

# SCHOOL BUSES

## Protection for All



**Charlie Vits**  
Market Development Manager  
SafeGuard/IMMI



---

---

---

---

---


---

---

---


### PART 1: Pre-K Transportation

Learn who rides on school buses  
What are appropriate child restraints  
Recent advances




### PART 2: Lap-Shoulder Belts

Current Compartmentalization Protection  
Why Lap Shoulder Belts on School Buses  
Where we are today



SCHOOL BUSES Protection for All



---

---

---

---

---

---

---

---

## Advancing Passenger Protection in School Buses for Pre-K Students



SCHOOL BUSES Protection for All



---

---

---

---

---

---

---

---

**Who Rides the Bus?**

**Elementary and Older-Age Children...**




---

---

---

---

---

---

---

---

**Who Rides the Bus?**

**And, YES, these kids too...**



**INFANTS**



**TODDLERS**



**PRE-SCHOOLERS**

- Head Start and Early Head Start (from 6 weeks)
- Teen Parent High School Programs
- Children of Bus Drivers

---

---

---

---


---

---

---


---

**On a bus, CPS has 3 stages...**




**STAGE #1**

Rear facing in a CSRS with a harness



**STAGE #2**

Forward facing in a CSRS with a harness



**STAGE #3**

Riding on a school bus seat, with a seat belt whenever available.

---

---

---

---

---

---

---

---

### Baseline Occupant Protection

#### COMPARTMENTALIZATION

Compartmentalization designed for elementary through high school  
Never Intended For Pre-K Student Protection!

---

---

---

---

---

---

---

### Child Safety Restraint System (CSRS)

#### CSRS

Devices used on school buses to provide child protection beyond basic compartmentalization, other than lap-only or lap-shoulder belts. These must meet the requirements specified in FMVSS 213.

---

---

---

---

---

---

---

### Stage 1: Rear Facing CSRS



---

---

---

---

---

---

---

### Stage 2: Forward-Facing CSRS



---

---

---

---

---

---

---

---

### Add-On CSRS Just for Buses

Attach Using a "Cam Wrap"



---

---

---

---

---

---

---

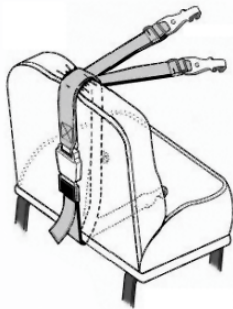
---

### Cam Wraps

Webbing Wrapped Around Bus Seating That's Used to Secure a CSRS.

#### IMPORTANT LIMITATIONS

NHTSA requires that when a child is secured using a cam wrap attached restraint, the seat behind must be unoccupied or used by a restrained passenger



Shown: "Portable Seat Mount" for Vests

---

---

---

---

---


---

---

---

**State of CPS in School Buses**

- More schools have pre-k programs
- Head Start & Child Care growing
- Trained staff limited or leaving
- Limited training opportunities




---

---

---




---

---

---

---

---

- First state to require child restraints in **ALL** school buses
- Effective January 1, 2018, every Pre-K in a school bus must be in a child restraint
- Training programs for proper equipment selection and usage needed

---

---

---

---

---

---

---

---



**Pre-K School Transportation**

A Guide for Choosing the Proper Child Restraint.

