



# **National School Transportation Specifications and Procedures**

**“Addendum to the 2015 Edition”**

*Approved by the 17<sup>th</sup> NCST Steering Committee  
October 28, 2021*

## **INTRODUCTION:**

As a result of the Coronavirus pandemic the 17<sup>th</sup> National Congress on School Transportation has been postponed until May 2025.

**HOWEVER**, by the time the 17<sup>th</sup> NCST Steering Committee made the decision to postpone the 17<sup>th</sup> National Congress on School Transportation the NCST Writing Committees had completed their review, analysis, and final recommendations on all proposed changes to the 17<sup>th</sup> National School Transportation Specifications and Procedures (NSTSP) publication.

At the request of a writing committee chair, the NCST Steering Committee directed the Editing Committee to update ten NSTSP sections. These updates are only (EDITORIAL in nature) legal references, grammatic, spelling, etc. In other words, only non-debatable proposals were reviewed, edited and updated. Below are the titles of the ten updated sections that have been reviewed and approved by the 17<sup>th</sup> NCST Steering Committee.

### **Sections amended include:**

BUS BODY AND CHASSIS SPECIFICATIONS

APPENDIX B: School Bus Body and Chassis Specifications

SCHOOL BUS INSPECTION

OPERATIONS

ACTIVITY BUS OPERATIONS: TRANSPORTATION OTHER THAN TO AND FROM SCHOOL OR HEAD START

TRANSPORTATION FOR INFANTS, TODDLERS AND PRE-SCHOOL CHILDREN

TRANSPORTATION FOR STUDENTS WITH DISABILITIES AND SPECIAL HEALTH CARE NEEDS

SCHOOL TRANSPORTATION SECURITY AND EMERGENCY PREPAREDNESS

APPENDIX H: School Transportation Security and Emergency Preparedness

SPECIALLY EQUIPPED SCHOOL BUS SPECIFICATIONS

ALL 17<sup>TH</sup> NCST WRITING COMMITTEE EDITS TO THE DOCUMENTS ARE SHOWN IN **RED TEXT**

**Note:** Page number may slip as a result of the editing process.

# **BUS BODY AND CHASSIS SPECIFICATIONS**

**WRITING COMMITTEE EDITS IN RED INK BY SECTION LOCATION:**

**TOWING ATTACHMENT POINTS**

## **BUS BODY AND CHASSIS SPECIFICATIONS**

### **AIR CLEANER**

- A. A dry element air cleaner shall be provided.
- B. 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.

### **AISLE**

All emergency exit 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 exit door.

### **AXLES**

The front and rear axle and suspension systems shall have a 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.

### **BACK-UP 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, or shall have a variable volume feature that allows the alarm to vary from 87 dBA to 112 dBA sound level, staying at least 5 dBA above the ambient noise level.

### **BRAKES: GENERAL**

- A. The chassis brake system shall conform to the provisions of FMVSS Nos. 105, Hydraulic and Electric Brake Systems, 106, Brake Hoses, and 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, Hydraulic and Electric Brake Systems or No. 121, Air Brake Systems, 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 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 device located on the instrument panel within reach of a seated 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.

## **BRAKES: HYDRAULIC**

Buses using hydraulic-assist brakes shall meet requirements of FMVSS 105.

## **BRAKES: AIR**

- A. The air pressure supply system shall include a desiccant-type air dryer installed according to the manufacturer’s recommendations. The air pressure storage tank system may incorporate an automatic drain valve.
- B. The chassis manufacturer shall provide an accessory outlet for air-operated systems installed by the body manufacturer. This outlet shall include a pressure protection valve to prevent loss of air pressure in the service brake reservoir.
- C. For air brake systems, an air pressure gauge shall be provided in the instrument panel capable of complying with Commercial Driver’s License (CDL) pre-trip inspection requirements.
- D. Air brake systems shall 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 whenever the air pressure falls below the level where warnings are required under FMVSS No. 121, *Air Brake Systems*.

## **BUMPER: FRONT**

- A. School buses shall be equipped with a front bumper.
- B. The front bumper on buses of Type A-2 (with GVWR greater than 14,500 pounds), Types B, C and D shall be equivalent in strength and durability to pressed steel channel at least  $\frac{3}{16}$  inches thick and not less than 8 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. Type A buses having a GVWR of 14,500 pounds or less may be

equipped with an OEM-supplied front bumper. The front bumper shall be of sufficient strength to permit being pushed by another vehicle on a smooth surface with a 5-degree, (8.7 percent) grade, without permanent distortion. The contact point on the front bumper is intended to be between the frame rails, with as wide a contact area as possible. If the front bumper is used for lifting, the contact points shall be under the bumper attachments to the frame rail brackets unless the manufacturer specifies different lifting points in the owner's manual. Contact and lifting pressures should be applied simultaneously at both lifting points.

- C. The front bumper, except breakaway bumper ends, shall be of sufficient strength to permit pushing a vehicle of equal gross vehicle weight, per Section B (above), without permanent distortion to the bumper, chassis or body.
- D. 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 hooks/eyes. For the purpose of meeting this specification, the bus shall be empty and positioned on a level, hard surface, and both tow hooks/eyes shall share the load equally.

## **BUMPER: REAR**

- A. The bumper on Type A-1 buses shall be a minimum of 8 inches wide (high). Bumpers on Types A-2, B, C and D buses shall be a minimum of 9 ½ inches wide (high). The bumper shall be of sufficient strength to permit being pushed by another vehicle of similar size and being lifted by the bumper without permanent distortion.
- B. The bumper shall wrap around the back corners 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 mounted flush with the sides of the body or protected with an end panel.
- C. The bumper shall be attached to the chassis frame in such a manner that it may be removed. It shall be braced to resist deformation of the bumper resulting from impact from the rear or the side. It shall be designed to discourage hitching of rides by an individual.
- D. The bumper shall extend at least one inch beyond the rear-most part of the body surface, measured at the floor line.
- E. The bottom of the rear bumper shall not be more than 30 inches above ground level.

## **CERTIFICATION**

Upon request of the state agency having student transportation jurisdiction, the chassis and body manufacturer(s) shall certify that its(their) product(s) meets the state's minimum standards on items which are not covered by FMVSS certification requirements of 49 CFR, Part 567: *Certification*.

## **COLOR**

- A. The school bus body shall be painted National School Bus Yellow (NSBY). (See APPENDIX B.)
- B. The body exterior trim, as defined by individual states, shall be black or NSBY.
- C. Except for the vertical portion of the front and rear roof caps, the roof of the bus may be painted white. (See illustration in APPENDIX B, Placement of Retroreflective Markings.)
- D. The chassis and front bumper shall be black. 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.)
- E. Wheels may be silver, gray, white, yellow or black.
- F. Multifunction school activity buses (MFSABs) shall be exempt from these requirements.

## **COMMUNICATIONS SYSTEMS**

(See OPERATIONS section.)

## **CONSTRUCTION**

- A. Side Intrusion Test: The bus body shall be constructed to withstand an intrusion force equal to the curb weight of the vehicle or 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. The complete body structure, or a representative seven-body section mock-up with seats installed, shall be load-tested at a location  $24 \pm 2$  inches above the floor line, with a maximum 10-inch diameter cylinder, 48 inches long, mounted in a horizontal plane.

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. When the minimum load has been applied, the penetration of the loading cylinder into the passenger compartment shall not exceed 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. Body companies shall certify compliance with this intrusion requirement, and include test results, as requested.

- B. Construction shall be reasonably dust-proof and watertight.

## CROSSING CONTROL ARM

- A. School buses may be equipped with a crossing control arm mounted on the right side of the front bumper. When opened, this arm shall extend in a line parallel to the body side and aligned with the right front wheel.
- B. All components of the crossing control arm and all connections shall be weatherproofed.
- C. 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.
- D. The crossing control arm shall be constructed of non-corrodible or nonferrous material or shall be treated in accordance with the body sheet metal specification. (See BUS BODY AND CHASSIS SPECIFICATIONS, Metal Treatment.)
- E. There shall be no sharp edges or projections that could cause injury or be a hazard to students. The end of the arm shall be rounded.
- F. The crossing control arm shall extend a minimum of 70 inches (measured from the bumper at the arm assembly attachment point) when in the extended position. The crossing control arm shall not extend past the end of the bumper when in the stowed position.
- G. The crossing control arm shall extend simultaneously with the stop signal arm(s), activated by stop signal arm controls.
- H. An automatic recycling interrupt switch may be installed for temporarily disabling the crossing control arm.
- I. 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

- A. 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.

**Note:** *The requirements of this standard do not apply to the exterior surfaces of double pane storm windows.*

- B. The defrosting system shall conform to SAE J381, "Windshield Defrosting Systems Test Procedure and Performance Requirements—Trucks, Buses, and Multipurpose Vehicles."

- C. The defroster and defogging system shall be capable of furnishing heated, outside ambient air, except that the part of the system furnishing additional air to the windshield, entrance door and stepwell may be the re-circulating air type.
- D. Auxiliary fans are not considered defrosting or defogging systems.
- E. Portable heaters shall not be used.

## **DOORS**

- A. The entrance door shall be under the driver's control, designed to afford easy release and to 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% grade, both uphill and downhill.
- B. The primary entrance door shall be located on the right side of the bus, opposite and within direct view of the driver.
  - 1. In addition, buses may be equipped with a left side entrance door located immediately behind the driver to be used exclusively for curb side loading/unloading on one-way streets.
  - 2. Buses equipped with a left side entrance door shall have a mirror mounted in the upper right corner of the interior of the bus so as to provide a clear view of the left side entrance door and stepwell.
- C. The entrance door shall have a minimum horizontal opening of 24 inches and a minimum vertical opening of 68 inches.
- D. The entrance door shall be a split-type door and shall open outward.
- E. All entrance door glass shall be approved safety glass. The bottom of each lower glass panel shall be not 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 be not more than 3 inches below the interior door control cover or header pad.
- F. Vertical closing edges on entrance doors shall be equipped with flexible material.
- G. All door openings shall be equipped with padding at the top edge of the opening. Padding shall be at least three inches wide and one inch thick and extend the full width of the door opening.
- H. On power-operated entrance doors, the emergency release valve, switch or device to release the entrance door must be placed above or to the immediate left or immediate right

of the entrance door and must be 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 its whipping through the floor or dropping to the ground, if broken.

## **ELECTRICAL SYSTEM**

### **A. Battery**

1. The storage batteries shall have minimum cold cranking capacity rating (cold cranking amps) equal to the cranking current required for 30 seconds at 0 degrees Fahrenheit 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.
2. 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 or top. 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. Battery cables shall meet SAE requirements. Battery cables shall be of sufficient length to allow the battery tray to fully extend. Any chassis frame-mounted batteries shall be relocated to a battery compartment on Type A buses
3. All batteries are to be secured in a sliding tray except that on 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 agreed upon mutually by the chassis and body manufacturers. However, in all cases the battery cable provided with the chassis shall have sufficient length to allow some slack, and shall be of sufficient gauge to carry the required amperage.
4. 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.

### **B. Alternator**

1. All Type A and Type B buses with a GVWR of 15,000 pounds or less shall have a minimum 130-amp 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.
2. All buses over 15,000 pounds GVWR shall be equipped with a heavy-duty truck-or bus-type alternator having a minimum output rating of 200 amps or higher, and should produce a minimum current output of 50 percent of the rating at engine idle speed.
3. All other buses than those described in B1 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 advances the engine idle speed when the voltage drops to, or below, a pre-set level.
4. A belt-driven alternator shall be capable of handling the rated capacity of the alternator with no detrimental effect on any other driven components. (For estimating required alternator capacity, see School Bus Manufacturers Technical Council's publication, "School Bus Technical Reference," available at <http://www.nasdpts.org>.)
5. A direct/gear-drive alternator is permissible in lieu of a belt-driven alternator.

C. Electrical Components

Materials in all electrical components shall contain no mercury.

D. Wiring, Chassis

1. All wiring shall conform to current applicable recommended practices of the Society of Automotive Engineers (SAE). All wiring shall use color and at least one other method for 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.
2. The chassis manufacturer of an incomplete vehicle shall install a readily accessible terminal strip or connector 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 connector shall contain the following terminals for the body connections:
  - a. Main 100-amp body circuit;
  - b. Tail lamps;
  - c. Right turn signal;

- d. Left turn signal;
  - e. Stop lamps;
  - f. Back-up lamps; and
  - g. Instrument panel lamps (controlled by dimmer switch).
3. An appropriate identifying diagram (color plus a name or number code) for all chassis electrical circuits shall be provided to the body manufacturer for distribution to the end user.
  4. Wiring for the headlamp system must be separate from the electronic controlled body solenoid/module.

E. Wiring, Body

1. All wiring shall conform to current applicable SAE recommended practices.
2. 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.
3. 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.
4. The body power wire shall be attached to a special terminal on the chassis.
5. Each wire passing through metal openings shall be protected by a grommet.
6. Wires not enclosed within the body shall be fastened securely at intervals of not more than 18 inches. All joints shall be soldered or joined by equally effective connectors, which shall be water-resistant and corrosion-resistant.
7. Wiring shall be arranged in circuits, as required, with each circuit protected by a fuse breaker or electronic protection device. 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 shall include any changes to wiring made by the body manufacturer. Chassis wiring diagrams shall be supplied to the end user. The following body interconnecting circuits shall be color-coded, as noted:

<u>FUNCTION</u>	<u>COLOR</u>
Left Rear Directional Lamp	Yellow
Right Rear Directional Lamp	Dark Green

Stop Lamps	Red
Back-up Lamps	Blue
Tail Lamps	Brown
Ground	White
Ignition Feed, Primary Feed	Black

The color of the cables shall correspond to SAE J1128, *Low-Tension Primary Cable*.

8. 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 the entrance door is open;
    - c. Dome lamps;
    - d. Ignition and emergency door signal;
    - e. Turn signal lamps; and
    - f. Alternately flashing signal lamps.
  9. Any of the above combination circuits may be subdivided into additional independent circuits.
  10. Heaters and defrosters shall be wired on an independent circuit.
  11. Whenever possible, all other electrical functions (such as sanders and electric- type windshield wipers) shall be provided with independent and properly protected circuits.
  12. 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.
- F. Buses may be equipped with a 12-volt power port in the driver's area.
  - G. 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.
  - H. The entire electrical system of the body shall be designed for the same voltage as the chassis on which the body is mounted.

## EMERGENCY EQUIPMENT

### A. Fire Extinguisher

1. The bus shall be equipped with at least one UL-approved pressurized, dry chemical fire extinguisher. The extinguisher shall be secured in a mounted 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 shall be easily read without moving the extinguisher from its mounted position.
2. The fire extinguisher shall have a rating of 2-A:10-B:C or greater. The operating mechanism shall be secured with a type of seal that will not interfere with the use of the fire extinguisher.

### B. First Aid Kit

1. 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 mounted and identified as a first aid kit. The location for the first aid kit shall be marked. Contents of the first aid kit shall be in compliance with state standards.
2. Suggested contents include:
  - 2 – 1-inch x 2 ½ yards of adhesive tape rolls
  - 24 – Sterile gauze pads 3x3 inches
  - 100 – ¾ x 3 inches adhesive bandages
  - 8 – 2-inch bandage compress
  - 10 – 3-inch bandage compress
  - 2 – 2-inch x 6 foot sterile gauze roller bandages
  - 2 – Non-sterile triangular bandages, minimum 39x35x54 inches with two safety pins
  - 3 – Sterile gauze pads 36x36 inches
  - 3 – Sterile eye pads
  - 1 – Rounded-end scissors
  - 1 – Pair medical examination gloves
  - 1 – Mouth-to-mouth airway

C. Body Fluid Clean-Up Kit

Each bus shall have a removable and moisture-proof body fluid clean-up kit accessible to the driver. It shall be mounted and identified as a body fluid cleanup kit. Contents of the body fluid clean-up kit shall be in compliance with state standards.

D. Warning Devices

Each school bus shall contain at least three retroreflective triangle road warning devices that meet the requirements of FMVSS No. 125, *Warning Devices*. They shall be mounted in an accessible place.

E. Any piece of 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.

## EMERGENCY EXITS

A. Any installed emergency exit shall comply with the design and performance requirements of FMVSS No. 217, *Bus Emergency Exits and Window Retention and Release*, applicable to that type of exit, regardless of whether or not that exit is required by FMVSS No. 217.

B. Emergency Window Requirements

1. The rear emergency window shall have a lifting assistance device that will aid in lifting and holding the rear emergency window open.
2. 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 a stop arm.

C. Emergency Door Requirements

1. The exposed area of the upper panel of emergency doors shall be a minimum of 400 square inches of approved safety glazing.
2. If installed, all other glass panels on emergency doors shall be approved safety glazing.
3. There shall be no steps leading to an emergency door.
4. There shall be no obstruction higher than  $\frac{1}{4}$  inch across the bottom of any emergency door opening. Fasteners used within the emergency exit opening shall be free of sharp edges or burrs.

- D. Emergency Exit Requirements: The use of the following tables is to determine the required number and types of emergency exits to comply with this specification, based on the bus manufacturer's equipped seating capacity.
1. Use **Table 1** if the bus contains a rear emergency door, or
  2. Use **Table 2** if the bus contains a rear pushout emergency window AND a left side emergency door, as required by FMVSS No. 217 for school buses without a rear emergency door.
  3. When using either Table 1 or Table 2:
    - a. Enter the Table number at the appropriate "CAPACITY" and select the desired row from the options for that capacity.
    - b. A school bus will meet the requirements of this specification and the requirements of FMVSS 217 if it contains the types and quantities of emergency exits listed on the row selected.

<b>TABLE 1</b> BUSES WITH REAR EMERGENCY DOOR (All Front Engine Buses)						<b>TABLE 2</b> BUSES WITH REAR PUSHOUT WINDOW AND LEFT SIDE EMERGENCY DOOR (All Rear Engine Buses)					
Available Combinations By Capacity	Manufacturers Equipped Capacity	Shall Have	And Shall Also Have			Available Combinations By Capacity	Manufacturers Equipped Capacity	Shall Have	And Shall Also Have		
		Roof Hatch	L. Side Emerg. Exit Windows	R. Side Emerg. Exit Windows	L. Side Emerg. Exit Door			Roof Hatch	L. Side Emerg. Exit Windows	R. Side Emerg. Exit Windows	R. Side Emerg. Exit Door
1-45	1-45	1	0	0	0	1-45	1-45	1	0	0	0
46-77	46-77	2	1	1	0	46-89	46-89	2	1	1	0
	46-77	2	0	0	1		46-89	2	0	0	1
78-93	78-93	2	2	2	0	90-105	90-105	2	2	2	0
	78-93	2	1	1	1		90-105	2	1	1	1

## EXHAUST SYSTEM

- A. The exhaust pipe, after-treatment system and tailpipe shall be outside the bus body compartment and shall be attached to the chassis so any other chassis component is not damaged.
- B. 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.

- C. The tailpipe may be flush with, or shall not extend more than two inches beyond, the perimeter of the body for side-exit pipe or the bumper for rear-exit pipe. The exhaust system shall be designed such that exhaust gas will not be trapped under the body of the bus.
- D. 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 or 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 manufacturer's standards. The tailpipe shall not exit beneath any fuel filler location, emergency door or lift door.
- E. The exhaust system shall be insulated in a manner to prevent any damage to any fuel system component.
- F. The design of the after treatment systems shall not allow active (non-manual) regeneration of the particulate filter during the loading and unloading of passengers. Manual regeneration systems will be designed such that unintentional operation will not occur.
- G. For after treatment systems that require Diesel Exhaust Fluid (DEF) to meet federally mandated emissions:
  - 1. The composition of Diesel Exhaust Fluid (DEF) must comply with International Standard ISO 22241-1. Refer to engine manufacturer for any additional DEF requirements.
  - 2. The DEF supply tank shall be sized to meet a minimum ratio of 3 diesel fills to 1 DEF fill.

## **FENDERS: FRONT**

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

## **FIRE SUPPRESSION SYSTEMS (OPTIONAL)**

- A. The chassis manufacturer may provide an automatic fire extinguisher system in the engine compartment.
- B. Fire suppression system nozzles shall be located in the engine compartment, under the bus, in the electrical panel or under the dash, but they shall not be located in the passenger compartment. The system must include a lamp or buzzer to alert the driver that the system has been activated.

## FLOORS

- A. The floor in the under-seat area, including tops of wheel housings, driver's compartment and toeboard, shall be covered with an elastomer floor covering, having a minimum overall thickness of .125 inch and a calculated burn rate of 0.1 mm per minute or less, using the test methods, procedures and formulas listed in FMVSS No. 302, *Flammability of Interior Materials*. The driver's area and toeboard area in all Type-A buses may be manufacturer's standard flooring and floor covering.
- B. The floor covering in the aisles shall be ribbed or other raised pattern elastomer and have a calculated burn rate of 0.1 mm per minute or less using the test methods, procedures and formulas listed in FMVSS No. 302. Minimum overall thickness shall be .187 inch measured from tops of ribs.
- C. The floor covering must be permanently bonded to the 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 shall be sealed with waterproof sealer.
- D. On Types 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

- A. Frame lengths shall be established in accordance with the design criteria for the complete vehicle.
- B. Making 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 the chassis manufacturer.
- C. Frames shall not be modified for the purpose of extending the wheel base.
- D. Any secondary manufacturer that modifies the original chassis frame shall provide a warranty at least equal to the warranty offered by the original equipment manufacturer (OEM), and the secondary manufacturer shall certify that the modification and other parts or equipment affected by the modification shall be free from defects in material and workmanship under normal use and service intended by the OEM.

## FUEL SYSTEM

- A. Fuel tank(s) having a minimum 25-gallon capacity shall be provided by the chassis manufacturer. Each tank shall be filled from and vented to the outside of the passenger compartment, and each fuel filler should be placed in a location where accidental fuel

spillage will not drip or drain on any part of the exhaust system.

- B. The fuel system shall comply with FMVSS No. 301, *Fuel System Integrity*.
- C. 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.
- D. The actual draw capacity of each fuel tank shall be a minimum of 83 percent of the tank capacity.
- E. Installation of alternative fuel systems, including fuel tanks and piping from the tank to the engine, shall comply with all applicable fire codes in effect on the date of manufacture of the bus.
- F. Installation of Liquefied Petroleum Gas (LPG) tanks shall comply with National Fire Protection Association (NFPA) 58, *Liquefied Petroleum Gas Code*.
- G. Installation of Compressed Natural Gas (CNG) containers shall comply with FMVSS No. 304, *Compressed Natural Gas Fuel Container Integrity*.
- H. The CNG Fuel System shall comply with FMVSS No. 303, *Fuel System Integrity of Compressed Natural Gas Vehicles*.

## **GOVERNOR**

An electronic engine speed limiter shall be provided and set to limit engine speed, not to exceed the maximum revolutions per minute, as recommended by the engine manufacturer.

## **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 shall be designed to prevent entanglement, as evidenced by the passing of the NHTSA nut and string test.

## **HEATING SYSTEM, PROVISION FOR**

The engine shall be capable of supplying coolant at a temperature of at least 170 degrees Fahrenheit at the engine coolant thermostat opening. The coolant flow rate shall be 50 pounds per minute at the return end of 30 feet of one inch inside diameter automotive hot water heater hose. (See SBMTC-001, *Standard Code for Testing and Rating Automotive Bus Hot Water Heating and Ventilating Equipment*.)

## **HEATING AND AIR CONDITIONING SYSTEMS**

- A. Heating System

1. The 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 recirculation type.
3. If more than one heater is used, additional heaters may be re-circulating air type.
4. The heating system shall be capable of maintaining bus interior temperatures, as specified in test procedure SAE J2233.
5. Auxiliary fuel-fired heating systems are permitted, provided they comply with the following:
  - a. The auxiliary heating system shall utilize the same type fuel as specified for the vehicle engine;
  - b. The heater(s) may be direct, hot air-type or may be connected to the engine coolant system;
  - c. An auxiliary heating system, when connected to the engine coolant system, may be used to preheat the engine coolant or preheat and add supplementary heat to the 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;
  - e. All combustion heaters shall be in compliance with current Federal Motor Carrier Safety Regulations;
  - f. The auxiliary heating system shall require low voltage.
  - g. Auxiliary heating systems shall comply with FMVSS No. 301, *Fuel System Integrity*, and all other applicable FMVSS, as well as with SAE test procedures.
6. All forced-air heaters installed by body manufacturers shall bear a name plate that indicates the heater rating in accordance with SBMTC-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 J20c, *Coolant System Hoses*. Heater lines, cores, and elements on the interior of the bus shall be shielded to prevent scalding or burning of the driver or passengers.

8. Each hot water system installed by a body manufacturer shall include one shutoff 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 Types 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. On hot water type systems, accessible bleeder valves for removing air from the heater shall be installed in an appropriate place in the return lines of body company-installed heater.
11. Access panels shall be provided to make heater motors, cores, elements and fans readily accessible for service. An exterior access panel to the driver's heater may be provided.

B. Passenger Compartment Air Conditioning (Optional)

The following specifications are applicable to all types of school buses that may be equipped with air conditioning. This section is divided into three parts. Part 1 covers performance specifications, Part 2 covers test conditions and Part 3 covers other requirements applicable to all buses.

1. Performance Specifications

a. Standard Performance

The installed air conditioning system should cool the interior of the bus from 100 degrees to 80 degrees Fahrenheit, measured at three points (minimum) located four feet above the floor on the longitudinal centerline of the bus. The three required points shall be: (1) three feet above the center point of the horizontal driver seat surface, (2) at the longitudinal midpoint of the body, and (3) three feet forward of the rear emergency door or, for Type D rear-engine buses, three feet forward of the end of the aisle. **Note for the Type A vehicles placement of the rear thermocouple should be centered in the bus over the rear axle. The independent temperature reading of each temperature**

*probe inside the bus shall be within a range of  $\pm 3$  degrees Fahrenheit of the average temperature at the conclusion of the test.*

b. High Performance

The installed air conditioning system should cool the interior of the bus from 100 degrees to 70 degrees Fahrenheit, measured at three points (minimum) located four feet above the floor on the longitudinal centerline of the bus. The three required points shall be: (1) three feet above the center point of the horizontal driver seat surface, (2) at the longitudinal midpoint of the body, and (3) three feet forward of the rear emergency door or, for Type D rear-engine buses, three feet forward of the end of the aisle. **Note for the Type A vehicles placement of the rear thermocouple should be centered in the bus over the rear axle. The independent temperature reading of each temperature probe inside the bus shall be within a range of  $\pm 3$  degrees Fahrenheit of the average temperature at the conclusion of the test.**

2. Test Conditions

The test conditions under which the above performance standards must be achieved shall consist of (1) placing the bus in a room (such as a paint booth) where ambient temperature can be maintained at 100 degrees Fahrenheit; (2) heat-soaking the bus at 100 degrees Fahrenheit at a point measured two feet horizontally from the top of the windows on both sides of the bus, with windows open for two hours; and (3) closing windows, turning on the air conditioner with the engine running at  $1250 \pm 50$  RPM, and cooling the interior of the bus to 80 degrees Fahrenheit, (standard performance) or 70 degrees Fahrenheit (high performance), within 30 minutes while maintaining 100 degrees Fahrenheit outside temperature.

