



NATIONAL SAFETY COUNCIL

Position/Policy Statement

Child Passenger Restraints

This policy position will replace #26 Infant and Child Restraint Systems for Automobiles, #41 Protecting Pupil Passengers in School Buses

Seat belts save lives and reduce serious injuries by half.¹ In 2014, the latest year for which crash data is available, 32,675 people were killed in motor vehicle crashes. Of these fatalities, nearly half (49%) were unrestrained.

The National Safety Council (NSC) believes that updating its child passenger restraint policy position based on improved evidence is necessary and that a broader policy position should reflect the fact that passengers, especially children, are safest in modes of transportation when they are properly restrained. Proper multi-modal restraint for passengers of all ages, sizes and abilities is required for the safest ride and ensuring proper use of child restraint device/s (CRD) and/or seat belts can prevent or mitigate child passenger injuries and deaths in crashes.

The National Safety Council strongly supports the mandatory use of properly secured and positioned, dynamically-tested child restraint devices in motor vehicles and in airplanes for all children who do not correctly fit in seat belts. NSC also supports the incorporation of lap and shoulder belts in to school buses to ensure the safest ride to school for children. Furthermore, NSC supports efforts to raise awareness about the need for parents and caregivers to properly secure their children in a CRD during every ride, regardless of the distance being traveled. Likewise, all vehicle occupants, regardless of age,¹ should be properly secured with seat belts during every ride, whether in front or rear seating positions. When properly used, lap and shoulder belts provide more protection than lap belts alone.

In general, the National Safety Council supports:

- All children riding in a dynamically-tested CRD² appropriate for their weight, height, age and developmental level until each child properly fits in a seat belt.³ Proper seat belt fit is typically achieved between the ages of 8 – 12 years of age.⁴

¹ Even one unrestrained occupant in a vehicle can injure other occupants in the vehicle during a crash.

² This document will use the term "child restraint device/s" (CRD) in context to reference car seats, booster seats, vests, car beds and seat belts in regards to use for children. CRD are intended for use during transportation only. Parents and caregivers are strongly encouraged to move an infant or young child out of their car seat once

- Rear-facing child passenger safety legislation for children at least through 2 years of age or older.
- Children riding in a CRD with 5-point harness up to the highest upper weight or height limits of the CRD being used, and *at least* through 5 years of age.
- Children riding in a belt-positioning booster (BPB) seat until the seat belt fits correctly, and *at least* through 8 years of age, 4 feet 9 inches tall and 80 pounds.⁵
- Children and adults staying in proper position for the entire ride.⁶
- Shoulder belts being in the proper location on all individuals regardless of age. This means across the chest and over the shoulder (not touching the neck and not under an arm or behind the back).
- Children under the age of 13 riding in the back seat. If a child must ride in the front seat, the vehicle seat should be moved as far from the dashboard as possible.
- Air bags, including side air bags, remaining without obstruction from passengers leaning or resting against the areas where they are stored.
- Adults modeling safe restraint behavior for children.ⁱⁱ
- Providing for unique considerations for child passenger safety in diverse vehicles such as ambulance, police vehicles, recreational vehicles, school buses, airplanes and other modes of transportation when standard CRD installation instructions might not be applicable.
- Specific CRDs for children with special needs to ensure safe rides.
- Primary enforcement of seat belt (including child passenger safety) legislation for all seating positions in a belt-equipped vehicle.
- Children under 2 years of age to be properly secured in their own seat on airplanes using a Federal Aviation Administration (FAA) approved CRD.
- The installation in new school buses and proper use of passenger lap and shoulder belts on school buses. Proper passenger restraint use on school buses for children with special needs.

Background

Motor vehicle crashes are a leading cause of death for children in the United States.^{7,8} In 2014, more than 1,252 children in the U.S., 15 years old and younger, died as occupants in motor

transportation has ended, even when the child is sleeping. It is also recommended to not add any items to a CRD that has not been approved by the manufacturer. For more information, caregivers and others can contact Secretariat@cpsboard.org.

³ For more information about fitting a child correctly in a seat belt, visit:

<http://www.safercar.gov/parents/SeatBelts/Beyond-Booster-Seats.htm>. Seat belt fit should be assessed in each vehicle a child rides in.

⁴ Many standards for child passenger safety reference specific weight, height and age requirements. This is typically done for the purpose of enforcement and may not reflect what is safest for children.

