# 2017 MONTANA SCHOOL BUS STANDARDS

Updated September 2016

Montana
**Office of Public Instruction**
Denise Juneau, State Superintendent
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***Note:*** *These Standards are in effect for all school buses manufactured on or after January 1, 2017*

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~Donell Rosenthal, State Director of Pupil Transportation

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These dedicated individuals provided a wide range of knowledge, expertise, experience, and support, so that Montana's school buses remain the safest mode for transporting K-12 students to and from school, school activities, functions, and field trips every day. Also thanks to the many vendors, large and small bus contractors, mechanics, manufacturers, school districts, bus drivers, and other transportation personnel.

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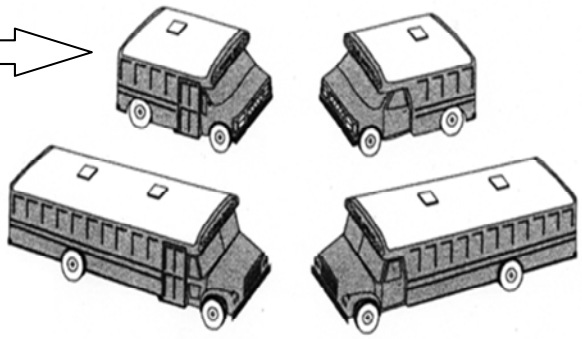
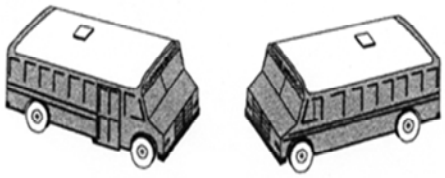
**SCHOOL BUS TYPES**

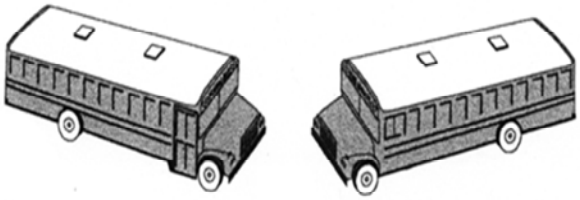
A Type "A" school bus is a van conversion or bus constructed utilizing a cutaway front-section vehicle with a left side driver's door. The entrance door is behind the front wheels. The definition includes two classifications: Type A1, with a Gross Vehicle Weight Rating (GVWR) less than or equal to 10,000 pounds; and Type A2, with a GVWR greater than 10,000 pounds.



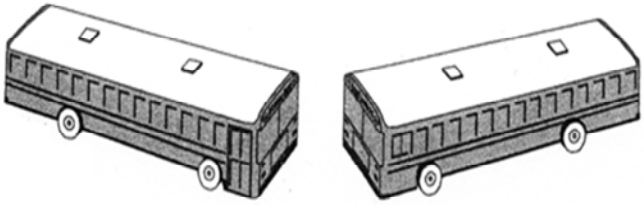
A **Type "B**" school bus is constructed utilizing a stripped chassis. The entrance door is behind the front wheels. This definition includes two classifications: Type B1, with a GVWR less than or equal to 10,000 pounds; and Type B2, with a GVWR greater than 10,000 pounds.



A Type "C" school bus is constructed utilizing a chassis with a hood and front fender assembly. The entrance door is behind the front wheels.



A Type "D" school bus is constructed utilizing a stripped chassis. The entrance door is ahead of the front wheels.



**BUS BODY AND CHASIS SYSTEMS**

**REPLACEMENT PARTS**

The Standards for School Buses in Montana apply to all new school buses to be used in Montana. Although it is recommended that used school buses be re-equipped with parts and supplies that meet the construction standards as they are replaced through periodic maintenance and repair, it is not intended that the requirements of these standards preclude the use of replacement parts or supplies that do not meet these higher standards when said parts and supplies are not readily available for emergency and/or roadside repairs. Further, it is not intended that the use of such regular parts, because of the lack of readily availability, should incur increased liability to the operator or district should damages or risk occur as a result of the use or failure of that part or supply when such district or operator has acted in good faith in making the emergency and/or roadside repair(s). If emergency and/or roadside repairs are made with

regular standard parts, or supplies, it is recommended that said parts or supplies be replaced by parts or supplies which meet or exceed the standards for school buses in Montana within 60 days. ARM 10.64.342.

**AIR CLEANER**

1. The engine intake air cleaner system shall be furnished and properly installed by the chassis manufacturer to meet engine manufacturer's specifications.
2. All diesel engine air filters shall include a latch-type restriction indicator that retains the maximum restriction developed during operation of the engine. The indicator should include a reset control so the indicator can be returned to zero when desired. The indicator should not reduce or replace the timing for regular maintenance.

**AIR CONDITIONING SYSTEMS (OPTIONAL)**

The following specifications are applicable to all types of school buses that may be equipped with air conditioning. This section is divided into two parts. Part A covers performance specifications and Part B covers other requirements applicable to all buses.

**1. Performance Specifications**

a. The installed air conditioning system should cool the interior of the bus down to at least 80 degrees Fahrenheit, measured at a minimum of three points, located four feet above the floor at the longitudinal centerline of the bus. The three points shall be:
b. near the driver's location;
   i. at the midpoint of the body; and
   ii. two feet forward of the emergency door, or, for Type D rear-engine buses, two feet forward of the end of the aisle.
c. The test conditions under which the above performance must be achieved shall consist of:
   i. placing the bus in a room (such as a paint booth) where ambient temperature can be maintained at 100 degrees Fahrenheit;
   ii. heat soaking the bus at 100 degrees Fahrenheit with windows open for at least one hour; and
   iii. closing windows, turning on the air conditioner with the engine running at the chassis manufacturer's recommended low idle speed, and cooling the interior of the bus to 80 degrees Fahrenheit or lower within a maximum of 30 minutes while maintaining 100 degrees Fahrenheit outside temperature.
d. Alternately, and at the user's discretion, this test may be performed under actual summer conditions, which consist of temperatures above 85 degrees Fahrenheit, humidity above 50 percent with normal sun loading of the bus and the engine running at the engine manufacturer's recommended low idle speed. After a minimum of one hour of heat soaking, the system shall be turned on and must provide a minimum 20 degrees temperature drop in the 30-minute time limit.
e. The manufacturer shall provide facilities for the user or user's representative to confirm that a pilot model of each bus design meets the above performance requirements.

**2. Other Requirements**

a. Evaporator cases, lines and ducting (as equipped) shall be designed in such a manner that all condensation is effectively drained to the exterior of the bus below the floor level under all conditions of vehicle movement and without leakage on any interior portion of bus.
b. Any evaporator or ducting system shall be designed and installed so as to be free of injury-prone projections or sharp edges. Any ductwork shall be installed so that exposed edges face the front of the bus and do not present sharp edges.
c. On specially equipped school buses, the evaporator and ducting (if used) shall be placed high enough that they will not obstruct occupant securement shoulder strap upper attachment points. This clearance shall be provided along the entire length of the passenger area on both sides of the bus interior to allow for potential retrofitting of new wheelchair positions and occupant securement devices throughout the bus.
d. The body may be equipped with insulation, including sidewalls, roof, firewall, and rear, inside body bows and plywood or composite floor insulation to aid in heat dissipation and reflection.

e. All glass (windshield, service and emergency doors, side and rear windows) may be equipped with maximum integral tinting allowed by federal, state, or ANSI standards for the respective locations, except that windows rear of the driver's compartment, if tinted shall have approximately 28 percent light transmission.
f. Electrical generating capacity shall be provided to accommodate the additional electrical demands imposed by the air conditioning system.
    i. Roofs may be painted white to aid in heat dissipation.
    ii. Air intake for any evaporator assembly (ies), except for front evaporator of Type A-1, shall be equipped with replaceable air filter(s) accessible without disassembly of evaporator case.

**AISLE**

All emergency doors shall be accessible by a 12 inch minimum aisle. The aisle shall be unobstructed at all times by any type of barrier, seat, wheelchair or tie-down, unless a flip seat is installed and occupied. The track of a track seating system is exempt from this requirement. A flip seat in the unoccupied (up) position shall not obstruct the 12-inch minimum aisle to any side emergency door.

**AXLES**

The front and rear axle and suspension systems shall have Gross Axle Weight Rating (GAWR) at ground commensurate with the respective front and rear weight loads of the bus loaded to the rated passenger capacity.

**BACKUP WARNING ALARM**

An automatic audible alarm shall be installed behind the rear axle and shall comply with the published Backup Alarm Standards (SAE J994B), providing a minimum of 112 dBA for rubber-tired vehicles required on buses ordered after the effective date.

**BRAKES**

1. **General Brakes**
    a. The chassis brake system shall conform to the provisions of FMVSS No. 105, Hydraulic and Electric Brake Systems, No. 106, Brake Hoses, and No. 121, Air Brake Systems as applicable. **All buses shall have either a parking pawl in the transmission or a park brake interlock that requires the service brake to be applied to allow release of the parking brake.**
    b. The anti-lock brake system (ABS, provided in accordance with FMVSS No. 105, or No. 121, shall provide wheel speed sensors for each front wheel and for each wheel on at least one rear axle. The system shall provide anti-lock braking performance for each wheel equipped with sensors. (Four-Channel System)
    c. All brake systems shall be designed to permit visual inspection of brake lining wear without removal of any chassis component(s).
    d. The brake lines, booster-assist lines, and control cables shall be protected from excessive heat, vibration and corrosion and shall be installed in a manner that prevents chafing.
    e. The parking brake system for either air or hydraulic service brake systems may be of a power-assisted design. The power parking brake actuator should be a push-pull device located on the instrument panel within seated reach of a 5th percentile female driver. As an option, the parking brake may be set by placing the automatic transmission shift control mechanism in the "park" position.
    f. The power-operated parking brake system may be interlocked to the engine key switch. Once the parking brake has been set and the ignition switch turned to the "off" position, the parking brake cannot be released until the key switch is turned back to the "on" position.
2. **Hydraulic Brakes**

    **Buses using hydraulic-assist brakes shall meet requirements of FMVSS 105.**
3. **Air Brakes**
    a. The air pressure supply system shall include a desiccant-type air dryer installed according to the manufacturers' recommendations. The air pressure storage tank system may incorporate an automatic drain valve.
    b. The chassis manufacturer should provide a necessary outlet for air-operated systems installed by the body manufacturer. This outlet shall include a pressure protection valve.

c. For air brake systems, a dual air pressure gauge shall be provided in the instrument panel capable of complying with CDL pre-trip inspection requirements.
d. Air brake systems may include a system for anti-compounding of the service brakes and parking brakes.
e. Air brakes shall have both a visible and audible warning device when the air pressure falls below the level where warnings are required under FMVSS No. 121.

**BUMPER**

**1. Front Bumpers**

a. All school buses shall be equipped with a front bumper. The front bumper shall be furnished by the chassis manufacturer as part of the chassis on all types of chassis unless there is a specific arrangement between the chassis manufacturer and body manufacturer that the body manufacturer will furnish the front bumper.
b. The front bumper shall be of pressed steel channel or equivalent material (except Type A buses having a GVWR of 14,500 pounds or less which may be OEM supplied) at least 3/16 inches thick and not less than eight inches wide (high). It shall extend beyond the forward-most part of the body, grille, hood, and fenders and shall extend to the outer edges of the fenders at the bumper's top line.
c. The front bumper, except breakaway bumper ends, shall be of sufficient strength to permit pushing a vehicle of equal gross vehicle weight without permanent distortion to the bumper, chassis, or body.
d. Tow eyes or hooks shall be furnished and attached so as not to project beyond the front bumper. Tow eyes or hooks attached to the frame chassis shall be furnished by the chassis manufacturer or by the body manufacturer. This installation shall be in accordance with the chassis manufacturer's standards. Note: Rear tow eyes are addressed in the Bus Body Specifications under Towing Attachment Points.
e. The bumper shall be designed or reinforced so that it will not deform when the bus is lifted by a chain that is passed under the bumper (or through the bumper if holes are provided for this purpose) and attached to both tow eyes. For the purpose of meeting this standard, the bus shall be empty and positioned on a level, hard surface and both tow eyes shall share the load equally.
f. Bumper Accessories (Grill Guards): Any addition to the front bumper such as grill guards shall not hinder or obstruct (FMVSS requirements) mirrors, signals, lights and/or license plates. The addition shall be painted flat black. The addition shall not be so substantial that it changes the Gross Vehicle Weight Rating (GVWR). The addition of a grill guard is prohibited on Type A buses.

**2. Front Bumpers – Energy Absorbing**

a. On a Type "D" school bus, if the chassis manufacturer does not provide a bumper, it shall be provided by the body manufacturer. The bumper will conform to the standards in the chassis section.
b. An optional energy-absorbing front bumper may be used, providing its design shall incorporate a self-restoring energy-absorbing system of sufficient strength to:
    i. Push another vehicle of similar GVWR without permanent distortion to the bumper, chassis, or body; and
    ii. Withstand repeated impacts without damage to the bumper, chassis, or body according to the following performance standards:
        a. 7.5 mph fixed-barrier impact (FMVSS cart and barrier test)
        b. 4.0 mph corner impact at 30 degrees (Part 581, CFR Title 49)
        c. 20.0 mph into parked passenger car (Type B, C, and D buses of 18,000 lbs. GVWR or more)
    iii. The manufacturers of the energy-absorbing system shall provide evidence from an approved test facility (capable of performing the above FMVSS tests) that their product conforms to the above standard.

**3. Rear Bumpers**

a. The bumper shall be pressed steel channel at least 3/16 inch thick or equivalent strength material (except for Type A buses). Type A-1 buses bumper shall be a minimum of 8 inches wide (high)

and Type A-2, B, C and D buses shall be a minimum of 9.5 inches wide (high). The bumper shall be of sufficient strength to permit being pushed by another vehicle without permanent distortion.

b. The bumper shall be wrapped around back comers of the bus. It shall extend forward at least 12 inches, measured from the rear-most point of the body at the floor line and shall be flush mounted to body side or protected with an end panel.
c. The bumper shall be attached to the chassis frame in such a manner that it may be easily removed. It shall be so braced as to withstand impact from a rear or side impact. It shall be so attached as to discourage hitching of rides.
d. The bumper shall extend at least 1 inch beyond rear-most part of body surface measured at the floor line.
e. The bottom of the rear bumper shall not be more than 30 inches above ground level.

**CEILING**

See Insulation and Interior.

**CERTIFICATION**

1. Body manufacturer shall, upon request, certify to the state agency having pupil transportation jurisdiction that their product meets state standards on items not covered by certification issued under requirements of the National Traffic and Motor Vehicle Safety Act.
2. The chassis manufacturer will, upon request, certify to the state agency having pupil transportation jurisdiction that their product meets minimum standards on items not covered by certification issued under requirements of the National Traffic and Motor Vehicle Safety Act.

**CHAINS/TIRE**

See Wheel-housing.

**COLOR**

1. The chassis, including wheels and front bumper, shall be black. The Bus body, body cowl, hood, and fenders shall be in National School Bus Yellow (NSBY). The flat top surface of the hood may be non-reflective black or NSBY. (See Appendix B.)
2. The body exterior paint trim, bumper and bumper accessories, lamp hoods, rub rails, and emergency door lettering and arrow shall be black. **Rub rails shall be painted full width black.**
3. Optionally the roof of the bus may be painted white extending down to the drip rails on the sides of the body except that front and rear roof caps shall remain NSBY.
4. Multi-Function School Activity Buses (MFSABs) shall be exempt from these requirements (color).

**CONSTRUCTION**

1. Side Intrusion Test: The bus body shall be constructed to withstand an intrusion force equal to the curb weight of the vehicle; but shall not exceed 20,000 pounds, whichever is less. Each vehicle shall be capable of meeting this requirement when tested in accordance with the procedures set forth below.
   a. The complete body structure, or a representative seven-body section mock up with seats installed, shall be load-tested at a location 24 inches plus or minus two inches above the floor line, with a maximum 10 inch diameter cylinder, 48 inches long, mounted in a horizontal plane.
   b. The cylinder shall be placed as close as practical to the mid-point of the tested structure, spanning two internal vertical structural members. The cylinder shall be statically loaded to the required force of curb weight or 20,000 pounds, whichever is less, in a horizontal plane with the load applied from the exterior toward the interior of the test structure. Once the minimum load has been applied, the penetration of the loading cylinder into the passenger compartment shall not exceed a maximum of 10 inches from its original point of contact. There can be no separation of lapped panels or construction joints. Punctures, tears or breaks in the external panels are acceptable but are not permitted on any adjacent interior panel.
   c. Body companies shall certify compliance with this intrusion requirement, including test results, if requested.
2. Construction shall be reasonably dust-proof and watertight.

**CROSSING CONTROL ARM (MANDATORY)**

1. **All school buses manufactured on/after January 1, 2010 shall** be equipped with a crossing control arm mounted on the right side of the front bumper. This arm, when opened, shall extend in a line parallel with the body side and positioned on a line with the right side wheels.
2. All electrical components of the crossing control arm shall be potted and all exterior connections shall be weatherproofed.
3. The crossing control arm shall incorporate system connectors (electrical, vacuum, or air) at the gate and shall be easily removable to allow for towing of the bus.
4. The crossing control arm shall meet or exceed SAE Standard J1133.
5. The crossing control arm shall be constructed of noncorrosive or nonferrous material or treated in accordance with the body sheet metal standard (Page 23)
6. There shall be no sharp edges or projections that could cause hazard or injury to students.
7. The crossing control arm shall extend approximately 70 inches (measured from the bumper at the arm assembly attachment point) from the front bumper when in the extended position. The crossing control arm shall not extend past the end of the bumper when in the stowed position.
8. The crossing control arms shall extend simultaneously with the stop arm(s) by means of the stop arm controls.
9. An automatic recycling interrupt switch should be installed for temporary disabling of the crossing control arm.
10. The assembly shall include a device attached to the bumper near the end of the arm to automatically retain the arm while in the stowed position. That device shall not interfere with normal operations of the crossing control arm.

**DEFROSTERS**

1. Defrosting and defogging equipment shall direct a sufficient flow of heated air onto the windshield, the window to the left of the driver, and the glass in the viewing area directly to the right of the driver to eliminate frost, fog and snow.
2. The defrosting system shall conform to SAE standards J381 and J382.
3. The defroster and defogging system shall be capable of furnishing heated outside ambient air, except the part of the system furnishing additional air to the windshield; entrance door and step well may be of the recirculating air type.
4. Portable heaters shall not be used.

**DOORS**

1. A **primary** entrance door shall be in the driver's control, and designed to afford easy release and provide a positive latching device on manual operating doors to prevent accidental opening. When a hand lever is used, no part shall come together that will shear or crush fingers. Manual door controls shall not require more than 25 pounds of force to operate at any point throughout the range of operation as tested on a 10 percent grade both uphill and downhill.
2. The entrance door shall be located on the right side of the bus, opposite and within direct view of the driver.
   a. The entrance door shall have a minimum horizontal opening of 24 inches and a minimum vertical opening of 68 inches.
   b. The entrance door shall be a split-type, **outward opening** type. (Split-type door includes any sectioned door, which divides and opens inward or outward.) If one section of a split-type door opens inward and the other opens outward, the front section shall open outward.
   ~~c.~~ Lower, as well as, upper door panels shall be of approved safety glass with frost-free glazing. The bottom of each lower glass panel shall not be more than 10 inches from the top surface of the bottom step. The top of each upper glass panel when viewed from the interior shall not be more than three inches below the interior door control cover or header pad.
   d. Vertical closing edges on split-type or folding-type entrance doors shall be equipped with flexible material to protect children's fingers.
   e. There shall be no door to left of driver on Type B, C or D vehicles. All Type A vehicles may be equipped with chassis manufacturer's standard door.
   f. All doors shall be equipped with padding at the top edge of each door opening. Padding shall be at least three inches wide and one inch thick and extend the full width of the door opening.

i. On power-operated entrance doors, the emergency release valve, switch or device to release the service door must be placed above or to the immediate left or right of the service door and clearly labeled. The emergency release valve, switch or device shall work in the absence of power.

**DRIVE SHAFT**

The drive shaft shall be protected by a metal guard or guards around the circumference of the drive shaft to reduce the possibility of whipping through the floor or dropping to the ground if broken.

**ELECTRICAL SYSTEM**

1. Battery
   a. The storage battery shall have minimum cold cranking capacity rating equal to the cranking current required for 30 seconds at 0 degrees Fahrenheit (-17.80 C) and a minimum reserve capacity rating of 120 minutes at 25 amps. Higher capacities may be required depending upon optional equipment and local environmental conditions.
   **b.** The manufacturer shall securely attach the battery on a slide-out or swing-out tray in a closed, vented compartment in the body skirt **or chassis frame** so that the battery is accessible for convenient servicing from the outside. When in the stored position, the tray shall be retained by a securing mechanism capable of holding the tray [with battery(ies)] in position when subjected to a 5g load from any direction. The battery compartment door or cover if separate from the tray shall be hinged at the front. It shall be secured by a positive operated latching system or other type fastener. The door may be an integral part of the battery slide tray. The door or cover must fit tightly to the body, and not present sharp edges or snagging points. **Any chassis frame mounted batteries shall be located in a battery compartment on Type A buses.**
   c. All batteries are to be secured in a sliding tray except that van conversion or cutaway front-section chassis batteries may be secured in accordance with the manufacturer's standard configuration. In these cases, the final location of the battery and the appropriate cable lengths shall be according to the SBMI Design Objectives Booklet, 1990 edition, or as mutually agreed upon by the chassis and body manufacturer. In all cases, however, the battery cable provided with the chassis shall have sufficient length to allow some slack.
   d. Buses may be equipped with a battery shut-off switch. The switch is to be placed in a location not readily accessible to the driver or passengers.
2. Alternator
   a. All Type **A** and Type B buses with a GVWR up to 15,000 lbs GVWR shall have a minimum 130-ampere alternator. **Buses equipped with an electrically powered wheelchair lift and/or air conditioning shall be equipped with the highest rated capacity available from the chassis OEM.**
   b. All buses over 15,000 lbs GVWR shall be equipped with a heavy-duty truck or bus-type alternator, having a minimum output rating of ~~160~~ **200** amperes or higher and shall produce a minimum current output of 50 percent of the rating at engine idle speed.
   c. All other buses than those described in (a.) equipped with an electrically powered wheelchair lift, **and/or** air conditioning, **shall have a minimum alternator output of 240 amps and** may be equipped with a device that monitors the electrical system voltage and advances the engine idle speed when the voltage drops to, or below, a pre-set level.
   d. A belt alternator drive shall be capable of handling the rated capacity of the alternator with no detrimental effect on other driven components. (See definitions on page 62, 66, and 70).
   e. A direct/gear-drive alternator is permissible in lieu of belt drive.
3. Electrical Components
   Materials in all electrical components shall contain no mercury.
4. Wiring (Chassis)
   a. All wiring shall conform to current applicable recommended practices of the Society of Automotive Engineers (SAE).
   b. All wiring shall use color and at least one other method of identification. The other method shall be either a number code or name code, and each chassis shall be delivered with a wiring diagram that illustrates the wiring of the chassis.

c. Chassis manufacturer shall install a readily accessible terminal strip or plug on the body side of the cowl, or in an accessible location in the engine compartment of vehicles designed without a cowl. The strip or plug shall contain the following terminals for the body connections:
   i. Main 100 amp body circuit;
   ii. Tail-lamps;
   iii. Right-turn signal;
   iv. Left-turn signal;
   v. Stop lamps;
   vi. Backup lamps; and
   vii. Instrument panel lights (rheostat controlled by dimmer switch).
   viii. An appropriate identifying diagram (color and number coded) for electrical circuits shall be provided to the body manufacturer for distribution to the end user.
   ix. Headlight system must be wired separately from the body-controlled solenoid.
   x. A daytime running lamps system shall be provided.

5. Wiring, Body
   a. All wiring shall conform to current SAE standards.
   b. All wiring shall have an amperage capacity exceeding the design load by at least 25%. All wiring splices are to be accessible and noted as splices on the wiring diagram.
   c. A body wiring diagram, sized to be easily read, shall be furnished with each bus body or affixed to an area convenient to the electrical accessory control panel.
   d. The body power wire shall be attached to the special terminal on the chassis.
   e. Each wire passing through metal openings shall be protected by a grommet.
   f. Wires not enclosed within the body shall be fastened securely at intervals of not more than18 inches. All joints shall be soldered or joined by equally effective connectors, which shall be water-resistant and corrosion-resistant.
   g. Wiring shall be arranged in circuits, as required, with each circuit protected by a fuse or circuit breaker. A system of color and number coding shall be used and an appropriate identifying diagram shall be provided to the end user along with the wiring diagram provided by the chassis manufacturer. The wiring diagrams shall be specific to the bus model supplied and include any changes to wiring made by the body manufacturer. Chassis wiring diagrams shall also be supplied to the end user. A system of color and number coding shall be used on buses. The following body interconnecting circuits shall be color-coded as noted:

| FUNCTION | COLOR |
|---|---|
| Left Rear Directional Light | Yellow |
| Right Rear Directional Light | Dark Green |
| Stoplights | Red |
| Back-up Lights | Blue |
| Taillights | Brown |
| Ground | White |
| Ignition Feed, Primary Feed | Black |

   i. The color of cables shall correspond to SAE J 1128, Low-Tension Primary Cable.
   ii. Wiring shall be arranged in at least six regular circuits as follows:
      a. Head, tail, stop (brake) clearance and instrument panel lamps;
      b. Step well lamps (shall be actuated when service door is opened);
      c. Dome lamps;
      d. Ignition and emergency door signal;
      e. Turn signal lamps; and
      f. Alternately flashing signal lamps.
         1. Any of the above combination circuits may be subdivided into additional independent circuits.
         2. Heaters and defrosters shall be wired on an independent circuit.
         3. When possible, all other electrical functions (such as sanders and electric-type windshield wipers) shall be provided with independent and properly protected circuits.

4. Each body circuit shall be coded by number or letter on a diagram of circuits and shall be attached to the body in a readily accessible location.

h. Buses may be equipped with a 12-volt power port in the driver's area.

i. There shall be a manual noise suppression switch installed in the control panel. The switch shall be labeled and alternately colored. This switch shall be an on/off type that deactivates body equipment that produces noise, including, at least, the AM/FM radio, heaters, air conditioners, fans and defrosters. This switch shall not deactivate safety systems, such as windshield wipers or lighting systems.

i. The entire electrical system of the body shall be designed for the same voltage as the chassis on which the body is mounted.

**EMERGENCY EXITS**

All installed emergency exits shall comply with the requirements of FMVSS No. 217.

1. Emergency door requirements
   - **a. The exposed area of the upper panel of emergency doors shall be a minimum of 400 square inches of approved safety glazing.**
   - **b. If installed, all other glass panels on emergency doors shall be approved safety glazing.**
   - c. There shall be no steps leading to an emergency door.
   - d. The emergency door(s) shall be equipped with padding at the top edge of each door opening. Padding shall be at least three inches wide and 1 inch thick, and extend the full width of the door opening.
   - e. There shall be no obstruction higher than 1/4 inch across the bottom of any emergency door opening. Fasteners used within the emergency exit opening shall be free of sharp edges or burrs.
   - f. The rear emergency window shall have an assisted lifting device that will aid in lifting and holding the rear emergency window open.
2. Roof Hatches
   - a. Roof hatches shall be installed without the use of fasteners on the exterior of the bus.
   - b. The materials used in the construction of the exterior portion of the roof hatch lid shall be such type as to protect the lid from discoloration and degradation from the UV light.
3. Emergency exit requirements
   - a. Type A, B, C, and D vehicles shall be equipped with a total number of emergency exits as follows for the indicated capacities of vehicles.
     - i. 0 to 42 Passengers = 1 emergency exit per side and 1 roof hatch.
     - ii. 43 to 78 Passengers = 2 emergency exits per side and 2 roof hatches.
     - iii. 79 to 90 Passengers = 3 emergency exits per side and 2 roof hatches.
   - b. Side emergency exit windows when installed may be vertically hinged on the forward side of the window. No side emergency exit window will be located above the stop arm.
   - c. Each emergency exit above shall comply with FMVSS 217. The emergency exits **above** are in addition to the rear emergency door or **rear emergency window**.
   - d. In addition to the audible warning required on emergency doors by FMVSS 217, additional emergency exits may also be equipped with an audible warning device.

**EMERGENCY EQUIPMENT**

1. Fire Extinguisher
   - a. The bus shall be equipped with at least one five-pound or greater UL-approved pressurized, dry chemical fire extinguisher complete with hose. The extinguisher shall be mounted (and secured) in a bracket, located in the driver's compartment and readily accessible to the driver and passengers. A pressure gauge shall be mounted on the extinguisher and be easily read without moving the extinguisher from its mounted position. **Shall not be located in a closed compartment.**
   - b. The fire extinguisher shall have a total rating of 2-A:1O-BC or greater. The operating mechanism shall be sealed with a type of seal that will not interfere with the use of the fire extinguisher.
   - c. A Halon extinguisher may be carried in addition to the dry chemical extinguisher.
2. First-Aid Kit

a. The bus shall have a removable moisture-proof and dust-proof first-aid kit in an accessible place in the driver's compartment. It shall be properly mounted and secured and identified as a first-aid kit. Contents of first-aid kit shall be in compliance with state standards.
b. Contents shall include a minimum:
   i. 2 - 1" x 2.5 yards adhesive tape rolls
   ii. 24 - sterile gauze pads 3" x 3"
   **iii. 20 - 3/4" x 3" adhesive bandages**
   iv. 8 - 2" bandage compress
   v. 10 - 3" bandage compress
   vi. 2 - 2" x 6' sterile gauze roller bandages
   vii. 2 - non-sterile triangular bandages approximately 40" x 36" x 54" with 2 safety pins
   viii. 3 - sterile gauze pads 36" x 36"
   ix. 2-sterile eye pads
   x. 1 - rounded-end scissors
   xi. pair medical examination gloves
   xii. 1 – mouth-to-mouth airway

3. Body Fluid Clean-up Kit
   a. Each bus shall have a removable and moisture-proof body fluid clean-up kit accessible to the driver. It shall be properly mounted and identified as a body fluid clean-up kit. Contents of body fluid clean-up kit shall be in compliance with state standards. This standard shall apply retroactively to all Montana school buses.
   b. Each Body Fluid Clean-up Kit shall include but is not limited to:
      i. 2 – Sterile non-latex Gloves - 1 pr
      ii. 1 - Red Bio-hazard Waste Bag w/tie
      iii. 1 – Black/brown Plastic Bag w/tie
      iv. 1 - Liquid Treatment System – ¾ oz
      v. 2 - Disposable Microbial Towels
      vi. 2 - Antiseptic Microbial Wipe
      vii. 1 - Face Mask with Eye Shield
      viii. 1 - Pick up Scoop with Scraper
      ix. 1 - Surface Cleaning Wipe
      x. #10 Unit Poly White Storage Box

      **See Inspection Form on next page**

4. Warning Devices
   a. Each school bus shall contain at least three (3) reflectorized triangle road warning devices mounted in an accessible place that meet requirements in FMVSS 125.
   b. Any of the emergency equipment may be mounted in an enclosed compartment, provided the compartment is labeled in not less than one inch letters, identifying each piece of equipment contained therein.

## FIRST AID KIT AND BODY FLUIDS CLEAN-UP INSPECTION FORM

| First Aid Kit items: | Year:_____ Condition | | Year:_____ Condition | | Year:_____ Condition | | Year:_____ Condition | | Year:_____ Condition | | Year:_____ Condition | | Year:_____ Condition | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Good | Replaced | Good | Replaced | Good | Replaced | Good | Replaced | Good | Replaced | Good | Replaced | Good | Replaced |
| 2 - 1"x 2.5 yards adhesive tape rolls | | | | | | | | | | | | | | |
| 24 - sterile gauze pads 3" x 3" | | | | | | | | | | | | | | |
| 20 - 3/4" x 3" adhesive bandages | | | | | | | | | | | | | | |
| 8 - 2" bandage compress | | | | | | | | | | | | | | |
| 10 - 3" bandage compress | | | | | | | | | | | | | | |
| 2 - 2" x 6' gauze roller bandages | | | | | | | | | | | | | | |
| 2 - non- sterile triangular bandages w/2 safety pins | | | | | | | | | | | | | | |
| 3 - sterile gauze pads 36" x 36" | | | | | | | | | | | | | | |
| 3 - sterile eye pads | | | | | | | | | | | | | | |
| 1 - rounded-end scissors | | | | | | | | | | | | | | |
| 1 - pair medical examination gloves | | | | | | | | | | | | | | |
| 1 - mouth-to-mouth airway | | | | | | | | | | | | | | |

| Body Fluid Clean-up Kit Items: | Condition | | Condition | | Condition | | Condition | | Condition | | Condition | | Condition | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Good | Replaced | Good | Replaced | Good | Replaced | Good | Replaced | Good | Replaced | Good | Replaced | Good | Replaced |
| 2 - sterile non-latex gloves - 1 pair | | | | | | | | | | | | | | |
| 1 - red bio-hazard waste bag w/tie | | | | | | | | | | | | | | |
| 1 - black/brown plastic bag w/tie | | | | | | | | | | | | | | |
| 1 - liquid treatment system - 3/4 oz. | | | | | | | | | | | | | | |
| 2 - disposable microbial wipe | | | | | | | | | | | | | | |
| 1 - face mask with eye shield | | | | | | | | | | | | | | |
| 1 - pick up scoop with scraper | | | | | | | | | | | | | | |
| 1 - surface cleaning wipe | | | | | | | | | | | | | | |
| **Date:** | | | | | | | | | | | | | | |
| **Inspected by:** | | | | | | | | | | | | | | |

This form shall be signed and dated by Supervisor of School Transportation EACH school year:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date: | | | | | | | |
| Sign: | | | | | | | |

This form shall be signed and dated by Montana High Patrol ONCE each school year at the time of 1st. Semester Inspection:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date: | | | | | | | |
| Sign: | | | | | | | |

## EXHAUST SYSTEM

1. The exhaust pipe, muffler, after treatment system and tailpipe shall be outside the bus body compartment and attached to the chassis so as not to damage any other chassis compartment. Entire system shall be free of leaks.
2. The tailpipe and after treatment system shall be constructed of a corrosion-resistant tubing material at least equal in strength and durability to 16-gauge steel tubing of equal diameter.
3. The tailpipe may be flush with, or shall not extend more than 2 inches beyond, the perimeter of the body for side-exit pipe or the bumper for the rear-exit pipe. The exhaust system shall be designed such that exhaust gas will not be trapped under the body of the bus.
4. The tailpipe shall exit to the left or right of the emergency exit door in the rear of the vehicle or to the left side of the bus in front of or behind the rear drive axle. **The tailpipe may extend through the bumper.** The tailpipe exit location on all Types A-1 or B-1 buses may be in accordance to the manufactures standards. The tailpipe shall not exit beneath any fuel filler location.
5. Exhaust system on a chassis shall be adequately insulated from the fuel system.
6. Muffler shall be constructed of corrosion-resistant material.
7. The exhaust system on vehicles equipped with a power lift unit may be routed to the left of the right frame rail to allow for the installation of a power lift unit on the right side of the vehicle.

**FENDERS, FRONT**

1. Total spread of outer edges of front fenders, measured at fender line, shall exceed total spread of front tires when front wheels are in straight-ahead position.
2. Front fenders shall be properly braced and shall not require attachment to any part of the body.

**FLOORS**

1. Floor in under-seat area, including tops of wheel housing, driver's compartment and toe board, shall be covered with rubber floor covering or equivalent, having a minimum overall thickness of .125 inch and a minimum slip coefficient of .75 or better. All materials must meet a calculated burn rate of 0.**1 mm per minute** or less as required by FMVSS No. 302, Flammability of Interior Materials. The driver's area and toe board area on all Type-A buses may be manufacturer's standard flooring and floor covering.
2. Floor covering in aisles shall be of aisle-type rubber or equivalent, wear-resistant, ribbed and a minimum slip coefficient of .75 or better. All materials must meet a calculated burn rate of **0.1 mm per minute** or less as required by FMVSS No. 302, Flammability of Interior Materials. Minimum overall thickness shall be .187 inch measured from tops of ribs.
3. Floor covering must be permanently bonded to floor and must not crack when subjected to sudden changes in temperature. Bonding or adhesive material shall be waterproof and shall be a type recommended by the manufacturer of floor-covering material. All seams must be sealed with waterproof sealer.
4. On Type B, C and D buses a flush-mounted, screw-down plate that is secured and sealed shall be provided to access the **diesel or gasoline** fuel tank sending unit and/or fuel pump. This plate shall not be installed under flooring material.

**FRAME**

1. The frame (or equivalent) shall be of such design and strength characteristics as to correspond at least to standard practices for trucks of the same general load characteristics which are used for highway service.
2. Any secondary manufacturer that modifies the original chassis frame shall guarantee the performance of workmanship and materials resulting from such modification.
3. Frames shall not be modified for the purpose of extending the wheelbase.
4. Holes in top or bottom flanges or side units of the frame, and welding to the frame, shall not be permitted except as provided or accepted by chassis manufacturer.
5. Frame lengths shall be established in accordance with design criteria for the complete vehicle.
6. There shall be no trailer hitches, ball or pin type, attached to buses.

**FUEL SYSTEM**

1. Fuel tank or tanks having a minimum **25** gallon capacity shall be provided by the chassis manufacturer. The tank shall be filled and vented to the outside of the body, in a location where accidental fuel spillage will not drip or drain on any part of the exhaust system.
2. No portion of the fuel system, which is located outside of the engine compartment, except the filler tube, shall extend above the top of the chassis frame rail. Fuel lines shall be mounted to obtain maximum possible protection from the chassis frame.
3. Fuel filter with replaceable element shall be installed between the fuel tank and engine.
4. The fuel system shall comply with FMVSS No. 301 and all Federal Motor Vehicle Safety Standards in effect on the date of manufacture of the bus.
5. Fuel tank(s) may be mounted between the chassis frame rails or outboard of the frame rails on either the left or right side of the vehicle.
6. The actual draw capacity of each fuel tank shall be 83 percent of the tank capacity.
7. Installation of alternative fuel systems, including fuel tanks and piping from tank to engine, shall comply with all applicable fire codes and applicable Federal Motor Vehicle Safety Standards in effect on the date of manufacture of the bus.
8. Installation of LPG tanks shall comply with National Fire Protection Association (NFPA) 58, Liquefied Petroleum Gas Code.
9. Installation of Compressed Natural Gas (CNG) containers shall comply with FMVSS No. 304, Compressed Natural Gas Fuel Container Integrity.

10. The CNG Fuel System shall comply with FMVSS No. 303, Fuel System Integrity of Compressed Natural Gas Vehicles.
11. **For after treatment systems that require Diesel Exhaust Fluid (DEF) to meet federally mandated emissions:**
    a. **The composition of Diesel Exhaust Fluid (DEF) must comply with International Standard ISO 22241-1. Refer to engine manufacturer for any additional DEF requirements.**
    b. **The DEF supply tank shall be designed sized to meet a minimum ratio of 3 diesel fills to 1 DEF fill.**

**GOVERNOR**

When the engine is remotely located from the driver, the governor shall be set to limit engine speed to maximum revolutions per minute recommended by engine manufacturer, and a tachometer shall be installed so the driver while seated in a normal driving position may know the engine speed.

**HANDRAILS**

At least one handrail shall be installed. **The handrail shall be a minimum of 1" diameter and be constructed from corrosion resistant material(s)**.The handrail(s) shall assist passengers during entry or exit, and be designed to prevent entanglement, as evidenced by the passage of the NHTSA string and nut test.

**HEATING SYSTEM PROVISION**

1. The engine shall be capable of supplying water having a temperature of at least 170 degrees Fahrenheit at a flow rate of 50 pounds per minute at the return end of 30 feet of one inch inside diameter automotive hot water heater hose. (SBMI Standard No. 001—Standard Code for Testing and Rating Automotive Bus Hot Water Heating and Ventilating Equipment)
2. Heater hose in the engine compartment and between the engine and the driver shutoff, or the first body heater, whichever comes first, shall be armored or reinforced hose such as Goodyear Hi Miler, or equivalent.

**HEATING AND AIR CONDITIONING SYSTEMS**

1. Heater shall be hot-water combustion type, **electric heating element, or heat pump**.
2. If only one heater is used, it shall be fresh-air or combination fresh-air and recirculating type.
3. If more than one heater is used, additional heaters may be recirculating air type.
4. The heating system shall be capable of maintaining bus interior temperatures as specified in SAE test procedure J2233.
5. Auxiliary fuel-fired heating systems are permitted, provided they comply with the following:
    a. The auxiliary heating system fuel shall utilize the same type fuel as specified for the vehicle engine.
    b. Heater(s) may be direct hot air or connected to the engine's coolant system.
    c. Auxiliary heating system, when connected to the engine's coolant system, may be used to preheat the engine coolant or preheat and add supplementary heat to the bus' heating system.
    d. Auxiliary heating systems must be installed pursuant to the manufacturer's recommendations and shall not direct exhaust in such a manner that will endanger bus passengers; **(Follows the existing guidelines of the exhaust system section of these standards.)**
    e. Auxiliary heating systems, which operate on diesel fuel, shall be capable of operating on No. 1, No. 2 or blended diesel fuel without the need for system adjustment.
    f. The auxiliary heating system shall be low voltage; and
    g. Auxiliary heating systems shall comply with all applicable Federal Motor Vehicle Safety Standards, including FMVSS 301, Fuel System Integrity, and all other applicable FMVSS's, as well as with SAEJ2233 test procedures.
6. All forced air heaters installed by body manufacturers shall bear a nameplate that indicates the heater rating in accordance with SBMI Standard No. 001 Standard Code for Testing and Rating Automotive Bus Hot Water Heating and Ventilating Equipment. The plate shall be affixed by the heater manufacturer and shall constitute certification that the heater performance is as shown on the plate.
7. Heater hoses shall be adequately supported to guard against excessive wear due to vibration. The hoses shall not dangle or rub against the chassis or any sharp edges and shall not interfere with or

restrict the operation of any engine function. Heater hoses shall conform to SAE Standard J20c, Coolant System Hoses. Heater lines, **cores and elements** on the interior of bus shall be shielded to prevent scalding **or burning** of the driver or passengers.

   a. The heater hose in the engine compartment and between the engine and the driver shutoff, or the first body heater, whichever comes first, shall be armored or reinforced hose such as Goodyear Hi Miler, or equivalent.