The manufacturer shall provide test results that show compliance with standard systems. If the bid specifies, 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.

3. 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 the bus;
- b. Evaporators and ducting systems shall be designed and installed to be free of projections or sharp edges. Ductwork shall be installed so that exposed edges face the front of the bus and do not present sharp edges;

- c. On school buses equipped with Type-2 seatbelts having anchorages above the windows, the ducting (if used) shall be placed at a height sufficient to not obstruct occupant securement anchorages. This clearance shall be provided along the entire length (except at evaporator locations) of the passenger area on both sides of the bus interior;
- d. The body may be equipped with insulation, including sidewalls, roof, firewall, rear, inside body bows and plywood or composite floor insulation to reduce thermal transfer;
- 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;
- g. Roofs may be painted white to aid in heat dissipation (See APPENDIX B); and
- h. 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.
- i. For all buses (except Type D rear engine transit) equipped with a rear evaporator assembly, evaporator shall not encroach upon head impact zone, but may occupy an area of less than 26.5 inches from the rear wall and 14 inches from the ceiling.
- j. For Type D rear engine transit buses equipped with a rear evaporator over the davenport, the evaporator assembly may not interfere with rear exit window and may not extend above the rear seating row.

## **HINGES**

All exterior metal door hinges shall be designed to allow lubrication to be channeled to the center 75% of each hinge loop without disassembly, unless they are constructed of stainless steel, brass or non-metallic hinge pins or other designs that prevent corrosion.

## HORN

The bus shall be equipped with a horn(s) of standard make with the horn(s) 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 J377, *Horn—Forward Warning— Electric—Performance, Test, and Application*.

## IDENTIFICATION

- A. The body shall bear the words “SCHOOL BUS” in black letters at least eight inches high on both front and rear of the 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. MFSABs are exempt from these requirements.
- B. Required lettering and numbering shall include:
  - 1. District, company name or owner of the bus displayed at the beltline.
  - 2. The bus identification number displayed on the sides, on the rear and on the front.
- C. Other lettering, numbering or symbols which may be displayed on the exterior of the bus shall be limited to:
  - 1. Bus identification number, minimum 12-inch high characters, on top of the bus, in addition to required numbering on the sides, rear and front;
  - 2. The location of the battery(ies) identified by the word “BATTERY” or “BATTERIES” on the battery compartment door in two-inch lettering;
  - 3. Symbols or letters not to exceed 64 square inches of total display near the entrance door, displaying information for identification by the students of the bus or route served;
  - 4. Manufacturer, dealer or school identification or logos;
  - 5. Symbols identifying the bus as equipped for or transporting students with special needs as noted in SPECIALLY EQUIPPED SCHOOL BUS SPECIFICATIONS;
  - 6. Lettering on the rear of the bus relating to school bus flashing signal lamps or electronic warning sign;
  - 7. Lettering relating to railroad stop procedures; and
  - 8. 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 the longitudinal centerline from the front vertical bow to the rear vertical bow. Inside body height of Type A-1 buses shall be 62 inches or more. Inside height measurement does not apply to air conditioning equipment.

## INSTRUMENTS AND INSTRUMENT PANEL

A. The chassis shall be equipped with the instruments and gauges listed below:

**Note:** *Telltale warning lamps in lieu of gauges are not acceptable, except as noted.*

1. Speedometer;
2. Odometer that can be read without using a key and that will give accrued mileage (to seven digits), including tenths of miles, unless tenths of miles are registered on a trip odometer;
3. 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.*

4. Voltmeter;

**Note:** *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.*

5. Oil pressure gauge;
6. Water temperature gauge;
7. Fuel gauge;
8. High beam headlamp indicator;
9. Brake air pressure gauge (air brakes), brake indicator lamp (vacuum/hydraulic brakes), or brake indicator lamp (hydraulic/hydraulic);
10. Turn signal indicator; and
11. Glow-plug indicator lamp, where appropriate.

B. All instruments shall be easily accessible for maintenance and repair.

- C. The 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.
- D. Instruments and controls must be illuminated as required by FMVSS No. 101, *Controls and Displays*.
- E. Multi-Function Gauge (MFG)
  - 1. The driver must be able to manually select any displayable function of the gauge on a MFG, whenever desired.
  - 2. Whenever 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. If two or more functions displayed on the MFG go out of limits simultaneously, then the MFG should sequence automatically between those functions continuously until the condition(s) are corrected.
  - 3. The use of a MFG does not relieve the need for audible warning devices, where required.

## **INSULATION (OPTIONAL)**

- A. If thermal insulation is specified, it shall be fire-resistant, UL approved, with minimum R-value of 5.5. Insulation shall be installed so as to prevent sagging.
- B. If floor insulation is required, it shall be five-ply softwood plywood, nominal 5/8-inch thickness and shall be equal to or exceed properties of the exterior-type, C-D Grade, as specified in the standard issued by U.S. Department of Commerce. When plywood is used, all exposed edges shall be sealed. Type A-1 buses may be equipped with nominal 1/2-inch-thick plywood or equivalent material meeting the above requirements.

Equivalent material may be used to replace plywood, provided it has equal or greater insulation R-value, sound abatement, deterioration-resistant and moisture-resistant properties.

## **INTERIOR**

- A. The interior of the bus shall be free of all unnecessary projections, which include luggage racks and attendant handrails, to minimize the potential for injury. This specification requires inner lining on ceilings and walls. If the ceiling is constructed with lap joints, the 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 BUS BODY AND BODY SPECIFICATIONS, Storage Compartment.)

- B. Interior overhead storage compartments may be provided if they meet the following criteria:
  - 1. Head protection requirements of FMVSS No. 222, *School Bus Passenger Seating and Crash Protection*, where applicable;
  - 2. Be completely enclosed and equipped with latching door (both door and latch sufficient to withstand a pushing force of 50 pounds applied at the inside center of the door);
  - 3. Have all corners and edges rounded with a minimum radius of one inch or be padded equivalent to door header padding;
  - 4. Be attached to the bus sufficiently to withstand a force equal to 20 times the maximum rated capacity of the compartment; and
  - 5. Have no protrusions greater than ¼ inch.
- C. The driver's area forward of the foremost padded barriers will permit the mounting of required safety equipment and vehicle operation equipment.
- D. Every school bus shall be constructed so that the noise level at the ear of the occupant nearest to the primary vehicle noise source shall not exceed 85 dBA when tested according to the procedure described in APPENDIX B.

## LAMPS AND SIGNALS

- A. Interior lamps which illuminate the aisle and the stepwell shall be provided. The stepwell lamp shall be illuminated by an entrance door-operated switch, to illuminate only when headlamps and clearance lamps are on and the entrance door is open.
- B. Body instrument panel lamps may be controlled by an independent dimmer switch or may be controlled by the dimmer that operates the gauge lighting.
- C. School bus alternately flashing signal lamps shall be provided, as described by law. MFSABs are exempt from this requirement.
  - 1. The bus shall be equipped with two red lamps at the rear of the vehicle and two red lamps at the front of the vehicle.
  - 2. 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 the same level, but closer to the vertical centerline of the bus. The system of red and amber signal lamps

shall be wired so that amber lamps are energized manually. The red lamps are automatically energized and amber lamps are automatically de-energized when stop signal arms are extended or when the bus entrance door is opened.

The above-mentioned activation sequence can be accomplished with either a “sequential operation” or a “non-sequential operation” warning lamp system. While each of the systems can be configured to include components such as a master switch, amber activation switch, interrupt switch, etc., the presence (or absence) of these components does not affect the classification of the system as either *sequential* or *non-sequential*. Both *sequential* and *non-sequential* systems can be configured with a multitude of switch combinations to provide a unique system meeting specific user requirements. An amber pilot lamp and a red pilot lamp shall be installed adjacent to the driver controls for the flashing signal lamp to indicate to the driver which lamp system is activated.

3. For background color requirements, refer to appropriate state specification requirements.
4. Red lamps shall flash at any time the stop signal arm is extended.
5. All flashers for alternately flashing red and amber signal lamps shall be enclosed in the body in a readily accessible location.

D. Turn signal and stop/tail lamps

1. The bus body shall be equipped with amber rear turn signal lamps that are at least seven inches in diameter or, if a shape other than round, a minimum 38 square inches of illuminated area and shall 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 a vehicular traffic hazard warning. Turn signal lamps are to be placed as wide apart as practical and their horizontal centerline shall be a maximum of 12 inches below the rear window.
2. 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 entrance door.
3. Buses shall be equipped with four combination red stop/tail lamps.
  - a. 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

- b. Two combination lamps with a minimum diameter of four inches, or if a shape other than round, a minimum of 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 against any short circuit or intermittent shorts by a fuse circuit breaker, or electronic protection device.
- F. An optional white flashing strobe lamp may be installed on the roof of a school bus at a location not closer than 12 inches or more than 6 feet from the rear of the roof edge. 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 that equipment. 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 the maximum legal height. A manual switch and a pilot lamp shall be included to indicate when the lamp is in operation. Optionally, the strobe lamp may be wired to activate with the amber alternately flashing signal lamps, continuing through the full loading or unloading cycle, and may be equipped with an override switch to allow activation of the strobe at any time for use in inclement weather.
- G. The bus body shall be equipped with two white rear backup lamps 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.
- H. A daytime running lamps (DRL) system shall be provided.

## **METAL TREATMENT**

- A. All metal except high-grade stainless steel or aluminum used in construction of the bus body shall be zinc-coated or aluminum-coated or treated to prevent corrosion. This includes but is not limited to 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.
- B. All metal parts that will be painted, in addition to the above requirements, shall be chemically cleaned, etched, zinc phosphate-coated and zinc chromate- or epoxy-primed to improve paint adhesion. This includes, but is not limited to, such items as crossing control arm and stop arm.

- C. In providing for these requirements, particular attention shall be given to lapped surfaces, welded connections of structural members, cut edges on punched or drilled hole areas in sheet metal, closed or box sections, unvented or undrained areas and surfaces subjected to abrasion during vehicle operation.
- D. As evidence that the above requirements have been met, samples of materials and sections used in the construction of the bus body shall be subjected to a cyclic corrosion testing as outlined in SAE J1563.

## **MIRRORS**

- A. The interior glass mirror shall be either laminated or tempered and shall have rounded corners and protected edges. Mirrors shall be 6x16 inches minimum for Type A buses and be 6x30 inches minimum for Types C and D buses.
- B. Each school bus shall be equipped with exterior mirrors meeting the requirements of FMVSS No. 111, *Rearview Mirrors*. The right-side rear view mirror shall not be obscured by the unwiped portion of the windshield. Mirrors shall be easily adjustable, but shall be rigidly braced, so as to reduce vibration.
- C. Heated external mirrors may be used.
- D. Remote controlled external rear view mirrors may be used.

## **MOUNTING**

- A. The rear body cross member shall be supported by the chassis frame. Except where chassis components interfere, the bus body shall be attached to the chassis frame at each main floor sill in such a manner as to prevent shifting or separation of the body from the chassis under severe operating conditions.
- B. Isolators shall be installed at all contact points between the body and the chassis frame on Types A-2, B, C and D buses, and shall be secured by a positive means to the chassis frame or body to prevent shifting, separation, or displacement of the isolators under severe operating conditions.

## **OIL FILTER**

An oil filter with a replaceable element shall be provided and connected by flexible oil lines if it is 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 the chassis and the passenger compartment (e.g., for gearshift selector and parking brakes lever) shall be sealed.

## **OVERALL LENGTH**

Overall length of the bus shall not exceed 45 feet, excluding accessories.

## **OVERALL WIDTH**

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

## **PASSENGER LOAD**

- A. Actual gross vehicle weight (GVW) is the sum of the chassis weight plus the body weight, plus the driver's weight, plus total seated student weight. For purposes of calculation, the driver's weight is 150 pounds and the student weight is 120 pounds per student.
- B. Actual GVW shall not exceed the chassis manufacturer's GVWR for the chassis, nor shall the actual weight carried on any axle exceed the chassis manufacturer's Gross Axle Weight Rating (GAWR).

## **PUBLIC ADDRESS SYSTEM**

- A. Buses may be equipped with an am/fm/audio and/or public address system having interior and exterior speakers.
- B. No internal speakers, other than the driver's communication systems, 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 limit the speed of a fully loaded school bus to 19.0 mph on a 7% grade for 3.6 miles.

## **RETROREFLECTIVE MATERIAL**

(See also APPENDICES A and B, Retroreflective Sheeting.)

- A. The front and/or rear bumper may be marked diagonally 45 degrees down toward the centerline of the pavement with two  $\pm \frac{1}{4}$  inch-wide strips of non-contrasting retroreflective material.
- B. The rear of the bus body shall be marked with strips of retroreflective NSBY material to outline the perimeter of the back of the bus using material which conforms with the

requirements of FMVSS No. 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 retroreflective "SCHOOL BUS" signs partially accomplish the objective of this requirement. To complete the perimeter marking of the back of the bus, strips of retroreflective NSBY material, a minimum of 1 inch and a maximum of 2 inches 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. Multifunction school activity buses (MFSABs) shall be exempt from these color requirements.

- C. "SCHOOL BUS" signs, if not a lighted design, shall be marked with retroreflective NSBY material comprising background for lettering of the front and/or rear "SCHOOL BUS" signs.
- D. Sides of the bus body shall be marked with at least 1 ¾ inch retroreflective NSBY material, extending the length of the bus body and located (vertically) between the floor line and the beltline.
- E. If used, signs placed on the rear of the bus relating to school bus flashing signal lamps or railroad stop procedures may be retroreflective material, as specified by each state.

## **ROAD SPEED CONTROL**

When it is desired to accurately control vehicle maximum speed, a vehicle speed limiter may be utilized.

## **RUB RAILS**

- A. There shall be one rub rail on each side of the bus located at, or no more than eight inches above, the seat cushion level. The rub rail shall extend from the rear side of the entrance door completely around the bus body (except at the emergency door or any maintenance access door) to the point of curvature near the outside cowl on the left side.
- B. There shall be one additional rub rail on each side located 10 inches or less above the floor line. The rub rail shall cover the same longitudinal span as the upper rub rail, except at the wheel housing, and it shall extend only to the longitudinal tangent of the right and left rear corners.
- C. Rub rails above the floor line shall be attached at each body post and at all other upright structural members.
- D. Each rub rail shall be four inches or more in width in its finished form and shall be constructed of 16-gauge metal or other material of equivalent strength that is suitable to help protect body side panels from damage. Rub rails shall be constructed in corrugated or ribbed fashion.

- E. Rub rails shall be applied outside the body or outside the body posts. (Pressed-in or snap-on rub rails do not satisfy this requirement.) For Type A-1 vehicles using the body provided by the chassis manufacturer or for Types A-2, B, C and D buses containing the rear luggage or the rear engine compartment, rub rails need not extend around the rear corners.
- F. The bottom edge of the body side skirts shall be stiffened by application of a rub rail, or the edge may be stiffened by providing a flange or other stiffeners.

## **SEATS AND RESTRAINING BARRIERS**

- A. 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. All seats shall have a minimum cushion depth of 15 inches, a seat back height of 24 inches above the seating reference point and must comply with all other requirements of FMVSS No. 222.
  - 3. All restraining barriers and passenger seats shall be constructed with materials that enable them to meet the criteria of the *School Bus Seat Upholstery Fire Block Test*.
  - 4. 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 two or more bolts, washers and nuts, or with flange-head nuts. Seats may be track-mounted in conformance with FMVSS No. 222.
  - 5. 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.
  - 6. All school buses (including Type A) shall be equipped with restraining barriers which conform to FMVSS No. 222.
  - 7. A flip-up seat may be installed at any side emergency door. If provided, the flip-up seat shall conform to FMVSS No. 222 and aisle clearance requirements of FMVSS No. 217, *Bus Emergency Exits and Window Retention and Release*. The flip-up 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 clothing being snagged. Flip-up seats shall be constructed to prevent passenger limbs from becoming entrapped between the seat back and the seat cushion when the seat

is in the upright position. The seat cushion shall be designed to rise to a vertical position automatically when it is not occupied.

8. 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*.

B. 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 NHTSA's "Guideline for the Safe Transportation of Pre-school Age Children in School Buses."

**Note:** See A.8, above.

C. Driver Seat

1. 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*.
2. Type A buses may utilize the standard driver's seat provided by the chassis manufacturer.

D. 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 to 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 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 for the continuous belt system. On all buses except Type A that are equipped with a standard chassis manufacturer's driver's seat, the lap portion of the belt system 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 to effectively protect drivers varying in size from 5th percentile adult female to 95th percentile adult male. The belt may be of a high visibility contrasting color.

- E. 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 webbing cutter shall be mounted in a location accessible to the seated driver in an easily detachable manner.

## **SHOCK ABSORBERS**

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

## **SIDE SKIRTS**

School bus body side skirts between the front and rear axles shall extend down to within two 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**

- A. 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.
- B. If external adjustments are required, the steering mechanism shall be accessible to for adjustments to be made.
- C. Changes shall not be made to the steering apparatus which are not approved by the chassis manufacturer.
- D. There shall be a clearance of at least two inches between the steering wheel and cowl, instrument panel, windshield or any other surface.
- E. Power steering is required and shall be of the integral type with integral valves.
- F. The steering system shall be designed to provide a means for lubrication of all wear-points that are not permanently lubricated.

## **STEPS**

- A. The first step at the entrance 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. 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.
- B. Step risers shall not exceed a height of 10 inches.

**Note:** When plywood is used on a steel floor or step, the riser height may be increased by the thickness of the plywood.

- C. Steps shall be enclosed to prevent accumulation of ice and snow.
- D. Steps shall not protrude beyond the side body line.

## STEP TREADS

- A. All steps, including the floor line platform area, shall be covered with an elastomer floor covering having a minimum overall thickness of 0.187 inch.
- B. The step covering shall be permanently bonded to a durable backing material that is resistant to corrosion.
- C. Steps, including the floor line platform area, shall have a 1½-inch nosing that contrasts in color by at least 70 percent measured in accordance with the contrasting color specification in 36 CFR, Part 1192, ADA, *Accessibility Guidelines for Transportation Vehicles*.
- D. Step treads shall have the following characteristics:
  - 1. Abrasion resistance: Step tread material weight loss shall not exceed 0.40 percent, as tested under ASTM D-4060, *Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser*, (CS-17 Wheel, 1000 gram, 1000 cycle).
  - 2. Weathering resistance: Step treads shall not break, crack, or check after ozone exposure (seven days at 50 pphm at 40 degrees C) and Weatherometer exposure (ASTM D-750, *Standard Test Method for Rubber Deterioration in Carbon-Arc Weathering Apparatus*, seven days).
  - 3. 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*.

**Note:** A spray on application type material may be used in lieu of item A. that meets the requirements of items B. through D. The material shall be applied not only to the interior surfaces of the service door step treads, but also to the exterior, if not covered by undercoating.

## STIRRUP STEPS

If the windshield and lamps are not easily accessible from the ground, there may be at least one folding stirrup step or recessed foothold installed on each side of the front of the body for easy accessibility for cleaning. There also may be a grab handle installed in conjunction with the step. 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**

The stop signal arm(s) shall comply with the requirements of FMVSS No. 131, *School Bus Pedestrian Safety Devices*. MFSABs are exempt from these requirements.

## **STORAGE COMPARTMENT (OPTIONAL)**

A storage container for tools, tire chains and/or other equipment may be located either inside or outside the passenger compartment. If inside, it shall be fastened to the floor and have a cover with a positive fastening device.

## **SUN SHIELD**

- A. On Types B, C and D vehicles, an interior adjustable transparent sun shield, with a finished edge and dimensions not less than 6x30 inches, shall be installed in a position convenient for use by the driver.
- B. On Type A buses, the sun shield (visor) shall be installed by the chassis manufacturer.

## **SUSPENSION SYSTEMS**

- A. The capacity of springs or suspension assemblies shall be commensurate with the chassis manufacturer's GVWR.
- B. 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**

- A. Rims and tires of the proper size and load rating commensurate with the chassis manufacturer's GVWR 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.
- B. Dual rear tires shall be provided on Type A-2, Type B, Type C and Type D school buses.
- C. 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.*

- D. If the vehicle is equipped with a spare tire and rim assembly, it shall be the same size as those mounted on the vehicle.
- E. If a tire carrier is required, it shall be suitably mounted in an accessible location outside of the passenger compartment.

## **TOWING ATTACHMENT POINTS**

Front **and** 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.

- A. Towing devices shall be attached to the chassis frame either by the chassis manufacturer or in accordance with the chassis manufacturer’s specifications.
- B. Each towing device shall have a strength rating of 13,500 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 tow hooks will decrease the capacities of the tow hooks.
- C. The towing devices shall be mounted such that they do not project forward of the front bumper or rearward of the rear bumper.

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

## **TRACTION ASSISTING DEVICES (OPTIONAL)**

- A. Where required or used, sanders shall:
  - 1. Hopper cartridge-valve type;
  - 2. Have a metal hopper with all interior surfaces treated to prevent condensation of moisture;
  - 3. Have at least 100 pounds (grit) capacity;
  - 4. Have a cover that screws in place on the filler opening of the hopper, thereby sealing the unit airtight;
  - 5. Have discharge tubes extending under the fender wheelhousing to the front of each rear wheel;

6. Have non-clogging discharge tubes with slush-proof, non-freezing rubber nozzles;
  7. Be operated by an electric switch with a pilot lamp mounted on the instrument panel located so as to be exclusively controlled by the driver;
  8. Be equipped with a gauge to indicate that the hopper has reached the one-quarter level (and needs to be refilled); and
  9. Be designed to prevent freezing of all activation components and moving parts.
- B. Automatic traction chains may be installed.

## **TRANSMISSION**

- A. Automatic transmissions shall have no fewer than three forward speeds and one reverse speed. Mechanical shift selectors shall provide a detent between each gear position when the gear selector quadrant and shift selector are not steering-column mounted.
- B. 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 (OPTIONAL)**

When 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. It shall be installed in an accessible location in the driver's compartment, not obstructing passenger access to the entrance door.

## **TURNING RADIUS**

- A. A chassis with a wheelbase of 264 inches or less shall have a right and left turning radius of not more than 42 ½ feet, curb-to-curb measurement.
- B. A chassis with a wheelbase of 265 inches or more shall have a right and left turning radius of not more than 44 ½ feet, curb-to-curb measurement.

## **UNDERCOATING**

- A. The entire underside of the bus body, including floor sections, cross member and below floor-line side panels, shall be coated with rust-proofing material for which the material manufacturer has issued to the bus body manufacturer a notarized certification to the bus body manufacturer that materials meet or exceed all performance requirements of SAE J1959, Sept. 2003 Edition of the Standard.
- B. The 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 the cured film.

- C. The undercoating material shall not cover any exhaust components of the chassis.

## **VENTILATION**

- A. Auxiliary Fan(s) shall meet the following requirements:
  - B. Fan(s) shall be placed in a location where they can be adjusted for maximum effectiveness and where they do not obstruct the driver's vision to the mirrors or interfere with the safe operation of the vehicle.
    - 1. Fans shall have six-inch (nominal) diameter.
    - 2. Fan blades shall be enclosed in a protective cage. Each fan shall be controlled by a separate switch.
  - C. The bus body shall be equipped with a suitably controlled ventilating system with capacity sufficient to maintain the proper quantity of air flow under operating conditions without having to open a window except in extremely warm weather.
  - D. Static-type, non-closeable exhaust ventilation shall be installed in a low-pressure area of the roof.
  - E. Roof hatches designed to provide ventilation in all types of exterior weather conditions may be provided.

## **WHEEL HOUSING**

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

## **WINDOWS**

- A. Other than emergency exits designated to comply with FMVSS No. 217, *Bus Emergency Exits and Window Retention and Release*, each side window shall provide an unobstructed opening

of at least nine inches high (but not more than 13 inches high) and at least 22 inches wide, obtained by lowering the window. One window on each side of the bus may be less than 22 inches wide.

- B. Optional tinted and/or frost-free glazing may be installed in all doors or windows.
- C. Windshields shall comply with federal, state and local regulations.

## **WINDSHIELD WASHERS**

A windshield washer system shall be provided.

## **WINDSHIELD WIPERS**

- A. A two-speed or variable speed windshield wiping system, with an intermittent feature, shall be provided and shall be operated by a single switch.
- B. The wipers shall meet the requirements of FMVSS No. 104, *Windshield Wiping and Washing Systems*.

**APPENDIX B:  
School Bus  
Body and  
Chassis  
Specifications**

**WRITING COMMITTEE EDITS IN RED INK BY SECTION LOCATION:**

**BUS BODY HEATING SYSTEM TEST**

## **APPENDIX B: SCHOOL BUS BODY AND CHASSIS SPECIFICATIONS**

### **NATIONAL SCHOOL BUS YELLOW STANDARD**

The color known as “National School Bus Yellow (NSBY)” is specified below.

**School Bus Manufacturer’s Technical Council (SBMTC)**

**National School Bus Yellow Color Standard SBMTC-008** (Source Document)

#### **S1: SCOPE**

This standard defines the color for a newly manufactured school bus having “National School Bus Yellow” by fundamental colorimetric data.

#### **S2: PURPOSE**

This standard is intended for use by manufacturers of school bus type vehicle body and chassis for purposes of procurement, and inspection.

#### **S3: APPLICATION**

This standard applies to school buses.

#### **S4: COLOR DEFINITION**

The color “National School Bus Yellow” is defined as:

“The color resulting from the colorimetric tri-stimulus data shown below.”

**COLORIMETRIC (CIE) DATA, C/10°**

DESCRIPTION	REFLECTANCE	CHROMATICITY	
	Y	x	y
Centroid	40.2%	.4882	.4205
Light Limit	41.8%	.4882	.4198
Dark Limit	38.5%	.4902	.4206
Green Limit	40.6%	.4844	.4217
Red Limit	40.3%	.4907	.4174
Yellow Limit	40.6%	.4901	.4225
Blue Limit	40.2%	.4828	.4162

**S5: REQUIREMENTS**

The color “National School Bus Yellow” shall conform to the tolerance limits set in S4.

**S6: COLOR MATCHING**

The colorimetric data should be used for acceptance testing purposes. However, accurate comparison can be made only if values are obtained on the same instrument standardized under the same conditions.

Because this standard is not intended to be a performance standard for the paint and/or materials used in the manufacture of the school buses, color matching procedures provided in this standard cannot be used to determine conformity with this standard of school bus type vehicles in use.

# BUS BODY HEATING SYSTEM TEST

## 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. Defrosting and defogging procedures and requirements are established by SAE J381, *Windshield Defrosting Systems Test Procedure and Performance Requirements—Trucks, Buses, and Multipurpose Vehicles*, which **document herein is included by reference**.

**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.

## Definitions

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 a simulation of this structure must be included as part of the system.
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.
3. **Heat Exchanger-Defroster Blower** - An air moving device(s) compatible with energies available on the bus body.
4. **Coolant** - A 50-50 solution of commercially available glycol antifreeze and commercial purity water. Commercial purity water is defined as "that water obtained from a municipal water supply system."
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.
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.

