

Approved February 3, 1986
Date

MINUTES OF THE SENATE COMMITTEE ON EDUCATION

The meeting was called to order by SENATOR JOSEPH C. HARDER at
Chairperson

1:30 ~~xxx~~/p.m. on Wednesday, January 29, 1986 in room 254-E of the Capitol.

All members were present except:

Senator Eugene Anderson, excused

Committee staff present:

Mr. Ben Barrett, Legislative Research Department
Ms. Avis Swartzman, Legislative Revisor's Office
Mrs. Millie Randell, Secretary

Conferees appearing before the committee:

SB 433 - An act concerning school districts; relating to school transportation vehicles as therein defined; requiring certain equipment. (Senators Mulich, Steineger, and Strick)

Proponents:

Senator William Mulich, co-author of SB 433
Dr. Loren Phillips, Director, Bureau of Community Health, Kansas Department of Health and Environment
Mr. Craig Grant, Director of Political Action, Kansas-National Education Association

Opponents:

Dr. Bill Curtis, Asst. Executive Director, Kansas Association of School Boards
Mr. Ken Rogg, Schools for Quality Education
Mr. Edward Lindsay, Vice President, Kansas State Pupil Transportation Association
Ms. Jane Noll, school bus driver, USD 339, Jefferson North School District (written testimony only)

Following a call to order by Chairperson Joseph C. Harder, Senator Allen moved that the minutes of the January 22 meeting be approved. This was seconded by Senator Karr, and the motion carried.

The Chair then recognized Senator William Mulich, co-sponsor of SB 433. Senator Mulich emphasized, in his testimony to the Committee, the importance of mandating the installation of seat belts on all school buses. Senator Mulich's testimony is found in Attachment 1.

Dr. Loren Phillips of the Department of Health and Environment stated that his department recommends passage of SB 433 and gave the Committee members additional perspective regarding the role his department plays to make sure the state's school children are transported in the safest way possible from one destination to another. Dr. Phillips' testimony is found in Attachment 2.

Mr. Craig Grant, K-NEA, testifying in support of SB 433, explained his organization's policy position regarding school bus safety in his testimony found in Attachment 3.

Dr. Bill Curtis of KASB explained that although his association is concerned with the safety and welfare of the children riding school buses, the Delegate Assembly of KASB had adopted a resolution opposing mandatory installation of seat belts in school buses, because studies and research do not substantiate that seat belts add significantly to the safety of a child in a school bus. (Attachment 4)

CONTINUATION SHEET

MINUTES OF THE SENATE COMMITTEE ON EDUCATION,

room 254-E, Statehouse, at 1:30 ~~xxx~~ p.m. on Wednesday, January 29, 1986

Mr. Kenneth Rogg of Schools for Quality Education cited a lack of sufficient evidence to prove that mandatory use of seat belts on school buses would provide any additional protection to children using those school buses as his reason for opposing SB 433. Mr. Rogg said he felt that the Federal Safety Board should first set standards for their installation before Kansas should mandate this directive to its school districts. Mr. Rogg, quoting statistics, stated that a school bus is the safest place in the world to be and that school buses would have to be redesigned should this bill be enacted into law. Mr. Rogg suggested, however, that should this bill be passed, the Committee should reconsider the effective date for mandating this action. Mr. Rogg's supportive testimony is found in Attachment 5.

Mr. Edward H. Lindsay of the Kansas State Pupil Transportation Association also emphasized the lack of evidence available to prove that seat belts would significantly improve the safety of students riding school buses. Mr. Lindsay felt that more evidence was needed before any further consideration should be made on this issue. In response to questions, Mr. Lindsay answered that the use of seat belts on mini-buses was encouraged but not mandatory. Mr. Lindsay stressed the potential for liability suits should seat belts be mandated but their use not strictly enforced, which is difficult to do, he maintained, on the larger Type 1 buses. Mr. Lindsay's supportive testimony is found in Attachment 6.

Ms. Jane Noll, USD 339, Jefferson North High School, a school bus driver for 18 years, had submitted written testimony only against passage of SB 433. (See Attachment 7)

Following testimony on SB 433, the Chairman announced that the bill would be taken under advisement.

The Chairman then asked the Committee for discussion and/or action on the following carryover bills from 1985:

HB 2391 - Relates to certain agreements with educational institutions and law enforcement training. Senator Warren moved, and Senator Kerr seconded the motion to report HB 2391 adversely. The motion carried.

SB 214 - The Chairman told the Committee that SB 214, relating to Haskell Institute, had been referred to the Legislative Educational Planning Committee for interim study and then explained the LEPC findings to the Committee. Senator Allen moved that SB 214 be reported adversely. The motion was seconded by Senator Parrish, and the motion carried.

The Chair reminded the Committee that SB 231, regarding season ticket sales at the Regents' schools, had also been referred to the LEPC for interim study and that the LEPC had decided to take no further action except to rerefer the bill to the Education Committee. When the Chair called for discussion or action on the bill, Senator Allen moved that SB 231 be reported adversely. Senator Salisbury seconded the motion, and the motion carried.

SB 55, which affects the tax levy limitation for capital outlay funds for community colleges, will be reheard by the Committee, the Chairman announced. The Chairman explained that he had received a request for this additional hearing and that he would honor any such requests for carryover bills.

SB 224 - Relates to school transportation vehicles being equipped with FM business radios. Senator Langworthy moved that SB 224 be reported adversely. This motion was seconded by Senator Salisbury, and the motion carried.

The Chairman announced that further consideration of carryover bills will be done at forthcoming meetings.

CONTINUATION SHEET

MINUTES OF THE SENATE COMMITTEE ON EDUCATION

room 254-E, Statehouse, at 1:30 ~~am~~/p.m. on Wednesday, January 29, 1986

When the Chair asked if there was further business, Senator Montgomery made a conceptual motion for the Committee to introduce a bill which would establish new guidelines regarding the length of time allowed for students to receive tuition refunds when the student should discontinue a class in which he is enrolled at a vocational technical school. This conceptual motion was seconded by Senator Allen, and the motion carried. The Chairman asked Senator Montgomery to serve as a subcommittee of one to meet with the staff to review the subject of his motion and to report back to the Committee at a later date. Senator Montgomery agreed to do so.

The Chairman adjourned the meeting.

SENATE EDUCATION COMMITTEE

TIME: 1:30 p.m. PLACE: 254-E DATE: January 29, 1986

GUEST LIST

NAME

ADDRESS

ORGANIZATION

Mary Ellen Sima	Topeka	Lg. of Women Voters
Robert E. Overstreet	Ozawie	USD #340
Ed Lindsay	Oskaloosa	USD #340 + K.S.P.T.A.
Paul Pritchard	Wichita	USD #259
Bill Marks	Wichita	USD - 259
Ken Rogg M. Hervey	SE Topeka	Paola Chp. Joun. a.
Jim Yervally	Overland Park	USD #512
Martha J. Lemman	Platte, Kan	Foster Grand Parents
Rev. H.C. Lewis	Platte KS	✓ ✓ ✓
Connie Huellett	Topeka	SLBI of d.O.

SENATE EDUCATION COMMITTEE

TIME: 1:30 p.m. PLACE: 254-E DATE: January 29, 1986

GUEST LIST

<u>NAME</u>	<u>ADDRESS</u>	<u>ORGANIZATION</u>
<i>Carla Buckler</i>	<i>Walata</i>	<i>USD #232</i>
<i>Lynn Annis first dept</i>	<i>444 1/2 Shawnee Heights Rd. Shawnee Heights Tecumseh, Ks</i>	<i>Shawnee Heights USD #450</i>
<i>Bruce Wamley</i>	<i>Topeka</i>	<i>Governor's Policy Office</i>
<i>Kornel R. Phillips</i>	<i>Topeka, KS</i>	<i>KDHE</i>
<i>Harold C. Pitts</i>	<i>Topeka</i>	<i>TARTA</i>
<i>Craig Grant</i>	<i>Lawrence</i>	<i>K-NEA</i>
<i>Melle Hill</i>	<i>Topeka</i>	<i>KACC</i>
<i>Kay Coles</i>	<i>Topeka</i>	<i>KNEA</i>
<i>Bill Curtis</i>	<i>Topeka</i>	<i>KASB</i>
<i>Ferry Powell</i>	<i>"</i>	<i>DHR</i>
<i>Elizabeth C. Taylor</i>	<i>"</i>	<i>KAECYC</i>
<i>Christine R. Kinsella</i>	<i>Emporia</i>	<i>—</i>



TOPEKA

SENATE CHAMBER

WILLIAM (BILL) MULICH
 SENATOR, FIFTH DISTRICT
 WYANDOTTE COUNTY
 3744 NORTH 67TH
 KANSAS CITY, KANSAS 66104
 PHONE (913) 299-8283 OR
 299-1237

COMMITTEE ASSIGNMENTS
 MEMBER ASSESSMENT AND TAXATION
 CONFIRMATIONS
 LOCAL GOVERNMENT
 PUBLIC HEALTH AND WELFARE

ATTACHMENT 1

January 28, 1986

Mr. Chairman, Members of the Committee:

Sometime soon, somewhere in our state, there is going to be a traffic accident involving a school bus. Someone's child; a passenger on the bus going to school, going to a school activity, or going home from school, will be killed or severely injured in this collision. Everyone will then act to see that a tragedy of this nature does not happen again. However, it will be too late for some little boy or girl, their parents, and other family members. Too little-too late.

Senate bill 433 was drafted to help prevent this tragedy from becoming reality. This bill requires all school buses to be equipped with seat belts and that the occupants be required to "belt up" before the bus moves to its next destination.

