

# HB 5033, AN ACT REQUIRING THE INSTALLATION AND USE OF SEAT SAFETY BELTS ON SCHOOL BUSES

## STATEMENT

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### **Background**

In 1977 the federal government established a new Federal Motor Vehicle Safety Standard exclusively for school buses: passenger seating that incorporates the passive protection system called “compartmentalization.” Both controlled testing and real world crash experience has proven that compartmentalization works extremely well to protect school bus passengers in most crashes. It is because of this system and the other federal safety standards unique to school buses that school bus transportation is safer by all statistical measures than any other form of transportation. We in the industry are proud of our safety record. Nationwide, yellow school buses transport 26 million students every school day, providing more than 9 billion student rides every year, with a student occupant fatality rate of six a year and an injury rate of less than 0.2%.

Notwithstanding this success, the question of whether school buses should have seat belts has simmered—and sometimes boiled over—for almost three decades. For most of that time, the only restraint option available for school buses was a lap belt. The three-point lap/shoulder belt systems that have been in automobiles for decades were not compatible with compartmentalization until recently. All the industry associations and many safety organizations strongly opposed the installation of lap belts in large school buses based on credible cumulative research indicating that lap belts can, in some crash situations, cause head, neck, abdominal, and spinal injuries to young children whose bodies are not yet fully developed. Given the superior protection of compartmentalization, we believed that children were safer in large school buses unrestrained than wearing lap belts—and I often testified to that position before this committee.

I continue to hold the position that lap-only seat belts do not belong in a school bus—or in any other vehicle. But in the past few years, the industry has developed a school bus seating system that incorporates lap/shoulder belts with compartmentalized seats. Lap/shoulder belts are a proven effective form of occupant protection, and crash tests conducted by the National Highway Traffic Safety Administration in 2002 indicated that lap/shoulder belts, when properly worn, could improve crash protection for school bus passengers.

Eliminating the inherent safety risk posed by lap belts has changed the debate on school bus occupant protection, but it has not made the task for policy-makers any easier, as I’ll explain.

## **HB 5033**

The bill before you is very simple: it requires that all school buses in the state be equipped with lap/shoulder belts within one year, and it provides an enforcement mechanism to ensure that no bus is operated without lap/shoulder belts after the one-year period. But the issue is not so simple. In order for the law to be effective—and to do no harm—the committee must take a number of factors into account.

### **Retrofits**

As the bill is written, it would require that buses currently in service be retrofitted—no matter what model year they are or what condition they are in. No industry or safety organization that I am aware of recommends that lap/shoulder belts be retrofitted on school buses. The seating system for lap/shoulder belts is different from the seating system in buses ordered without lap/shoulder belts, which means that you can't simply attach the belts to current seats and be in compliance with federal and state safety standards. In order to retrofit, an operator would have to remove all the current seats and install new belt-equipped seats. But because the load exerted by a lap/shoulder-belted occupant is higher than the load exerted by an unbelted occupant, the attachments from the seat to the bus body must also be stronger, and the floor must be reinforced. Removing bolts and drilling new holes could compromise the structural integrity of the bus, making it less safe than it was before retrofitting. It would surely void the bus manufacturer's warranty. For these reasons, and because of the prohibitive cost associated with retrofits, none of the states that have passed seat belt laws require retrofitting.

*Recommendation: Amend the bill to apply to buses manufactured after January 1, 2011.*

### **Capacity and Student Load**

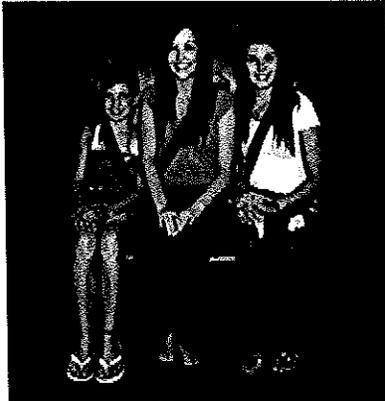
The seats currently in Connecticut's school buses are 39 inches wide, and are designed to hold three students. One seat is on each side of a center aisle, putting six students to a row (3-3 seating). While many states limit high school students to two per seat, Connecticut law makes no distinction based on grade level in the number of students a bus may carry. As long as the number of passengers does not exceed the manufacturer's seating capacity, the bus is not legally overloaded.