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.

## Equipment

1. **Test Site** - A suitable location capable of maintaining an average ambient temperature not to exceed 25°F (-3.9°C) for the duration of the test period. The maximum air velocity across the vehicle shall be 5 mph (8 kph).
2. **Coolant Supply** - A closed loop system, independent of any engine/drive train system, capable of delivering a 50-50 (by volume) solution of antifreeze-water, as defined in 2.4, at  $150^{\circ}\pm 5^{\circ}$  ( $65.5^{\circ}\pm 1.7^{\circ}$ C) 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. **Power Equipment Supply** - A source capable of providing the required test voltage and current for the heater system.
4. **Heat Exchange Units** - The heat exchangers used shall be labeled as specified by the School Bus Manufacturers Technical Council Standard No. 001, *Procedure for Testing and Rating Automotive Bus Hot Water and Heating and Ventilating Equipment* (Revised 4/94). The test rating of each unit, and quantity used, shall be recorded.

## Instrumentation

1. **Air Temperature**
  - a. **Interior** - Recommended air temperature measuring instrumentation are thermocouples or resistance temperature detectors (RTDs). Thermometers are not recommended because of their slow response to rapid temperature changes. Measuring instrumentation shall be placed on alternate seat rows beginning  $39\pm 5$  inches ( $99\pm 13$  cm) from the rear of the body, at  $36\pm 2$  inches ( $91\pm 5$  cm) from the finished floor of the body, and on the longitudinal centerline of the body.
  - b. **Ambient** - A set of four electrically averaged temperature measuring devices shall be placed  $18\pm 5$  inches ( $46\pm 13$  cm) from the nearest body

surface,  $96\pm 5$  inches ( $243\pm 13$  cm) above the floor of test site. One measuring device shall be placed at each of the following locations:

- I Midline of body forward of windshield;
- II Midline of body aft of the rear surface; and
- III Midway between the axles on the right and left sides of the body.

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

I Ankle Level - Place a minimum of four electrically averaged temperature measuring devices at the corners of a 10 x 10 inches (25x25cm) square area, the rearmost 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  $3\pm 0.5$  inches ( $7.5\pm 1.3$  cm) above floor surface.

II 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  $4\pm 1$  inches ( $10\pm 2.5$  cm) forward of the extreme front edge of the seat cushion and parallel to the floor.

III Breath Level - Place a minimum of one measuring device  $42\pm 2$  inches ( $107\pm 5$  cm) above the floor and  $10\pm 2$  inches ( $25\pm 5$  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.

d. **(Optional) Heat Exchanger Inlet and Outlet Temperature** - A minimum of four electrically averaged temperature measuring devices shall be used to measure the inlet air temperature of each heat exchange unit. Additionally, a minimum of four 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)  $1.0\pm 0.25$  inches ( $2.5\pm 0.6$  cm) from the outlet aperture(s) of the unit heater.

- e. **(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 1.0 inch (2.54 cm) below (upstream of) 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.
  - f. **(Optional) Entrance Area Temperature** - The temperature of the vehicle entrance area shall be measured by two sets of three each electrically averaged temperature measuring devices. One set of three devices shall be placed 1.0 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, 4.0 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.
- 2. **Coolant Temperature** - The temperature entering and leaving the heat exchanger/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  $\pm 0.5^{\circ}\text{F}$  ( $\pm 0.3^{\circ}\text{C}$ ).
  - 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% of setpoint.
  - 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  $\pm 0.1$  psi (689.5 Pa), accurate to  $\pm 0.5\%$  of full scale.
  - 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  $\pm 1\%$  of the reading.

## Test Procedures

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 (stopwatch);
  - 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).
2. 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,  $\pm 5^{\circ}\text{F}$  ( $\pm 2.5^{\circ}\text{C}$ ), not to exceed  $25^{\circ}\text{F}$  ( $-3.9^{\circ}\text{C}$ ). 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.
3. At this time, set the heater controls and all fan controls at maximum, and close all doors. A maximum of two windows may be left open a total of 1.0 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 1 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  $\pm 0.2$  volts, for example: 13.8 VDC  $\pm 0.2$  volts for a 12- volt (DC) system, and the heat exchanger system shall be wired with the normal vehicle wiring.

4. *Optional:* Additional flow rates and/or coolant temperatures may also be used to generate supplementary data. Procedure shall be repeated (see 5. Test Procedure) for each additional flow rate and/or coolant temperature.

## Computations

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°F 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°F (i.e., actual ambient of 18°F shall result in a reduction of all air temperatures by 18°F and actual ambient temperature of -8°F shall result in an increase of all air temperatures by 8°F). 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 °F 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.

### a. **Optional Computations BTU/Hr. Coolant**

Heat Transfer:  $Q_w = CpWw(T_{in} - T_{out}) \times 60$  where:

- I  $W_w$  = Flow of Coolant (lb/min) — *measured to  $\pm 2$  percent*
- II  $T_{in}$  = Temperature of Coolant into System (°F) — *measured quantity*
- III  $T_{out}$  = Temperature of Coolant out of System (°F) — *measured quantity*
- IV  $Q_w$  = Heat removed from Coolant (Btu/hr) — *calculated quantity*
- V  $C_p$  = Specific Heat of Coolant = 0.8515 (BTU/lb/°F) — *given quantity*

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°C 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°C (i.e., actual ambient of -7.8°C shall result in a reduction of all air temperatures by 10.2°C and actual ambient temperature of -22.2°C shall result in an increase of all air temperatures by 4.2°C). 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 °C 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.

**a. Optional Computations BTU/Hr – Coolant**

Heat Transfer:  $Q_w = C_p W_w (T_{in} - T_{out}) \times 60$  where:

- I  $W_w$  = Flow of Coolant (kg/min) — *measured to ± 2 percent*
- II  $T_{in}$  = Temperature of Coolant into System (°C) — *measured quantity*
- III  $T_{out}$  = Temperature of Coolant out of System (°C) — *measured quantity*
- IV  $Q_w$  = Heat removed from Coolant (Joules/hr) — *calculated quantity*
- V  $C_p$  = Specific Heat of Coolant = 3559 (joule/kg/°C) — *given quantity*

**Chart 6.1**

Description of Unit: \_\_\_\_\_

Purpose of Test: \_\_\_\_\_

<b>Date:</b>	<b>Location:</b>					<b>Observers:</b>							
<b>Readings/Calculations Water</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>35</b>	<b>40</b>	<b>45</b>	<b>50</b>	<b>55</b>	<b>60</b>
Flow - lb/min													
Flow Pressure - PSID													
T-in °F													
T-out °F													
Air Temperature													
T1 rear - °F													
T2 - °F													
T3 - °F													
T4 - °F													
T5 - °F													
T6 front - °F													
T7 ambient - °F													
T8 Driver Ankle - °F													
T9 Driver Knee - °F													
T10 Driver Breath - °F													
Electrical System													
Volts													

COMPUTATIONAL CHART 6.1 (Fahrenheit)

**Chart 6.1 Optional Measurements**

Date:	Location:					Observers:							
Readings/Calculations	0	5	10	15	20	25	30	35	40	45	50	55	60
T11 Windshield CL Left °F													
T12 Windshield CL Right °F													
T13 Defrost Outlet Left °F													
T14 Defrost Outlet Right °F													
T15 Heater-Inlet °F													
T15 Heater-Outlet °F													
T16 Heater-Inlet °F													
T16 Heater-Outlet °F													
T17 Heater-Inlet °F													
T17 Heater-Outlet °F													
T18 Heater-Inlet °F													
T18 Heater-Outlet °F													
T19 - 1st Entrance Step													
T20 - 2nd Entrance Step													
Heat Transfer - BTU/Hr-coolant													

COMPUTATIONAL CHART 6.1-Optional

**Chart 6.2**

Description of Unit: \_\_\_\_\_

Purpose of Test: \_\_\_\_\_

Date:	Location:						Observers:						
	0	5	10	15	20	25	30	35	40	45	50	55	60
Readings/Calculations Water													
Flow - kg/min													
Flow Pressure - PaD													
T-in °C													
T-out °C													
Air Temperature													
T1 rear - °C													
T2 - °C													
T3 - °C													
T4 - °C													
T5 - °C													
T6 front - °C													
T7 ambient - °C													
T8 Driver Ankle - °C													
T9 Driver Knee - °C													
T10 Driver Breath - °C													
Electrical System													
Volts													

COMPUTATIONAL CHART 6.2 (Celsius)

**Chart 6.2 Optional Measurements**

**Date:**

**Location:**

**Observers:**

<b>Readings/Calculations</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>35</b>	<b>40</b>	<b>45</b>	<b>50</b>	<b>55</b>	<b>60</b>
T11 Windshield CL Left °C													
T12 Windshield CL Right °C													
T13 Defrost Outlet Left °C													
T14 Defrost Outlet Right °C													
T15 Heater-Inlet °C													
T15 Heater-Outlet °C													
T16 Heater-Inlet °C													
T16 Heater-Outlet °C													
T17 Heater-Inlet °C													
T17 Heater-Outlet °C													
T18 Heater-Inlet °C													
T18 Heater-Outlet °C													
T19 - 1st Entrance Step													
T20 - 2nd Entrance Step													
Heat Transfer - J/Hr-coolant													

COMPUTATIONAL CHART 6.2 - Optional (Celsius)

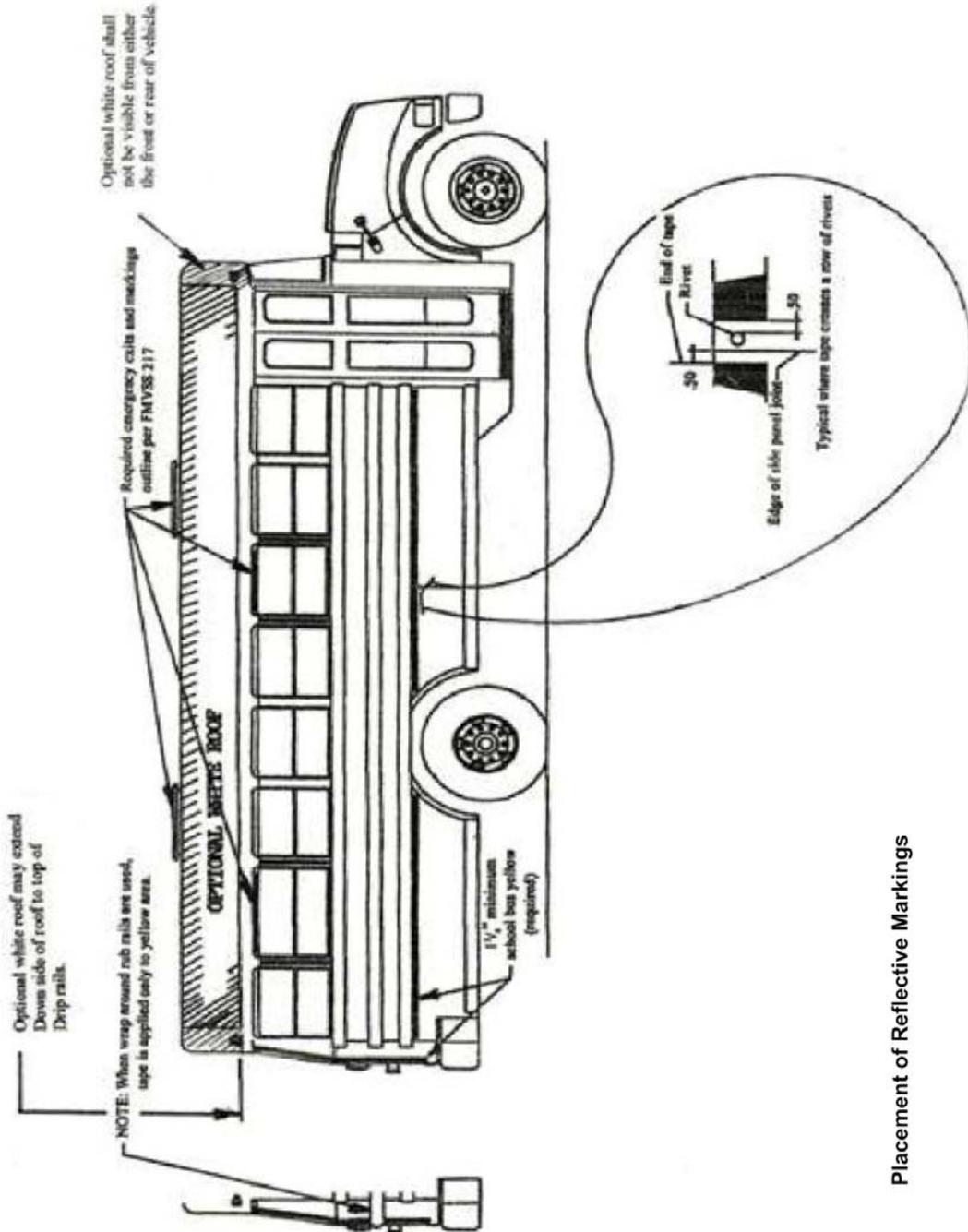
## RETROREFLECTIVE SHEETING DAYTIME COLOR SPECIFICATION

The daytime color of the RETROREFLECTIVE sheeting used to enhance school bus safety requires different color tolerances in order to assure optimum safety benefit, as well as to be consistent with the color of the school bus. The color of the RETROREFLECTIVE sheeting shall conform to the table below when samples applied to aluminum test panels are measured as specified in ASTM E1164. For colorimetric measurements, material is illuminated by Standard Illuminant D65 at an angle of 45 degrees with the normal to the surface the observations are made in the direction of the normal (45/0 degree geometry). The inverse (0/45 degree geometry) with the illuminant at the normal to the surface and the observations at 45 degrees with the normal to the surface may also be used. For materials which are directionally sensitive (e.g., prismatic sheeting), the colorimetric measurements are made using circumferential illumination and viewing and the various measurements are averaged. Calculations shall be done in accordance with ASTM E308 using the CIE 1931 (2 degree) Standard Observer.

Retroreflective Sheeting Daytime Color Chromaticity Coordinates  
of Corner Points Determining the Permitted Color Area

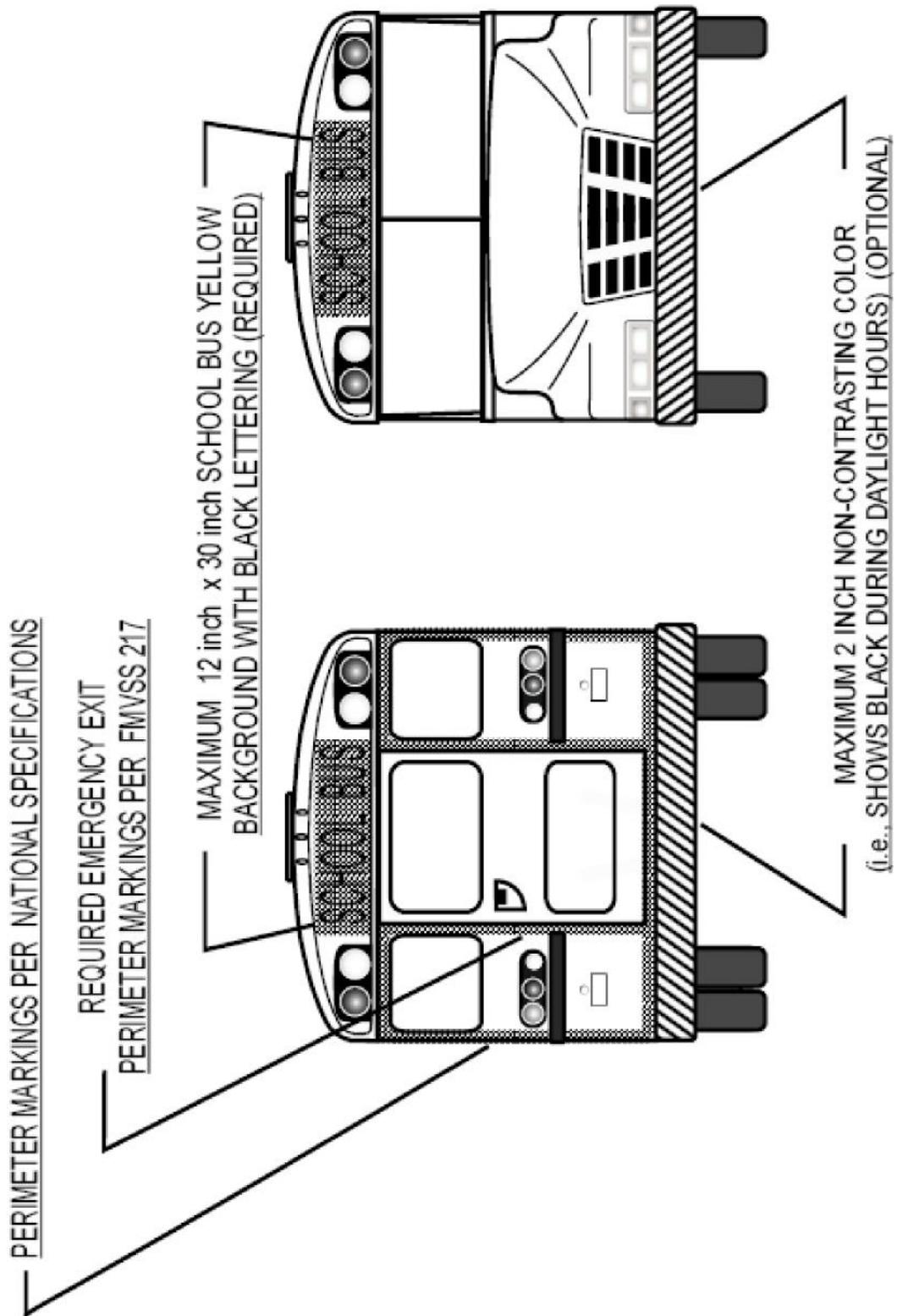
	1	2	3	4
Yellow X	0.484	0.513	0.517	0.544
Y	0.455	0.426	0.482	0.455
Luminance Factor (Y%)			Minimum	10.0
			Maximum	36.0

# PLACEMENT OF REFLECTIVE MARKINGS AND WHITE ROOF



Placement of Reflective Markings

PLACEMENT OF RETROREFLECTIVE MARKINGS



## NOISE TEST PROCEDURE

- A. The vehicle is located so that no other vehicle or signboard, building, hill or other large reflecting surface is within 15.2 m (50 feet) of the occupant's seating position.
- B. All vehicle doors, windows and ventilators are closed.
- C. All power-operated accessories are turned off.
- D. The driver is in the normal seated driving position and the person conducting the test is the only other person in the vehicle.
- E. A sound level meter is used that is set at the "A-weighting fast" meter response and meets the requirements of:
  1. The American National Standards Institute, Standard ANSI S1.4-1971: *Specifications for Sound Level Meters*, for Type 1 Meters; or
  2. The International Electrotechnical Commission (IEC), Publication No. 179 (1973): *Precision Sound Level Meters*.
- F. The microphone is located so that it points vertically upward six inches to the right and directly in line with, and on the same plane as, the occupant's ear, adjacent to the primary noise source.
- G. If the motor vehicle's engine radiator fan drive is equipped with a clutch or similar device that automatically either reduces the rotational speed of the fan or completely disengages the fan from its power source in response to reduced engine cooling loads, the vehicle may be parked before testing with its engine running at high idle or any other speed the operator chooses for sufficient time, but not more than 10 minutes, to permit the engine radiator fan to automatically disengage.
- H. With the vehicle's transmission in neutral gear, the engine is accelerated to:
  1. Its maximum governed speed, if it is equipped with an engine governor; or
  2. Its speed at its maximum rated horsepower, if it is not equipped with an engine governor, and the engine is stabilized at that speed.
- I. The A-weighted sound level reading on the sound level meter for the stabilized engine speed condition referred to in H.1. or H.2., above, is observed and, if it has not been influenced by extraneous noise sources, is recorded.
- J. The vehicle's engine speed is returned to idle and the procedures set out in paragraphs H. and I. are repeated until two maximum sound levels within two dBA of

each other are recorded. The two maximum sound level readings are then averaged; and

- K. The average obtained in accordance with paragraph J., with a value of two dBA subtracted there from to allow for variations in the test conditions and in the capabilities of meters, is the vehicle's interior sound level at the driver's seating position for the purposes of determining compliance with the requirements of this test procedure.

## SCHOOL BUS SEAT UPHOLSTERY FIRE BLOCK TEST

### A. Test Chamber

#### Cross Section

The suggested test chamber is the same cross section as the bus body in which seats are used with the rear section on each end. If a bus section is not used, the cross section is to be 91±1 inch in width x 75 inches ±3 inches in height. There shall be a door, which does not provide ventilation, in the center of each end of the test chamber. The doors shall be 38±3 inches in width and 53±3 inches in height and include a latch to keep the doors closed during the test. (See Figure 1.)

#### Length

The length of the test chamber shall allow three rows of seats at the minimum spacing recommended by the installer. (See Figure 1, Detail A.)

In order that different types of seats may be tested in the same chamber, a length tolerance of plus 45 inches is allowed.

#### Ventilation

One ventilation opening shall be in each end of the test chamber and shall be 325 square inches ±25 square inches. The bottom of the opening shall be 30 inches ±3 inches above the chamber floor. Ventilation openings shall be on the same side of the test chamber. (See Figure 1.)

There shall be no ventilation openings along the length of the test chamber. A forced-air ventilation system may not be used.

Baffles shall be used to prevent wind from blowing directly into the ventilation openings.

#### Camera View Area

An opening covered with glass shall be provided at the midpoint of the test chamber length for camera viewing. The opening shall allow the camera to view the seat parallel to the seat width. (See Figure 1.)

### B. Test Sample

The sample shall be a fully-assembled seat.

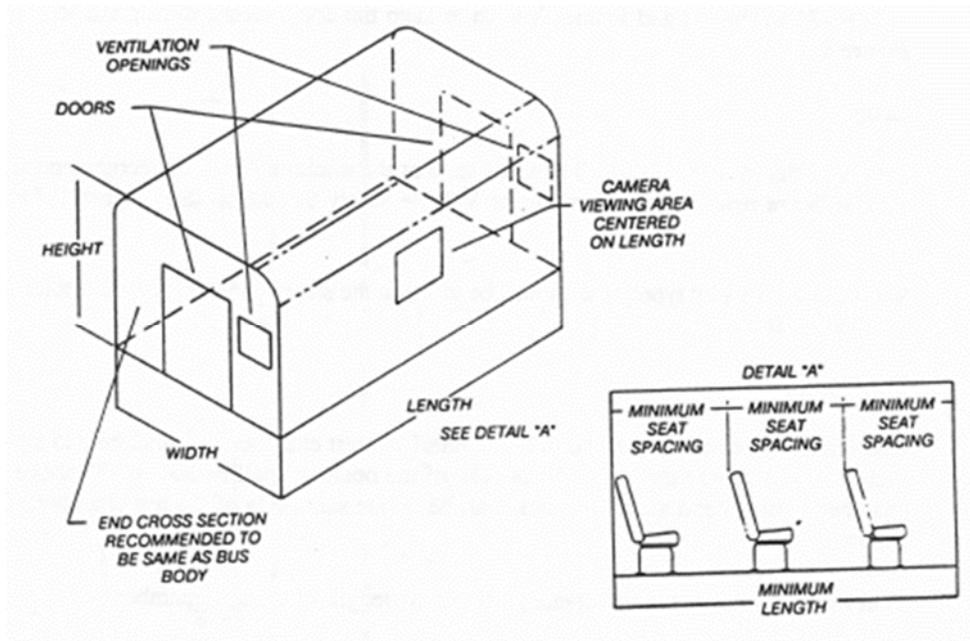
Record the weight of all padding and upholstery prior to assembly. Record the weight of the fully-assembled seat.

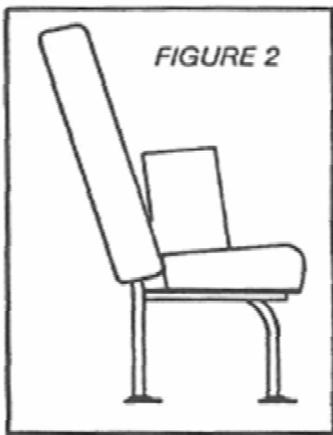
C. **Ignition Source**

A paper grocery bag with dimensions of approximately 7x11x18 inches is used to contain double sheets of newsprint (black print only, approximately 22x28inches). The total combined weight of bag and newspaper shall be seven ounces  $\pm$ 0.5 ounces. After the newspaper is added to the paper bag, the two corners of the bag opening at each end of the 7" dimension may be stapled together using a single staple for newspaper retention if desired.

D. **Test Procedure**

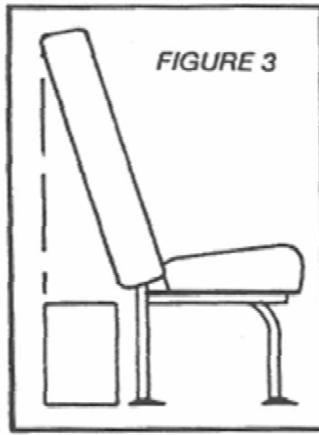
1. Install three seats in the test chamber at minimum spacing, per installer recommendation. Seats shall be perpendicular to the dimension indicated as "length" in Figure 1. Install so that seat frames will not fall during the test. Seat width shall be determined so that maximum passenger capacity per row (two seats) for the seat style shall be tested.
2. For each test, position the ignition source in the following positions outlined. Figure 1





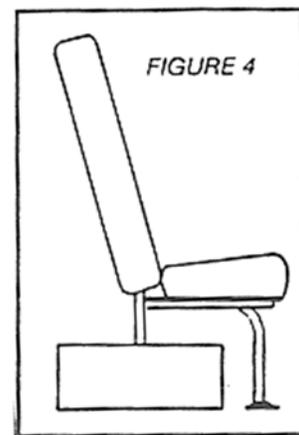
**Position A**

Position ignition source with 18-inch dimension in contact with the seat cushion and touching the seat back, the 11-inch dimension extending vertically from the surface of the cushion and the 7-inch dimension horizontal. Center the bag on top of the cushion. (See Figure 2.)



**Position B.**

Position the ignition source on the floor behind the seat with 18-inch side resting on the floor and parallel to seat width, centered on width so that the rear of bag does not extend beyond the rear seat back. (See Figure 3.)



**Position C.**

Position the ignition source on the floor on the aisle side of the seat with 18-inch dimension on the floor and perpendicular to the seat width touching the seat leg, with centerline of the bag at the center of the seat back. (See Figure 4.)

3. A wooden match shall be used to light the ignition source. Time the test, beginning when the ignition source is on fire and ending when all flames are out.
4. After each ignition source position test, weigh seat assembly, including loose material which has fallen off the seat onto the floor.

**E. Performance Criteria**

For each ignition source position test, the seat tested must meet all of the following criteria. A new seat specimen may be used for each ignition source position test.