⁵ This recommendation applies to children versus short-stature adults due to the change in hip bone shape as people age. Adult hips (iliac crest) are shaped to help lap belts remain low on upper thighs versus on abdomen whereas children's hips allow for belt sliding on to the abdomen.

⁶ Proper position is sitting upright with back against the seat and feet on the floor.

⁷ There are many factors related to injury prevention that must be considered before, during and after a crash to prevent or minimize injuries from occurring. A few examples include road conditions, CRD and seat belt use, and emergency response time after a crash. A driver can do everything correctly when driving and still be involved in a crash.

Understanding crash dynamics also aids in understanding the value of occupant protection and how it helps individuals survive a crash. Every vehicle collision actually includes three different types of crashes. These are:

- The vehicle crash
- The human crash
- The internal crash

vehicle crashes, and tens of thousands more were injured.ⁱⁱⁱ More than 618,000 children ages 0-12 years old rode in vehicles during a 1 year period without the use of a child restraint device at least some of the time.^{iv} Research shows that use of CRDs reduce the risk of death in passenger cars by 71% for infants, and by 54% for toddlers (ages 1 to 4 years old)^v and use of booster seats reduce the risk for serious injury by 45% for children ages 4 to 8 years old.^{vi} BPB have also been found to be 59% more effective in reducing risk of injury when compared with seat belts alone.

CRD harnesses and belts spread out crash forces over the hard parts of the body (hips and shoulders) rather than soft parts (neck and stomach), which reduces the risk of injuries and fatalities as crash forces are not concentrated on one particular point of contact. CRD also keep occupants in vehicles, help slow or “ride down”⁹ crash forces, and protect the head, brain and spinal cord. In the event of a crash, a child’s chance of survival increases dramatically when appropriately restrained. The best way to protect children in vehicles is to properly secure them in the right CRD during every ride. When used correctly, a CRD can reduce the risk of hospitalization, injury and death for children.

From 1975 through 2010, an estimated 9,611 lives were saved by car seats, booster seats or seat belts for children under 5 years old in passenger vehicles¹⁰. While the use of child restraint devices has increased over time, reaching a high point in 2011 and 2012 of 91%,^{vii} 9% of drivers were observed not using a CRD to protect their child.^{viii} Also, a 2013 survey of 1,000 parents found that one in four parents do not restrain their children on every ride. Despite the fact that 60% of crashes involving children occur 10 minutes or less from home, a high percentage of parents surveyed noted they might not use CRD on short rides.^{ix} In addition, car seat, booster seat, and seat belt use tends to decrease as children get older even if a child should continue to use a CRD due to height, weight or other issues.

All states have some version of required CRD use laws, and these state laws have a positive impact on their use. Caregivers often look to laws for guidance on safe transportation, and there is evidence that child passenger safety (CPS) laws are effective in increasing CRD use. For example, New York has had a booster seat law since 2005, and data show an increase in CRD usage and a decrease in injury and fatality rates since legislation was enacted.

Improper use of or not using CRD can result in injuries and deaths. In addition, child restraint devices and their use should comply with Federal Motor Vehicle Safety Standards (FMVSS).^x With all CRD, always follow the manufacturer’s instructions for correct use and installation of the particular CRD being used.¹¹

The Insurance Institute for Highway Safety (IIHS) produced a [video](#) to assist with understanding these three stages of a crash.

⁸ School buses and airplanes are historically safe modes of travel for passengers. In 2014, 7 children died on school buses and no children died in commercial aviation accidents. No data is available about general aviation.

⁹ Allowing the body to “ride down” crash forces means the belt and harness webbing stretch and seat cushions compress to let occupants slow down more gradually than the vehicle. The occupant moves with the seat. Also defined as the length of time when the forces are felt by the occupant during a crash.

¹⁰ A passenger vehicle is a motor vehicle weighing less than 10,000 pounds and includes passenger cars and light trucks

¹¹ For more information about types of child restraint devices visit: <http://www.safercar.gov/parents/CarSeats/CarSeat-Types.htm>.

Stages of Child Passenger Safety

Children's bodies change as they grow, and CRD are made to support a child's growth to maximize protection for a child during a crash. While many state laws are based on required use for certain ages of children to assist ease of law enforcement, best practice for CPS is based on a child's weight, height and developmental level.