There are people who do not believe that the lives of children in our state are worth the expense of installing seat belts in school buses or requiring the operator of a school bus to be responsible for seeing that the children have seat belts fastened before the bus moves. They argue

that a study of 30 MPH front-end bus collisions in Canada conducted by the National Insurance Highway Safety Council determined passengers in buses carrying 66 passengers or more were safe; that the bus was a fortress that provided ample protection for occupants. In fact, the study revealed that occupants may be endangered by wearing seat belts. The study reported occupants may strike their heads on the seat in front if a seat belt is properly worn. However, the study did not utilize standards of excellence required for crash studies conducted in the United States and is contradicted by researchers in the same report.

The reality of the need for this bill was demonstrated last fall in St. Louis. A school bus loaded with children jumped a curb on a interstate highway, hit a pole, and the indestructible bus cane apart. Several children were thrown from the bus by the force of the impact and were killed. Countless other children were injured from being bounced around the inside of the bus.

Would seat belts have saved the lives of the children that were killed? Well, the kids would not have been thrown out the window or door exposing themselves to being smashed by the bus while it rolled to rest after the crash. Seat-belts keep the occupants of vehicles from being thrown from their seat by the force of impact. Studies have shown that most injuries in motor vehicles are caused when this occurs.

It has also been argued that school bus operators would have problems insuring school buses for liability if operators are required to see that passengers are wearing seat belts. I disagree. The exposure is worse now. Seat-belts prevent catastrophic injuries that result when occupants are thrown from their seat by the force of impact caused by collision, rolling down an embankment after skidding on ice, or from being broad-sided by a larger vehicle.

What would you want for your children?

To my knowledge, a tragedy of this nature hasn't happened recently in our state. A vote for this bill will minimize the severity of the tragedy when it does happen. You can pay now - or pay later. I believe an ounce of prevention is worth a pound of cure. I urge your vote for the safety of our school children.

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT

TESTIMONY ON SB 433PRESENTED TO Senate Education Committee, 1986

This is the official position taken by the Kansas Department of Health and Environment on SB 433.

BACKGROUND INFORMATION:

School buses are the safest form of surface transportation, transporting some 21 million children to and from school each weekday. Nationally in 1983, there were 69 school bus related fatalities: 50 deaths were outside the bus as pedestrians; 2 were school bus drivers; and 17 were on-board school bus passengers. In Kansas for the 84-85 school year, 71 injuries in large buses were reported, 10 were incapacitating with one fatality.

Because of the greatly increased public discussion on the need for occupant protection in automobiles (i.e., safety belts and automatic protection devices), as a result of many states considering and passing mandatory safety belt use laws, and because all 50 states and the District of Columbia now have mandatory child passenger safety laws, the issue of safety belts on large school buses has become a topic of much discussion. Preventable injuries are the primary issue.

Since 1984 school districts in the United States using seat belts in school buses have doubled. (Seventy-one in the 1985 school term.)

Currently van-type school buses (under 10,000 pounds gross vehicle weight) are required, the same as passenger cars, to have safety belts. These small school buses respond in a crash in a similar manner as cars because of their weight and design.

Fifty percent of the occupant fatalities in school buses occur in rollover accidents and 14.7 percent of the occupant fatalities occur in side impact accidents. It is in these types of accidents that safety belts might be most likely to provide additional safety benefits to school bus occupants. One reason for this is ejections, which could be prevented by belts.

It costs an additional \$1,500.00 per bus to include seat belt installation on new buses. It is estimated that in Kansas 450-500 persons are permanently and severely disabled from motor vehicle accidents with head/spinal injuries each year at an estimated cost of \$2,500,00 per lifetime per case. The cost to Kansas for all accidental deaths for one year is \$650,000,000 or an average of \$516,666 per accident. While child restraint laws have been enacted in Kansas, the state does not have a mandatory seat belt law for individuals over the age of four. Furthermore, seat belts are not required in school district vehicles or new buses.

STRENGTHS:

The AMA and American Academy of Pediatrics support the concept of seat belts in school buses.

New information refutes the 1984 Canadian Crash tests which asserts use of seat belts would increase risk of injury. According to John States, M.D., Chairman, New York Coalition for Safety Belt Use, Inc. "Buses will not increase the risk of injury for school children using the Tap belts, but will actually reduce the risk. The educational benefits to the school children are the principal reason for the installation of seat belts in school buses. It is essential that children learn this habit, which in the future will almost certainly protect them from a disabling injury and, possibly save their lives. Children are now entering school having worn child restraints while traveling in their parents' cars. It is essential that they can continue this habit while riding in our school buses." (December, 1985)

WEAKNESSES:

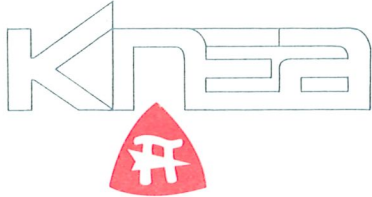
There is no mandatory reporting of school accidents including school bus accidents. Insurance premiums would be raised. This is one reason little reported information is available from which adequate analyses can be made. Bus drivers must be retrained in occupant restraints and proper usage.

This bill does not address the issue of school bus age and quality. Buses designed before 1979 do not provide interior construction which is conducive to retrofitting seatbelts. Furthermore, bus seats are not secured adequately to the base structure. Injury is likely resulting from bus seats not adequately installed.

DEPARTMENT'S POSITION:

The Kansas Department of Health and Environment recommends passage of S.B. 433. The position of the Kansas Department of Health and Environment is that all vehicle occupants be properly restrained, whether that means a seat belt or an infant/child restraint system, the agency position applies to all motor vehicles on all public roadways.

Presented by: Lorne A. Phillips, Ph.D.
Director
Bureau of Community Health
Ks. Dept. of Health & Environment



Craig Grant Testimony Before The
Senate Education Committee
January 29, 1986

Thank you, Mr. Chairman. Members of the Committee, my name is Craig Grant and I represent Kansas-NEA. I appreciate this opportunity to speak with you regarding SB 433.

At first, I would like to review Kansas-NEA's policy regarding school bus safety. In the 1970's the Representative Assembly of Kansas-NEA adopted the following policy:

"Kansas-NEA believes the school bus safety laws should be improved and enforced with special attention to the following areas:

1. Designing and building safer buses which consider physical requirements of the child;
2. Installing seat belts for each child; ..."

The concern expressed by the delegates was for the safety of students being transported by our school buses. In 1979, changes were made in buses from low-back metal exposed frames to high-back all padded frames. This was a move designed to improve the safety features of the school bus.

In researching available data for testimony today, we have found quite a bit of information which may indicate that seat belts are not safety features which are needed. We found a study in Canada on school buses with and without seat belts which showed that the electronic mannequins who did not have seat belts received less impact shock than those wearing seat belts. There were some people who expressed concerns about rapid evacuation

of students when seat belts were used. It was also evident that the vast majority of serious accidents occur outside the bus.

Kansas-NEA wants students to travel in as safe an environment as possible. It is possible that small buses with 12 or less capacity would be safer with seat belts installed while the larger buses may be safer without seat belts. If that is the case, I am sure we would be willing to change our official policy. After all, safety is our utmost concern. Possibly more data is necessary before we know for sure.

Thank you, Mr. Chairman and Members of the Committee, for listening to the concerns of teachers.



5401 S. W. 7th Avenue Topeka, Kansas 66606
913-273-3600

TESTIMONY ON S.B. 433

before the
Senate Education Committee

by

Bill Curtis, Assistant Executive Director
Kansas Association of School Boards

January 29, 1986

Mr. Chairman and members of the committee, we appreciate the opportunity to present the views and concerns of the 303 member school boards of the Kansas Association of School Boards. Last December, the Delegate Assembly of KASB adopted a resolution which opposed the mandatory installation of seat belts in school buses. S.B. 433 would require seat belts or some restraining devices to be installed in all school district vehicles.

School board members are concerned with the safety and welfare of the children. However, studies and research do not substantiate that seat belts add significantly to the safety of a child in a school bus. Attached is an article from the November, 1985 issue of "The American School Board Journal." Certainly the issue of seat belts is an emotional one. No school board member in Kansas wants to be characterized as opposing seat belts on the basis of expense. That would be placing a dollar value upon a life. And yet, installation of seat belts does seem to be an expensive way to keep elephants out of the backyard.

Mr. Chairman and members of the committee, we would ask that you not pass out S.B. 433. We would ask that you look at the issue objectively and base your decision upon the research. Thank you for affording me the time to speak.



From seat belts to safe brakes, here's the latest school bus news

PUPIL transportation is a crucial part of your school system's operations. And it's big business: According to Bill Paul, publisher of *School Bus Fleet* magazine, school buses are a \$4.5 billion industry. "With a third of a million [school] buses in service and more than 22 million daily ridership," Paul says, "pupil transportation is the largest form of mass transportation in the world."

We don't know about the world, but *your* school bus fleet well might be the largest mass transportation system in your community. And a lot is riding on those big yellow buses: No matter how fine an education program your schools offer, it's wasted if you can't get the kids to school to take advantage of it. The technical side of maintaining a school bus fleet—deciding which bus models to buy and servicing them to keep them in top shape—is only part of your responsibility for pupil transportation, of course. Your board also has to weigh complex and often conflicting information on possible safety features, such as seat belts. You have to stay abreast of developments in the industry that could give you a better return on your transportation dollar. And you have to thread your way through a tangle of red tape to ensure compliance with a growing list of federal regulations governing pupil transportation.