There are three sizes of school bus seats with lap/shoulder belts. The 45-inch seat has three fixed belts and is designed to hold three elementary school children; the 30-inch seat has two fixed belts and is designed for two larger students. The newest entry is the 39-inch flexible or "flex" seat, on which the buckles are placed in such a way as to allow use by either three small children or two larger ones.

Most school districts employ tiered routing, where one bus makes two or three trips, picking up high school students, then middle school, then elementary (though middle school is often combined with high school). That means the bus must be able to accommodate all sizes of students. Since only elementary students can sit three-to-a-seat with lap/shoulder belts, there will be a loss of seating capacity on middle and high school runs. For example, a 65-passenger bus with any of the three seat choices will hold only 44 middle or high school students with

lap/shoulder belts; a 71-passenger bus will hold only 48. Even for elementary students, only the flex seat theoretically maintains full passenger capacity.

In practice, capacity loss may be greater than in theory. A three-year pilot program in the state of North Carolina found that the 3-2 seating configuration (a 45-inch seat on one side of the aisle and a 30-inch seat on the other) became in actuality a 2-1 system on middle and high school runs, as the students found the belted seating space simply too tight. This resulted in a 50% loss from the original manufacturer's seating capacity. For that reason, the study concluded that a 2-2 seating configuration would be more appropriate for buses that serve multiple age groups.



Notwithstanding the seat manufacturers' claims that there is no loss of capacity with a flexible seat, you can see from this C E White Company promotional photo that three relatively slender students are very crowded on a 39-inch flex seat, with shoulders overlapping. Add winter coats, backpacks, or a heavier student, and it would be virtually impossible for them to fasten their belts. Realistically, most students beyond third grade will not easily fit 3-to-a-seat.

Whether or not the loss of designed seating capacity results in a comparable reduction of students per bus depends on current student loads. Most school buses are not filled to capacity, so they can absorb some loss of seats without displacing any students. The North Carolina study determined that in the six participating school districts, from 5% to 8% of students would lose seats if all buses in the districts had 2-2 seating. (It should be noted that NC law already restricts high school students to two per seat, so there would be no change on high school routes. CT does not have that restriction.) A 2001 survey of high school ridership in Connecticut school districts revealed that from 15% to 88% of eligible high school students actually rode the bus, with a median of 57%. The survey did not address middle or elementary school ridership. NSTA sampled school bus ridership across the nation in 2007 and found that the median elementary load was 80% of capacity, middle school was 75% and high school was 50% of capacity. Given those figures, the percentage of students who would lose seats if all school buses had 2-2 seating to accommodate lap/shoulder belts would be 13% in elementary grades, 8% in middle school, and none in high school.

***Implication: School districts will most likely have to increase the number of buses in order to accommodate the same number of students.***

### **Belt Usage**

There is no safety benefit in a seat belt that is not used. The experience of the states that require seat belts and of school districts that have participated in pilot programs is pretty consistent: the usage rate among elementary students is high, generally 75% or above, and the usage rate among middle and high school students is low, ranging from 50% to 0. The exception is New York, where usage rates are reported to be close to zero at all grade levels. New York is the only state that requires belts but does not require usage, implying that a usage requirement is essential for

increasing the likelihood that lap/shoulder belts will provide a safety benefit for students. The statistics on usage also argue for a recommendation that as new lap/shoulder belts are introduced into a fleet, they be used on elementary routes as a first priority, since younger students are more likely to wear the belts. Florida has incorporated that recommendation into their seat belt law. (California's seat belt buses primarily serve elementary schools by default, as most California districts do not transport high school students.)

An even more important consideration than usage is proper usage. A lap/shoulder belt that is used improperly can be as dangerous as a lap belt. For example, a student who puts the shoulder belt behind his back in order to turn and talk to friends is in effect wearing a lap belt. And a small child who fails to adjust the shoulder belt to her size risks neck injury as the belt crosses too high against her throat. Cameras on buses equipped with lap/shoulder belts reveal that a significant number of students are wearing the belts improperly. The systems are relatively easy to adjust, but schools must be aggressive in ensuring that students take the time to do so. Florida and California both require that school districts provide training for students on the proper adjustment and use of safety belts as part of their safety training curriculum.