1. Maximum time from ignition to flameout shall be 8 minutes.
2. Flame shall not spread to any other seat with the ignition source in Position A and Position C.
3. Weight loss may not exceed 10% of the pretest weight of padding and upholstery. Padding and upholstery may be combined in the form of integrally bonded seat foam

# **SCHOOL BUS INSPECTION**

**WRITING COMMITTEE EDITS IN RED INK BY SECTION LOCATION:**

**STATE INSPECTION PROGRAMS**

**RESOURCE INFORMATION**

**BUMPERS**

**CHASSIS/FRAME/UNIBODY**

**FUEL SYSTEM**

**STEERING SYSTEM**

**SUSPENSION COMPONENTS**

**TIRES/WHEELS/HUBS**

**WINDOWS**

**WINDSHIELD WIPERS**

# SCHOOL BUS INSPECTION PROGRAM

## STATE INSPECTION PROGRAMS

School bus safety programs vary greatly from state to state. Each state is urged to establish a neutral third-party inspection program. Personnel conducting school bus safety inspections must be knowledgeable in the mechanical components of a school bus and be aware of all the applicable construction standards, laws, rules and all other requirements of their jurisdiction.

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## INSPECTION PROCEDURE

School bus safety inspections should consist of a standardized inspection where vehicles are placed out-of-service based on uniform criteria. States should also develop specific inspection regulations, rules, procedures and out-of-service criteria for all vehicles utilized in student transportation. States are encouraged to develop a system to compile the data for analysis.

## OUT-OF-SERVICE CRITERIA

The purpose of criteria is to identify critical school bus components and provide tolerances that inspectors can utilize to determine if a school bus is safe for student transportation. While it is recognized that each state may enforce more stringent standards, this document is intended to establish a baseline for inspecting and placing school buses out-of-service.

## RESOURCE INFORMATION

49 CFR PARTS 570.1-570.63, *Vehicle in Use Inspection Standards*

49 CFR PARTS 400-599, *Federal Motor Vehicle Safety Standards*

49 CFR PARTS 393, 396, *Federal Motor Carrier Safety Regulations*

49 CFR APPENDIX G to Subchapter B, *Minimum Periodic Inspection Standards*

*Commercial Vehicle Safety Alliance (CMVSA), North American Uniform Out-of-Service Criteria*

# SCHOOL BUS RECOMMENDED OUT-OF-SERVICE CRITERIA

## BODY EXTERIOR

- A. Any panel, rub rail or trim that is loose, torn, dislocated or protruding from the surface of the bus, creating a hazard (393.203); or
- B. Any engine, battery or other door that is not properly secured (393.203).

## BODY INTERIOR

### Aisle

- A. Aisle does not have the required clearance (571.217); or
- B. Obstructions in aisle that prevent passengers from egress to emergency exits (393.62) (393.203).

### Door (Entrance)

- A. Student entrance door does not open or close properly;
- B. Door control handle does not lock in the closed position; or
- C. Door is equipped with a padlock or similar locking device (excludes interlock systems).

### Floor

Floor not maintained to prevent slipping or tripping by passenger(s).

### Handrail

- A. Handrail loose or missing; or
- B. Handrail fails the nut/drawstring test as defined by NHTSA.

### Panels

Any panel (e.g., ceiling, side or wheel well) protruding, having sharp edges or not secured so is likely to cause injury.

### Seat (Driver)

- A. Driver seat is not securely fastened to vehicle and/or fails to maintain adjusted position (393.93); or

- B. Any part of the driver's safety restraint assembly is missing, not properly installed or defective as to prevent proper securement of occupant [393.93(a)(b)] (571.209).

### **Seat(s) and Barrier(s)**

- A. Any seat or barrier that is not securely attached to the vehicle (393.91);
- B. Any seat or barrier material(s) that compromises the integrity of compartmentalization and occupant protection (571.222); or
- C. Seat spacing fails to comply with 571.222.

### **Stepwell**

- A. Any part of the stepwell or support structure that is damaged; or
- B. Any part of the stepwell tread that is loose, torn or damaged that would present a tripping hazard.

## **BRAKE SYSTEM(S)**

### **Adjustment**

Any one brake beyond the adjustment limit (See Table 1: Brake Adjustment Specifications.)

### **Air System**

- A. Absence of effective braking action upon application of service brakes [393.48 (a)]<sup>Ⓢ</sup>;
- B. Audible air leak at chamber (e.g., ruptured diaphragm, loose chamber clamp, etc.) [386.3(a)(1)]<sup>Ⓢ</sup>;
- C. If an air leak is discovered and either the primary or secondary reservoir pressure is not maintained when these conditions exist [396.3(a)(1)]<sup>Ⓢ</sup>:
  - 1. Governor is cut-in;
  - 2. Reservoir pressure is between 80-90 psi;
  - 3. Engine is at idle; and
  - 4. Service brakes are either fully applied or released; or
- D. ABS malfunction indicator light not functioning as designed or illuminated on all ABS required vehicles.

### **Axle Brakes, General**

- A. Chamber size mismatched on axle [393.47(b)];
- B. Mismatched brake chamber long stroke verses regular stroke [393.47(b)]; or
- C. Mismatched slack adjuster length [393.47(c)].

### **Brake Shoe/Pad/Lining**

- A. Any lining thickness less than allowed by 393.47;
- B. Lining pad is cracked, broken, not firmly attached or missing (393.47) (*surface or heat cracks in the lining should not be considered out of service*);
- C. The friction surface of drum, rotor or friction material are contaminated by oil, grease or brake fluid (393.47)Ⓢ;
- D. Loose or missing component (e.g., chambers, spiders, support brackets) (393.47);
- E. Fails to make contact with drum/rotor (e.g., frozen, binding, uneven) [393.48(a)];
- F. Absence of braking action on any axle (e.g., failing to move upon application of a wedge, S-cam, cam or disc brake);
- G. Rotor or drum has evidence of metal to metal contact on the friction surface [393.47(d)(1)]Ⓢ; or
- H. Brake pad, lining or shoe missing [393.47(a)].

### **Drums/Rotors**

- A. External crack(s) that open upon application [393.47(a)]Ⓢ; or
- B. Any portion of the drum or rotor (discs) missing, broken, misplaced or cracked through rotor to center vent [393.47(a)].

### **Hoses and Tubing**

- A. Brake hose with any damage extending through the outer reinforcement ply [393.45(a)]Ⓢ;
- B. Audible leak at other than a proper fitting or connection [393.45(a)]Ⓢ;
- C. Any bulge or swelling when brakes are applied [393.45(a)]Ⓢ;
- D. Any restriction due to cracked, broken or crimped line/hose [393.45(a)]Ⓢ; or

- E. Any line, tubing, hose or connection that is not constructed to meet standard (571.106).

### Hydraulic Brake System

- A. System brake failure light or low fluid light on or inoperative (393.51);
- B. Reservoir is below minimum level [393.45(a)] (571.106) ©;
- C. Any seeping, leaking or swelling of hose(s) under pressure [393.45(a)] ©;
- D. Any leak in master cylinder unit [393.45(a)] (571.106);
- E. Any observable fluid leak in the brake system;
- F. Brake failure warning system is missing, inoperative, disconnected, defective, or activated while the engine is running with or without brake application [393.51(b)];
- G. ABS malfunction indicator light not functioning as designed or illuminated on all ABS required vehicles.

### Parking Brake

- A. Fails to hold vehicle in stationary position on normal roadway conditions (absence of ice or snow) in forward or reverse (393.41) [571.105 S5.2.1 and S5.2.3(b)]; or
- B. Parking brake warning lamp fails to function as designed.

### Pedal Reserve

No pedal reserve with engine running [393.40(b)].

### Power Assist Unit

Fails to operate [396.3(a)(1)].

## BUMPERS

- A. Front bumper is missing or not properly secured [393.203(e)]; or
- B. Rear bumper is missing or not secured (393.86).

## CHASSIS/FRAME/UNIBODY

- A. Any cracked, loose, sagging or broken frame side rail [393.201(a)] ©;
- B. Any damage permitting the shifting of the body or imminent collapse of frame [393.201(a)] ©;

or

- C. Any cracked, loose, broken frame member affecting support of functional components (e.g., steering gear, engine, transmission, body part of suspension [393.201(a)]©.

### **Crossmembers**

- A. Any crossmember, outrigger or other structural support which is cracked, missing or deformed that affects the structural integrity of the vehicle (393.201);
- B. Three or more adjacent crossmembers broken or detached (393.201); or
- C. Any area of the floor that is sagging or soft due to broken crossmembers (393.201).

### **Outriggers/Body Supports**

Any crossmember, outrigger or other structural support which is cracked, missing, deformed or has rust holes where damage affects the safe operation of the vehicle.

## **DIFFERENTIAL**

Cracked or leaking housing [393.207(a)].

## **DRIVESHAFT**

- A. Driveshaft guard loose, missing, improper placement or bent (393.89); or
- B. Universal joint(s) worn or faulty, or obvious welded repair [393.209(2)(d)].

## **ELECTRICAL/BATTERY**

### **Battery**

- A. Battery not secured (393.30);
- B. Signs of leaking or excessive corrosion; or
- C. Battery lacks cranking capacity to start engine.

### **Cables**

- A. Electrical cable insulation chafed, frayed, damaged or compromised insulation burnt, causing bare cable to be exposed [393.28, 396.3(a)(1)]©;
- B. Loose or corroded connections at battery posts or compromised insulation protection to

electrical components [393.28, 393.77(b), 396.3(a)(1)]; or

- C. Missing or damaged protective grommets insulating main electrical cables through metal compartment panels (393.30)Ⓢ.

### **Components**

- A. Broken or unsecured mounting of electrical components [396.3(a)(1)]Ⓢ; or
- B. Electrical cable unsupported, hanging or missing clamps that may cause chafing or frayed conditions [393.28, 396.3(a)(1)]Ⓢ.

### **EMERGENCY EQUIPMENT**

- A. Fire extinguisher missing, not of proper type or size, not fully charged, has no pressure gauge, is not secured or is not readily accessible to the driver or passengers (393.95);
- B. Any additional state-specific equipment (e.g., first aid kit, body fluid kit, webbing cutter and emergency reflectors) that fails to meet state specifications and places the vehicle out of service; or
- C. Missing emergency triangles (571.125).

### **EMERGENCY EXITS**

- A. Any emergency door, window or roof hatch that fails to open freely or completely as defined in 571.217;
- B. Door prop-rod device is missing or inoperative (571.217);
- C. Any emergency exit is equipped with a padlock or similar locking device (excludes interlock systems);
- D. Any vehicle that lacks the required number of emergency exits (571.217);
- E. Any emergency exit that is not properly labeled and marked both inside and outside the vehicle as specified by 571.217;
- F. Any item or modification that reduces the size of the opening and limits egress to the emergency exit by all passengers; or
- G. Emergency exit warning device is not audible in the driver seating position and the vicinity of the emergency door or window (571.217).

## ENGINE

- A. Any critical component that fails to function as designed (396.3); or
- B. Any fluid leak that would affect the safe operation of the vehicle (396.3).

## EXHAUST SYSTEM

- A. The exhaust system is leaking or discharging directly below or at a point forward of the driver or passenger compartment [393.83(g)]<sup>Ⓢ</sup>; or

**Note:** Does not apply to proper venting for emission systems.

- B. No part of the exhaust system shall be located and likely to result in burning, charring or damaging the electrical wiring, the fuel supply or any combustible part of the vehicle [393.83(a)]<sup>Ⓢ</sup>.

## FUEL SYSTEM

### CNG or LPG Fuels<sup>Ⓢ</sup>

- A. Any fuel leakage from the CNG or LPG system detected audibly or by smell and verified by either a bubble test using non-ammonia, non-corrosive soap solution, or a flammable gas detection meter [396.3(a)(1)].

**Note:** Verification is needed to ensure that the sound is not either internal to the fuel system (such as gas flowing in a pressure regulator, or pressure equalizing between manifold tanks) or a leak in the air brake system.

- B. Any fuel leakage from the CNG or LPG system detected visibly (evidence such as ice buildup at fuel system connections and fittings) and verified by either a bubble test using non-ammonia, non-corrosive soap solution, or a flammable gas detection meter [396.3(a)(1)].

**Note:** Some brief fuel leakage or decompression may occur during refueling, causing temporary frosting of CNG or LPG fuel system parts. If the vehicle has been refueled shortly before inspection, care must be taken to distinguish these temporary frosting occurrences from actual leaks.

### Liquid Fuels

- A. Any part of the fuel tank or fuel system not securely attached to the vehicle (393.65);
- B. A fuel system with a dripping leak at any point (393.67 Tank)<sup>Ⓢ</sup>;

- C. Dripping leak (396.3(a)(1) leak other than tank)Ⓢ; or
- D. Missing fuel cap or system does not seal as designedⓈ.

## LAMPS/SIGNALS

- A. Any one of the following lamps that is not working: brake, turn signal, tail, head (low beam), school bus overhead warning light (amber or red), hazard warning or stop arm lamp (571.108, 571.131);

*Note: vehicle LED lamps must have more than 25% of the diodes unlit to be considered not working.*

- B. Horn fails to function as designed (393.81);
- C. Any critical brake, telltale lamp, buzzer or gauge that fails to function as designed;
- D. Required stop arm(s) fail to operate with overhead red lights as mandated (571.131); or
- E. If equipped, a crossing control device fails to extend and retract as designed.

## MIRRORS (571.111)

- A. Any mirror required to provide the driver with the entire field of view, missing, damaged, clouded or otherwise obscured so as to place children in a hazardous position;
- B. Any crossover mirror system or portion thereof that fails to hold a set adjustment;
- C. Any crossover mirrors directed to view any area other than for which they were intended;  
or
- D. Any part of the required field of vision obscured or not visible from the driver's seated position.

## STEERING SYSTEM

### Ball/Socket JointsⓈ

- A. Any movement under steering load of a nut stud [396.3(a)(1)];
- B. Any motion, other than rotational, between any linkage member and its attachment point of more than 1/8 inch measured with hand pressure only [393.209(d)]; or
- C. Any obvious welded repair [393.209(d)].

**Front Axle Beam** ©

Any crack(s) or obvious welded repair [396.3(a)(1)].

**Nuts** ©

Loose or missing fasteners on tie rod, pitman arm, drag link, steering arm or tie rod arm [396.3(a)(1)].

**Pitman Arm** ©

- A. Looseness of the pitman arm on the steering gear output shaft [393.209(d)]; or
- B. Any obvious welded repair [396.3(a)(1)] [393.209(d)].

**Power Steering**

- A. Auxiliary power assist cylinder loose [393.209(e)];
- B. Power steering system belts frayed, cracked or slipping [393.209(2)(e)]; or
- C. Power steering system leaking or insufficient fluid in reservoir [393.209(2)(e)].

**Steering**

- A. Any modification or condition that interferes with free movement of any steering component [393.209(d)] ©; or
- B. Steering travel restricted through the limit of travel in both directions [570.60(c)].

**Steering Column/Wheel** ©

- A. Absence or looseness of U-bolts or other positioning part(s) [393.209(c)];
- B. Welded or repaired universal joint(s) [393.209(d)];
- C. Steering wheel not properly secured [393.209(a)]; or
- D. Steering wheel lash/free play exceeds performance test (see Table #2) [393.209(b)].

**Steering Gear Box** ©

- A. Mounting bolt(s) loose or missing [393.209(d)];
- B. Crack(s) in gearbox or mounting brackets (393.209(d)) [396.3(a)(1)];
- C. Any obvious welded repair(s) [396.3(a)(1)] [393.209(d)]; or

- D. Looseness of yoke-coupling to the steering gear input shaft [393.209(d)].

#### **Tie Rods/Drag Links**

- A. Loose clamp(s) or clamp bolt(s) on tie rod or drag link(s) [396.3(a)(1)]; or
- B. Any looseness in any threaded joint [396.3(a)(1)].

### **SUSPENSION COMPONENTS**

#### **Air Suspension**

- A. Deflated air suspension (one or more deflated air spring/bag) [393.207(f)]; or
- B. Air spring/bag is missing, broken, or detached at either the top or bottom [393.207(f)].

#### **Axle Parts/Members**

- A. Any U-bolt or other spring to axle clamp bolt(s) which are cracked, broken, loose or missing [393.207(a)];
- B. Any axle, axle housing, spring hanger(s), or other axle positioning parts which are cracked, broken, loose or missing that results in shifting of an axle from its normal position [393.207(a)];
- C. Any worn (beyond manufacturer specifications) or improperly assembled U-bolt, shock, kingpin, ball joint, strut, air bag or positioning component [570.61 (a)];
- D. Any spring hanger, assembly part or portion of leaf which is broken, separated or missing [393.207(c)]; or
- E. Any broken coil spring [393.207(d)].

### **TIRES/WHEELS/HUBS**

#### **Hub**

- A. Excessive wheel bearing or kingpin play that exceeds ¼ inch [396.3(a)(1)], (570.61);
- B. Any bearing (hub) cap, plug, or filler plug that is missing or broken, allowing an open view into hub assembly [396.3(a)(1)];
- C. Smoking from wheel hub assembly due to bearing failure [396.3(a)(1)];

- D. When any wheel seal is leaking. This must include evidence of contamination of the brake friction material [396.5(b)];

**Note:** Grease/oil on the brake lining edge, back of shoe, or drum edge and oil stain with no evidence of fresh oil leakage are not conditions for an out-of-service violation.

- E. Lubricant is leaking from the bearing hub and is accompanied by evidence that further leakage will occur [396.5(b)]; or
- F. No visible or measurable of lubricant showing in bearing hub [396.5(a)].

### **Tires**

- A. Any sidewall cut, worn or damaged to the extent that the steel or fabric cord is exposed [393.75(a)]
- B. Any observable bump, bulge or knot related to sidewall or tread separation [393.75(a)]
- C. Tire is flat or has noticeable leak [393.75(a)(3)]
- D. Any front tire worn to less than  $\frac{4}{32}$  inch [393.75(b)];
- E. Any rear tire worn to less than  $\frac{2}{32}$  inch [393.75(c)];
- F. Any school bus operated with regrooved, recapped or retreaded tires on the front axle [393.75(d)]; or
- G. Any tire not of proper type (e.g., load range, size, mismatched on axle).

### **Wheels/Rims/Spiders**

- A. Any nuts, bolts, studs, lugs or holes that are elongated, broken, missing, damaged or loose [393.205(b)];
- B. Any cracked or broken wheel or rim [393.205(a)]; or
- C. Any lock or slide ring broken, cracked, improperly seated, sprung or has mismatched rings [393.205(a)].

### **WHEELCHAIR LIFT-EQUIPPED VEHICLES**

- A. Wheelchair lift does not function as designed or is inoperable;
- B. Platform lift manufactured after April 1, 2005 must meet all the following criteria, (as referenced in FMVSS 403 and 404):

1. Jacking prevention;
  2. Manual backup operating mode;
  3. Interlocks to prevent forward or rearward mobility of the vehicle unless lift is stowed and lift doors are closed;
  4. Wheelchair retention device; and
  5. Platform outer barrier, inner roll stop and threshold warning device.
- C. Any hydraulic line leaking during lift operation;
- D. Wheelchair restraint system is missing, incomplete or improperly installed, loose, damaged or does not adhere to the securement manufacturer's recommendations; or
- E. Any required wheelchair occupant restraint system not in compliance (571.222).

## **WINDOWS**

- A. Any glass or glazing that is broken through or missing (393.60);
- B. Any glass not of approved type [393.60(a)];
- C. Windshield has discoloration or other damage in that portion extending upward from the height of the topmost portion of the steering wheel but not including a two-inch border at the top and a one-inch border at each side of the windshield or each panel thereof, except as follows:
1. Color or tint applied by the manufacturer for the reduction of glare;
  2. Any crack not over ¼ inch long, if not intersected by another crack;
  3. Any damaged area that can be covered by a disc ¾ inch in diameter, if not closer than three inches to any other such damaged area; and
  4. Any damage to the driver's side area window(s) or chips, clouding or cracks that obscure the driver's vision [393.60©]; or;
- D. No operable defrosting and defogging system to clear the driver's windshield (571.103).

## **WINDSHIELD WIPERS**

- A. Inoperative, missing or damaged wiper (393.78); or
- B. Wiper does not clean sweep area of driver's windshield (393.78).

## RECOMMENDED SCHOOL BUS INSPECTION PROCEDURES

**WARNING!** Please **READ and FOLLOW** these instructions to avoid personal injury or death. Prior to performing any inspection procedures, always ensure that the vehicle is properly secured, wheels are chocked, and that the ignition key is controlled. Proper safety equipment should always be used.

When working on or around a vehicle, the following general precautions should be observed at all times:

- A. Park the vehicle on a level surface, apply the parking brakes and always chock the wheels.
- B. Always wear safety glasses and other appropriate safety gear.
- C. Stop the engine and remove ignition key when working under or around the vehicle.
- D. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, **EXTREME CAUTION** should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically charged components.

### BODY EXTERIOR

- A. Visually inspect the body exterior to ensure that there is not any panel, rub rail or trim that is loose, torn, dislocated or protruding from the surface of the bus that would create a hazard.
- B. All engine, battery or other doors must be securely mounted and properly installed.

### BODY INTERIOR

#### Aisle

- A. Visually inspect the aisle to ensure that all aisles, including aisle (or passageway between seats) leading to emergency door are a minimum of 12 inches.
- B. Visually inspect to ensure that there are no obstructions in an aisle that would prevent passengers from egress to emergency exits.
- C. On school buses with a side emergency door, check that aisle space from center aisle to side of emergency door is 12 inches by measuring between the vertical line of the seat back and the face of the next seat cushion or bottom of a flip seat.
- D. On buses equipped with flip up seats, inspect to ensure the seat cushion rises to a vertical position automatically when not occupied.

## Door, Entrance

Visually inspect and operate entrance door and inspect door to properly open and close without any obstruction of movement. Inspect manually operated door to make sure door will maintain an open and closed position. Door shall not have any locking device except for interlock systems. On power-operated entrance doors, the emergency release valve, switch or device to release the entrance door must be placed above or to the immediate left or immediate right of the entrance door and must be clearly labeled.

## Floor

Visually inspect floor covering, aisle and cove molding strips for condition and adhesion. Check fastening holes for cracks, and check condition of rubber in aisle to ensure that there are no unsealed holes or cracks through the underside of the bus and that there is no damage to the coverings which could cause a trip or slip hazard.

## Handrail

Handrail must be securely mounted and all OEM hardware present. Perform the NHTSA *Nut and String Test* as described and illustrated below.

## Nut and String Test

### The Handrail Inspection Tool and Procedure

The inspection tool is inexpensive and the procedure for detecting potentially fatal handrail designs is quite simple. The inspection tool is a standard  $\frac{1}{2}$  inch hex nut measuring  $\frac{3}{4}$  inch across the flats. This nut is tied to  $\frac{1}{8}$  inch thick cotton cord measuring 36 inches in length with overhand knots. The drawstring should have a minimum length of 30 inches, when tied to the nut and attached so that a pull of at least 10 pounds does not separate the nut from or break the drawstring.

### Steps to conduct a handrail inspection are:

- Stand on the ground outside of the bus;
- Drop the inspection tool between the handrail and stepwell wall, simulating the typical way students exit the bus;
- Draw the inspection tool through the handrail in a smooth, continuous slow motion; and
- Repeat this procedure several times (minimum of three times).

**Note:** It is important to drop the inspection tool over the handrail in such a way as to simulate a child exiting the bus. This is a drop-and-drag test. Do not create a snagging



*situation by placing the nut in an area that would not be exposed to a drawstring or other articles.*

### **Inspection Results**

Take the bus out of service and repair it if the inspection tool catches or snags anywhere on the handrail. If the nut separates from the drawstring or the drawstring breaks, reassemble the tool and retest. If the inspection tool pulls freely without catching or snagging, the bus should not be rejected.

### **Panels**

Visually inspect all interior sidewall, rear, ceiling and driver's area paneling for secure fastening, projections or sharp edges and general condition.

### **Seat(s) and Barrier(s)**

- A. Visually inspect all seats and barriers to ensure that all are securely mounted and not loose or broken.
- B. All seats shall be forward-facing and securely fastened to the bus body. Passenger seat cushions shall be fastened to prevent the cushions from disengaging from the seat frames in the event of an accident. There shall be a minimum space of 24 inches between the forward surface of a seat back and the rear surface of the seat or barrier ahead measured across the seat cushion without depressing any surface. The forward surface may have side bolsters that briefly reduce the width to less than 24 inches provided the remainder of the seat measures at least 24 inches.
- C. Seats and barriers should appear symmetrical. Seats/barriers that do not appear symmetrical should be physically inspected to ensure seat covering and/or padding is not significantly compromised and complies with FMVSS 571.222.

### **Seat, Driver**

- A. Visually inspect driver's seat to ensure that it is securely fastened to the vehicle.
- B. Visually inspect the driver's seat for its ability to maintain the adjusted position. Inspect driver's restraining device (seat belt) for fraying, attaching hardware and the capacity of the seat belt for maintaining the driver in the seated position.

## Stepwell

Visually inspect the stepwell for the condition of support structure to ensure structural stability. Inspect stepwell treads to ensure proper securing and adhesion to stepwell. Visually inspect step treads for any excessive worn areas that may pose a tripping or slip hazard.

## BRAKE SYSTEMS

### Air System

- A. With full system air pressure, depress the brake pedal and inspect each wheel-end brake to determine if effective braking forces are applied to each wheel-end brake. There should be no audible air loss at supply lines, fittings, valves or brake chambers.
- B. With full system pressure, make a single full-service brake application with the parking brake and ignition off. Note the gauges and listen for air leaks. Release the service brake.
- C. If an air leak is detected at any point in the inspection process, the inspector should check the vehicle's air loss rate following these procedures:
  - 1. Set engine at idle and release brakes;
  - 2. Reduce air pressure in reservoir to 80 psi;
  - 3. Make a full brake application with governor cut-in; and
  - 4. Check air pressure gauge after initial application for air loss. Air pressure should be maintained or increase. A drop in pressure indicates a serious air leak in the brake system.

### Air Brakes Measurement

The following procedure is based on the applied stroke method for measuring the movement of the brake chamber push rod:

- A. Release the spring brakes and visually check each brake to ensure that it is in the normal released position.
- B. With the brakes released, make a mark where the pushrod exits the brake chamber.
- C. With the engine off, make a series of brake applications to reduce the reservoir pressure to between 90 to 100 psi.
- D. Apply and hold a full brake application (90 to 100 psi).

- E. Measure the distance between the mark and the face of the brake chamber. The difference between measurements is called the chamber applied stroke.

**Note:** *Any brake that is beyond the re-adjustment limit will require repairs and/or adjustment. (See Table 1: Brake Adjustment Specifications below.)*

**Table 1: Brake Adjustment Specifications**

Brake adjustment: Shall be less than those specifications contained herein relating to “Brake Adjustment Limit.” (Dimensions are in inches.)