To make the job easier, the *JOURNAL* has compiled this update on emerging safety issues, new technological developments, and upcoming regulations that could affect your pupil transportation program.

Debate over seat belts

"Dear Rulemaker: Why don't school buses have seat belts for children? Love, Gretchen."

That letter—which five-year-old Gretchen Genrich and her parents sent to local and state school officials in Upstate New York five years ago—sums up the message of a growing grass-roots move-

ment to require seat belts for passengers in large school buses. Federal regulations already require the belts for passengers in small, van-type school buses with a gross vehicle weight of less than 10,000 pounds. But according to the National Highway Traffic Safety Administration (N.H.T.S.A.), evidence doesn't exist to prove—or disprove—the contention that seat belts would make big buses any safer than they already are.

And that's pretty safe, says N.H.T.S.A. in a July 1985 paper on safety belts in school buses. In fact, claims the summary of that paper, "School buses are the safest form of surface transportation. In 1983, 42,589 people were killed in traffic accidents. Only 17 were school bus occupants."

What lies behind that reassuring record, according to the safety administration and the bus industry, is something called "compartmentalization"—the idea that strong, properly spaced, well-padded seats with high backs will contain passengers safely and cushion them in the event of a crash, without the need for safety belts. In April 1977, N.H.T.S.A. issued standards for crash protection and passenger seating in school buses that reflected the compartmentalization concept.

Compartmentalization also is the key-stone in N.H.T.S.A.'s latest pronouncement on school bus seat belts: "The occupant protection required in school buses manufactured after April 1, 1977, plus the inherent safety of a highly recognizable vehicle that travels on a regular route, provide a high level of safety. There is insufficient data available to demonstrate whether safety belts would increase occupant protection. The number of school bus occupant deaths and serious injuries is so low that assessing the extent to which safety belts could either prevent deaths or injury or cause them is not feasible." The safety administration's conclusion: "We do not believe that a federal requirement

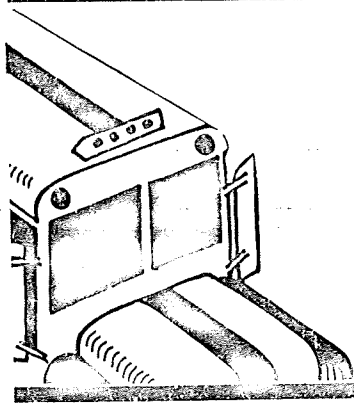
for safety belts in large school buses is warranted."

But—and this is a point board members should ponder—N.H.T.S.A. emphasizes that existing federal standards specify the *minimum* safety requirements for school buses. "Nothing prohibits a state or local jurisdiction from purchasing buses equipped with safety belts," says the safety administration.

And that's just what's happening in 42 local school systems, according to a citizens group called the National Coalition for Seat Belts on School Buses. One school system that will have seat belts on some of its buses this year is the Fairfax County (Virginia) Public Schools, which have the largest school bus fleet in the U.S. The decision was prompted at least in part by the continued concern of young Gretchen Genrich.

When the Genrich family moved to Fairfax, Gretchen (now a fifth grader) formed a student group called BELTS (Buckle Every Life Tight for Safety) and launched a petition drive that garnered 700 signatures of students and parents who favored equipping county school buses with seat belts. Because Virginia school boards are appointed, not elected, Gretchen's father advised her to present her petition not to the school board but to the Fairfax County Board of Supervisors, which controls the purse strings for the local schools. The county supervisors—blessed last year with a budget surplus of more than \$5 million and no shortage of people telling them how to spend it—unanimously passed a resolution calling for the allocation of up to \$100,000 for school bus safety belts.

The money has gone to purchase seat belts for 60 standard buses and harness-type restraints for 13 special education buses, according to William S. Howe Jr., director of administrative services for the Fairfax schools. The safety equipment was installed on new buses (the county buys some new buses every year to keep



To belt or not to belt? In the absence of state and federal requirements, your school board is on its own for now

its 908-vehicle fleet up to date). These newly equipped buses will be the subject of a safety study conducted by a task force appointed by the board of supervisors, Howe says. But he doesn't expect the study to turn up much conclusive evidence.

Citing the experience of other school systems that have installed seat belts on school buses, Howe concludes that "the best they can say is that the belts don't do any harm. Even if there is an accident, there's no proof the belts made any difference."

Howe says Fairfax school buses, which transport approximately 83,000 students a day, are involved in approximately 250 accidents each year—most of them rear-ends and fender-benders. "Every year, at least one bus is knocked over on its side," says Howe, "but with no serious injuries. Our worst injuries in two years have been a broken arm and a broken collarbone."

With a safety record like that, Howe says he isn't sure seat belts are worth the approximately \$1,200 per full-size bus it costs to install them. "It would cost \$1 million to equip all the Fairfax buses [with seat belts]," he says. "That's a lot of money to spend to keep the elephants out of the backyard."

Belt advocates, of course, argue you can't put a price tag on human life: If seat belts save just one life in a school bus collision, who's to say the installation cost isn't money well spent?

Funds to help defray the cost of installing the belts on your buses might be on the way: U.S. Representative Peter H. Kostmayer (D-Pa.) has introduced a bill in Congress to provide incentive grants to states that adopt and enforce laws requiring safety belts in new school buses. The bill, H.R. 749, was the subject of hearings last June before the House subcommittee on surface transportation. And to date, the legislation has 50 congressional co-

sponsors—plus the vocal support of the National Coalition for Seat Belts on School Buses and the American Academy of Pediatrics, a staunch advocate of tougher federal safety standards for school buses.

But don't start spending the grants yet, because there's a catch: Even if H.R. 749 is passed (a similar bill died in Congress last year), it will provide grants *only* to those states that have enacted legislation requiring school bus safety belts. And so far, not one state has enacted such legislation. (This year, according to the National Coalition, buckle-up bills were defeated by the legislatures in 11 states and are pending in two others.)

Another bill now before Congress would wield federal funds not as a carrot—as H.R. 749 does—but as a stick. Introduced by Representative Larry Smith (D-Fla.), H.R. 3305 would withhold 5 percent of your schools' federal assistance if you fail to put seat belts in all new school buses within one year after the bill's passage. But it's too soon to worry: The bill has met the predictable opposition of school bus contractors, and even belt advocates say withholding funds will punish the wrong people—the kids the funds are targeted to serve.

In the absence of federal and state requirements, local school boards are on their own for now when it comes to deciding whether to belt or not to belt school bus passengers. And you can expect some lobbying in the belts' behalf from concerned students and parents. One group you might hear from is your local PTA: Last summer, the National PTA passed a resolution calling for the federal government to set standards for the installation of seat belts and for local PTA groups "to encourage their boards of education to equip with seat belts all new buses ordered for use in their district" based on the hoped-for federal guidelines.

And when it's time to order new buses

for your fleet, you might keep in mind these points from James Nichols of N.H.T.S.A.'s Office of Occupant Protection: "Just because buses are bigger [than cars] does not obviate the need for seat belts," says Nichols, referring to the argument that buses don't need seat belts because they absorb more crash energy than cars because of their larger size. "Belts work best in lower g-force crashes," Nichols explains. "In a bus, anyone sitting one-third of the way back will experience only one-third of the crash force—and safety belts work much better in a 20-g crash than they do in a 60-g crash."

An argument against the belts—and the real issue in the debate, according to Nichols—is the fact that a child's body can rotate around the belt in a crash, throwing the child against the seat in front of him so that his head and shoulders bear the brunt of the impact. "Common sense says that's a good reason *not* to use seat belts," says Nichols. But he points out that the same problem affects belt wearers in cars as well. The answer, he says, is not to scrap the belts, but to design both the buses and the belts so that the rotation problem is avoided.

The seat belt debate is an emotional one, as Nichols admits; in fact, he says he wishes "the two sides would talk more rationally." But until such time as the safety value of the belts is decided definitively, Nichols says equipping new buses with seat belts should be a local option.

New equipment for buses

Chances are, you've already considered occupant restraints for one class of buses in your fleet—those that transport handicapped students. Special harnesses, similar to those worn by racing car drivers, can protect handicapped children while they're riding the bus. And now, a new communications system can improve transportation services for these students before they even board the bus.

Called the Schoolbus Alert Monitor (SAM), the system consists of a programmable transmitter installed on the bus and a simple receiver in each passenger's home. By pressing a button on the transmitter as he leaves each stop, the driver sends a coded signal to each receiver, where it is translated into a computer-simulated voice that tells riders at home where the bus is, stop by stop.

The advantage of the system is the time it saves—and time is money in pupil transportation.