***Recommendations: 1) Amend the bill to require that every person riding in a school bus equipped with safety belts wear the belt. 2) Amend the bill to require that school districts include training on the proper use and adjustment of lap/shoulder belts in their required annual school bus safety training.***

### **Enforcement and Liability**

Requiring usage of school bus seat belts is easy; enforcing the requirement is not. It's clearly impractical to make the school bus driver responsible for ensuring seat belt use; beyond reminding students to "buckle up" at the beginning of the ride, the driver cannot divert attention from his or her driving to monitor student belt use. An adult aide could be in charge of seat belt enforcement, but the cost to put aides on all belt-equipped buses would become prohibitive.

The universal answer among states that have enacted laws appears to be to leave enforcement up to local districts in line with their discipline policies. A student who doesn't use his seat belt commits an infraction of the rules just as if he had been out of his seat, and is subject to the same disciplinary measures. Many violations go unnoticed and unreported, of course, as do violations of personal vehicle seat belt use laws. That's why training is so important; students must be motivated to self-enforce the rule.

Since consistent enforcement of the requirement is at best difficult and at worse impossible to accomplish, it is important that drivers, school bus owners, and school districts be protected from criminal and civil liability for any injury that occurs as a result of failure on the injured passengers' part to use a seat belt properly, or as a result of another passenger's misuse or nonuse of a seat belt. (This might occur, for example, if an unbelted student were thrown into a belted student in a crash, resulting in injuries to the belted student.) This provision would not protect any of the parties against negligent actions, such as failing to repair a broken seat belt, but would protect them against a student's personal decision not to use an available restraint.

***Recommendation: Amend the bill to include a protection against criminal and civil liability for school bus drivers, school bus owners, and school districts for any injury that occurs solely as a result of misuse or nonuse of a seat belt by any passenger.***

### **Cost**

The cost to upgrade the seating system in a new school bus to lap/shoulder belt-equipped seats varies widely according to the size of the bus, the chosen seat configuration, and the manufacturer, but generally ranges from \$8,500 to \$15,000 per bus. The most recent figure I have for Connecticut (2006) is 5,500 Type 1 (full size) school buses in service. Using that figure, and assuming a 10% turnover each year, Connecticut carriers purchase 550 new large buses a year. That would bring the cost to between \$4.68 million and 8.25 million per year with no expansion of the fleet.

As I noted earlier, however, it is likely that without expanding the fleet, a significant number of students will not have seats on the bus. The North Carolina study determined that each of the participating school districts would have to increase its fleet in order to accommodate the current student ridership if all buses were equipped with lap/shoulder belts. The percentage increase ranged from 5% to 15% depending on current load factors and the extent to which buses are shared across grade levels. Using a 10% average for Connecticut's districts, that means that we would need to add 55 buses each year to maintain service levels.

I don't have figures for Connecticut, but a 2007 NSTA survey put the nationwide average contract cost of a bus at \$51,850 a year. At that price, putting 55 additional buses on the road would total \$2.85 million annually.

***Fiscal Note: The total cost for equipping new buses with lap/shoulder belts and replacing lost capacity with additional buses is estimated to be between \$7.53 and \$11.1 million per year. The state's share at an average 30% reimbursement level would be \$2.26 to \$3.3 million.***

### **Safety Considerations**

The Transportation Research Board, part of the National Academies of Science, estimates that 800 students are killed during school transport hours every year because they are not in a school bus; and a teenager taking a bus without restraints is 44 times more likely to get to school alive than one who drives or rides with friends. I do not mean to diminish the tragedy of Vikas Parikh's death by noting that in the past 40 years there has been one fatality of a school bus occupant in Connecticut; but since 1986 at least 70 Connecticut students have died during school transport hours in other motor vehicles. That is why it is vitally important to ensure that no child is displaced from a school bus because of the reduced capacity that comes with lap/shoulder belts. Given the calculations earlier in this paper, some 39,000 elementary students could be forced to find less safe ways to get to school if districts do not replace lost capacity. If that is allowed to happen, the overall result will be a loss of safety and more rather than fewer fatalities as we expose our students to much greater risk.