Proper installation is determined per the specific CRD and vehicle being used.^{xi} NSC encourages parents and caregivers to consult a nationally certified child passenger safety technician (CPST) for education and support to correctly install CRD in their vehicle.^{xii}

Rear-facing (RF) CRD - Children should remain in RF CRD at least through 2 years of age as children's head to body weight ratio continues to develop.¹² Children in the second year of life are five times less likely to die or be seriously injured in a crash if restrained rear-facing compared to forward-facing.

RF CRD are engineered to distribute the forces of a crash across the entire head and body of an infant and young child. The harnesses should be secured snugly to keep the child from sliding up the back of the CRD and from being ejected out of the CRD during a crash. The shell of the CRD itself absorbs the crash forces.

There are two types of RF CRD:

1. Rear-facing-only car seats (sometimes referenced as "infant car seats").
2. Rear-facing convertible car seats which can be installed RF or forward-facing based on a child's age,¹³ weight and height.

In general, once a child reaches either the upper weight or height limit of a CRD, the child must transition to a different CRD with higher weight and height limits.¹⁴ If a child reaches the maximum allowable weight or height for a seat but is not yet 2 years old, a CRD that does allow for the child's size should be obtained and remain rear-facing as long as possible.

Forward-Facing (FF) CRD - After a child is 2 years old and reaches the maximum weight or height limit of a RF CRD, a forward-facing CRD with a 5-point harness is recommended.

There are five types of FF CRD:

1. Convertible car seat which can be installed for RF or FF use based on a child's weight and height.
2. Combination CRD which can be used as a FF car seat with a harness until weight or height limits specified by the manufacturer are reached. Then, the same CRD can be used as a booster seat without the harness to specified weight and height limits.
3. Forward-facing only car seat which has a 5-point harness and can only be used in FF position. This seat cannot be used as a booster seat.

¹² This recommendation pertains to typical development scenarios. Specific considerations should be utilized as needed for children with special needs.

¹³ Children under one year of age should ALWAYS ride rear-facing regardless of weight and height: [video](#)

¹⁴ NSC does not support use of CRD purchased at garage sales or consignment shops due to unknown crash histories. Only use CRD when there is confirmation that the CRD has not been in a crash, is not expired, and has all original parts intact, including labels.

4. Large medical seats or vests which may help children with behavioral issues, weak muscles, excess weight, or other situations when a conventional CRD cannot be used.
5. Integrated seats which are CRD built in to a vehicle.

Belt-Positioning Booster (BPB) Seats - After a child without special needs reaches the maximum weight or height limit of a FF CRD, use of a BPB is recommended until the child properly fits in the seat belt being used.

There are two types of BPB:

1. High-back booster seat which is recommended in vehicles that have a low seat back or do not have a head restraint in order to provide head, neck and back support for a child.
2. Backless booster seat which is recommended when the vehicle's seat back or built-in head restraint provide head, neck and back support.

BPB raise and position a child so the vehicle's lap and shoulder belt fit properly over the stronger parts of a child's body. This proper positioning reduces the risk of injury caused by lap belts to a child's abdomen and keeps the shoulder belt in proper position to provide upper body protection during a crash. BPB should only be used with lap and shoulder seat belts. Never use a BPB with lap belts only, including on airplanes. If a vehicle seating position has a lap belt only, the child in a BPB must move to a seating position with a lap and shoulder belt, or be restrained in a CRD with upper body protection (harness or vest) instead of a booster seat.

Many BPB are not restrained in the vehicle but rather, are held in place when in use by the child's weight and the vehicle's lap and shoulder seat belt. BPB in a vehicle should be secured when not in use to avoid becoming a projectile during a crash and causing injury to other vehicle occupants.

Seat Belts (SB) - After a child reaches the maximum weight or height limit of a BPB and properly fits in a seat belt, then they are ready to transition to a seat belt.

Seat belts can be used when a child meets all of the following criteria:

- Tall enough to sit without slouching
- Able to keep his or her back against the vehicle seat
- Able to keep his or her knees naturally bent over the edge of the vehicle seat
- Able to keep his or her feet flat on the floor¹⁵
- Lie snugly across the upper thighs, not on the child's stomach, and the shoulder belt should lie snug across the child's chest and over the shoulder, not across the child's neck or face, under the arm or behind the back.