8. Each hot water system installed by a body manufacturer shall include one shut-off valve in the pressure line and one shut-off valve in the return line with both valves at the engine in an accessible location, except that on all Type A and B buses, the valves may be installed in another accessible location.
9. All heaters of **hot water type** in the passenger compartment shall be equipped with a device, installed in the hot water pressure line, which regulates the water flow to all passenger heaters. The device shall be conveniently operated by the driver while seated. The driver and passenger heaters may operate independently of each other for maximum comfort.
10. All combustion heaters shall be in compliance with current Federal Motor Carrier Safety Regulations.
11. Accessible bleeder valves **of hot water type systems**, shall be installed in an appropriate place in the return lines of body company installed heaters to remove air from the heater lines.
12. Access panels shall be provided to make heater motors, cores, **elements**, and fans readily accessible for service. Outside access panel may be provided for the driver's heater.

*Passenger compartment Air Conditioning (Optional)*
*Specific requirements are listed in the National Standards.*

**HORN**

Bus shall be equipped with horn or horns of standard make with each horn capable of producing a complex sound in bands of audio frequencies between 250 and 2,000 cycles per second and tested in accordance with SAE J-377, Horn-Forward Warning-Electric-Performance, Test, and Application.

**HINGES**

Exposed metal emergency door, lift door, and service door hinges which do not have stainless steel, brass or nonmetallic hinge pins or other design that prevents corrosion or allows complete lubrication without disassembly, shall be designed to allow complete lubrication to be channeled to the center 75 percent of each hinge loop.

**IDENTIFICATION**

1. Body shall bear words "SCHOOL BUS" in black letters at least 8 inches high on both front and rear of body or on signs attached thereto. Lettering shall be placed as high as possible without impairment of its visibility. Letters shall conform to "Series B" of Standard Alphabets for highway signs. "SCHOOL BUS" lettering shall have a reflective background, or as an option, may be illuminated by backlighting. (See also Reflective Material—Appendix A.)
2. Lettering and numbering shall include:
   a. The district or company name or owner of the bus shall be displayed at the beltline **in 6 inch lettering and color shall be black.**
   b. The bus identification number shall be displayed on the sides, on the rear, and on the front **in black.**
3. Other lettering, numbering, or symbols, which may be displayed on the exterior of the bus, shall be limited to:
   a. Bus identification number on the top of the bus, in addition to required numbering on sides, rear, and front;
   b. The location of the battery(ies) identified by the word "BATTERY" or "BATTERIES" on the battery compartment door in 2 inch lettering;
   c. Symbols or letters not to exceed 64 square inches of total display near the service door displaying information for identification by the students of the bus or route served;
   d. Manufacturer, dealer or school identification or logos;
   e. Symbols identifying the bus as equipped for or transporting students with special needs as noted in SPECIALLY EQUIPPED SCHOOL BUS SPECIFICATIONS;

f. Lettering on the rear of the bus relating to school bus flashing signal lamps or electronic warning sign. **Lettering relating to** railroad stop procedures, or wide turn information; and
g. Identification of fuel type in **1** inch lettering adjacent to the fuel filler opening.

**INSIDE HEIGHT**

Inside body height shall be 72 inches or more, measured metal to metal, at any point on longitudinal centerline from front vertical bow to rear vertical bow. Inside body height of Type A-1 buses shall be 62 inches or more. This requirement does not apply to air conditioning equipment. Inside body height shall be 72 inches or more, measured metal to metal, at any point on longitudinal centerline from front vertical bow to rear vertical bow. Inside body height of Type A-1 buses shall be 62 inches or more. This requirement does not apply to air conditioning equipment.

**INSTRUMENTS AND INSTRUMENT PANEL**

1. Chassis shall be equipped with the following instruments and gauges. (Telltale warning lamps in lieu of gauges are not acceptable, except as noted):
   a. Speedometer;
   b. Odometer, which will give accrued mileage (to seven digits), including tenths of miles, unless tenths of miles are registered on a trip odometer. Odometer must be readable without using a key;
   **c.** Tachometer **(Note: For types B, C and D buses, a tachometer shall be installed so as to be visible to the driver while seated in a normal driving position.)**
   d. Voltmeter (An ammeter with graduated charge and discharge indications is permitted in lieu of a voltmeter; however, when used, the ammeter wiring must be compatible with the current flow of the system.
   e. Oil pressure gauge;
   f. Water temperature gauge;
   g. Fuel gauge;
   h. High beam headlight indicator;
   i. Brake air pressure gauge (air brakes); brake indicator lamp (vacuum/hydraulic brakes), or brake indicator lamp (hydraulic/hydraulic);
   j. Turn signal indicator; and
   k. Glow-plug indicator light, where appropriate.
2. All instruments shall be easily accessible for maintenance and repair.
3. Instruments and gauges shall be mounted on the instrument panel so that each is clearly visible to the driver while seated in a normal driving position.
4. Instrument and controls must be illuminated as required by FMVSS No. 101, Controls and Displays.
5. Multi-function gauges (MFG) are not recommended in Montana; however, if they are used they must meet the following criteria:
   a. The driver must be able to manually select any displayable function of the gauge on a MFG, when desired.
   b. When an out-of-limits condition that would be displayed on one or more functions of a MFG occurs, the MFG controller should automatically display this condition on the instrument cluster. This should be in the form of an illuminated telltale warning lamp as well as having the MFG automatically display the out-of-limits indications. Should two or more functions display on the MFG simultaneously, then the MFG should sequence automatically between those functions continuously until the condition(s) are corrected.
   c. The use of a MFG does not relieve the need for audible warning devices, where required.

**INSULATION**

1. Ceiling and walls shall be insulated. If thermal insulation is specified, it shall be fire-resistant, UL approved, and approximately 1.5 inch thick with minimum R-value of 5.5. The insulation shall be installed to prevent sagging.
2. Floor insulation shall be either 5 ply nominal 5/8 inch thick plywood, or a material of equal or greater strength and insulation R value, and it shall equal or exceed properties of the exterior-type softwood

plywood, C-D Grade as specified in standard issued by U.S. Department of Commerce. When plywood is used, all exposed edges shall be sealed. **Type A** buses may be equipped with nominal 1/2 inch thick plywood or greater insulation R-value, sound abatement, deterioration-resistant and moisture-resistant properties.

**INTERIOR**

1. Interior of bus shall be free of all unnecessary projections, which include luggage racks and attendant handrails, to minimize the potential for injury. This standard requires inner lining on ceilings and walls. If ceiling is constructed to contain lapped joints, forward panel shall be lapped by rear panel and exposed edges shall be beaded, hemmed, flanged, or otherwise treated to minimize sharp edges. Buses may be equipped with a storage compartment for tools, tire chains, and/or tow chains (see, Storage Compartment Page 27).
2. Interior overhead storage compartments may be provided if they meet the following criteria:
   a. Head protection requirements of FMVSS 222, School Bus Passenger Seating and Crash Protection, where applicable;
   b. Be completely enclosed and equipped with latching doors. (both door and latch must be sufficient to withstand a force of 50 pounds applied at the inside center of the door);
   c. Have all corners and edges rounded with a minimum radius of one inch or padded equivalent to door header padding;
   d. Be attached to the bus sufficiently to withstand a force equal to twenty (20) times the maximum rated capacity of the compartment; and
   e. Shall have no protrusions greater than 1/4 inch.
3. The driver's area forward of the foremost padded barriers will permit the mounting of required safety equipment and vehicle operation equipment.
4. Every school bus shall be constructed so that the noise level taken at the ear of the occupant nearest to the primary vehicle noise source shall not exceed 85 dBA when tested according to the procedure found in Appendix B.

**LAMPS AND SIGNALS**

1. Interior lamps shall be provided which adequately illuminate aisle and step well. The step well light shall be illuminated by a service door operated switch, to illuminate only when headlights and clearance lights are on and service door is open.
2. Body instrument panel lamps shall be controlled by an independent dimmer switch or may be controlled by the dimmer that operates the gauge lighting.
3. School bus alternately flashing signal lamps shall be provided, as described by law. MFSAB's are exempt from this requirement:
   a. The school bus shall be equipped with two red lamps at the rear of vehicle and two red lamps at the front of the vehicle;
   b. In addition to the four red lamps described above, four amber lamps shall be installed so that one amber lamp is located near each red signal lamp, at same level, but closer to vertical centerline of bus.
   c. The system of red and amber signal lamps shall be wired so that amber lamps are energized manually, and red lamps are automatically energized (with amber lamps being automatically de-energized) when stop signal arms are extended or when bus service door is opened.
4. The above mentioned activation sequence **shall be sequential and include a master switch**. An amber pilot light and a red pilot light shall be installed adjacent to the driver controls for the flashing signal lamp to indicate to the driver which lamp system is activated;
   a. The area around the lens of each alternately flashing signal lamp and extending outward approximately three inches to the sides and top and a minimum one inch to the bottom, shall be black in color on the body or roof area against which the signal lamp is seen (from distance of 500 feet along axis of vehicle). Visors or hoods, black in color, with a minimum depth of 4 inches may be provided;
   b. Red lamps shall flash at any time the stop signal arm is extended; and
   c. All flashers for alternately flashing red and amber signal lamps shall be enclosed in the body in a readily accessible location.

d. LED lamps can be used, however, if more than 1/3 of the LED lights go out, the light will be deemed inoperable and the bus must be taken out of service until repairs have been completed.

5. Turn signal and stop/tail lamps
   a. Bus body shall be equipped with amber rear turn signal lamps that are at least 7 inches in diameter or if a shape other than round, a minimum 38 square inches of illuminated area and meet FMVSS No. 108, Lamps, Reflective Devices, and Associated Equipment. These signal lamps must be connected to the chassis hazard-warning switch to cause simultaneous flashing of turn signal lamps when needed as vehicular traffic hazard warning. Turn signal lamps are to be placed as wide apart as practical and their centerline shall be approximately 12 inches below the rear window.
   b. Buses shall be equipped with amber side-mounted turn signal lamps. The turn signal lamp on the left side shall be mounted rearward of the stop signal arm and the turn signal lamp on the right side shall be mounted rearward of the service door.
   c. Signal lamps on Type B, C, and D buses shall include a left and right side mounted turn signal lamp. They shall be located midway from the front axle and the rear of the bus and approximately twelve (12) inches from the bottom of the side windows. This lamp will be a standard manufacturer's design for this purpose and will have an amber color lens.
   d. Buses shall be equipped with four combination red stop/tail lamps:
      i. Two combination lamps with a minimum diameter of seven inches, or if a shape other than round, a minimum 38 square inches of illuminated area shall be mounted on the rear of the bus just inside the turn signal lamps.
      ii. Two combination lamps with a minimum diameter of four inches, or if a shape other than round, a minimum 12 square inches of illuminated area shall be placed on the rear of the body between the beltline and the floor line. The rear license plate lamp may be combined with one lower tail lamp. Stop lamps shall be activated by the service brakes and shall emit a steady light when illuminated.
   e. On buses equipped with a monitor for the front and rear lamps of the school bus, the monitor shall be mounted in full view of the driver. If the full circuit current passes through the monitor, each circuit shall be protected by a fuse or circuit breaker against any short circuit or intermittent shorts.
   f. A mandatory white flashing strobe lamp shall be installed on the roof of a school bus, **not closer than 12 inches or more than 6 feet** from the rear of the roof edge, clearly visible 50 feet or more from the rear of the bus. **However, if the bus is equipped with a roof hatch, or other roof mounted equipment, falling within the above mentioned measurements, the strobe lamp may be located directly behind the roof hatch**. The lamp shall have a single clear lens emitting light 360 degrees around its vertical axis **meeting the requirements of SAE J845**. It may not extend above the roof more than maximum legal height. A manual switch and a pilot light shall be included to indicate when light is in operation. Optionally, a strobe light **shall** be wired to activate with the amber alternately flashing signal lamps, continuing through the full loading or unloading cycle, **(is referred to home to school, school to home routes only)** with an override switch to allow activation of the strobe at any time for use in **adverse conditions**, **effecting visibility, such as:**
      **i. Snow**
      **ii. Blizzards**
      **iii. Rain**
      **iv. Storms**
      **v. Flooding**
      **vi. Fog**
      **vii. Smoke**
      **viii. Dust**
      **ix. Wind;**

      **Note: Multi-Functional School Activity Bus (MFSAB) is exempt from these requirements**

6. Backup Lamps
   a. Bus body shall be equipped with two white rear backup lamp signals that are at least four inches in diameter or, if a shape other than round, a minimum of 12 square inches of illuminated area

and shall meet FMVSS No. 108. If backup lamps are placed on the same horizontal line as the brake lamps and turn signal lamps, they shall be to the inside.

7. Daytime Running Lamps (DRL) - A daytime running lamp(s) system shall be provided.
8. Outside Landing Light (Optional Equipment)
   a. An optional outside landing light may be mounted near the entrance door to allow greater visibility when loading students in the dark.
      i. This light shall be white and wired to activate when the entrance door is opened. A switch located near the driver would allow the driver to shut the light off during daylight hours.
      ii. The outside landing light shall be a skirt-mounted exterior landing light.
      iii. Upper portion of the light may be shielded to cast the light downward only.

**METAL TREATMENT**

1. All metal used in construction of bus body shall be zinc-coated or aluminum-coated or treated by equivalent process before the bus is constructed. Included are such items as structural members, inside and outside panels, door panels and floor sills. Excluded are such items as door handles, grab handles, interior decorative parts and other interior plated parts.
2. All metal parts that will be painted shall be, in addition to above requirements, chemically cleaned, etched, zinc-phosphate-coated and zinc-chromate or epoxy primed or conditioned by equivalent process. This includes, but is not limited to, such items as crossing control arm and stop arm.
3. In providing for these requirements, particular attention shall be given to lapped surfaces, welded connections of structural members, cut edges, punched or drilled hole areas in sheet metal, closed or boxed sections, unvented or un-drained areas and surfaces subjected to abrasion during vehicle operation.
4. As evidence that above requirements have been met, samples of materials and sections used in construction of the bus body shall be subjected to a cyclic corrosion testing as outlined in SAE J1563.

**MIRRORS**

1. Interior mirror shall be either clear view laminated glass or clear view glass bonded to a backing which retains the glass in the event of breakage. The mirror shall have rounded corners and protected edges. All Type A buses shall have a minimum of a 6-inch x 16-inch mirror and Type B, C, and D buses shall have a minimum of a 6-inch x 30-inch mirror.
2. Each school bus shall be equipped with exterior mirrors meeting the requirements of FMVSS 111, Rearview Mirrors. The right side rear view mirror shall not be obscured by the un-wiped portion of the windshield. Mirrors shall be easily adjustable, but shall be rigidly braced so as to reduce vibration. Bumper accessories may not obstruct driver's vision as required by FMVSS 111.
3. Heated external mirrors may be used.
4. Remote controlled external rear view mirrors may be used.

**MOUNTING**

1. The chassis frame shall support rear body cross member. The bus body shall be attached to the chassis frame at each main floor sill, except where the chassis components interfere, in such manner as to prevent shifting or separation of the body from the chassis under severe operating conditions.
2. Insulators shall be placed at all contact points between body and chassis frame on Type A-2, B, C, and D buses, and shall be secured by a positive means to the chassis frame or body that it will prevent shifting, separation, or displacement of the insulators under severe operating conditions.

**OIL FILTER**

An oil filter with a replaceable element shall be provided and connected by flexible oil lines if not a built-in or an engine-mounted design. The oil filter shall have a capacity in accordance with the engine manufacturer’s recommendation.

**OPENINGS**

All openings in the floorboard or firewall between chassis and passenger compartment, such as for gearshift selector and parking brake lever, shall be sealed.

**OVERALL LENGTH**
Overall length of bus shall not exceed 45 feet, excluding accessories.

**OVERALL WIDTH**
Overall width of bus shall not exceed 102 inches, excluding accessories.

**PASSENGER LOAD**
1. Actual Gross Vehicle Weight (GVW) is the sum of the chassis weight, plus the body weight, plus the driver's weight, plus total seated pupil weight.
   a. For purposes of calculation, the driver's weight is 150 pounds.
   b. For purposes of calculation, the pupil weight is 120 pounds per pupil.
2. Actual Gross Vehicle Weight (GVW) shall not exceed the chassis manufacturer's Gross Vehicle Weight Rating for the chassis nor shall the actual weight carried on any axle exceed the chassis manufacturer's GAWR.

**PUBLIC ADDRESS SYSTEM**
1. Buses may be equipped with an AM/FM/audio and/or public address system having interior and exterior speakers.
2. No internal speakers, other than the driver's communication system, may be installed within four feet of the driver's seat back in its rearmost upright position.

**RETARDER SYSTEM (OPTIONAL EQUIPMENT)**
A retarder system, if used, shall maintain the speed of the fully loaded school bus at 19.0 mph or 30 km/hr on a 7 percent grade for 3.6 miles or 6 km.

**RETRO-REFLECTIVE MATERIAL**
(See also APPENDICES A)

1. Front and/or rear bumper may be marked diagonally 45 degrees down to centerline of pavement with 2 1/4 inch wide strips of non-contrasting reflective material.
2. Rear of bus body shall be marked with strips of Retro-reflective NSBY material to outline the perimeter of the back of the bus using material, which conforms with the requirements of FMVSS 131, School Bus Pedestrian Safety Devices, Table 1. The perimeter marking of rear emergency exits per FMVSS No. 217, Bus Emergency Exits and Window Retention and Release and/or the use of retro-reflective "SCHOOL BUS" signs partially accomplish the objective of this requirement. To complete the perimeter marking of the back of the bus, strips of Retro reflective NSBY material, a minimum of 1" and a maximum of 2" in width shall be applied horizontally above the rear windows and above the rear bumper extending from the rear emergency exit perimeter marking outward to the left and right rear corners of the bus. Vertical strips shall be applied at the corners connecting these horizontal strips.
3. "SCHOOL BUS" signs, if not of lighted design, shall be marked with retro-reflective NSBY material comprising background for lettering of the front and/or rear "SCHOOL BUS" signs.
4. Sides of bus body shall be marked with retro-reflective NSBY material at least 1 3/4 inches in width, extending the length of the bus body and located (vertically) between the floor line and the beltline.
5. Signs, if used, placed on the rear of the bus relating to school bus flashing signal lamps or railroad stop procedures **shall** be of retro-reflective material which conforms **with the requirements of FMVSS 131, School Bus Pedestrian Safety Devices, Table 1** as specified in No. 2 in this section.

**RUB RAILS**
1. There shall be one rub rail located on each side of bus approximately at seat cushion level which shall extend from the rear side of entrance door completely around bus body (except emergency door or any maintenance access door) to point of curvature near outside cowl on left side.
2. There shall be one additional rub rail located approximately 10 inches or less above the floor line. The rub rail shall cover the same longitudinal span as upper rub rail, except at wheel housing, and it shall extend only to longitudinal tangent of the right and left rear corners.

3. Rub rails shall be attached at each body post and all other upright structural members.
4. Rub rails shall be four inches or more in width in their finished form, shall be of 16-gauge steel or suitable material of equivalent strength, and shall be constructed in corrugated or ribbed fashion.
5. Rub rails shall be applied outside body or outside body posts. Pressed-in or snap-on rub rails do not satisfy this requirement. For Type A-2 vehicles using chassis manufacturer's body, or for Type A-1, B, C and D buses using rear luggage or rear engine compartment, rub rails need not extend around rear comers.
6. There shall be a rub rail or equivalent bracing located horizontally at the bottom edge of the body side skirts.

## SEATS AND RESTRAINING SYSTEM

### PASSENGER SEATING

1. School bus design capacities shall be in accordance with 49 CFR, Part 571.3 Definitions, and, FMVSS No. 222, School Bus Passenger Seating and Crash Protection.
2. Any new school bus that is put into service after the effective date of this new standard may be ordered with a lap and shoulder belt system. The seat and lap/shoulder belting system shall meet the requirement of FMVSS 222, Compartmentalization for the protection of students that may not be restrained. This seat and seat anchorage must meet or exceed all government safety standards.
3. Used buses may not be retrofitted to include lap/shoulder belts unless the bus was built "seat belt ready" by the school bus manufacturer.
4. All seats shall have a minimum depth of 15 inches and must comply with all requirements of FMVSS No. 222. All seat backs shall be a minimum of 24 inches from the seating reference point School bus design capacities shall be in accordance with 49 CFR, Part 571.3 and FMVSS No. 222. In addition to the fastener that forms the pivot for each seat retaining clip, a secondary fastener may be used in each clip to prevent the clip from rotating and releasing the seat cushion unintentionally.
5. All restraining barriers and passenger seats shall be constructed with materials that enable them to meet the criteria contained in the School Bus Seats Upholstery Fire Block Test, or **ASTM E2574/E2574M – 12a Standard Test Method for Fire Testing of School Bus Seat Assemblies**
6. Each seat leg shall be secured to the floor by bolts, washers, and nuts **in order to meet the performance requirements of FMVSS No. 222**. Flange-head nuts may be used in lieu of nuts and washers. All seat frames attached to the seat rail shall be fastened with 2 or more bolts, washers and nuts, or with flange-head nuts. Seats may be track-mounted in conformance with FMVSS 222.7. If track seating is installed, the manufacturer shall supply minimum and maximum seat spacing dimensions (applicable to the bus) which comply with FMVSS No. 222. This information shall be on a label permanently affixed to the bus.
7. All school buses (including Type A) shall be equipped with restraining barriers conforming to FMVSS 222.
8. A flip-up seat may be installed at any side emergency door provided that it conforms to FMVSS 222, and aisle clearance requirements of FMVSS 217, Bus Emergency Exits and Window Retention and Release. The flip seat shall be free of sharp projections on the underside of the seat bottom. The underside of the flip-up seat bottoms shall be padded or contoured to reduce the possibility of snagged clothing or injury during use. Flip seats shall be constructed to prevent passenger limbs from becoming entrapped between the seat back and the seat cushion when in upright position. The seat cushion shall be designed to rise to a vertical position automatically when not occupied.
9. Lap belts shall not be installed on passenger seats in large school buses (over 10,000 pounds GVWR) except in conjunction with child safety restraint systems that comply with the requirements of FMVSS No. 213, Child Restraint Systems.
10. **Three-point lap/shoulder seat belts may be installed in large school buses (over 10,000 pounds GVWR).**

### SEAT – PRE-SCHOOL AGE SEATING

Passenger seats designed to accommodate a child or infant carrier seat shall comply with FMVSS No. 225, Child Restraint Anchorage Systems. These seats shall be in compliance with NHRSA's "Guideline for the Safe Transportation of Pre-school Age Children in School Buses." **(Note: See 8 above.)**

**DRIVER SEAT**
The driver's seat supplied by the body manufacturer shall be a high back seat. The seat back shall be adjustable to 15 degrees minimum, without requiring the use of tools. The seat shall be equipped with a head restraint to accommodate a 5th percentile female to a 95th percentile adult male, as defined in FMVSS No. 208, Occupant Crash Protection.
Type A buses may utilize the standards driver's seat provided by the chassis manufacturer.

**DRIVER RESTRAINT SYSTEM**
A Type 2 lap/shoulder belt shall be provided for the driver. On buses where the driver's seat and upper anchorage for the shoulder belt are both attached t the body structure, a driver's seat with an integrated Type 2 lap/shoulder belt may be substituted. On buses where the driver's seat and upper anchorage for the shoulder belt are separately attached to both the body and chassis structures (i.e., one attached to the chassis and the other attached to the body, a driver's seat with an integrated Type 2 lap/shoulder belt should be used.
The assembly shall be equipped with an Emergency Locking Retractor (ELR) for the continuous belt system. On all buses except Type A equipped with standard chassis manufacturer's driver's seat, the lap portion of the belt shall be guided or anchored to prevent the driver from sliding sideways under the belt system. The lap/shoulder belt shall be designed to allow for easy adjustment in order to fit properly and effectively protect drivers varying from 5th percentile female to 95th percentile male. **The belt shall be of a high visibility contrasting color.**

**SEAT BELT CUTTER**
Each bus shall be equipped with a durable webbing cutter having a full width handgrip and a protected, replaceable or non-corrodible blade. The required belt cutter shall be mounted in a location accessible to the seated driver in an easily detachable manner regardless of the condition of the bus

**SHOCK ABSORBERS**
The bus shall be equipped with double-action shock absorbers compatible with manufacturer's rated axle capacity at each wheel location.

**SIDE SKIRTS**
The bus body side skirts between the front and rear axles shall extend down to within 2 inches plus or minus, of the horizontal line from the center of the front spindle to the center of the rear axle. The manufacturer may offer optional side skirt lengths that extend lower than this requirement. This measurement shall apply to a new unloaded school bus located on a flat, level surface.

**STEERING GEAR**
1. The steering gear shall be approved by the chassis manufacturer and designed to ensure safe and accurate performance when the vehicle is operated with maximum load and at maximum speed.
2. If external adjustments are required, steering mechanism shall be accessible to make adjustments.
3. No changes shall be made in the steering apparatus, which are not approved by the chassis manufacturer.
4. There shall be a clearance of at least two inches between the steering wheel and cowl, instrument panel, windshield, or any other surface.
5. Power steering is required and shall be of the integral type with integral valves.
6. The steering system shall be designed to provide a means for lubrication of all wear-points, if wear-points are not permanently lubricated

**STEPS**
1. The first step at the service door shall be not less than 10 inches and not more than 14 inches from the ground when measured from the top surface of the step to the ground, based on standard chassis specifications, except that on Type D vehicles, the first step at the entrance door shall be 12 inches to 16 inches from the ground. On chassis modifications, which may result in increased ground clearance (such as four-wheel drive) an auxiliary step may be provided to compensate for the increase in ground-to-first-step clearance. The auxiliary step is not required to be enclosed.

2. Step risers shall not exceed a height of 10 inches. **Exception** is when plywood is used on a steel floor or step, the riser height may be increased by the thickness of the plywood.
3. Steps shall be enclosed to prevent accumulation of ice and snow.
4. Steps shall not protrude beyond the side body line.

**STEP TREADS**

1. All steps, including floor line platform area, shall be covered with an elastomer floor covering having a minimum overall thickness of 0.187 inch. Any design that provides equal or greater traction is acceptable.
2. The step covering shall be permanently bonded to a durable backing material that is resistant to corrosion.
3. Steps, including the floor line platform area, shall have a 1 ½ inch nosing that contrasts in color by at least 70% measured in accordance with the contrasting color specification in 36 CFR, Part 1192, ADA, Accessibility Guidelines for Transportation Vehicles.
4. Step treads shall have the following characteristics:
   a. Abrasion resistance: Step tread material weight loss shall not exceed 1.10 percent, as tested under ASTM D-4060, Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser, (DS-17 Wheel, 1000 gram, 1000 cycle);
   b. Weathering resistance: Step treads shall not break, crack, or check after ozone exposure (7 days at 50 phm at 40 degrees C); and Weatherometer exposure (ASTMD-750, Standard Test Method for Rubber Deterioration in Carbon-Arc Weathering Apparatus, 7 days); and
   c. Flame resistance: Step treads shall have a calculated burn rate of .01 **mm per minute** or less using the test methods, procedures and formulas listed in FMVSS No. 302, Flammability of Interior Materials.
   **d. A spray on application type material may be used in lieu of Number 1 ~~A~~ that meets the requirements of items a through c. The material shall be applied not only to the interior surfaces of the service door step treads but the exterior as well if not covered by undercoating.**

**STIRRUP STEPS**

Unless the windshield and lamps are not easily accessible from the ground, there may be at least one folding stirrup step or recessed foothold and suitably located handles on each side of the front of the body for easy accessibility for cleaning. Steps are permitted in or on the front bumper, in lieu of the stirrup steps, if the windshield and lamps are easily accessible for cleaning from that position.

**STOP SIGNAL ARM**

1. The stop signal arm(s) shall comply with the requirements of FMVSS 131, School Bus Pedestrian Safety Devices. The stop signal arm is a required retrofit of all school buses, effective July 1, 1987. (Reference section on lamps and signals 3.b.(4).) MFSABs are exempt from these requirements.
2. An optional stop signal arm may be mounted to the rear of the bus.
3. Any bus over 40 feet **shall** have an additional stop signal arm mounted to the rear of the bus.
4. **Stop Signal Arms may be equipped with a camera system(s).**

**STORAGE COMPARTMENT**

A storage container for tools, tire chains, and/or tow chains may be located either inside or outside the passenger compartment. If inside, it shall have a cover (seat cushion may not serve this purpose) capable of being securely latched and fastened to the floor, convenient to either the service or emergency door. Luggage storage compartments accessible from the outside shall be lockable.

**SUN SHIELD**

1. Interior adjustable transparent sun shield not less than six inch x 30 inch for Type B, C, and D vehicles, with a finished edge, shall be installed in a position convenient for use by driver.
2. On all Type A buses the sun shield shall be installed by the chassis Manufacturer.

**SUSPENSION SYSTEM**

1. The capacity of springs or suspension assemblies shall be commensurate with the chassis manufacturer's GVWR.
2. Rear leaf springs shall be of a progressive rate or multi-stage design. Front leaf springs shall have a stationary eye at one end and shall be protected by a wrapped leaf, in addition to the main leaf.

**THROTTLE**

The force required to operate the throttle shall not exceed 16 pounds throughout the full range of accelerator pedal travel.

**TIRES AND RIMS**

1. Rims of the proper size and tires of the proper size with a load rating commensurate with chassis manufacturer's gross vehicle weight rating shall be provided. The use of multi-piece rims and/or tube-type tires shall not be permitted on any school bus ordered after December 31, 1995.
2. Dual rear tires shall be provided on Type A-2, Type B, Type C, and Type D school buses.
3. All tires on a vehicle shall be of the same size, and the load range of the tires shall meet or exceed the GVWR as required by FMVSS No. 120, Tire Selection and Rims for Vehicles other than Passenger Car.
4. If the vehicle is equipped with a spare tire and rim assembly, it shall be the same size as those mounted on the vehicle.
5. If a tire carrier is required, it shall be suitably mounted in an accessible location outside the passenger compartment.
6. Tread depth 4/32 inches on front and 2/32 inches on rear will be minimum. Retreads are allowed on rear wheels only.

**TOWING ATTACHMENT POINTS**

Front and/or rear towing devices (i.e. tow hooks, tow eyes, or other designated towing attachment points) shall be furnished to assist in the retrieval of buses that are stuck and/or for towing buses when a wrecker with a "wheel lift" or an "axle lift" is not available or cannot be applied to the towed vehicle.
Towing devices shall be attached to the chassis frame by either the chassis or body manufacturer in accordance with the chassis manufacturer's specifications.

Each towing device shall have a strength rating of 13,000 pounds each, for a combined rating of 27,000 pounds with the force applied in the rearward direction, parallel to the ground, and parallel to the longitudinal axis of the chassis frame rail. For pulling and lifting purposes, tow hooks are meant to be used simultaneously. For pulling, angularity applied to the town hooks will decrease the capacities of the tow hooks.

The towing devices shall be mounted such that they do not project forward of the front or rearward of the rear bumper.

**Note:** (Type A buses are exempt from this requirement for front tow hooks or eyes due to built-in crush zones.)

**TRACTION ASSISTING DEVICES (OPTIONAL)**

1. Where required or used, sanders shall:
   a. Be of hopper cartridge-valve type;
   b. Have metal hopper with all interior surfaces treated to prevent condensation of moisture;
   c. Be of at least 100-pound (grit) capacity;
   d. Have a cover on filler opening of the hopper, which screws into place, sealing unit airtight;
   e. Have discharge tubes extending under the fender wheel housing to the front of each rear wheel;
   f. Have no-clogging discharge tubes with slush-proof, non-freezing rubber nozzles;
   g. Be operated by an electric switch with pilot light mounted on the instrument panel located so as to be exclusively controlled by the driver;
   h. Be equipped with a gauge to indicate that the hopper has reached the one-quarter level (and needs to be refilled); and
   i. Be designed to prevent freezing of all activation components and moving parts.

2. Automatic traction chains may be installed.

**TRANSMISSION**

1. Automatic transmissions shall have no fewer than three forward speeds and one reverse speed. The mechanical shift selector shall provide a detent between each gear position when the gear selector quadrant and shift selector are not steering column mounted.
2. Automatic transmissions shall have a transmission shifter interlock controlled by the application of the service brake to prohibit accidental engagement of the transmission.

**TRASH CONTAINER AND HOLDING DEVICE**

Where requested or used, the trash container shall be secured by a holding device that is designed to prevent movement and to allow easy removal and replacement; and it shall be installed in an accessible location in the driver's compartment, not obstructing passenger use of the entrance door.

**TURNING RADIUS**

1. A chassis with a wheelbase of 264 inches or less shall have a right and left turning radius of not more than 42.5 feet, curb-to-curb measurement.
2. A chassis with a wheelbase of 265 inches or more shall have a right and left turning radius of not more than 44.5 feet, curb-to-curb measurement.

**UNDERCOATING**

1. Entire underside of bus body, including floor sections, cross member and below floor line side panels, shall be coated with rust-proofing compound for which compound manufacturer has issued notarized certification of compliance to the bus body builder that compound meets or exceeds all performance requirements of SAE J1959.
2. Undercoating material shall be applied with suitable airless or conventional spray equipment to the undercoating material manufacturer recommended film thickness and shall show no evidence of voids in cured film.
3. The undercoating material shall not cover any exhaust components of the chassis.

**VENTILATION**

1. Mandatory auxiliary fans shall meet the following requirements:
   a. **Two auxiliary fans are required** and shall be placed in a location where they can be adjusted for maximum effectiveness and do not obstruct **the driver's vision or interfere with the safe operation of necessary equipment.**
   b. Fans shall be a nominal six-inch (nominal) diameter; and
   c. Fan blades shall be enclosed in a protective cage. Each fan shall be controlled by a separate switch.
2. The bus body shall be equipped with a suitably controlled ventilating system of sufficient capacity to maintain proper quantity of air under operating conditions, without having to open windows except in extremely warm weather.
3. Static-type non-closeable exhaust ventilation shall be installed in low-pressure area of roof.
4. Roof hatches designed to provide ventilation, regardless of the exterior weather conditions, may be provided.

**WARNING STATEMENTS**

**Buses may** have one or both of the following warning statements to the rear of the bus. These statements **shall** be located either between the upper and lower glass panes on the rear emergency exit door, or equivalent location if rear door is absent, and /or below the rear tail/stop lights on the right side. These statements apply whether the bus is loaded or unloaded.

   a. "This Bus Stops At All R.R. (or Railroad) Crossings." (An equivalent message may be substituted, not to exceed total number of letters and spaces of original.)
   b. "STOP-Illegal to Pass When Overhead Red Lights Are Flashing." (An equivalent message may be substituted, not to exceed total number of letters and spaces of original.)

c. The lettering shall conform to “series B” of Standard Alphabets for highway signs, shall be black, and shall be sized so the message will fit the available space, but not to exceed two inches.

**WHEEL HOUSING**

1. The wheel housing opening shall allow for easy tire removal and service.
2. The wheel housing shall be attached to floor sheets in such a manner as to prevent any dust, water or fumes from entering the body. Wheel housing shall be constructed of at least 16-gauge (or thicker) steel.
3. The inside height of the wheel housing above the floor line shall not exceed 12 inches.
4. The wheel housing shall provide clearance for installation and use of tire chains on single and dual (if so equipped) power-driving wheels.
5. No part of the raised wheel housing shall extend into the emergency door opening.

**WINDOWS**

1. Each full side window, other than emergency exits designated to comply with FMVSS 217, Bus Emergency Exits and Window Retention and Release, each side window shall provide an unobstructed emergency opening of at least nine inches (but not more than 13 inches high) and at least 22 inches wide, obtained by lowering window. One side window on each side of the bus may be less than 22 inches wide.
2. Optional tinted and/or frost-free glazing may be installed in all doors, windows, and windshields consistent with federal, state, and local regulations. For improved visibility, frost-free glazing shall be installed in the driver’s window (excluding Type A). Optional frost-free glazing may be installed in the first two windows to the rear of the entry door and/or the first window behind the driver.
3. See door section for entrance door glazing requirements.

**WINDSHIELD WASHERS**

A windshield washer system shall be provided.

**WINDSHIELD WIPERS**

1. A windshield wiping system, two-speed or variable speed, with an intermittent feature, shall be provided and shall be operated by a single switch.
2. The wipers shall be operated by one or more air or electric motors of sufficient power to operate wipers. If one motor is used, the wipers shall work in tandem to give full sweep of windshield. The wiper system shall meet the requirements of FMVSS No. 104, Windshield Wiping and Washing Systems.

**SPECIALLY EQUIPPED SCHOOL BUSES**

**INTRODUCTION**

The specifications in this section are intended to be supplementary to specifications in the Body and Chassis section. In general, specially equipped buses shall meet all the requirements of the preceding sections plus those listed in this section. It is recognized by the entire industry that the field of special transportation is characterized by varied needs for individual cases and by a rapidly emerging technology for meeting those needs. A flexible, “common-sense” approach to the adoption and enforcement of specifications for these vehicles, therefore, is prudent.

**DEFINITION**

A specially equipped school bus is any school bus, which is designed, equipped, and/or modified to accommodate students with special transportation needs.

**GENERAL REQUIREMENTS**

1. School buses designed for transporting students with special transportation needs shall comply with Montana School Bus Standards, National School Transportation Specifications & Procedures and with the Federal Vehicle Safety Standards and with Federal Motor Vehicle Safety Standards (FMVSS) applicable to their Gross Vehicle Weight Rating (GVWR) category.

2. Any school bus to be used for the transportation of children who utilize a wheelchair or other mobile positioning device, or who require life support equipment that prohibits use of the regular service entrance, shall be equipped with a power lift.

**AISLES**
All school buses equipped with a power lift shall provide a minimum 30-inch pathway leading from any wheelchair/mobility aid position to at least one 30 " wide emergency exit. A wheelchair securement position shall never be located directly in front of (blocking) a power lift door location. It is understood that, when provided, the lift service door is considered an emergency exit.

**COMMUNICATIONS**
All school buses which are used to transport individuals with disabilities should be equipped with a two-way electronic voice communication system that can be used at any point in the vehicle's route. Where no such service exists, vehicles would be exempt.

**GLAZING**
Tinted glazing may be installed in all doors, windows, and windshields consistent with federal, state, and local regulations.

**IDENTIFICATION**
Specially equipped school buses shall display below the window line the International Symbol of Accessibility. Such emblems shall be white on blue background, shall not exceed 12 inches square in size, and shall be of a high-intensity, Retro-reflective material meeting Federal Highway Administration (FHWA) FP-85 Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects.

**PASSENGER CAPACITY RATING**
In determining the passenger capacity of a school bus for purposes other than actual passenger load (e.g., vehicle classification, or various billing/reimbursement models), any location in a school bus intended for securement of an occupied wheelchair/mobility aid during vehicle operations may be regarded as four designated seating positions. Similarly, each lift area may be regarded as four designated seating positions.