"During the pilot tests we conducted last winter, SAM improved the efficiency

insurance
institute
for
highway
safety

the highway loss reduction

Status Report

Vol. 20, No. 5

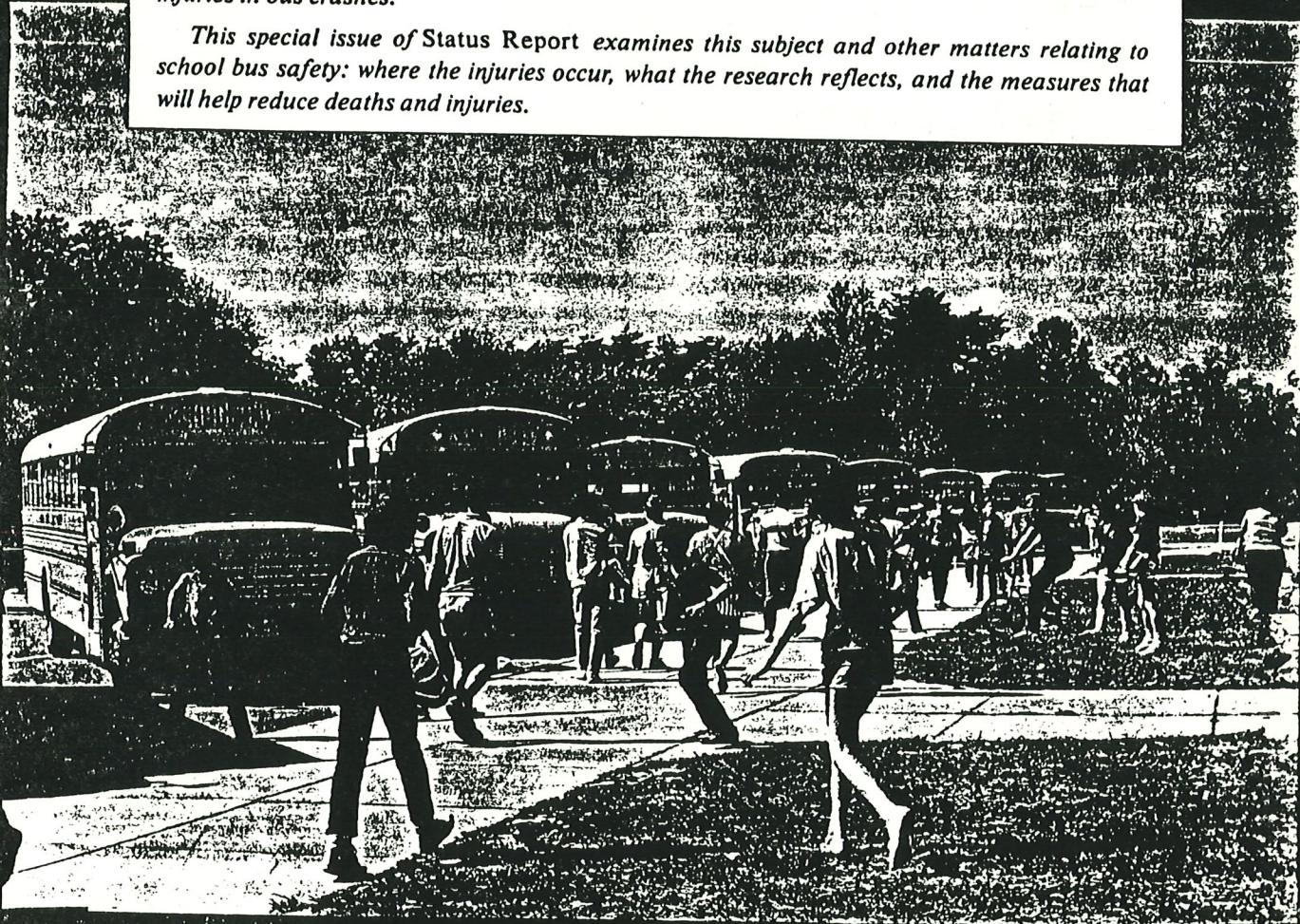
May 11, 1985

A Special Issue ATTACHMENT 5

SCHOOL BUSES AND SEAT BELTS

Every school day throughout the U.S., 390,000 school buses log some three million miles transporting 21,500,000 youngsters to and from classes, athletic events, and field trips. Almost always the trip is routine, and the children arrive without mishap. But is school bus travel safe enough? A growing number of parents, aware of the safety advantages of wearing seat belts in passenger cars and trucks, are questioning why most school buses are not equipped with seat lap belts for their children's protection. Now a grassroots movement wants to require school districts across the country to add lap belts to their shopping lists when purchasing new buses. Others contend such an action is unwarranted and may create more injuries in bus crashes.

This special issue of Status Report examines this subject and other matters relating to school bus safety: where the injuries occur, what the research reflects, and the measures that will help reduce deaths and injuries.



Senate Education
1/29/86
Attachment V

The Insurance Institute for Highway Safety is an independent, nonprofit, scientific and educational organization. It is dedicated to reducing the losses—deaths, injuries and property damage—resulting from crashes on the nation's highways. The Institute is supported by the American Insurance Highway Safety Association, the American Insurers Highway Safety Alliance, the National Association of Independent Insurers Safety Association and several individual insurance companies.

School Buses and Lap Belts

About 18 school districts throughout the country now require new school buses to be equipped with lap belts, and many more are considering such a rule in response to parent groups that are lobbying state capitols and school boards.

Carol Fast, founder and president of the National Coalition for Seat Belts in School Buses, says the movement is growing rapidly. "The issue is timely," notes Fast, crediting new child restraint laws for the interest. She says her group has 40 regional coordinators with coalitions set up in nearly every state.

Some children entering first grade have always traveled restrained in child safety seats or safety belts, Fast says. When they get on buses that are not equipped with belts, they become "apprehensive," and their parents become apprehensive as well. "They know that it's a good thing to wear belts in cars," reminds Fast. "And they don't understand why there are no belts in buses."

In 1973, when the National Highway Traffic Safety Administration (NHTSA) began formally considering improving school bus safety standards, the agency proposed raising the backs of seats to a height of 28 inches, about the same height as an extended head restraint in a passenger car. NHTSA also said it would consider requiring lap belts. (See *Status Report*, Vol. 8, No. 5, Feb. 26, 1983.) A requirement for combination lap and shoulder belts was, and still is, considered not feasible.

In 1974, NHTSA abandoned the lap belt option. Citing "practical objections" raised by the majority of groups commenting on the standard. NHTSA said it "determined that a passive system of occupant containment by the seating system or a restraining barrier offers the most reliable crash protection in a school bus situation."

By raising the backs of seats, making them more yielding, and requiring padding to protect a child's knees, torso, head, and face, NHTSA engineers believed that the crash load would be spread more evenly over a child's body.

The use of a lap belt, however, could cause the child to double over the belt in a frontal crash, pivoting forward and striking his or her head on the back of the seat in front. Such an action would concentrate the force of the crash load on the child's face and head, which would increase the risk of head injury. Nevertheless, the agency said it would require the installation of belt anchorages in case school districts wished to install them.

By 1976, when the final school bus occupant protection rule, Federal Motor Vehicle Safety Standard

(FMVSS) 222, was issued, the height requirements for the backs of seats were reduced eight inches to 20 inches, and all provisions for belt anchorages were gone. In a *Federal Register* notice, NHTSA said tests by AMF Corporation indicated that the lower seat back height would provide "sufficient compartmentalization" for occupants. The seat back height was lowered because bus operators said they would not be able to watch the pupils with the higher seats.

As for lap belt anchorages, NHTSA said that in view of comments from bus manufacturers and operators questioning their utility, that the agency would not require their installation. The notice indicated NHTSA intended to study the matter further and that in the meantime, lap belts could safely be attached to the seat frame by the users. But for smaller buses under 10,000 pounds, NHTSA required that they be equipped with lap belts. The reason for that, said NHTSA, was their smaller size could result in much more severe crashes.

In 1978 NHTSA conducted sled tests of belted and unbelted dummies and observed that belted dummies experienced a violent whipping effect that warranted further study. Subsequent petitions for reconsideration of FMVSS 222 filed by Physicians for Automotive Safety (PAS) and Action for Child Transportation Safety were rejected by NHTSA in 1981 and 1983, without additional tests.

The physicians' and parents' groups question the efficacy of those tests and subsequent tests performed recently by the Canadian Ministry of Transport. However, the chief value of seat belts in school buses, they argue, is educational.

'It's a Very Emotional Issue'

Some pupil transportation supervisors have questioned whether riders will use lap belt buckles as weapons, and others have been skeptical about getting children to use the lap belts without having a monitor aboard the bus. In reality, districts that have installed lap belts do not report them being used as weapons. A spokesman for the Greenburgh Central School District in New York, where lap belts have been required since 1978, says that drivers report students who refuse to follow the belt use rule to school officials, making monitors unnecessary.

"It's a very emotional issue," Fast admits. It has pitted parents and physicians against NHTSA, bus owners, bus drivers, and school fleet administrators.

Fast says her group is willing to trade off less protection in frontal impacts to gain more protection in side impacts and rollovers. Data showing that belted dum-

mies fare worse than unbelted dummies in frontal impacts are presented out of context, she said.

"It's a very awkward situation," a NHTSA official told *Status Report*. "It gives us butterflies. We can't really argue with the concept of establishing better belt habits in children," but, he adds, the possibility of exacerbating head injuries in frontal impacts makes the agency reluctant to endorse seat belts for school buses. "We'd like to leave it open to the local jurisdictions," he concludes.

School bus safety has been a matter of concern to the National Transportation Safety Board, which has over the years examined bus crashes in depth. In 1983, following its study of a prestandard bus crash in Arkansas, the safety board said it believed that most school buses will be of poststandard vintage by 1987. The board is conducting an evaluation of post - 1977 school buses of all sizes to ascertain the effectiveness of bus safety standards.

The board concluded: "because preliminary analysis indicates that these standards appear to be effective in eliminating or substantially reducing the majority of school bus passenger injuries, the safety board does not believe there is sufficient justification at this time to recommend" the mandatory installation of lap belts in large school buses.