Special Needs

A conventional CRD is one that is readily available to the public, and these CRD can often provide safe transportation for children with special needs. However, some children with special

¹⁵ The ability for children to be able to rest with both feet flat on the floor relates to preventing children from "submarining", which can lead to increased internal injuries in the event of a crash. Submarining consists of the lap belt sliding up on to the abdomen and the effects of resulting forces in a crash. See <http://www-nrd.nhtsa.dot.gov/pdf/esv/esv20/07-0481-O.pdf> or <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4776614/> for more information.

needs may require additional consideration when ensuring proper passenger restraint. Conditions resulting in special transportation needs can be chronic or acute. In general, special consideration is required for a child with:

- A low birth weight or born prematurely
- Cerebral Palsy
- Breathing problems
- A cast
- Behavior issues

The criteria for selecting the best CRD for a child with special needs remain the same. First, assess if a conventional CRD will meet the child's needs. Appropriate CRD selection should be made in collaboration with the child's medical team, and whenever possible, with a nationally certified CPST who has additional training in special needs child passenger safety.

When a conventional CRD will not accommodate a child with special needs, a special CRD may need to be ordered from a medical supply company.¹⁶ These seats may have higher weight and height limits for the internal harness or other special features to help correctly and safely position the child. Caregivers should never transport a child with special healthcare or medical needs on a reclined vehicle seat. When medically required, specialty vests allow older children to ride lying flat.

Behavior issues can lead to special transportation needs in order to ensure the safe transport of everyone in the vehicle. Some children with challenging behavior may benefit from a CRD with higher weight and height limits, a non-conventional CRD or a specialty vest.

Child Restraints on Airplanes

Proper passenger restraint is also important in other modes of transportation. Aviation crashes, often thought of as catastrophic and having no survivors, are survivable. Between 1983 to 2000, 95% of passengers involved in air carrier crashes survived.^{xiii}

The safety briefing before commercial aviation flights clearly instructs passengers how to use their seatbelt and asks them to remain buckled during flight because of potential turbulence. However, this requirement does not apply to the smallest and most vulnerable passengers.

Current Federal Aviation Administration (FAA) regulations state:

- (a) No person may operate an airplane unless there are available during the takeoff, en route flight, and landing—
 - (1) An approved seat or berth for each person on board the airplane who has reached his second birthday;^{xiv}

The physics of a crash do not allow adults to safely hold children during a crash or severe turbulence, and the FAA even states, "Your arms aren't capable of holding your child securely, especially during unexpected turbulence."^{xv} During a 2010 National Transportation Safety Board (NTSB) forum on child passenger safety, an [FAA video](#) showed the crash test results of lap-held children, lap-belted children, and children in appropriate CRD. As seen in the video, a lap-held child cushions the adult's forward force in what is most certainly a fatal impact for the child.

¹⁶ Special needs CRD are typically prescribed by a therapist and approved by a physician.

FAA *recommends* that children under two years old be appropriately restrained stating, “The Federal Aviation Administration strongly urges you to secure your child in a [child restraint system (CRS), CRD] or device for the duration of your flight. It's the smart and right thing to do so that everyone in your family arrives safely at your destination.”^{xvi} However, in 2005, the FAA announced it would not *require* CRDs for children under 2 on planes. Their main reason for the decision was “diversion” or stating that people would drive instead of buying another plane ticket and driving is statistically more dangerous.^{xvii}

The NTSB conducted an analysis of the diversion argument and found that during 1981-2002, when air travel decreased (1981 due to air traffic controller strike, 1991 due to Persian Gulf War, and 2001 due to September 11 terrorist attacks), there was no corresponding increase in roadway fatalities.^{xviii}

The NTSB continued by evaluating the rate of death on the highways for passengers under 5 years old for 2000-2002. During that time, the percentage of the population under 5 increased and road travel increased, but the total number of fatalities and injuries to children under 5 decreased from 2.82 deaths per 100,000 children in 2000 to 2.41 deaths per 100,000 children in 2002.^{xix}

However, the NTSB states that given the fact commercial air travel is so safe, requiring children under two years old to have their own seat will not meet a required cost-benefit analysis. Looking only at the number of injuries and deaths does not reflect the fact that every lap-held child is not protected in the event of flight hazards.