**POWER LIFTS**
1. Power lift shall be located on the right side of the bus body.
    a. **Exception:** The lift may be located on the left side of the bus if, and only if, the bus is only used to deliver students to the left side of one-way streets.
2. Vehicle lift and installation
    a. General: Vehicle lifts and installations shall comply with the requirements set for4th in FMVSS 403, Platform Lift Systems for Motor Vehicles, and FMVSS 404, Platform Lift Installations in Motor Vehicles.
    b. Design load: The design load of the lift shall be at least 800 pounds. Working parts, such as cables, pulleys, and shafts, which can be expected to wear, and upon which the lift depends for support of the load, shall have a safety factor of at least six (6), based on the ultimate strength of the material. Non-working parts, such as platform, frame, and attachment hardware that would not be expected to wear, shall have a safety factor of at least three (3), based on the ultimate strength of the material.
    c. Controls Requirements:
    Controls shall be provided that enable the operator to activate the lift mechanism from either inside or outside the bus. The controls should be interlocked with the vehicle brakes, transmission, or door, or shall provide other appropriate mechanisms or systems to ensure the vehicle cannot be moved when the lift is not stowed and so the lift cannot be deployed unless the interlocks or systems are engaged. The lift shall deploy to all levels (i.e., ground, curb, and intermediate positions) normally encountered in the operating environment. Where provided, each control for deploying, lowering, raising, and stowing the lift and lowering the

roll-off barrier shall be of a momentary contact type requiring continuous manual pressure by the operator and shall not allow improper lift sequencing when the lift platform is occupied. The controls shall allow reversal of the lift operation sequence, such as raising or lowering a platform that is part way down, without allowing an occupied platform to fold or retract into the stowed position.

i. Exception

Where the lift is designed to deploy with its long dimension parallel to the vehicle axis and which pivots into or out of the vehicle while occupied (i.e., “rotary lift”), the requirements of this paragraph prohibiting the lift from being stowed while occupied shall not apply if the stowed position is within the passenger compartment and the lift is intended to be stowed while occupied.

ii. Emergency operation

(a) The lift shall incorporate an emergency method of deploying, lowering to ground level with a lift occupant, and raising and stowing the empty lift if the power to the lift fails. No emergency method, manual or otherwise, shall be capable of being operated in a manner that could be hazardous to the lift occupant or to the operator when operated according to manufacturer’s instructions and shall not permit the platform to be stowed or folded when occupied, unless the lift is a rotary lift and is intended to be stowed while occupied. No manual emergency operation shall require more than two (2) minutes to lower an occupied wheelchair to ground level.

iii. Power or equipment failure

(a) Platforms stowed in a vertical position, and deployed platforms when occupied, shall have provisions to prevent their deploying, falling, or folding any faster than 12 inches per second or their dropping of an occupant in the event of a single failure of any load carrying component.

iv. Platform barriers

The lift platform shall be equipped with barriers to prevent any of the wheels of a wheelchair or mobility aid from rolling off the platform during its operation. A movable barrier or inherent design feature shall prevent a wheelchair or mobility aid from rolling off the edge closest to the vehicle until the platform is in its fully raised position. Each side of the lift platform that extends beyond the vehicle in its raised position shall have a barrier a minimum 1.5 inches high. Such barriers shall not interfere with maneuvering into or out of the aisle. The loading-edge barrier (outer barrier), which functions as a loading ramp when the lift is at ground level, shall be sufficient when raised or closed, or a supplementary system shall be provided, to prevent a power wheelchair or mobility aid from riding over or defeating it. The outer barrier of the lift shall automatically raise or close, or a supplementary system shall automatically engage, and remain raised, closed, or engaged at all times that the platform is more than 3 inches above the roadway or sidewalk and the platform is occupied. Alternatively, a barrier or system may be raised, lowered, opened, closed, engaged, or disengaged by the lift operator, provided an interlock or inherent design feature prevents the lift from rising unless the barrier is raised or closed or the supplementary system is engaged.

v. Platform surface

The platform surface shall be free of any protrusions over 1/4 inch high and shall be slip resistant. The platform shall have a minimum clear width of 28.5 inches at the platform, a minimum clear width of 30 inches measured from two inches above the platform surface to 30 inches above the surface of the platform, and a minimum clear length of 48 inches measured from two inches above the surface of the platform to 30 inches above the surface of the platform. (See “Wheelchair or Mobility Aid Envelope” figure in Appendix D).

vi. Platform gaps

Any openings between the platform surface and the raised barriers shall not exceed 5/8 inch in width. When the platform is at vehicle floor height with the

inner barrier (if applicable) down or retracted, gaps between the forward lift platform edge and the vehicle floor shall not exceed 1/2 inch horizontally and 5/8 inch vertically. Platforms on semi-automatic lifts may have a hand hold not exceeding 1.5 inches by 4.5 inches located between the edge barriers.

vii. Platform deflection

The lift platform (not including the entrance ramp) shall not deflect more than 3 degrees (exclusive of vehicle roll or pitch) in any direction between its unloaded position and its position when loaded with 600 pounds applied through a 26-inch by 26-inch test pallet at the centroid of the platform.

viii. Platform movement

No part of the platform shall move at a rate exceeding 6 inches per second during lowering and lifting an occupant, and shall not exceed 12 inches per second during deploying or stowing. This requirement does not apply to the deployment or stowage cycles of lifts that are manually deployed or stowed. The maximum platform horizontal and vertical acceleration when occupied shall be 0.3 g.

ix. Boarding direction

The lift shall permit both inboard and outboard facing of wheelchair and mobility aid users.

x. Use by standees

Lifts shall accommodate persons using walkers, crutches, canes or braces, or who otherwise have difficulty using steps. The platform may be marked to indicate a preferred standing position.

xi. Handrails

Platforms on lifts shall be equipped with handrails on two sides, which move in tandem with the lift, and which shall be graspable and provide support to standees throughout the entire lift operation. Handrails shall have a usable component at least 8 inches long with the lowest portion a minimum 30 inches above the platform and the highest portion a maximum 38 inches above the platform. The handrails shall be capable of withstanding a force of 100 pounds concentrated at any point on the handrail without permanent deformation of the rail or its supporting structure. The handrail shall have a cross-sectional diameter between 1 1/4 inches and 1 1/2 inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than 1/8 inch. Handrails shall be placed to provide a minimum 1 1/2 inch knuckle clearance from the nearest adjacent surface. Handrails shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the vehicle.

xii. Circuit breaker

A resettable circuit breaker shall be installed between power source and lift motor if electrical power is used. It shall be located as close to the power source as possible, but not within the passenger/driver compartment.

xiii. Excessive pressure

Lift design shall prevent excessive pressure that could damage the lift system when the platform is fully lowered or raised, or that could jack the vehicle.

xiv. Documentation

The following information shall be provided with each vehicle equipped with a lift:

1. A phone number where information can be obtained about installation, repair, and parts. (Detailed written instructions and a parts list shall be available upon request.)
2. Detailed instructions regarding use of the lift and readily visible when the lift door is open, including a diagram showing the proper placement and positioning of wheelchair/mobility aids on lift.

xv. Training materials

The lift manufacturer shall make available training materials to ensure the proper use and maintenance of the lift. These may include instructional videos, classroom curriculum, system test results, or other related materials.

xvi. Identification and certification

Each lift shall be permanently and legibly marked or incorporate a non-removable label or tag which states that it conforms to all applicable requirements of the current National Standards for School Buses. In addition, the lift manufacturer, or an authorized representative, upon request of the original titled purchaser, shall provide a notarized Certificate of Conformance, either original or photocopied, which states that the lift system meets all the applicable requirements of the current National School Transportation Specifications and Procedures.

**REGULAR SERVICE ENTRANCE**

On power-lift equipped vehicles, the step shall be the full width of the step well, excluding the thickness of doors in open position.

In addition to the HANDRAIL required in the BUS BODY AND CHASSIS section, an additional handrail may be provided on all SPECIALLY EQUIPPED SCHOOL BUSES. This rail shall be located on the opposite side of the entrance door from the rail required in the BUS BODY AND CHASSIS section and shall meet the same requirements for handrails.

**RESTRAINING DEVICES**

1. On power-lift equipped vehicles, seat frames may be equipped with attachments or devices to winch belts, restraining harnesses or other devices may be attached. Attachment framework or anchorage devices, if installed, shall conform to FMVSS 210.
2. Seat belt assemblies, if installed, shall conform to FMVSS 209.
3. Child restraint systems, which are used to facilitate the transportation of children who, in other modes of transportation would be required to use a child, infant, or booster seat, shall conform to FMVSS 213.

**SEATING ARRANGEMENTS**

Flexibility in seat spacing to accommodate special devices shall be permitted to meet passenger requirements. All seating shall be forward-facing.

This seating arrangement provision shall apply to all new specially equipped school buses, any older buses modified or retrofitted to carry wheelchairs/mobile seating device(s), and any older specially equipped buses whose wheelchair/mobile seating device positions are retrofitted or modified, after August 15, 1993. This provision shall apply retroactively to all specially equipped school buses after August 15, 1998.

**SECUREMENT AND RESTRAINT SYSTEM FOR WHEELCHAIR/MOBILITY AID AND OCCUPANT**

For purposes of understanding the various aspects and components of this section, the term securement and tiedown and the phrases securement system or tiedown system is used exclusively in reference to the device that anchors the wheelchair to the vehicle. The term wheelchair tiedown and occupant restraint system (WTORS) is used to refer to the total system used that secures and restrains both the wheelchair and the wheelchair occupant.

1. WTORS general requirements:
   a. The Wheelchair/Mobility Aid Securement and Occupant Restraint System shall be designed, installed, and operated to accommodate passengers in a forward-facing orientation within the bus and shall comply with all applicable requirements of FMVSS 222, School Bus Passenger Seating and Crash Protection, and SAE J2249, Wheelchair Tiedown and Occupant Restraint Systems for use in Motor Vehicles. Gurney-type devices shall be secured parallel to the side of each bus.
   b. The WTORS, including the anchorage track, floor plates, pockets, or other anchorages shall be provided by the same manufacturer, or be certified to be compatible by manufacturers of all equipment/systems used.
   c. When a wheelchair/mobility aid securement device and an occupant restraint share a common anchorage, including occupant restraint designs that attach the occupant restraint to the securement device or the wheelchair/mobility aid, the anchorage shall be capable of withstanding

the loads of both the securement device and occupant restraint applied simultaneously, in accordance with FMVSS 222.

d. When a wheelchair/mobility aid securement device (webbing or strap assembly) is shared with an occupant restraint, the wheelchair/ mobility aid securement device (webbing or strap assembly) shall be capable of withstanding a force twice the amount as specified in 4.4(a) of FMVSS 209.
e. The bus body floor and sidewall structures where the securement and restraint system anchorages are attached shall have equal or greater strength than the load requirements of the system(s) being installed.
f. The occupant restraint system shall be designed to be attached to the bus body either directly or in combination with the wheelchair/mobility aid securement system, by a method, which prohibits the transfer of weight or force from the wheelchair/mobility aid to the occupant in the event of an impact.
g. When an occupied wheelchair/mobility aid is secured in accordance with the manufacturer's instructions, the securement and restraint system shall limit the movement of the occupied wheelchair/mobility aid to no more than two inches in any direction under normal driving conditions.
h. The securement and restraint system shall incorporate an identification scheme, which will allow for the easy identification of the various components and their functions. It shall consist of one of the following, or combination thereof:
    i. The wheelchair/mobility aid securement (webbing or strap assemblies) and the occupant restraint belt assemblies shall be of contrasting color or color shade.
    ii. The wheelchair/mobility aid securement device (webbing or strap assemblies) and occupant restraint belt assemblies shall be clearly marked to indicate the proper wheelchair orientation in the vehicle, and the name and location for each device or belt assembly, i.e., front, rear, lap belt, shoulder belt, etc.
i. All attachment or coupling devices designed to be connected or disconnected frequently shall be accessible and operable without the use of tools or other mechanical assistance.
j. All securement and restraint system hardware and components shall be free of sharp or jagged areas and shall be of a non-corrosive material or treated to resist corrosion in accordance with section 4.3(a) of FMVSS 209.
k. The securement and restraint system shall be located and installed such that when an occupied wheelchair/mobility aid is secured, it does not block access to the lift door.
l. A device for storage of the securement and restraint system shall be provided. When the system is not in use, **it shall be kept in the system securely contained** storage device. It shall allow for clean storage of the system **and** shall provide reasonable protection from vandalism, and shall enable the system to be readily accessed for use.
m. The entire securement and restraint system, including the storage device, shall meet the flammability standards established in FMVSS 302.
n. Each securement device (webbing or strap assembly) and restraint belt assembly shall be permanently and legibly marked or incorporate a non-removable label or tag which states that it conforms to all applicable FMVSS requirements, as well as, the current National Standards for School Buses. In addition, the system manufacturer, or an authorized representative, upon request by the original titled purchaser, shall provide a notarized Certificate of Conformance, either original or photocopied, which states that the wheelchair/mobility aid securement and occupant restraint system meets all of the requirements as specified in FMVSS 222 and the current National School Transportation Specifications and Procedures.
o. The following information shall be provided with each vehicle equipped with a securement and restraint system:
    i. A phone number where information can be obtained about installation, repair, and parts. (Detailed written instructions and a parts list shall be available upon request.)
    ii. Detailed instructions regarding use, including a diagram showing the proper placement of the wheelchair/mobility aids and positioning of securement devices and occupant restraints, including correct belt angles.
p. The system manufacturer shall make available training materials to ensure the proper use and maintenance of the wheelchair/mobility aid securement and occupant restraint system. These

may include instructional videos, classroom curriculum, system test results, or other related materials.

2. Wheelchair/mobility Aid Securement System
   a. Each securement system location shall consist of a minimum of four anchorage points. A minimum of two anchorage points shall be located in front of the wheelchair/mobility aid and a minimum of two anchorage points shall be located in the rear. The securement anchorages shall be attached to the floor of the vehicle and shall not interfere with passenger movement or present any hazardous condition.
   b. Each securement system location shall have a minimum clear floor area of 30 inches x 48 inches. Additional floor area may be required for some applications. Consultation between the user and the manufacturer is recommended to ensure adequate area is provided.
   c. The securement system shall secure common wheelchair/mobility aids and shall be able to be attached easily by a person having average dexterity and who is familiar with the system and wheelchair/mobility aid.
   d. As installed, each securement anchorage shall be capable of withstanding a minimum force of 3,000 pounds (13,344 Newtons) when applied as specified in FMVSS 222. When more than one securement device share a common anchorage, the anchorage shall be capable of withstanding the force indicated above, multiplied by the number of securement devices sharing that anchorage.
   e. Each securement device, if incorporating webbing or a strap assembly, shall comply with the requirements for Type 1 safety belt systems, in accordance with sections 4.2, 4.3, and 4.4(a) of FMVSS 209.
   f. The securement system shall secure the wheelchair/mobility aid in such a manner that the attachments or coupling hardware will not become detached when any wheelchair/mobility aid component deforms, when one or more tires deflate, and without intentional operation of a release mechanism (e.g., a spring clip on a securement hook).
   g. Each securement device (webbing or strap assembly) shall be capable of withstanding a minimum force of 2,500 pounds when tested in accordance with FMVSS 209.
   h. Each securement device (webbing or strap assembly) shall provide a means of adjustment, of manufacturer's design, to remove slack from the device or assembly.
3. Occupant Restraint System
   a. A Type 2A occupant restraint system, which meets all applicable requirements of FMVSSs 209 and 210, shall provide for restraint of the occupant.
   b. The occupant restraint system shall be made of materials, which do not stain, soil, or tear an occupant's clothing, and which are resistant to water damage and fraying.
   c. Each restraint system location shall have not less than one anchorage, of manufacturer's design, for the upper end of the upper torso restraint.
      i. The anchorage for each occupant's upper torso restraint shall be capable of withstanding a minimum force of 1,500 pounds (6,672 Newtons) when applied as specified in FMVSS 222. (See 49 CFR 571.222, S5.4.3, S5.4.4). If the upper torso belt anchorage is higher than 44", measured from the vehicle floor, an adjustment device as part of the occupant restraint system shall be supplied.
   d. Each wheelchair/mobility aid location shall have not less than two floor anchorages for the occupant pelvic and the connected upper torso restraint.
      i. Each floor anchorage shall be capable of withstanding a minimum force of 3,000 pounds (13,344 Newtons) when applied as specified in FMVSS 222.
      ii. When more than one occupant restraint shares a common anchorage, the anchorage shall be capable of withstanding a minimum force of 3,000 pounds (13,344 Newtons) multiplied by the number of occupant restraints sharing the common anchorage in accordance with FMVSS 222.
   e. Each floor and wall anchorage which secures the occupant restraint to the vehicle and which is not permanently attached, shall be of a "positive latch" design, and shall not allow for any accidental disconnection.
4. Dynamic Testing
   a. The wheelchair/mobility aid securement and occupant restraint system shall be subjected to, and successfully pass, a dynamic sled test at a minimum impact speed/deceleration of 30 mph/20g's.

b. The dynamic test shall be performed by experienced personnel using an impact simulator with proven ability to provide reliable, accurate, test results that can be replicated.
c. The dynamic test shall be performed in accordance with the procedures set forth in Appendix A of SAE J2249 “Test for Frontal Impact Crash Worthiness.”
d. The wheelchair/mobility aid used for testing purposes shall be a rigid, reusable surrogate wheelchair that complies with the requirements of Appendix D of SAE J2249 “Specification for Surrogate Wheelchair.”
e. The dynamic test shall be performed using system assemblies, components and attaching hardware that are identical to the final installation in type, configuration and positioning. The body structure at the anchorage points may be simulated for the purpose of the sled test.
f. When tested, the wheelchair/mobility aid securement and occupant restraint system shall pass the criteria specified in Section 6.2 of SAE J2249 “Performance Requirements of Frontal Sled Impact Test.” Following is an abridged summary of the criteria. (see appendix D):
    i. Retain the test dummy in the test wheelchair and on the test sled with the test wheelchair in an upright position;
    ii. Does not show any fragmentation or complete separation of any load carrying part;
    iii. Does not allow the horizontal excursions of the test dummy and the test wheelchair to exceed specified limits;
    iv. Prevent the test wheelchair from imposing forward loads on the test dummy; and
    v. Allow removal of the test dummy and the test wheelchair, subsequent to the test, without the use of tools.

**SPECIAL LIGHT**

Doorways in which lifts are installed shall have for use during lift operation a special light providing a minimum of two foot-candles of illumination measured on the floor of the bus immediately adjacent to the lift and on the lift when deployed at the vehicle floor level.

**SPECIAL SERVICE ENTRANCE**

1. Power lift-equipped bodies shall have a special service entrance to accommodate the power lift.
2. **Exception:** If the lift is designed to operate within the regular service entrance, and is capable of stowing such that the regular service entrance is not blocked in any way, and that persons entering or exiting the bus are not impeded in any way, a special service entrance shall not be required.
3. The special service entrance and door shall be located on the right side of the bus and shall be designed so as not to obstruct the regular service entrance.
4. **Exception:** A special service entrance and door may be located on the left side of the bus if, and only if, the bus is used primarily to deliver students to the left side of one way streets and its use is limited to that function.
5. The opening may extend below the floor through the bottom of the body skirt. If such an opening is used, reinforcements shall be installed at the front and rear of the floor opening to support the floor and give the same strength as other floor openings.
6. A drip molding shall be installed above the opening to effectively divert water from entrance.
7. Door posts and headers from entrance shall be reinforced sufficiently to provide support and strength equivalent to the area of the side of the bus not used for special service entrance.

**SPECIAL SERVICE ENTRY DOORS**

1. A single door or double doors may be used for the special service entrance.
2. A single door shall be hinged to the forward side of the entrance unless doing so would obstruct the regular service entrance. If, due to the above condition, the door is hinged to the rearward side of the doorway, the door shall utilize a safety mechanism, which will also prevent the door from swinging open should the primary door latch fail to operate properly. If double doors are used the system shall be designed to prevent the door(s) from being blown open by the wind resistance created by the forward motion of the bus, and/or incorporate a safety mechanism to provide secondary protection should the primary latching mechanism(s) fail.
3. All doors shall have positive fastening devices to hold doors in the open position.
4. All doors shall be weather sealed.

5. When manually-operated dual doors are provided, the rear door shall have at least a one-point fastening device to the header. The forward-mounted door shall have at least three one-point fastening devices. One shall be to the header, one to the floor line of the body, and the other shall be into the rear door. The door and hinge mechanism shall be of a strength that is greater than or equivalent to the emergency exit door.
6. Door materials, panels and structural strength shall be equivalent to the conventional service and emergency doors. Color, rub rail extensions, lettering and other exterior features shall match adjacent sections of the body.
7. Each door shall have windows set in rubber, which are visually similar in size and location to adjacent non-door windows. Glazing shall be of same type and tinting (if applicable) as standard fixed glass in other body locations.
8. Door(s) shall be equipped with a device that will actuate an audible or flashing signal located in the driver's compartment when door(s) is not securely closed and ignition is in "on" position.
9. A switch shall be installed so that the lifting mechanism will not operate when the lift platform door(s) is closed.
10. Special service entrance doors shall be equipped with padding at the top edge of the door opening. Padding shall be at least three inches wide and one inch thick and extend the full width of the door opening.

**SUPPORT EQUIPMENT AND ACCESSORIES**

(See also Wheelchair or Mobility Aid Envelope—Appendix A.)

1. Each bus which is set up to accommodate wheelchair/mobility aids or other assistive or restraint devices which utilize belts, shall contain at least one belt cutter properly secured in a location within reach of the driver while belted into his/her driver's seat. The belt cutter shall meet the requirements listed in the Bus Body and Chassis section.
2. Each special equipped school bus that is set up to accommodate wheelchairs or other assistive restraint devices should be equipped with an emergency evacuation device that is certified and tested to withstand at least a 300 pound load when used as an emergency stretcher or drag. This evacuation device shall be properly secured to the bus in a location to be determined by the purchaser.
3. Special equipment or supplies that are used on the bus for mobility assistance, health support, or safety purposes shall meet any local, federal, or engineering standards which may apply, including proper identification. Equipment which may be used for these purposes includes, but is not limited to:
    a. Wheelchairs and other mobile seating devices. (see Appendix A on Securement System for Mobile Seating Devices/Occupant);
    b. Crutches, walkers, canes, and other ambulating devices; and
    c. Medical support equipment. This may include respiratory devices such as oxygen bottles (which should be no larger than 22 cubic feet for liquid oxygen and 38 cubic feet for compressed gas), or ventilators. (If transporting oxygen, refer to AMD Standard 003.) Tanks and valves should be located and positioned to protect them from direct sunlight, bus heater vents, or other heat sources. Other equipment may include intravenous and fluid drainage apparatus.
4. All portable equipment and special accessory items, including the equipment listed above, shall be secured at the mounting location to withstand a pulling force of five times the weight of the item, or shall be retained in an enclosed, latched compartment. The compartment shall be capable of withstanding forces applied to its interior equal to five times the weight of its contents without failure to the box's integrity and securement to the bus.

    **Exception**: If these standards provide specific requirements for securement of a particular type of equipment, the specific standard shall prevail (i.e., wheelchairs).

**TECHNOLOGY AND EQUIPMENT, NEW**

It is the intent of these standards to accommodate new technologies and equipment that will better facilitate the transportation of students with special needs. When a new technology, piece of equipment, or component is desired to be applied to the school bus, and it meets the following criteria, it may be acceptable.

1. It (the technology, equipment or component) shall not compromise the effectiveness or integrity of any major safety system, unless it completely replaces the system. (Examples of safety systems include, but are not limited to, compartmentalization, the eight light warning lights system, emergency exits, and the uncluttered, approved yellow color scheme.)
2. It shall not diminish the safe environment of the interior of the bus.
3. It shall not create additional risk to students who are boarding or exiting the bus or are in or near the school bus loading zone.
4. It shall not create undue additional activity and/or responsibility for the driver.
5. It shall generally increase efficiency and/or safety of the bus, or generally provide for a safer or more pleasant experience for the occupants and pedestrians in the vicinity of the bus, or generally assist the driver or make his/her many tasks easier to perform.

## ALTERNATIVE FUELS

### INRODUCTION

This standard is designed to be used as an overview of the alternative fuels being utilized for school transportation. The standard is not designed to replace current applicable federal, state, manufacturing or safety standards that may exceed requirements within this standard. There will be advancements in engineering and improvements in equipment fabrication methods and operating practices that differ from those specifically called for in this standard. Such deviations or improvements may provide safety and may meet the intent of and be compatible with this standard. Entities wishing to purchase alternative fuel school buses should use this section only as a starting point. More detailed specifications, including specific design and performance criteria and safety standards, should be researched by prospective purchasers of alternative fuel school buses.

### GENERAL REQUIREMENTS

Alternative fuel school buses shall meet the following requirements:

1. Chassis shall meet all standards previously mentioned in Bus Chassis Standards;
2. Chassis shall meet all applicable FMVSS standards;
3. Fuel system integrity shall allow zero (0) leakage when impacted by a mobile barrier in accordance with test conditions specified in FMVSS 301 or FMVSS 303, as applicable;
4. Original Equipment Manufacturers (OEMs) and conversion systems using Compressed Natural Gas (CNG) shall comply with NFPA Standard 52-2013, “Compressed Natural Gas Vehicular Fuel Systems”. Fuel systems using liquefied petroleum gas (LPG) shall comply with the NFPA Standard 58-2014 “Liquefied Petroleum Gases Engine Fuel Systems” in effect at the time of installation.
5. Fuel tank(s) for vehicles of less than 54 passenger capacity powered by LPG or CNG shall have a minimum 40-gallon capacity. Fuel tank(s) for vehicles of 54 or more passenger capacity powered by LPG or CNG shall have a minimum 60-gallon capacity.
6. Natural gas-powered buses may be equipped with an interior/exterior gas detection system. All natural gas-powered buses may be equipped with a fire detection and suppression system;
7. All materials and assemblies used to transfer or store alternative fuels shall be installed outside the passenger/driver compartment;
8. All Type C and D buses using alternative fuel shall meet the same base requirements of BUS CHASSIS STANDARDS for power and grad ability, i.e., at least one published net horsepower per each 185 pounds of GVWR;
9. The total weight shall not exceed the GVWR when loaded to the rated capacity;
10. The manufacturer supplying the alternative fuel equipment must provide the owner and operator with adequate training and certification in fueling procedures, scheduled maintenance, troubleshooting, and repair of alternative fuel equipment;
11. All fueling equipment shall be designed specifically for fueling motor vehicles and shall be certified by the manufacturer as meeting all applicable federal, state and industry standards;
12. All on-board fuel supply containers shall meet all appropriate requirements of the ASME code, the DOT regulations, or applicable FMVSS and NFPA Standards;
13. All fuel supply containers shall be securely mounted to withstand a static force of eight times their weight in any direction;
14. All safety devices that may discharge to the atmosphere shall be vented to the outside of the vehicle. The discharge line from the safety relief valve on all school buses shall be located in a manner

appropriate to the characteristics of the alternative fuel. Discharge lines shall not pass through the passenger compartment;

15. CNG buses shall have a positive quick acting (1/4 turn) shut-off control valve shall be installed in the gaseous fuel supply lines as close to the fuel supply containers as possible. The controls for this valve shall be placed in a location easily operable from the exterior of the vehicle. The location of the valve control shall be clearly marked on the exterior surface of the bus; and
16. A grounding system shall be required for grounding of the fuel system during maintenance related venting.
17. Fuel systems identified as compatible with bio-diesel must be provided with components compatible with Bio-Diesel conforming to the specifications of ASTM 6751, Biodiesel Standards.

## OPERATIONS

### INTRODUCTION

The success of any school transportation operation depends largely on the performance and degree of dedication displayed by those involved. These recommendations and requirements are designed to assist state agencies, school and Head-start administrators and private operators in understanding their pupil transportation programs and developing applicable policies, including those for transporting students with special needs.

The school bus is an extension of the classroom and as such, the ride to school should be safe and efficient in an atmosphere conducive to learning readiness. Open and honest communication between all stakeholders is vital for the success of the transportation program. Transportation is critical to the education process, and the school bus is the safest form of transportation. Therefore, transportation to and from school on a school bus shall be offered to all eligible students.

Districts or the governing body responsible for pupil transportation shall have an eligibility policy, which takes safety into account, addressing distances from school for different age groups. If transportation eligibility is maximized, the result will be more students on buses, and therefore, safer access to students' educational opportunities. The sole criterion used to establish transportation eligibility should not be only the distance between a student's home address and the student's school of attendance; rather, travel to and from school must take into account various criteria. Safety must be the primary concern, and criteria should take into account the ages of students and potentially hazardous situations, such as roadway and walk pathway conditions, speed limits, railroad crossings, lighting conditions, etc. The criteria should also take into account students' levels of maturity, grade levels, cognitive and physical abilities. Similar criteria should be used in establishing maximum distances between a student's home and the assigned bus stop per district guidelines.

### SCHOOL BUSES AND TRANSPORTION

"Bus Route" means a route approved by the board of trustees of a school district and the county transportation committee.

"School Bus" means, a commercial motor vehicle that complies with the bus standards established by the board of public education as verified by the department of justice's semiannual inspection of school buses and the superintendent of public instruction; and

Is owned by a district or other public agency and operated for the transportation of pupils to or from school or owned by a carrier under contract with a district or public agency to provide transportation of pupils to and from school.

A school bus does not include:

Privately owned and not operated for compensation

Privately owned and operated for reimbursement under MCA, 20-10-142.

Either district owned or privately owned, designed to carry not more than nine passengers, and used to transport pupils to or from activity events or to transport pupils to their homes in case of illness or other emergency situations; or

An over-the-road passenger coach used only to transport students to activity events.
"Transportation" means, a district's conveyance of a pupil by a school bus between the pupil's legal residence or an officially designated bus stop and the school designated by the trustees for the pupil's attendance.

**SEMI-ANNUAL BUS INSPECTIONS**

1. The Highway Patrol shall perform the semiannual inspection of school buses, one of which shall be at least 30 days prior to the beginning of the school term, and re-inspect the buses, if necessary, before the beginning of the school term. The second inspection shall be performed by January 31.
2. The Highway Patrol's inspection shall determine if the school buses meet the minimum standards for school buses as adopted by the board of public education.
3. Only school buses that pass inspection may be used to transport students and only school buses that pass inspection will receive state and county transportation reimbursement. A school bus that fails to pass inspection shall not transport students on routes and will not be eligible for state and county reimbursement until the bus is re-inspected and approved by the inspecting officer.

NOTE: The school district is responsible for contacting the Montana Highway Patrol for bus inspections. Nothing in this rule precludes the Montana Highway Patrol from inspecting school buses at other times as the highway patrol sees fit.

4. Buses that are placed in operation after the school semester has begun must be inspected and approved by the Montana Highway Patrol before the vehicle is operated on the established route.

**SCHOOL TRAVEL CHOICES**

Children in the United States travel to and from pre-school, school and related activities by a variety of modes. Administrators, parents and students often choose or encourage the use of modes of travel for reasons other than maximizing safety or minimizing risk (e.g., convenience, flexibility, and budget). It is recommended that all school students be transported in a school bus.

Each travel mode has its inherent risks, which vary from community to community, school to school and program to program, and any shifts from one mode to another can have a marked effect on the overall safety of travel for a particular community, school or program. Each state, school district, private school, Head Start agency and any other agencies or organizations transporting school-age children must assess their own situations and circumstances and apply the information presented in "The Relative Risks of School Travel – A National Perspective and Guidance for Local Community Risk Assessment" (published by the Transportation Research Board of the National Academies of Sciences and Engineering), to make sound, informed decisions. The goal is to improve safety for all children traveling to and from pre-school, school and related activities and to provide communities with the information needed to make informed choices that balance their needs and resources. School Bus Use

On July 6, 1999, the National Transportation Safety Board (NTSB) transmitted a Safety Recommendation letter to the Steering Committee of the 13th National Conference on School Transportation containing the findings and recommendations of the Special Investigation Report-Pupil Transportation in Vehicles Not Meeting Federal School Bus Standards (NTSB/SIR-99/02). This special investigation was based on the NTSB's finding in four accidents involving "nonconforming buses" that a number of children were ejected and fatally injured in three 15-passenger vans and a 25-passenger specialty bus that "did not and were not required to meet Federal school bus occupant crash protection standards." Recommendations H-99-25, issued in the letter to the National Conference on School Transportation and a number of other national associations and churches, state, "Inform their members about the circumstances of the accidents discussed in this special investigation report and urge that they use school buses or buses having occupant protection equivalent to school buses to transport children."

To assure the highest level of safety for children, consistent with the NTSB's recommendation and 45 CFR 1310, all students transported to and from public and private schools and to related school activities shall be transported in school buses as defined in Title 49, CFR Part 571 or vehicles having passenger crash protection equivalent to school buses such as multifunction school activity buses (MFSABs).

A Commercial Driver's License (CDL) with an School Bus "S" and Passenger "P" endorsement is required when a person who drives a school bus, or who transports pre-primary, primary, or secondary school students for school-related activity trips, field trips, and operating on an approved route, in a commercial motor vehicle. The "S" endorsement shall be required for any school bus, including 16 passengers and less, and 16 passengers and more.
**There shall be no exceptions to this rule**.

**STATE ADMINISTRATION**

1. Superintendent of Public Instruction
    a. The Superintendent of Public Instruction shall provide leadership and guidance as defined in MCA 20-10-112.
2. State Pupil Transportation Director
    a. The state pupil transportation director's specific duties may include, but are not limited to:
        i. Assisting in the implementation, interpretation and understanding of pupil transportation laws, regulations and policies;
        ii. Supervising the preparation of manuals, handbooks and information for distribution to local transportation personnel and private operators;
        iii. Providing assistance and direction to local school administrators on request;
        iv. Assisting local personnel in planning and conducting pupil safety education programs;
        v. Requiring and maintaining appropriate reports and records;
        vi. Assisting/consulting with groups involved in pupil transportation safety;
        vii. Representing the interests of the pupil transportation industry,
        viii. Working cooperatively with school transportation associations, school districts, parents and private contractors to promote school bus safety and efficiency; and.
        ix. Managing the state's Pupil Transportation Program, which includes planning, budgeting and forecasting requirements for the operation.

The state Director of Pupil Transportation should be an active member of regional and national organizations and should participate in activities that promote student transportation safety.

**USE OF BUS AUDIO/VIDEO MONITORING SYSTEMS**

School systems should promulgate, communicate and enforce policies and procedures to be followed when using on-board video monitoring systems. The video camera on a school bus should shall be used only as an aid to monitor student and driver behavior. It should not replace the discipline policy, the authority of the driver, or the responsibility of the school officials.

The basic safe riding rules must prevail and the consequences of misconduct must be carried out. All students and drivers shall be notified that they are subject to being videotaped on the school bus at any time. Notification to parents of all students shall be made by the school district. Prior to actual taping, parents and students shall be advised that student conduct is prohibited by state and school district student disciplinary code will result in appropriate consequences as defined in policy. The actual taping shall be audio and video.

Ongoing notification regarding videotaping must occur, addressing the continued need for personal awareness of safety issues. This communication is particularly important to warn against a false sense of security, especially when cameras are moved between buses. Newsletters, student handouts, and notices posted in the bus should be considered.

If video cameras are to be used for monitoring drivers, the drivers must be notified as to the extent of their use and for what purpose they will be used. Cameras should be scheduled on a rotation basis so as not to select only certain buses. Based on the number of incidents of misconduct or the seriousness of these reports, video monitoring of a bus route may be done more frequently. The transportation supervisor may decide if more frequent monitoring is needed. Such additional monitoring is meant to supplement the written disciplinary reports by the bus driver, not take the place of reports.

After videotaping has been conducted, the tapes are to be stored at a secure location for a period of time designated by the local school district, unless a specific tape is being used in an ongoing action. The transportation supervisor or designee shall periodically review videotapes randomly selected to ensure proper pupil conduct. If no incidents are reported within a period defined by local policy, the tapes will be recycled. If incidents are reported, or if incidents are viewed during random selection, the videotapes are to be kept until final resolution and time for any appeals. Tapes must be dated and have the bus number and driver's name in order to ensure proper identification. A log shall be maintained on the use of the video camera.

When action is taken as a result of information obtained from the videotape, the driver, supervisor, school administrator, student, and parents or guardians will be contacted. A meeting of the aforementioned parties may be necessary to achieve a resolution of the problem. The videotape may be used as evidence in that meeting. All requests for review shall be made in writing. Each district must designate, by policy, persons allowed to review the tapes.

**SCHOOL DISTRICT BOARD AND ADMINISTRATION**

The School District's Board and Administrative duties shall include but are not limited to:

a. Understanding and implementing pupil transportation laws, regulations, and policies;
b. Planning and conducting pupil safety education programs as needed;
c. Maintaining adequate records and filing appropriate reports; and,
d. Working to promote school bus safety and efficiencies, including planning and conducting a school bus driver training program.

**BUS DRIVER QUALIFICATIONS**

A driver of a school bus is qualified to drive a school bus if the driver:

1. is not less than 18 years of age;
2. is of good moral character;
3. is the holder of a commercial driver's license;
4. has filed with the district a satisfactory medical examination report, on a form approved by the United States department of transportation, signed by any physician licensed in the United States or, if acceptable to an insurance carrier, any licensed physician;
5. has completed a basic first aid and CPR course, and holds a valid basic first aid and CPR certificate from an authorized instructor. The issuance of the certificate is governed by rules established by the superintendent of public instruction, provided that the rules may suspend this requirement for a reasonable period of time if there has been an inadequate opportunity for securing the basic first aid course and certificate.
6. has complied with any other qualifications established by the board of public education; and
7. has filed with the county superintendent a certificate from the trustees of the district for which the school bus is to be driven, certifying compliance with the driver qualifications enumerated in this section.

Bus Drivers are also required to the following:

a. Have a minimum of five years of licensed driving experience;
b. no record of criminal offenses indicating they may be dangerous to children, as evidenced by a criminal background check provided to and approved by the school district prior to initial employment;
c. a safe driving record, which may not have evidence of any of the following:
    i. more than one moving traffic violation within any 12-month period of the preceding 36 months;
    ii. any conviction for driving under the influence of alcohol or drugs within the preceding 36 months; or a conviction resulting in mandatory revocation or suspension of a driver's license in the previous five years.

## DRUG AND ALCOHOL TESTING OF BUS DRIVERS

The 1991 Federal Omnibus Transportation Employee Testing Act imposes a number of requirements on employers of safety sensitive employees. A variety of drug and alcohol tests are required -- pre-employment, reasonable suspicion, post-accident, random, return to duty, and follow-up.

According to FMCSA an employer must do annual random tests of safety sensitive employees--at least 25 percent must be tested for alcohol and 50 percent for drugs.

Testing must meet the standards set by the Federal Department of Health and Human Services. Employees must be provided information on alcohol and drug misuse and the testing requirements.

Supervisory employees must receive additional training on recognizing substance abuse. The new rules also defines what alcohol-related conduct is prohibited while performing safety sensitive functions.

Employers are responsible for the testing programs. (If a district contracts for its transportation the contractor, not the district, may be the employer. This possibility should be discussed with the contractor and the district's legal counsel.) Testing responsibilities can be met using district employees, contracting for services, or joining a consortium.

All school bus drivers (district owned, contractor owned, home to school/school to home and all other activities trips). "All " school bus drivers as defined by OPI; shall not be exempt from Federal regulations regarding drug and alcohol testing.

## DRIVER INSERVICE TRAINING PROGRAM

**Introduction**

1. School bus transportation is an integral part of today's educational system. The school bus driver is expected to present a strong role model for children, as well as represent the school district before the public. If the school bus driver is professional and knowledgeable, he will encourage social responsibility among the students. The driver is also able to promote general public confidence in the school transportation program. A quality driver training program is critical to the success of a school transportation program.
2. Training Program
    1. A School Bus Driver Training Program exists to provide cost-effective, quality training that promotes student safety and reduces school bus accidents. The commitment to provide school bus drivers who are safe, competent and well trained should be the goal of every school district. In order to achieve that goal, each district shall develop and implement a driver-training program that meets the needs of the school district and provides appropriate training to accomplish the goal. The plan shall, upon request, be available for inspection by the Office of Public Instruction. A district approved training program shall include:
        i. A continuing education program for school bus drivers shall be provided and include at least ~~10~~ 15 hours of in-service training annually, which shall ~~may~~ include but is not limited to:
            a. Pre- and post-trip inspection training and refresher;
            b. Passenger boarding and de-boarding procedures;
            c. Driving skills;
            d. Defensive driving (Montana DR.I.V.E. is encouraged);
            e. Railroad safety (Operation Lifesaver is encouraged);
            f. Passenger management;
            g. Safety and emergency procedures;
            h. Special needs sensitivity and awareness;
            i. Student Safety;
            j. Rules, policies and procedures affecting student transportation.
            k. Mirror Usage;
            l. Drug and alcohol awareness

m. Montana Association For Pupil Transportation (MAPT) Conference or equivalent training is encouraged. (See OPI Pupil Transportation Website for listings at the following site: www.opi.mt.gov/PupilTransportation/Trainings

ii. A newly hired driver's training program may include but is not limited to:

a. A continuing education program (Refer to all of section a.);
b. The essentials of a crash prevention program, including the uniform school bus crash reporting criteria;
c. A system to communicate procedures between administrators and parents, and between administrators and the Bus Company or drivers, including student discipline procedure and compliance;
d. Emergency procedures and/or contingency plans to be followed in the event of a crash, unexpected school closing or unforeseen route change; and
e. The appropriate use of special lighting and signaling equipment. (Refer to Driver In-Service Training.)

2. The opportunity to participate in workshops, conferences (MAPT is encouraged) and meetings where drivers can work with and learn from a group of their peers;
3. Prior to transporting students with disabilities, the driver shall receive appropriate training in compliance with Individuals with Disabilities Education Act (IDEA) and proper use of adaptive equipment; and
4. Drivers shall receive drug and alcohol education as required in the Omnibus Transportation Employee Testing Act of 1991.

**DISTRICT POLICY GUIDELINES**

1. The responsible state agency and the local school district should have clear and concise policies and guidelines for the operation of their pupil transportation programs. These are important for two reasons:
   a. Policies and guidelines have the effect of law when laws or regulations do not specifically address a situation; and
   b. Policies and guidelines serve as the rulebook for persons charged with the administration of transportation services within the district.
2. Once established, these policies and guidelines become the basis for development of operating procedures. This allows decisions about operational details to be made at the administrative level rather than by the school board. These policies and guidelines should be precise and in writing and should cover the following topics:
   a. Procedures for determining eligibility for transportation;
   b. A description of all types of transportation provided;
   c. The days on which service will be available;
   d. Essential routing constraints, such as walking distances and age/grade of pupils for whom the district will provide transportation;
   e. The extent of special transportation service;
   f. The essentials of a crash prevention program, including the uniform school bus crash reporting criteria;
   g. A system to communicate procedures between administrators and parents, and between administrators and the Bus Company or drivers, including student discipline procedures and compliance;
   h. Emergency procedures and/or contingency plans to be followed in the event of a crash, unexpected school closing or unforeseen route change; and
   i. Use of special lighting and signaling equipment as indicated below:
      i. Use of alternately flashing amber lights to warn motorists that the bus is preparing to stop to take on or discharge students;
      ii. Use of alternately flashing red lights to inform motorists that the bus is stopped on the roadway to take on or discharge passengers;
      iii. Use of four-way (hazard) flashers when approaching, stopping and crossing at a railway crossing. Do not use the overhead amber lights at a railroad crossing;
      iv. Operating stop arms in conjunction with the flashing red signal lamps;

v. Use of white flashing strobe light to increase the visibility of the school bus on the roadway during adverse visibility conditions; and
vi. Use of crossing control arms, where directed to encourage children to cross properly in front of school buses.
vii. Driving hours shall be regulated, and documented. All School districts and contractors shall not be exempt from regulations based on a the Federal Motor Carrier Safety Regulation 49 CFR 395.3 (15 hours on duty of which no more than 10 hours are driving time; 8 hours continuous off-duty prior to a long trip; no more than 60 hours driving in a week). (This information will be audited.)

