation Safety Board (NTSB), which provides an independent view of safety for the American people, during its investigations of a number of serious real-world school bus crashes, and after a series of school bus crash tests conducted by the University of California at Los Angeles (UCLA).

Since 1977, there has been a continuing debate with parents, consumer action organizations, professional associations, and the media over whether **lap belts** (two points of restraint) should be required in all school buses. That debate continues, but because of technology advances the question today is whether **lap/shoulder belts** (three points of restraint) should be required on all new school buses.

The following brief history of school bus passenger crash protection is presented to help answer the question, **“The People Have Spoken, Are We Listening?”**

Why Compartmentalization in 1977? Why not lap belts?

While one of the recommendations from the 1968 UCLA crash tests was to install lap belts in all new school buses, the data NHTSA used to make its final decisions indicated that lap belts would not be an effective way of addressing the known passenger crash protection problems in school buses. Why? First, in the mid-1970s fewer than 15 percent of the occupants of passenger cars utilized the available lap belts or lap/shoulder belts in those vehicles. There simply was no data to suggest that a large percentage of school bus passengers would use lap belts if available. There is no benefit to a safety device that is not used! Second, since lap belts only retain the lower torso in a crash, the upper torso was still vulnerable to impacting interior surfaces of the school bus. Third, there was concern that lap belts could cause internal injuries to young children because their bone structure was not sufficiently developed. [It should be noted that subsequently the medical community has concluded, “Injury risks to children restrained in 2-point belts have been well described. ‘Seat belt syndrome,’ associated with the use of 2-point belts, includes contusion of the abdominal wall, fracture of the lumbar spine, and intra-abdominal injury.”]¹

Given the data of the 1970s, rather than relying on an ‘active’ crash protection system (lap belts) that had little potential for being used, and given the concerns of the appropriateness of lap belts for young children, NHTSA determined “compartmentalization” was the most appropriate and effective means to reduce injuries and fatalities to school bus passengers. Compartmentalization is a unique safety device on a school bus

that provides “strong, well-padded, well-anchored, high-backed, evenly-spaced” seating (FMVSS No. 222). Statistical analyses and real-world school bus crash investigations conducted by noted motor vehicle safety organizations in the 1980s clearly showed compartmentalization worked very well in reducing injuries and fatalities in severe frontal crashes. One study conducted by NTSB in 1987² went so far as to analyze the potential effect lap belts would have had in 43 serious real-world school bus crashes, including frontal, side and rollover crashes. From a public policy perspective, NTSB’s conclusions are extremely important. However, these conclusions were never able to quell the call for seat belts in school buses by the American people (keeping in mind many people do not even know or consider the distinction between lap belts and lap/shoulder belts when using the term “seat belts”). The NTSB concluded:

- School bus occupant deaths and the serious or worse injuries sustained by survivors were, for the most part, attributable to the occupants’ seating position being in direct line with the crash forces. It is unlikely that the availability of any type of restraint (additional to compartmentalization) would have improved their injury outcome.
- Lap belt use probably would have made no change in the total number of school bus passengers who died in the crashes investigated ... possibly one more death would have resulted.
- Lap belt use probably would have made no change in the number of surviving school bus passengers with severe or worse injuries.
- At best, lap belt use probably would have reduced somewhat the injuries of less than 8 of the 24 surviving school bus passengers with serious injuries. At worst, seat belts might have increased the injury to almost as many passengers with serious injuries as it improved.
- Lap belt use probably would have worsened the outcome for one-fifth [20%] of the 58 school bus passengers with moderate injuries.

The Present and Future – Why Lap/Shoulder Belts?