Basing the evaluation of relative worth of a requirement for appropriate child restraints solely on the number of historic injuries and deaths overlooks the fact that every lap-held child traveler lacks adequate protection. Both laboratory testing and real-world accidents have proven that under high load force events when restraint is most important, arm strength is not sufficient to protect even a small child... Passenger restraints are part of an invaluable last line of defense because they help protect occupants in the event of any failure or unexpected hazard encountered.^{xx}

As with vehicles, children traveling on planes, including general aviation aircraft, require appropriate CRD based on their size. Upper torso restraints¹⁷ that can be integrated in to the lap belt are available for children above 2 years old, and they should be used to ensure proper fit in an airline seat when a car seat is not used.

FAA regulations do allow a parent or guardian accompanying a child under 2 years old on a flight to use an FAA approved restraint system, and many standard CRD are also approved for use in aviation.^{xxi} Despite these regulations, parents are often stopped from using approved CRD on airplanes typically because the flight crew is not aware that FAA approved CRD can be used in aviation.¹⁸

The same regulations apply to non-commercial flights as well.

¹⁷ Upper torso restraints mimic the five point harness of car seats.

¹⁸ The FAA Modernization and Reform Act of 2012 (P.L. 112-95) section 412 requires that airlines post the maximum CRS dimensions that can be used on a plane so that parents can determine if their CRD will fit appropriately. This section was enacted after a family was refused service because they were informed their CRD would not fit.

The NTSB report on a 2009 private plane crash in Butte, Montana in which all passengers died, found that the flight had six adults and seven children on board and only nine available seats. The NTSB concluded that some of the passengers were not restrained or were sharing restraints at the time of the crash.^{xxii} Passengers are much safer when using a restraint that is appropriately fitted to the size of the person, and used by one person at a time.

FAA regulations allow for more than one person to use one seatbelt, but crashworthiness standards have been updated with testing that requires shoulder harnesses to remain on the test dummy's shoulder and for the belt to remain on the pelvis.^{xxiii} There is a discrepancy between these two regulations, and the seating regulation should reflect the data in the crashworthiness regulation.

It is clear that people, no matter what the age, are safest in aviation travel when they occupy their own seat and seat belt, restrained by a mechanism that best fits their size and weight. For children, including those younger than 2 years old, this means an FAA-approved CRD to safely secure the child during turbulence or in case of a crash landing.

Child Restraints in School Buses

Every weekday during the school year, school transportation systems in the United States operate approximately 440,000 school buses to provide safe, reliable transportation for more than 24 million school-aged children. This sizeable transportation system is considered the largest mass transit program in the nation, with more than 55 million student trips per day, equating to approximately 10 billion student trips per year.^{xxiv}

School bus transportation is considered the safest form of ground transportation.^{xxv} This is attributed to buses being very conspicuous, larger and heavier than most other vehicles and a system approach to ensure proper driver selection and training. Crash forces are distributed throughout the vehicle differently and are also experienced by occupants differently. In addition, passenger seating and crash protection, known as "compartmentalization,"¹⁹ has been required on school buses since 1977. However, in order for compartmentalization to provide maximum protection, occupants must be seated correctly in vehicle seats, meaning upright, fully in the bus seat and facing forward.

From 2007 through 2014, 54 school bus²⁰ passengers died in crashes.^{xxvi} According to the National Research Council Committee on School Transportation Safety fatalities per 100 million miles traveled by school age children during normal school travel hours is 0. 1 for school buses compared to 0.3 for passenger vehicles driven by adults, 2.4 when the passenger vehicle is driven by a teen and .7 for all modes of transportation, including vehicles, bicycles and walking.^{xxvii} Most school buses operating today only include a seat belt for the driver. Seat belts are not provided for the passengers. However, since 2002, lap and shoulder belts have been made available on school buses, and some school systems use buses with lap and shoulder belts.²¹ In fact, 6 states including California, Florida, Louisiana, New Jersey, New York and

¹⁹ Compartmentalization provides a protective envelope of strong, closely spaced seats that have energy-absorbing seat backs. Requirements are found in FMVSS No. 222.

²⁰ School buses are defined to be any vehicle regardless of body design used as a school bus.