**ADVERTISING ON A SCHOOL BUS**

Potential Safety Concerns

Advertising on the interior or exterior of a school bus to catch the attention of passing motorists (since that is precisely what advertising is designed to do), runs the inherent risk that passing motorist will focus their attention on the advertising and not notice, for example, that the school bus has stopped, or turned on its flashing lamps, or allowed the students to deboard or board the bus.

The potential increase to driver distraction, a known cause of motor vehicle accidents, presents a significant safety issue around school buses that cannot be ignored. Therefore, any type of advertisement on a school bus shall be prohibited.

**SCHOOL BUS STOPS**

Designated stops

School bus stops made for receiving and discharging passengers shall be approved by the school district and county transportation committee. Buses shall stop at designated stops on the approved route only. Amber flashing lights must be actuated by the driver approximately 150 feet in cities and approximately 500 feet in other areas before the bus stopped to load and unload students on the highway or street. (MCA 61-8-351)

The red flashing light system shall not be actuated by the driver until the vehicle has come to a complete stop, place transmission in neutral, and the parking brake set. Students shall be seated appropriately before the driver deactivates the flashing light system, engages the transmission, and emergency brake released.

A designated school bus pullout must meet the requirements set forth in MCA 61-8-351(4).

**PROHIBITED BUS STOPS**

A school bus stop shall not be designated at the following locations:

1. Within 200 ft of the nearest rail of any railroad crossing or grade, except at railroad stations or on highways that parallel the railroad tracks;
2. The left hand side of any highway; or
3. On a divided or multiple-lane highway where passengers must cross the highway to board or after exiting the bus, unless traffic is controlled by a traffic officer or official traffic control signal. For the purposes of this subsection, a multiple-lane highway is defined as any highway having two or more lanes of travel in each direction.

**SPEED LIMITS**

Speed limits are an important tool for promoting safety on streets and highways. Driving over the posted speed limit, driving too fast for conditions, or failing to obey special speed limit zones can result in a Montana speeding ticket, points on your license, and even a license suspension or revocation for repeat offenders. All posted speed limits shall be followed without exception.

It is the responsibility of all employees, drivers, and management to assure that the speed limit is adhered to at all times.

No driver shall drive a school bus at a speed greater than is reasonable or prudent having due regard for weather, visibility, the traffic on, and surface and width of, the highway. In no event, shall a speed such as to endanger the safety of students or property.

## MCKINNEY- VENTO HOMELESS ASSISTANCE ACT OVERVIEW

The following provides information on how the McKinney – Vento Homeless Assistance Act, Title IX, Part A of the Every Student Succeeds Act, relates to pupil transportation and describes transportation choices and requirements.

## REQUIREMENTS OF THE MCKINNEY-VENTO HOMELESS ASSISTANCE ACT

Local Education Agencies (LEAs) are required to provide students experiencing homelessness with transportation to and from their school of origin at a parent or guardian's request. For an unaccompanied youth, the request may come from the LEA's homeless liaison if the youth is not an adult. Homeless students are subject to the same time and distance limitations as their normally housed peers. However, exceptions should be considered for students living closer to the school than those normally offered transportation if there are safety or health concerns. Exceptions should also be considered for a student outside the distance or time limit dependent on the student's age/grade level and completion of graduation requirements.

## TRANSPORTATION FOR THE HOMELESS IN RELATION TO DISTANCE

Every LEA has a homeless liaison who should make the determination of whether the transportation of the student is in the student's best interest. Cost of transportation cannot be used when determining a student's best interest. In accordance with Montana Code, travel time in excess of 60 miles or one hour, or other circumstances that result in extremely unusual travel demands, may all result in appropriate denial of transportation to the school of origin. Parents may file a formal dispute with the LEA in the event that they disagree with the transportation services offered or when the time and distance limitation impacts the school placement decision.

## OTHER CONSIDERATIONS REGARDING HOMELESS TRANSPORTATION

Providing sensitivity training to bus drivers and arranging bus stops to keep student's living situations confidential is important in being able to assist these students through this difficult time in their lives with as little disruption as possible. Schools should be aware of hotels/motels, churches, shelters, or other locations where homeless families and children tend to find temporary housing. Homeless unaccompanied youths who are relying on multiple families for care may need access to multiple bus routes. Developing close ties between school district homeless liaisons, school staff and pupil transportation staff will help make this process work smoothly.

## SCHOOL DISTRICT RESPONSIBILITIES FOR TRANSPORTATION COSTS WHEN A HOMELESS STUDENT REQUIRES TRANSPORTATION ACROSS DISTRICT BOUNDARIES

When a homeless student requires transportation to the school of origin, and that school is outside the current school district, the two districts involved should collaborate to determine which district is going to assume responsibility for transportation and for how the cost is to be shared. If there is no agreement between the two districts, the responsibility and cost for transportation shall be shared equally.

## LENGTH OF TIME TRANSPORTATION NEEDS TO BE PROVIDED AFTER A HOMELESS STUDENT HAS MOVED INTO PERMANENT HOUSING

Students can stay in their school of origin the entire time they are homeless, and until the end of any academic year in which they move into permanent housing. It is important to note that an episode of homelessness may span multiple school years. Students who are homeless are eligible to remain in the feeder pattern of their original school for the duration of homelessness. Access to transportation services continues until the end of the school year in which the child was determined to be homeless.

## MODE OF TRANSPORTATION

There is no requirement that provided transportation be of any specific mode (school buses are not necessarily required). Transportation must be safe and appropriate for the individual student's situation and age. Modes may include school bus, transit passes, gas vouchers or reimbursement for parents or youths with cars, contracts with taxi companies (driver background checks are required), and contracts with Medicaid transportation brokers (driver background checks are required). In the case of students living in a shelter, the district may contract with the shelter to provide transportation.

**SEATING REQUIREMENTS**

1. Montana schools must follow Highway Safety Guideline #17, "Pupil Transportation Safety," as issued by the National Highway Traffic Safety Administration, states:
   a. "Standing while school buses and school-charter buses are in motion should shall not be permitted. Routing and seating plans should be coordinated so as to eliminate passengers standing when a school bus or school-charter bus is in motion; and
   b. Due to variations in sizes of children of different ages, states and school districts should exercise judgment in deciding how many students are actually transported in a school bus or school-charter bus."
2. School buses provide the safest form of pupil transportation. An integral part of providing "safe" transportation in a school bus is that the passengers must be properly seated. From a safety perspective, a person who is either standing or improperly seated in a school bus is not afforded the benefits of the safety protection designed into the vehicle and is in increased jeopardy of injury in the event of a crash or extreme sudden driving maneuver.
   a. Additionally, there must be sufficient space on the school bus seat for each passenger's body to be completely within the seat compartment. In the event of a crash or sudden driving maneuver, students that are not properly seated within the seat compartment may not benefit from the passenger crash protection systems built into the school bus under federal and state regulations.
   b. In practice, school buses transport students of various sizes, typically from preschool students to 12th graders. While a 39-inch seat may safely accommodate three primary school-aged children, it may not safely accommodate the same number of older children. Since the size of growing children varies, the number of pupils that can safely occupy a school bus seat also changes. Consequently, the "in-use" capacity of a school bus varies depending on the size of the pupils transported. The use of a child safety seat for an infant or toddler, or of special equipment needed for a child with disabilities may further impact the "in-use" capacity of a school bus.

It is important to consider the size of the passengers on each school bus route when determining the "in-use" capacity of a school bus. It is recognized that at certain times, for example, at the beginning of a school year, it may not be possible to know exactly how many students will arrive at school bus stops on a route. For that reason, there may be instances where overcrowding exists temporarily on some school buses. In such situations, efforts should be made to provide safe seating to all school bus passengers in a timely and efficient manner, so that during regular operations all passengers are safely seated.

**SCHOOL BUS EVACUATIONS**

School bus evacuations must be conducted twice per school year and must include all students whether they ride to and from school or not.

The first evacuation must be held within the first two weeks of school.

The second evacuation must be within the first week of the second semester.

All students must practice the evacuation drills since they will probably ride an activity bus sometime during the school year.

All evacuation drills should be conducted in the same way each time so the students will know exactly what to expect. Students need to know what it looks like, what it sounds like and what it feels like so there are no surprises during a real emergency.

The driver should always be prepared and help the students to be prepared also.

**EVACUATION PROCEDURES**

Be Prepared and Plan Ahead. When possible, assign two responsible, older student assistants to each emergency exit. Teach them how to assist the other students off the bus. Assign another student assistant to lead the students to a "safe place" after evacuation. However, you must recognize that there

may not be older, responsible students on the bus at the time of the emergency. Therefore, emergency evacuation procedures must be explained to all students. This includes ensuring that they know the location of and operation of the various emergency exits, and the importance of listening to and following all instructions given by you.

Some tips to determine a safe place:

- A safe place for the students will be at least 100 feet off the road in the direction of oncoming traffic. This will keep them from being hit by debris if another vehicle collides with the bus.
- Lead students upwind of the bus if fire is present.
- Lead students as far away from railroad tracks as possible and in the direction of any oncoming train.
- Lead students upwind of the bus at least 300 feet if there is a risk from spilled hazardous materials.
- If the bus is in the direct path of a sighted tornado and evacuation is ordered, escort students to a nearby ditch or culvert if shelter in a building is not readily available, and direct them to lie face down, hands covering their head. They should be far enough away so the bus cannot topple on them. Avoid areas that are subject to flash floods.
- General Procedures.
- Determine if evacuation is in the best interest of safety.
- Determine the best type of evacuation:
- Front, rear or side door evacuation, or some combination of doors.
- Roof or window evacuation.
- Secure the bus by:
- Placing transmission in Park, or if there is no shift point, in Neutral.
- Setting parking brakes.
- Shutting off the engine.
- Removing ignition key.
- Activating hazard-warning lamps.
- If time allows, notify dispatch office of evacuation location, conditions, and type of assistance needed.
- Dangle radio microphone or telephone out of driver's window for later use, if operable.
- If no radio, or radio is inoperable, dispatch a passing motorist or area resident to call for help. As a last resort, dispatch two older, responsible students to go for help.
- Order the evacuation.
- Evacuate students from the bus.
- Do not move a student you believe may have suffered a neck or spinal injury unless his or her life is in immediate danger.
- Special procedures must be used to move neck spinal injury victims to prevent further injury.
- Direct a student assistant to lead students to the nearest safe place.
- Walk through the bus to ensure no students remain on the bus. Retrieve emergency equipment.
- Join waiting students. Account for all students and check for their safety.
- Protect the scene.
- Set out emergency warning devices as necessary and appropriate.
- Prepare information for emergency responders.

**TRANSPORTATION FOR SCHOOL RELATED ACTIVITY FUNCTIONS**

Each school system or Head Start agency providing activity bus operations should have comprehensive policies and guidelines which delegate responsibility for this function to the supervisor of student transportation. To provide safe and efficient activity transportation, lines of responsibility and authority need to be defined and personnel involved must have an understanding of their respective responsibilities.

In the interest of providing the safest means of transportation available, students should be transported to school- or Head Start-sponsored activities in school buses or allowable alternate vehicles that meet state

and federal standards, unless circumstances require an alternate mode of transportation as defined in regulation.

These school- or Head Start-related activity trips may include field trips that are extensions of the instructional program, athletic trips, vocational and trade training, volunteer activities and recreational outings, such as dances, picnics and overnight camping trips.

**GENERAL REQUIREMENTS**

These trips range from a few miles to those extending over several days and covering large distances. The following items need to be considered when developing criteria for activity trip transportation:

1. Policies and guidelines, including:
   a. Purpose of trip (instructional, athletic, students'/spectators' recreation, etc.);
   b. Funding source (district or individual school funds, individual charge, parent group, etc.); and
   c. Administrative approval (the person(s) having authority to approve the trip and commit funds).
2. A priority guideline should be developed for trip scheduling, addressing situations when all requests cannot be accommodated.
   a. Advance notification should allow adequate time for the approval process and for making driver and vehicle arrangements.
   b. Methods of travel may include district- or agency-owned or contracted bus, commercial carrier or local transit equipment, air, boat, rail or combination of the above, private or school passenger automobile, when required by special or unique needs.
   c. A trip request form should include all necessary information for trip arrangements, special equipment, payroll, reimbursement and other local needs.
   d. Adult chaperones should be required on all activity trips. Responsibilities include passenger control, with the driver having final authority.
   e. Discipline and emergency medical procedures should require a trip release for each student to be signed by parents and should include procedures concerning difficult or severe behavioral and medical problems and emergency policies and contacts.
3. Communication is essential. Drivers, students, chaperones and parents should be made aware of applicable rules and regulations. Parents should have destination information, mode of transportation, names of chaperones, meal stop information, expected departure and return times, appropriate dress and what the students should bring with them. A signed authorization for student participation from the parent or guardian is important. A detailed itinerary for all persons involved may be advisable. Identification of proper response to special medical problems in the event of an emergency en-route is necessary.
4. Luggage accommodations, if applicable, must be included. A procedure for transporting luggage or equipment prohibited in the passenger compartment by state law and/or local regulations is necessary. Loose luggage or equipment which could cause injury or block passageways should never be transported in the passenger compartment. In no event shall emergency exits be blocked by loose luggage, band equipment, backpacks, ski equipment, etc.
5. Policies should detail whether or not out-of-state trips are permitted and, if so, any applicable restrictions. Regulations for states to be visited should be reviewed prior to the trip.
6. Insurance policies should be reviewed or agents contacted to determine adequacy of coverage. This is an absolute necessity for trips scheduled to another state or country. If vehicles other than district-owned are used, the Board of Education should determine the minimum insurance coverage to be carried. A current copy of the contract or commercial carrier's insurance should be on file with the school district.
7. All yellow school buses shall be inspected by the Montana Highway Patrol semi-annually (TR-13 Form). The first semiannual inspection must be passed no more than 30 days prior to the beginning of the first semester. The second semiannual inspection must be passed no later than January 31. Only school buses that pass inspection may be used to transport students and only school buses that pass inspection will receive state and county transportation reimbursement. A school bus that fails to pass inspection will not be eligible for state and county reimbursement until the bus is re-inspected and approved by the inspecting officer. The school district is responsible for contacting the Montana Highway Patrol for bus inspections. Nothing in this rule precludes the Montana Highway Patrol from

inspecting school buses at other times as the highway patrol sees fit. Buses that are placed in operation after the school semester has begun must be inspected and approved by the Montana Highway Patrol before the vehicle is operated on the established route.

NOTE: A completed copy of the Bus Inspections (TR-13 Form) must be kept on the school bus for the current fiscal year, a copy kept with the school district, and a copy to the Highway Patrol Office.

8. Road and weather checks should be made by the designated person. School transportation personnel from other districts, state patrols, highway divisions and auto clubs are generally cooperative in supplying road information. If warranted, the weather bureau should also be contacted. A planned route and any contingent route for trips should be determined prior to initiation of the trip.
9. Contingency plans require policies and procedures that detail persons who have authority to make decisions if the unexpected happens during a trip. Impassable roads, crashes or mechanical breakdowns are examples. Drivers and chaperones should have access to that authority's phone number. It is also advisable to obtain phone numbers of transportation personnel in various communities and school districts where activity vehicles regularly travel.
    a. Provisions should include plans for staying overnight if conditions do not permit a safe trip home. It is advisable to develop a mutual aid directory for contact within athletic league boundaries which could provide assistance in the event of mechanical emergencies. Drivers should be trained in procedures and regulations relating to trip crashes.
10. Driving hours shall be regulated, and documented. All School districts agencies shall not be exempt from regulations based on a the Federal Motor Carrier Safety Regulation 49 CFR 395.5-(15 hours on duty of which no more than 10 hours are driving time; 8 hours continuous off-duty prior to a long trip; no more than 60 hours driving in a week).
11. Driver selection and assignment criteria are necessary to avoid conflict and confusion. The criteria should include a driver's knowledge, skill, experience and familiarity with activity trip vehicles. The area to be traveled should also be a consideration. Drivers should be notified at least three days in advance of the trip date. Drivers who drive only activity trips should be tested periodically for driving ability and vehicle familiarity. They should hold the same license and certification as regular school bus drivers.
12. Passenger manifests (a list of all passengers being transported) should be kept on board the bus and the driver has access when necessary by the driver and left with proper authorities at the school or institution. In the event of an emergency, the passenger manifest and/or seating chart, shall be made available upon request by the investigating officer/emergency personnel.
13. Evacuation instruction, including an emergency evacuation drill, or at least verbal instructions, should be given by the driver before each trip. (See Operations; Evacuation Procedures.)
14. Commercial Driver's License (CDL) with an School Bus "S" and Passenger "P" endorsement is required when a person who drivers a school bus, or who transports pre-primary, primary, or secondary school students for school-related activity trips, field trips, and operating on an approved route, in a commercial motor vehicle. The "S" endorsement shall be required for any school bus, including 16 passengers and less, and 16 passengers and more.
    ***There shall be no exceptions to this rule.*****
15. Vehicle and equipment:
    a. A tool kit containing items such as a flashlight, pliers, screwdrivers, de-icer, extra chain tighteners, etc., and additional equipment for an extended trip, as may be recommended by transportation personal at the destination;
    b. Fuel, bridge tolls, parking fees and personal needs;
    c. Emergency telephone numbers and other information; and
    d. Maps or Global Positioning Systems (GPS), as appropriate.
    e. Inspection requirements should be the same as for regular route buses, and a detailed check should be made prior to activity trips. A completed copy of the inspection shall remain on the bus for the current Fiscal Year.
    f. School buses shall be prohibited from towing another bus, trailer or any vehicle when students are on board the bus.

**PASSENGER VANS – ACTIVITY AND SCHOOL RELATED**

It is appropriate to require higher levels of safety in transporting students to and from school, and school related activities.

Accordingly, the school children should be transported in school buses which provides the highest levels of safety; not in 12- and 15-passenger vans which do not meet the stringent school bus safety standards issued by the Federal government and recommended by the National Conference on School Transportation, an organization of state school transportation officials.

The National Highway Traffic Safety Administration (NHTSA), part of the U.S. Department of Transportation (DOT), is authorized to issue and enforce Federal motor vehicle safety standards (FMVSSs) applicable to new motor vehicles. NHTSA's statute at 49 U.S.C. §30112(a) requires any person selling or leasing a new vehicle to sell or lease a vehicle that meets all applicable standards. Accordingly, dealers selling or leasing a new "school bus" must sell or lease a vehicle that meets the safety standards applicable to school buses.

A school or school system may not purchase or lease a new 12- 15 passenger van if it will be used significantly by, or on behalf of, the school or school system to transport preprimary, primary, or secondary school students to or from school or an event related to school, unless the 12-15 passenger van complies with the motor vehicle standards prescribed for school buses and multifunction school activity buses under this title.

The best solution is to ensure that vans, both new and used, are not used in lieu of school buses. This action can be accomplished by establishing strict requirements on the types of motor vehicles that can be used for transporting children to and from school and school-related activities, and enforcing those requirements. It is important to know and understand that allowing the use of vans for transporting any and all students either to and from school or on school activity trips does not fall within the Montana School Bus Standards, therefore is inappropriate for use.

Montana's School Bus Standards holds the highest level of safety and requires that all of Montana's students are transported in the safest vehicle; SCHOOL BUS. Any other vehicle does not meet the Montana School Bus Standards and shall not be permitted.

**TRAINING**

1. Specialized training should be provided for activity trip drivers. Training should include, but not be limited to, the following:
    a. State laws and applicable policies and rules;
    b. Familiarity with the activity trip vehicle and its components;
    c. Drivers are prohibited by law to talk or text on a cellular device (including hands free Bluetooth devices) while operating a commercial vehicle.
    d. Familiarity with local and state trip requirements;
    e. Discipline procedures on trips;
    f. Driving under adverse conditions (night driving, slippery roads or unfamiliar mountainous driving);
    g. Maps, destination locations and parking areas;
    h. Parking location, if other than the student destination; and
    i. Provisions for bus security at the destination.
2. Specialized training should be provided for all trip chaperones and include at least the following:
    a. all regulation related to student rider behavior;
    b. the specific roles and responsibilities of a chaperone both on and off the vehicle as defined by applicable regulations and policies;
    c. the communication expectations between chaperone and driver; and
    d. emergency procedures, including evacuations.

**RESOURCE - BUS ROUTE ACTIONS**
**ACTIONS TO BE TAKEN DURING AND FOLLOWING THE OBSERVATIONS OF SCHOOL BUS ROUTES**

Supervisory actions that should be taken during and after the transportation director completes a review of bus routes are listed below:

1. Check the route and schedule for accuracy.
2. Determine that loading and unloading occurs only at authorized stops.
3. Check for bus stop hazards
4. Check to see that vehicles are operated in compliance with prescribed regulations.
5. Observe the driver-student relationship.
6. Check loading and unloading conditions at school centers.
7. Check for evidence of supervision in loading zones.
8. Note hazardous road conditions.
9. Note the nature, frequency and locations of bus stop law violations.
10. Observe conditions of bus (e.g., cleanliness, tires, windows, emergency exit(s), first aid kits, fire extinguisher, seats, etc.).
11. Observe vehicle inspection guide for evidence of pre-trip inspection.
12. Note driver attitude toward other motorists and pedestrians.
13. Follow the observation with a written report and discussion with the driver (and others, as appropriate). The discussion should be used to encourage the driver to become self-auditing and participate in giving supervisors information that is helpful in improving the overall safety, effectiveness and efficiency of the student transportation system.
14. File the written report in the driver's permanent record.

**RESOURCE - NASDPTS GUIDELINES FOR ENROUTE EMERGENCY BUS EVACUATION**

The intent of these procedures is to provide guidelines for evacuating a bus only when absolutely necessary in an emergency situation, for the safety of students and staff.

**I. Preparing an Emergency Evacuation Plan:**

Each bus should have an emergency evacuation plan, which should be kept in the bus. The plan should allow for individual capabilities and needs of each student, the type of behaviors that might be exhibited during an emergency evacuation and the types of wheelchair or support equipment being used for students. A floor plan with student location and special needs should be in the bus. Issues that should be considered when establishing an evacuation plan are listed below.

a. Whether or not students can help, and to what extent;
b. How to deal with individual emergencies (e.g., seizures) during the evacuation process;
c. Whether students should be evacuated in their wheelchairs, or removed from their wheelchairs before evacuation;
d. How to disconnect or cut wheelchair securement and occupant protection equipment, including belts, trays and other support equipment;
e. The order or sequence in which students should be evacuated;
f. The length of time a student requiring life support equipment or medical care procedures can survive if such service is interrupted or delayed during the evacuation process;
g. Where to gather once off the bus and how to evaluate different scenarios to make the best decision about where to gather;
h. Training plan and schedules for drivers and students; and
i. Specific emergency equipment needed, training in use and assignment of responsibility to remove from the bus when evacuations occur.

**II. Assessing the Need to Evacuate:**

Student safety and control are best maintained by keeping students in the bus during an emergency and/or impending crisis situation if doing so does not expose them to unnecessary risk or injury. A decision to evacuate should include consideration of the following conditions:

a. Is there a fire involved?
b. Is fuel leaking?
c. Might the bus roll or tip, thereby causing further threat to safety?
d. Is the bus likely to be hit by other vehicles?
e. Is the bus in the direct path of a sighted tornado or other natural disaster, such as rising water?
f. Would evacuating students expose them to speeding traffic, severe weather or another dangerous environment?
g. Considering the medical, physical and emotional condition of the students, does staying in the bus or evacuating pose the greater danger to the students' safety?

**III. General Procedures to Follow for Emergency Evacuation:**

a. Keep the situation as orderly and low-key as possible.
b. If time and conditions permit, the bus driver should use the communication system to advise the office of the following information:
    1. The exact location, including nearest intersecting road or familiar landmark;
    2. The condition creating the emergency;
    3. The type of assistance needed (police-fire-ambulance); and
    4. Notification that the bus is being evacuated.
c. Analyze conditions to determine the safest exit from the bus and safest gathering location.
d. During evacuation, monitor conditions and adjust procedures to meet unexpected circumstances.
e. Move evacuated students to the nearest safe location at least 100 feet from the bus.
f. Be prepared to give information to emergency medical personnel regarding individual students' medical or physical requirements.

**IV. Equipment Considerations:**

a. Bus staff should, as part of their pre-trip inspection, familiarize themselves with the location and method of opening all emergency exits.
b. If time permits, a lift platform can be lowered half the distance to the ground, providing a step for evacuating wheelchairs. If there is a smell of spilled fuel, the lift should be operated manually.
c. When re-entry to the bus is not probable, communication equipment and first aid kits can frequently be passed through a window, making them accessible outside the bus. Consideration should also be made for student medication, if carried and needed.
d. If a large bus is being used and evacuation is made through the rear exit door, consideration should be given to the method to be used for re-entry to the bus, if necessary, considering the height of the floor from the ground. Some states allow a stirrup-type step on the rear bumper.
e. If a battering ram is needed, a fire extinguisher can often serve that purpose.
f. A belt cutter shall be stored in the bus in a location readily accessible to the driver when he/she is seated in the normal driving position and location. The cutter should have a protected mouth to restrict the entry of fingers, etc.

**V. Local District Policy:**

Bus staff should be familiar with local district policy regarding the following items:

a. Evacuation procedures to follow when students are en route; or, what to do if a tornado or flash flood, etc. is sighted and no shelter is near.
b. The type of medical information to be available on long distance trips in case of student injury.

Note: THE SAFETY OF THE BUS AND EQUIPMENT IS SECONDARY TO THE SAFETY OF THE STUDENTS. NO ATTEMPT SHOULD BE MADE TO SAVE EQUIPMENT OR PERSONAL ITEMS UNTIL ALL STUDENTS ARE REMOVED FROM THE BUS SAFELY, ARE OUT OF DANGER AND ARE SUPERVISED.

**RESOURCE - PLANNING SCHOOL SITES FOR SCHOOL BUS SAFETY**

1. In the selection of school sites, major consideration should be given to the safety of students riding school buses. School buses will be forced to utilize the roads in and around the school site, plus public highways leading into the school area. High-density traffic flow near school exits and entrances due to the proximity of freeways, periodic commercial traffic or massive commuter traffic from industrial plants should be avoided. It must be recognized, in many cases, that the area designated for the school site has been selected prior to hiring an architect. It is suggested, therefore, that this information be issued to boards of education and municipal planning authorities alerting them to the dangers inherent in the process of site selection. It is also suggested that boards of education discuss the selection with the superintendent of schools, traffic engineers and the state office of school plant planning and solicit their help in evaluating possible school sites.
2. The location of the school plant on a site should be determined to provide a safe means of entrance and exit for all students. When boards of education are considering school sites, the state, county and local roads servicing the area should have a minimum 30-foot paved width where loading and unloading is contemplated off the main thoroughfare. If it is necessary to load or unload students on the main thoroughfare in front of the school, at least a 40-foot wide paved road should be provided.
3. All school bus traffic should be considered as one-way traffic flow, preferably with the entrance door side of the bus always next to the loading and unloading zone.
4. When separate pick-up and delivery points some distance from the teacher and student parking areas should be designated for parents, delivery, service, teacher and administrative traffic. Accident-inducing conditions are created by haphazard pick-up and delivery of students in the bus loading zones, particularly during inclement weather.
5. When roads that completely encircle a school should not be constructed. Areas that students must cross to engage in outside activities should be free of all vehicular traffic.
6. 6. All school bus roads entering into or exiting from main arteries should have a 50- to 100-foot radius turn on the inner edge of pavement. Within the school site, roads should have at least a 60-foot radius on the inner edge of pavement on all curves. At least a 50-foot tangent section should be provided between reverse curves. In order to minimize driveway entrance and exit widths, island construction may be required. Driveway openings must conform to local requirements and driveways opening onto state highways should be approved by the state highway department.
7. Curbing, with suitable drainage, should be constructed on all roads utilized by school buses within the school site. Consideration should be given to state highway department performance specifications. A minimum of 30 feet should be maintained for one-way traffic and 36 feet for two-way traffic, with roads being wider on all curves.
8. It is desirable to separate all parking areas; however, it might be advantageous if only the visitor parking area were located in close proximity to the school. Care should be exercised in the placement of these areas to preclude the visitor from crossing the school bus traffic pattern.
9. Prior to designing and laying out roads and parking lots, architects should consult with the school administration on the following items:
    a. Total number of students and school personnel;
    b. Number of present and projected students to be transported;
    c. Number of buses;
    d. Type of schedule; and
        1. Staggered opening and closing times; and
        2. Single opening and closing times.
    e. Extra-curricular activities that would necessitate use of school buses.
10. It is desirable to locate parked buses on school grounds to prevent glare from reflective surfaces of windows, doors and windshields from being transmitted to the students in the classroom.
11. Attention should be given in planning school bus parking, loading and unloading areas. Parking should exclude the necessity for backing the bus.
12. Sidewalk plans for students walking to school should eliminate crosswalks in front of the buses.
13. Architects' plans for school buildings often include bus canopies. Such units are not considered feasible for schools with large enrollments. Canopies are advantageous in schools attended by students with disabilities. The height of the canopy should accommodate the highest school buses. Each canopy support post adjacent to the driveway curb should have a three-foot minimum setback

from the curb to minimize the possibility of crushing a student between the support post and arriving school buses.

14. For areas that will be constantly utilized by heavy school buses, the type of pavement and base should conform to state highway department specifications.
15. All roads within the school site should be graded to avoid configurations that could impair a motorist's vision. It is suggested that a maximum 5% grade be allowed on all roads and, at entrance and exit points, a maximum 2% grade be allowed. Blind corners and intersections should be eliminated. Trees and shrubbery planted on the school site should not obstruct a motorist's vision.
16. Plans for the location of access and service roads should exclude conditions that would require school buses to be backed on the school premises.
17. Safety at all student loading and unloading areas should be considered and provided on the school site.
18. Plans for loading facilities should include separate areas specially designed for students with disabilities. Attention should be given to entrance ramps and handrails.
19. Plans for roads and loading areas should accommodate emergency vehicles which must have access to the school at all times.
20. Where necessary, traffic control devices should be provided to assist school traffic to enter the regular traffic flow.

**SCHOOL BUS DRIVER TRAINING**
**(See Operations; Driver In-Service Training)**

School bus driver training is one of the most important components of the school bus transportation system. A critical component of school bus driver training is the recognition of potential driving hazards and appropriate adjustment of driving behavior to ensure the safety of the school bus occupants. The goal of this project and report is to provide school bus drivers and substitute drivers with a list of locations/situations that should be recognized as being potentially hazardous. School bus drivers should be properly trained to deal with these potentially hazardous conditions. In addition, school bus drivers should be trained to deal with hazardous conditions that occur suddenly or are of a temporary nature. Constant dialogue between school bus drivers and route planners is critical to ensure the continued safe transportation of students in school buses.

**Methodology:**

The National Association of State Directors of Pupil Transportation (NASDPTS) undertook the following activities to develop a school bus route hazard identification system and a means of educating school bus drivers about such hazards. Each of the activities included review and comment by the various state directors of pupil transportation. Throughout this report, specific comments from states are included to illustrate the involvement and insight provided by the state directors.

**1. Define School Bus Route Hazard**
The first, and most critical, step was to develop an acceptable and reasonable definition of what constitutes a "school bus route hazard." From a practicable perspective, "school bus route hazards" can be grouped into two distinct categories. First, there are "driving hazards" that are encountered while operating a school bus route, such as railroad grade crossings and industrial intersections. Second, there are "school bus loading zone hazards" that are encountered at a school bus stop, such as a narrow, busy street without sidewalks or dangerous curves that do not provide the school bus driver, the students, or other motorists with an adequate view of the school bus loading zone. The scope of work for this project only included the first category of school bus route hazards - driving hazards.
**2. Develop a "Model" School Bus Route Hazard Identification System**
Based on the knowledge and expertise of individuals within the school transportation industry, an ideal program that could be used to assist states and local school districts in identifying and evaluating potential school bus route hazards was defined. This ideal program became the "model" against which existing school bus route hazard identification programs were compared.
**3. Review Existing Materials/Information**

Examples of existing state or local school district route hazard identification programs were reviewed and compared with the "model" system described above. The existing programs were reviewed in terms of the ability of the program to identify route hazards and communicate that information to the appropriate individuals.

**4. Develop a Recommended System**

Based on the review of existing programs, as compared to the "model" system, a recommended school bus driving route hazard identification system was developed that could provide states and local school districts with an efficient method for identifying potential school bus route hazards and a means of communicating information about those hazards to school bus drivers and trainers, route planners, and other appropriate school transportation officials.

**5. Dissemination Approaches**

Finally, suggestions were made on how to disseminate the "recommended" system to the school transportation community, and what approaches should be taken to educate state and local school transportation providers on the importance of adopting such a school bus driving route hazard identification system.

**RESULTS OF PROGRAM ACTIVITIES:**

**Result #1 — Definition of a School Bus Route Driving Hazard**

While it is possible to develop a list of the potential hazardous locations/situations that a school bus driver could encounter in the course of driving a school bus route, it is not possible to develop a definitive list of every potential driving hazard. As was pointed out by the state of Indiana during discussions of this project, "Regular review of the route hazards list is encouraged. This will keep the document accurate and permit the addition of 'yet-to-be-discovered' hazards."

Some potential school bus route driving hazards can be considered as "fixed," in that the situation or condition exists (such as a railroad crossing), can be identified, and drivers can be informed and educated about the potential hazard. Other potential driving hazards occur without advanced warning — examples include: (1) inclement weather conditions, such as fog, sand storms, blinding sunlight, snow storms, etc.; (2) conditions that result from weather conditions, such as flooded roadways, fallen trees, downed power lines; and (3) accident locations. This report focuses on potential school bus route driving hazards that are of a "fixed" nature.

**Discussion:**

Table 1 details many of the potentially hazardous locations/situations that a school bus driver could encounter in the course of driving a school bus route. These potential driving hazards were selected based on the belief that the mere existence of any one of these conditions poses possible serious consequences if the school bus driver is not aware of the existence of the hazard. While a hazard could develop at any time while driving a school bus (for example, a tree could fall across a road during a storm, or a stream could overflow, or a wet road could suddenly ice over), this list defines only fixed conditions that, by their presence, have been deemed a potential driving hazard. Also, this list is limited to the hazardous locations/situations encountered while driving the school bus, not during loading and unloading operations.

For each potential school bus route driving hazard, a list of factors or situations that could contribute to causing the hazard is provided. It is important to remember that this list of potential school bus route driving hazards, and the factors/situations within them, is not "all-inclusive." States and local school districts may encounter factors and situations that are not listed below, but which they deem are potentially hazardous.

**List of Potentially Hazardous Locations/Situations on School Bus Routes**

**Railroad Grade Crossing**

* Number of tracks
* Visual obstructions to determine type and travel speeds of trains
* Train schedules (consider unscheduled trains also)
* Presence or absence of grade crossing controls
* Unique characteristics or operation of grade crossing controls

* Presence or absence of traffic control signals, including interaction with grade crossing controls
* Size of queuing area before and after the tracks
* Expected traffic conditions at various times during the day
* Roadway design near the grade crossing

**Dangerous Intersections and Roadways**
* High-frequency crash locations as defined by state transportation and/or law enforcement officials
* Uncontrolled intersections
* Curves and intersections with limited sight distances
* Areas with no shoulders or drop-off to shoulder
* Visibility of traffic control signals
* Coordination of traffic control signals with others in the immediate area

**Bridges, Tunnels/Underpasses and Overpasses**
* Weight capacity
* Height clearances
* Lane width

**Queuing/Storage Areas**
* Short acceleration/deceleration lanes
* Limited median areas crossing multi-lane highways
* Turning lanes
* Bus turnarounds
* Areas that require backing of the bus to turnaround or park

**Industrial Intersections and Construction Zones**
* Areas where heavy vehicles/equipment operate on a regular basis, and may be entering, exiting, or crossing the roadway
* Steep Downgrades
* Mountainous areas where brake condition and braking operations are important
* Location of out-of-control vehicle run-off areas

**Areas of Significant Speed Differential between Vehicles**
* On-off ramps to high-speed roads
* Farm vehicle areas, including non-motorized vehicles on the road
* Mountain terrain

**Pedestrian Areas**
* School bus loading/unloading zones
* Narrow streets with parked motor vehicles - children darting between vehicles
* Congested shopping and business areas
* Parks or intersections with pedestrian/bicycle paths

**Other Conditions Identified in Local Area**
1. Unique roadway locations, for example:
    a. Roadways without guardrails that are next to rivers, lakes, etc.
    b. Dirt or gravel roads that could affect braking
    c. Rock quarry or open pits
    d. Areas with problems related to right-turn-on-red laws
    e. Areas with visibility problems due to air quality/industrial smoke/etc.
    f. Areas where emergency equipment operate on a regular basis
        (1) fire stations
        (2) hospitals

**Result #2 - Development of a “Model” School Bus Route Hazard Identification System**

During the course of this project, a “model” school route hazard identification system was outlined. It was recognized that such a system would consist of three major components:

1. A list of potential driving hazards;
2. A specified procedure/schedule for conducting on-site reviews of school bus routes; and
3. An efficient and effective means of informing school bus drivers of the presence of potential driving route hazards.

Of the three components, the first was determined to be the most critical, since without a definition of what constitutes a school bus route driving hazard, the other components would have little utility. Additionally, developing a procedure and schedule for reviewing school bus routes and an information dissemination plan were viewed as administrative policy decisions that were independent of the technical issues related to identifying potential school bus route driving hazards. Accordingly, the focus of the effort was placed on identifying and listing potential school bus route driving hazards.

An initial list of potential hazards was prepared during a Working Session of state directors during the 1997 annual conference of the National Association of State Directors of Pupil Transportation Services. The results of that session were summarized and provided for review to all state directors of pupil transportation. The final results of that effort are discussed in the previous section of this report, “Result #1 - Definition of a School Bus Route Driving Hazard.”

**Result #3 — Review of Existing Materials/Information**
A review of existing school bus route hazard identification systems was made to see if any system assessed all of the potential driving hazards developed during the Working Session at the 1997 annual conference. Not one was found. However, this effort identified additional potential hazards that were not previously considered, but were ultimately included in the final list of school bus route driving hazards as defined in Result #1 above.

**Result #4 — Defining a Route Hazard Identification System**
The major goal of this project was to develop a system that a state or a local school district could use to:

* Identify any fixed locations/situations that constitute a potential school bus driving hazard; and.
* Inform school bus drivers and substitute drivers of each identified potential route hazard on the school bus route(s) they drive.

**Identification**
The first component of such a system would consist of an established, systematic process to evaluate all school bus routes to determine whether any potential fixed driving hazards exist. An annual review of each school bus route by a person trained to identify potential route driving hazards would provide the basis for identifying any potential hazards. In addition, school bus drivers should be trained in how to recognize a potential school bus route driving hazard, and to report any new potential hazardous conditions to the appropriate school transportation officials. In effect, this would provide for continual monitoring and review of school bus routes so school bus drivers are aware of all potential fixed driving hazards on their routes. As stated by Connecticut, “constant communication between school bus drivers and route planners is critical to safety.” Hazards can and do change, even on a daily basis. As such, “daily updates of critical route hazards should be foremost in the minds of dispatchers and drivers.” A checklist format based on the above list of potential school bus driving route hazards (Result #1 — Table 1) would provide for a consistent means of ensuring that such items were considered during the review of each school bus route. An example of such a checklist for the items identified in Result #1 appears as Appendix A to this report,* and is based on a format utilized in Oklahoma. It is important to remember that a state or a local school district should ensure that any potential hazards that may be unique to their area, or any potential hazards that they believe were missing, are added to the checklist. In addition to regular school bus routes, there also can be potential driving hazards along routes taken for field trips or extra-curricular activities. In such cases, drivers may be able to identify potential route driving hazards based on their personal knowledge of the route or on a previous trip to the same location.

(Report being quoted above; checklist found in the appendix following.)

**Information**
The second component of a school bus route driving hazard identification system consists of a means of informing all regular and substitute school bus drivers of the potential driving hazards on their school bus route(s). New Jersey stressed the importance of "the need for drivers and driver trainers to make clear notes of these hazards for all substitute drivers." In addition to the drivers, school bus route planners/schedulers/dispatchers, etc. should be made aware of all information about potential driving hazards on the school bus routes. This information would allow them to make changes or adjustments to the routes, when reasonable and practicable, so as to minimize or eliminate the exposure of school buses to these route driving hazards. Informing the necessary people about potential school bus route driving hazards can be accomplished in a number of ways. The most practical, and possibly most easily understandable, appears to be through the use of a map that is visually annotated to identify potential route hazards. The same map could obviously be used for other purposes, including designating the actual school bus route and student pick-up/drop-off locations. Additionally, as the states of Ohio and Virginia noted in their comments to this project, information on the location of police/fire/rescue stations, hospitals, and other emergency care facilities, and "possible 'safe stops' where a school bus may pull off the road and await aid in the event of an emergency" could be added to the map. A number of local school districts currently use mapping techniques to document the streets in their district, the location of the students' homes, the school bus stops, and the routes traveled by school buses. Inexpensive color printers allow school districts to print color maps of their bus routes, and computer software allows route planners to incorporate custom information, such as route hazards, on the map. Whatever means is chosen, it is important that school bus drivers be provided with route hazard information in a standardized, consistent manner. Also, the route hazard information should be available to the school bus driver every day, no matter which school bus is driven on that day.