***Recommendation: Amend the bill to prohibit districts from reducing the number of students they transport because of the reduced seating capacity of buses with lap/shoulder belts.***

## **Peripheral Issues**

- Drivers and observers of buses with lap/shoulder belts report that student behavior improves when the belts are introduced. Incidences of bullying and fighting, as well as out-of-seat behaviors, declined in belt-equipped buses.
- The National Highway Traffic Safety Administration released a new report on school bus seat belt carryover effects last month. The report concluded that whether or not school buses have seat belts has no influence on whether children use seat belts in family cars. Parents are still the most important influence on that behavior.
- Whether or not lap/shoulder belts hinder school bus evacuation is a matter of speculation, since there have been no real-world instances to draw on and it is impossible to replicate a crash scenario in an evacuation drill. On the one hand, there will be an incremental increase in evacuation time if students are belted, and there is always the possibility that a student will panic and be unable to unbuckle. On the other hand, if the belts keep students in their seats and uninjured, they will be able to evacuate more easily than if they are on the floor or piled on top of each other.

## **Conclusion**

Last month the National Transportation Safety Board released their report on the 2006 school bus crash in Huntsville, Alabama, in which four students were killed when their bus plunged off a highway overpass. The Board determined that if the students had been wearing lap/shoulder belts, one of the fatal injuries and many of the serious injuries would have been mitigated. This is the first time the Board has determined that seat belts would have saved the life of a school bus occupant.

There are very few fatalities in school buses in this country—an average of six a year—and most of those would not be affected by the use of lap/shoulder belts because they occur in the direct line of impact with heavy vehicles such as trains and tractor-trailers. But the use of lap/shoulder belts probably would reduce the number of injuries in school bus crashes significantly, and nationwide could save one or two lives a year. Based on Connecticut's record, lap/shoulder belts in all buses could prevent or reduce a few serious injuries a year and save one life every 40 years.

It is always difficult to talk about cost when discussing school bus seat belts, as the issue is so emotionally charged, particularly following a fatality. As parents, most of us would say that even a small improvement in our children's safety is worth whatever it costs. But policy makers don't have that luxury; you are charged with the responsibility to spend limited resources wisely, and so must weigh the cost of each request and recommendation against its potential benefits. The question is not whether putting lap/shoulder belts in school buses is worth \$9 million a year; the question is whether spending the money that way rather than on competing programs will provide the biggest benefit for our children.

If you decide not to move ahead with a mandate, you might consider providing an incentive for districts and/or bus companies to voluntarily buy new buses with lap/shoulder belts. You could establish a grant program similar to those that have successfully encouraged school bus owners to upgrade diesel emission systems, for example; or increase a district's transportation

reimbursement if the district orders new buses with lap/shoulder belts. Or you could offer an investment tax credit for purchase of lap/shoulder belt equipped buses, or eliminate the sales tax on school buses with lap/shoulder belts. Providing incentives is a lower cost option for the state, and does not require school districts who are struggling with unbalanced budgets to take money from the classroom or other necessary programs to pay for what they may consider a low-benefit mandate.

I regret that out of state travel prevents me from addressing the committee in person. If you have questions or would like additional information, please contact me at 860-751-7138 or by email at [robinleeds@comcast.net](mailto:robinleeds@comcast.net).

**Robin L. Leeds** became an independent consultant in 2006 after a 24-year career as executive director of the Connecticut School Transportation Association. Her primary client is the National School Transportation Association, for whom she works on a number of government relations, research, and communications projects. She specializes in regulatory and compliance issues, and provides technical expertise to NSTA's Congressional lobbyists. She serves as NSTA's liaison to the federal regulatory agencies and as media contact for the association.

Ms. Leeds has been involved in the National Congress on School Transportation since 1990, and was a writing chair and editor of the *National Specifications and Operational Procedures for School Transportation*. She has served as a resource for the American School Bus Council since its inception.

She has worked on two transportation studies for the National Academies of Science and is a member of the Transportation Research Board's School Transportation subcommittee. She is also a member of two Federal Advisory Committees, one at the Environmental Protection Agency and one at the Department of Homeland Security. She is President of the Board of Directors of the Pupil Transportation Safety Institute, a nonprofit organization based in Syracuse, and is a contributing editor of *School Transportation News*. Robin has been recognized by the national publications *School Bus Fleet* and *STN* for her contributions to school transportation.

A popular speaker and media resource, Ms. Leeds has appeared on CBS This Morning, NBC Nightly News, CNN, and MSNBC, as well as hundreds of other radio, television, and newspaper outlets. She has authored articles for education publications, opinion pieces for newspapers, and expert reports on various aspects of the school transportation industry.

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