²¹ These are used for children 4 years old and older and used to secure conventional CRDs for younger children. Also, small school buses (weighing less than 10,000 pounds) are required to have seat belts. "The AAP recommends that all guidelines for safe transportation of all preschool and school-aged children be applied during all school and school related trips regardless of the hours of operation." (*PEDIATRICS* Volume 120, Number 1, July 2007)

Texas require school buses to be equipped with passenger seat belts. California is the only state that requires three-point seat belts (meaning lap and shoulder belts) in their new buses.²²

NHTSA stated its support for three-point seat belts on buses in 2015, and the National Safety Council joined in support of this position.^{xxviii} The new NHTSA position changed the context of the long-standing debate regarding seat belts on buses, shifting the focus from the justification of a Federal Motor Vehicle Safety Standard to the need to do everything possible to protect children during their trip to and from school.^{xxix} Before making this statement, in July 2015, NHTSA held a meeting about school bus safety that discussed restraints on buses.^{xxx}

NSC also supports the NTSB recommendation made in 2013 for school transportation associations to educate their members that lap and shoulder belts provide the highest level of protection for school bus passengers and to advise states or school districts to consider this added safety benefit when purchasing seat belt-equipped school buses. In 2012, a side impact crash involving a school bus and a commercial motor vehicle in Chesterfield, NJ resulted in the death of one student who was thrown sideways as a result of crash forces and serious injuries to other students. Lap belts were available on the bus but not many of them were used by the students. NTSB produced a [video](#) of kinematics of crash forces in such an event and a [video](#) of the crash forces to students if lap and shoulder belts had been available and used. The difference in safety to the children is clear.

For many years, the NTSB has also recommended a more robust compartmentalization in school buses. In the Chesterfield, NJ investigation, NTSB states, “adding protection to the sidewalls, sidewall components, seat frames and other currently exempt interior components can reduce injuries to unbelted or lap-belted school bus passengers.”^{xxxi} In addition to lap and shoulder belts, the National Safety Council supports more testing on how further compartmentalization in school buses can improve safety.

Special Needs School Transportation

Some school children have Individual Education Plans (IEP), which are developed to support the special needs of children between the ages of 3 and 21 years old. The transportation needs of a child should be included in the IEP. In order to provide the best fit for each child, a team of professionals, including school bus drivers and other transportation personnel, should be involved in designing these individual plans.^{xxxii} Also, different “child safety restraint systems” (CSRS is the term used in pupil transportation to reference CRD) will work better than others in various circumstances when a child has a shunt, cerebral palsy, medical devices, or behavioral characteristics that need to be considered during transportation.

Daily checks of CRD fit is the responsibility of transportation staff even when parents or school staff are responsible for putting on and taking off a safety vest.²³ School staff and/or families must be appropriately trained to put on and take off a safety vest. Following strategies that respect the child’s personal space builds trust and rapport between families, students and transportation and school staff.

There are special steps that need to be taken for transporting children with special needs, and school bus drivers should have special training specific to transporting children with special

²² In some of these states funding to purchase the belt-equipped buses has not been appropriated. Some school districts and local jurisdictions in other States have chosen to purchase or use belt-equipped school buses.

²³ A safety vest is a CSRS designed for children weighing 50 pounds or less to restrain, seat or position a child.

needs. NSC recommends that school bus mechanics also be trained in child passenger safety due to special circumstances that may arise to meet the needs of all children being served.^{xxxiii} Some young children with special needs use wheelchairs, and whenever possible, children who use wheelchairs should be transferred to a CRD unless their wheelchair/mobility device has been tested to be compliant with WC19.²⁴ The latest version of WC19 requires a wheelchair-anchored crashworthy harness system for wheelchairs designed for children who weigh less than 50 pounds.

CRD on School Buses

All states require children 4 years old and younger to be secured in a CRD in passenger vehicles. These laws, however, do not extend the requirement to school buses.^{xxxiv} There are several options for children who need a CRD on a school bus:

- Integrated CRD
- Conventional CRD
- Harnesses and vests
- Wheeled transportation devices

Even though a state law may not require a preschool age child to be in a CRD (or CSRS) on a school bus, NHTSA guidelines recommend transport in a properly secured CRD for all preschool age children, which is considered best practice.²⁵ In addition, there are federal regulations specifically for children being transported through Head Start programs.^{xxxv}

When using CRD on a school bus, special consideration should be given to the seating location. A safe seating plan should be documented with copies kept on the school bus and in the administrative office. These duplicate copies are especially important in the event of a substitute driver. Route modifications and emergency evacuation plans should also be considered when designing seating plans.