**Training**
While not a specific part of this project, the importance of training school transportation providers about school bus route driving hazards cannot be understated. In their comments, Ohio noted that the contents of a route hazard identification system are "only good if utilized." In other words, if drivers are not made aware of the potential driving hazards and trained on how to deal with such potential hazards, then no benefits will accrue from efforts to identify potential route hazards. Mississippi commented that its training in route hazards constantly works "to instill in each driver the concept of Expect the Unexpected."

However, training alone does not guarantee success. As Connecticut stated, "Route hazards is an area in which some training can be afforded, but common sense and networking among drivers, local officials, and school district personnel is paramount to a safe and successful route hazard notification program."

**Result #5 - Dissemination Approaches**
Based on the belief that the ultimate success of a school bus route driving hazard identification system is dependent on the awareness and use of the system by school transportation providers, it is strongly suggested that the results of this project be provided to all state directors of pupil transportation, the appropriate student transportation officials in each school district, and organizations affiliated with private/parochial schools. The dissemination to state directors and public schools districts could be made by use of direct mailings. The dissemination to private/parochial schools could be made through national associations that represent such schools.

As a supplement to direct mailings, the report on this project should be made available on the NHTSA and various school transportation web sites in a form that can be downloaded. In addition, the results of this project should be publicized through the various media that deal with pupil transportation.

**Non-Fixed School Bus Route Hazards:**
As mentioned earlier, this project only dealt with school bus route driving hazards that are "fixed." However, it is recognized that other driving hazards can occur without advanced warning. These often result from inclement/adverse weather conditions or poor visibility conditions. It is important for school bus drivers to be aware of such possibilities and be trained on how to deal with such sudden potential

hazards. As an example of some non-fixed driving hazards, Iowa includes in its School Bus Driver's Handbook procedures to follow should a school bus encounter a tornado or Agri-Chemical clouding along school bus routes. Also, Delaware provides drivers with information in its School Bus Driver's Handbook to prepare them for the following:

**Adverse weather conditions**

| | | |
|---|---|---|
| * Extreme heat | * **Dust** | * **Smoke** |
| * **Rain Storms** | * Fog | * **Wind** |
| * **Flooding** | * Snow/ice/**Blizzard** | |

**Conditions affecting visibility**

* Sun glare
* Darkness
* Curves and hills

Wild animals are another example of a non-fixed school bus route driving hazard. In many rural and suburban areas, animals such as deer and livestock can be a serious danger to motorists. School bus drivers should be made aware of such situations and learn how to deal with them.

**Conclusions:**

Recognizing the importance of identifying school bus route driving hazards, the National Association of State Directors of Pupil Transportation Services has conducted this study for the National Highway Traffic Safety Administration. Verbal and written information from members of the Association was consolidated to focus on the key issues and the best approach for addressing the problem of driving hazards on school bus routes. The following conclusions were reached during the study:

a. Driving hazards can and do exist on school bus routes.
b. Driving hazards on school bus routes that are of a "fixed" nature can be identified.
c. School transportation officials should establish a program to routinely and systematically evaluate all school bus routes for potential driving hazards.
d. A list of potential fixed school bus route driving hazards has been developed for use in evaluating school bus routes.
e. Information on potential school bus route driving hazards should be provided to all regular and substitute school bus drivers, route planners, dispatchers, and other appropriate personnel.
f. School bus drivers should be trained on how to effectively deal with potential school bus route driving hazards, of both a fixed or sudden nature.

The results of this project should receive wide dissemination.

The National Association of State Directors of Pupil Transportation (NASDPTS) encourages states, local school districts, and private/parochial schools to review this report in conjunction with their school transportation operations and take whatever actions are necessary to ensure that school bus route driving hazards are identified and made known to all appropriate school bus drivers and school transportation personnel.

**CHECKLIST FOR IDENTIFYING POTENTION SCHOOL BUS ROUTE**
**Fixed Driving Hazards**

**Railroad Grade Crossings**

Railroad Grade Crossing Identification Number:

Location:

How many tracks are present?

What are the times of the scheduled trains?

What types of trains use the track? Passenger Freight Commuter

What are the travel speeds of the scheduled trains?

| | | Yes | No |
|---|---|---|---|
| a. | Are the regulatory signs (crossbucks) clearly visible? | _____ | _____ |
| b. | Are there regulatory devices (lights/gates/bells) present? | _____ | _____ |
| c. | Are there any unique characteristics to the operation of the crossing controls? | _____ | _____ |

What are they?

| | | | |
|---|---|---|---|
| d. | When stopped approximately 15 feet from the nearest railroad track, is there an unobstructed sight distance of approximately 1,000 feet in both directions? | _____ | _____ |
| e. | Is there at least enough room on the other side of the furthest railroad track for the largest school bus to stop without encroaching on the train's right-of-way? | _____ | _____ |
| f. | Are there any roadway design features that could affect the safe operation of a school bus at the railroad crossing? | _____ | _____ |

What are they?

**Dangerous Intersections and Roadways**
**Location**

| | | Yes | No |
|---|---|---|---|
| a. | Is this a high-frequency crash location? | _____ | _____ |
| b. | Are traffic control devices present? | _____ | _____ |
| c. | Are there visibility obstructions? | _____ | _____ |

What are they?

| | | | |
|---|---|---|---|
| d. | Are there areas with no shoulders or drop to shoulder? | _____ | _____ |
| e. | Are there peculiar roadway features? | _____ | _____ |

What are they?

**Bridges, Tunnels/Underpasses and Overpasses**
**Location**

| | | Yes | No |
|---|---|---|---|
| a. | Is the weight capacity of the bridge/overpass sufficient for a fully-loaded school bus? | _____ | _____ |

| | | | |
|---|---|---|---|
| b. | Is the height of the tunnel/underpass adequate for the tallest school bus, including open roof hatches? | _____ | _____ |
| c. | Is the lane width of the bridge, tunnel/underpass, or overpass adequate for the widest school bus, including the mirrors? | _____ | _____ |

**Queuing /Storage Areas**
**Location**

| | | Yes | No |
|---|---|---|---|
| a. | Is there sufficient area for the largest school bus in the acceleration/deceleration lane? | _____ | _____ |
| b. | Is there sufficient area for the largest school bus in the median area between a multi-lane road? | _____ | _____ |
| c. | Is there sufficient area for the largest school bus in the turning lane? | _____ | _____ |

**Industrial Intersections and Construction Zones**
**Steep Downgrades**
**Location**

| | | Yes | No |
|---|---|---|---|
| a. | Do heavy vehicles enter/exit/cross the roadway frequently? | _____ | _____ |
| b. | Are there highway signs alerting drivers of the industrial/construction traffic? | _____ | _____ |
| c. | Are there highway signs alerting drivers to the downgrade? | _____ | _____ |
| d. | Are there signs alerting drivers to “Check Brakes?” | _____ | _____ |
| e. | Are there areas marked and designated for vehicles to safely leave the road (run-off areas)? | _____ | _____ |

**Areas of Significant Speed Differential Between Vehicles**
**Location**

| | | Yes | No |
|---|---|---|---|
| a. | Is there sufficient space to accelerate/decelerate a school bus when entering/exiting a high-speed road? | _____ | _____ |
| b. | Does slow-moving farm equipment operate on the road? | _____ | _____ |
| c. | Do non-motorized vehicles, e.g., horse-drawn carriages, operate on the road? | _____ | _____ |

d. Are there roadway conditions, e.g., mountainous terrain, that result in vehicles operating at high speeds and low speeds? _____ _____

What are they?

**Pedestrian Areas**
**Location**

| | | Yes | No |
|---|---|---|---|
| a. | Are there difficulties seeing pedestrians at school bus stops? | _____ | _____ |
| b. | Are there narrow streets with parked vehicles where children may run into the street? | _____ | _____ |
| c. | Are there areas of heavy pedestrian congestion, e.g., shopping and business areas? | _____ | _____ |

**Other Conditions Identified in Local Area**
**Location**

| | | Yes | No |
|---|---|---|---|
| a. | Are there unique roadway conditions? | _____ | _____ |
| b. | Roads without guardrails that pose a danger, e.g., next to rivers, lakes, quarries? | _____ | _____ |
| c. | Dirt or gravel roads that could affect braking? | _____ | _____ |
| d. | Others? | _____ | _____ |

What are they? _____

_____

e. Are there roadway conditions that make it difficult to make a “right turn on red?” _____ _____

What are they?

f. Are there areas with visibility problems due to industrial smoke, air quality, etc.? _____ _____

g. Are there areas where emergency equipment operate on a regular basis, e.g., fire stations or hospitals? _____ _____

## POLICIES, PROCEDURES AND TOPICS FOR STUDENT MANAGEMENT

Policies and procedures which address the following topics should be developed and implemented by school districts:

1. The bus driver's authority over, and responsibility for, students while in transit;
2. The student's right to due process when disciplinary action is taken;
3. A step-by-step procedure for resolving problems when the driver needs assistance;
4. The conditions under which a student might be temporarily or permanently suspended from the bus-riding privilege;
5. Procedures for handling emergencies;
6. Use of bus attendants or monitors;
7. Requirements and responsibility for school bus passenger and pedestrian safety instruction;
8. Parent's or guardian's responsibility for damage caused by their children to the bus or its equipment;
9. Rules and procedures for safe travel;
10. Driver, attendant, student and parent training for student management;
11. Special needs–teamwork, collaboration, and communication between transportation staff, special education staff, health services personnel and parents in the development of an Individual Transportation Plan (ITP) for each student with a defined disability;
12. Rules and procedures for safe travel; and
13. Driver, attendant, student and parent training for student management.

**EVALUATION CHECKLIST FOR SCHOOL BUS DRIVEWAYS IN THE VICINITY OF THE SCHOOL**

NAME OF THE SCHOOL:_____ DATE:_____

LOCATION OF THE SCHOOL:_____

| | | YES | NO | DOES NOT APPLY |
|---|---|---|---|---|
| 1. | School bus loading areas are provided on the school site. | ☐ | ☐ | ☐ |
| 2. | When loading and unloading of school students take place on a main thoroughfare in front of the school, the roadway has a minimum width of 40 feet of hard surface. | ☐ | ☐ | ☐ |
| 3. | The driveway leading to and from the loading and unloading area for school buses has a minimum width of 30 feet of paved surface. | ☐ | ☐ | ☐ |
| 4. | If diagonal parking is provided for buses in the loading and unloading area, a minimum width of 60 feet of paved surface is available. | ☐ | ☐ | ☐ |
| 5. | Parking for loading and unloading of students at school is bumper-to-bumper or diagonal; in either case, the necessity for backing does not exist. | ☐ | ☐ | ☐ |
| 6. | The school bus is not required to back anywhere on school property. | ☐ | ☐ | ☐ |
| 7. | All school bus movement on the school grounds is one-way in a counter-clockwise direction. | ☐ | ☐ | ☐ |
| 8. | School bus traffic does not completely encircle the school building. | ☐ | ☐ | ☐ |
| 9. | The driver has proper sight distance at all points along the driveway. | ☐ | ☐ | ☐ |
| 10. | Crosswalks for students do not exist at the entrance to the school bus driveway. | ☐ | ☐ | ☐ |
| 11. | Separation is maintained between school bus traffic and all other traffic. | ☐ | ☐ | ☐ |
| 12. | Vehicular pick-up points for non-bus students are on a separate driveway from that used by school buses. | ☐ | ☐ | ☐ |
| 13. | Curbing and suitable drainage are provided along driveways. | ☐ | ☐ | ☐ |
| 14. | Curbing and driveway construction comply with state highway specifications. | ☐ | ☐ | ☐ |

| | | YES | NO | DOES NOT APPLY |
|---|---|---|---|---|
| 15. | At ingress and egress areas to and from the school, there is a minimum radius on inner edge of driveway pavement from 50 to 100 feet. | ☐ | ☐ | ☐ |
| 16. | On the school site, there is a minimum radius of inner edge of driveway pavement of 60 feet. | ☐ | ☐ | ☐ |
| 17. | Between reverse curves, at least a 50-foot tangent section is provided. | ☐ | ☐ | ☐ |
| 18. | At ingress and egress points a maximum grade of 2% is adhered to. | ☐ | ☐ | ☐ |
| 19. | A maximum grade of 5% is adhered to on the school bus driveway within the school site. | ☐ | ☐ | ☐ |

**Note:** A "yes" answer for each of the items indicates a well-planned traffic pattern for school buses.

SIGNATURES:

Person making the report:_____

Title:_____

Director of School Transportation:_____

**Note**: Most of the items included in this Evaluation Checklist are based on a 1966 Report of the Special Committee on School Plant Evaluation "School Planning: Safe Transporting," Bureau of Pupil Transportation, Department of Education, Trenton, New Jersey 08652.

**STUDENT RULES**
Supervision and Disciplinary Guidelines

1. Student shall follow directions of the driver the first time given.
2. Student shall arrive at the bus stop before the bus arrives.
3. Student shall wait in a safe place, clear of traffic and away from where the bus stops.
4. Student shall wait in an orderly line and shall avoid horseplay.
5. Student shall cross the road or street in front of the bus only after the bus has come to a complete stop and upon direction of the driver.
6. Student shall go directly to an available or assigned seat when entering the bus.
7. Student shall remain seated and keep aisles and exits clear.
8. Student shall exhibit classroom conduct at all times.
9. Student shall refrain from throwing or passing objects in, from or into buses.
10. Student is permitted to carry only objects that can be held on his/her lap.
11. Student shall not use profane language, obscene gestures, tobacco, alcohol, drugs or any other controlled substance in the bus.
12. Student shall refrain from eating and drinking in the bus.
13. Student shall not carry hazardous materials or non-service animals into the bus.
14. Student shall respect the rights and safety of others.
15. Student shall refrain from leaving or boarding the bus at locations other than the assigned stop.
16. Student shall refrain from extending head, arms or objects out of the bus windows.
17. Student shall refrain from hitching rides via the rear bumper or other parts of the bus.

**BUS CONDUCT REPORT**

BUS NO._____ SCHOOL:_____ DATE:_____

Students in the School District who ride buses are subject to rules and regulations designed to provide safe transportation to and from school. Any behavior which distracts the driver is a serious hazard to the safe operation of the vehicle, and as such, jeopardizes the safety of all passengers. Consequence of continued inappropriate behavior could result in your child being denied the bus riding privilege.

_____ has been cited for an infraction of the rule(s) checked below:
(name)

| | | | |
|---|---|---|---|
| ☐ | Failure to remain seated | ☐ | Lighting matches |
| ☐ | Scuffling or fighting | ☐ | Throwing objects from window |
| ☐ | Profanity or obscene language | ☐☐ | Refusing to obey driver |
| ☐ | Smoking in the bus | ☐ | Bothering others |
| ☐ | Extending arm or head out window | ☐ | Throwing objects in bus |
| ☐ | Possession of harmful or illegal items. | ☐ | Other (See Comment) |

COMMENT:_____
_____
_____

DRIVER'S SIGNATURE:_____ DATE:_____

PRINT NAME:_____

DATE OF OFFENSE:_____ FIRST OFFENSE:_____

SECOND OFFENSE:_____ THIRD OFFENSE:_____

SCHOOL ADMINISTRATOR'S ACTION:_____

_____

SCHOOL ADMINISTRATOR'S SIGNATURE:_____ DATE:_____

PRINT NAME:_____

PARENT/GUARDIAN'S COMMENT:_____
_____
_____

PLEASE SIGN AND RETURN TO SCHOOL ADMINISTRATOR
Parent's/Guardian's Signature:_____ Date:_____

Print Name:_____

White Copy: School Administrator Canary Copy: Bus Driver Pink Copy: Parent/Guardian Gold Copy: Student

[**Note:** A form, such as the one above, should be used for reporting purposes. First offenses require at least a notification to the student and parent or guardian (either by phone or in person) by appropriate school personnel. Second and subsequent offenses may require a conference with the student, parent or guardian, driver and school administrator(s), which may result in a period of suspension of the student's riding privileges.]

**FLYERS**

WHEN LEAVING YOUR BUS:

## Here's How to Cross the Road

# SAFELY

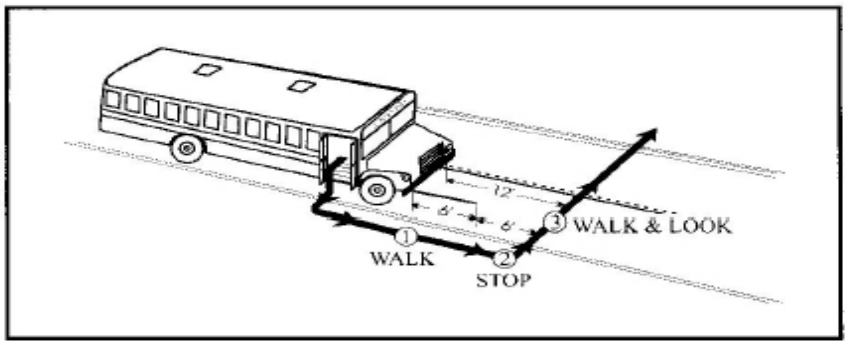
**WALK**—along the side of the road until you can see your driver

**STOP**—wait for the signal to cross

**WALK & LOOK**—for traffic both ways

—if you see a vehicle that has not stopped, go back to the bus immediately

—if all vehicles have stopped, cross the road quickly.




*Crossing the Highway is DANGEROUS*

REMEMBER

- WALK
- STOP
- WALK & LOOK

**Drivers SHOULD stop…But THEY MAY NOT!**

***Change word DRIVERS to MOTORISTS in graphic above**
**INSERT AFTER THE STEP STOP ABOVE:**
**WALK & STOP- go to the driver-side cross-view mirror and look both ways**
**wait for the signal to continue across the road On diagram, change position 3 to: WALK & STOP and Add a position 4 WALK & LOOK**

**WHEN BOARDING YOUR BUS:**

## Here's How to Cross the Road

# SAFELY

FOLLOW THE 12 FOOT RULE:

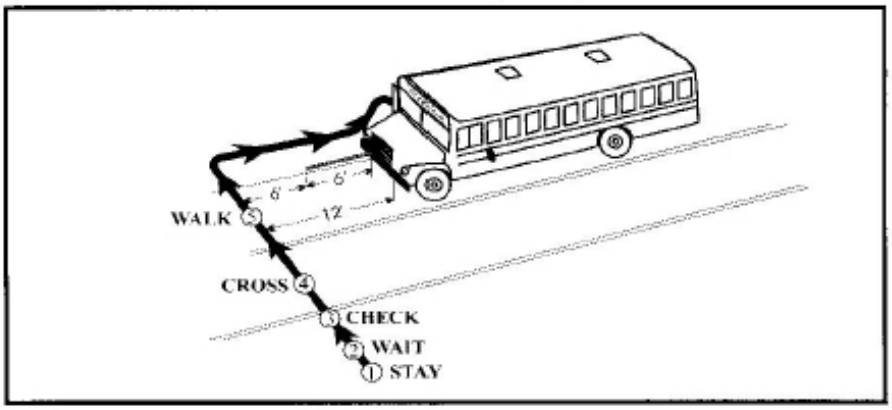
**STAY**—on your side of the road—far away from the traffic

**WAIT**—for the bus to stop and for your driver's signal to cross

**CHECK**—traffic both ways—then check again

**CROSS**—walk directly across, checking traffic both ways

**WALK**—approximately 12 feet ahead of the bumper and board the bus quickly




Crossing the Highway is *DANGEROUS*

REMEMBER

- Stay on your side of the road until your driver signals you to cross
- Check and recheck for traffic
- Follow the 12 foot rule
- Board bus quickly—go directly to your seat.

**Drivers SHOULD stop…But THEY MAY NOT!**

**RECOMMENDED PROCEDURES FOR ESCORTED CROSSING**
***(Legal references in this procedure can be found within California Code of Regulations (CCR) and CA Education Code (EC) and may be adapted for other states)***

1. Begin slowing the bus to get ready for the designated stop.
2. As you approach the stop, turn on the amber warning light, if the bus is so equipped, beginning 200 feet before the bus stop.
3. Apply the brakes with enough pressure to activate the stop lights so that following vehicles will anticipate the bus is preparing to stop.
4. Check all mirrors to ensure that traffic is gone and it is safe to turn to the right and stop.
5. Turn on the right-side turn signal lights during the last 100 feet before turning into the stop.
6. Approach the pupils slowly and with extreme care, considering the roadway surface (wet or slippery, sloped or flat, rough or smooth ground).
7. Do not stop any closer than 12 feet from the waiting pupils. They should be facing the approaching bus. (Refer to Figure SL5-2, “Danger zones.”)
8. Once the bus is stopped, cancel the right-side turn signal lights and apply the parking brake.
9. Place a standard transmission in first or reverse gear or, if an automatic trans- mission, place in the park position. On buses equipped with an automatic transmission that does not have a park position, place the transmission in neutral.
10. Turn off the engine.
11. Remove the ignition key and keep it in your possession.
12. Deactivate the amber warning light.
13. Check all mirrors; activate the flashing red light signal (crossover lights) and stop signal arm, if the bus is so equipped; and wait for traffic to stop.
14. Open the entrance door and look in all directions on the right side of the bus before exiting.
15. Remove the handheld stop sign from the holder.
16. Step off the bus and walk approximately 12 feet in front of the bus before turning to enter the roadway.
17. Turn toward the bus, look up, and verify that the amber warning light is off and the red light signal is flashing.
18. Walk from the right edge of the roadway away from the bus at a 45-degree angle and toward the center of the roadway. Stop before entering the traffic lane and look in all directions for traffic. This position allows the best view of traffic coming from the left and is protected. The handheld stop sign shall be used for all escorted crossings and should be held vertically, above waist level, with the word STOP facing traffic in both directions. This is one of the most dangerous places on earth; a public highway. Do not assume that vehicles will stop or that all pupils will follow procedures. Vehicles may try to pass the bus, and pupils may attempt to run across the roadway before you are ready. Take charge of the situation. Upon reaching the center of the roadway, turn and face the pupils (left side of the roadway). This position enables you to have a clear view of the pupils and traffic in both directions.

**Note**: Traffic might not be able to stop immediately during adverse weather (e.g., rain, snow, ice).

**Note**: The signal for pupils to enter the bus will be the flashing of the red light signal, the school bus driver holding a handheld stop sign in the center of the highway or private road on which the school bus is stopped, and verbal direction by the school bus driver to begin crossing the highway to enter the bus, and not simply the bus coming to a stop. Pupils must have received written instruction in school bus emergency procedures and passenger safety before riding a school bus for the first time. Once each year pupils in prekindergarten through grade eight who receive home-to-school transportation shall receive safety instruction on proper loading and unloading procedures, escorting by the driver, and crossing the street, highway, or private road (EC 39831.5).

**Note**: If the flashing red light signal (crossover lights) becomes inoperative prior to or during the escorting of pupils, the escort procedures must stop. Pupils may cross the highway only under the protection of a properly functioning flashing red light signal system.
SL5-_8

1. When traffic has stopped in both directions, tell the pupils to walk, not run, as they cross the highway or private road. Do not use hand motions or gestures to signal pupils. Some motorists may mistake a hand gesture as a signal for them to proceed. The pupils must cross the roadway between you and the front of the bus, never behind you or to the rear of the bus.
2. When the last pupil has crossed the middle of the roadway, turn and face the bus (right side of the roadway). When the last pupil has reached the right side of the roadway, walk immediately to the right side of the roadway, continuing to hold the stop sign so it is visible to traffic in both directions. Check under and around the exterior of the bus to make sure that no pupil is in the danger zones. Enter the bus.
3. On entering the bus, ensure that all pupils have safely boarded and are seated.
4. Immediately place the handheld stop sign in the holder, close the entrance door, and turn off the flashing red light signal (crossover lights) and the stop signal arm if the bus is so equipped.
5. Sit down in the driver's seat and fasten the driver's seat belt. 24. Check to see that all pupils are accounted for and properly seated. Pupils must be seated before you set the bus in motion.
6. Check all mirrors for pupils, other pedestrians, and traffic. Be sure to check the front cross-view mirror(s) for pupils who may be in front of the bus.
7. Restart the engine. Account for all pupils before moving the bus.
8. Place the transmission in gear and release the parking brake.
9. Check the traffic and the danger zones by using all mirrors before moving the bus; activate the left-side turn signal lights and, when it is safe to do so, pull into the flow of traffic; cancel the left-side turn signal lights; regain road speed; and proceed to the next stop.

**Note**: School transportation administrators and other transportation officials should adopt policies that standardize signs or signals used by school bus drivers to inform hearing-impaired pupils of when it is safe to cross the highway.

**Note**: Emphasize the proper use of mirrors, the danger zones, and communication between the driver, pupils, and the public.

## RECOMMENDED PROCEDURES FOR RAILROAD GRADE CROSSINGS

Each year, approximately 4,000 train/vehicle collisions occur at railroad crossings. These 4,000 collisions result in about 500 fatalities and 1,500 injuries. Unfortunately, some of the crashes involve school buses that result in injuries and fatalities to students. In an effort to avert these crashes, the following procedures are recommended to school bus drivers. It is important to note that these recommendations must be considered within the context of individual state laws and regulations.

Additional information and training materials on railroad crossing safety are available from:
Operation Lifesaver, Inc.
1420 King Street
Alexandria, VA 22314
1-800-537-6224

Although the information and recommendations contained in this publication have been compiled from sources believed to be reliable, other or additional safety measures may be required under particular circumstances.

(Adapted from Fact Sheet, "Recommended Procedures for School Bus Drivers at Railroad Crossings," revised, School Transportation Section, 1998, National Safety Council, 1121 Spring Lake Drive, Itasca, IL 60143-3201, (630) 285-1121.)

**FORMS**
**TRIP REQUEST FORM**

Trip date:_____ School:_____

Trip destination:_____

Depart from:_____ No. passengers:_____

Departure time:_____ Arrival time:_____

Extra equipment:_____

Meal stop required? ☐ yes ☐ no If yes, where?_____

_____

Equipment that will need to be transported:_____

Special needs equipment requirements:_____

Overnight travel requirement:_____

Number of adults accompanying the students:

Transportation requested by:_____ Date:_____

Approved by:_____ Date:_____

Reimbursement category:_____

**TRANSPORTATION USE FORM**

Vehicle assigned:_____ Driver:_____

Spot time:_____Spot location:_____

Routing information:_____

Dispatcher's signature:_____ Date:_____

Time out:_____ Time in:_____ Total time:_____

Mileage out:_____ Mileage in:_____ Total miles:_____

Actual no. passengers:_____

Remarks:_____

Driver's signature:_____ Date:_____

Pre-trip mechanical check completed (for overnight trips or trips exceeding _____ miles):

Technician's signature:_____Date:_____

**INSTRUCTIONS FOR CONDUCTING EMERGENCY EXIT DRILLS**

Due to the increased number of students being transported and the increased number of accidents on the highways, there is an urgent need to instruct students on how to properly vacate a school bus in case of an emergency. It is possible for students to block the emergency door if all are trying to get out at the same time. Also, there is a possibility of danger when students jump from the rear emergency door exit. To avoid these situations, schools should organize and conduct emergency exit drills for all students who ride the school bus, even occasionally.

**A. Reasons for actual emergency evacuations:**

1. Fire or danger of fire. Being near an existing fire and unable to move the bus, or being near the presence of gasoline or other combustible material is considered dangerous, and students should be evacuated. The bus should be stopped and evacuated immediately if the engine or any portion of the bus is on fire. Students should be moved to a safe place 100 feet or more from the bus and instructed to remain there until the driver has determined that the danger has passed.
2. Unsafe position. When the bus is stopped because of an accident, mechanical failure, road conditions or human failure, the driver must determine immediately whether it is safer for students to remain in or to evacuate the bus.
3. Mandatory evacuations. The driver must evacuate the bus when the following situations arise:
    a. Fire or threat of fire is apparent.
    b. The final stopping point is in the path of a train or is adjacent to railroad tracks.
    c. The stopped position of the bus may change and increase the danger (e.g., a bus comes to rest near a body of water or at a precipice where it could still move and go into the water or over a cliff). The driver should be certain that the evacuation is carried out in a manner which affords maximum safety for the students.
    d. The stopped position of the bus is such that there is danger of collision.
4. Sight distance. In normal traffic conditions, the bus should be visible for a distance of 300 feet or more. A position over a hill or around a curve, where such visibility does not exist, should be considered reason for evacuation.

**B. Important factors pertaining to school bus evacuation drills:**

1. Safety of students is of the utmost importance and must first be considered.
2. All drills should be supervised by the principal or by persons assigned to act in a supervisory capacity.
3. The bus driver is responsible for the safety of the students. When the driver is incapacitated and unable to direct the evacuation, school patrol members, appointed students or adult attendants should be authorized to direct these drills. It is important to have **REGULAR SUBSTITUTES AVAILABLE.**
4. IF OPERABLE, THE SCHOOL BUS ALTERNATELY FLASHING SIGNAL LAMPS (RED TRAFFIC CONTROL LAMPS) MUST BE ACTIVATED AND SIDE STOP ARM EXTENDED TO ALERT ONCOMING TRAFFIC.
5. Students appointed to direct evacuation drills should possess the following qualifications: Maturity and live near the end of the bus route.
5. Passengers should receive instruction on how to:
    a. Turn off ignition switch/shut down engine;
    b. Set emergency brake;
    c. Summon help when and where needed;
    d. Use kick out windows or emergency escape exits;
    e. Set warning devices;
    f. Open and close doors and account for all students passing the station;
    g. Help small students off the bus;
    h. Perform other assignments; and
    i. Use of electronic voice equipment to summon help.
6. School bus driver and attendant should be active participants.
7. Drills should be scheduled in a manner similar to fire drills held regularly in schools. They should be held more often during fall and spring months and conducted when the bus arrives at the school building with the students.
8. Drills should be restricted to school property and conducted under the supervision of school officials.
9. Types of drills should be varied.
10. Driver should stay in bus during evacuation drill. He/she must set the parking brake, turn the engine off and place the manual transmission in gear.

11. Students should not be permitted to take lunch boxes, books, etc., with them when they leave the bus. (The objectives are to get students off safely in the shortest time possible and in an orderly fashion.)
12. Students should travel a distance of at least 100 feet from the bus in an emergency drill and remain there until given further directions.
13. All students should participate in the drill, including those who ride only on special trips.
14. Each student should be instructed in proper safety precautions.
15. Students should be instructed in how and where to obtain assistance in emergencies. Written instructions and telephone numbers should be posted in the bus.
16. Sample drill formats:
    a. Everyone exits through the front entrance doors and emergency door configurations.
    b. Everyone exits through the rear-most emergency door(s).
    c. Front half exits through the front door and rear half exits through the rear-most door.
    d. Other emergency exits (e.g., windows, hatches) are included in drills.
17. All rear-engine buses are equipped with a left side emergency exit door in lieu of a rear emergency door. This exit should also be utilized for evacuation drills.
18. Some states also require side emergency exits in addition to rear emergency doors.
19. Students should be familiar with the operation of emergency windows (both side and rear) and roof hatches. All exits should be opened by students during evacuation drills to ensure the students' ability to operate such devices.
20. All school bus drivers shall ensure the students assigned to their buses are familiar with the emergency exit configuration of their assigned bus.
21. Identification of seat rows and positions similar to airline seating is recommended (i.e., left front seat 1, a, b, c, right front seat 1, d, e, f, etc.)
22. Education staff and coaches should be trained regarding safe travel practices and procedures and should be required to participate in school bus evacuation drills.

**SUGGESTED EVACUATION PROCEDURES FOR ACTIVITY TRIPS AND FIELD TRIPS**

In order to ensure the safety of school bus passengers in an actual emergency, every school bus driver assigned to transport students on activity trips or field trips may assign an evacuation team prior to each trip. The team may consist of teachers, coaches, students or any other passenger. A roster should be provided to the driver, accounting for all passengers.

Passengers assigned to evacuation teams must be seated where they can effectively carry out their responsibilities in an emergency.

Each evacuation team will consist of at least the following:
1. A passenger assigned to set the parking brake, turn off the engine, turn on warning flashers and to call on the radio or other means and report the incident to the Transportation Department, in case the driver is unable to do so.
2. A passenger assigned to lead passengers to a safe location at least 100 feet from the bus and to take the first aid kit off the bus.
3. Two passengers assigned to stand outside the bus, next to the entrance door, to help students exit the bus and to take the fire extinguisher.
4. Two passengers assigned to stand outside the bus, next to the emergency exit door, to help students exit the bus.

In addition to assigning an evacuation team, the following information shall be discussed and/or demonstrated prior to each activity trip or field trip:

1. Location and use of the fire extinguisher;
2. Location of the first aid kit;
3. Location of the warning reflectors;
4. Location and use of all emergency exits;
5. How to shut off the engine and set the parking brake;

6. How to open the entrance door, to include, safety releases on manual, air or vacuum doors, if so equipped; and
7. Importance of passengers keeping aisles clear at all times and not blocking emergency exits.

THE DRIVER OF THIS TRIP DID ASSIGN AN EVACUATION TEAM AND EXPLAINED THE EMERGENCY PROCEDURES AND SAFE TRAVEL RULES TO OUR GROUP.

Sponsor's/trip leader's signature: Date:

**SCHOOL CHARTER MOTOR COACH**
**SUGGESTED OPERATIONAL GUIDELINES FOR THE USE OF BUSES OTHER THAN SCHOOL BUSES**

In order to ensure the safest transportation for school students, the following guidelines and procedures provide information that can be used by schools, school districts and others transporting pre-school and school-aged children when contracting for a school-charter motorcoach.

**1. DRIVERS**
The following training requirements for school-charter motorcoach drivers MAY shall be considered:

a. Pre-service training
In addition to successfully completing all pre-service training provided by the employer, a school-charter motorcoach driver shall complete a required course of instruction which includes, but is not limited to, appropriate state laws, regulations and policies related to school transportation.

b. In-service training
All school-charter motorcoach drivers shall receive a required amount of in-service training annually, with instruction on handling bodily fluids, and shall be required to maintain current first aid, card in accordance with state regulations.

**2. MOTOR CARRIERS**
The following requirements for motor carriers MAY be considered:

a. Pre-qualification list of eligible motor carriers
The school district should establish a list of eligible companies that it will use for charter motorcoach service by pre-qualifying potential providers. Public school systems should establish this list centrally so that individual schools do not have to duplicate efforts of other schools, and so that motorcoach companies are not asked to provide the same information to multiple schools that are using the same criteria. Further, school districts may find it advantageous to join together in a consortium or other working group to cooperatively establish a regional list of eligible companies.

b. Vehicle maintenance
The school district should require documented assurance from the motor carrier that it will not knowingly require or permit the operation of any school-charter motorcoach that is not in safe operating condition or not equipped and maintained, as required by any law; or knowingly require or permit any driver to drive in violation of any law.

**3. TRIP-SPECIFIC REQUIREMENTS**
The following requirements shall be considered:
Based on specific needs of the trip, the school and the motor carrier must understand and establish in a written contract exactly what will be involved and establish methods for verifying that the motor carrier meets all criteria for a given trip.

1. Inspection

Prior to operation, the driver shall inspect each school-charter motorcoach to ascertain that it is in safe condition, it is equipped as required by all provisions of law, and all equipment is in good working order. The inspection shall include, but is not limited to:

a. All required emergency equipment, as well as, first aid and body fluid cleanup kit(s), fire extinguisher(s), reflectors;
b. All gauges, indicators and warning devices;
c. Horn(s);
d. Driver's seat and seat belts;
e. All doors, door emergency releases, overhead hatches and windows;
f. All seats, handrails and modesty panels;
g. Interior and exterior lighting systems;
h. All heating, cooling and ventilating systems;
i. All glass and mirrors, including adjustment of mirrors;
j. Windshield wipers and washers;
k. All tires, wheels, rims and lug nuts;
l. Wheelchair restraints, tie downs and loading devices, such as ramps and lifts; and
m. Brake system;
    i. Air compressor governor cut-in and cut-out pressures;
    ii. Static pressure for air loss;
    iii. Initial applied brake pressure loss;
    iv. Low air pressure warning devices;
    v. Emergency stopping systems;
    vi. Parking brake;
    vii. Antiskid device (if equipped);
    viii. Vacuum gauge, ensuring it reads not less than 15 inches of mercury (if equipped);
    ix. Low vacuum warning device(s) (if equipped); and
    x. Brake pedal adjustment.

(*Note: Draining reservoirs in dual air systems is not required.)

2. Pre-trip inspection checklist

The coordinator of the trip should complete a pre-trip inspection checklist at the time of the trip to make sure that each driver and vehicle meet all criteria immediately before departure. Motor carriers are required to meet many Federal Motor Carrier Safety Administration regulations. The company is responsible for ensuring that each driver completes a thorough pre-trip inspection prior to each trip and is further required to repair any safety-related defects discovered prior to the trip. The completion of a pre-trip checklist by a trip coordinator does not relieve the company of the liability for the mechanical condition of the vehicle. The pre-trip checklist should validate the driver's medical card, CDL license with proper endorsement and a basic review of the vehicle (e.g. lamps, safety equipment, etc.).

3. Trip report

At the completion of the driver's work or tour of duty, each driver should submit a daily documented report to the employer indicating the condition of the vehicle and noting any defects found. Whether discovered by or reported to the driver, all vehicle defects and deficiencies likely to affect safe operation or cause mechanical breakdown of the school-charter motorcoach shall be listed, and a negative report shall indicate that no such conditions are present.

4. Transportation of property:
    a. Hazardous materials
        i. Motor carriers and drivers shall not transport, or knowingly permit passengers to carry, any substance, material, or device posing an unreasonable risk to health and safety to any passenger. These restrictions shall not apply to:
            1. Portable oxygen tanks medically prescribed for, and in the possession of, a passenger and in a carrier designed for personal use;
            2. Personal-use articles in the immediate possession of a passenger;

3. Hazardous materials transported by a carrier subject to federal jurisdiction in compliance with provisions of 49 CFR, Part 177.

b. Fuel

Fuel shall not be transported except in the vehicle's regular fuel tanks.

c. General property

Drivers and motor carriers shall not permit any greater quantity of baggage in vehicles than can be safely and conveniently carried and safely secured. In no event shall aisles, doors, steps or emergency exits be blocked.

d. Animals

A driver or motor carrier **shall** refuse to transport dogs or other animals except certified guide, signal or service animals. All other animals shall be securely crated and stored to eliminate the possibility of injury to passengers.

5. Transportation of passengers:

The driver shall not drive a school-charter motorcoach transporting passengers in violation of the following provisions:

a. Emergency Passenger Safety Training

Prior to travel, passengers transported in school-charter motor coaches shall receive emergency procedure and passenger safety training as prescribed by state law and/or regulations for school passengers transported in yellow school buses. Training shall include evacuation training on the specific charter motorcoach being used for each trip.

b. Interior lighting

During darkness, the driver shall ensure that the interior lighting is sufficient for passengers to enter and exit safely and when otherwise deemed necessary.

c. Ejection of passengers

The driver of a school-charter motorcoach shall not allow nor require the disembarkation of any school student-passenger at any location except the scheduled destination, unless the passenger is given into the custody of a parent, guardian or any person designated by the parent, guardian, school authority or law enforcement official. In case such non-scheduled disembarkation is made, complete information will be provided to the trip coordinator at the first possible opportunity.

d. Fueling restrictions

No fueling will take place while passengers are on board the bus.

e. Seating capacity

The number of passengers shall not exceed the number of manufacturer designated safe and adequate seating spaces. Parents/adults will be provided with and be required to use Child Safety Restraint Systems suitable for the age and weight of the individual child.

f. Weight

Passengers shall not exceed the number whose weight, in addition to the weight of any property transported, can be carried without exceeding the manufacturer's maximum gross vehicle weight rating or the combined maximum rating of the tires supporting each axle.

g. Standing passengers

A school-charter motorcoach with school passengers on board shall not be put in motion until all passengers are seated. All passengers must remain seated while the vehicle is in motion, except an adult chaperone, parent, guardian or school employee acting upon a request by the driver to supervise or assist a passenger. Passengers shall not be permitted in front of the "standee line" or forward of the drivers' seat back while the vehicle is in motion.

h. Open doors

A school-charter motorcoach shall not be put in motion until the doors are closed. The doors shall not be opened until the vehicle is stopped and the parking brake applied.

i. Emergency exits

A school-charter motorcoach shall not be put in motion with any emergency exit locked or otherwise secured against being opened from the inside or outside.