Clamp Type Chamber Data			
Type	Rated Stroke Marking	Outside Diameter	Brake Adjustment Limit
6	A	4 1/2	1 1/4
9	B	5 1/4	1 3/8
12	B	5 11/16	1 3/8
16	D	6 3/8	1 3/4
20	D	6 25/32	1 3/4
24	D	7 7/32	1 3/4
30	E	8 3/32	2
36	(none)	9	2 1/4

“Long Stroke” Clamp Type Brake Chamber Data			
Type	Rated Stroke Marking	Outside Diameter	Brake Adjustment Limit
12	D	5 11/16	1 3/4
16	E	6 3/8	2
20 (2 1/2" Rated Stroke)	E	6 25/32	2
20 (3" Rated Stroke)	F	6 25/32	2 1/2
24 (2 1/2" Rated Stroke)	E	7 7/32	2
24 (3" Rated Stroke)	F	7 7/32	2 1/2
30	F	8 3/32	2 1/2

DD-3 Brake Chamber Data		
Type	Outside Diameter	Brake Adjustment Limit
30	8 1/8	2.25
<i>Note: This chamber has three air lines and found on motorcoaches.</i>		

Wedge Brake Data
The combined movement of both brake shoe lining scribe marks shall not exceed 1/8 inch (3.18mm).

## Brake Shoe/Pad/Lining

- A. Visually inspect all brake linings/shoes/pads. Linings may be checked through inspection slots. All shoes/pads/linings shall comply with the applicable standards.
- B. The brake lining/pad thickness shall not be less than  $\frac{3}{16}$  inch at the shoe center for a shoe with a continuous strip of lining, less than  $\frac{1}{4}$  inch at the shoe center for a shoe with two pads, or worn to the wear indicator if the lining is so marked, for air drum brakes.
- C. The brake lining/pad thickness shall not be less than  $\frac{1}{8}$  inch for air disc brakes, or  $\frac{1}{16}$  inch or less for hydraulic disc brakes.
- D. Visually inspect the brake lining/pad to ensure that it is firmly attached to the shoe, is not cracked or broken, and that the friction surface is not saturated with oil, grease, or brake fluid.
- E. Visually inspect all brake components mounting hardware for any loose, cracked, broken or missing items. This inspection should be performed with the brakes released and with the brakes applied. It may be necessary to remove inspection access covers, brake dust covers or, in some instances, pull wheels and drums to accomplish the inspection.

## Chamber Size

Visually inspect all brake chambers to ensure they are properly marked, in good operating condition, have no visible damage, and are properly matched. Chambers must be matched by size, type and stroke.

## Drums/Rotors

- A. Visually inspect all brake drums/rotors for any external cracks that open when brakes are applied. (Do not confuse short hairline internal check cracks with flexural cracks.)
- B. Inspect for any portion of the drum/rotor missing or in danger of falling away.

**Note:** *It may be necessary to remove inspection access covers, brake dust covers or, in some instances, pull wheels and drums to accomplish the inspection.*

## Hoses and Tubing

- A. Carefully perform a visual inspection of all system hoses, lines, and tubing.
- B. Inspect all hoses, lines, and tubing for any audible leak (if air), or visible leak (if hydraulic), any bulging/swelling when the system is pressurized, any hose, line, or tubing is cracked, broken or crimped in such a manner as to restrict flow, any hose abraded (chafed) through outer cover to fabric layer or any line/tubing, and for proper securement and support.

## Hydraulic Brakes Measurement/**Pedal Reserve**

- A. With the brake pedal in the full upright position, the inspector shall measure the distance between the brake pedal and the floor or firewall. With the engine running, a single firm brake application shall be made and the distance between the brake pedal and the floor or firewall shall be measured a second time. The difference shall be recorded.
- B. With vehicle stopped and engine running, depress brake pedal. The system must be able to maintain brake pedal height under moderate foot force (40-60 pounds) for one minute without pumping. With vehicle in stopped position and brake pedal depressed under moderate foot force (40-60 pounds) there should be a minimum of  $\frac{1}{3}$  of the total available pedal travel (manufacturer's specification) remaining on non-powered systems.

## Hydraulic Brake System

- A. With the engine off, turn the ignition switch to the "on" position and check the instrument panel for visible and audible warning signals to indicate system malfunction. If bus is equipped with vacuum assist, it shall have a visible warning signal and gauge to indicate any loss of vacuum. Audible signals must be loud enough to be heard over engine noise.
- B. Visually inspect the master cylinder to determine if it is below the minimum fill requirements, is leaking, is loose or improperly mounted.
- C. Visually inspect the hydraulic fluid reservoir level in the master cylinder unit. Inspect for any fluid leaks on wheel cylinders/calipers, master cylinders, hose connection and hydrovac and on buses using vacuum-assisted brakes. Check for brake fluid around the brake booster between the booster and firewall.

## Parking Brake

- A. With the engine operating and the park brakes set, place the transmission in both forward and reverse gears to determine if brakes will hold vehicle stationary.
- B. Visually and physically check condition of parking brake system and parking brake warning light.

## Power Assist Unit

- A. Electric/Hydraulic Assist: With engine off, depress the brake pedal. The electric/hydraulic brake assist motor must operate.
- B. Hydrovac Assist: With engine off, the driver shall pump the brakes to exhaust all reserve. Hold firm pressure on the brake pedal and start the engine. The pedal should fall slightly. Failure of the pedal to fall slightly indicates a malfunction of the power-assist unit.

- C. Hydro-boost: After 2-3 brake applications with the engine off, start the vehicle while maintaining pressure on the brake pedal. The pedal should push briefly, and then fall as the power assist engages.

### **Slack Adjuster Length**

Measure from the center of the S-cam to the center of the push rod clevis pin. All slack adjusters on a single axle shall be of the same type and length.

## **BUMPERS**

Visually inspect front and rear bumpers for missing attaching hardware or broken hardware. Ensure bumpers are properly mounted and secure and there is no point protruding beyond the confines of the vehicle so as to create a hazard.

## **CHASSIS/FRAME/UNIBODY**

- A. Visually inspect frame for cracks, loose attaching hardware, sagging, broken, or unapproved welds to frame side rail or flange;
- B. Visually and physically inspect for body hold-down components for damage that would permit the shifting of the body; and
- C. Visually inspect for cracked, loose, bent, broken or unapproved welds to frame member that affect support of functional components (e.g., steering gear, engine, transmission, body parts or suspension). Welding to frame should be performed only by manufacturer or designee.

### **Crossmembers**

- A. Visually and physically inspect all crossmembers, attaching hardware and other structural supports for cracks or deformations; visually inspect for three or more adjacent crossmembers that are missing, broken, damaged or loose; and
- B. Inspect any area of the floor that is sagging, weak or damaged due to broken, damaged or loose crossmembers.

### **Outriggers/Body Supports**

Visually inspect all outriggers and attaching hardware for cracks, missing bolts and damage.

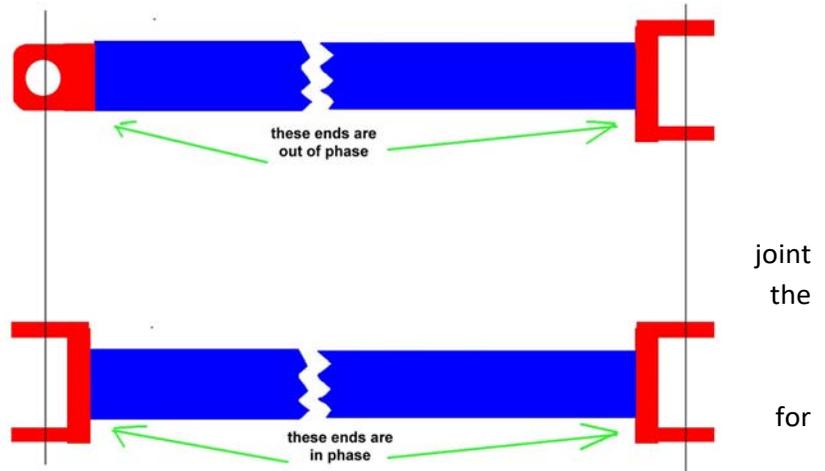
## **DIFFERENTIAL**

The Inspector shall visually inspect the differential and differential housing for cracks and leaks. Careful attention shall be made to the areas of mounting attaching hardware and wheel end areas. Housing vent shall be inspected to ensure that it is not clogged and is functional by twisting the vent cap by hand.

## DRIVESHAFT

- A. Visually and physically inspect each segment of the driveshaft and associated hardware. Inspect for bends, cracks, missing weights or debris entangled in the shaft. Each shaft more than 18 inches long shall be equipped with a suitable guard to prevent an accident or injury in the event of its fracture or disconnection. The inspector shall check to ensure that the driveshaft guards are not loose, bent or missing.

- B. Visually and physically inspect each universal joint and center bearing. The universal joint(s) and center bearing(s) shall not be loose or worn and shall have all attaching hardware securely fastened. The inspector shall check for lateral and vertical movement of the universal joints and center bearing by grasping the universal joint and attempting to move joint laterally and vertically. Inspector shall inspect universal joints substandard or welded repairs.



- C. Visually inspect driveshaft for proper phasing. (See illustration.)

## ELECTRICAL/BATTERY

### Battery

- A. Visually and physically inspect that the battery(ies) is(are) securely mounted and no signs of leaking, or excessive corrosion.
- B. Crank engine to ensure adequate battery capacity to start engine.

### Cables

- A. Visually inspect all electrical cabling and wiring for chafed, frayed, damaged or burnt insulation.
- B. Visually and physically inspect for corroded or loose connections at the battery terminals. Inspect for unsuitable insulation to electrical cabling.

- C. Visually inspect for missing or damaged protective grommets insulating all electrical cables through metal compartment panels. All electrical cabling passing through a metal surface shall pass through an insulated grommet as to provide adequate protection against chaffing and shorting.
- D. Visually and physically inspect for any broken or unsecured mounting of electrical components.
- E. Visually and physically inspect electrical cabling for securement, routing or any unsecured wiring that may cause chafing or frayed conditions.

## **EMERGENCY EQUIPMENT**

- A. Visually inspect that the fire extinguisher is readily accessible to the driver and passengers, that it is fully charged of proper type and size, is properly secured and has a working pressure gauge.
- B. Visually inspect any other state-required equipment such as first aid kits, body fluid kits, webbing cutters and emergency reflectors and ensure that these items are fully stocked, functional and properly secured.

## **EMERGENCY EXITS**

- A. Visually inspect all emergency exits.
  - 1. Operate all emergency exits. Exits must open freely and completely.
  - 2. Door prop rods must operate freely and hold door or exit in open position without obstructing exit.
  - 3. There shall be no padlocks or any other locking devices on exits except interlocking systems.
- B. Visually inspect all exits to ensure they are clearly labeled and marked on both the inside and outside of the bus.
- C. Ensure that all exits have an audible device to alert the driver of an open exit door or window.

**Note:** FMVSS 571.217 defines the number of exits for each type of bus.

## **ENGINE**

- A. Visually inspect engine and surrounding components for evidence of fluid leaks and loose or damaged components. Inspector shall start engine. While engine is operating, inspector shall visually and audibly monitor engine for proper operation, leaks and unusual noises of engine or components.
- B. Visually inspect cooling fan per manufacturer's recommendations.
- C. Visually and physically inspect all drive belts for proper alignment and tension per manufacturer's recommendations. All belts shall be free of cracking, frays, fluid, glazing and excessive wear. Inspect belt-tensioner per manufacturer's recommendations.
- D. Visually inspect all hydraulic, coolant, fuel and pneumatic hoses for damage, proper routing, proper type and proper securement. Hoses shall be routed in such a way as to avoid contact with exhaust, rotating or moving engine components or sharp edges. Hoses shall not be cracked, leaking, swollen or chaffed.

## **EXHAUST SYSTEM**

- A. Visually and audibly inspect the complete exhaust system including muffler, diesel particulate filter (DPF) and diesel oxidation catalyst (DOC) for leaks, restrictions and damage and to ensure that exhaust is not discharging directly below the driver or passenger compartment. All exhaust emission control devices shall be installed and operating per the manufacturer's recommendations.
- B. Visually inspect for the presence and condition of heat shielding over and around all piping, and components where specified by vehicle manufacturer.
- C. Visually and physically inspect all exhaust system mounting hardware for loose, missing or damaged components and that it is securely attached. Inspect to ensure that all clamps are in place and secure.
- D. Visually inspect exhaust system for indications of, and areas likely to result in, burning, charring or damaging the electrical wiring, the fuel supply or any combustible part of the vehicle.

## **FUEL SYSTEM**

- A. Visually inspect all parts of the fuel tank, fuel tank cage and fuel system to include lines, hoses, filters, fill cap and fittings for indications of damage or leaks.
- B. Visually and physically inspect fuel lines and hoses for proper securement, routing and

missing or loose clamps that may cause chafing or that may come in contact with electrical components.

## **LAMPS/SIGNALS**

- A. Visually inspect all lamps, such as brakes, turn signals, tail, head (low beam), overhead warning lights (amber and red), hazard warning and stop arm lights to ensure proper visibility and operation. Turn signals should flash at a rate of 60 to 120 times per minute.
- B. Visually inspect that the horn functions and is audible from approximately 200 feet away.
- C. Visually inspect the crossing control device, if equipped, for proper operation (e.g., that it extends and retracts as designed).

## **MIRRORS**

Visually inspect all mirrors to identify any mirror that is damaged, clouded or otherwise has an obscured area. All mirrors should hold a set adjustment. All mirrors should be directed to view the intended area for which they are designed.

## **STEERING SYSTEM**

### **Ball and Socket Joints**

- A. With the bus on the ground, the inspector shall examine the ball joint nut stud for movement while the steering wheel is being rocked in a back-and-forth action. The inspector shall examine the ball/socket joint for weld repairs.
- B. Check for lateral and vertical movement by grasping the tie rod and drag link sockets attempting to laterally and vertically move the ball joint. (Rotational movement will not be considered.) Any motion other than rotational, greater than  $\frac{1}{8}$  inch that can be detected by movement with two hands with moderate strength in any connecting joint is a defect.

### **Hoses/Fluids**

Visually examine the power steering fluid reservoir for proper fluid level. With the system operating, inspect all system components, hoses and fittings for leaks.

### **Nuts**

Visually examine all tie rods, pitman arm, drag link, steering arm and tie rod arm for looseness and missing fasteners.

### **Pitman Arm**

- A. While the steering wheel is being rotated in a back-and-forth motion; visually inspect the pitman arm and output shaft connection for looseness at the output shaft joint.
- B. The pitman arm shall also be visually inspected for damage, cracks or welded repairs.

### **Power Steering**

- A. The inspector shall manually manipulate the auxiliary power assist cylinder to check for looseness. The inspector shall start the bus and rotate the steering wheel in a back-and-forth action to ensure the power steering pump is operable.
- B. With the engine stopped, visually inspect the system drive belt(s) for any fraying, cracks or fluid saturation. Check belt tension. On units equipped with automatic tensioner ensure that tensioner moves freely.
- C. Visually inspect the fluid reservoir while at operating temperature to ensure that the fluid level is not below "add" mark. Inspect for signs of fluid leakage.

### **Steering**

- A. Visually inspect for any modification or other condition that interferes with free movement of any steering component. Turn steering wheel through a full right and left turn and feel for binding or jamming conditions. Both front wheels must be capable of being turned to full right or full left without binding or interference.
- B. Visually inspect turn stops by observing for shiny spots and/or signs of wear due to contact with other vehicle components on the sides of tires, drag links, pitman arm, shock absorbers or brake lines.

### **Steering Column/Wheel**

- A. Visually inspect steering column for any looseness in bolts, clamps, positioning parts or universal joints. Inspect flexible coupling in steering column (if the vehicle is so equipped) for excessive misalignment and tightness of clamp bolt or nut.
- B. The steering column and components shall also be visually inspected for damage, cracks or welded repairs. Inspect steering wheel to ensure that it is properly positioned and secured.
- C. Place steering axle wheels in a straight-ahead position have an assistant turn the steering wheel until movement is observed at the left road wheel and measure the steering wheel movement from starting position to wheel movement position. Compare this measurement to the applicable listing in Table 2: *Steering Wheel Free Play*, below.

**Table 2: Steering Wheel Free Play**

Steering Wheel Free Play: Steering wheel free play shall not exceed the requirements listed in the following chart:

<b>Steering Wheel Diameter</b>	<b>Manual System Movement 30</b>	<b>Power System Movement 45</b>
16" (41cm)	2" (5.1cm)	4 1/2" (11.5cm)
18" (46cm)	2 1/4" (5.4cm)	4 3/4" (12cm)
20" (51cm)	2 1/2" (6.4cm)	5 1/4" (13.5cm)
22" (56cm)	2 3/4" (7cm)	5 3/4" (14.5cm)

**Steering Gear Box**

- A. Visually examine the steering gear box for any loose, damaged or missing mounting bolts. Inspect for cracks in the gear box, mounting brackets or any obvious welded repairs.
- B. While having an assistant rock the steering wheel back-and-forth; visually inspect the steering shaft and gear box for any looseness where the steering gear box is mounted to the frame. Visually inspect steering shaft coupler for cracks, damage or looseness.
- C. With the engine operating, inspect for excessive fluid and/or oil leak (observable movement of fluid).

**Tie Rods/Drag Lin**

- A. While having an assistant to rock the steering wheel back-and-forth, visually inspect the tie rod ends, crossbar and drag links for any looseness at the steering linkage pivot points.
- B. Check for lateral and vertical movement by grasping the tie rod and drag link sockets attempting to laterally and vertically move the ball joint (rotational movement will not be considered). Any motion, other than rotational, greater than 1/8 inch that can be detected by movement with two hands with moderate strength in any connecting joint is a defect.
- C. Check crossbar for structural damage and crossbar clamps for secure mounting.

**SUSPENSION COMPONENTS**

**Axle Parts/Members**

- A. Visually and physically inspect all front and rear axle components. Inspect all U-bolts and other suspension to axle mounting hardware for cracks, breaks, looseness or improper type.
- B. Visually inspect axle, axle housing, spring hanger(s), shackles or other axle components for alignment, cracks, breaks and loose or missing items that could result in shifting of an axle from its normal position.

- C. Visually inspect front axle beam for signs of improper repair (e.g., welding or heating).
- D. Visually inspect for any worn (beyond manufacturer's specifications) or improperly assembled U-bolt, shock, kingpin, ball joint, strut, air spring or positioning components.
- E. Visually inspect all leaf spring hangers, hanger assemblies or portions of leaf springs for broken, separated, sagging, bent, abnormally worn (beyond manufacturer specifications), shifted or missing components.
- F. Visually inspect pins and bushings for wear, off-center spring eye, rubbing shackle or non-symmetric joints. Inspect for any broken, weak or damaged coil spring and mounting assemblies.
- G. Visually and physically inspect all hydraulic shock absorbers for leaks, looseness, damage or missing components.
- H. Visually inspect air suspension (if equipped). Observe that the vehicle is lifting level. With the air system fully charged, inspect for any audible or visual air leakage at the air spring assembly, supply hoses and connections.

**Caution:** Inspector should use caution when positioned beneath the vehicle. There may not be sufficient room beneath the vehicle should a problem occur with the air suspension system.

## **TIRES/WHEELS/HUBS**

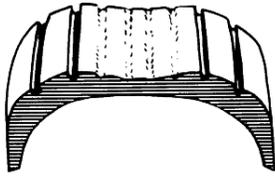
### **Hub & Assemblies**

- A. Visually inspect kingpin and wheel bearing assemblies for looseness, damage, missing or loose fasteners. This shall include locking pins, draw keys, caps and bearings.
- B. Physically inspect kingpin and bearing assemblies for play as follows: with the tire raised off the ground, grasp tire at top and attempt to move the wheel assembly in and out. If movement is present, inspector can help to identify the source by following this procedure:  
  
Have an assistant fully apply brakes while rechecking play. If movement disappears with brakes applied, then play is in the wheel bearings. If movement remains, it is most likely in the kingpin area. Assembly shall not have excessive kingpin play that exceeds .250 inch measured at outside edge of tire or wheel bearing movement that exceeds .010 inch measured at bearing hub.
- C. Visually inspect A-frames and bushings on Type A vehicles. Inspect bushings for wear, cracking, splitting, or severe extrusion from suspension parts.

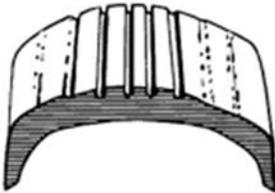
- D. For vehicles equipped with “wet hubs” or oil bath hubs the inspector should visually check the site glass for lubricant level.

### **Tire Inspection**

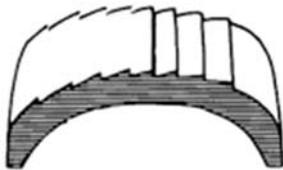
- A. Visually inspect that tires are properly inflated and do not have noticeable leaks. [See 393.76 (h)(1),(2)] If pressure is questionable, inspector shall use a tire pressure gauge to verify pressure.
- B. Visually inspect valve stem for damage and presence of valve cap.
- C. Visually inspect tire sidewall for cuts, wear and any observable bumps or bulges.
- D. Visually inspect for any front tire worn to less than  $\frac{4}{32}$  inch.
- E. Visually inspect for any rear tire worn to less than  $\frac{2}{32}$  inch.
- F. If a visual inspection cannot determine that the tire meets the minimum depth requirement, the inspector shall use a commercial tire depth gauge to verify tread depth.
- G. Visually inspect the steer axle (front) to ensure that no recapped, re-grooved tires are present.
- H. Visually inspect tires for improper wear patterns. (See Tire Wear Chart below.)
- I. Visually check proper type (i.e., load range, size, mismatched on axle).



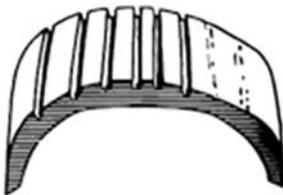
**Over Inflation:** Excessive wear at the center of the tread indicates that the air pressure in the tire is consistently too high. The tire is riding on the center of the tread and wearing it prematurely. Many times, this visual method of inflation (inflating the tires up until there is no bulge at the bottom) is at fault; tire inflation pressure should always be checked with a reliable tire pressure gauge.



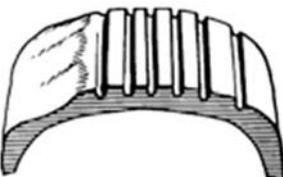
**Under Inflation:** This type of wear usually results from consistent under inflation. When a tire is under inflated, there is too much contact with the road by the outer treads, which wear prematurely. Tire pressure should be checked with a reliable pressure gauge. When this type of wear occurs, and the tire pressure is known to be consistently correct, a bent or worn steering component or the need for wheel alignment could be indicated. Bent steering or idler arms cause incorrect toe-in and abnormal handling characteristics on turns.



**Feathering:** Feathering is a condition when the edge of each tread rib develops a slightly rounded edge on one side and a sharp edge on the other. By running your hand over the tire, you can usually feel the sharper edges before you'll be able to see them. The most common cause of feathering is incorrect toe-in setting, which can be cured by having it set correctly. Occasionally toe-in will be set correctly and this wear pattern still occurs.



**Side Wear:** When an inner or outer rib wears faster than the rest of the tire, the need for alignment is indicated. There is excessive camber in the front suspension, causing the wheel to lean too much to the inside or outside and putting too much load on one side of the tire. Misalignment could be due to sagging springs, worn ball joints, worn control arm bushings or worn kingpin bushings.



**Cupping:** Cups or scalloped dips appearing around the edge of the tread on one side or the other, almost always indicate worn (sometimes bent) suspension parts. Adjustment of wheel alignment alone will seldom cure the problem. Any worn component that connects the wheel assembly to the vehicle (ball joint, kingpins, wheel bearing, shock absorber, springs, bushings, etc.) can cause this condition. Occasionally, wheels that are out of balance will wear like this, but wheel imbalance usually shows up as bald spots between the outside edges and center of the tread.

## **Wheels/Rims/Spiders**

- A. Inspector shall inspect all nuts, bolts, studs, lugs and holes for damage. Visually inspect for broken, damaged, missing or loose fasteners. Rust around fasteners or on rim surface is sometimes an indication of cracked or loose mounting hardware.
- B. Visually inspect rim for, cracks, welds or broken components. Visually inspect for any lock or slide ring that is broken, cracked, improperly seated, sprung or has mismatched rings.

## **WHEELCHAIR LIFT-EQUIPPED VEHICLES**

- A. Visually inspect and operate wheelchair lift to ensure proper function as designed. Inspect for any leaks that would hinder the operation of the lift.
- B. Visually inspect all safety systems of the wheelchair lift (e.g., hand rails, ramp stops, etc.) and ensure that they are functioning as designed and in compliance with FMVSS 403 and 404.
- C. Visually ensure that all pinch points are protected from seated passengers.
- D. Visually inspect all wheelchair and occupant securement devices to ensure none are missing or broken and that straps are not frayed.
- E. Visually inspect that all components for each wheel chair position are compatible with manufacturers' specifications.
- F. Visually and physically inspect all anchorage points, tracking and fasteners for securement.

## **WINDOWS**

- A. Visually inspect all glass for missing or broken glazing and to ensure approved type [393.60(a)]; visually inspect windshield to ensure that there is no discoloration or damage in that portion extending upward from the height of the top-most portion of the steering wheel, but not including a two-inch border or at the top and a one-inch border at each side of the windshield or each panel thereof, except as follows:
  - 1. Color or tint applied by manufacturer for the reduction of glare;
  - 2. Any crack not over ¼ inch long, if not intersected by another crack;
  - 3. Any damaged area that can be covered by a disc ¾ inch in diameter, if not closer than three inches to any other such damaged area; and
  - 4. Any damage to the driver's side area window(s) or chips, clouding or cracks that obscure the driver's vision.
- B. Inspect the defrosting and defogging system to ensure that the driver's windshield is properly

cleared (571.103).

- C. Inspect windshield washer system to ensure proper operation.
- D. Visually inspect for any glass or glazing that is broken through or missing (393.60).
- E. Visually inspect for any glass not of approved type [393.60(a)].
- F. Visually inspect windshield to ensure there is no discoloration or other damage in that portion extending upward from the height of the topmost portion of the steering wheel, but not including a two-inch border at the top and a one-inch border at each side of the windshield or each panel thereof, except as follows:
  - 1. Color or tint applied by the manufacturer for the reduction of glare;
  - 2. Any crack not over  $\frac{1}{4}$  inch long, if not intersected by any other crack;
  - 3. Any damaged area, that can be covered by a disc  $\frac{3}{4}$  inch in diameter, if not closer than three inches to any other such damaged area; or
  - 4. Driver's side area window(s) have no chips, clouding, or cracks that obscure the driver's vision [393.60(c)].
- G. No operable defrosting and defogging system to clear the driver's windshield (571.103).

## **WINDSHIELD WIPERS/WASHERS**

Operate wiper and washer system. The wiping system should be power-driven with at least two speeds and should be able to clean the area of the windshield within the wiping pattern. Wipers should operate with a minimum of 45 cycles per minute.

# **OPERATIONS**

**WRITING COMMITTEE EDITS IN RED INK BY SECTION LOCATION:**

**LOCAL SCHOOL DISTRICT ADMINISTRATION**

**RESPONSIBILITIES**

**OPERATIONAL PROCEDURES**

# OPERATIONS

## INTRODUCTION

The success of any school transportation operation depends largely on the performance and degree of dedication displayed by those involved. These recommendations are designed to assist state agencies, school districts, school and Head Start administrators and private operators in understanding their student 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 a transportation eligibility policy, which takes safety into account and which addresses distances from school for different age groups. If transportation eligibility is maximized, the result will be more students on school buses, and therefore, safer access to students' educational opportunities. The sole criterion used to establish transportation eligibility should not only be 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. (See *Identification and Evaluation of School Bus Route and Hazard Marking Systems, Final Report*, Table 1, in Appendix D.) The criteria should also take into account students' levels of maturity, grade levels and 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. (See Appendix D for Sample walk distances.)