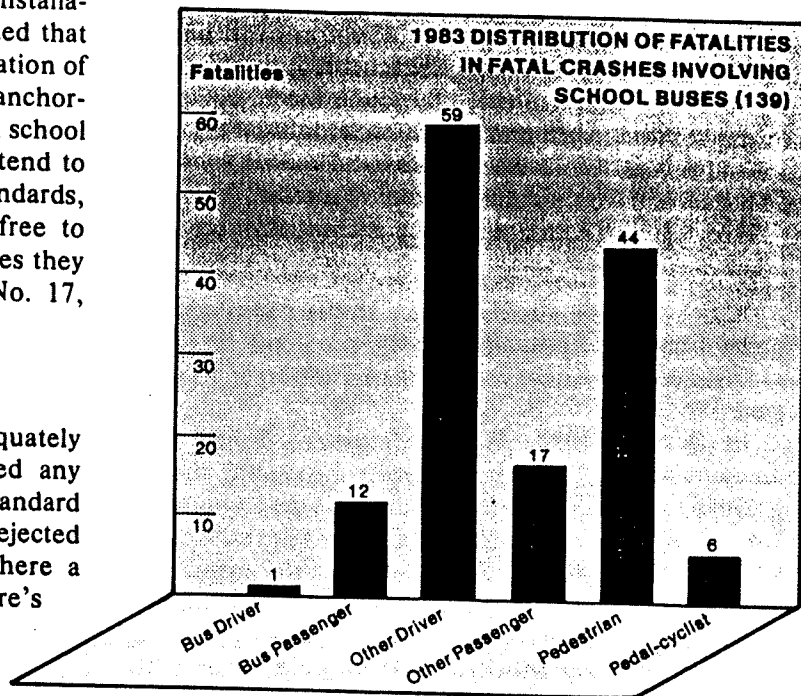
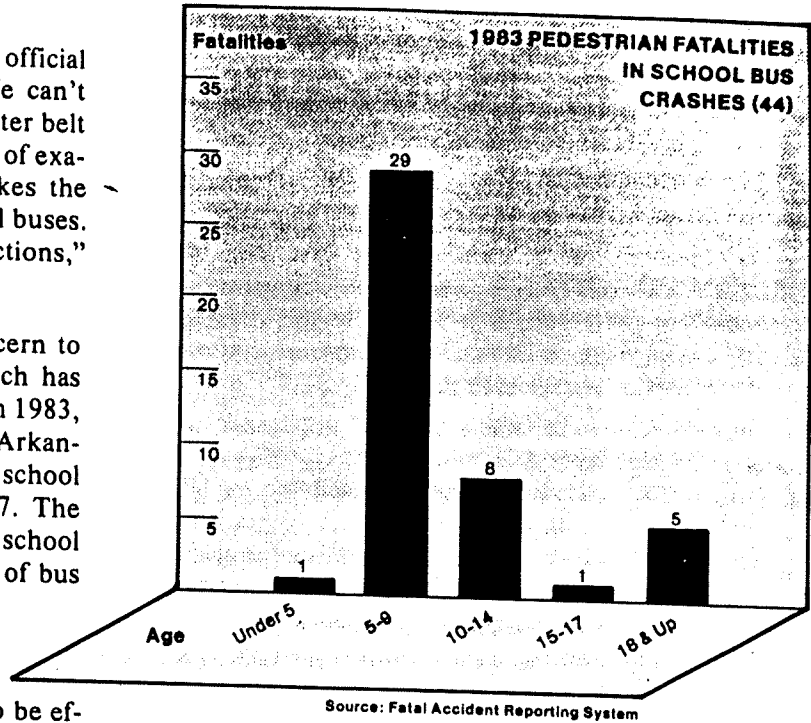
When in 1983, NHTSA chief Diane Steed rejected the latest PAS petition seeking the mandatory installation of belt anchorages in large buses, she noted that the safety board did not recommend the installation of belts and added that if the agency mandated anchorages, it would "impose a financial burden on all school bus purchasers, regardless of whether they intend to install belts in the buses. Under the present standards, districts...that want belts in their buses are free to order buses with belts or to install them in buses they already own." (See *Status Report*, Vol. 18, No. 17, Nov. 22, 1983.)

'They Don't Want Any Injuries'

Fast and other critics say NHTSA hasn't adequately studied the issue. NHTSA has not conducted any rollover or side impact crash tests of poststandard buses, Fast notes. Children are being partially ejected through windows, says Fast, citing a case where a child's arm was nearly cut off in an impact. "There's no 'compartmentalization' in a side or rollover crash," observes Fast.

Parents are reluctant to accept assurances that belts are not necessary, Fast continues. "They don't want 'minor' injuries. They don't want *any* injuries."

(Cont'd on page 4)



'The Confusion Continues' **School Buses and Lap Belts**

(Continued from Page 3)

John States, M.D., an orthopedist and professor at the University of Rochester, says that large school buses are already very safe vehicles. The primary purpose for getting belts into school buses, says States, who has worked in New York to promote them, is: "We're out to save lives in the car."

States says belts are a good idea because of the educational carryover. It's confusing, he says — along with others — to tell children that belts are a good thing in cars but not necessary in school buses. However, both States and Fast acknowledge there are no studies indicating a correlation between belt use on school buses and belt use in automobiles.

States discounts tests showing that lap belts may increase the crash force on children's heads in frontal impacts. Dummies that have been used are "too stiff," he said, to give a true measurement of what happens in a crash. (See "Canadian Crash Tests," Page 5.)

So far, only the Wayne Corporation, a bus manufacturing company, has agreed to provide predrilled holes in their seats so that school districts can retrofit their buses with lap belts.

Wayne's vice president for product assurance, Robert Kurre says that when the company installs belts in large buses, it uses the seats that it installs on small school buses, which are required to be equipped with lap belts. They come with an additional leg support and braces in order to withstand the added force that a seat belt would concentrate in a crash. This was despite a NHTSA ruling that the present seats are adequate in a crash.

Kurre says the company goes to the additional expense because of potential liability problems. The cost of installing seat belts is \$1,200 to \$1,500 per bus, he said.

In October 1984, Wayne petitioned NHTSA to amend FMVSS 222 to set a standard covering the installation of safety belts in school buses. In its petition, Wayne said, "pro seat belt organizations have taken up NHTSA's suggestion and are lobbying local authorities to specify seat belts in their new bus purchases. In some instances, pressure has been so great that local authorities are attempting to retrofit older buses with seat belts."

Wayne reported that over 35 bills have been filed in 13 state legislatures seeking to require seat belts, and U.S. Rep. Peter Kostmayer, Pennsylvania Democrat,

has filed a bill to provide federal incentive grants to states requiring them.

"The controversy surrounding the seat belt debate has created confusion rather than enlightenment," Wayne said. "Questions have been raised and conflicting information bandied about concerning the number

(Cont'd on page 11)

School Bus Statistics: It's Safer Inside

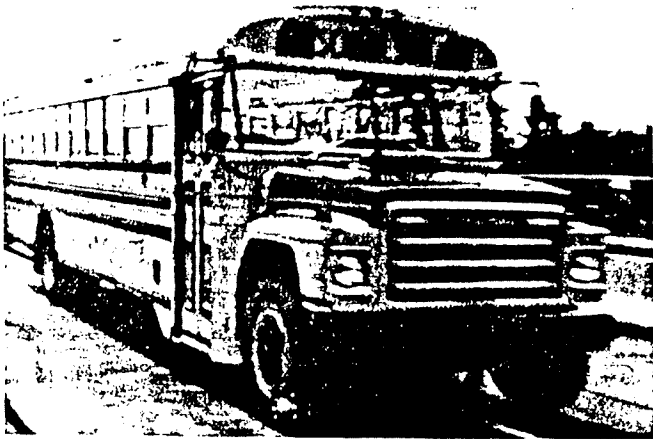
School buses provide one of the safest modes of transportation available, according to the National Highway Traffic Safety Administration. Since 1977 NHTSA reports an average of 12 school bus occupants have died each year in crashes.

The most dangerous place for a child is not the interior of a school bus, but its exterior. An average of 66 children are killed each year as they enter or exit school buses, NHTSA says. In 1983, the last year for which data are available for such pedestrian fatalities, NHTSA reported 44 pedestrian deaths. Two-thirds of them were children under nine years of age.

Of the 139 people killed in fatal school bus crashes in 1983, only 18 were riding in buses. The remainder were pedestrians, bicyclists, other drivers, and their passengers.

State data on school bus crash injuries are incomplete. Where numbers have been collected, all injuries are lumped together making it impossible to distinguish between scratches and more serious injuries. Although the Department of Transportation and National Transportation Safety Board have attempted to study bus crashes that do not involve fatalities, investigation teams have been stymied because so few crashes occur that offer sufficient data.

The only figures available come from the National Safety Council and those are derived from state data and amount to no more than rough estimates. However, for the 1982-83 school year, the safety council estimates that 3,300 pupils were injured in 2,000 school bus crashes.



Photographs from Transport Canada Film

Large buses are safer for riders.



Large bus absorbs crash forces, lessens injuries.

Canadian Crash Tests

Will Lap Belts Do More Harm Than Good?

Recent tests conducted by the Canadian government indicate that in severe frontal impacts, lap belts in school buses could do children more harm than good.

The 1985 study of lap belt performance in frontal impacts was conducted by Transport Canada, the equivalent of the U.S. Department of Transportation. The Canadians conducted three full-scale 30 mph barrier impacts using various sizes of dummies, some equipped with instruments to record injury levels. The vehicles tested were a 66-passenger Blue Bird school bus, which meets U.S. standards designed to protect unbelted occupants, and two smaller buses seating 20 and 22 passengers.

The lap belted dummies on the large bus recorded head impacts two to three times more severe than the unbelted dummies. But by far the worst scores were recorded by the lap belted dummies on the small buses.