6. School-charter motorcoach accident reporting and/or mechanical failure
    a. When any school-charter motorcoach accident occurs, the driver shall stop at the scene and in addition to any requisite law enforcement and/or EMS unit, immediately notify or cause to be notified the state agency responsible for investigating accidents involving buses engaged in the transportation of school students, his or her employer, and the school district or school which the students may attend.
    b. In the event of an accident or emergency, the driver shall not leave the immediate vicinity of the school-charter motorcoach to seek aid unless the bus is empty. If there are passengers on board no less than two should be sent to summon help.
    c. When a school-charter motorcoach is rendered unsafe for continued operation due to accident damage or a mechanical failure, the driver shall discontinue use of the bus and notify the motor carrier of these circumstances. The driver or motor carrier shall then make the necessary arrangements to have the passengers safely transported to their destinations.
    d. A school-charter motorcoach damaged by an accident or other cause shall not be driven from the location where the damage occurred until it has been inspected by a qualified person who has determined that the vehicle is safe to drive.
7. Other operational issues
    a. Smoking is prohibited by the driver or any passengers either on the bus or within the loading/unloading area of the bus. (Use of tobacco on or near the school-charter motorcoach is prohibited.)
    b. The driver's view of the roadway shall not be obstructed by any passenger **or any object blocking the driver's vision within the driver's compartment.**
    c. The driver shall wear the lap or lap/shoulder belt (as equipped) at all times while the bus is in motion.
    d. Headlamps shall be illuminated at all times while the bus is in motion. **If the parking brake is applied, head lamps shall be deactivated.**
    e. When any passenger is on board, the driver shall not leave the driver's compartment without first stopping the engine, setting the parking brake, placing the transmission in first or reverse gear or park position and removing the ignition keys (if applicable) which shall remain in the driver's possession. (On vehicles with automatic transmissions that do not have a park position, the transmission shall be placed in neutral.)
    f. School districts shall ensure that motor carriers require each school-charter motor-coach driver to demonstrate proficiency in the safe operation of each different type and size of bus requiring different driving skills in conditions of daylight, darkness, roadway, and terrain before transporting passengers in those types of vehicles in those conditions or terrain. Drivers should also receive training in bus operations under all weather conditions likely to be encountered prior to operating such vehicle(s) in those conditions. Once driver proficiency has been recorded, motor carriers shall ensure that driver proficiency is maintained as required by district policy, state regulations and federal requirements.
    g. School districts shall ensure that motor carriers equip each school-charter motorcoach with at least one fully charged fire extinguisher having at least a 10 B:C rating. If the school-charter motorcoach has been designed or modified to transport passengers in wheelchairs, the vehicle shall be equipped with two extinguishers, each one rated at not less than 8 B:C one to be placed in the driver's compartment and the other at the wheelchair loading door or emergency exit. Each fire extinguisher shall be securely mounted in the school-charter motorcoach in a conspicuous place or in a clearly marked compartment, readily accessible. Each fire extinguisher shall be maintained in prescribed operating condition with a current inspection certification and equipped with some means of determining if it is fully charged.
    h. First aid and body fluid cleanup kits

i. School districts shall require motor carriers to equip each school-charter motorcoach with readily visible, accessible and plainly marked first aid and body fluid cleanup kits. The kits shall be constructed to prevent dust and moisture from reaching the contents and must be maintained in good condition. The kits shall be easily and rapidly removable from the place secured. The required contents of school-charter motorcoach first aid and body fluid cleanup kits shall conform to state school bus specifications.

**TRIP REQUEST FORM**

Trip date:_____ School:_____
Trip destination: _____
Depart from: _____No. of passengers:_____
Departure time: _____Arrival time: _____
Extra equipment: _____
Meal stop required? ☐☐yes ☐☐no If yes, where? _____
Equipment that will need to be transported: _____
Special needs equipment requirements: _____
Overnight travel requirement: _____
Number of adults accompanying the students: _____
Transportation requested by: _____ Date: _____
Approved by: _____ Date: _____
Reimbursement category: _____

**TRANSPORTATION USE:**

Vehicle assigned: _____ Driver: _____
Spot (load) time: _____ Spot location: _____
Routing information: _____
Dispatcher signature: _____ Date: _____
Time out: _____ Time in: _____ Total time: _____
Mileage out: _____ Mileage in: _____ Total miles: _____
Actual no. passengers: _____
Remarks: _____
Driver Post-Trip Inspection Report: _____
Driver signature: _____Date: _____
Pre-trip mechanical check completed (for overnight trips or trips exceeding miles):
Technician's signature: _____ Date: _____

**TRANSPORTATION OF PROPERTY**

The driver shall not drive a school-charter motorcoach transporting passengers in violation of the following provisions:

Animals

A driver or motor carrier may refuse to transport dogs or other animals except certified guide, signal or service animals. All other animals shall be securely crated and stored to eliminate the possibility of injury to passengers.

Discontinuance from use

When a school activity bus is rendered unsafe for continued operation due to accident damage or a mechanical failure, the driver shall discontinue use of the bus and notify the motor carrier of these circumstances. The driver or motor carrier shall then make the necessary arrangements to have the passengers safely transported to their destinations.

a. Smoking is prohibited

b. The driver's view in any direction shall not be obstructed by any passenger.
c. The driver shall wear the lap or lap shoulder belt (as equipped) at all times while the bus is in motion.
d. Headlamps shall be illuminated at all times while the bus is in motion.
e. When any passenger is on board, the driver shall not leave the driver's compartment without first stopping the engine, effectively setting the parking brake, placing the transmission in first or reverse gear or park position and removing the ignition keys (if applicable), which shall remain in the driver's possession. (On vehicles with automatic transmissions that do not have a park position, the transmission shall be placed in neutral.)
f. School districts shall ensure that motor carriers require all school activity bus drivers to demonstrate proficiency in the safe operation of each different type and size of bus requiring different driving skills in conditions of daylight, darkness, roadway and terrain before transporting passengers in those conditions or terrain. Drivers shall also receive classroom training in bus operations under all weather conditions likely to be encountered prior to operating such vehicle(s) in those conditions. Once driver proficiency has been recorded, carriers shall ensure that driver proficiency is maintained.

Emergency exits
A school-charter motorcoach shall not be put in motion with any emergency exit locked or otherwise secured against being opened from the inside or outside.

Emergency procedures and passenger safety training
School passengers transported in school-charter motorcoaches shall receive emergency procedure and passenger safety training as prescribed by state law and/or regulations for school passengers transported in yellow school buses. Training shall include evacuation training on the specific charter motorcoach being used for each trip.

Ejection of passengers
The driver of a school-charter motorcoach shall not eject any school student-passenger unless the passenger is given into the custody of a parent, guardian or any person designated by the parent, guardian, school authority or law enforcement official.

Fire extinguisher
Every school activity bus shall be equipped with at least one fully charged fire extinguisher having at least a 10 B:C; rating. A bus designed to transport wheelchairs shall be equipped with two extinguisher, each one rated at not less than 8B:C, one to be placed in the driver's compartment and the other at the wheelchair loading door or emergency exit. Each fire extinguisher shall have been rated and labeled by one of the following test labs approved by the State Fire Marshal to test and label portable fire extinguisher for sale in the respective state.

a. Underwriter's Laboratories, Northbrook, Illinois. All sizes and classifications.
b. Factory Mutual Research Corporation, Norwood, Massachusetts. Sizes 10B:C, 1A 10B:C, 2A 40B:C, 3A 40B:C, and 4A 80B:C fire extinguisher filled with Halon 1211 or Halon 301.

First aid and body fluid cleanup kits
School districts shall require motor carriers to equip each school-charter motorcoach with readily visible, accessible and plainly marked first aid and body fluid cleanup kits. The kits shall be constructed to prevent dust and moisture from reaching the contents and must be maintained in good condition. The kits shall be removable from the place secured. The required contents of school-charter motorcoach first aid and body fluid cleanup kits shall conform to state requirements.

Fuel
Fuel shall not be transported except in the vehicle's regular fuel tanks.

Fueling restrictions
No fueling will take place while passengers are on board the bus.

General property
Drivers and motor carriers shall not permit any greater quantity of baggage in vehicles than can be safely and conveniently carried and safely secured. In no event shall aisles, doors, steps or emergency exits be blocked.

Hazardous materials
Motor carriers and drivers shall not transport, or knowingly permit passengers to carry, any substance, material, or device posing an unreasonable risk to health and safety to any passenger. These restrictions shall not apply to:

1. Portable oxygen tanks medically prescribed for, and in the possession of, a passenger and in a carrier designed for personal use;
2. Personal use articles in the immediate possession of a passenger; and
3. Hazardous materials transported by a carrier subject to federal jurisdiction in compliance with provisions of Sub-part E, Part 177, 49 CFR.

Interior lighting
During darkness, the driver shall ensure that the interior lighting is sufficient for passengers to enter and exit safely and when otherwise deemed necessary.

Maintenance
Each fire extinguisher shall be maintained in prescribed operating condition with a current inspection certification and equipped with some means of determining if it is fully charged.

Open doors
A school-charter motorcoach shall not be put in motion until the doors are closed. The doors shall not be opened until the vehicle is stopped and the parking brake applied.

Other operational issues

a. Smoking is prohibited.
b. The driver's view in any direction shall not be obstructed by any passenger.
c. The driver shall wear the lap or lap/shoulder belt (as equipped) at all times while the bus is in motion.
d. Headlamps shall be illuminated at all times while the bus is in motion.
e. When any passenger is on board, the driver shall not leave the driver's compartment without first stopping the engine, setting the parking brake, placing the transmission in first or reverse gear or park position and removing the ignition keys (if applicable) which shall remain in the driver's possession. (On vehicles with automatic transmissions that do not have a park position, the transmission shall be placed in neutral.)
f. School districts shall ensure that motor carriers require each school-charter motorcoach driver to demonstrate proficiency in the safe operation of each different type and size of bus requiring different driving skills in conditions of daylight, darkness, roadway, and terrain before transporting passengers in those conditions or terrain. Drivers should also receive training in bus operations under all weather conditions likely to be encountered prior to operating such vehicle(s) in those conditions. Once driver proficiency has been recorded, motor carriers shall ensure that driver proficiency is maintained.
g. School districts shall ensure that motor carriers equip each school-charter motorcoach with at least one fully charged fire extinguisher having at least a 10 B:C rating. If the school-charter motorcoach has been designed or modified to transport passengers in wheelchairs, the vehicle shall be equipped with two extinguishers, each one rated at not less than 8 B:C one to be placed in the driver's compartment and the other at the wheelchair loading door or emergency exit. Each fire extinguisher shall be securely mounted in the school-charter motorcoach in a conspicuous place or in a clearly marked compartment, readily accessible. Each fire extinguisher shall be maintained in prescribed operating condition with a current inspection certification and equipped with some means of determining if it is fully charged.

School-charter motorcoach accident reporting and mechanical failure

a. When any school-charter motorcoach accident occurs, the driver shall stop at the scene, immediately notify or cause to be notified the state agency responsible for investigating accidents involving buses engaged in the transportation of school students, his or her employer, and the school district or school which the students may attend.
b. In the event of an accident or emergency, the driver shall not leave the immediate vicinity of the school-charter motorcoach to seek aid unless the bus is empty. If there are passengers on board no less than two should be sent to summon help.
c. Comply with Title 49 CFR Section 392.40.
d. When a school-charter motorcoach is rendered unsafe for continued operation due to accident damage or a mechanical failure, the driver shall discontinue use of the bus and notify the motor carrier of these circumstances. The driver or motor carrier shall then make the necessary arrangements to have the passengers safely transported to their destinations.
e. A school-charter motorcoach damaged by an accident or other cause shall not be driven from the location where the damage occurred until it has been inspected by a qualified person who has determined that the vehicle is safe to drive.

Seating capacity
The number of passengers (excluding infants in arms) shall not exceed the number of safe and adequate seating spaces.

Securement
Each fire extinguisher shall be securely mounted in the school activity bus in a conspicuous place or a clearly marked compartment and readily accessible.

Standing passengers
A school-charter motorcoach with school passengers on board shall not be put in motion until all passengers are seated. All passengers must remain seated while the vehicle is in motion, except an adult chaperone, parent, guardian or school employee acting upon a request by the driver to supervise or assist a passenger or when it is necessary for a passenger to use the on-board restroom at a location where the bus cannot be stopped in a safe place. Passengers shall not be permitted in front of the "standee line" while the vehicle is in motion.

Step wells
Passengers shall not be permitted in front of the “standee line" while the vehicle is in motion.

Weight
Passengers shall not exceed the number whose weight, in addition to the weight of any property transported, can be carried without exceeding the manufacturer's maximum gross vehicle weight rating or the combined maximum rating of the tires supporting each axle.

## BUS USE FOR SCHOOL ACTIVITY TRIPS

1. General Provisions

Pre-service driver training
In addition to successfully completing all pre-service training provided by their employer, school activity bus drivers shall complete at least a state-required course of instruction.

In-service driver training
All school activity bus drivers shall receive the state-required amount of in-service training annually and shall be required to maintain a current first aid certificate with instruction in universal precautions.

Hours of service
Driver shall comply with the provisions of CFR 49, Part 395.5.

Specially equipped bus

School activity buses may be designed or modified in accordance with Federal Standards or the Americans with Disabilities Act requirements to transport passengers seated in wheelchairs.

Vehicle condition
It shall be unlawful for the driver to drive a school activity bus that is not in safe operating condition or is not equipped, as required by all provisions of law. The driver is solely responsible for the vehicle condition.

Pre-trip inspection
Prior to operation, the driver shall inspect each school activity bus to ascertain that it is in safe condition, it is equipped, as required by all provisions of law, and all equipment is in good working order. The inspection shall include, but is not limited to, the following items:

All required emergency equipment, as well as, first aid and body fluid cleanup kit(s), fire extinguisher(s), reflectors;

a. All gauges, indicators and warning devices;
b. Horn(s);
c. Driver's seat and seat belts;
d. All doors, door emergency releases, overhead hatches and windows;
e. All seats, handrails and modesty panels;
f. Interior and exterior lighting systems;
g. All heating, cooling and ventilating systems;
h. All glass and mirrors, including adjustment of mirrors;
i. Windshield wipers and washers;
j. All tires, wheels, rims and lug nuts;
k. Wheelchair restraints, tie downs and loading devices (such as ramps and lifts);

Brake system
a. Air compressor governor cut-in and cut-out pressures;
b. Static pressure for air loss;
c. Applied brake pressure loss;
d. Low air pressure warning devices;

Emergency stopping systems
a. Parking brake;
b. Antiskid device (if equipped);
c. Vacuum gauge (if equipped), ensuring it reads not less than 15 inches of mercury;
d. Low vacuum warning device(s); and
e. Brake pedal for brake adjustment.

*(**Note**: Draining reservoirs in dual air systems is not required.)

Daily report
At the completion of the driver's work or tour of duty, each driver shall submit a daily documented report to the employer indicating the condition of the vehicle and noting any defects found. Whether discovered by or reported to the driver, all vehicle defects and deficiencies likely to affect safe operation or cause mechanical breakdown of the school activity bus shall be listed, and a negative report shall indicate that no such conditions are present.

Repairs
The driver shall not make any repairs of the bus or its equipment except necessary emergency repairs on the road.

**EVACUATION PROCEDURES for ACTIVITY TRIPS AND FIELD TRIPS**
In order to ensure the safety of school bus passengers in an actual emergency, every school bus driver assigned to transport students on activity trips or field trips may assign an evacuation team prior to each

trip. The team may consist of teachers, coaches, students or any other passenger. A roster should be provided to the driver, accounting for all passengers.
Passengers assigned to evacuation teams must be seated where they can effectively carry out their responsibilities in an emergency. Each evacuation team will consist of at least the following:

1. A passenger assigned to set the parking brake, turn off the engine, turn on warning flashers and to call on the radio or other means and report the incident to the Transportation Department, in case the driver is unable to do so.
2. A passenger assigned to lead passengers to a safe location at least 100 feet from the bus and to take the first aid kit off the bus.
3. Two passengers assigned to stand outside the bus, next to the entrance door, to help students exit the bus and to take the fire extinguisher.
4. Two passengers assigned to stand outside the bus, next to each emergency exit door, to help students exit the bus.

In addition to assigning an evacuation team, the following information shall be discussed and/or demonstrated prior to each activity trip or field trip:

a. Location and use of the fire extinguisher;
b. Location of the first aid kit **and body fluid kit**;
c. Location of the warning reflectors
d. Location and use of all emergency exits;
e. How to shut off the engine and set the parking brake
f. How to open the entrance door, to include, safety releases on manual, air or vacuum doors, if so equipped; an
g. Importance of passengers keeping aisles clear at all times and not blocking emergency exits.

THE DRIVER OF THIS TRIP DID ASSIGN AN EVACUATION TEAM AND EXPLAINED THE EMERGENCY PROCEDURES AND SAFE TRAVEL RULES TO OUR GROUP.
Sponsor's/trip leader's signature: _____Date: _____

**• APPENDIX A • GLOSSARY**

**INTRODUCTION**

This glossary was developed with three purposes in mind:

1. To provide easy access to the definition of terms used or referenced within the document;
2. To consolidate, in one resource, the acronyms, abbreviations and standard terms commonly used in the industry; and
3. To promote consistency throughout the industry by providing standard definitions or preferred usages for terms that may be used differently in different parts of the country.
4. The glossary is not intended to be definitive. There are and will be terms that are excluded and definitions that differ from regional usages. It is an attempt to reflect the language of pupil transportation which, like all language, is ever-changing.

**GLOSSARY OF TERMS AND DEFINITIONS**

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| **ARB:** The abbreviation for the (California) Air Resources Board, the state agency in California which sets the state's emission standards. |
| **Access panel:** A body panel which must be moved or removed to provide access to one or more serviceable components, |
| **Accessibility:** Ability of vehicles and facilities to accommodate people with disabilities. |
| **Activity bus:** A bus owned, leased or contracted by a school district and regularly used to transport students on field trips, athletic trips or other curricular or extracurricular activities, but not used for to-and-from school transportation; must meet all FMVSSs for school buses. |
| **Activity seat:** A seat designed for passenger comfort with contoured seats and backs with the result that passengers' positions are distinctly separate; characterized by fixed seat backs; may have arm rests and head rests; can be manufactured to meet FMVSS No. 222. |

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| **Activity trip:** The transportation of students to any event sanctioned for pupil attendance or authorized by an officer, employee or agent of a public or private school, other than to-and-from school transportation. (See also field trip.) |
| **ADA:** The Americans with Disabilities Act, PLIOI-336,42USC 12101,etseq. |
| **Adaptive device:** Any item or piece of equipment used to increase, maintain or improve functional capabilities of children with disabilities. The device is also known as an assistive technology device. |
| **Aide**: (See attendant.) |
| **Alcohol:** The intoxicating agent in beverage alcohol, ethyl alcohol, or other low molecular weight alcohols including methyl and isopropyl alcohol. |
| **Alternately flashing signal lamps:** A system of red or red and amber signal lamps mounted horizontally both front and rear, intended to identify a vehicle as a school bus and to inform other users of the highway that the bus is about to stop or is stopped to load or unload children; also known as stop signal lamps, SOS lights or school bus traffic warning lights. |
| **Alternative-fuel vehicle:** A vehicle designed to operate on an energy source other than gasoline or regular grades of diesel. Such fuels include, but are not limited to, CNG, LNG, LPG, advanced diesel fuel formulations and electricity. |
| **AMD:** Ambulance Manufacturer Design. |
| **Anchorage point:** The point of attachment of a securement system or occupant restraint to the vehicle structure. |
| **ANPR:** Advanced Notice of Proposed Rulemaking. Notice published in the Federal Register by a federal agency, such as NHTSA, requesting information and inviting comment on a proposed change of regulation. |
| **ANSI**: American National Standards Institute, the organization which administers and coordinates the development of voluntary industry standards. |
| **Antilock brakes**: Brake systems with sensors that automatically control the degree of wheel slip during braking and that relieve brake pressure on wheels that are about to lock up. |
| **Aspect ratio:** Percentage used to express the ratio of a tire's height to its width; also known as tire profile. |
| **Assessment team:** A group of persons, including the parent or guardian of a student with disabilities, who develop a profile of the student in terms of his or her mental and physical functioning in order to determine the student's eligibility for special education. (See also MDC.) |
| **Assistive device:** (See adaptive device.) |
| **Attendant:** A person assigned to assist one or more individual student(s) with disabilities on a school bus or school vehicle; also known as aide or paraprofessional. (See also monitor.) |
| **BAC:** Blood or breath alcohol concentration; the measure used to determine alcohol impairment. |
| **Ball seat nut mounting:** A wheel mounting system wherein the wheel centering is provided by the wheel mounting studs and the ball seat nuts which, when properly tightened, assure the centering alignment of the wheel. |
| **BAT:** Breath Alcohol Technician, an individual who instructs and assists persons in the alcohol testing process and operates an EBT. |
| **Behavior management:** Methods of influencing student conduct on the school bus. |
| **Bench seat:** A seat designed to accommodate more than one passenger with no apparent partitioning between positions, which is characterized by fixed legs and a fixed back (e.g., the standard school bus seat which meets FMVSS No. 222.) |
| **Bias ply**: A pneumatic tire in which the ply cords extending to the beads are laid at alternate angles substantially less than 90 degrees to the centerline of the tire. |
| **Bi-fuel:** Used to describe a bus capable of running on either of two fuels, although not simultaneously. Engines which can be switched to run on either CNG or gasoline are examples. |
| **Biodiesel:** Vehicle fuel made from plant matter and commonly mixed with diesel fuel in engines. |
| **Bio-fuel:** A vehicle designed to operate on two different fuels, but not simultaneously. |

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| **Blood Borne Pathogens:** Common name for standards adopted by OSHA in 29 CFR 1910, to protect workers against the health hazards of exposure to blood and other potentially infectious body fluids or materials; also refers to the pathogenic microorganisms present in human blood. |
| **Boarding:** The process of loading passengers into a school bus. |
| **Body fluids cleanup kit:** Package of materials including, but not limited to, latex gloves, disposal bag and absorbent material, used to clean up spills of potentially infected bodily fluids, under OSHA's Blood borne Pathogens regulations and Universal Precautions practices; also known as hygiene kit. |
| **Brake fade:** A condition that occurs as brakes become less effective. |
| **Brake:** A device or mechanism used to retard and stop the speed of a moving vehicle or to prevent the movement of a stopped vehicle. |
| **Braking distance:** The distance a vehicle travels between the time the brakes are applied and the time forward motion ceases. |
| **BTU:** A unit of work or energy known as a British Thermal Unit. One BTU is the energy required to increase the temperature of one pound of water by one degree Fahrenheit. |
| **Bus body:** The portion of a bus that encloses the occupant space exclusive of the bumpers, the chassis frame, and any structure forward of the forward-most point of the windshield mounting. |
| **Bus pass:** Authorization to ride a school bus other than the student's assigned bus; or prepayment for transit bus rides. |
| **Bus yard:** An area for storage and maintenance of buses. |
| **Bus:** A motor vehicle with motive power, except a trailer, designed for carrying more than ten (10) persons. |
| **CAA:** Clean Air Act; also known as CAAA, the Clean Air Act Amendments of 1990. |
| **Capacity:** (See seating capacity.) |
| **Capital costs:** Long-term costs associated with the purchase of vehicles, buildings and property. |
| **Captive:** Refers to a non-removable attachment, part or fitting on a securement system. |
| **Carbon monoxide:** A product of incomplete combustion; this gas is colorless, odorless and very poisonous. It does not contribute to smog. |
| **Carrier**: Any public school district, any public or private educational institution providing preschool, elementary or secondary education, or any person, firm or corporation under contract to such a district or institution, engaged in transporting students. |
| **Casualty insurance:** (See liability insurance.) |
| **Catalytic converter:** An exhaust after-treatment device containing a catalytic material that is used to burn off or reduce unburned fuel or gases and thus reduce emissions, particularly NOx and hydrocarbons. Diesel converters run at cooler temperatures than do gasoline converters and require different catalysts. |
| **CDIP:** Commercial Drivers Instructional Pen-nit. The learner's permit that a CDL applicant receives when he/she passes the knowledge tests; it allows the applicant to drive a CMV when accompanied by a driver with a CDL. |
| **CDL:** Commercial Driver's License. |
| **Cetane number**: A measure of self-ignition properties of a fuel after injection in a diesel engine. It relates to the knock properties of fuel. The higher the number, the more easily the fuel will ignite under compression; therefore, higher cetane fuels are usually preferred in diesels engines. |
| **CFR:** Code of Federal Regulations. |
| **Chain of custody:** The chronological handling, documentation, or paper trail showing receipt, custody, control, or transfer of students or items (such as medication). |
| **Charter bus:** A bus that is operated under a short-term contract with a school district or other sponsor who has acquired the exclusive use of the vehicle at a fixed charge to transport students to a school-related event. |
| **Chassis starting interlock circuit:** A device which prevents the engine of a bus from starting if any of the emergency exits are locked. |
| **Chassis:** Vehicle frame with all operating parts, including engine frame, transmission, wheels and brakes. |

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| **CNG:** Compressed natural gas. |
| **Combustible gas sensor:** Detector capable of sensing the presence of natural gas. |
| **Common carrier:** A public bus, train or airplane that travels on a prescribed route and schedule, and accepts passengers indiscriminately. |
| **Communicable disease:** Any illness that can be transmitted from one person to another, including most common childhood diseases, the common cold and serious illnesses such as hepatitis and AIDS. |
| **Community transportation:** Services that address all transit needs of a community, including general and special populations, such as the elderly and disabled. |
| **Companion animal**: An animal trained to provide assistance for persons with disabilities; can be a guide animal, assistive animal or service animal. |
| **Completed vehicle:** A vehicle that requires no further manufacturing operation to perform its intended function other than the addition of readily attachable components, such as mirrors or tire and rim assemblies, or minor finishing operations such as painting. |
| **Conduct report:** A form authorized by school officials for use by drivers to report instances of unacceptable behavior by school bus passengers; also known as discipline report. |
| **Conspicuity:** The ability of an object to be noticed and recognized without any confusion or ambiguity (SAE J 1967). |
| **Continuum of services:** The range of possible options, from least restrictive to most restrictive, available to students with disabilities for transportation services. |
| **Crash test:** (See impact test.) |
| **Crash:** (1) A motor vehicle crash involving a school bus with or without a pupil on board, resulting in any personal injury or death or any disabling damage to one or more motor vehicles requiring the vehicle(s) to be transported away from the scene by a tow truck or other vehicle; or (2) A collision involving any vehicle or any pupil or school bus at any time during the loading or unloading process. |
| **Criminal background check:** The investigation of a person's criminal history through submission of fingerprints to state and/or federal authorities; also known as background check. |
| **Crossing arm:** A device attached to the front bumper of a school bus, activated during loading and unloading and designed to force the students to walk far enough away from the front of the bus to be seen by the driver; also known as crossing control arm. |
| **Crossview**: Convex mirrors mounted on the front of the school bus and designed for student detection during loading and unloading, including elliptical, quadri spherical, banana, or standard convex; also known as System B mirrors. |
| **Cryogenic:** Relates to storage and use at very low temperatures. LNG requires cryogenic systems. |
| **CSRS:** Child Safety Restraint System; a device meeting the requirements of FMVSS No. 213, designed for use in a motor vehicle to restrain, seat or position a child who weighs less than 50 pounds; also known as child safety seat and car seat. |
| **Curb cut:** Area where the street curb has been cut and sloped to allow the sidewalk to lead smoothly to the roadway. |
| **Curb weight:** The weight of a motor vehicle with standard equipment, maximum capacity of engine fuel, oil, and coolant and, if applicable, air conditioning and additional weight of optional engine, but without passengers. |
| **CW:** Commercial motor vehicle. A motor vehicle defined in 49 CFR 390.5. |
| **CWSA:** Commercial Motor Vehicle Safety Act of 1986; among other things, authorization for CDL. |
| **Danger zone:** A ten-foot area immediately surrounding the stopped school bus. |
| **Davenport seat**: A bench seat that extends from side wall to side wall at the rearmost seating position in the bus; not permitted in school buses. |
| **Deadhead:** Movement of a bus without passengers (e.g., from school to bus yard). |
| **Deadtime:** The period between arriving at an activity trip destination and leaving the destination for the trip home; also known as waiting time and stand-by time. |
| **Dealer:** Any person who is engaged in the sale and distribution of new motor vehicles or motor vehicle equipment primarily to purchasers who, in good faith, purchase any such vehicle or equipment for purposes other than resale. |

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| **DEF:** Diesel Exhaust Fluid is a non-hazardous solution, which is 32.5% urea and 67.5% de-ionized water. DEF is sprayed into the exhaust stream of diesel vehicles to break down dangerous NOx emissions into harmless nitrogen and water. |
| **Designed seating capacity:** The theoretical passenger capacity that a vehicle would have if it were constructed with the maximum number of seating positions according to standard seating plans; also known as manufacturer seating capacity. |
| **Disc wheel:** A permanent combination of a rim and wheel disc. |
| **Disc**: The part of the wheel which is the supporting member between the hub and the rim. |
| **Discipline:** A monitor whose primary responsibility is to control behavior of students on the bus. |
| **Dispatch**: To relay service instructions to drivers. |
| **Distributor:** Any person primarily engaged in the sale and distribution of motor vehicles or motor vehicle equipment for resale. |
| **DNR:** Do Not Resuscitate; an order from a parent, legal guardian or court that prohibits the use of emergency measures to prolong the life of an individual. |
| **DOT bus:** A school bus that meets the FMCSR standards for interstate transportation set forth in 49 CFR 390. |
| **DOT driver**: A driver who meets the FMCSR standards, set forth in 49 CFR 391. |
| **DOT:** United States Department of Transportation. |
| **Double run**: One bus making two trips over the same route each morning and afternoon (e.g. first picking up high school students and then returning for elementary students.) |
| **Downtime:** The period when a vehicle is inoperative (e.g. due to mechanical failure.) |
| **Driver applicant:** A person who applies for a position as a school bus driver. |
| **Driver qualifications:** Restrictions of state and federal law which determine a person's eligibility to become a school bus driver (e.g., age limits, physical condition, criminal record, driving history, etc.) |
| **Driver training:** Instructional program designed to impart knowledge and improve the skills necessary for school bus drivers, including but not limited to knowledge of the vehicle, safe driving practices, emergency procedures and passenger control. |
| **Driving:** Flat and convex mirrors mounted on each side of the bus designed for viewing the road along the sides to the rear while driving; also known as rearview, double nickel, west coast, or Swent A mirrors. |
| **DRL:** Daytime running lamps; Head lamps that operate automatically at a reduced voltage during the day to increase the vehicle's visibility; also known as daytime running lamps. |
| **Drug:** Any substance other than alcohol considered to be a controlled substance listed on schedules I through V in 21 CFR 1308. |
| **Dry run:** A trip on a route without student passengers for driver training or familiarization of the route. |
| **Dual brake system:** (See split brake system.) |
| **Dual fuel:** A vehicle designed to operate on a mixture of two different fuels. |
| **Dual-fuel engine:** Also "flex fuel," used to describe a gasoline-methanol dual-fuel engine using mixtures of gasoline and methanol, such as M85, which is 15 percent gasoline and 85 percent methanol. Dual-fuel engine can also refer to engines operating on any other mixture of fuels simultaneously, such as engines which run on a mixture of CNG and diesel. |
| **DVIR:** Driver vehicle inspection report. Federal, state or local approved form for reporting results of pre-trip and post-trip inspections; also known as daily vehicle inspection report and pre-trip inspection form. |
| **Dynamic testing:** The process of subjecting vehicle, mobility aid, or mobility aid/securement system components to a simulated crash condition. |
| **EAP:** Employee Assistance Program; a program of education and counseling required by 49 CFR 391 as part of a carrier's drug and alcohol testing program; may also include optional rehabilitation services. |
| **Early bus:** A bus scheduled to run prior to the regular morning run (e.g., to take children to daycare programs located in schools.) |
| **Early intervention service:** Education and related services provided to infants and toddlers from birth through two years of age. |
| **EBT:** Evidential Breath Testing device; a device approved by NHTSA for testing drivers for alcohol use. |

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| **EDR:** Event Data Recorder; a device which records vehicle functions (e.g., speed change during a crash.) |
| **Effective date:** The date at which a regulation or standard takes effect, on or after which compliance is legally required. |
| **EHA:** The Education for all Handicapped Children Act, passed in 1975 as P.L.94-142. (See IDEA). |
| **Electronic voice communication system**: A means by which the driver of a vehicle can communicate with a dispatcher or other person at a remote location (e.g., two-way radio, cellular phone.) |
| **Emergency brake:** A mechanism designed to stop a motor vehicle after a failure of the service brake system. |
| **Emergency response plan:** A detailed approach to identifying and responding to potential accidents involving hazardous substances; required for every community by the Emergency Planning and Right-to-Know Act of 1986. |
| **Emergency roof exit**: An opening in the roof of the bus meeting the requirements of FMVSS No. 217 which provides emergency egress and sometimes ventilation; also known as roof hatch. |
| **EPA:** The United States Environmental Protection Agency. |
| **Ergonomics:** The study of the design of equipment to reduce human fatigue and discomfort. |
| **Ethanol:** Grain alcohol, distilled from fermented organic matter and used as a vehicle fuel. |
| **Evacuation drill:** Performance of a mock school bus evacuation in order to teach students proper emergency procedures and to provide practice in the use of emergency exits; also known as bus safety drills. |
| **Extended-year service**: Transportation provided for students subsequent to the end of the traditional school year. |
| **Extra board driver:** (See substitute driver.) |
| **FAPE:** Free Appropriate Public Education; guaranteed by the EHA for all handicapped children; it includes special education and related services, including transportation. |
| **FBI background check:** The national criminal record check. |
| **FERPA:** The Family Educational Rights and Privacy Act of 1974, 20 USC 1232, which requires confidentiality of student records in public schools, but allows access to necessary information regarding student disabilities and/or health needs to those who have a need to know, including school bus drivers. |
| **FHWA:** Federal Highway Administration, an agency of the U.S. Department of Transportation. |
| **Field trip:** The transportation of students to an event or destination which is an extension of classroom activity (i.e., a part of the curriculum). A field trip is one type of activity trip. |
| **Final Rule:** Notice published in the Federal Register by a federal agency announcing a new or changed regulation. |
| **Final stage manufacturer:** A person who performs such manufacturing operations on an incomplete vehicle that it becomes a completed vehicle. |
| **First aid:** Emergency treatment given to an ill or injured person before regular medical help is available. |
| **Fixed route:** Transportation service that runs on regular prescheduled routes, usually with bus schedules and designated bus stops. |
| **Flip seat:** A school bus bench seat designed so that the cushion flips up when the seat is not occupied, similar to a theater seat; used to provide aisle clearance when a passenger seat is located adjacent to a side emergency door, as required by FVMSS No. 217. |
| **FMCSA:** Federal Motor Carrier Safety Administration; an agency of the U.S. Department of Transportation; formerly the Office of Motor Carrier Highway Safety within the Federal Highway Administration. |
| **FMCSR:** Federal Motor Carrier Safety Regulations, 49 CFR 383, 390-397, and 399; motor vehicle safety and construction standards under FMCSA that apply to commercial motor vehicles and drivers transporting passengers in interstate commerce. |
| **FMLA:** Family and Medical Leave Act; requires employers to grant time off to employees for medical reasons or to care for family members. |
| **FMVSS:** Federal Motor Vehicle Safety Standards, 49 CFR 57 1; construction standards developed and enforced by NHTSA that apply to all new motor vehicles and items of motor vehicle safety equipment. |

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| **Formaldehyde**: A chemical compound that is a by-product of combustion from engines. Concentrations may be particularly high in emissions from engines fueled by methanol. |
| **Forward control bus:** A school bus in which more than half of the engine length is rearward of the foremost point of the windshield base and the steering wheel hub is in the forward quarter of the vehicle length; also known as transit-style. |
| **Forward-facing:** Installation of the securement system in such a way that the mobile seating device and its occupant face the front of the vehicle when secured. |
| **Four-point tiedown:** A securement system in which four strap assemblies attach to the wheelchair frame at four separate points and anchor to the vehicle floor at four separate points. |
| **FSS:** Fire Suppressant System; a fire extinguisher system installed in the engine compartment of a vehicle and activated automatically in response to a fire sensor or manually in response to an alarm. |
| **FTA:** Federal Transit Administration, part of U.S. Department of Transportation; formerly Urban Mass Transit Administration (UMTA). |
| **Fuel injection:** System that uses no carburetor but sprays fuel directly into cylinders or into the intake manifold. |
| **Fumigate:** Literally means "to form a gas or disperse one gas in another." The term is used to describe the injecting of gas, usually CNG, into the intake air of the engine. |
| **G/bhp-hr:** The amount of a pollutant generated in one hour measured in grams per brake horsepower. |
| **GAWR:** Gross axle weight rating, the value specified by the manufacturer as the load-carrying capacity of a single axle system, as measured at the tire-ground interfaces. |
| **Glazing:** The glass or glass-like portion of a window. |
| **Greenhouse gases**: some of these gases are formed by vehicle emissions causing a rise in temperature of the earth's atmosphere. |
| **Guideline 17:** A highway safety program guide for pupil transportation safety issued by NHTSA in 23 CFR 1204.; formerly Standard 17. |
| **GVWR**: Gross vehicle weight rating; the value specified by the vehicle manufacturer as the load carrying capacity of a single vehicle as measured at the tire-ground interfaces. For school buses, NHTSA has defined in Title 49 CFR, Section 567.4(g)(3), the minimum occupant weight allowance as 120 pounds per passenger times the number of the vehicle's designated seating positions and 150 pounds for the driver. Gross Vehicle Weight Rating shall not be less than the sum of the unloaded vehicle weight, plus the rated cargo load. |
| **Handrail inspection tool:** A device formed by tying a half-inch hex nut to a 36" cord, used to inspect school bus handrails and other areas for possible snagging hazards. |
| **Hazard lamps:** Lamps that flash simultaneously to the front and rear on the right and left sides of a vehicle, used to indicate caution; also known as four- way flashers. |
| **Head protection zone:** The empty space above and in front of each school bus passenger seat which is not occupied by side wall, window or door structure, the dimensions of which are detailed in FMVSS No. 222. |
| **Head Start:** A program initiated in 1965 to provide comprehensive child development services to pre-school children of predominantly low-income families. |
| **Headsign:** A sign above the windshield of the bus which can be changed from School Bus to other wording, such as Charter. |
| **Health care plan:** A plan of action used to outline the care for a medically fragile individual. |
| **Highway**: Any public highway, road, street, alley, parkway or other place open to public motor vehicle travel. |
| **Horsepower:** The measurement of an engine's ability to do work. One horsepower is the ability to lift 33,000 lbs. one foot in one minute. |
| **Hours of service:** The consecutive or cumulative period of time that a commercial driver may be on duty. |
| **HOV:** High Occupancy Vehicle, a vehicle that can carry two or more passengers. |
| **Hub:** The rotating outer member of the axles assembly which provides for wheel disc mounting. |
| **Hybrid power:** The use of two or more power sources to provide the motive force for the vehicle (e.g. electricity to drive the wheels with internal combustion to supplement the battery). |

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| **Hybrid vehicle:** Generally refers to a vehicle designed to run on electric power and an internal combustion engine. |
| **Hydrocarbons:** A gaseous compound formed by incomplete combustion and comprised of unburned and partially burned fuel. It combines with NOx and sunlight to form ozone and is a major contributor to smog. |
| **Hydrogen fuel cell:** A chemical reaction process to develop electrical current from oxygen and hydrogen. |
| **ICC:** The former Interstate Commerce Commission, the economic regulation agency within the Department of Transportation. The agency was disbanded in 1997 as a result of economic deregulation, and most functions were transferred to the Federal Highway Administration. |
| **IDEA:** The Individuals with Disabilities Education Act, passed in 1990 as P.L. 101-476 (Part 13) as approved in March of 1999, to replace the EHA. |
| **IEP:** Individualized Education Program, a plan including information for each child with disabilities required under P. L. 10 1 -476 (Part B). |
| **IFSP:** Individualized Family Service Plan; a written plan similar to the IEP for the family of a child receiving early intervention services required under P. L. 102-119. |
| **Impact test:** A simulated crash condition which evaluates the ability of a vehicle or any component or device to withstand crash forces; also known as sled test and crash test. |
| **Inclusion:** Integration of a student with disabilities into a regular classroom and onto a regular school bus; also known as mainstreaming. |
| **Incomplete vehicle:** An assemblage consisting, as a minimum, of frame and chassis structure, power train, steering system, suspension system and braking system (to the extent that those systems are to be part of the completed vehicle) and requiring further manufacturing operations other than the addition of readily attachable components, such as mirrors and tire and rim assemblies, or minor finishing operations such as painting, to become a completed vehicle. |
| **Injury incident, school bus:** Any non-crash injury sustained by a person while in the bus, or while boarding/leaving the bus. |
| **Inservice:** Training provided annually or more often to school bus-certified drivers. |
| **Inspection:** A close examination of a motor vehicle performed in accordance with local, state and/or federal requirements by an authorized agent of the local, state or federal government. |
| **Integrated child safety seat:** A child safety seat meeting the requirements of FMVSS No. 213 which is built into and thus an integral part of a bench seat. |
| **Integrated restraint system:** A system in which the occupant restraint of an individual in a wheelchair/mobility aid connects directly to, and is dependent upon, the mobility aid's securement system's rear strap assemblies. |
| **Intercity bus:** A large bus with front doors only, high-back seats and under-floor luggage storage for high-speed, long distance trips; also known as motor coach and over-the-road coach. |
| **Intermediate manufacturer:** A person, other than the incomplete vehicle manufacturer or the final-stage manufacturer, who performs manufacturing operations on an incomplete vehicle. |
| **International symbol of accessibility:** A white emblem on blue background used to indicate that a vehicle can accommodate individuals with disabilities. |
| **Jump seat**: A seat designed to fold down to provide supplemental seating in a bus (e.g. in the aisle, in front of the door or along the side wall); not permitted in school buses. |
| **Kneeling bus:** A bus on which the front or rear end is lowered to allow easier access for passengers with disabilities. |
| **Laminated glass:** Any glazing material that consists of one or more sheets of glass and an inboard-facing surface sheet of plastic, the components being held together by intervening plies of plastic interlayer or by the self-bonding characteristic of the inboard plastic layer. |
| **Lap belt:** A Type I belt assembly meeting the requirements of FMVSS No. 209, intended to limit movement of the pelvis. |
| **Lap tray:** An accessory for a wheelchair or other mobile seating device, to offer support and convenience for the occupant. |
| **Lap/shoulder belt:** A Type 2 belt assembly meeting the requirements of FMVSS No. 210, intended to limit the movement of the pelvis and upper torso. |