## 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 cost). **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 that transport 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), in order to make sound, informed decisions. The goal is to improve safety for all children traveling to and from preschool, 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 recommendation of the Special Investigative Report

*Pupil Transportation in Vehicles Not Meeting Federal School Bus Standards* (NTSB/SIR99/02). This special investigation report was based on the NTSB's finding in four crashes 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." Recommendation H-99-25, issued in the letter to the National Conference on School Transportation and a number of other national associations and churches, urged recipients to "...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 equivalent occupant protection to school buses to transport children."

On January 18, 2001, the *Federal Register* (Vol. 66, No. 12) published 45 CFR 1310, *Head Start Transportation*, which included a requirement that on or before January 18, 2006, except as otherwise provided in §1310, Head Start and Early Head Start passengers shall be transported to and from their respective programs in school buses or allowable alternate vehicles (AAVs), which are like school buses in all respects except that they do not meet FMVSSs for crash avoidance. (In short, AAVs include all school bus design standards except that they may not be painted "school bus" yellow and they are not equipped with stop arms and alternately flashing signal lamps for passenger loading and unloading.) The directive (§1310.12) was based on the documented safety of school buses and the knowledge that alternatives to school buses per se would be required by specific states (thus the allowance for AAVs).

The National Highway Traffic Safety Administration, on July 31, 2003, issued the Final Rule for 49 CFR 571 (*Federal Register*, Vol. 68, No. 147) that established a new class of school buses called "multifunction school activity buses" (MFSABs) to fulfill the requirements for AAVs (as required by Early Head Start and Head Start) or for "...enabling schools and other institutions to choose the new buses instead of a 15-passenger van [which] will provide them with a safer transportation alternative" (p. 44892).

Therefore, 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 preschool programs and schools and to related activities shall be transported in school buses as defined in Title 49, CFR Part 571 or in vehicles having passenger crash protection equivalent to school buses, such as multifunction school activity buses (MFSABs).

## STATE ADMINISTRATION

- A. Services Provided
- B. The state agency(ies) responsible for student transportation should provide the following services:
  - 1. Leadership in the development of a comprehensive student transportation program for state-wide application;
  - 2. A state director of student transportation with the staff and other resources necessary for optimal job performance;
  - 3. Clear, concise student transportation policies;
  - 4. A cost accounting system for all expenditures in the area of student transportation;
  - 5. A state-wide management information system to accommodate student transportation data (e.g., costs, information gleaned from the uniform school bus crash reporting criteria, manpower availability, etc.);
  - 6. Promotion of a student transportation safety program utilizing community and school district resources, school bus contractors, school transportation associations, legislation, media, law enforcement and state agencies concerned with student transportation;
  - 7. A manual or handbook for local student transportation supervisors, school administrators and private contractors containing detailed instructions for implementing the state's student transportation laws, regulations and policies;
  - 8. Manuals or handbooks for each school bus driver and each bus attendant containing the state student transportation regulations and recommended safety practices;
  - 9. A comprehensive series of training programs that covers all aspects of student transportation, including, but not limited to, the following areas:
    - a. A school bus driver program for both pre-service and in-service instruction, including documentation of successful completion of classroom and behind-the-wheel instruction;
    - b. Workshops, seminars and/or conferences for all student transportation personnel;
    - c. Encouragement for state institutions of higher learning to provide undergraduate and graduate courses acceptable for certification purposes in

student transportation, operation and safety; and

- d. Safety and safe travel curricula for student passengers;
- 10. Manuals or handbooks for school bus maintenance personnel, containing technical issues and administrative issues to include appropriate school bus preventive maintenance procedures and ongoing maintenance programs;
- 11. Regular visits to local school systems to evaluate transportation systems and to provide necessary direction;
- 12. Bus and equipment standards that ensure safe and efficient student transportation;
- 13. Coordination with other agencies having responsibility for student transportation services and use of the uniform school bus crash reporting criteria; and
- 14. Adequate funding necessary to comply with mandates adopted and approved by state legislatures and the federal government.

C. State Student Transportation Director

- 1. The State Director of Student Transportation's specific duties may include, but are not limited to, the following administrative areas:
  - a. Assisting in the implementation, interpretation and understanding of student transportation laws, regulations and policies;
  - b. Managing the state's student transportation program, which includes planning, budgeting and forecasting requirements for the operation;
  - c. Supervising the preparation of manuals, handbooks and information for distribution to local transportation personnel and private operators;
  - d. Providing assistance and direction on request to local school administrators and Early Head Start and Head Start grantees or their transporters;
  - e. Assisting in evaluation of state and local operations, including bus routes, and providing recommendations for policies and procedures;
  - f. Planning, directing and participating in safety education for student transportation personnel;
  - g. Assisting local personnel in planning and conducting student safety education programs;

- h. Requiring and maintaining appropriate reports and records;
  - i. Assisting and/or consulting with groups involved in student transportation safety;
  - j. Representing the interests of the student transportation industry;
  - k. Working cooperatively with school transportation associations, school districts, Early Head Start and Head Start grantees or transporters, parents and private contractors to promote school bus safety and efficiency;
  - l. Developing and publishing easy-to-understand information on the hazards of using prescription drugs and over-the-counter medications when driving;
  - m. Developing and implementing appropriate curricula for training of transportation supervisors, drivers, technicians, attendants and other staff, as well as parents and students;
  - n. Developing and maintaining state-wide data collection and distribution systems regarding safety incident investigations, best practices and general industry information; and
  - o. Developing and maintaining a state-wide process for investigating and reporting safety incidents.
2. The State Director of Student Transportation should be an active member of regional and national organizations and should participate in activities that promote student transportation safety.

## LOCAL SCHOOL DISTRICT ADMINISTRATION

### A. Activities

The local agency responsible for student transportation should supervise the overall transportation operation within the respective agency. Recommended activities include, but are not limited to, the following:

1. Assign **staff, who are adequately trained and certified in accordance with state and federal requirements**, the responsibility for implementing and/or supervising a comprehensive student transportation program;
2. Participate in student transportation operations within its jurisdiction, including training programs for all transportation personnel. **Training should include provisions of the Entry Level Driver Training (ELDT) requirements contained in 49 CFR 380,**

reviews of school bus routes, investigation and reporting of crashes and other transportation problems and evaluation of the student transportation system;

3. Ensure compliance with federal and state student transportation laws, regulations and policies, including drug/alcohol testing programs as required in the Omnibus Transportation Employee Testing Act of 1991, in compliance with 49 CFR, Parts 40 and 382 and with 45 CFR 1310 and other Head Start regulations **and with requirements of the federal Drug and Alcohol Clearinghouse (49 CFR 383.75 and 354.235)**, as may be applicable;
4. Ensure that instruction in passenger safety, including student participation in emergency evacuation drills, is an integral part of the school and/or Head Start curriculum.

**Note:** *Instruction should comply with state requirements and/or Federal Highway Safety Guideline 17 (copy in APPENDIX D) and with 45 CFR 1310, as may be applicable.*

Instruction should include, but not be limited to, the following items:

- a. At least once each school semester, provide all students transported to and from schools or Head Start Centers in a school bus or multifunction school activity bus with instruction on the location and operation of all emergency exits, provide supervised emergency exit drills to each student transported to or from schools or Head Start Centers in a school bus or multifunction school activity bus and provide all students with an age-appropriate safe travel curriculum consistent with the modes of travel available for each age group/grade level;
- b. Before departure of each activity trip, provide all passengers transported in a school bus, school-chartered bus or multifunction school activity bus instruction\* on the location of all emergency exits and demonstrations of their operation, including a general review of safe riding practices, rules and procedures; and

**\*Note:** *A sample form is available in Appendix G.*

- c. Limit the amount of carry-on items, especially large items (e.g., luggage, coolers, sports/band equipment, etc.) in school buses, school-chartered buses or multifunction school activity buses; keep aisles and emergency exits in school buses, school-chartered buses and multifunction school activity buses clear at all times; safely stow and secure away from any aisle or emergency exit any item that is brought on board.
5. Provide supervision of loading and unloading areas at or near the school or Head Start

Center and provide ongoing evaluation of route pick-up and drop-off locations for safety;

6. Provide adequate supervision for students whose bus schedules necessitate their early arrival or late departure from school or Head Start;
7. Promote public understanding of, and support for, the school transportation program;
8. Develop and implement local student transportation policies and regulations, including those for students with special needs;
9. Provide transportation personnel with opportunities for growth in job-related activities;
10. Provide a library of resources to ensure that transportation personnel have the proper tools to operate a safe and efficient program, including but not limited to, the following resources:
  - a. Applicable federal, state and local laws, codes and regulations;
  - b. Applicable manuals and guidelines;
  - c. On-line connectivity for access to all internet and other resources;
  - d. Applicable trade journals and organizations' publications; and
11. Provide contract management (if applicable).

**Note:** *If a private carrier is utilized in a school transportation operation, it is imperative that a clear partnership is established with all parties. Clear expectations and contract review, along with on-going training, communication and practice/procedures should be developed with a working partnership in mind.*

## B. Staffing

The tasks associated with the successful operation of the local transportation department are many and varied. Depending on the size of the school district, many duties may be consolidated in a single position, or each position may have very specific duties. The leadership of a truly effective transportation department promotes career paths and succession plans that will ensure continuity and consistency of the operation.

The following duties are classified by the type of position that would have standalone responsibility, recognizing that an individual may have the responsibilities of several of the designated positions.

**Note:** Recommended job descriptions for this section may be located in APPENDIX D.

1. Administrative

a. Director, manager, supervisor and/or private operator

This position is in charge of daily transportation functions. Duties are to plan, direct, coordinate and oversee all functions pertaining to the operation and maintenance of the district transportation department, including personnel, equipment and facilities. Prime concern is safe, efficient and economical transportation of students between home and school on a regular schedule and to other destinations, as required by the students' programs or school activities.

b. Area supervisor/assistant supervisor

This position oversees a wide variety of operational functions in a specified area or for specific schools.

c. Transportation specialist

This position is often a combination of several job functions. Duties may include dispatching, routing (computer or pin maps) and driver training.

2. Support

a. Dispatcher/Scheduler

This position is responsible for scheduling and coordinating the transportation of students to and from school and related school district-sponsored activities and for covering all bus routes by drivers daily. This position may also schedule other district vehicles for district employees and maintain required records. This position may also assure that radio and other communication transmissions are monitored and maintained while ensuring proper radio protocols per Federal Communications Commission (FCC) regulations.

b. Instructor/Trainer

Duties of this position include conducting training for potential new bus drivers and attendants, conducting training for veteran bus drivers and attendants and ensuring that training is completed according to federal, state and district requirements.

c. Routing specialist

Duties of this position include developing and maintaining safe, efficient and cost-effective bus stops and routes and assigning routes to bus drivers.

d. Administrative assistant, clerical

This position provides support to the transportation supervisor. Duties may include preparing department correspondence, answering phones, fielding questions and complaints, referring calls to appropriate staff, maintaining credentials, establishing and using filing systems, use of office equipment to include software, preparing payroll and providing support to the dispatcher/scheduler, instructor/trainer, routing specialist and to shop personnel.

e. Bookkeeper

This position provides accounting support for management and issues invoices for services, extracurricular bus trips and maintenance of other department vehicles. Duties may also include preparing purchase orders, authorizing and/or issuing related payment documents and budget reports and ensuring that all financial transactions are properly recorded, totaled, balanced and reconciled with budgeted amounts.

3. Operations

a. Bus driver

The bus driver operates school buses safely under all types of weather, traffic and road conditions, and transports students and other authorized persons on regular and special program routes to and from school and on field, extracurricular and other special activity trips, as authorized by school district officials.

b. Bus attendant (monitor or aide, driver assistant, assistant, para or paraprofessional)

The attendant teams with the driver to meet students' needs while en route, thus providing students a safe environment in the bus and allowing the driver to focus on operating the bus. Attendants assist students with special needs, or children enrolled in Head Start or other programs to provide passengers the safe ride to and from school, school activities or Head Start centers. Attendants complete specialized training in the duties and responsibilities of the position. Attendants may be placed at the discretion of the district where

behaviors are severe or otherwise where it is deemed necessary to help maintain a safe environment.

4. Vehicle maintenance

a. Vehicle maintenance supervisor, foreman, manager or lead technician

Duties of this position include oversight of preventive maintenance, supervision of technician staff, service and repair of school buses and other district vehicles and equipment, as may be assigned, compile reports, utilize vehicle maintenance programs, participate in sound environmental practices, schedule and prioritize work.

b. Journey technician

Under the direction of the vehicle maintenance supervisor, the journey technician has primary responsibility for maintaining and repairing all school buses and other vehicles, as assigned.

c. Assistant technician

Under the supervision and direction of the vehicle maintenance supervisor, the assistant technician assists with all mechanical repair and preventive maintenance activities.

## **RESPONSIBILITIES**

### **Driver Responsibilities**

- A. Drivers should be familiar with and abide by all rules, policies and procedures affecting student transportation. They should be trained and display proficiency in the appropriate use of all equipment, tools, technologies and adaptive equipment in the bus.
- B. Drivers should recognize the importance of establishing rapport with parents, their supervisors, and school or Center administrators when working to ensure proper student management.
- C. Drivers should establish proper rapport with students.
- D. Drivers should instruct and demonstrate safe and appropriate behavior, consequences of improper behavior, general procedures, seat belt use and proper adjustment (when equipped), evacuation drills and safe travel practices. (See APPENDIX D.)
- E. Drivers should maintain order and safety and protect the rights of others in the school bus.

They should exercise good judgment and prudence in this pursuit, using appropriate verbal interventions. This includes, but is not limited to, the following:

1. Minimizing interior noise;
  2. Requiring an orderly entrance and exit;
  3. Eliminating movement or potential movement of objects;
  4. Requiring silence at railroad crossings; and
  5. Prohibiting transportation of unauthorized materials.
- F. Drivers should handle minor infractions with on-board consequences and discussions approved by the school district or Head Start agency.
- G. Drivers, in instances of serious or recurring misconduct, should follow school district or Head Start policies pertaining to the misconduct and should submit written reports on appropriate forms to administrators or other persons designated to deal with discipline problems. (See APPENDIX D.)
- H. Drivers should be aware that they represent the school system, Head Start agency and/or the bus company and should present a positive image in dress, language and manner while on duty.
- I. Drivers, including substitute or spare bus drivers, should be provided with and should be familiar with written instructions of the assigned route that would include any existing railroad crossings and any fixed route hazard(s).
- J. The school bus driver is the key to an effective daily inspection program. It is the driver's responsibility to make a planned and systematic inspection of the bus before each route and/or trip, or to assure that the inspection has been completed properly in a timely manner. A recommended procedure requires both stationary and operating inspections. The following inspection outline is not suggested as a model for use, but rather is included as a guide for transportation personnel to use in developing a systematic inspection procedure.
- Although this section identifies most items to be inspected, state commercial driver's licensing (CDL) requirements may include additional items. All items should be inspected in the method prescribed by CDL requirements and any other applicable regulations.
- K. Drivers shall be trained in, and shall abide by, confidentiality rules and regulations (FERPA, IDEA, HIPAA, etc.)

*Note from the NCST Editing Committee: Please see Joint Guidance on the Application of the Family Educational Rights and Privacy Act (FERPA) and the Health Insurance Portability and Accountability Act of 1996 (HIPAA) To Student Health Records document available at <https://www.hhs.gov/sites/default/files/2019-hipaa-ferpa-joint-guidance.pdf>.*

1. Stationary inspection:
  - a. Observe the bus for evidence of oil, fuel, coolant, grease or water leaks, vandalism or damage to the vehicle.
  - b. Observe areas around the vehicle for hazards detrimental to vehicle movement.
  - c. Be familiar with the under-hood inspection and conduct the under-hood inspection, if required to do so.

2. Walk-around inspection:

Before starting the inspection, place the transmission in neutral and set the parking brake (or fully depress the clutch pedal in manual transmission-equipped vehicles), start the engine and inspect the bus from top to bottom and end to end. Check these items:

- a. Tires (under inflated, flat, excessively worn or damaged, valve stems and caps);
- b. Wheels (loose or missing nuts, excessive corrosion, cracks or other damage and any sign of misalignment);
- c. Fluid leaks (evidence of wetness on inner wheels and tires);
- d. Windows (for dirt, stickers or other obstructions to vision and clean, if necessary);
- e. Mirrors (clean, properly **set in accordance with FMVSS 111** and tightly adjusted);
- f. Warning systems (clean, properly working running lamps, backup lamps, signals and signs, reflectors, turn signals, stop lamps and warning flashers);
- g. Exhaust system (sagging exhaust pipes, short and leaky tailpipes and defective mufflers);
- h. Emergency exit seals (to prevent possible entrance of dangerous carbon monoxide fumes), hinges and warning buzzer; and

- i. Body for sharp edges, missing or damaged panels, loose rub rails and bumper securement.
3. Inside safety check
- a. Passenger compartment, seats, frames, emergency exits and windows must be carefully checked.
  - b. Inspect instruments and controls. With the engine operating, check the following:
    - I Vacuum or air pressure gauge or hydraulic indicator lamps, which should indicate adequate capacity to operate brakes. Loss of air or hydraulic pressure or vacuum indicates a braking deficiency that must be corrected immediately. For buses equipped with electric hydraulic brakes, the driver shall depress the brake pedal with the engine off to check the operation of the backup system.
    - II The oil pressure gauge, indicating adequate pressure. The engine should be turned off in the event of inadequate pressure and reported immediately.
    - III Warning lamps:
      - i. Prolonged oil pressure warning lamp, display is a signal of oil pressure problems, and the defect should be reported immediately.
      - ii. Service brake warning lamp displayed during brake application indicates that the brake system is not operating properly.
      - iii. Alternator/generator warning lamp displaying a continuous light "on" after the engine is running indicates a malfunction in the charging system.
      - iv. Ammeter and/or voltmeter indicating any continuous discharge should be reported immediately.
      - v. Water temperature gauge should always indicate "cool" or "warm." If it indicates "hot," the engine should be stopped immediately. The same action should be taken if the temperature warning lamp goes on.

vi. Anti-lock brake system warning lamp being “on” indicates that the brakes are still functional but the anti-lock system is not.

4. Check each of the following items for proper operation, adjustments or condition:
- a. Lamps and signals: turn signals, stop lamps, special warning lamps, emergency flashers, clearance (marker) lamps, headlamps, interior lamps and stop arm lamps;
  - b. Stop arm control;
  - c. Windshield fan, defrosters and heaters;
  - d. Horns;
  - e. Entrance (service) door and control;
  - f. Mirrors: rear view, side view, convex and elliptical;
  - g. Three emergency triangles;
  - h. Seat(s) and passenger restraint system (if equipped);
  - i. Fire extinguisher\*;
  - j. First aid kit\*;
  - k. Body fluid cleanup kit;
  - l. Webbing cutter\*;
  - m. Wipers/washers;
  - n. Sanders (when equipped);
  - o. Power lift (when equipped);
  - p. Spare electrical fuses (if required);
  - q. Adaptive equipment devices;
  - r. Crossing control arm (if equipped); and
  - s. Post-trip inspections (student check alarm if equipped).

\*(with required signage for Head Start vehicles)

## **Parent/Guardian Responsibilities**

Parents, guardians and persons acting in *loco parentis* should:

- A. Understand and support district or Head Start Center rules and policies, regulations and principles of school bus safety;
- B. Assist children in understanding safety rules and encourage them to comply;
- C. Recognize their own responsibilities for the actions of their children. Understanding this, parents or guardians shall be responsible and accountable for the conduct and safety of their children at all times prior to the arrival and after the departure of the school bus at the assigned school bus stop;
- D. Support safe riding practices and reasonable discipline efforts;
- E. Teach children proper procedures for safely crossing the roadway before boarding and after leaving the bus, as described in APPENDIX D;
- F. Support procedures for emergency evacuation as prescribed by states and school districts and Head Start Centers;
- G. Respect the rights and privileges of others;
- H. Understand the dangers of loose clothing, drawstrings, clothing accessories, backpacks and other loose personal items and take appropriate action;
- I. Monitor bus stops, if possible;
- J. Support all efforts to improve school bus safety;
- K. Be aware of illegal or undesirable activities and other dangers involved in and around the loading and unloading zone; and
- L. Communicate observed safety concerns to appropriate school district representative.

## **Student Responsibilities**

Proper student behavior is important because the distraction of the driver can contribute to crashes. Students and parents should be made aware of, and should abide by, reasonable regulations to enhance safety. The consequences of unacceptable behavior should be clearly understood. The following actions will help to protect the student's rights and to maintain order in the bus:

- A. Students should be aware that they are responsible for their actions and behavior.

- B. Students should receive a copy of the rules and procedures and should be required to comply.
- C. Students should display respect for the rights and comfort of others.
- D. Students should be taught to realize that school bus transportation can be denied if they do not conduct themselves properly.
- E. Students should be made aware that any time the bus driver is distracted, it is potentially hazardous to the safety of all passengers, the bus driver, other pedestrians and motorists.
- F. Students should be informed of the dangers of loose clothing, drawstrings, clothing accessories, backpacks and other loose personal items.
- G. Students should be made aware of the dangers involved walking to and from, in and around the loading and unloading zone. Students should be trained to cross the road safely at the bus stop and should be taught to avoid retrieving articles dropped in the danger zone of the bus during loading and unloading activities, or otherwise when they are in the area around the bus, without explicit directions from the driver. Students should also be taught to move away from the bus (out of the danger zones) after unloading. (Refer to APPENDIX D, "Here's How to Cross the Road SAFELY." These safety training diagrams show a 12-foot minimum walk distance in front of the bus.)
- H. To train students to understand, remember and practice the 12-foot minimum walk distance, one or more of the following instructional methods should be used:
  - 1. Mark the 12-foot walk distance on the ground and have each student, in normal or giant steps, walk off the distance and count the steps. The student's total steps shall be recorded and the student should be informed and repeatedly reminded of this total number of steps required for the walk distance.
  - 2. Have each student practice walking ahead of the bus on the right shoulder of the road until the student can clearly see the bus driver's eyes. (Refer to APPENDIX D, "Here's How to Cross the Road SAFELY.")

## **OPERATIONAL PROCEDURES**

- A. Policies and Guidelines:

The responsible state agency and the local school district or Head Start agency should have clear and concise policies and guidelines for the operation of their student transportation programs. These are important for two reasons: (1) they have the effect of law when laws or regulations do not specifically address a situation; (2) they serve as the rule book for use by persons charged with the administration of transportation services within the district or qualified agency.

Once established, these policies and guidelines become the basis for development of operating procedures, thus allowing 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 include the following topics:

1. A statement of philosophy;
2. A definition of the agency's goals and objectives;
3. Procedures for determining eligibility for transportation;
4. A description of all types of transportation provided;
5. The days on which service will be available;
6. School starting and closing times;
7. Administrative responsibilities related to program service;
8. Essential routing constraints, such as walking distances and age/grade of students for whom the appropriate agency will provide transportation;
9. The extent of special transportation services;
10. A compilation of student rules and regulations;
11. Provisions and guidelines for the use of contracted transportation and/or charter buses;
12. Provisions and guidelines for the emergency use of personal vehicles to transport students;
13. Acceptable purchasing procedures;
14. Required minimum limits of insurance coverage;
15. The essentials of a crash prevention program, including the uniform school bus crash reporting criteria;
16. A system to communicate procedures between administrators and parents, and between administrators and the bus company or drivers, including student discipline procedures and compliance;
17. A procedure for providing drivers and bus attendants with essential information about students they transport;

18. Emergency procedures and/or contingency plans to be followed in the event of a crash, unexpected school closing or unforeseen route change;
19. Use of special lighting and signaling equipment, as indicated below:
  - a. If the bus is so equipped, use of alternately flashing amber lamps to warn motorists that the bus is preparing to stop to take on or discharge passengers;
  - b. Use of alternately flashing red lamps to inform motorists that the bus is stopped on the roadway to take on or discharge passengers;
  - c. Operating the stop arm(s) in conjunction with the flashing red signal lamps;
  - d. Use of a white flashing strobe lamp (if equipped) to increase the visibility of the school bus on the roadway during adverse visibility conditions;
  - e. Use of a crossing control arm, when installed, to encourage children to cross properly in front of school buses; and
  - f. Use of an outside public address system for instructing children in crossing roadways and for informing them of potentially life-threatening situations.
20. Personnel information, such as the following items:
  - a. An organization chart identifying the flow of responsibility from the board of education or Head Start agency to the employees;
  - b. Job specifications and descriptions (provided at the time of employment); and
  - c. Identification of pre-employment and continued employment requirements and procedures.
21. Harassment policies and reporting procedures with specific requirements as listed below:
  - a. School districts shall develop written policies and procedures dealing with all forms of harassment in the school bus. (*Harassment* is “the use or tolerance of verbal or physical behavior, which serves to threaten, demean, annoy or torment another person.” Harassment includes unwanted activities or comments based on race, religion, gender, sexual preference, personal attributes and other acts, as may be determined in local policy.)
  - b. School districts shall develop training programs to assist all employees in recognizing harassment and in identifying appropriate interventions and reporting strategies.

- c. School district policies and procedures shall also address assisting and follow-up with the victims of harassment.
- d. The service provider shall ensure that school district policies and procedures are implemented.
- e. School districts shall develop and implement guidelines for administering appropriate disciplinary actions resulting from acts of harassment.

- 22. Weapons; and
- 23. Drugs and alcohol.

B. Driver's and Attendant's Manual/Handbook

Each employer should provide a manual or handbook to each school bus driver and attendant at the time of employment. This manual should include the following subjects:

- 1. Applicable federal and state transportation laws, regulations and policies;
- 2. Motor vehicle rules and regulations applicable to school bus operation;
- 3. Vehicle operation and maintenance, including inspections;
- 4. Pre-trip and post-trip inspection procedures (including equipment required for transporting passengers), securing the vehicle and checking for passengers and property at the end of each run, as well as any state or locally required documentation;

***Note:** Drivers are responsible for conducting a walk-through inspection of the school bus following drop-offs at each school and after the last delivery on each run segment. Prior to departing the bus for any length of time, a walkthrough inspection must be conducted. The purpose of the walk-through inspection is to check on and under the seats for sleeping or hiding students and to identify any items that may have been dropped or left aboard the bus. Warning flag systems and/or electronic means may be used. Written policies and procedures should be in place for post-trip and post-run segment checks.*

- 5. Procedures to follow when involved in a crash or safety-related incident, when witnessing a crash and when involved with post-crash reporting;
- 6. Elements of basic first aid procedures with knowledge of universal precautions, plus any local practices and policies that may vary from, but should not conflict with, state requirements;

7. Elements of student management, including techniques for dealing with students with specific disabilities;
8. Local school district, Head Start and employer policies; and
9. Instructions on usage and proper adjustment procedures for seat belts, built-in or add-on child restraints, and any other devices used for student protection (when equipped). (See APPENDIX D.)