The results were not surprising, says Dr. Kennerly Digges, deputy associate administrator for research at the National Highway Traffic Safety Administration (NHTSA). In 1978, sled tests by the safety agency showed that lap belts "caused an increase in peak accelerations," resulting in harder head impacts with seat backs.

Digges noted, as have other NHTSA officials, that in side and rollover crashes, belts would provide safety benefits to school bus occupants. However, he contends that lap belts for large buses are a poor investment from a cost-benefit point of view. "You'd be better off spending the money on better brakes and better drivers," he says.

In Canada, large school buses meet safety standards that are similar to U.S. requirements. However, small Canadian school buses weighing less than 10,000 pounds are not equipped with lap belts and the head protection zone and seat spacing measurements differ from U.S. requirements.

Transport Canada concluded that in the tests "the belted dummies experienced higher head accelerations, lower chest accelerations, and more severe neck extension than did the unbelted [dummies]. This indicates that if lap belts are installed on current designs of school bus seats, a greater potential for head injury exists."

The report said that the "passive occupant restraint system (compartmentalization) required [by Canadian safety standard 222] since 1980 functions as intended during frontal impacts and provides excellent protection for occupants."

The "School Bus Safety Study" was written by G.N. Farr, an automotive safety engineer with the crashworthiness section of Transport Canada. The tests were conducted under contract with Calspan, a private research company.

William T. Gardner, head of crashworthiness engineering for Transport Canada, says the tests were conducted because it might be more damaging to add lap belts and previous studies indicated that head and neck injuries might be aggravated by them. The tests were done to answer those questions. About 55 percent of all school bus crashes in Canada during 1981 were frontal, the report noted.

The engineers tested a 66-passenger 1984 Blue Bird bus, a 1984 Campwagon van conversion type, 20-passenger bus, and a 1984 Thomas Minotour 1, 22-

(Cont'd on page 6)



Full-size bus: seat cushions impact.



...But belted dummy's head bears brunt of load.

(Continued from Page 5)

passenger bus built on a Ford school bus chassis. All three are commonly used throughout Canada, the study said.

For the test series, 4-foot, 10-inch, 5th percentile adult female anthropomorphic dummies were used in each bus. Three were belted and three were unrestrained in each bus. Each was instrumented to determine head and chest acceleration during the crash. Some of the dummies were instrumented to measure knee and upper leg injury data. Other, smaller dummies were placed on the large bus to provide a photographic comparison with the larger dummies.

None of the test dummies were certified for compliance testing under U.S. Federal Motor Vehicle Safety Standard (FMVSS) 208. Therefore, a calculated head injury criterion (HIC) level of 1,000 for the dummies used in these tests cannot be correlated with the HIC level of 1,000 set as the upper limit under the U.S. occupant safety rule. However, the measurements obtained in the Canadian crash tests can be used to compare lap belted and unbelted performance of the dummies used in each of the school bus tests.

The barrier crashes of the two smaller buses showed that in all cases, the dummies secured by lap belts measured HIC values exceeding 1,000—and in some cases, scores in the 2,000 plus range were calculated. All unrestrained dummies had HIC values of less than 1,000.

“From these results,” the Farr report said, “it must be concluded, that for frontal impacts; the restrained occupant would receive more severe head injuries than the unrestrained one. One can further conclude that injuries could very likely be life threatening.”

The test films showed that many of the belted dummies' heads struck the seats in front of them so violently that the force bent the heads back on the necks at almost a 90 degree angle. The action was severe enough to be judged to cause serious injury, Farr said.

In the large school bus, the HIC values for the lap belted dummies were about three times greater than for the unrestrained dummies. However, none measured HIC values in excess of 1,000.

The reason they didn't, says Transport Canada's Bill Gardner, is that a 30 mph barrier crash of the small
(Cont'd on page 8)



Busette: "Soft" landing for the unbelted.



Belted copassengers could have fatal injuries.

SUMMARY OF CRASH TEST RESULTS					
Dummy Number	Belted	Unbelted	HIC*	Chest* Acceleration (g)	
1		X	NA	60.4	Large Bus Bluebird, 66 Passenger Weight 8147 kg Velocity 48.8 km/h Deceleration 15 g Dynamic Crush 1371 mm Body Slide 775 mm
2	X		649	40.8	
3	X		629	28.1	
4		X	220	34.2	
5		X	205	48.2	
6	X		731	25.0	
1	X		2,505	40.1	Busette Thomas Minotour, 22 Passenger Weight 4033 kg Velocity 47.0 km/h Deceleration 19.5 g Dynamic Crush 729 mm Body Slide 381 mm
2		X	893	47.9	
3	X		1,144	38.6	
4		X	741	59.8	
5	X		1,173	42.4	
6		X	494	44.9	
1	X		2,016	32.5	Small Bus Van Conversion Type Campwagon, 20 Passenger Weight 3056 kg Velocity 47.1 km/h Deceleration 49 g Dynamic Crush 495 mm Body Slide 0
2		X	369	21.1	
3	X		2,195	32.2	
4		X	946	42.0	
5	X		1,711	37.5	
6		X	607	24.4	
*HIC (Head Injury Criterion) data not comparable to scores obtained by dummies used for testing under FMVSS 208. Generally, the higher the HIC, the greater the likelihood of injury.					

(Continued from Page 6)

bus is much more severe than that of a 66-passenger bus. The smaller buses are much stiffer than the large bus and, in addition, the smaller buses stop much more quickly. Because the large bus body slides on the frame and its front end crushes, much of the crash force is absorbed before it is transferred to the occupants.

The high head injury loads measured by the dummies were, in part, a result of the stiffness of the dummies used in the test, the report noted. Gardner pointed out that the severity of the rearward flexure experienced by the dummy heads after they hit the seats in front of them is particularly noteworthy because the stiffness of the dummies should have acted to decrease the amount of flexion.

During the crash of the large school bus, two unrestrained dummies the size of six-year-olds struck the seat backs below the seat back frame spreading the forces of the crash over the dummies' bodies. "It is expected that this size of child would be better protected by the 'compartmentalization' concept than a larger child," Farr said.

An adult-sized lap belted dummy in the driver's seat of the large school bus was struck in the head by the steering column in the crash. The driver probably would have suffered serious or fatal injuries in the crash, Farr concluded.

There were other problems noted. On the Blue Bird bus, the fuel tank cap was punctured. "If a rollover had occurred," Farr said, "a significant leakage of fuel would probably have occurred."

On the Thomas Minotour bus, a gasoline tank hose broke loose. "If even a partial rollover had occurred," Farr reported, "a major fuel spill would have happened."

During the crash of the school van, two of the three left side windows shattered, hurling "a tremendous number of small shards of tempered glass" throughout the bus interior. Had the bus been filled with children, the glass could have caused severe eye and body injuries, Farr said. He suggested that window glazing and fuel systems receive further attention from ministry scientists.

Because of the Canadian test results, the U.S. National Transportation Safety Board, which is conducting an evaluation of large FMVSS 222 buses, has decided to expand its study to examine how well small, van-type school buses are protecting their occupants in crashes. (See "Safety Board Studies," Page 11.)

Railroad Crossings

School districts should establish and enforce procedures for checking on whether bus drivers are stopping at railroad crossings, the National Transportation Safety Board recommends.

The recommendation was issued following the board's examination of a train collision with a school bus near Carrsville, Virginia, in 1984. A 108-car train collided with the bus as the driver was trying to back off the tracks. Board investigators found that the driver failed to stop before she started to cross the tracks. The train hit the front of the bus, which was knocked off its chassis. The body then rolled over. Two of the 26 students were seriously injured and the driver died. Board investigators learned that it was not unusual for bus drivers in that school district to fail to stop at rail crossings.

Retrofitting School Buses With Lap Belts? Handle With Care

School districts that retrofit their school buses with lap belts should be very careful about their installation, say officials of the National Highway Traffic Safety Administration (NHTSA) and the Wayne Corporation, a bus manufacturing company.

Under no circumstances should belts be added to buses that were manufactured before 1977. The old bus seats have an exposed rail. Because of the dynamics of a crash, lap belts would actually increase the force with which an occupant's head would strike the rail.

NHTSA has said that it is safe to attach the lap belts to the current seats in poststandard (1977) buses. That statement is still true, says Ralph Hitchcock, director of NHTSA's office of vehicle safety standards.

Hitchcock says that if school districts want to retrofit school buses that were manufactured after 1977, they should first make sure that they purchase lap belts that meet Federal Motor Vehicle Safety Standard (FMVSS) 209. Also, if the manufacturer sells buses that have a lap belt option, school districts should check to see how they are installed and, if possible, follow the manufacturer's installation method.

In general, belts should be attached to the seat frame: if the belts are attached to the floor, children's

feet will get tangled in them and they will probably get dirty, thus discouraging their use, Hitchcock noted. Some frames are manufactured with predrilled holes for installation of the lap belts. Others have a round bar about which the belt can be wrapped and fastened. Still others require that belt brackets be welded to the seat frame.

In the case of buses that require welding, Hitchcock says some school districts have contracted the work out to local garages. Such a practice often results in faulty workmanship, he says, because garage personnel are usually not familiar with the strength requirements necessary to ensure safe restraint. If the belt brackets must be welded to the seat frames, Hitchcock said, professional engineers should check the installation.