*safe ride news* SafeGuard 

---

---

---

---

---

---

---

---



---

---

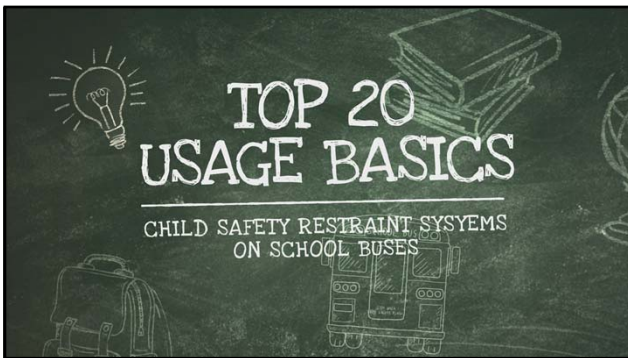
---

---

---

---

---



---

---

---

---

---

---


---

**Request To NASDPTS State Directors for their states:**

**EVERY** state require the use of a CSRS for the transportation of all Pre-K children on school buses

**EVERY** state adopt a minimum standard of training for all responsible for Pre-K transportation

**Material available to all at no cost**



SCHOOL BUSES Protection for All

---

---

---

---

---

---

---


**Want to Learn More**

**8-Hour training course:**  
CPS Restraint Systems on School Buses  
National Training (NHTSA)

**School Bus Safety Handbook**  
(Safe Ride News, [www.saferidenews.com](http://www.saferidenews.com))

**National Child Passenger Safety Board**  
[www.cpsboard.org](http://www.cpsboard.org)

**NHTSA Online training videos (6)**  
[www.nhtsa.gov](http://www.nhtsa.gov)




---

---

---

---

---

---

---


---

**What You Can Do**

**Work with your District**

To require the use of a 213 compliant CSRS for every pre-k transported student

To adopt a minimum training standard for all involved with pre-k transportation



SCHOOL BUSES Protection for All

---

---

---

---

---

---

---

---

**What You Can Do**

**YOU CAN MAKE A DIFFERENCE!**



SCHOOL BUSES Protection for All

---

---

---

---

---

---

---

---



---

---

---

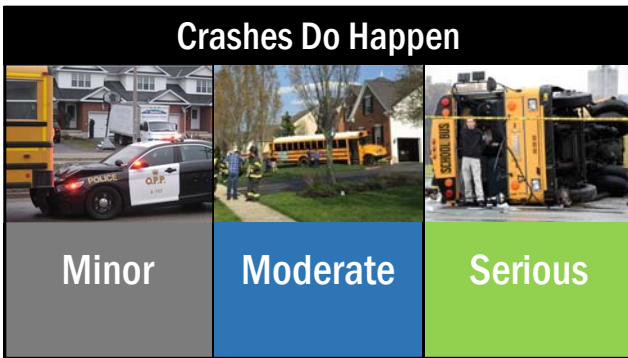
---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



How do we protect our traveling student passengers?



Protection of Children in School Buses

---

---

---

---

---

---

---

---



Current protection



---

---

---

---

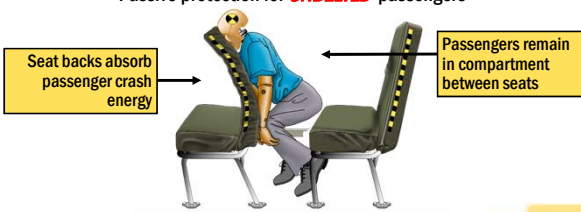
---

---

---

---


**Compartmentalization 1977**  
Passive protection for **UNBELTED** passengers



Seat backs absorb passenger crash energy

Passengers remain in compartment between seats

Current protection



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---

**17,000**  
Injuries Each Year

Lacerations  
Chipped teeth  
Broken noses  
Concussions



Current protection

---

---

---

---


---

---

---

---

**Bus Crash Demonstration** | August 8, 2013



• 100 guests  
• 1998 Type C school bus  
• 25 mph frontal crash

**Objectives:**

1. Compare belted and unbelted passengers.
2. Study motions of out of position passengers.
3. Provide school transportation leaders with insights to seat belt issue.