Today, a number of developments have significantly changed the debate over lap belts in school buses. First, technology now allows the installation of lap/shoulder belts on a 39-inch school bus seat without losing any of the benefits of compartmentalization, or seating capacity. Second, legislative and regulatory actions at the Federal level have all but banned the installation of lap belts in any motor vehicle with a gross vehicle weight rating less than 10,000 pounds, such as passenger cars, SUV’s and light trucks. Third, even more crash test data have been developed which clearly show lap belts cause higher potential head and neck injuries than unrestrained children in school buses during a severe frontal crash. Fourth, in its November 2007 Notice of Proposed Rulemaking to amend the requirements of FMVSS No. 222, School Bus Passenger Seating and Crash Protection, NHTSA stated: “... in terms of the optimum passenger crash protection that can be afforded an individual passenger on a large school bus, a lap/shoulder belt system, together with compartmentalization, would afford that optimum protection [emphasis added].” Fifth, well-respected organizations, such as the American Academy of Pediatrics, which have long supported lap belts in school buses have changed their position and now support lap/shoulder belts in school buses. Are We Listening?

While school buses enjoy the enviable honor of being the safest motor vehicle on American roads by a significant margin, the fact remains there are several children killed and many hundred and perhaps thousands of children injured each year as passengers in school buses. The volume of traffic, the proportion of large, heavy vehicles in the traffic flow and the increasingly distracted drivers, coupled with more aggressive driving behavior on the highways, have contributed to school bus crash scenarios that are not satisfactorily addressed by compartmentalization. As the NTSB noted in a 1999 report, while compartmentalization works very well in frontal and rear impacts, it does not retain school bus passengers within the seating

compartment (to gain the benefits of compartmentalization) in other crash configurations. Since 1999, the NTSB has continually recommended that NHTSA upgrade FMVSS No. 222, School Bus Seating and Passenger Crash Protection, “to require newly manufactured school buses to have an occupant crash protection system that ... retains passengers ... within the seating compartment throughout the accident sequence for all accident scenarios.”

The Reality:

- Compartmentalization does not provide complete passenger crash protection;
- Lap belts (two points of restraint) are no longer a viable form of crash protection in any motor vehicle;
- Lap/shoulder belt (three points of restraint) technology has been adapted to compartmentalized school bus seats, without a loss of seating capacity; and
- Reducing and eliminating injuries to school bus passengers is just as important as reducing fatalities to school bus passengers.

The question the pupil transportation community faces is: “Why shouldn’t all new school buses be equipped with lap/shoulder belts in order to retain passengers within the seating compartment throughout the accident sequence for all accident scenarios’ and thereby afford all children the maximum available crash protection?”

Closing Thoughts – The Evidence is in!!!

The Federal agencies that represent the safety interests of the American people have spoken. The NTSB has called for Federal standards to keep children within the seating compartment of school buses in all crash configurations. NHTSA has identified the safety benefits of lap/shoulder belts in all sizes of school buses. Similarly, the American people have been demanding “belts” in school buses for more than a quarter of a century. While some in the pupil transportation community have embraced and endorsed the installation of lap/shoulder belts (for example, the National Association of State Directors of Pupil Transportation Services [NASDPTS] has taken a position exhorting NHTSA to mandate lap/shoulder belts on large school buses), unfortunately not everyone from the school transportation community supports lap/shoulder belts in all new school buses.

It is important to note that those who have withheld their support of lap-shoulder belts on new buses are deeply committed to the safety of children on a yellow school bus. At the same time, the refusal to adopt this lap/shoulder belt safety system is incongruent with the perception and wishes of the people who ultimately determine the operational priorities for the yellow school bus community: the parents.

The people (the parents) are the ones who give permission for their children to board, take a seat and ride a yellow school bus. Parenting has changed over the years, but the power-person in this dialogue continues to be the parent. Today’s parents have become accustomed to using lap/shoulder belts in their passenger car, SUV, minivan and light truck because that is the only option vehicle manufacturers offer! Responsible parents normally insist their children also “buckle up.” The important question asked by the parent, that needs a logical response, is why should the yellow school bus be the exception to this rule?