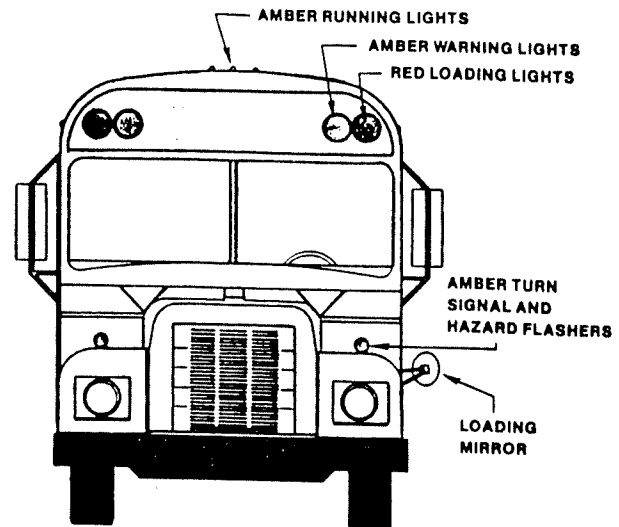
When Wayne installs belts, it provides seats equipped with an extra leg mounted at the midpoint of the seat. Braces are added to both legs. The additional reinforcement helps spread crash forces evenly to the seat frame and body wall. A Wayne representative said the seats are identical to those they install in small school buses.

Such a practice is probably not necessary, Hitchcock says, given the infrequency of very severe crashes. However, school districts that choose to retrofit their buses should at least be aware of some of the drawbacks of not reinforcing the seats in their large buses. In the rare case of a violent crash, it is possible that unbelted occupants would be hurled into the back of a seat in which belted occupants are sitting. It is not clear that the seat holding the belted occupants would be able to sustain the load.

In the small buses meeting FMVSS 222, the bus occupant seating and protection rule, the seats are required to withstand 5,000 pounds of crash force, a considerably stronger requirement than that required for the seats on large buses. NHTSA set the higher requirement for small buses because small van-type bus crashes are likely to be much more violent than large bus crashes.

If money wasn't limited, says Hitchcock, and installation were readily available, the ideal belts to install in school buses would be combination lap and shoulder belts. Those systems would solve the problem of jackknifing in frontal crashes, and would do a better job of keeping heads, arms, and shoulders where they belong in a rollover crash.

School districts considering whether they want to install belts should consider the routes and speeds of their buses, Hitchcock noted. For example, school districts with buses traveling over mountainous terrain at high speeds might find belts more useful than urban and suburban districts with more flat terrain where buses travel relatively slowly.



Two Texas Studies Probe Illegal Passing Of School Buses

An evaluation of stop arms on school buses reveals the stop sign on a swing arm can cut down illegal passing by 30 percent or more, a Texas study shows.

The research into their effectiveness followed a pilot study by the Insurance Institute for Highway Safety documenting that illegal passing of school buses stopped to load or discharge passengers is a dangerous problem. In recent years, bus drivers have reported increasing numbers of motorists breaking the law.

Since 1980, the Texas Department of Public Safety has reported a total of six school-bus-related pedestrian fatalities and 150 injuries — 35 of them incapacitating. In each case, the victim was under the age of 16 and was not struck by the school bus.

Researchers for the Insurance Institute for Highway Safety say that although some of the illegal passing is the result of deliberate decision-making by the motorist, some of it may be the result of confusion.

In the 1984 pilot study conducted for the IIHS by the Texas Transportation Institute, observers in two large urban school districts reported that on an average day, each school bus was passed illegally by about seven cars.

A total of six bus routes were observed, three of them in Houston and three in San Antonio, for a total of three days each. There were 8.33 illegal passes per day per bus in Houston, and 4.65 per day per bus in San Antonio. Over 77 percent of all the illegal passes occurred on multiple lane highways.

(Cont'd on page 10)

(Continued from Page 9)

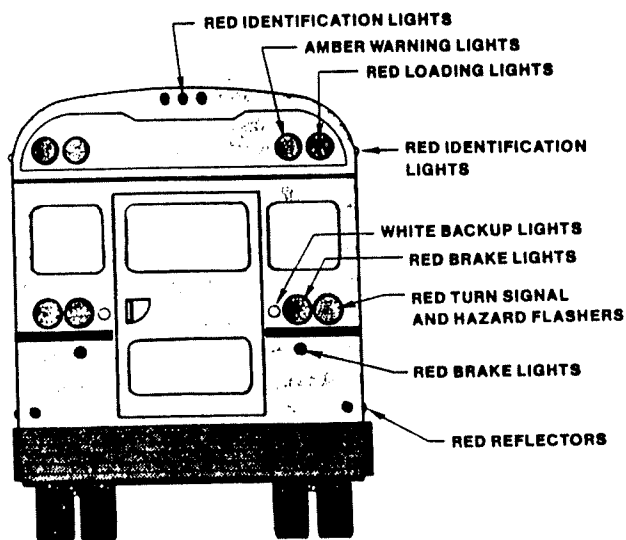
However, 25 percent of the illegal passing occurred only after the passing vehicle first slowed down and many vehicles stopped when they were not required to do so. In addition, a survey of drivers also indicated they were confused by the complex light systems on today's school buses.

The rear of a new bus is equipped with 12 signal lights plus three running lights. (See figures.) Two of them are large red brake lights, and two of them are small red brake lights. There are two large yellow warning lights and two large red loading lights. There are also multiple sets of lights on the fronts of buses. In general, the public is required to stop only for the flashing red loading lights and may proceed with caution at any other time.

In the pilot study, drivers were asked whether they would or would not stop for various combinations of light signals. Although the survey probably elicited cautious responses, 6 to 10 percent said they would not stop when, in fact, they would be required to stop. Forty-eight percent said they would stop if only warning lights were lit, 31 percent if only flashing red loading lights were lit, and 90 percent said they would stop for loading lights if they were on the opposite side of a divided highway — where they are not required to stop.

In the later study which was mandated by the Texas legislature, the Texas Transportation Institute observed the effects of adding a swing-out stop arm that is activated when the red loading lights are illuminated. This study revealed that the stop arm lowered the likelihood of illegal passing by 30 percent or more.

Assuming that the 30 percent reduction in illegal passes is 50 percent effective in reducing collisions,



the Texas Transportation Institute concluded, in Texas, "45 accidents [involving pedestrians] could be eliminated in 10 years."

A second survey of drivers showed considerable confusion over the meaning of the array of light signals on buses. However, the researchers did find that the stop arm "significantly enhanced" driver understanding.

Safety Standards

Since 1977, new school buses have been required to meet four sets of federal safety standards. They are:

- Federal Motor Vehicle Safety Standard (FMVSS) 220 covers school bus rollover protection. This rule is intended to produce adequate structural integrity of the bus during a rollover crash to minimize the roof crush and permit escape through the emergency exit.
- FMVSS 221, school bus body joint strength, requires interior and exterior body panel joints that will prevent or reduce panel separation in a crash.
- FMVSS 222, school bus seating and crash protection, sets occupant protection standards for passengers and establishes passive barriers to prevent or reduce injuries. This rule requires strengthened seats capable of withstanding crash forces. It also requires higher seat backs to help prevent whiplash in rear impacts. The backs of all seats must be padded to reduce injuries to occupants in frontal impacts and spread the impact. Seat backs are also required to yield in an impact in order to help absorb the crash forces.
- FMVSS 301, fuel system integrity, to prevent fuel spillage and fires in the event of an impact.

Small school buses weighing under 10,000 pounds must be equipped with lap belts at all seating positions. Large buses are required only to provide the driver with a lap belt.

SUMMARY OF DATA FOR SCHOOL BUS ROUTES			
	Percent With At Least One Illegal Pass	Number of Vehicles Passing at Stops With Illegal Passes	Number of Illegal Passes Per Bus Per Day
TREATMENT ROUTES (19) Before Tests Treatment Period	18	2	6
	9	1	2
CONTROL ROUTES (6) Before Tests Treatment Period	13	1	2
	14	1	2

Source: Texas Transportation Institute

Safety Board Studies Crashes to Evaluate Large Bus Protection

The National Transportation Safety Board is studying crashes of post-1977 large school buses to ascertain whether safety standards are adequately protecting occupants.

The safety board had expected to complete the study by the end of 1985, but following publication of Transport Canada's crash tests of large and small school buses, the board is now considering expanding the study to include crash investigation of vans equipped as school buses, and other small school buses. As part of the study, board investigators are seeking to evaluate whether buses should be equipped with lap belts.

"In the accidents we have seen so far, there is no clear pattern emerging that indicates lap belt installation would have made that much of a difference in serious or fatal injuries on large buses," a board official says.

One of the major problems with evaluation of lap belts, is the lack of school bus injury data, the official says. There is no uniform reporting of school bus related injuries. When they are reported, the injuries are lumped together so that there is no way to differentiate between minor scratches and severe injuries. The board is especially interested in investigating crashes of conventional large buses equipped with lap belts, and needs to be notified when and where they occur, the official said.

In 1983, the safety board said it did not believe there was sufficient data to justify a mandatory requirement for lap belts in large buses.

School Buses and Lap Belts

(Continued from Page 4)

of belts, their length, floor vs. seat anchorage, the type of buckle, adequacy of supporting structures, retrofitting, belt access, release, injuries, etc., and the confusion continues."

NHTSA should promulgate a rule specifying exactly how seat belts should be installed, said the manufacturer, so that school districts wishing to voluntarily adopt them and the manufacturers that produce them will have some guidance, and theoretically, some immunity from potential liability.

In Fairfax County, Virginia, the Board of Supervisors voted to appropriate \$100,000 to provide seat belts for new school buses. Assistant Superintendent William Shadle says he can't spend the money yet because he is required to follow state specifications. And so far, the state has not decided whether it will issue interim specifications covering the installation of seat belts without NHTSA's guidance.