CAPE

---

---

---

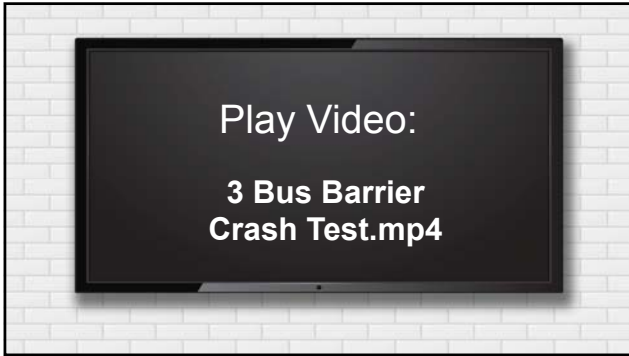
---

---

---

---

---



---

---

---

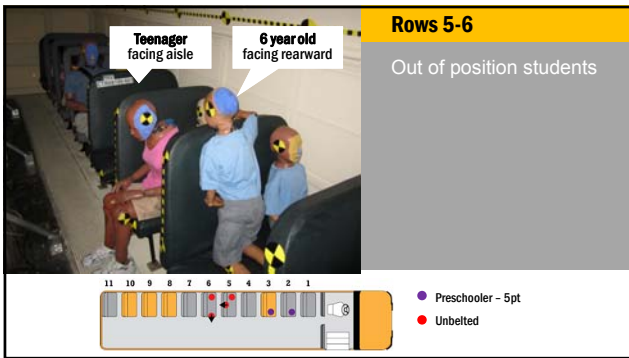
---

---

---

---

---



---

---

---

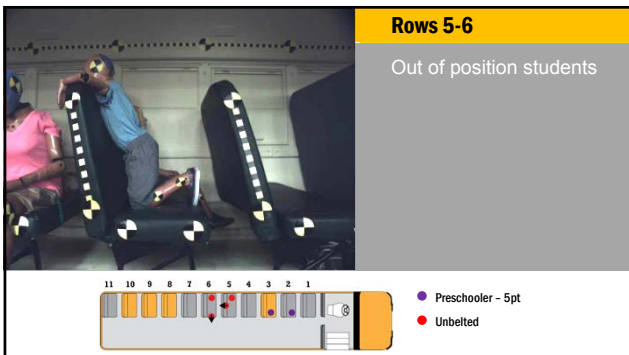
---

---

---

---

---



---

---

---

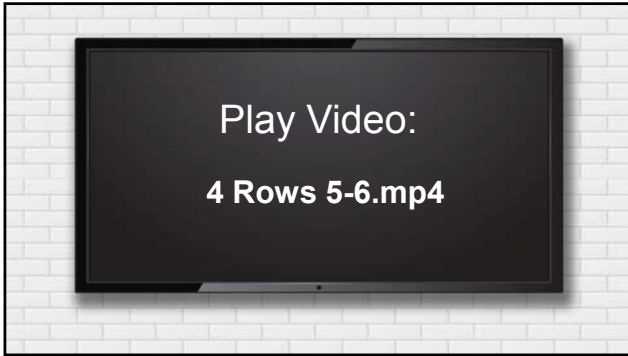
---

---

---

---

---



---

---

---

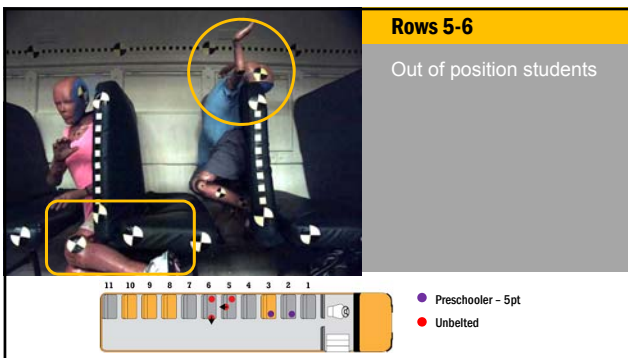
---

---

---

---

---



---

---

---

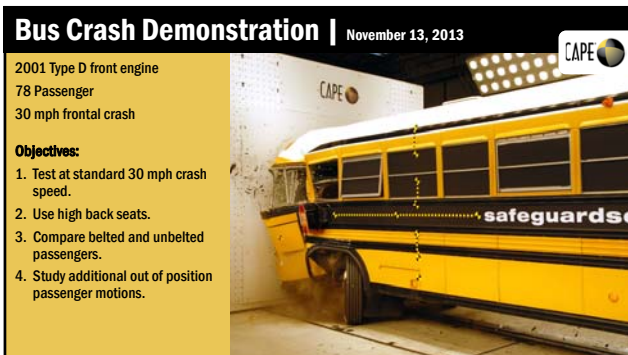
---

---

---

---

---



---

---

---

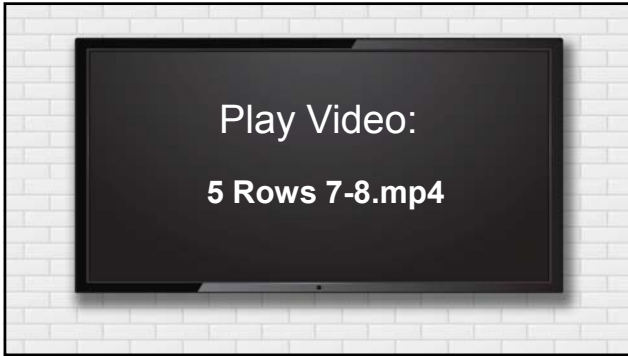
---

---

---

---

---



---

---

---

---

---

---

---

**Row 7-8**

Out of position

Row 7  
Teenager  
Half on/half off seat  
10 year old unbelted

Row 8  
Adult  
Standing and leaning over seat

● Unbelted  
● Lap-Shoulder Belt

---

---

---

---

---

---

---

**Row 7-8**

Out of position

Row 7  
Teenager  
Half on/half off seat  
10 year old unbelted

Row 8  
Adult  
Standing and leaning over seat

● Unbelted  
● Lap-Shoulder Belt

---

---

---

---

---

---

---

**Row 11-12**

Row 11  
Adult + 6 Year Old  
Belted

Row 12  
Adult + 6 Year Old  
Unbelted

13 12 11 10 9 8 7 6 5 4 3 2 1

● Unbelted  
● Lap-Shoulder Belt

---

---

---

---

---

---

---

---

Play Video:  
6 Rows 11-12.mp4

---

---

---

---

---

---

---

---

**Row 11-12**

Row 11  
Adult + 6 Year Old  
Belted

Row 12  
Adult + 6 Year Old  
Unbelted

13 12 11 10 9 8 7 6 5 4 3 2 1

● Unbelted  
● Lap-Shoulder Belt

---

---

---

---

---

---

---

---

### Rollover School Bus Crashes



SCHOOL BUSES Protection for All



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---

Play Video:

7 Rollover Test.mp4

---

---

---

---

---

---

---

---



---

---

---

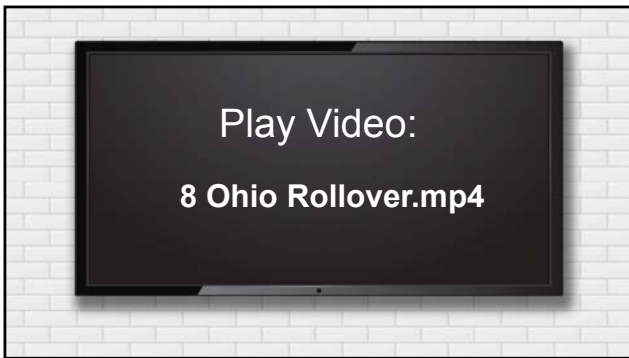
---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



<b>GUESTS</b>	NTSB	School Transportation
	State Legislatures	First Responders
	School Boards	ABC News



**August 22, 2017 Side Impact Crash Demonstration**

---

---

---

---

---

---

---

---

	
<b>Class 8 Truck</b> 33,000 lbs. 34 mph	<b>2001 Thomas FS</b> Type C Bus 66 passenger

---

---

---



---

---

---

---

---

	
<b>4 Unbelted</b>	<b>6 L/S Belted</b>

---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

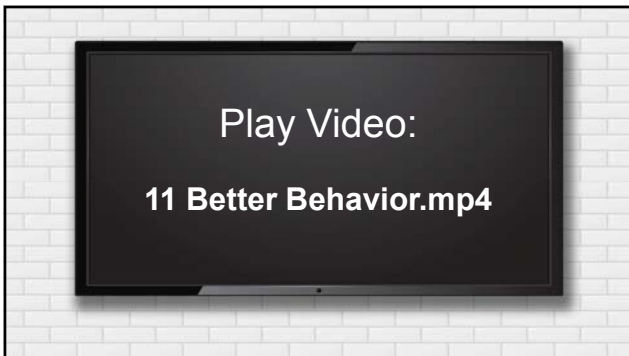
---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---


---

---

Washington DC | November 2015

**NHTSA**  
NATIONAL HIGHWAY TRAFFIC  
SAFETY ADMINISTRATION

**HISTORICAL ANNOUNCEMENT**



---

---

---

---

---


---

---

---

Washington DC | November 2015

**NHTSA:**  
"School buses should  
have seat belts.  
PERIOD."



Mark Rosekind  
NHTSA Administrator  
11-8-2015

**NHTSA**  
NATIONAL HIGHWAY TRAFFIC  
SAFETY ADMINISTRATION

---

---

---

---

---

---


---

---

Washington DC | May 2018

**NTSB**  
An Independent  
United States Federal  
Government Agency

**HISTORICAL ANNOUNCEMENT - 2**



---

---

---

---

---

---

---

---




---

---

---

---

---

---

---

---




---

---

---

---

---

---

---

---

**PENNSYLVANIA**

- 2019 PA legislature introduced HB 799 for lap shoulder belt installation on school buses transporting students age 12 and younger. Bill in House Transportation Committee. Minimal chance for success since bill implies retrofit.
- Little known district activity ordering l-s belts across state
- No state response to June 2018 NTSB recommendation to Governor Wolf
- School Bus crashes occurring and will occur in PA resulting in unnecessary injuries.

---

---

---

---

---

---

---

---

**You**

**?**

**What has been your response to Administrator Rosekind's and Chairman Sumwalt's call for lap-shoulder belts on school buses?**

---

---

---

---

---

---

---

---

**If this were YOUR child in a crash**

Compartmentalization	Lap-Shoulder Belts
	

**Which protection would YOU choose?**

TGBCG

---

---

---

---

---

---

---

---

**School Buses Protection for All**

**MORE INFO**

[safeguardseat.com](http://safeguardseat.com)

[safeguard4kids.com](http://safeguard4kids.com)

Charlie Vits  
[cvits@imminet.com](mailto:cvits@imminet.com)





---

---

---

---

---

---

---

---