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| **Late bus:** A bus scheduled to leave school at a time subsequent to the end of the school day, usually to provide transportation for students involved in after-school activities. |
| **Layover time:** Time built into a trip schedule between arrival and departure. |
| **LEA:** Local Education Agency. |
| **Lean burn:** Uses more air than is needed for theoretical complete combustion. This added air allows combustion to take place at a lower temperature, thus reducing the emission of NOx and CO. |
| **Left:** Left position is determined from the normal driving position as seated in the driver's seat looking in the direction of forward travel. |
| **Liability insurance**: Protection against the claims of others for injury or property damage; also known as casualty insurance. |
| **Life cycle procurement:** A procurement contract based on both the initial capital cost and the cost of operation over the life of a vehicle. |
| **Lift:** (See power lift.) |
| **Live time:** The time when students are on the bus, beginning when the first passenger boards and ending when the last passenger leaves. |
| **LNG:** Liquid Natural Gas. |
| **Load factor:** The ratio of passengers actually carried to the vehicle's passenger capacity. |
| **Load:** To pick up students at a designated bus stop or at school. |
| **Loading zone:** Any area where students are boarding or leaving a school bus. |
| **Locking ring:** A removable, split rim ring that holds the rim flange in place on a multi-piece rim. |
| **Longitudinal:** Parallel to the longitudinal centerline of the vehicle, front to rear. |
| **Low profile:** A tire that has a section height that is less than 85 percent of its nominal section width (e.g., a tire with an aspect ratio of less than 0.85.) |
| **Low-bid procurement:** Competitive procedure in which the lowest bidder is awarded the contract. |
| **Low-floor vehicle**: A bus in which the floor and entrance are closer to the ground, for easier access by students with disabilities or pre-schoolers. |
| **LPG:** Liquid Petroleum Gas; also known as propane. |
| **LRE:** Least Restrictive Environment, a concept embodied in IDEA which requires that children with disabilities be integrated as fully as possible into situations and settings with their nondisabled peers. |
| **Mainstreaming:** (See inclusion.) |
| **Manufacturer:** Any person engaged in the manufacturing or assembling of motor vehicles or item of motor vehicle equipment, including any person importing motor vehicle equipment for resale. |
| **MDC**: Multi-Disciplinary Conference, an assessment meeting for a student with disabilities which leads to an IEP. (See also assessment team.) |
| **Mediation:** Efforts by a third party to bring about agreement between dissenting parties (e.g., labor and management or parents and school administration); usually less formal than arbitration. |
| **Medical support equipment:** Portable equipment used by students to maintain life functions, such as oxygen bottles, intravenous or fluid drainage apparatus. |
| **Medically fragile**: Refers to students who require specialized technological health care procedures for life support and/or health support. |
| **MFSAB:** Multi -Function School Activity Bus |
| **Minibus:** A small school bus, usually a Type A- I or A-2 or Type 13- 1 or B-2. |
| **Minivan**: A multi-purpose vehicle (MPV) designed to carry seven to ten passengers. |
| **Mirrors:** The system of mirrors required to be installed on school buses in accordance with FMVSS No. III and applicable state laws. |
| **MIS:** Management Information System; a means of data collection for analysis by management. |
| **Mobility aid:** A wheelchair or other device, either battery-powered or manual, that is used to support and convey a person with a physical disability; also known as mobile seating device. |
| **Modesty panel:** A panel located in front of a seat or row of seats, usually supported by a stanchion and cross bar, which does not meet the performance standards of a barrier as defined in FMVSS No. 222; or |

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| a short panel which extends from the bottom of a barrier to or near to the floor for the purpose of reducing the draft from the entrance door; also known as kick panel. |
| **Monitor:** A person assigned to assist the driver on a school bus or school vehicle. |
| **MPV**: Multipurpose Passenger Vehicle, any vehicle with a seating capacity of ten or fewer, including the driver, which is built on a truck chassis, or with special features for occasional off-road use. |
| **MRO:** Medical Review Officer, a licensed physician with knowledge of substance abuse disorders required by 49 CFR 40 to receive and evaluate laboratory results generated by a carrier's drug testing program. |
| **MVR:** Motor Vehicle Record of the driver; also known as driving history. |
| **NAPT:** National Association for Pupil Transportation, a membership organization comprised of individuals and organizations representing all facets of school transportation. |
| **NASDPTS:** National Association of State Directors of Pupil Transportation Services, a membership organization comprised of primarily state officials responsible for pupil transportation. |
| **National School Bus Yellow:** (NSBY) The color defined in the publication "National School Bus Color Standard" SBMTC008. |
| **NDR:** National Driver Registry. |
| **Nebula combustion chamber:** A unique high-turbulence combustion chamber in the top of a piston, which is particularly effective in efficient burning of lean gas-air mixtures. |
| **Neutral safety switch**: A device which prevents the bus from starting unless the transmission is in neutral gear or the clutch is depressed. |
| **NFPA:** National Fire Protection Association. |
| **NGV:** Natural Gas Vehicle. |
| **NHTSA:** National Highway Traffic Safety Administration, an agency of the U.S. Department of Transportation. |
| **NIST:** National Institute of Standards and Technology. |
| **Nominal dimension**: A dimension which exists in name only (e.g., 5/8" plywood which is actually 19/32" thick, but is 5/8" nominal thickness.) The variation between the actual dimension and the nominal dimension is the result of manufacturing practices and tolerances. |
| **Nonconforming bus:** Any vehicle designed to carry more than ten (10) passengers that is used to transport children to or from school or school-related activities which does not meet the federal standards specific to school buses. |
| **Non-conforming van**: A vehicle smaller than a bus, designed to carry seven to ten passengers and used to transport students, that does not meet FMVSS for school buses. |
| **NPRM:** Notice of Proposed Rulemaking, a notice published in the Federal Register by a federal agency of a proposed change in regulation. |
| **NSC:** National Safety Council. |
| **NSTA:** National School Transportation Association, a membership organization comprised of primarily school transportation contractor companies. |
| **NTSB:** National Transportation Safety Board, an independent federal agency authorized by Congress to investigate accidents and to issue safety recommendations. |
| **OCR:** Office of Civil Rights, an agency of the U.S. Department of Education. |
| **Octane number:** A measure of anti-knock properties of a fuel that relates to spark ignition engines. The higher the number, the more resistant to knocking. Higher output and more efficient engine designs can be used with higher octane fuel. |
| **OEM:** Original Equipment Manufacturer. |
| **On-board monitoring system**: Computerized tracking of driver and vehicle performance, including speed, fuel consumption, etc. |
| **Operating costs:** All costs associated with running the transportation system, which are distinct from capital costs. |
| **Operator:** The carrier who is responsible for running the transportation system, regardless of ownership of the vehicle. |
| **OSEP:** Office of Special Education Programs, an agency of the U.S. Department of Education. |

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| **OSERS:** Office of Special Education and Rehabilitative Services, an agency of the U.S. Department of Education. |
| **OSHA:** Occupational Safety and Health Administration, an agency of the U.S. Department of Labor. |
| **OTETA**: The Omnibus Transportation Employees Testing Act of 1991, requiring drivers holding CDLs to participate in a drug and alcohol testing program. |
| **Out of Service:** The removal of a school bus from passenger service due to a defective condition. |
| **Overall vehicle width:** The nominal design dimension of the widest part of the vehicle, exclusive of signal lamps, marker lamps, outside rearview mirrors, flexible fender extensions and mud flaps, determined with the doors and windows closed and the wheels in the straight-ahead position. |
| **Overhang:** The distance from the center of the rear axle to the rearmost end of the body or from the center of the front axle to the forward edge of the front bumper. |
| **Ozone:** A pollutant formed from nitrogen oxides (NOx), hydrocarbons and sunlight. This gas has an irritating odor, is poisonous and is used as an oxidizing agent for bleaching. |
| **P. A. system:** A public address system which allows the driver of a bus to communicate with persons inside and/or outside the bus through a speaker installed on the inside and/or outside of the bus, also known as external loudspeaker. |
| **P.L. 94-142:** (See EHA.) |
| **Para transit:** Public transit service which is more flexible than a fixed-route system, commonly providing special service for elderly and disabled passengers. |
| **Parallel restraint system**: A system in which the occupant restraint lap belt anchors directly to the floor track or plates, and is independent of the wheelchair/mobility aid securement system. |
| **Parking brake:** A mechanism designed to prevent the movement of a stationary motor vehicle. |
| **Part B:** Refers to the section of the EHA applicable to special education and related services for children with disabilities and to the implementing regulations at 34 CFR 300. |
| **Part H:** Refers to the section of the IDEA related to early intervention services for infants and toddlers and to the implementing regulations at 34 CFR 303. |
| **Particulate trap:** A device on diesel buses to clean the exhaust of particulate matter. An exhaust treatment device used to collect (trap) and periodically burn off particulates and other potential problem emission gases formed in engine exhaust. |
| **Particulates:** Small solid particles (soot, etc.) formed by engine combustion. Visible particulates are seen in smoke; however, invisible particles may be present in smokeless exhaust. |
| **Passenger miles:** The LOW number of miles traveled by the aggregate number of passengers on a vehicle (e.g., ten students traveling ten miles on one bus equals 100 passenger miles.) |
| **Pilot ignition engine:** An engine using a small quantity of diesel fuel to provide an ignition source for an alternative fuel that will not ignite on its own in a compression cycle. |
| **Piloted hub mounting:** A wheel mounting system wherein the wheel centering is provided by a close fit between the wheel disc and the hub. |
| **Port injection:** Similar to the throttle body system except that the fuel is injected near each cylinder intake port. The injectors and their controls can be individually controlled for maximum performance and emissions control. |
| **Positive-locking:** A design feature of the mobility aid securement and occupant restraint system where the attachment and anchoring hardware cannot be inadvertently released or disengaged once properly installed. |
| **Post-trip interior inspection**: A check of the interior of the bus by the driver at the end of the run to ensure that no children or student belongings have been left behind. |
| **Postural support:** A seat, belt or other component used to support a child with disabilities in a desired position but not designed or intended to provide occupant restraint in a crash; also known as positioning device. |
| **Power base:** A powered, wheeled platform used to mount a seating device for carrying an individual with a disability; usually characterized by smaller diameter tires. |
| **Power cut-off switch:** A device that cancels all power from the vehicle batteries. |
| **Power lift:** A mechanized platform designed to provide access to a vehicle for an occupied mobility aid/wheel chair; also known as a wheelchair lift. |

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| **Powertrain:** The group of components used to transmit engine power to the wheels; includes transmission, universal joints, driveshaft, drive axles and gears; also known as drive train. |
| **Preschool:** Refers to a child between the ages of three and five years who is not yet in kindergarten or to a program serving children in that age range. |
| **Pre-service:** Training provided to driver applicants prior to school bus certification and/or transporting students. |
| **Pre-trip inspection**: A systematic inspection of the bus by the driver before every trip or shift to ensure that the bus is in safe operating condition. The same procedure performed after the trip/shift is the post-trip inspection. |
| **Preventable:** A crash that could have been prevented by reasonable action on the part of the school bus driver. |
| **Privatization:** The process of transferring the operation of public services from the public agencies to private companies or nonprofit organizations; also known as contracting or outsourcing. |
| **Pusher:** A school bus in which the engine is mounted in the rear of the vehicle; also known as rear-engine bus. |
| **Pushout window**: A bus window that is hinged at the top or front to enable the window to be swung upward or outward relative to the side of the bus and to provide a means of emergency egress from the bus; also known as emergency window. |
| **Radial:** A pneumatic tire in which the ply cords which extend to the beads are laid substantially at 90 degrees to the centerline of the tread. |
| **Railroad crossing:** The intersection of a highway, street or roadway and railroad tracks; also known as grade crossing. |
| **Ramp:** An inclined plane for use between the ground and the floor of the vehicle to permit access by persons in wheelchairs/mobility aids. |
| **Reaction distance:** Distance a vehicle travels during the time it takes for a driver to recognize the need to stop and to apply the brakes. |
| **Reclining seat**: An activity seat with a reclining seat back; not permitted in school buses. |
| **Reduced capacity**: The capacity that is achieved when one or more seats are removed from the standard design during or after manufacture of the vehicle. |
| **Reflective:** Refers to the property of materials that cause them, when they are illuminated, to reflect the light to some extent. |
| **Reformulated gasoline**: Also known as "oxygenated gasoline," reformulated gasoline has oxygen added to improve combustion and reduce emissions. |
| **Related services:** Transportation and other supportive services that are required to assist a child with a disability to benefit from special education. |
| **Remanufactured:** Refers to a vehicle component that has been structurally restored. |
| **Reportable:** A crash required to be reported under FMCSR (i.e. a crash involving a CMV on a public road in which there is a fatality or an injury treated away from the scene, or that requires a vehicle to be towed from the scene). |
| **Repower installation:** A dedicated natural gas or other engine which was not part of the original chassis at the time of manufacturing. |
| **RESNA:** Rehabilitation Engineering Society of North America, an organization engaged in research and development of assistive technology for persons with disabilities. |
| **Restraining barrier**: An assembly similar to a seat back located immediately in front of a single school bus passenger seat or row of seats to provide crash protection in accordance with FMVSS No. 222; also known as barrier, crash barrier, and seat barrier. |
| **Restraint system:** A generic term for one or more devices intended to secure and protect a passenger with or without a mobility aid in a vehicle, including lap belts, lap/shoulder belts, child safety seats, safety vests, etc. |
| **Restraint/securement system**: (See securement and restraint system.) |
| **Retarder:** An auxiliary braking device used to reduce brake wear. |
| **Retractor, automatic-locking:** A retractor incorporating adjustment by means of a positive self-locking mechanism which is capable of withstanding restraint forces. |

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| **Retractor, emergency-locking:** A retractor that incorporates adjustment by means of a locking mechanism that is activated by vehicle acceleration, webbing movement relative to the vehicle, or automatic action during an emergency, and that is capable of withstanding restraint forces. |
| **Retread**: A worn tire casing to which tread rubber has been affixed to extend the usable life of the tire; also known as re-capped or retreaded tire. |
| **Retro reflective:** Refers to material that is designed to return illumination of the material directly or generally back to the source of illumination. |
| **RFID:** Radio Frequency Identification, use of electromagnetic fields to capture and transfer data |
| **RFP:** Request For Proposals, an invitation to submit a contract proposal, less restrictive than an invitation to bid on a contract. |
| **Ridership:** The number of passengers using a transportation system during a given time period. |
| **Right**: Right position is determined from the normal driving position as seated in the driver's seat looking in the forward direction of travel. |
| **Rim:** The part of the wheel on which the tire is mounted and supported. |
| **Risk management:** Practices and procedures designed to protect against losses from accidents, passenger and worker injuries, vehicle damage and other losses, and to reduce insurance costs. |
| **Rolling stock:** The vehicles in a transportation system. |
| **Roof hatch:** (See emergency roof exit.) |
| **Route miles:** The total number of miles in one or more routes in the system. |
| **Route sheet:** A list of all the designated stops on a route. |
| **Route:** A designated course regularly traveled by a school bus to pick up students and take them to school, or to deliver students from school to their homes or designated bus stops. |
| **Run:** A complete trip on a route. (To illustrate the difference between a run and a route: it is possible to have six daily runs on the same route, i.e., one high school, one middle school, and one elementary run both morning and afternoon.) |
| **Running gear:** The wheels, axles, springs, frames and other carrying parts of the vehicle. |
| **SAE:** Society of Automotive Engineers, the leading standards-writing organization for the automotive industry. |
| **Safety glass:** Glazing material constructed, treated or combined with other materials so as to reduce, in comparison with ordinary glass, the likelihood of injury to persons as a result of contact with the glass, either broken or unbroken. |
| **Safety patrol**: Students whose duties may include acting as crossing guards and safety assistants. |
| **Safety training**: Educational programs provided for students to teach proper behavior while waiting for, riding in, boarding or leaving school buses; also known as ridership programs. |
| **Safety vest/harness:** An upper torso restraint that supports and secures a child by attachment to the vehicle seat. |
| **Safety:** A monitor whose primary responsibility is to ensure the safety of students getting on and off the bus and to check the loading zone before the driver pulls out. |
| **SAP:** Substance Abuse Professional, a licensed physician, psychologist, social worker or alcohol and drug counselor who is required to evaluate any employee who violates a carrier's drug and alcohol testing program. |
| **SBMTC:** School Bus Manufacturers Technical Council; formerly the School Bus Manufacturers Institute (SBMI), a membership organization within NASDPTS which serves as a technical advisor regarding school buses. |
| **School bus equipment:** Equipment designed primarily as a system, part or component of a school bus, or any similar part or component manufactured or sold for replacement or as an accessory or addition to a school bus. |
| **School bus stop**: An area on the street or highway designated by school officials for picking up and discharging students. |
| **School bus**: A bus owned, leased, contracted to or operated by a school or school district and regularly used to transport students to and from school or school-related activities, but not including a charter bus |

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| or transit bus; must meet all applicable FMVSSs, and is readily identified by alternately flashing lights, National School Bus Yellow paint, and the legend “School Bus.” |
| **School trip:** (See activity trip.) |
| **School vehicle:** Any vehicle owned, leased, contracted to or operated by a school or school district and regularly used to transport students to and from school or school-related activities. Includes school buses, activity buses, vans and passenger cars, but does not include transit or charter buses. |
| **School:** An educational institution for children at the pre-primary, primary, elementary, or secondary level, including nursery schools and Head Start programs, but not including daycare programs. |
| **Scooter:** A motorized mobility aid with three wheels, handle bar or tiller and a swiveling seat. |
| **SEA:** State Education Agency |
| **Seat belt**: (See seat restraints.) |
| **Seat restraints:** A passenger restraint system incorporating lap belts or lap/shoulder belts and meeting the requirements of FMVSS Nos. 209 and 210. |
| **Seat**: A device designed and installed to provide seating accommodations. |
| **Seating capacity:** The number of designated seating positions provided in a vehicle, including the driver’s position. In determining seating capacity, each wheelchair securement location shall be counted as four (4) designated seating positions. |
| **Seating position:** The space on a school bus bench seat designated for one student. The number of such positions per seat is determined by dividing the width of the seat by 15" and rounding to the nearest whole number, as described in FMVSS No. 222. |
| **Seating reference point:** The manufacturer’s design point, with coordinates relative to the vehicle structure, which establishes the rearmost normal driving or riding position of each designated seating position and simulates the position of the pivot center of the human torso and thigh. |
| **Section 402:** Section of 23 CFR that authorizes grant funds for highway safety projects. |
| **Section 504:** Section of the Rehabilitation Act of 1973, PL 93-112, which prohibits discrimination against individuals with disabilities by any recipient of federal funding. |
| **Securement and restraint system:** The total system which secures and restrains both a wheelchair/mobility aid and its occupant; also known as WTORS. |
| **Securement points:** Locations on the base or seat frame of the wheelchair/mobility aid where the securement system should be attached. |
| **Securement system:** The means of securing a mobile seating device to a vehicle in accordance with FMVSS No. 222, including all necessary buckles, anchors, webbing/straps and other fasteners. |
| **Seizure:** A reaction to an electrical discharge in the brain, resulting in symptoms which can range from a blank stare of a few seconds to full convulsions. |
| **Self-insured**: Refers to a company or school district which provides reserved funds against claims or losses. |
| **Sensor**: An electronic device installed on a school bus for the purpose of detecting animate objects in the loading zone; also known as object detection system. |
| **Service brake**: The primary mechanism designed to retard and stop a moving vehicle. |
| **Shuttle:** A trip run back and forth over a short route (e.g. between two schools.) |
| **Siped:** A tire which has been scored or cut perpendicular to the direction of rotation (across the tread) to improve traction. |
| **Skid plate:** Stout metal plate attached to the underside of a vehicle to protect the oil pan, transmission, step well or fuel tank from scraping on rocks, curbs and road surface. |
| **Slack adjuster:** Adjustable device connected to the brake chamber pushrod used to make up for brake shoe wear. |
| **Snow:** A tire with an obvious aggressive or lug type tread across the entire width which is designed to be self-cleaning. |
| **SOS lights:** Stop on Signal lights. (See alternately flashing signal lights.) |
| **SOWAT:** The Subcommittee on Wheelchairs and Transportation, a group acting under the auspices of RESNA to develop transportable wheelchair crashworthiness standards. |
| **Special education:** Specially designed instruction to meet the unique needs of a child with disabilities. |

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| **Specially equipped school bus:** Any school bus designed, equipped or modified to accommodate students with special needs. |
| **Specially equipped:** A school bus designed, equipped, or modified to accommodate students with special needs. |
| **Split-brake system:** A service brake system with two separate hydraulic circuits which, upon failure of either, retains full or partial braking ability. |
| **Spoke wheel:** A rotating member which provides for mounting and support of one or two demountable rims; also known as wheel for demountable rim. |
| **Stanchion**: An upright post or bar, usually installed from floor to ceiling in a bus, which provides support for other structural members and/or provides a hand-hold for passengers. |
| **State Director:** The chief government administrator in charge of a state's pupil transportation program and responsible for oversight of regulatory functions. |
| **State:** As used in this document, "state" shall refer to any of the 50 states and commonwealths and any United States territory, possession, or federal agency (e.g., the General Services Administration or the Department of Defense) that may consider, follow or adopt part or all of the specifications and procedures contained herein for school buses and operations. |
| **Stoichiometric burn:** Use of fuel and air (or oxygen) in the exact ratio needed for complete combustion to generate maximum efficiency and power. |
| **Stop arm:** A device in the form of a red octagon extending outward from the side of a school bus to signal that the bus has stopped to load or unload passengers and meeting FMVSS No. 131; also known as stop semaphore and stop signal arm. |
| **Stopping distance**: Braking distance plus reaction distance. |
| **Storm window:** Two or more sheets of safety glazing material separated by an airspace to provide insulating properties and fixed in a common frame or mounting. |
| **Strobe light:** A bright short duration light that flashes as a result of an electronic discharge of electricity through a gas. |
| **Stroller:** A light weight folding mobility aid. |
| **Studded:** A tire to which metal protrusions have been added to improve traction. |
| **Student rides:** The number of students transported in a given system multiplied by the number of one-way trips in a school bus. (For example, a school district that transports 1000 students provides 2000 student rides daily or 360,000 student rides to and from school annually, assuming 180 school days. To determine the total number of student rides annually, the district would add the actual or estimated number of students transported on activity trips [times 2] to the figure above.) |
| **Student:** Any child who attends a school, as previously defined. |
| **Substitute driver:** A driver who is not assigned to a regular route but is employed to provide immediate coverage when necessary due to driver absences or emergencies; also known as spare driver and extra board driver. |
| **Surrogate wheelchair:** A wheelchair device which is subjected to impact tests to test securement and restraint systems. |
| **Suspension system:** The components of the vehicle that transmit the load of the vehicle's weight from the chassis framework to the ground, including the springs, axles, wheels, tires and related connecting components. |
| **TDD:** Telecommunication devices for the deaf. |
| **Temperature control system:** The means of heating or cooling the interior of the vehicle. |
| **Tempered glass:** Glazing which consists of glass that has been tempered to meet the properties of safety glass. |
| **Tether:** An upper anchor strap used in addition to a seat belt to hold certain types of restraint devices in place. |
| **Throttle body injection:** A gasoline fuel injection system in which the fuel is injected directly into the air intake pipe or manifold. No carburetor is required; electronics monitor engine variables and control the rate of fuel injected. |
| **Tie-down system:** (See securement system.) |

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| **Tier:** Any level of separate runs and routes designed to allow a single bus to complete multiple routing assignments. Multiple assignments typically require the use of staggered school schedules, permitting multiple levels or "tiers" for the daily assignment(s). |
| **Tire cords:** The strands forming the reinforcement structure in a tire. |
| **Tire:** The continuous solid or pneumatic rubber elastomeric cushion encircling a wheel intended for contact with the road. |
| **To-and-from school:** Transportation from home to school and from school to home; also transportation from school to school or from school to job training site. |
| **Tour:** Transportation of a group on a longer trip, usually by charter bus (e.g., senior class trip to Washington.) |
| **Tow hooks:** Attachments on the chassis frame for use in towing the vehicle backwards or forwards; also known as tow eyes. |
| **Track seating:** A seating system in which seating units, including mobility aids, are secured to the vehicle structure by attaching them to tracks on the vehicle floor. |
| **Traffic lights:** Traffic signals which control the flow of traffic at intersections. |
| **Transit bus:** A bus designed for frequent stops, with front and back-center doors and low-back seating, operated on a fixed schedule and route to provide public transportation by indiscriminately taking on passengers at designated bus stops. |
| **Transverse:** Perpendicular to the longitudinal centerline of the vehicle (i.e., from side to side.) |
| **Trip:** The transportation of students from school to any destination, followed by a return trip back to school. The two together make a round trip. |
| **Tripper service:** Regularly scheduled mass transit service which is open to the public, and which is designed or modified to accommodate the needs of school students and personnel, using various fare collections or subsidy systems. Must be part of the regular route service as indicated in published route schedules. |
| **Turbocharger**: A device which uses the pressure of exhaust gases to drive a turbine that, in turn, pressurizes air normally drawn into the engine's chambers. |
| **Turnkey:** Partial privatization in which a school district hires a company to supply drivers, maintenance management and/or vehicles; also known as management contract. |
| **Two-way radio:** Electronic communication system which uses a designated airway for transmission between a bus and a base station. |
| **Type A:** A Type "A" school bus is a conversion or bus constructed utilizing a cutaway front section vehicle with a left side driver's door. This definition includes two classifications: Type A- 1, with a Gross Vehicle Weight Rating (GVWR) of 10,000 pounds or less; and Type A-2, with a GVWR greater than 10,000 pounds. |
| **Type B:** A Type "B" school bus is constructed utilizing a stripped chassis. The entrance door is behind the front wheels. This definition includes two classifications: Type B- 1, with a GVWR of 10,000 pounds or less; and Type B-2, with a GVWR greater than 10,000 pounds. |
| **Type C:** A Type "C" school bus is constructed utilizing a chassis with a hood and front fender assembly. The entrance door is behind the front wheels; also known as a conventional school bus. |
| **Type D:** A Type "D' school bus is constructed utilizing a stripped chassis. The entrance door is ahead of the front wheels; also known as transit-style school bus or forward-control vehicle. |
| **UCRA:** Universal child restraint anchorage, a standardized means of installing child restraint systems in vehicles that is independent of the seat belt system. UCRAs will be required in all new motor vehicles under 10,000 pounds, including school buses, as of September 2002. |
| **UL:** Underwriters Laboratory. |
| **UMTA:** Urban Mass Transit Administration, predecessor to FTA. |
| **Universal precautions:** Method of infection control designed to protect the individual from exposure to disease, which requires that all bodily fluids and secretions are treated as though they were infectious. |
| **Unload:** To discharge passengers from a school bus. |
| **Unloaded vehicle weight:** The weight of vehicle with maximum capacity of all fluids necessary for operation, but without cargo or occupants or accessories that are ordinarily removed from the vehicle when they are not in use. |

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| **UST:** Underground storage tank. |
| **Vaporlock**: Boiling or vaporization of fuel in the lines from excessive heat, which interferes with liquid fuel movement and in some cases, stops the flow. |
| **Vehicle miles:** The aggregate number of miles a vehicle travels in a given period. |
| **Video system:** A means of monitoring student behavior in a school bus. The system includes one or more video cameras to tape activity. Camera housing units mounted in each bus appear to hold a camera, whether or not one is actually in place; also known as surveillance. |
| **VIN:** Vehicle Identification Number, a series of Arabic numbers and Roman letters which is assigned to a motor vehicle for identification purposes. |
| **Viscosity:** A measure of internal resistance to flow or motion offered by a fluid lubricant. |
| **Walking distance:** The maximum distance a student can be required to walk to school before transportation must be provided. |
| **Weather emergencies:** Weather conditions that require a deviation from normal transportation procedures (e.g., flooding, snowstorm.) |
| **Weight distribution:** The distribution proportion of the vehicle load divided between the front and rear axles. |
| **Wheel:** A rotating load-carrying member between the tire and the hub, usually consisting of two major parts, the rim and the wheel disc, which may be integral, permanently attached or detachable. |
| **Wheelbase:** The distance between the front and rear axles. |
| **Wheelchair lift:** (See power lift.) |
| **Wheelchair**: A seating system comprising at least a frame, seat and wheels for the support and mobility of a person with physical disabilities; also known as mobile seating device. |
| **ZEB:** Zero-emissions bus. |
| **ZEV:** Zero-emissions vehicle. |

## • APPENDIX B • NATIONAL SCHOOL TRANSPORTATION SPECIFICATION AND PROCEDURES

### SCHOOL BUS CHASIS AND BODY

### NATIONAL SCHOOL BUS YELLOW

The color known as National School Bus Yellow is specified and described in the School Bus Manufacturers Technical Council publication “National School Bus Yellow Color Standard” (SBMTC-008).

### BUS BODY HEATING SYSTEM TEST

**1. Scope**

This procedure, limited to liquid coolant systems, establishes uniform cold weather bus vehicle heating system test procedures for all vehicles designed to transport ten (10) or more passengers. Required test equipment, facilities and definitions are included. SAE J381 and SAE J382 establish defrosting and defogging procedures and requirements, which are hereby included by reference.

**1.1 Purpose**

This procedure is designed to provide bus manufacturers with a cost effective, standardized test method to provide relative approximations of cold weather interior temperatures.

**2. Definitions**

**2.1 Heat Exchanger System** - Means will exist for providing heating and windshield defrosting, and defogging capability in a bus. The system shall consist of an integral assembly, or assemblies, having a core assembly or assemblies, blower(s), fan(s), and necessary duct systems and controls to provide heating, defrosting and defogging functions. If the bus body structure makes up some portion of the duct system this structure or assimilation of this structure must be included as part of the system.

**2.2 Heat Exchanger Core Assembly** - The core shall consist of a liquid to air heat transfer surface(s), liquid inlet and discharge tubes or pipes.

**2.3 Heat Exchanger-Defroster Blower** - An air moving device(s) compatible with energies available on the bus body.
**2.4 Coolant** - A 50-50 solution of commercially available glycol antifreeze and commercial purity water. Commercial purity water is defined as that obtained from a municipal water supply system.
**2.5 Heat Exchanger** - Defroster Duct System - Passages that conduct inlet and discharge air throughout the heater system. The discharge outlet louvers shall be included as part of the system.
**2.6 Heater Test Vehicle** - The completed bus as designed by the manufacturer with, or without, a chassis, engine and driver train, including the defined heat exchanger system. If the vehicle is without a chassis, it shall be placed on the test site in such a way that the finished floor of the body is at a height, from the test site floor, equal to its installed height when on a chassis, and all holes and other openings normally filled when installed on a chassis will be plugged.
**2.7 Heat Transfer** - The transfer of heat from liquid to air is directly proportional to the difference between the temperatures of the liquid and air entering the transfer system, for a given rate of liquid and air flow measured in pounds per minute, and that heat removed from liquid is equal to heat given to air.

**3. Equipment**
**3.1 Test Site** - A suitable location capable of maintaining an average ambient temperature not to exceed 25 degrees Fahrenheit (-3.9 degrees Celsius for the duration of the test period. The maximum air velocity across the vehicle shall be 5 mph (8kph).
**3.2 Coolant Supply** - A closed loop system, independent of any engine/drive train system, capable of delivering a 50-50 (by volume) solution of anti- freeze-water, as defined in 2.4, at 150 degrees +1-5 degrees (65.5 degrees +/- 1.70C) above the test site ambient temperature, and 50 lbs (22.7 kg) per minute flow. The coolant supply device shall be equipped with an outlet diverter valve to circulate coolant within the device during its warm-up period. The valve will then permit switching the coolant supply to the bus heat exchanger system at the start of the test.
**3.3 Power Equipment Supply** - A source capable of providing the required test voltage and current for the heater system.
**3.4 Heat Exchange Units** - The heat exchangers used shall be labeled as specified by the School Bus Manufacturer's Technical Council No. 001 (Revised 4/94). The test rating of each unit, and quantity used, shall be recorded.

**4. Instrumentation**
**4.1 Air Temperature**
**4.1.1 Interior** - Recommended air temperature measuring instrumentation are thermocouples or RTD's. Thermometers are not recommended because of their slow response to rapid temperature changes. Measuring instrumentation shall be placed on alternate seat rows beginning 39 inches +/- 5 inches (99 cm +/- 13 cm) from the rear of the body, at 36 inches +/- 2 inches (91 cm +/- 5 cm) from the finished floor of the body, and on the longitudinal centerline of the body.
**4.1.2 Ambient** - A set of four (4) of electrically averaged temperature measuring devices shall be placed 18 inches +/- 5 inches (46 cm +/- 13 cm) from the nearest body surface, 96 +/- 5 in (243 cm +/- 13 cm) above the floor of test site. One measuring device shall be placed at each of the following locations:

(1) Midline of body forward of windshield;
(2) Midline of body aft of the rear surface; and
(3) Midway between the axles on the right and left sides of the body.

**4.1.3 Driver** - Measuring devices shall be placed at appropriate locations to measure ankle, knee, and breath level temperatures with the driver's seat in rear-most, lowest and body center-most position.

(1) Ankle Level - Place a minimum of four (4) electrically averaged temperature measuring devices at the comers of a 10 X 10 inch (25 X 25 cm) square area, the rear-most edge of which begins 8 inches (20 cm) forward of the front edge of, and centered on, the seat cushion. The devices shall be located 3 inches +/- 0.5 in (7.5 cm +/- 1.3 cm) above floor surface.

(2) Knee Level - Place a minimum of one measuring device at the height of the front top edge of the seat cushion and on the centerline of the seat. This measurement shall be 4 inches +/- I inch (10 cm +/- 2.5 cm) forward of the extreme front edge of the seat cushion and parallel to the floor.

(3) Breath Level - Place a minimum of one measuring device 42 inches +/- 2 inches (107 cm +/- 5 cm) above the floor and 10 inches +/- 2 inches (25 cm +/- 5 cm) forward of the seat back. The forward dimension shall be measured from the upper edge of the seat back and parallel to the floor.

**4.1.4 (Optional) Heat Exchanger Inlet and Outlet Temperature** - A minimum of four (4) electrically averaged temperature measuring devices shall be used to measure the inlet air temperature of each heat exchange unit. Additionally, a minimum of four (4) electronically averaged temperature-measuring devices shall be used to measure the outlet air temperature of each heat exchange unit. These sensors shall be placed no closer than 2.0 inches (5.1 cm) from the face of any heater core, to prevent any incidence of radiant heat transfer. Outlet sensors shall be distributed throughout the outlet air stream(s) 1.0 inches +/- .25 inches (2.5 cm +/- .6 cm) from the outlet aperture(s) of the unit heater.

**4.1.5 (Optional) Defrost Air Temperature** - The temperature of the defrost air shall be measured at a point in the defroster outlet(s) that is in the main air flow and which is at least one (1) inch (2.54 cm) below the plane of the defroster outlet opening. At least one temperature measurement shall be made in each outlet unit. The interior surface temperature(s) of the windshield shall be measured at a point located on the vertical and horizontal centerline(s) of the windshield.

**4.1.6 (Optional) Entrance Area Temperature** - The temperature of the vehicle entrance area shall be measured by two (2) sets of three (3) each electrically averaged temperature measuring devices. One set of three (3) devices shall be placed one (1) inch (2.54 cm) above the lowest tread of the entrance step, equally spaced on the longitudinal centerline of the tread. The second set of devices shall be placed on the next horizontal surface above the lowest entrance step, four inches (10.2 cm) from the outboard edge of that surface, spaced identically to the first set of sensors, and placed parallel with the outboard edge of the surface being measured.

**4.2 Coolant Temperature** - The temperature entering and leaving the heat changer/defroster system shall be measured as close to the entrance and exit points of the bus body as possible with an immersion thermocouple or RTD device which can be read within +/- 0.5 degrees Fahrenheit (+/- 0.3 degrees Celsius).

**4.3 Coolant Flow** - The quantity of coolant flowing shall be measured by means of a calibrated flow meter or weighing tank to an accuracy of at least 2 percent of set point.

**4.4 Coolant Pressure** - The coolant differential pressure shall be measured by suitable connection as close as possible to the inlet and outlet of the heat exchanger/defrosting system. Pressure may be read as inlet and outlet pressure and the differential calculated, or read directly as PSID. Pressure readings shall be made with the use of gauges, manometers or transducers capable of reading within +/- 0.1 psi (689.5 Pa), accurate to +/- 0.5% of full scale.

**4.5 Additional Instrumentation** - Additional instrumentation required for vehicle heat exchanger system testing is a voltmeter and a shunt type ammeter to read the voltage and current of the complete system. The ammeter and voltmeter shall be capable of an accuracy of +/- 1 percent of the reading.

## 5. Test Procedures

**5.1 Install the heater test vehicle on the test site**. Testing shall be conducted in such a way as to prevent the effects of solar heating. At an outdoor test site, testing shall commence and data shall be recorded during the hours following sunset and prior to sunrise, regardless of cloud cover or facility roof.

Instrumentation is required to obtain the following readings:

(a) Vehicle interior (4.1.1);
(b) Inlet coolant temperature, at entrance to the bus body (4.2);
(c) Discharge coolant temperature, at exit from the bus body (4.2);
(d) Voltage and current at main bus bar connection of driver's control panel;
(e) Ambient temperature (4.1.2);
(f) Rate of coolant flow (4.3);
(g) Coolant flow pressure (4.4);
(h) Elapsed time (stop watch);
(i) Driver's station temperatures (4.1.3);
(j) (Optional) Heat Exchanger Inlet and Outlet Temperatures (4.1.4);
(k) (Optional) Defrost Air Temperature (4.1.5); and
(l) (Optional) Entrance Area Temperature (4.1.6).

Soak the test vehicle, with doors open, for the length of time necessary to stabilize the interior temperature for a 30 minute period as recorded by the vehicle interior temperature measuring devices,

and the coolant temperature as measured by the inlet and outlet coolant temperature measuring devices, at the test site temperature, +/- 5 degrees Fahrenheit (+/- 2.5 degrees Celsius), not to exceed 25 degrees Fahrenheit (-3.9 degrees Celsius). Warm up the coolant device to the test temperature immediately prior to the start of the test. Use the coolant supply outlet diverter valve to prevent heated coolant from entering the bus heating system prior to the start of the test. At this time, set the heater controls and all fan controls at maximum, close all doors. A maximum of two windows may be left open a total of one (1) inch (2.5 cm) each. A maximum of two occupants may be in the body during the test period. Record all instrumentation readings at five-minute intervals for a period of one hour. Recording time shall begin with the initial introduction of heated coolant from the independent coolant supply. The electrical system shall be operated at a maximum of 115% of nominal system voltage +/- 0.2 volts, for example: 13.8 VDC +/0.2 volts for a 12 VDC system, and the heat exchanger system shall be wired with the normal vehicle wiring.

Optional - Additional flow rates and/or coolant temperatures may also be used to generate supplementary data. Test procedure five (5) shall be repeated for each additional flow rate and/or coolant temperature.

## 6. Computations

**6.1 Chart and Computations** - Customary Units-Data shall be recorded on Chart 6.1 or equivalent. Temperature data shall be recorded at the actual temperatures occurring at the time of testing. Air temperature data shall then be adjusted to a 0 degrees Fahrenheit base prior to the construction of graphs. This data reduction shall be directly proportional to the difference between the actual ambient temperature, at the time of test, and 0 degrees Fahrenheit (i.e., actual ambient of 18 degrees Fahrenheit shall result in a reduction of all air temperatures by 18 degrees Fahrenheit, actual ambient temperature of -8 degrees Fahrenheit shall result in an increase of all air temperatures by 8 degrees Fahrenheit). Temperature data shall be presented in graph form as well as tabular form. One graph shall be constructed for the body interior air temperatures (4.1.1) wherein the recording intervals shall be the X-axis and the degrees Fahrenheit shall be the Y-axis. A separate graph shall be constructed for the driver's temperatures (4.1.3) using the same units for the axes. Optional temperature data (4.1.4, 4.1.5, 4.1.6) may be similarly graphed separate from the interior data.

**6.1.1 Optional Computations BTU/Hr. Coolant**

(a) Flow of Coolant (Ww)-lb/min-measured to +/- 2 percent.
(b) Temperature of Coolant into System (T-in)- degrees Fahrenheit -measured.
(c) Temperature of Coolant out of System (T-out)- Fahrenheit -measured.
(d) Heat Removed From Coolant (Qw)-Btu/h-calculated:
Qw = CpWw(T-in - T-out) X 60
Cp= Specific Heat of Coolant - Given as
0.85 x 1.0018
Btu/lb/degrees Fahrenheit
Ww=No. 1
T-in = No. 2
T-out = No. 3

**6.2 Chart and Computations - Metric Units** - Data shall be recorded on Chart 6.2 or equivalent. Temperature data shall be recorded at the actual temperatures occurring at the time of testing. Air temperature data shall then be adjusted to a -18 degrees Celsius base prior to the construction of graphs. This data reduction shall be directly proportional to the difference between the actual ambient temperature, at the time of test, and -18 degrees Celsius i.e., actual ambient of -7.8 degrees Celsius shall result in a reduction of all air temperatures by 10.2 degrees Celsius, actual ambient temperature of -22.2 degrees Celsius shall result in an increase of all air temperatures by 4.2 degrees Celsius. Temperature data shall be presented in graph form as well as tabular form. One graph shall be constructed for the body interior air temperatures (4.1.1) wherein the recording intervals shall be the X-axis and degrees Celsius shall be the Y-axis. A separate graph shall be constructed for the driver's temperatures (4.1.3) using the same units for the axes. Optional temperature data (4.1.4, 4.1.5, 4.1.6) may be similarly graphed separate from the interior data.

**6.2.1 Optional Computations BTU/Hr. Coolant**

(a) Flow of Coolant (Ww)-lb/min-measured to +/- 2 percent.