C. Seating and occupant restraints

1. School buses provide the safest form of student transportation. An integral part of providing “safe” transportation in a school bus is that the passengers must be properly seated. 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 sudden driving maneuver.

Additionally, there must be sufficient space on the school bus seat for each passenger’s body to be completely contained within the seat compartment. In the event of a crash or sudden driving maneuver, students who 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.

In practice, school buses transport students of various sizes, typically from preschoolers to 12<sup>th</sup> graders. While a 39-inch seat may safely accommodate three preschoolers and/or primary school-age children, it may not safely accommodate the same number of older children. Since the size of growing children varies, the number of students 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 students transported. The use of a child safety seat or other child safety restraint for an infant, a toddler or other pre-kindergarten passenger or the use of special equipment, including mobility devices 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 when 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.

**Note:** *Specific state laws or local regulations may prohibit overloading a bus, even in temporary situations.*

Highway Safety Program Guideline No.17, *Pupil Transportation Safety*, as issued by the National Highway Traffic Safety Administration and printed in APPENDIX D, includes the following statements with respect to passenger seating:

- a. "Standing while school buses and school-charter 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-charter bus is in motion" [IV.C.2.e.(1)].
  - 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" [IV.C.2.e.(2)].
  - c. "There should be no auxiliary seating accommodations, such as temporary or folding jump seats in school buses" [IV.C.2.e.(3)].
2. All children riding in school buses or other buses used to transport students to and from school, Head Start or related activities shall be properly and safely seated facing forward, unless otherwise required by a child safety restraint system (CSRS). There shall be adequate space on the seat for the child to be seated completely within the seating compartment.

The growing number of pre-school-age children who are transported in school buses has increasingly focused attention on the safety of these passengers. In response to questions and concerns raised by parents and by transporters, the National Highway Traffic Safety Administration (NHTSA) conducted crash tests involving pre-school child-size dummies on school bus seats.

According to NHTSA, "...the test results showed that pre-school age children in school buses are safest when transported in child safety restraint systems (CSRSs) that meets [sic] FMVSS 213, Child Restraint Systems, and are correctly attached to the seats." This quotation, contained in the "Introduction" of NHTSA's *Guideline for the Safe Transportation of Pre-School Age Children in School Buses* (February 1999), summarizes the basis for the document's recommendations, which have drawn industry-wide attention and have initiated intense discussions with respect to practicability. (See entire document in APPENDIX F.)

The publication defines a child safety restraint system (CSRS) as "...any device (except a passenger system lap seat belt or lap/shoulder seat belt), designed for use in a motor vehicle to restrain, seat or position a child who weighs less than fifty pounds."

CSRSs include infant seats, convertible seats, forward-facing-only seats, booster seats with built-in harness, integrated seats and safety vests.

NHTSA's "Guideline..." was a primary source for requirements for Head Start transportation services contained in 45 CFR 1310, disseminated in the *Federal Register* on January 18, 2001. Among many other requirements, §1310 specified, mandatory use of CSRSs in vehicles that transport children to and from Head Start programs and related activities, and the regulation set deadlines for compliance. [A subsequent interim rule, published in the *Federal Register* (Vol. 69, No. 11) on January 16, 2004, extended the deadline for compliance and included provisions for further justified and approved extensions.]

Due to the evolutionary nature of the entire issue of CSRSs—product design and construction, appropriate usage, varied state laws and regulations, applicability (recommendation versus regulation), implementation deadlines, etc.—the OPERATIONS section of the *NCST Specifications and Procedures* does not contain specific details regarding applicability, selection, use, maintenance and replacement of CSRSs. More detailed information may be found elsewhere in this publication: BUS BODY SPECIFICATIONS—Seat and Restraining Barriers; SPECIALLY EQUIPPED SCHOOL BUS SPECIFICATIONS— Restraining Devices; GUIDELINES FOR INFANTS, TODDLERS AND PRE-SCHOOL CHILDREN—Equipment, Child Safety Restraint Systems (CSRS), Bus Seat Designated for a Child Safety Restraint System and Special Considerations; and APPENDIX F.

Additional information and guidance are available in *Proper Use of Child Safety Restraint Systems, Choosing the Correct School Bus for Transporting Pre-School Age Children* and other NHTSA publications ([www.nhtsa.dot.gov](http://www.nhtsa.dot.gov)), in *Safe Ride News* ([www.saferidenews.com](http://www.saferidenews.com)), from local NHTSA-trained Child Safety Seat Technicians and from local physical therapists.

Transporters of pre-school age and older children in vehicles that use CSRSs minimally should adhere to the following recommendations:

- a. Establish written policies and procedures for:
  - I Procurement, maintenance, cleaning and replacement of CSRSs;
  - II Registration and tracking equipment recall notices;
  - III Inspection;
  - IV Installation and usage training;
  - V Occupancy of non-restrained passengers on seats behind restrained

passengers;

VI Locations of restrained passengers with respect to emergency exits;

VII Retrofitting school buses with CSRSs; and

VIII Emergency procedures.

- b. Ensure adequate training of personnel in the installation, use, care and upkeep of CSRSs.
- c. Assure age-, height- and weight-appropriate applications of CSRSs.
- d. Require periodic passenger evacuation drills.
- e. Establish records files for all CSRSs, to include a complete history of each restraint device.
- f. Incorporate CSRS usage and proper seat spacing in school bus specifications.
- g. Monitor developments and changes at the state and federal levels with respect to CSRSs.
- h. Transporters of pre-school age and older children in vehicles that use seat belt systems minimally should adhere to the following recommendations:
  - I Establish written policies and procedures for:
    - i. Procurement, maintenance, cleaning and inspection of seat belt systems;
    - ii. Usage training (See APPENDIX D.);
    - iii. Retrofitting school buses with seat belt systems; and
    - iv. Emergency procedures.
  - II Develop training and procedures for personnel in the use, care and upkeep of seat belt systems, and the use of seat belt cutters.
  - III Require periodic passenger evacuation drills.

#### D. Student Management

An effective student management program is a collaborative effort involving many groups of

people in the school community or Head Start agency. Parents, students, school bus drivers, school or Head Start administrators, contract managers (where contract transportation is provided), law enforcement and social service agencies must be part of the ongoing process to motivate students to good behavior. It is the responsibility of the school district or Head Start agency to ensure that a comprehensive student management program is developed, so that all persons involved in the process are familiar with their responsibilities.

**Seating Charts:** The use of a seating chart that is enforced and continuously updated is an accepted practice and is recommended as a tool for student management and safety. The seating chart, in addition to maintaining accurate student lists/rosters or manifests, should be considered an operational “best practice.”

1. School, School District, Head Start and/or Carrier Responsibilities

No public or private school, school district, county board of education, county superintendent of schools or any officer or employee of the school or board of education or Head Start Center shall be responsible or in any way liable for the conduct or safety of any student of the school or Head Start Center at any time when the student is not on school or Head Start Center property, unless the school, school board, Head Start agency or person has undertaken to provide transportation for the student to and from the school or Head Start premises, has undertaken a school- or Head Start-sponsored activity off the premises of the school or Head Start Center, has otherwise specifically assumed the responsibility or liability or has failed to exercise reasonable care under the circumstances.

In the event of the specific undertaking, the school, school district, board of education, Head Start agency or person shall be liable or responsible for the conduct or safety of any student only while the student is, or should be, under the immediate and direct supervision of an employee of the school, school district, board of education or Head Start agency.

In addition, no entity that provides transportation services for students, pursuant to a contract with a school, school district, city or county board of education, county superintendent of schools or Head Start agency, shall be responsible or in any way liable for the conduct or safety of any student of the public or private school or Head Start agency at any time when the student is not under the immediate and direct supervision of an employee of the entity.

Specific responsibilities include, but are not limited to, the following:

- a. Establish policies and procedures by which the program functions. These should include, but not be limited to, the examples listed in APPENDIX D.

- b. Establish regulations governing the behavior and safety of students at the bus stop and while boarding, riding and disembarking from the school bus. The rules students are expected to follow should be limited in number, should be age-appropriate and should be posted in the bus and/or otherwise made available to all riders. (See APPENDIX D.)
- c. Institute and administer an instructional program that teaches students proper conduct and transportation safety procedures. (See APPENDIX D.)
- d. Conduct a training program for school bus drivers and attendants to ensure that all policies, procedures, regulations and their enforcement are understood.
- e. Ensure that parents receive written copies of the bus rules and regulations. Ensure that parents are informed about their responsibilities for the supervision and safety of students going to and from bus stops and while at the bus stops. (See APPENDIX D.) Clearly establish parents' roles and obligations with respect to student promptness, attitude and behavior.
- f. Initiate procedures to ensure open lines of communication and cooperation among school and Head Start administrators, bus company officials, state agencies, bus drivers and attendants.
- g. Train drivers and attendants in specific skills that will enable them to maintain order, safety and respect for the rights of others. These skills should include at least the following:
  - I Specific verbal intervention techniques used to maintain order and safety; and
  - II Communication skills that promote rapport and mutual respect and that encourage student compliance.
- h. Ensure that administrators support and enforce disciplinary procedures, policies and reasonable actions by the driver.

E. Use of video/audio monitoring systems

School systems and Head Start agencies should promulgate, communicate and enforce policies and procedures to be followed when using on-board video/audio monitoring systems. Video/audio monitoring in a school bus should be used only as an aid to monitor student and driver behavior and should not replace the discipline policy, the authority of the driver or the responsibility of school or Head Start officials. The basic safe riding rules must prevail, and the consequences of misconduct must be carried out.

1. All students and drivers shall be notified that they are subject to being video/ audio-recorded in the school bus at any time. Notification to parents of all students shall be made by the school district or Head Start agency. Prior to actual recording, parents and students shall be advised that student conduct prohibited by state and school district or Head Start student disciplinary code will result in appropriate consequences, as defined in policy.
2. Ongoing notification regarding video/audio recording 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.
3. If video/audio monitoring systems are to be used for monitoring drivers, the drivers must be notified as to the extent of their use and for what purposes they will be used.
4. When a camera rotational plan is used, cameras should be moved so as not to select only certain buses. However, the transportation supervisor and/or school or Head Start administrator may decide when video monitoring of a bus route should be done more frequently based on the number of incidents of misconduct or the seriousness of incident reports. Such additional monitoring is meant to supplement the written disciplinary reports by the bus driver, not to take the place of reports.
5. The transportation supervisor or designee may periodically review recordings as needed to ensure proper student conduct. If no incidents are reported within a period defined by local policy, the tapes will be recycled or the digital recordings deleted. If incidents are reported, or if incidents are viewed during random selection, the video tapes or digital recordings are to be kept until final resolution and time for any appeals.

Tapes or digital recordings must be dated and have the bus number and driver's name in order to ensure proper identification.

6. When action is taken as a result of information obtained from the videotape or digital recording, 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 or digital recording may be used as evidence in that meeting if state law and school district or Head Start policy allows it. All requests for review shall be made in writing.
7. Each district or Head Start agency must designate by policy those persons who are allowed to review the tapes or digital recordings.

F. Records

1. Crash and safety incident investigation records function as the database for statistical analysis, which, in turn, provides material for crash prevention programs. In addition to the uniform school bus crash reporting criteria, additional crash safety incident investigation records may include the following information:
  - a. If injuries occurred, a list of all students injured, their home addresses phone numbers and dates of birth, the extent of their injuries and appropriate explanations;
  - b. A list of bus occupants and witnesses, including addresses, ages, phone numbers and statements;
  - c. Extent of damages and an estimate of repair costs;
  - d. Post-crash data [i.e., disposition of litigation and/or summonses, driver deposition, net effect of personal injuries, remediation (if any), assigned in-service, etc.];
  - e. A signed statement from the bus driver and bus attendant or monitor (if applicable) concerning the particulars of the crash;
  - f. Complaints, challenges and disposition of hearings, etc.; and
  - g. A clear description of the circumstances regarding what happened:
    - I What, where, when, who, and related roadway, area, weather and hazardous conditions information;
    - II Related vehicle operating and mechanical information; and
    - III Related procedural and operating information for all vehicles and operators involved.
2. Personnel records should contain the information required and allowed under federal and state laws.
3. U.S. Department of Justice, Employment Eligibility Verification and I-9 Forms should be maintained in a separate file or binder.
4. Driver qualification records should contain at least the following items:
  - a. An application for employment;

- b. Confirmed work history;
  - c. Driving record;
  - d. Criminal record;
  - e. Physical examination, as required for the type of license and/or special school bus certificate held;
  - f. Copy of drug and alcohol testing information in compliance with current federal, state and company testing requirements; and
  - g. All other items as required by federal and state laws and rules.
5. Training records should contain, at a minimum, accurate information certifying attendance and satisfactory completion of all state- and company-required training. Details about each training activity, including date of instruction and instructor signature, should be documented and included. The following is a list of minimum training to be documented:
- a. Classroom Training
    - I Pre-service;
    - II In-service; and
    - III Post-crash or evaluation follow-up.
  - b. Behind-the-Wheel Training
    - I Written documentation of each activity;
    - II A written assessment tool showing satisfactory completion, with rating;
    - III Documentation of the type of equipment used, both vehicle and safety; and
    - IV A log of the number of hours of instruction and practice driving.
6. Route records should contain:
- a. Types of routes (urban, suburban, rural);
  - b. Route descriptions, including accurate route maps;

- c. Route miles;
- d. Information about the needs of special education students;
- e. Information pertaining to road conditions and hazards utilizing “Identification and Evaluation of School Bus Route and Hazard Marking Systems” developed by NASDPTS (as presented in APPENDIX D); and
- f. Scheduled pick-up and drop-off times at each bus stop.

7. Maintenance records should contain the following items:

- a. Line setting tickets;
- b. Work orders and repair records;
- c. Preventive maintenance records;
- d. Vehicle depreciation;
- e. Equipment specifications; and
- f. Inspection reports.

8. Cost records should contain data in the following categories:

- a. Vehicles;
- b. Labor for vehicle maintenance and repairs;
- c. Parts;
- d. Inventory;
- e. Administration; and
- f. Fuel, lube, coolant, etc.

G. Communication

- 1. Each bus shall have a two-way communication system capable of providing communication with the operation’s base, or at least local 911 operators where technologically feasible. All school buses that transport individuals with disabilities should be equipped with a two-way electronic voice communication system that can be used at any point on the vehicle’s route.

2. It is necessary to keep persons in charge of the system, bus companies, parents and students informed of all operational procedures. The school district or Head Start agency must ensure that the channels of communication are set up so that information can be disseminated quickly and effectively. The school district or Head Start agency must ensure that inquiries, requests, suggestions and recommendations are given prompt and appropriate attention and are handled efficiently. Some of the ways information can be disseminated and their purposes are listed below:
  - a. Bulletins: to explain the school district's or Head Start agency's transportation policy to school and Head Start administrators, teachers, bus companies, drivers, attendants, parents, students and others associated with the operation and to clarify new laws and safety policies so that all persons involved know what is expected of them;
  - b. Meetings: to provide an opportunity for those associated with the transportation program to share their views and to help build broad community support for safe transportation;
  - c. Public press: to inform parents of policy, route, stop and schedule changes, of the safety record of the operation and positive driver achievement records;
  - d. Conferences: to discuss solutions to disciplinary problems with drivers, attendants or monitors, disruptive students and their parents and to review policy decisions affecting drivers, contractors, students and school or Head Start administrators;
  - e. Letters: to inform parents of all school or Head Start and state regulations, new routes, etc. and to reply to more urgent inquiries regarding student transportation safety, policy and procedures;
  - f. Telephone calls: to provide quick contact between bus drivers and the school or Head Start Center or between parents and the school or Center in the event of urgent or emergency situations;
  - g. Radio, television or web page announcements: to inform the public of procedures the schools or Centers will follow in case of severe weather conditions or other natural phenomena, new policies, laws, etc.;
  - h. Formal hearings: to be used, as required, for student suspensions from transportation, route challenges, serious complaints against drivers, attendants or monitors, etc.; and
  - i. Wireless communication devices: to be used by drivers and attendants only for emergency or business-related communication. (Devices, and particularly

cell phones, should not be used for personal communication.)

H. Crash Reporting

Each state’s generic traffic collision report for motor vehicle crashes should include at least the information contained in the “Sample Crash Reporting Form” in APPENDIX D.

I. Air Quality

The school transportation community is supportive of efforts to reduce emissions and improve air quality, particularly for the students served by school bus transportation. In fact, the school bus industry has been at the forefront of environmental improvements and is committed to a continuing involvement and leadership role in improving engine emissions.

An accelerated replacement of older buses with new school buses equipped with the latest emission controls and engine technologies would be ideal. Likewise, retrofitting newer school buses with the latest emission control technologies can help improve air quality, but at additional costs.

While the student transportation industry and other entities work to develop new and increased sources of funds, states and local districts can institute policies that will contribute to improvements in air quality, especially for children.

1. Idling control measures

a. States and local districts should develop programs to eliminate unnecessary engine idling...

I At school site loading and unloading zones; and

II At school bus stops, located out of traffic during extended wait times.

b. Consideration should be given to varying climatic conditions within the state or local district and to the individual needs of students with disabilities.

2. Driving in traffic

States and local districts should develop programs to inform school bus drivers of the effects of closely following other vehicles, particularly large commercial motor vehicles, including other school buses, since the exhaust emissions from those other large vehicles can contribute significantly to the air quality inside the school bus.

3. School bus utilization

4. School bus maintenance programs

States and local districts should continue to improve the inspection and maintenance programs that have been established, with a renewed attention to factors impacting emissions.

J. Using New Technologies and Products

1. Operators should explore the use of new technologies and products, whenever practicable, to improve the safety, effectiveness, accountability and efficiency of student transportation operations. While it may be considered a “best practice” to utilize the latest emerging technologies, a prudent administrator must recognize that there are core competencies inherent to school bus operations and bus driver responsibility. It is recommended that transporters acknowledge such technologies and find a balance between technology and operators’ knowledge.
2. Current technologies include, but are not limited to:
  - a. Computerized Functions
    - I Routing;
    - II Timekeeping;
    - III Activity trips;
    - IV Student tracking;
    - V Employee tracking;
    - VI Vehicle maintenance;
    - VII Training records;
    - VIII Pre-trip / post-trip inspection reports;
    - IX Reimbursements;
    - X Student management; and
    - XI Fleet maintenance, such as...
      - i. Automatic vehicle location;
      - ii. Global positioning systems (GPSs);
      - iii. Electronic pre-trip and post-trip inspections; and

- iv. Electronic fuel dispensers.

**NOTE:** Information regarding Mobile Data Device (MDD) mounting and operational specifications can be found in the SCHOOL BUS SPECIFICATIONS Section.

## SELECTION AND TRAINING OF BUS DRIVERS

- A. Procedures for selection of school bus drivers should include the following items:

**Note:** Driver applicants for Head Start positions **must** be informed in writing of all background checks and other requirements, as required in 45 CFR 1310. Items marked with an asterisk identify Head Start regulations.

1. An appropriate application form (See APPENDIX D.);
2. Written criteria for accepting and rejecting applicants\*;
3. Written notification to all applicants that driving records checks, criminal records checks and drug/alcohol screening will be conducted\*;
4. A check of each applicant's driving record; (Checks of the National Driver Register and the CDL Information System of the appropriate state department of motor vehicles are considered essential\* in the case of an individual who is applying for a position as a school bus driver.)
5. A check through both state and national criminal identification agencies to determine if each applicant has a record of criminal convictions\*;
6. One or more personal interviews (which can be one of the most important of the selection procedures);
7. Perform reference checks and background checks on all potential new bus drivers, to include interactions with children and/or any concerns working with children;
8. Physical examinations and drug and alcohol testing administered in accordance with local, state and federal requirements; and
9. A determination of educational attainment to demonstrate the applicant's ability to follow detailed, written instructions and to be able to record and report data accurately.

- B. Pre-service and In-service Training Programs

1. Prior to transporting students, bus drivers should be required to complete a state-approved pre-service training program that includes classroom and behind-the-wheel training to enable safe and efficient vehicle operation. While there are many possible and helpful topics for pre-employment and annual in-service training, the following are examples of essential topics:
  - a. The importance of Pre-trip and Post-trip Inspections;
  - b. School bus evacuations (for all eligible students);
  - c. School bus evacuations (for students with special needs);
  - d. Loading and unloading procedures;
  - e. Reduced-idling laws and policies (if applicable);
  - f. Cell Phone and Electronic Communication Device Restrictions in accordance with all regulations/laws and local policies;
  - g. Road rage;
  - h. Distracted driving;
  - i. Aggressive driving;
  - j. Blood borne pathogens/first aid;
  - k. Bullying on the school bus;
  - l. Sexual harassment prevention;
  - m. Drug and alcohol compliance/pre and post-accident testing, random testing and reasonable suspicion testing, in compliance with the Omnibus Transportation Employee Testing act of 1991;
  - n. Emergency and disaster preparedness;
  - o. Confidential records;
  - p. Requirements for reporting inappropriate behavior of other adults including the bus attendant;
  - q. School bus held hostage;
  - r. Personal protective equipment (PPE);

- s. Child safety restraint systems (CSRSs);
- t. Student management; and
- u. Railroad crossings.

**Note:** *When occupant securement systems are used, follow manufacturer's guidelines for proper use and positioning. It is recommended that passengers receive instruction in proper usage. (See APPENDIX D.)*

- 2. Prior to transporting students with disabilities, the driver should receive appropriate training in compliance with the Individuals with Disabilities Education Act (IDEA).
- 3. Drivers of Head Start passengers must fulfill pre-service and in-service training requirements, as specified in 45 CFR 1310.
- 4. Employers of school bus drivers are encouraged to provide ongoing education for bus drivers.

#### C. Behind-the-Wheel Instruction

Behind-the-wheel instruction should be given in the same type and size bus the driver will be operating. When a driver is expected to operate more than one size and type vehicle, instruction should be related to the specific handling characteristics of each. All instruction should include the following topics:

- 1. Familiarization with the bus and its equipment;
- 2. Procedures for performing pre-trip and post-trip vehicle inspections and procedures for properly reporting mechanical issues and concerns;

**Note:** *Post-trip inspections should include child-check procedures and proper bus securement following the route.*

- 3. Techniques for safe driving, including mirror use and adjustment, smooth starts and stops, shifting, turning, and backing;
- 4. Defensive driving skills;
- 5. Techniques for reference point driving;
- 6. Procedures for loading and unloading students at bus stops, including moving the bus only after all children are safely seated after loading and out of the danger zones, are at least 12 feet from the sides of the bus, are at least 12 feet from the rear of the bus and cross roadways at least 12 feet in front of the bus;

**Note:** When/if an escorted cross is used during the loading and unloading process, the “Escorted Cross” procedure as written in APPENDIX D may be used.

7. Procedures for railroad crossings, as recommended in APPENDIX D, and other specialized driving requirements for school bus operations;
8. Techniques to identify and avoid practices that result in driver-related vehicle abuse;
9. Procedures for en route emergencies, including driving emergencies, emergency evacuations, and use of emergency equipment, as described in APPENDIX D;
10. Guidelines for safely running a route, including entrance to and departure from the bus garage and yard, following a route sheet or map, use of global positioning systems (GPSs), entrance to and departure from school zones, appropriate use of wireless communication systems, mechanical difficulties and breakdown;
11. Procedures for fueling buses and handling/preventing fuel spills; and
12. Laws, policies and procedures specific to activity trips, including interstate transportation regulations.

D. Physical/Mental Preparedness

All school bus drivers should be prepared both physically and mentally each day to perform adequately the following duties:

1. Operating the vehicle in a safe and efficient manner;
2. Conducting thorough pre-trip and post-trip inspections of the vehicle and special equipment, including required documentation;
3. Ensuring the safety, welfare and orderly conduct of passengers while in the bus;
4. Handling emergency situations in accordance with generally accepted operating procedures;
5. Communicating effectively with school staff, students, parents, law enforcement officials and the motoring public;
6. Completing required reports;
7. Completing required training programs successfully;
8. Providing maximum safety for passengers during loading and unloading;

9. Wearing the driver's seat belt whenever the bus is in motion;
10. Checking at the end of the route and at the bus storage location to ensure that all students have disembarked from the bus; and
11. Maintain a clean and uncluttered bus with unobstructed views.

E. Evaluation

School bus drivers should be evaluated at regular intervals. These evaluations may include the following items:

1. Continuous on-the-road monitoring, otherwise known as field observation/ride-along evaluation, and road supervision (required for Head Start in 45 CFR 1310);
2. Written test;
3. Road performance checks;
4. Evaluation interviews;
5. Student management;
6. Adherence to procedures;
7. Teamwork; and
8. Local policies.

## **SELECTION AND TRAINING OF BUS ATTENDANTS**

A. Procedures for selection of bus attendants should include the following items:

1. An appropriate application form (sample provided in APPENDIX D);
2. Written criteria for accepting and rejecting applicants\*;
3. Written notification to all applicants that driving records checks, criminal records checks and drug/alcohol screening will be conducted\*;
4. A check of each applicant's driving record; (Checks of the National Driver Register and the CDL Information System of the appropriate state department of motor vehicles are considered essential\* in the case of an individual who is applying for a position as a school bus driver.)
5. A check through both state and national criminal identification agencies, to

determine if the applicant has a record of criminal convictions\*;

6. Reference checks and background checks performed on all attendants to include interactions with children, and/or any concerns working with children;
7. Physical examinations and drug and alcohol testing administered in accordance with local, state and federal requirements;
8. One or more personal interviews (which can be one of the most important of the selection procedures); and
9. A determination of educational attainment to demonstrate the applicant's ability to follow detailed, written instructions and be able to record and report data accurately.

***\*Note:** Head Start attendant or monitor applicants **must** be informed in writing of all background checks and other requirements, as specified in 45 CFR 1310.*

B. Pre-service and In-service Training Program

1. Prior to transporting students, bus attendants should be required to complete a state-approved or Head Start-approved pre-service training program that includes classroom and in-the-bus training in order to enable safe, efficient and effective student transportation. Attendant training, with the exception of the driving components, should be the same as for the driver in every respect. Each attendant should be equally conversant in every other aspect of operations and student management. Training should include, but not be limited to, the following topics:
  - a. The bus and its equipment;
  - b. Use of emergency exits;
  - c. First aid;
  - d. Safe loading and unloading of students at their stops and securement of passengers, as may be required whether or not school buses are equipped with seat belts or other occupant restraints (See APPENDIX D.);
  - e. Student management training and policy training, including state and federal regulations related to the transportation of students with disabilities, consistent with those required for school bus drivers;
  - f. Safety, welfare and orderly conduct of passengers while in the bus;
  - g. Handling emergency situations in accordance with generally accepted operating procedures;

- h. Effective communications with school or Head Start staff, students, bus drivers, parents, law enforcement officials and the motoring public;
    - i. Completion of required written reports;
    - j. Requirements for reporting inappropriate behavior of other adults, including the bus driver;
    - k. Checking at the end of the route and at the bus storage location to ensure that all students have disembarked from the bus;
    - l. Confidentiality; and
    - m. Other topics included in the bus attendant's manual/handbook and local policies.
  - 2. Employers of school bus drivers should provide ongoing education for bus attendants.
  - 3. Prior to transporting students with disabilities, the bus attendant should receive appropriate training in compliance with the Individuals with Disabilities Education Act (IDEA).
  - 4. Bus attendants (monitors) who assist with the transportation of Head Start passengers must fulfill pre-service and in-service training requirements as specified in 45 CFR 1310.
- C. In-the-Bus Training
- 1. Familiarization with the bus and its equipment;
  - 2. Procedures for performing pre-trip and post-trip inspections; and
  - 3. Procedures for loading and unloading passengers, passenger securement and emergency evacuation, as may be required.
- D. Physical/Mental Preparedness
- E. Evaluation
- F. Bus attendant, Special Education (See TRANSPORTATION FOR STUDENTS WITH DISABILITIES AND SPECIAL HEALTH CARE NEEDS section: driver/attendant.)