²⁴ WC19 is a voluntary RESNA (Rehabilitation Engineering and Assistive Technology Society of North America) standard for wheelchair crashworthiness. It includes required crash test and associated performance criteria for when wheelchairs will be used as a seat in motor vehicles.

²⁵ For more information visit: <http://www.nhtsa.gov/School-Buses>.

This position statement reflects the opinions of the National Safety Council but not necessarily those of each member organization.

Adopted by the National Safety Council, July 2016

ⁱ <http://www.cdc.gov/motorvehiclesafety/seatbelts/facts.html>.

ⁱⁱ Information throughout this position statement references the *National Child Passenger Safety Technician Certification Training Program*; Content used with permission (NHTSA, March 2014).

ⁱⁱⁱ Fatality Analysis Reporting System.

^{iv} According to the Centers for Disease Control and Prevention (CDC); taken from reference ii.

^v Ibid.

^{vi} American Academy of Pediatrics, State Advocacy FOCUS, September 2015.

^{vii} Pickrell, T, Liu, C, Occupant Restraint Use in 2013: Results From the NOPUS Controlled Intersection Study, Mathematical Analysis Division, National Center for Statistics and Analysis National Highway Traffic Safety Administration, January 2015, available at <http://www-nrd.nhtsa.dot.gov/Pubs/812080.pdf>, accessed 11.02.2015

^{viii} Ferguson RW, Green A, Walker L. Buckle Up: Every Ride, Every Time. Washington, DC: Safe Kids Worldwide, September 2013, available at

http://www.safekids.org/sites/default/files/documents/ResearchReports/cps_study_2013_0.pdf, accessed 11.02.2015.

^{ix} Ibid; Children's Hospital of Philadelphia, Partners for Child Passenger Safety, Fact and Trend Report, September 2008.

^x FMVSS 213 provides child restraint performance standards for children. Vehicle and child restraint manufacturers are required to self-certify their products as meeting NHTSA's FMVSS 213. http://www.ecfr.gov/cgi-bin/text-idx?SID=bda9b042bead30a45a0a494f5aa90ca8&mc=true&node=se49.6.571_1213&rgn=div8 (FMVSS 208 and 225 also apply.)

^{xi} Special needs transportation is a subset focus with additional options. For more information visit www.preventinjury.org.

^{xii} Resource to find local CPSTs: <http://cert.safekids.org/>

^{xiii} http://www.nts.gov/safety/safety-recs/RecLetters/sr_a-95-51_diversion_analysis.pdf.

^{xiv} 14 CFR §121.311.

^{xv} http://www.faa.gov/passengers/fly_children/.

^{xvi} Ibid.

^{xvii} http://www.faa.gov/news/press_releases/news_story.cfm?contentKey=1966.

^{xviii} http://www.nts.gov/safety/safety-recs/RecLetters/sr_a-95-51_diversion_analysis.pdf.

^{xix} Ibid.

^{xx} Ibid.

^{xxi} 14 CFR § 121.311(b)(2).

^{xxii} NTSB report AAR-11/05.

^{xxiii} 14 CFR §23.562.

^{xxiv} Wiegand et al. (2010)

^{xxv} Content throughout this section is used with permission from the *Child Passenger Safety Restraint Systems on School Buses National Training*, (NHTSA, September 2015).

^{xxvi} Injury Facts, 2016

^{xxvii} National Research Council Committee on School Transportation Safety (2002). The Relative Risks of School Travel A National Perspective and Guidance for Local Community Risk Assessment, Transportation Research Board Special Report 269

^{xxviii} <http://www.nhtsa.gov/About+NHTSA/Speeches,+Press+Events+&+Testimonies/mr-napt-11082015>.

^{xxix} February 17, 2016 letter from NHTSA to National School Transportation Association

^{xxx} <http://www.nhtsa.gov/nhtsa/symposiums/july2015/index.html>

^{xxxi} <http://www.nts.gov/investigations/AccidentReports/Reports/HAR1301.pdf>

^{xxxii} Child Passenger Safety Restraint Systems on School Buses National Training, 2015

^{xxxiii} Child Passenger Safety Restraint Systems on School Buses National Training, 2015

^{xxxiv} Content used with permission from the *Child Passenger Safety Restraint Systems on School Buses National Training*, (NHTSA, September 2015).

^{xxxv} Head start programs often transport pre-school children. For Head Start Regulations:

<http://cfr.regstoday.com/45cfr1310.aspx>.