The fact that the subject of “belts” on school buses is still an issue more than 30 years after NHTSA issued FMVSS No. 222 is significant. If the pupil transportation community, as well as the various Federal organizations that represent the American people on motor vehicle safety issues, were unable to convince 30 years worth of parents that lap belts were unnecessary in school buses, how can anyone realistically believe today’s parents can be convinced lap/shoulder belts are not needed in school buses? And, why would anyone want to try to convince parents that lap/shoulder belts are not a good idea when all of the data clearly show an incremental safety benefit in terms of reduced injuries and fatalities would result? According to the Preliminary Regulatory

Evaluation of the Proposed Changes to FMVSS No. 222 released by NHTSA in November 2007, ***if lap/shoulder belts were installed in all school buses, an estimated 2 lives would be saved each year and more than 900 injuries reduced or eliminated.***

NHTSA has long recognized the benefits of lap/shoulder belts in providing crash protection to occupants of a wide range of motor vehicles, primarily by preventing ejection from the vehicle. The thousands of lives saved each year, and the substantially greater number of injuries reduced or eliminated each year because of lap/shoulder belts in motor vehicles, is a testament to the regulatory policies adopted by NHTSA with respect to passenger crash protection. It should be noted the potential for non-use or misuse of lap/shoulder belts has never been a reason for NHTSA to ignore the safety benefits of lap/shoulder belts in all other motor vehicles. Belt usage was low when lap belts and lap/shoulder belts were first mandated in motor vehicles, but today, belt usage is over 80 percent in the U.S.

Some of the commentaries published by the pupil transportation community over the past few years have mistakenly given the American public the impression that pupil transportation professionals are obstructionists with respect to installing lap/shoulder belts on all school buses—an initiative the public believes should have been taken years ago. Opposing the installation of lap/shoulder belts (the safety device that has proven to be the most effective form of crash protection in every other motor vehicle) in school buses is contrary to the safety message the pupil transportation community consistently sends to parents.

It should be noted that the national pupil transportation community is not monolithic in opposition to the installation of lap/shoulder belts in large school buses or its insistence that even more research is needed. In its comments to NHTSA's November Notice of Proposed Rulemaking (NPRM), the National Association of State Directors of Pupil Transportation Services (NASDPTS) for instance, stated, "NASDPTS recommends that NHTSA require lap/shoulder belts on all newly manufactured large school buses as a Federal Motor Vehicle Safety Standard, starting with the date of implementation of the Final Rule, and that dedicated funding commensurate with the requirement be provided."

Moreover, all school bus manufacturers, of both small and large school buses, offer three point lap/shoulder occupant protection as optional equipment. And many school districts are requiring three point systems despite the absence of state or federal regulations.

Some oppose lap/shoulder belts based on the costs involved, especially given the tight budgets faced by many school districts across the country. They argue the funds needed for lap/shoulder belts in school buses would be better spent in other areas of pupil transportation. Two facts are very relevant here. *First, there is no other area of school bus safety where there is a federal estimate of reducing or eliminating approximately 900 injuries per year, not to mention eliminating two fatalities.* Second, when the Environmental Protection Agency (EPA) proposed more stringent diesel emission requirements that would impact school buses, the pupil transportation community did not submit adversarial and confrontational comments to EPA objecting to the proposal and the data used to support the proposed emission requirements. *Those new EPA standards have raised the price of school buses by at least \$7,000 per bus – and the pupil transportation community is adjusting to those costs estimated, in the aggregate, to be \$70 million for each 10,000 new large school buses purchased.*

The comments provided to NHTSA on its proposed changes to FMVSS No. 222 by various organizations representing the pupil transportation community clearly indicate a lack of agreement on the issue of lap/shoulder belts in large school buses. Interestingly, all segments of the American public (which by the way pays the bills for school transportation) have voiced support for lap/shoulder belts for many years. To a large extent, lap/shoulder belts in motor vehicles have become so mainstream in American life that parents are dumbfounded to find school buses still do not have lap/shoulder belts.

Therefore, since not all segments of the pupil transportation community are able to agree on the efficacy of lap/shoulder belts in all school buses, it is time for NHTSA to lead the way to the development of a safer school bus. NHTSA is charged by Congress (the people) to develop motor vehicle safety standards for the benefit and well being of all Americans. As they did in 1977, it is now time NHTSA stepped up and revised FMVSS No. 222 to require lap/shoulder belts in all new school buses.

“Are We Listening?”