Shadle says that in the past school year, the county recorded 71 mishaps involving school buses. There were no deaths and the most serious injury was a dislocated shoulder. He adds that without putting an aide in every bus, a safety belt rule would be hard to enforce. "We have 800 buses with 5,400 daily runs in 180 schools," said Shadle. "I just can't get too enthusiastic. Of course, if we have to do it, we'll do it."

Some NHTSA officials believe the Wayne petition will be answered affirmatively soon. However, the proposal for rulemaking must be cleared by the White House's Office of Management and Budget, a detour that could delay the decision.

— Special Issue —

This special issue of *Status Report* focuses on school bus safety. Other special issues have focused on the following subjects:

- Seat Belt Use Laws — Vol. 19, No. 14 (1984)
- Restrictions on Teenagers' Driving — Vol. 19, No. 10 (1984)
- The Injury Fact Book* — Vol. 19, No. 7 (1984)
- Automatic Restraints — Vol. 18, No. 18 (1983)
- Truck Crashes — Vol. 18, No. 4 (1983)
- Small Car Hazards — Vol. 17, No. 20 (1982)
- International Symposium on Drunk Driving — Vol. 17, No. 18 (1982)
- Small Car Size and Deaths — Vol. 17, No. 1 (1982)
- Teens and Autos — Vol. 16, No. 14 (1981)
- Drinking and Driving — Vol. 16, No. 5 (1981)
- Utility Vehicle Rollovers — Vol. 15, No. 19 (1980)
- Air Bags — Vol. 14, No. 14 (1979)
- Air Bags — Vol. 14, No. 13 (1979)

(Contents may be republished whole, or in part, with attribution.)



the highway loss reduction

Status Report

Watergate 600 • Washington, D.C. 20037 • 202/333-0770

NON-PROFIT ORG.
U.S. POSTAGE
PAID
PERMIT NO. 252
ARLINGTON, VA.

KANSAS LEG RES DEPT
RM 545 N
STATE HOUSE
TOPEKA KS

66612

Editor: James H. Mooney

Associate Editor: Rea Tyler

Production: Nina Minschwaner, Diahann Hill

Kansas State Pupil Transportation Association

ATTACHMENT 6

OFFICERS

President

Nancy Schulz
R. W. Harmon & Sons
P. O. Box 380
Belton, Missouri 64012
1-816-331-9600
1-913-782-4370 (Olathe)

Vice-President

Ed Lindsay
U.S.D. No. 340
Box 267
Meriden, Kansas 66512
1-913-484-3444

Secretary

Leona Schrader
Route #1
Dodge City, Kansas 67801
1-316-227-8867

Treasurer

Lee Gehring
U.S.D. No. 313
122 North Main
Buhler, Kansas 67522
1-316-543-6829

Past President

Don Harding
U.S.D. No. 204
P. O. Box 435
Bonner Springs, Kansas 66012
1-913-441-2493

DISTRICT VICE PRESIDENTS

Northeast

Evelyn L. Davis
U.S.D. No. 345
1124 West Lyman Road
Topeka, Kansas 66608
1-913-233-3045

Southeast

Barbara Pringle
U.S.D. No. 253
Box 1008
501 Merchant Street
Emporia, Kansas 66801
1-316-342-4455

North Central

Dennis Essary
U.S.D. No. 383
1120 Hayes Drive
Manhattan, Kansas 66502
1-913-537-0963

South Central

Don Phillips
U.S.D. No. 309
P. O. Box 408
Mickerson, Kansas 67561
1-316-663-7141

Northwest

Lloyd Gemaehlic
U.S.D. No. 489
6th & Oak, Bus Barn
Hays, Kansas 67601
1-913-628-1525

Southwest

William D. Fairchild
U.S.D. No. 495
521 Edwards Street
Larned, Kansas 67550
1-316-285-6461

Special Consultant

Dennis Newton
R. W. Harmon & Sons
15435 South 169 Highway
Olathe, Kansas 66021
1-913-782-4370



DEAR SENATOR:

I HAVE SEEN , SB 433, WHICH HAS BEEN INTRODUCED IN THE SENATE, REQUIRING ALL SCHOOL TRANSPORTATION VEHICLES TO BE EQUIPPED WITH SEAT BELTS. THIS WOULD ENCOMPASS SCHOOL BUSES, ALSO.

THE KANSAS STATE PUPIL TRANSPORTATION ASSOCIATION HAS TAKEN A STAND AGAINST THE USE OF SEAT BELTS ON LARGE TYPE 1 BUSES. THE REASONS ARE AS OUTLINED IN THE PAPER ENCLOSED WITH THIS LETTER. IF YOU WOULD LIKE ADDITIONAL INFORMATION OR SOMEONE TO TESTIFY AT A HEARING, PLEASE CONTACT ME OR ANY ONE OF THE OFFICERS OF OUR ORGANIZATION. THERE IS A WEALTH OF EXPERIENCE AND EXPERTISE IN THIS GROUP OF PEOPLE. PLEASE LET US KNOW IF WE CAN BE OF SERVICE.

THANK YOU,

Edward J. Lindsay
EDWARD J. LINDSAY
VICE-PRESIDENT
K.S.P.T.A.

SCHOOL BUS SAFETY - WHAT ARE THE REAL ISSUES?

Within the past three years the movement of seat belt usage has gained momentum and spread to include school buses. But the necessity of seat belt usage in cars is not the issue of this article. Only two studies have ever addressed the issue of seat belts in school buses: Transport Canada (frontal collision) and Thomas Test (side & frontal collision), which acted as a follow-up for the Transport Canada Test.

Research shows that the compartmentalization concept, consisting of high-backed, heavily padded, properly spaced seats, and other factors, provides greater safety than do seat belts. The Transport Canada Test showed that "unlike passenger cars, whose more aggressive interior, lower mass and more severe deceleration behavior makes seat belts essential for occupant safety, the school bus presents a different problem for occupant protection. Instead, the occupant safety in school buses is better improved through passive protection, including the use of high-backed, heavily padded, closely spaced seats. Because of this compartmentalization concept, and the controlled seat spacing, students tend to sit more upright on the seats. In the event of a collision, the occupant slides forward into the back of the seat in front. This results in the forces being spread more evenly over the upper torso than they would be if the occupant were restrained by seat belts." ¹

The National Highway Safety Administration in 1977 ordered compartmentalization in new buses in lieu of mandatory seat belts beginning with 1978 model year. This federal regulation is still in effect. Both the Transport Canada and Thomas Test results confirm

that compartmentalization provides excellent protection for occupants. The tests also show that the use of lap seat belts in any buses may result in more severe head and neck injuries for belted occupants than unbelted.² These results will help in deciding the issue of seat belt usage because now the issue can be addressed from a scientific rather than emotional viewpoint.

Statistics prove that more fatalities happen outside the school bus than inside.³ The following are the real problems of school bus safety. Children retrieving dropped possessions are hit by the bus. Children passing behind the bus out of the driver's line of vision are backed over by the bus. Children are hit by other vehicles who don't stop for the red lights or stop sign of the bus. Children are hit by other vehicles while they are gathered at their bus stops.

Some solutions to alleviate these problems would be better instructions of vehicle safety to students and required use of book bags or other method of possession control. Legislation should be passed for stronger prosecution of violaters of stop arm laws. There needs to be an increase in public awareness of school buses. Most importantly there needs to be increased driver training for school bus drivers.

Rep. Kostmayer introduced a bill to provide \$10,000,000 per year to states that enact laws mandating use of seat belts in school buses.⁴ If this money is available why not put it to the best use for our children? Let us resolve the significant number of proven dangers associated with the outside of the bus before resolving the virtually untested problems inside/ or worse yet create new dangers inside the bus, as the recent Transport Canada and Thomas Test clearly shows.

Even with these problems, the school bus is by far the safest mode of mass ground transportation in the US, 8 times safer than the family car.⁵ The state of Kansas has an outstanding safety record. Since 1971 only one student fatality outside a school bus and no student fatalities inside a school bus has occurred.⁶ A lot of hard work has gone toward this record. Transportation people are safety conscious and, with the help of monies made available and legislation that addresses the real problems of school bus safety, can continue this record.

¹ "Seat Belts or Passive Protection", results of Transport Canada Test, School Bus Fleet, June/July 1985, p.16

² "The Thomas Test Confirms Canadian Results", results of Thomas Test, School Bus Fleet, June/July 1985, p.22

³ National Loading & Unloading Survey, from Kansas Department of Transportation

⁴ "School Bus Safety", American School & University, Oct.1985, p.49

⁵ Same as 2.

⁶ Statistics from Kansas Department of Transportation

January 29, 1986

TO: MEMBERS OF THE SENATE EDUCATION COMMITTEE
FROM: MS. JANE NOLL, A SCHOOL BUS DRIVER FOR 18 YEARS
RE: SB 433 - REQUIRING SEAT BELTS ON SCHOOL BUSES

Ms. Noll requested that the following message be relayed to members of the Committee:

Ms. Noll, a school bus driver for USD 339, Jefferson North School District, said she is speaking on behalf of all the bus drivers in her district when she says that there is insufficient information and evidence to warrant the installation of seat belts on school buses. She felt that insufficient information would prevent you from making a wise decision. She has read where padded seats and high-back seats offer more protection to riders than do seat belts on buses.

Also, she says, most accidents involving school buses seem to happen when students are embarking and disembarking. Better instructions might be needed for both bus drivers and students. Also, she says, consider the follow-up consequences in passing the bill.