(b) Temperature of Coolant into System (T-in)- degrees Celsius -measured.
(c) Temperature of Coolant out of System (T-out)- Celsius -measured.
(d) Heat Removed From Coolant (Qw)-Btu/h-calculated:
Qw = CpWw(T-in - T-out) X 60
Cp= Specific Heat of Coolant - Given as
(0.85 x 4187j)(kg/c)
Ww=No. 1
T-in = No. 2
T-out = No. 3

**RESOURCE BACKGROUND – NASDPTS**
**NATIONAL ASSOCIATION OF STATE DIRECTORS OF PUPIL TRANSPORTATION**

**Background:**
An estimated 23 million public school students ride over 400,000 school buses twice daily to go to and from school. Additionally, it has been estimated that another one to two million students ride school buses to and from school-related activities each day. In the course of a school year, school buses transport students over four billion miles. The safety of pupil transportation is of significant concern to Federal, State and local governments, school districts, school administrators, parents, and the general public.

Within the school transportation industry itself, there is a long history of significant efforts to make school transportation safe and efficient. Pupil transportation programs date back to the earliest years of the 20th century. By 1910, thirty states had pupil transportation programs in place. The first “vehicles” used to transport students were nothing more than horse-drawn carts which were borrowed from local farmers. With the development of automobiles and trucks with gasoline-powered engines, the school “wagon” was replaced with the school “truck.” During the 1920’s and 1930’s, the Nation’s roadway system was expanding, especially in rural communities. This led to a greater need for vehicles to transport schoolchildren and the formation of an industry of school bus manufacturers.

As the number of school buses operating on the roadways increased, there came the inevitable problems. Several serious tragedies occurred involving school buses which caused school officials to think seriously about developing safety guidelines for school buses. In 1939, representatives from 48 states gathered to develop recommendations for school buses. Since that time, there have been a total of 12 National Conferences on School Transportation where representatives from each state gather to revise existing and establish new safety guidelines for school buses and operating procedures for the safe transportation of schoolchildren, including those with disabilities. The product of these national conferences are referred to as the National Guidelines for School Transportation. The National Conferences are jointly sponsored by the National Association of State Directors of Pupil Transportation Services (which includes the School Bus Manufacturers Technical Council), the National Association for Pupil Transportation, and the National School Transportation Association, the National Safety Council, and Central Missouri State University.

To help ensure the transportation safety of students on school buses, the National Highway Traffic Safety Administration (NHTSA) establishes and enforces a series of Federal Motor Vehicle Safety Standards governing the safety performance and manufacture of school buses. NHTSA also conducts a safety defects investigation program to identify safety defects in motor vehicles, including school buses, and requires manufacturers to recall and remedy defective vehicles free of charge. In addition, NHTSA’s Guideline #17, “Pupil Transportation Safety,” establishes minimum recommendations for a pupil transportation safety program, including the identification, operation, and maintenance of buses used for transporting students; training of passengers, pedestrians, and bicycle riders; and administration.

Even with the school bus-specific Federal Motor Vehicle Safety Standards, NHTSA’s safety defect investigation and recall program, NHTSA’s Guideline #17, and the school transportation industry’s National Guidelines for School Transportation, a few school bus safety problems continue to persist. One of these problems was identified as a contributing factor in a tragic crash that occurred on October 25, 1995, in Fox River Grove, Illinois. On that day, a commuter train hit a school bus that was stopped at a

highway-railway grade crossing. Seven students were killed and the school bus driver and 24 other students were injured. The school bus driver had taken all of the appropriate actions prior to crossing the railroad tracks, but unknowingly failed to completely clear the railway track while the school bus was stopped at a red traffic light. The commuter train struck the rearmost side of the school bus.

At the conclusion of its investigation of the crash, the National Transportation Safety Board identified one of the factors contributing to the crash as an inadequate school district routing and hazard marking system. The Safety

Board noted that the substitute school bus driver operating the bus that day was unaware of the hazard at the highway-railroad crossing because "the methods employed by the school district to identify and evaluate route hazards were ineffective."

In addition to the Safety Board's investigation of the Fox River Grove crash, the U.S. Department of Transportation formed a Grade Crossing Task Force to review the decision-making process for designing, constructing, and operating rail crossings. The Task Force published its findings in a March 1996 report, "Accidents That Shouldn't Happen." One recommendation from that report calls for NHTSA to "work with State directors of pupil transportation, through relevant national organizations, to develop a system to improve school bus routing safety by focusing on highway-railroad grade crossings."

As a result of the recommendations from the Safety Board and the Grade Crossing Task Force, NHTSA provided a grant to the National Association of State Directors of Pupil Transportation to:

1. Research the issue of school bus route hazards and route hazard marking systems;

2. Develop a set of guidelines that school transportation officials could utilize in developing a system for identifying school bus route hazards that meets the needs of their locality;

3. Provide suggestions for reasonable and appropriate means of informing school bus drivers of potential school bus route hazards so as to educate them on how to deal with any route hazards that cannot be avoided; and

4. Suggest methods to disseminate the information developed during this project to the school transportation community.

**• APPENDIX C • NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION**
**SCHOOL BUS HANDRIAL HANDBOOKHANDRAIL INSPECTION TOOL AND PROCEDURE**

Across the United States, children are being injured or killed when their clothing or accessories are caught in their school bus's handrail or door as they exit the school bus. As a result, they may fall and be violently dragged by the bus and run over by its rear wheels. The most common piece of clothing that can be snagged on the handrail is a jacket with a drawstring at the waist. These drawstrings commonly have a large bobble or knot at the ends that can become lodged in the handrail. However, other articles such as scarves, long straps on backpacks or dangling key chains can also be snagged on the handrail. School bus handrails have had the same basic design for more than 30 years. However, with the current change in fashion toward oversized and baggy clothing, handrail designs have contributed to tragic and avoidable injuries and deaths.

School bus manufacturers have taken extraordinary and costly steps to remove snagging hazards from school bus entrances. More than 4000,000 school buses have been recalled and manufacturers have absorbed the cost of the repairs. In most cases, a simple spacer can be added to the existing handrail eliminating the potential for snagging. In other cases, manufacturers have redesigned the handrail.

**THE SCHOOL BUS DRIVER'S ROLE**
The school bus driver is a trained professional concerned with getting children to school and returning them home safely. Driving a school bus is a demanding task. There is a lot of activity in and around the

bus. The bus driver must be aware of ever-changing traffic conditions, the children on the bus, and the children who enter and exit at each school bus stop. Compounding this already complex situation is the need for the driver to maintain the school bus schedule.

The major reason for injury and death due to handrail snagging incidents is the driver's failure to notice that the child's drawstring has become snagged. The driver should observe all children, especially those with long drawstrings, oversized or baggy clothing, or other items that may become snagged in handrails, as they exit. Additionally, to ensure safety at each stop, the driver should be certain that each child has completely exited the bus and cleared the danger zones before closing the door and moving the vehicle. The driver should secure the bus and check around and underneath the bus if there is a question of whether a child has moved safely away from the bus. Finally, the driver must be alert for warnings as the bus pulls away. In many of the snagging incidents that have occurred to date, someone inside or outside the bus attempted to warn the driver that a child was being dragged by the bus.

**CHILDREN AND PARENT RESPONSIBILITIES**

Children and parents must also accept some responsibility for ensuring that a snagging incident does not occur. While oversized and baggy clothing may represent the latest fashion trend, try to avoid choosing any article that may become caught in a school bus handrail or door. The consumer Product Safety Commission recommends that drawstrings be no more than three inches in length at the waist. Parents should caution children about attaching key rings and other items to their backpacks, as these too may become caught on the handrail or door.

While not directly related to snagging, children should also be warned to stay out of the school bus danger zones. The danger zones are areas around the bus where it is difficult for the driver to see. Children should be taught not to pick up objects they drop near the bus. The driver may not see the child.

If the child does drop something, the child should inform the bus driver and follow the driver's instructions. Parents should check with the school principal, or local school bus transportation director to determine if the school bus carrying their children has been recalled for a handrail problem and, if so, whether it has been repaired. Parents are encouraged to check with the school system when their child's safety is in question.

**• APPENDIX D • PUPIL TRANSPORTATION SAFETY**
**National Highway Traffic Safety Administration**
**Highway Safety Program Guideline #17**

**I. Scope.** This guideline establishes minimum recommendations for a State Highway Safety Program for pupil transportation safety including the identification, operation and maintenance of buses used for carrying students; training of passengers, pedestrians and bicycle riders; and administration.

**II. Purpose.** The purpose of this guideline is to minimize, to the greatest extent possible, the danger of death or injury to school children while they are traveling to and from school and school-related events.

**III. Definitions.** "Bus" is a motor vehicle designed for carrying more than 10 persons (including the driver).

"Federal Motor Carrier Safety Regulations (FMCSR)" are the regulations of the Federal Motor Carrier Safety Administration (FMCSA) for commercial motor vehicles in interstate commerce, including buses with a gross vehicle weight rating (GVWR) greater than 10,000 pounds or designed to carry 16 or more persons (including the driver), other than buses used to transport school children from home to school and from school to home. (The FMCSR are set forth in 49 CFR Parts 383-399.)

"School-chartered bus" is a "bus" that is operated under a short-term contract with state or school authorities who have acquired the exclusive use of the vehicle at a fixed charge to provide transportation for a group of students to a special school-related event.

"School bus" is a "bus" that is used for purposes that include carrying students to and from school or related events on a regular basis, but does not include a transit bus or a school-chartered bus.

**IV. Pupil Transportation Safety Program Administration and Operations.**
Recommendation. Each state, in cooperation with its school districts and other political subdivisions, should have a comprehensive pupil transportation safety program to ensure that school buses and school-chartered buses are operated and maintained so as to achieve the highest possible level of safety.

**A. Administration.**

1. There should be a single state agency having primary administrative responsibility for pupil transportation, and employing at least one full-time professional to carry out these responsibilities.

2. The responsible state agency should develop an operating system for collecting and reporting information needed to improve the safety of operating school buses and school-chartered buses. This includes the collection and evaluation of uniform crash data consistent with the criteria set forth in Highway Safety Program Guidelines No. 10, "Traffic Records" and No. 19, "Accident Investigation and Reporting."

**B. Identification and Equipment of School Buses.** Each state should establish procedures to meet the following recommendations for identification and equipment of school buses.

1. All school buses should:
    a. Be identified with the words "School Bus" printed in letters not less than eight inches high, located between the warning signal lamps as high as possible without impairing visibility of the lettering from both front and rear, and have no other lettering on the front or rear of the vehicle, except as required by Federal Motor Vehicle Safety Standards (FMVSS), 49 CFR Part 571.
    b. Be painted National School Bus Yellow, in accordance with the colorimetric specification of National Institute of Standards and Technology (NIST) Federal Standard No. 595a, Color 13432, except that the hood should be either that color or lusterless black, matching NIST Federal Standard No. 595a, Color 37038.

c. Have bumpers of glossy black, matching NIST Federal Standard No. 595a, Color 17038, unless, for increased visibility, they are covered with a reflective material.
d. Be equipped with safety equipment for use in an emergency, including a charged fire extinguisher that is properly mounted near the driver's seat, with signs indicating the location of such equipment.
e. Be equipped with device(s) demonstrated to enhance the safe operation of school vehicles, such as a stop signal arm.
f. Be equipped with a system of signal lamps that conforms to the school bus requirements of FMVSS No. 108, 49 CFR 571.108.
g. Have a system of mirrors that conforms to the school bus requirements of FMVSS No. 111, 49 CFR 571.111, and provides the seated driver a view to the rear along both sides of the bus and a view of the front bumper and the area in front of the bus. Mirrors should be positioned and adjusted such that when a rod, 30 inches long, is placed upright on the ground at any point along a traverse line one-foot forward of the forward-most point of a school bus, at least seven 1/2 inches of the length of the rod should be visible to the driver, either by direct view or by the system of mirrors.
h. Comply with all FMVSS applicable to school buses at the time of their manufacture.

2. Any school bus meeting the identification recommendations of sections 1. a.-h. above, that is permanently converted for use wholly for purposes other than transporting children to and from school or school-related events, should be painted a color other than National School Bus Yellow, and should have the stop arms and school bus signal lamps described by sections 1. d. & e. removed.
3. School buses, while being operated on a public highway and transporting primarily passengers other than school children, should have the words "School Bus" covered, removed, or otherwise concealed, and the stop arm and signal lamps described by sections 1. e & f should not be operated.
4. School-chartered buses should comply with all applicable FMCSR and FMVSS.

**C. Operations.** Each state should establish procedures to meet the following recommendations for operating school buses and school-chartered buses:

1. Personnel.
   a. Each State should develop a plan for selecting, training, and supervising persons whose primary duties involve transporting school children in order to ensure that such persons will attain a high degree of competence in, and knowledge of, their duties.
   b. Every person who drives a school bus or school-chartered bus occupied by school children should, as a minimum:
      1. Have a valid state driver's license to operate such a vehicle. All drivers who operate a vehicle designed to carry 16 or more persons (including the driver) are required by FMCSA's Commercial Driver's License Standards by April 1, 1992 (49 CFR Part 383) to have a valid commercial driver's license.
      2. Meet all physical, mental, moral and other requirements established by the state agency having primary responsibility for pupil transportation, including requirements for drug and/or alcohol misuse or abuse; and
      3. Be qualified as a driver under the Federal Motor Carrier Safety regulations of the FMCSA, 49 CFR Part 391, if the driver or the drivers' employer is subject to those regulations.
2. Vehicles.

a. Each state should enact legislation that provides for uniform procedures regarding school buses stopping on public highways for loading and discharge of children. Public information campaigns should be conducted on a regular basis to ensure that the driving public fully understands the implications of school bus warning signals and requirements to stop for school buses that are loading or discharging school children.

b. Each state should develop plans for minimizing highway use hazards to school bus and school-chartered bus occupants, other highway users, pedestrians, bicycle riders and property. They should include, but not be limited to:
    1. Careful planning and annual review of routes for safety hazards;
    2. Planning routes to ensure maximum use of school buses and school-chartered buses, and to ensure that passengers are not standing while these vehicles are in operation;
    3. Providing loading and unloading zones off the main traveled part of highways, when it is practical to do so:
    4. Establishing restricted loading and unloading areas for school buses and school-chartered buses at or near schools;
    5. Ensuring that school bus operators, when stopping on a highway to take on or discharge children, adhere to state regulations for loading and discharging including the use of signal lamps as specified in section B. 1. f. of this guideline;
    6. Prohibiting, by legislation or regulation, operation of any school bus unless it meets the equipment and identification recommendations of this guideline;
    7. Replacing, consistent with the economic realities which typically face school districts, those school buses which are not manufactured to meet the April 1, 1977 FMVSS for school buses, with those manufactured to meet the stricter school bus standards, and not chartering any pre-1977 school buses; and
    8. Informing potential buyers of pre-1977 school buses that these buses may not meet current standards for newly manufactured buses and of the need for continued maintenance of these buses and adequate safety instruction.
c. Use of amber signal lamps to indicate that a school bus is preparing to stop to load or unload children is at the option of the state. Use of red warning signal lamps as specified in section B 1. f. of this guideline for any purpose or at any time other than when the school bus is stopped to load or discharge passengers should be prohibited.
d. When school buses are equipped with stop arms, such devices should be operated only in conjunction with red warning signal lamps, when vehicles are stopped.
e. Seating
    1. Standing while school buses and school-chartered buses are in motion should not be permitted. Routing and seating plans should be coordinated so as to eliminate passengers standing when a school bus or school-chartered bus is in motion.
    2. Seating should be provided that will permit each occupant to sit in a seat intended by the vehicles' manufacturer to provide accommodation for a person at least as large as a 5th percentile adult female, as defined in 49 CFR 571.208. Due to the variation in sizes of children of different ages, states and school districts should exercise judgment in deciding how many students are actually transported in a school bus or school-chartered bus.
    3. There should be no auxiliary seating accommodations such as temporary or folding jump seats in school buses.
    4. Drivers of school buses and school-chartered buses shall be required to wear occupant restraints when the vehicle is in motion.
    5. Passengers in school buses and school-chartered buses with a gross vehicle weight rating (GVWR) of 10,000 pounds or less should be required to wear occupant restraints (where provided) when the vehicle is in motion. Occupant restraints should comply with the requirement of FMVSS Nos. 208, 209 and 210, as they apply to multipurpose vehicles.
f. Emergency exit access. Baggage and other items transported in the passenger compartment should be stored and secured so that the aisles are kept clear and the door(s) and emergency exit(s) remain unobstructed at all times. When school buses are equipped with interior luggage racks, the racks should be capable of retaining their contents in a crash or sudden driving maneuver.

**D. Vehicle Maintenance**

Each state should establish procedures to meet the following recommendations for maintaining buses used to carry school children

1. School buses should be maintained in safe operating condition through a systematic preventive maintenance program.
2. All school buses should be inspected at least semi-annually. In addition, school buses and school-chartered buses subject to the Federal Motor Carrier Safety Regulations of FMCSA should be inspected and maintained in accordance with those regulations (49 CFR Parts 393 and 396).
3. School bus drivers should be required to perform daily pre-trip inspections of their vehicles, and the safety equipment thereon (especially fire extinguishers), and to report promptly and in writing any problems discovered that may affect the safety of the vehicle's operation or result in its technician breakdown. Pre-trip inspection and condition reports for school buses and school-chartered buses subject to the Federal Motor Carrier Safety Regulations of FMCSA should be performed in accordance with those regulations (49 CFR 392.7, 392.8, and 396).

**E. Other Aspects of Student Transportation Safety.**

1. At least once during each school semester, each pupil transported from home to school in a school bus should be instructed in safe riding practices, proper loading and unloading techniques, proper street crossing to and from school bus stops and should participate in supervised emergency evacuation drills, which are timed. Prior to each departure, each pupil transported to an activity or field trip in a school bus or school-chartered bus should be instructed in safe riding practices and on the location and operation of emergency exits.
2. Parents and school officials should work together to select and designate the safety pedestrian and bicycle routes for the use of school children.
3. All school children should be instructed in safe transportation practices for walking to and from school. For those children who routinely walk to school, training should include preselected routes and the importance of adhering to those routes.
4. Children riding bicycles to and from school should receive bicycle safety education, wear bicycle safety helmets, and not deviate from preselected routes.
5. Local school officials and law enforcement personnel should work together to establish crossing guard programs.
6. Local school officials should investigate programs which incorporate the practice of escorting students across streets and highways when they leave school buses. These programs may include the use of school safety patrols or adult attendants.
7. Local school officials should establish passenger vehicle loading and unloading points at schools that are separate from the school bus loading zones.

**V. Program evaluation**

The pupil transportation safety program should be evaluated at least annually by the state agency having primary administrative responsibility for pupil transportation.

**• APPENDIX E • HUMAN RESOURCES REFERENCES**
**SAMPLE JOB DESCRIPTIONS**

**Local Student Transportation Director, Manager, Supervisor and Private Operator**

A. The local student transportation director's and private operator's specific duties should include, but are not limited to, the following activities:
    1. Providing assistance in planning, budgeting and forecasting for the student transportation system.
    2. Assisting in school site selection and facility planning.
    3. Providing, when appropriate, chassis, body and related equipment procurement.
    4. Developing and implementing a plan for preventive and on-going equipment maintenance.
    5. Recruiting, selecting, instructing, evaluating and supervising personnel.
    6. Routing and scheduling buses for safe, efficient and economical transportation service.
    7. Assisting in the development and implementation of student safety education programs.

8. Working with administrators, teachers, transportation personnel, students, parents and various public and private agencies to improve their knowledge and the quality of the transportation system.
9. Investigating and reporting crashes and safety-related incidents, when applicable, using the uniform school bus crash reporting criteria and standard safety incident investigation process.
10. Investigating reported problems.
11. Maintaining records and preparing reports, as required.
12. Developing and supervising an on-going evaluation plan for the student transportation system.
13. Implementing a drug/alcohol testing program in compliance with federal regulations for persons in safety-sensitive positions and for commercially licensed drivers.
14. Establishing and ensuring appropriate staffing levels.
15. Recommending vehicle and equipment replacement schedules.
16. Exhibiting effective skills in conflict-resolution and problem-solving.

B. Minimum qualifications for the student transportation director and private operator who supervise transportation should include the following:
    1. An undergraduate degree, equivalent experience or industry certification in one or more of the following fields of study is desirable:
    2. Education;
    3. Business Administration;
    4. Management; and
    5. Transportation or a related field.
    6. Formal instruction in student transportation management, including classroom instruction and field experience or student transportation industry certification.
    7. A basic understanding of the educational process and the corresponding role of transportation.
    8. The ability to manage personnel and resources.
    9. Basic user-level computer competency with accounting and word processing software and knowledge of web-based information systems.
    10. The ability to communicate effectively with school or Head Start Center administrators, teachers, parents, students, bus drivers, law enforcement officials, etc.
    11. Knowledge of state and federal regulations applicable to transportation of students.

**Transportation Specialist**

A. The specific duties should include, but are not limited to, the following activities:
    1. Design and regularly update all routes and time schedules.
    2. Assign drivers to routes and extracurricular trips.
    3. Prepare routes for bidding (if applicable), including schools served and time expectations.
    4. Assign substitute drivers.
    5. Accept bus trouble calls, coordinate replacement buses and drivers.
    6. Advise building officials and parents of route changes, bus changes, late arrivals and departures.
    7. Prepare annual route schedule for distribution and notification to schools and parents.
    8. Assist in planning and presenting staff development programs and annual in-service for drivers.
    9. Assist district in designing new school service areas and boundaries, when necessary.
    10. Assist with road checking all drivers annually.
    11. Relief-drive, when necessary.
    12. Investigate school bus crashes, unsafe practices and safety-related incidents and recommend system and procedural improvements leading to improved safety of operations.

B. Minimum qualifications should include, but are not limited to:
    1. Certified state driver instructor (if applicable).
    2. Two years of college, equivalent experience or industry certification.
    3. Basic computer skills, routing software knowledge preferred.

4. Minimum of one year of experience in an office setting.
5. Knowledge of district, state and federal regulations, policies and requirements pertaining to driver training and student safety.
6. Ability to plan, schedule, evaluate and dispatch buses for all district bus routes and extra-curricular trips.
7. Ability to recommend, train and evaluate drivers, meeting all district, state and federal requirements.
8. Ability to recommend equipment and personnel requirements for transportation.
9. Ability to effectively work with and direct bus drivers.
10. Ability to maintain cooperative and effective communication with administrators, students, parents, public and other department employees.
11. Familiarity with vehicle maintenance concepts.
12. Ability to read and interpret road maps.
13. Ability to communicate on the district's two-way voice communications system.

**Dispatcher**

A. The specific duties should include, but are not limited to, the following activities:
   1. Schedule and dispatch buses and district vehicles to appropriate routes.
   2. Dispatch and coordinate bus and driver assignments for school-sponsored trips.
   3. Secure substitute drivers due to absences and review routes with substitutes, as necessary.
   4. Communicate with drivers via the transportation communications system regarding routes, emergencies and student problems.
   5. Develop and maintain records for driver assignments and vehicle scheduling and use.
   6. Receive and respond to phone calls from parents or public concerning transportation by providing information or referring call to appropriate staff members.
   7. Assist in development of bus routes, schedules and updating routes and schedules throughout the school year.
   8. Assist staff by checking roads during inclement weather.
B. Minimum qualifications should include, but are not limited to:
   1. High school graduate or equivalent.
   2. Class "B" CDL with P and S endorsements.
   3. Two years of experience in public or student transportation.
   4. Experience as a route planner or dispatcher.
   5. Effective oral and written communication skills.
   6. Ability to work effectively under pressure.
   7. Ability to make independent decisions.
   8. Ability to maintain accurate records.
   9. Ability to maintain confidentiality.
   10. Ability to operate communications system.
   11. Ability to schedule and coordinate activities.
   12. Ability to communicate and work effectively with building and department personnel.
   13. Knowledge of student transportation rules and regulations.

**Instructor/Trainer**

A. The specific duties should include, but are not limited to, the following activities:
   1. Assist with pre-interview and recommend to train.
   2. Train and retrain, as necessary, all bus drivers and bus attendants.
   3. Organize and present safety messages and programs to students.
   4. Annually evaluate, on the road, all bus drivers.
   5. Maintain all driver records and notify drivers of license or certification expirations.
   6. Recommend hiring, retraining and disciplinary action for bus drivers and bus attendants.
   7. Work with vehicle maintenance personnel on possible driver training to avoid equipment abuse.
B. Minimum qualifications should include, but are not limited to:
   1.High school graduate or equivalent.
   2. Class "B" CDL with P and S endorsements.

3. Certified state driver instructor (if applicable).
4. Certified first aid instructor.
5. Knowledge of state and federal laws and regulations related to bus drivers.
6. Skill in operating a bus and troubleshooting minor problems.
7. Ability to teach required subjects to obtain state school bus driver's authorization.
8. Ability to instruct CDL requirements.
9. Ability to provide effective instruction in soft skills categories (i.e. confidentiality and intervention strategies).
10. Ability to effectively communicate with staff, peers and community.
11. Ability to establish and maintain effective working relationships.
12. Evidence of effective oral and written communications.
13. Proficiency in basic computer and presentation skills.

**Routing Specialist**

A. The specific duties should include, but are not limited to, the following activities:
   1. Coordinate the development and maintenance of bus stops, runs, routes and schedules consistent with district policies and state requirements.
   2. Gather criteria necessary for the development of the school district's school boundaries, street address ranges, speed limits, one-way streets, traffic hazards and hazardous walkway areas.
   3. Review all bus route change requests.
   4. Communicate with drivers and dispatchers to resolve problems with routes.
   5. Communicate with parents, teachers, principals and others regarding the transportation of students.
   6. Generate transportation-related reports, as required by the Transportation Director.
   7. Evaluate existing hazardous walkway areas and determine route revisions, making recommendations to appropriate individuals.

B. Minimum qualifications should include, but are not limited to:
   1. High school graduate or equivalent.
   2. Three years of computer routing experience.
   3. Knowledge of operating procedures for student transportation.
   4. Knowledge of routing procedures and methods.
   5. Ability to analyze and make recommendations regarding bus routing activities.
   6. Ability to work under pressure.
   7. Ability to organize, set priorities and meet deadlines.
   8. Ability to maintain accurate records and generate computerized reports.
   9. Ability to establish and maintain effective working relationships with a variety of people.
   10. Ability to establish a customer service environment.
   11. Working knowledge of computer routing systems and boundary analysis software applications.

**Secretary**

A. The specific duties should include, but are not limited to, the following activities:
   1. Develop and maintain filing and record-keeping systems, both physical and electronic.
   2. Finalize correspondence and reports prepared by others. Prepare correspondence, reports and other documents, as directed. Perform data entry of pertinent information.
   3. Design, format and prepare forms and other documents.
   4. Ensure that documents are free from typographical errors, misspellings, omissions, logical inconsistencies and grammatical errors.
   5. Ensure that sufficient levels of office supplies are maintained.
   6. Arrange for meeting space, send notices and track responses, ensure appropriate refreshments are available and rooms and equipment are properly set up.
   7. Use standard office equipment.
   8. Coordinate activities with other clerical staff, departments and outside agencies.

B. Report employees' hours of work, sick leave, vacation and other leaves to payroll, per district policy and procedures.

1. Maintain permanent employee records, including payroll, evaluations and leaves, per district policy and procedures.
2. Answer phones while maintaining professional demeanor and answering queries or redirecting caller to the appropriate personnel.
3. Facilitate purchase of equipment by obtaining quotes, and preparing purchase orders. (This often is the duty of the Purchasing Agent.)
4. Ensure that all financial transactions are properly recorded, totaled, balanced and reconciled with budget. (This often is the duty of the Bookkeeper.)

C. Minimum qualifications should include, but are not limited to:
   1. High school graduate or equivalent.
   2. Computer experience in word processing, database, spreadsheet and desktop publishing.
   3. Two years' secretarial experience in an office setting.
   4. Ability to create and maintain a filing system.
   5. Ability to enter data.
   6. Ability to create forms, documents, and pamphlets, using desktop publishing.
   7. Ability to maintain good telephone skills.
   8. Good organizational and time management skills.
   9. Excellent oral and written skills.
   10. Ability to handle changing priorities.
   11. Knowledge of payroll practices and procedures.
   12. Knowledge of general accounting and purchasing procedures.
   13. Ability to work effectively under high stress situations.
   14. Ability to maintain confidentiality,

**Bookkeeper**

A. The specific duties should include, but are not limited to, the following activities:
   1. Develop and maintain records of budget data, both physical and electronic.
   2. Prepare special reports, as required by the Transportation Director.
   3. Prepare purchase orders and maintain records.
   4. Ensure that all financial transactions are properly recorded, totaled, balanced and reconciled with budgeted amounts.
   5. Invoice departments, schools and other agencies for transportation services performed.
   6. Obtain quotes and prepare purchase orders for buses, supplies, office and shop equipment.
   7. Maintain inventory of all buses and district vehicles, including VIN and license numbers, model, chassis, seat and vehicle-rated capacity, wheelchairs and occupant restraint systems.
   8. Remove and add vehicles for insurance purposes.
   9. Assist with insurance claims and warranty work.
   10. Assist with development of annual budget.
   11. Assist with answering phones while maintaining professional demeanor and answering queries or redirecting caller to the appropriate personnel.
   12. Use copiers and other office equipment.

B. Minimum qualifications should include, but are not limited to:
   1. High school graduate or equivalent.
   2. Experience with word processing, spreadsheets and database.
   3. Experience as bookkeeper in an office setting.
   4. Ability to organize tasks and documents in a logical manner.
   5. Ability to complete basic formulas and operations, such as sorting and extracting.
   6. Ability to operate a ten-key calculator.
   7. Ability to use various types of office equipment.
   8. Ability to reconcile checking accounts or bank statements.
   9. Ability to maintain good telephone skills.
   10. Ability to enter data.
   11. Knowledge of general mathematics applications.
   12. Knowledge of general accounting procedures.
   13. Knowledge of purchasing regulations.
   14. Knowledge of bidding and/or low-quote purchase of school buses.

15. Ability to maintain confidentiality.

**Bus Driver**

A. The specific duties should include, but are not limited to, the following activities:
    1. Report defective school bus equipment and accessories, including but not limited to, fire extinguishers, highway warning kits, first aid and body fluid cleanup kits, snow chains, sanders, etc., and when necessary install, service or replace defective equipment.
    2. Perform required operational and safety inspections of the school bus and all related equipment.
    3. Ability to clean and service the school bus to include interior cleaning and exterior bus washing, installation of fuel, oil and other fluids, as directed.
    4. Operate all hand and foot controls installed in a school bus, as required.
    5. Perform basic first aid, as appropriate, which may include CPR.
    6. Work effectively with a group of students of different grade levels, abilities or program placement.
    7. Complete legibly and accurately forms, records, reports and other documentation/data-logging activities, as required by state or district policy.
    8. Be punctual.
    9. Dress appropriately and wear proper foot protection.
    10. Manage passengers in the school bus.
    11. Report unsafe acts or conditions that require the attention of any person other than the driver.
    12. Successfully complete school bus driver training programs and courses established by the state or district.

B. Minimum qualifications should include, but are not limited to:
    1. High school graduate or equivalent.
    2. Hold and maintain a class license with all applicable endorsement for the type of vehicle being driven.
    3. Excellent driving record.
    4. Physical ability to drive and perform all duties related to school bus operations.
    5. Ability to relate effectively with parents, staff and public in a multicultural and multiracial community.
    6. Sufficient command of local language to communicate with students, parents, district staff members and other concerned individuals regarding all aspects of their job-related activities.
    7. Ability to pass a criminal history background check.
    8. Ability to pass a state or DOT medical examination.
    9. Ability to pass a federally mandated drug/alcohol screen.

**Bus Attendant (Monitor or Aide)**

A. The specific duties should include, but are not limited to, the following activities:
    1. Assist the school bus driver.
    2. Assist students to safely embark and disembark from a school bus.
    3. Ensure a safe trip for every student.
    4. Make sure that students get off at the correct bus stop.
    5. Help implement safety standards on board the bus.
    6. When applicable, assist with loading/unloading and securing of assistive devices and safety restraints.
    7. Assist driver with student management.

B. Minimum qualifications should include, but are not limited to:
    1. High school graduate or equivalent.
    2. Ability to work with all students.
    3. Ability to physically move wheelchairs onto wheelchair ramp and into the bus.
    4. Ability to physically remove students from a disabled bus.
    5. Ability to get along with co-workers, parents, students and other staff.
    6. Ability to interact with students.
    7. Ability to follow directions.
    8. Ability to communicate with staff.

**Vehicle Maintenance Supervisor, Foreman and Manager**

A. The specific duties should include, but are not limited to, the following activities:
   1. Supervise and work with technicians in diagnosing malfunctions on vehicles.
   2. Supervise and work with technicians to overhaul and rebuild engines, transmissions and other vehicle components.
   3. Purchase parts, materials and supplies required for proper maintenance of district vehicles, related equipment and shop facilities, per district procedures.
   4. Coordinate maintenance of buses with dispatchers to ensure the bus fleet is ready to meet operational requirements.
   5. Recommend and assist with short- and long-term bus purchase planning.
   6. Oversee record-keeping, evaluate reports for work assignments, inspect work, as needed, review time and parts used for repair and maintain inventory at required levels.
   7. Evaluate needs and recommend purchase of new or replacement shop equipment, machines, tools and related items.
   8. Assist in evaluating bids and recommend awards for jobs performed by outside vendors.
   9. Assume responsibility for cleanliness, upkeep and organization of shop building, as well as safety, security, equipment and parts.
   10. Assume responsibility for hazardous material disposal, following all governmental regulations and required reporting and record-keeping
   11. Assume responsibility for evaluating all shop personnel.
   12. Prepare and maintain preventive maintenance schedules.

B. Minimum qualifications should include, but are not limited to:
   1. High school graduate or equivalent.
   2. Minimum of five years of experience in automotive technician field.
   3. One year of full-time experience as a journeyman technician in a truck or bus maintenance facility.
   4. One year of full-time experience at the supervisory level in an automotive maintenance facility.
   5. Class “B” CDL with P and S endorsements.
   6. Knowledgeable user of computer-based business and fleet management software.
   7. Ability to direct and coordinate employees.
   8. Ability to communicate with staff.
   9. Ability to understand job functions in relationship to school district requirements.
   10. Ability to work under pressure.
   11. Ability to teach/instruct.
   12. Ability to maintain and analyze vehicle records.
   13. Ability to use and understand diagnostic equipment.

**Journeyman Technician**

A. The specific duties should include, but are not limited to, the following activities:
   1. Diagnose and repair mechanical, electrical and engine defects in buses and other automotive equipment.
   2. Overhaul and rebuild engines, transmissions, differentials, brake systems and other major components by repair and replacement of parts.
   3. Repair and rebuild generators, alternators and all other electrical components utilizing testing devices and machine equipment, as required.
   4. Perform general tune-ups, utilizing diagnostic equipment.
   5. Make roadside repairs, as required.
   6. Repair and replace seats, glass, sheet metal, latches and other body components and assemblies.
   7. Change oil and filters; install antifreeze and snow chains; repair tires; adjust brakes; lubricate chassis, wheel bearings and other assemblies, as required.
   8. Perform all required preventive maintenance and regular bus safety inspections
   9. Operate battery chargers, valve re-facing and reseating machines, compression gauges, torque wrenches, welding equipment, grinders, reamers, timing lamps, hoists, jacks, presses, headlight

adjustment machines, air wrenches, small lathes, spark plug testers and other equipment for performing repair and maintenance of motor vehicles.
10. Assist in cleaning and organizing the shop, parts room and other maintenance facilities.
11. Complete vehicle maintenance forms and records.

B. Minimum qualifications should include, but are not limited to:
1. High school graduate or equivalent.
2. Class “B” CDL with P and S endorsements.
3. Completion of a recognized apprenticeship as an automotive technician, full journeyman status as an automotive technician or a minimum of four years’ applicable work experience of any equivalent combination of experience and training.
4. Experience in repair and maintenance of heavy duty and diesel vehicles and special vehicular equipment.
5. Ability to identify, diagnose and repair vehicle malfunctions.
6. Ability to communicate with staff, peers and students.
7. Ability to understand job functions in relationship to school district needs.
8. Ability to work under pressure.
9. Ability to maintain accurate bus repair and other records.
10. Be in good physical condition.

**Assistant Technician**

A. The specific duties should include, but are not limited to, the following activities:
1. Assist journeyman technicians in overhaul, rebuilding and replacing major assemblies and components.
2. Lubricate buses and other automotive equipment to include chassis lube, oil and filter changes, gearbox fill or drain and flush, wheel bearing pack and all other lubricating and air cleaner service procedures, as required.
3. Verify operational safety of equipment and devices, such as brakes, clutch, lamps, mirrors, glass, fire extinguishers, first aid kits, highway warning kits, horn, warning lamps and buzzers, emergency exits, wipers, signs, tires, etc.
4. Change and repair tires, perform complete battery service and brake adjustments.
5. Install antifreeze; service cooling systems; inspect and replace hoses, caps valves etc.
6. Make minor repairs by replacing lamps, spark plugs, ignition parts, patches and switches, as required.
7. Operate lubrication equipment, hoist, compressor, battery charger, diagnostic equipment, headlight adjustment machine, alignment board, spark plug tester, drills, presses, air wrenches and other tools and equipment, as required in the performance of assigned duties.
8. Drive service truck for roadside service, as required.
9. Assist in cleaning and organizing the shop, parts room and other maintenance facilities.

B. Minimum qualifications should include, but are not limited to:
1. High school graduate or equivalent.
2. Class “B” CDL with P and S endorsements.
3. Minimum two years of general experience in service station-type automotive maintenance, plus one year related experience on buses, trucks or other heavy duty vehicular equipment.
4. Possess a basic set of auto technician hand tools and storage cabinet, if required.
5. Be in good physical condition.
6. Ability to work under pressure.
7. Able to follow directions.
8. Ability to communicate with staff.

**HIRING NEW EMPLOYEES**

Employment procedures should be clearly stated in writing and followed by all parties involved in the procedures. There should be no discrimination in the advertisement of a job opening, in the application review process or in the interview. All applicants must be treated equally and interviewed/not interviewed or hired/not hired based on objective and measurable criteria. It is illegal to make any inquiry or keep any record of race, creed, color, national origin, age, sex, marital status or disability before, during or after employment for the purpose of discriminating on these grounds.

The following are essential steps to be incorporated in screening and hiring procedures:

1. Advertising
    a. Contact the Personnel Department/Human Resources Office for possible applications on file. (Some offices have a phone job line available for posting job openings.) Advertising by word of mouth, newspapers, employment office, school lunch menus and notices in retail stores or local fire departments are also good methods to get word out to the community regarding job openings.
    b. Provide written procedures, job requirements and duties to applicants. Pre-employment screening requirements (e.g., criminal background checks, driving record checks, drug screening, etc.) should be listed in each packet of information provided to potential applicants.

2. Applicant screening
    a. Check application forms for completeness. Contact applicants as soon as possible to obtain any information that was omitted from the original application documents. One method is to formulate a check-off list to verify the completeness of the applications and that the applicants meet all requirements for the position. A point system or some other grading criteria should be developed that will result in an objectively obtained score. It is advisable for the Personnel Department/Human Resources Office to keep these screening sheets on file, should the district be challenged by an applicant that feels he/she has been discriminated against. The successful applicants should be scheduled for an interview when screening and background checks are completed. This may be done by phone or letter.
    b. Conduct background checks, as may be required. Advise applicants of procedures for fingerprinting for criminal records checks, authorization for driving records check, drug/alcohol screening and any other background checks that are required. Obtain written authorization for any such checks. If a CDL is required prior to employment, a copy of the applicant's current license and physical examination form may be requested at this stage in the procedure.
    c. Contact personal references and previous employers listed on application forms. It is very important to check references; however, because personnel issues are confidential, it is very important to receive written permission from the applicant to allow the former employer(s) to release all information, including any available drug and alcohol test results. If you do not have this release, the only information you will usually obtain is date(s) of employment and position held. One question they may answer is this: "Would you rehire?" If the answer is "No," you may want to more thoroughly evaluate the applicant.
    d. Determine amount of pre-service training required for applicants to fulfill job requirements.
3. Interview
    a. Planning the interview. Interviews should be held in a pre-determined, pre-appointed setting. The interview team should be selected, seating arrangements determined and questions prepared before the interview begins. Applicants should not have to wait. It is very important to plan the number of questions to be asked and about how long the interview should take. Allow time in the schedule for the interview team to exchange any thoughts or concerns about the applicants while information is fresh.
    b. Interview questions
        i. Questions should be open-ended. Try to avoid asking questions that can be answered with a "yes" or "no." The number of questions depends on the kind of information the interview team wishes to gather and evaluate. Always allow the applicant to ask the team any questions he/she may have. "Look for" answers, pre-determined by human resources staff and/or the interview team, must be resolved before the interview. The answer(s) are what the team is "looking for" when the applicant is interviewed. Each member of the team would then grade the answer he/she hears on a pre-designed sliding scale.

ii. Do not ask illegal questions. The perception by the candidate could be that he or she was not picked because of the answer of an illegal/personal question.

c. The interview team should meet in advance to determine assignments and to stress that all candidates for the position must be treated equally and asked the same questions, preferably by the same interview team member.

d. Concluding interview activities. After all interviews are completed, interview team members should grade their interview sheets. (These must be kept in the event the district may be challenged about the decision by an unsuccessful applicant at a later date.) Applicants' composite scores should be tallied and recommendations prepared.

4. Recommend hiring
   Applicants for all positions must be screened, and only those applicants that qualify in terms of education, job skills and experience should be recommended for final consideration.
5. Hire
   Hiring an employee is a process with many steps that usually begins with the need to fill an open or new position. Hiring, the final step, should follow a clearly established written procedure, which often must be ratified by the governing authority of the agency involved.