Dr. Cal LeMon

¹ “Injuries to Children Restrained in 2- and 3-Point Belts,” 42nd Annual Proceedings of the Association for the Advancement of Automotive Medicine, October 1998.

² “Crashworthiness of Large Poststandard School Buses,” National Transportation Safety Board, Report Number NTSB/SS-87/01, March 18, 1987.

Epilogue -- Why did I write this article?

Since 1993 I have been involved in the pupil transportation community as an outspoken, independent advocate for pupil safety on the yellow school bus. At both a state and national level, I have had the good fortune to provide hundreds of public presentations to contractors, school district pupil transportation managers, drivers, school bus aides, parents, administrators, teachers and other related audiences about the wisdom of placing children in a yellow school bus. My book, ***Unreported Miracles (What You Probably do not Know about Your Child's School Bus)***, continues to be a foundational tool for communicating the outstanding safety record of the pupil transportation community to a wider audience.

I have always endorsed the lap/shoulder belt safety system, but, like so many in the pupil transportation community, questioned the advisability and affordability of this safety system. I have joined the chorus of deeply caring and committed professionals in the pupil transportation community who have raised important questions like, “What are the other affordable safety considerations on a school bus that could save more than two lives a year?” Or, “Why not put \$7,000 into new safety devices that would eliminate deaths and injuries in the true danger zone on a school bus—the front of the bus and the boarding area near the door?”

Those are indeed good questions. The problem is they do not address the predominant concern of parents: the absence of the lap/shoulder belt system.

In the past few months, while researching this issue, I came to the conclusion that many in the pupil transportation community continue to build an adversarial relationship with the people who ultimately decide the safety of pupil transportation: the parents.

There are three important factors that have influenced my willingness to become an outspoken advocate for lap/shoulder belts on all new school buses.

First, as already cited in this paper, there is no other safety device that can come close to eliminating or reducing 900 serious injuries each year. It just makes sense to positively respond to NHSTA's research by enthusiastically endorsing the installation and use of lap/shoulder belts.

Second, the advent of new technology has muted the argument that lap/shoulder belts will reduce by up to one-third the seating capacity on the large school bus. If the seating capacity were dramatically reduced, more children would end up walking, riding bicycles and being driven to school which, we know, are statistically, more dangerous ways to get to and from school. This reasoning is no longer valid. In actuality, school districts using the lap/shoulder belt systems are reporting either no decreased seating capacity or somewhere in the range of 5 to 15 percent.

Third, and ultimately most important, I work with organizations outside of pupil transportation that have to openly address a unique communication reality called, “a confirmation bias.” The confirmation bias means the public will see what it wants to see and hear what it wants to hear.

Sometimes the confirmation bias is ignored and downplayed by companies...just before they go out of business. “New Coke,” “the Edsel” and “Woolworths” are all examples of products and businesses that were ground up in the unrelenting negative perception (confirmation bias) of the public.

This third reason is profound for me. In the past 15 years I have been talking with parents about why the yellow school bus is their safest choice for transporting their children to and from school. And, for the past 15 years parents have been asking me “If the school bus is so safe, why not enhance that safe ride by putting my child in the same safety belt system we have in our car?” This drumbeat for lap/shoulder belts will not relent. This is a battle the pupil transportation community cannot win.

It is my opinion the pupil transportation community will position itself as the “safety advocate for the parent” by supporting revisions to FMVSS No.222 to require lap/shoulder belts in all new school buses.

My question for the pupil transportation community is, “Are we listening to the voice of the people and especially...parents?”

My concluding comment is found on page 40 of my book, *Unreported Miracles*, which I wrote in 1999, “The stakes are high here. We are making decisions for the people who matter most to us...our children. We cannot afford to offer their futures up on the altar of adult argumentation.”

About the Author

Dr. Cal LeMon is the president of Executive Enrichment, a corporate education and consulting firm based in Springfield, Mo. He has become a well-known keynote presenter at various state and national conferences on school transportation as well as a columnist in industry publications. The Society of Human Resources Management has named LeMon one of the “Ten Best Speakers in America.” For more information on Executive Enrichment, visit www.executiveenrichment.com.