## **STAFFING AND TRAINING OF MAINTENANCE AND SERVICE PERSONNEL**

- A. Staffing

Adequate staff should be employed to perform maintenance functions on a timely basis consistent with safe transportation practices.

B. In-service Training Program

1. The transportation system should make available to maintenance and service personnel the necessary maintenance and service publications for the equipment serviced.
2. The transportation system should arrange at regular intervals for pre-service and in-service training for maintenance and service personnel, and maintenance personnel should be required or encouraged to attend state-sponsored or other approved workshops or training institutes.
3. Training should include instruction in the following areas:
  - a. Preventive maintenance procedures;
  - b. Repair and/or installation procedures for each type of fleet vehicle and its varied equipment;
  - c. Procedures for specialized equipment and certifications, if applicable;
  - d. Inspection of the vehicle and its equipment;
  - e. Recovery procedures for vehicles involved in a crash or breakdown;
  - f. Preparation and retention of maintenance records;
  - g. Maintaining parts and equipment inventory;
  - h. Establishment of parts inventory control procedures;
  - i. Repair and installation of adaptive equipment;
  - j. Safety and environmental compliance; and
  - k. Proper usage and maintenance of shop equipment/shop cleanliness.
4. Vehicle maintenance and service personnel should be encouraged and given opportunities to receive certifications in all areas in which they perform work.

## **ROUTING AND SCHEDULING**

It is necessary to procure a map of the area served by a particular school, school system or Head Start program in order to establish bus routes that will adequately meet the needs of student in a particular area.

Information on road conditions railroad crossings and other factors that might affect the particular operation should be recorded, along with the location of homes and the number of school-age children in each household. (See also *"Identification and Evaluation of School Bus Route and Hazard Marking Systems"* in APPENDIX D.) Satisfactory school bus stops must be identified along streets and highways where buses can travel with the least amount of risk to include right turns as much as possible. The number of students to be transported, individual needs and the distance to be traveled are primary factors in allocating equipment for a particular area. Students should be assigned to specific stops according to age and ability, appropriate walking distances, grade level, safe travel paths and the school or Head Start Center attended. Calculation of distance between stops shall comply with the minimum distance required to activate the amber and red lighting systems. Students should not travel farther to a stop than the set walk distances for their respective school/center as deemed by each school district. Additional planning may require multiple considerations to include space availability, chain of custody, etc.

- A. Bus routes reflect an infinite number of routing techniques, including the following examples:
  - 1. A circular route circumscribes an area by using different roads on out-going and in-coming trips. It has the advantage of equalizing time in transit for transported students, since the first child on in the morning is the first child off in the evening.
  - 2. A shoestring route extends from the school to some terminal point in the district. If the bus is stored at the school, the same road or roads may be used on the out-going and in-coming trips; consequently, children are always traveling more or less directly toward the school.
  - 3. A feeder route extends from a point farther out in the district to a transfer point on the main route. This method may be advisable for one or more of the following reasons:
    - a. To limit the use of large buses to improved roads;
    - b. To reduce travel time on the main route; or
    - c. To provide some form of transportation on roads which at times may be impassable by larger, more desirable motor vehicles.
  - 4. A shuttle route extends between two or more school buildings. Such routes are often required for the transfer of students in districts operating two or more schools.
  - 5. Retracing routes requires the bus to travel over the same route in the same direction and may be used to eliminate the need for students to cross the roadway. It may also equalize time in transit for transported students, since the first child on in the morning is the first child off in the evening.
- B. Emergency routes should be established and utilized in all school systems when weather or

road conditions dictate that it is not safe to travel on other than hard-surfaced roads. Announcements can be made by radio or other means when emergency routings are to be used.

- C. Computer-assisted routing and scheduling, which require the use of a computerized database of student, streets and bus routes, is a key part of the routing operation. Where student records are computerized, downloading student names, addresses, school names and grades is a routine task. Most student information systems are compatible with routing, GPS and radio frequency identification (RFID) applications that provide bus routing information and rosters. The key is for transportation staff to have access to accurate data for the location of students to be used in establishing ridership eligibility and assigning bus stops.

Many routing systems, through a geographic information system (GIS) component, have optimization features that allow the system to create bus routes based on the locations of students. It is important to make sure that before implementation, transportation staff analyze any computer-generated routes, because they will almost certainly need some level of adjustment. Computer-assisted routing can help to generate a more efficient routing system than a completely manual process. A computer system can also be of use in providing information needed to stagger bell times in order to share buses among schools or Head Start Centers.

The same information that is needed for bus routing can be very useful in school district planning. The grades and locations of students displayed in a graphic format is invaluable to school administrators as school district lines are redrawn or new schools are opened. Accessing this information from a routing system also may provide a side benefit of involving the transportation staff in the planning process.

- D. Methods of serving bus routes

1. The “single-trip plan” involves a morning and an afternoon trip by one bus on each route. This form of service is well adapted to sparsely populated areas. It also meets the needs of schools where the instructional program requires both elementary and secondary students to arrive at the same time, or where time required for the route prohibits additional assignments.
2. The “double-trip plan” calls for each bus to cover two different routes in the morning and afternoon. This plan is suited to districts of relatively dense population where distances are not great. As children of all grades may be carried on each trip, program adjustments in the instructional schedule are necessary to avoid idle waiting time at the school. If these adjustments can be made without sacrificing the interests of the children, the double trip may be economical by requiring fewer buses.

3. The “multiple trip plan” or “dual-trip plan” calls for more than two trips each morning and afternoon by each bus. This arrangement is feasible only where route distances are relatively short or time differences between locations are great. High school students, for example, may be brought to school on the first morning trip, with elementary children arriving on the second trip. In the afternoon, the elementary children should be brought home first if it is desired that the elementary day be shorter than the high school day. Districts whose program requires a day of equal lengths for both groups may transport the high school students on the first trip in the morning and return them on the first trip in the afternoon.

E. Route and Stop Review and Planning

A periodic review should be conducted for the purpose of identifying factors that might indicate the need for a route change. After the review is completed, someone may drive over the route in the same equipment that will be used in the actual operation, or GPS systems can be used for verification and comparative data as well. A time study should be part of this review. The driver(s) who will operate the bus(es) over the route(s) should regard the trip as a dry run. All scheduled stops and times between stops should be indicated. This data, if accurately obtained, will permit the development of a schedule which probably will need little revision once it is placed into effect.

After the route has been established, a schedule showing individual stops and accompanying student roster should be provided for drivers (to include substitute drivers). Requests for new or additional service should be investigated thoroughly before a change is made. Stops should be established only after thorough investigation has revealed the location to be the most desirable in the area clear of hazards or dangerous situations. It is considered poor practice to negotiate a U-turn on main arteries of traffic even though provisions for such turns may have been made; to minimize turning across multiple lanes of traffic, right turns should be factored and utilized. The projection of the rear end of the bus into inside traffic lanes from medians that are too narrow to accommodate bus length often creates traffic interference that places the lives of transported students in jeopardy. Stops should always be located at a safe distance from the crest of a hill or curve to allow motorists traveling at the posted speed to stop within the sight distance.

**Each state should establish a uniform set of procedures for drivers to signal students when it is safe to cross the roadway upon which the bus is stopped.**

Additional precautions should include, but may not be limited to, the following:

1. Plan routes that will permit optimum and effective student safety, program efficiency and operational economy.
2. Specified criteria should be used when selecting stops. Criteria examples include, but

may not be limited to, the following:

- a. Visibility;
  - b. Safe waiting distance from roadway;
  - c. Proximity to intersection;
  - d. Adjacent property;
  - e. Line-of-sight distance to the stop by approaching traffic from any direction;  
and
  - f. Ability to add signage and/or warning devices to alert oncoming traffic of a stop ahead.
3. On highways divided into separate roadways and highways with three or more marked traffic lanes, fleet operators, schools and Head Start Centers should design bus routes that service each side of the highway so students do not have to cross the highway unless there is a traffic control signal or an adult crossing guard within three hundred feet of the bus stop to assist students while crossing such multiple-lane highways. A bus shall never be routed such that students are required to cross lanes of traffic in which vehicles are not required by law to stop for a school bus displaying red lamps and stop signs.
  4. Determine the location, ridership and destination of all students to be transported.
  5. For every route, drivers shall be provided with a route sheet or manifest, with stops sequenced by, or under the direction of, the transportation director, and containing the following elements:
    - a. The names and addresses of all students in buses;
    - b. The location or written description of each (where an intersection is involved, the compass orientation of the stop location within the intersection) and an optional map for orientation purposes (i.e., 1<sup>st</sup> Ave at S Main St / SE corner);
    - c. Scheduled times for each pick-up and drop-off point, which should be provided (scheduled time should be reflected and relayed to student/parent(s); if “time” is arrival or departure);
    - d. Blank lines adjacent to the scheduled arrival time in which the driver may notate his/her **actual** arrival time;
    - e. The routine crossing status (i.e., “cross” or “no-cross”) of each stop for

- students on the route;
  - f. The school of attendance (or destination) of each student;
  - g. Shuttle or transfer information for students if applicable;
  - h. Identification of students with health care plans to include dormant medical problems that may require specific actions in the event the problem becomes active; and
  - i. An updated hard copy of the route sheet or manifest should be kept in transportation and attendance offices.
6. Every school, school district, Head Start or other agency should develop age-appropriate training for children who ride buses or other passenger vehicles to and from attendance centers and on activity trips. Instruction should begin as soon after the beginning of the school year or program year as practicable and should be reinforced as often as necessary to assure optimum understanding by the respective passengers.

Instruction should include, but may not be limited to, the following topics:

- a. Travel to and from bus stops;
  - b. Roadway crossings;
  - c. Loading and unloading procedures;
  - d. Behavior at bus stops;
  - e. Behavior on board vehicles; and
  - f. Use of applicable passenger restraints and other safety items identified by transportation safety experts.
7. Provide parents or guardians of all students with the driver's name, bus number, pick-up and return times, school closing information, school calendar, procedures to challenge routing decisions, etc.
8. Determine the advisability of utilizing computer-assisted route scheduling.

## **MAINTENANCE OF EQUIPMENT**

- A. Teamwork and written policies are essential to a well-organized maintenance program.

1. Comprehensive school bus maintenance policies and appropriate training that provide efficient guidelines for the transportation supervisor, maintenance personnel, and operators of the vehicles should be adopted.
  2. Such policies should include the maintenance responsibilities of each person involved and should provide for a planned preventive maintenance program.
- B. Preventive maintenance is a carefully organized system of inspections at regular mileage or time intervals combined with the immediate attention to all reported defects.
1. Manufacturer's service manuals and warranty protection guidelines, as well as state inspection guidelines, contain valuable information for successful preventive maintenance programs. These instructions and procedures should be followed carefully for maximum efficiency and safety in fleet operation. Vehicle and component manufacturers (transmission, electrical, occupant restraints, etc.) offer training for fleet technicians. Those interested in efficient operation will take advantage of these training programs.
  2. Objectives of a planned maintenance program:
    - a. Keeping the vehicles in safe and efficient operating condition;
    - b. Preventing failures;
    - c. Conserving fuel;
    - d. Lowering maintenance costs by reducing the need for unplanned or emergency major repairs or overhaul;
    - e. Extending the useful life of the vehicle and its components, as referenced in D, below; and
    - f. Enhancing vehicle appearance.
- C. School districts or private contractors should develop a system whereby written communication would allow interchange and feedback relative to maintenance work needed and maintenance work completed. An efficient system should include:
1. Driver's report form to initiate needed maintenance;
  2. Technician's certification of completed work;
  3. A method for permanently recording repairs and the maintenance history of each vehicle and special equipment; and

4. Inspection by the appropriate state agency or its designee.
- D. Life-Cycle Analysis

It is prudent for a school transportation director, contractor and/or vehicle maintenance manager to be aware of the on-going efficiencies associated with vehicle replacement. While it may not always be possible to purchase new vehicles, analyzing the intended life-cycle and developing purchasing specifications consistent with anticipated use is recommended.

## **EMERGENCY AND RESCUE PROCEDURES**

*Emergency and Rescue Procedures: A Guideline Manual for School Bus Involvement* was developed by the National Association of State Directors of Pupil Transportation Services and disseminated to each state director of transportation for reproduction in the respective states. Distribution of the manual was intended for police, fire and ambulance personnel, emergency medical technicians and any other entity designated to respond to a school bus crash, emergency or disaster. (Head Start agencies may contact their respective state directors of transportation for copies.)

This manual is a reference to be used by school systems (and can be used by Head Start agencies) in developing their own specific emergency plans. Copies of the school system's (or Head Start agency's) plan should be carried in each bus. This plan should be developed in cooperation with the personnel in those agencies that will render service during emergencies. The school or Head Start transportation director, school and Center administrators, teachers, drivers, attendants, maintenance and service personnel, students and others should be instructed in the procedures to be followed in the event of the following situations:

- A. Crashes
1. When and how to evacuate and control students;
  2. How to evaluate the need for medical assistance;
  3. How to get help from the police, the fire department and the garage;
  4. How to collect and record data essential to the preparation of the required crash reports and an operational plan to provide two-way communication with parents and/or guardians which is imperative; and
  5. How to prevent further crashes; and
  6. Talking points regarding protocol of dissemination of information while at the crash site (including communication with the media, etc.).

B. Sudden disability of the driver

Procedures for handling situations resulting in the fatal injury or disability of the bus driver should be established and communicated to appropriate persons. A list that includes the name of the bus operator, emergency telephone numbers, names of students assigned to the bus and any special needs of students should be in the bus.

C. Bus breakdown

The emergency plan should cover procedures for the following events:

1. Securing the bus;
2. Maintaining control of passengers and accounting for passengers (head count);
3. Diagnosing the cause(s) of bus breakdowns and communicating with base and vehicle maintenance;
4. Notifying school, administration, parents, communications, PIO (Public Information Office) or Head Start officials;
5. Recovering disabled school bus(es); and
6. Providing replacement transportation for passengers.

D. Inclement weather conditions

The emergency plan should provide procedures for actions to be taken in the following events:

1. When schools or Head Start Centers are to be closed, delayed or require early dismissal;
2. Who is to make such decisions;
3. How decisions are to be relayed to parents, students, school or Head Start officials and staff (including teachers and cafeteria managers), drivers, contractors, maintenance and service personnel, the news media and others; and
4. How to react to such natural phenomena as floods, hurricanes, tornadoes, earthquakes, tsunamis, etc.

E. Other types of emergency situations

The emergency plan should include communication norms, data collection and stress

reduction and should cover such conditions and events as the following:

1. Defense/disaster drills;
2. Strikes or other job action by school staff, teachers, drivers or contractors;
3. Road or bridge washouts and landslides that might block school bus routes;
4. Bus hijacking;
5. Weapons or suspected explosives on board or at bus stops;
6. Unauthorized boarding;
7. Student health emergencies;
8. Student fights;
9. Suspicious person and/or vehicles; and
10. Terrorist-related planning or incident.

## **EVALUATION OF THE STUDENT TRANSPORTATION SYSTEM**

- A. Each school district or Head Start agency should have a plan for evaluating its student transportation program. Such evaluations should enable school districts or Head Start agencies to:
  1. Verify compliance with rules, regulations and laws;
  2. Audit the efficiency of program service;
  3. Monitor operational economy;
  4. Ensure the safety of the program in operation;
  5. Improve the quality of service; and
  6. Verify student knowledge of school bus rules and procedures.
- B. Major types of evaluations include the following:
  1. Informal reviews by district personnel;
  2. Formal evaluations by:

- a. A private consultant;
  - b. A state agency; or
  - c. PRISM (Program Review Instrument for Systems Monitoring of Head Start and Early Head Start Grantees).
3. Periodic evaluations:
- a. Monthly;
  - b. Annually; and
  - c. Biennially.
- C. Areas subject to evaluation include:
1. Board of Education or Head Start policies;
  2. Routing procedures and processes for route hazard analysis;
  3. Types of service provided;
  4. Financial obligations;
  5. Quality of service;
  6. Training of staff and students;
  7. Maintenance of buses, other vehicles and equipment;
  8. Record keeping systems; and
  9. Other areas as determined by state and local policy.
- D. Key Performance Indicators (KPIs)—Measuring Success

Key performance indicators are used as a best practice to measure performance, goals, efficiency and productivity. Standard measures and metrics can be molded to fit many different sized transportation operations.

Examples of performance indicators that can easily help a department focus on success include the following:

1. Cost per student transported;

2. Percentage of students receiving transportation;
3. Number of individual routes per bus per day;
4. Number of student riders per bus;
5. Cost per bus per year to operate;
6. Percent of the district's budget spent on transportation;
7. Number of drivers employed versus the number of active buses;
8. Percentage of bus stops made at individual homes versus group stops;
9. Age of the bus fleet;
10. Crash frequency, costs, and injuries;
11. Ratio of buses per mechanic;
12. Average student ride time;
13. Seat utilization/passenger capacity; and
14. Time on road vs. number of routes.

## **SCHOOL SITE SELECTION AND FACILITY PLANNING**

When school or Head Start sites are being selected, consideration should be given to the safety of the students riding school buses. School buses will be required to utilize the roads in and around the school site, plus public roadways leading into and away from the school area. High-density traffic flow near exits and entrances should be avoided. Proper site selection, ingress and egress and facility planning for improved transportation are extremely important. (See APPENDIX D.) More specifically, school officials should provide the following items:

- A. Separate and adequate space for school bus loading zones;
- B. Clearly marked and controlled walkways through school bus loading/unloading zones;
- C. Traffic flow and parking patterns for the public and non-bused students separate from the school bus loading zone;
- D. A designated loading area for passengers with special needs, if required;
- E. An organized schedule of loading areas with stops clearly marked;

- F. A loading and unloading site to eliminate the backing of transportation equipment;
- G. Written procedures for evaluating each school site plan annually; and
- H. Appropriate signage.

## **NO CHILD LEFT BEHIND (NCLB)**

### A. Overview

In January 2002, President George W. Bush signed into law the reauthorization of the Elementary and Secondary Education Act (ESEA), known as “No Child Left Behind” (NCLB). The act makes substantial new requirements for state and local education agencies (LEAs; or “school districts”) in order to continue to receive Federal money for education. The act also provides additional rights for students and parents. Information on how the ESEA relates to pupil transportation and descriptions of transportation choice options and requirements for school districts follows.

### B. Attendance choice options

#### 1. Low performing

If a school receiving Title I, Part A funds is identified as “low performing” for two consecutive years, parents have the option of enrolling their students in another public school that has not been identified as *low performing*. There are many rules and regulations controlling this process, including the determination of which school the parent can select as the alternate school. The Act does not provide for unlimited choice, however. For instance, if the “low performing” school is the sole elementary school in a school district, there is no obligation to provide an alternate school choice. If a school continues not to show “adequate yearly progress” (as defined in the NCLB), students continue to have a right to transportation to a choice school.

#### 2. Persistently dangerous

If a school receiving Title I, Part A funds is identified as “persistently dangerous,” students have the right to be offered other optional public school enrollment opportunities. (A discussion of the process leading to the “persistently dangerous” designation is beyond the scope of this material.) Once a school is designated as “persistently dangerous,” parents are afforded rights to school choice for their students at that school.

3. Violent Students

Students involved in violent incidents have a right to attend another public school. All of these situations require LEAs to provide students and parents the option of enrolling in an appropriate alternate public school, i.e., *school choice*.

C. School categories for choice

An LEA must offer all students in identified Title I schools the opportunity to transfer to another public school when those schools fall within one of the four stages of improvement detailed in the ESEA. Those stages are based upon the number of years in which a school has failed to make adequate yearly progress. Schools in the following categories must offer public school choice to their students:

1. Schools that are in their first year of school improvement;
2. Schools that are in their second year of school improvement;
3. Schools that are in corrective action; or
4. Schools that are in restructuring.

D. Transportation

1. When required

If a parent has the choice option to select an alternate public school because the student's school is identified as, "low performing," or "persistently dangerous," or the student was involved in a violent incident, transportation to the alternate public school must be provided by the school district. There is no requirement for a particular mode of transportation, however. For instance, if there is a local transit system with an appropriate schedule, providing a transit pass would meet the requirement for provision of transportation service. If a school building is not receiving Title I, Part A funds, choice transportation is not required to be provided.

2. Length of transportation service

If an eligible student exercises the option to transfer to another public school, a local LEA must permit the student to remain in that school until he or she has completed the highest grade in the school. However, the LEA is no longer obligated to provide transportation for the student after the end of the school year in which the student's school of origin is no longer identified for school improvement, corrective action or restructuring.

3. Out-of-district transportation

The ESEA does not require that transportation be provided to schools outside the LEA. For example, if a school district has only one elementary school, and that school has been identified as low performing for two consecutive years, the school district is not required to provide enrollment opportunities and transportation to schools in other school districts. (In the case of homeless students, however, transportation is required across district boundaries to the original school of enrollment.)

4. Payment for choice-related transportation

Unless a lesser amount is needed to meet demand for choice-related transportation and, if applicable, to satisfy all requests for supplemental services, an LEA must spend up to an amount equal to 20% of its Title I, Part A allocation, before any reservations, on the following items:

- a. Choice-related transportation;
- b. Supplemental education services; or
- c. A combination of (a.) and (b.).

This flexible-funding approach means that the amount of funding that an LEA must devote to choice-related transportation depends in part on how much the LEA spends on supplemental education services. However, if the cost of satisfying all requests for supplemental education services exceeds an amount equal to five percent of an LEA's Title I, Part A allocation, the LEA may not spend less than five percent on those services. An LEA may, but is not required to, spend an amount exceeding 20% of its Title I, Part A allocation if additional funds are needed to meet all demands for choice-related transportation and supplemental education services. A school district could also spend state or local funds to assist in paying for transportation. (See D.7. below regarding *supplementing* and *supplanting*.)

5. Insufficient funds

If the funds available are insufficient to provide transportation to each student who requests a transfer, the LEA must give priority to the lowest achieving eligible students from low-income families. However, the LEA must still offer the opportunity to transfer to all students.

6. Optional fund sources

The statutory phrase *an amount equal to* means that the funds required to pay the costs of choice-related transportation and supplemental educational services need

not come from Title I allocations, but may be provided from other allowable federal, state, local, or private sources.

7. Title I funds and transportation funds

Like other Title I funds, transportation funds must be used only to supplement the level of funds that, in the absence of Title I funds, would be made available from non-federal sources for the education of children participating in Title I programs. For example, if a particular state provides funding for transportation, a local school district could not use Title I funds to supplant the state or local funds that it would otherwise use to provide for transportation, even though transportation costs are generally an allowable use of Title I funds. However, if the state funds were not adequate to cover the entire costs of the school choice-related transportation, Title I funds, within the statutory limits, could be appropriately used to cover the unfunded portion of the school choice related transportation.

8. Transportation Zones

LEAs have latitude in deciding which options to provide for eligible students. For example, they may establish transportation zones based on geographic location and may fully fund transportation to different schools within each respective zone. This option would allow the district to offer more than one choice school while ensuring that transportation can reasonably be provided or arranged. Outside the transportation zone, the district could pay for only part of the transportation to the school. Parents may select a school outside of a designated attendance zone, but they should be informed prior to making this decision that they may be responsible for providing or arranging transportation for their children. If transportation zones are developed, they should be drawn to provide genuine choice and to address only issues of geographical distance. LEAs should ensure that there is sufficient capacity to accommodate the demand for choice within each zone.

## **MCKINNEY-VENTO HOMELESS ASSISTANCE ACT**

A. Overview

The following information describes how the McKinney–Vento Homeless Assistance Act relates to pupil transportation and describes transportation choices and requirements.

B. Requirements of the McKinney-Vento Homeless Assistance Act

If “homeless” eligibility is determined and placement in the student’s school of origin is determined to be in the best interest of the student, local education agencies (LEAs) may be required to provide transportation to and from the student’s schools of origin for students

experiencing homelessness, upon the request of the parent or guardian. For an unaccompanied youth, the request would originate with the LEA's homeless liaison.

C. Transportation for the homeless in relation to distance

There is an assumption of "reasonableness" with the transportation of the homeless student, unless attending the school of origin is against the student's best interest. Every LEA has a homeless liaison who should make the determination of whether or not the transportation of the student is in the student's best interest or not. *Reasonableness* should not be determined solely on the basis of cost. Air flights, extensive travel time, or other circumstances that result in extremely unusual travel demands may all result in appropriate denial of transportation to the school of origin. There is an appeal process that a parent can use when the parent disagrees with the decision of the school district.

D. 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. Developing close ties among school district homeless liaisons, school staff and pupil transportation staff will help make this process work smoothly.

E. 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 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. Each district is required to pay half the cost.

F. Length of time that transportation must 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.

G. 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 (with driver background checks required) or contracts with Medicaid transportation brokers (with driver

background checks required).

**ACTIVITY BUS  
OPERATIONS:  
TRANSPORTATION  
OTHER THAN  
TO AND FROM  
SCHOOL OR  
HEAD START**

**WRITING COMMITTEE EDITS IN RED INK BY SECTION LOCATION:**

**ACTIVITY BUS OPERATIONS:**

**TRANSPORTATION OTHER THAN TO AND FROM SCHOOL OR HEAD START**

## **ACTIVITY BUS OPERATIONS: TRANSPORTATION OTHER THAN TO AND FROM SCHOOL OR HEAD START**

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.

**Note:** *Operational Guidelines for the use of buses other than school buses are outlined in APPENDIX G.*

### A. Transportation Other Than To and From School or Head Start

#### 1. School- or Head Start- Related Activity Operations

Each school system or Head Start agency providing activity bus operations should have comprehensive policies and guidelines that 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- and 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.

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. 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:

- a. Policies and guidelines, including:
  - I Purpose of trip (instructional, athletic, students/spectators, recreation, etc.);
  - II Funding source (district or individual school funds, individual charge,

parent group, etc.); and

- III Administrative approval (the persons having authority to approve the trip).
- b. A priority guideline should be developed for trip scheduling when all requests cannot be accommodated.

- I Advance notification should allow adequate time for the approval process and for making driver and vehicle arrangements.

- II 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.

***Note:** Operational Guidelines for the use of buses other than school buses are outlined in APPENDIX G.*

- III A trip request form should include all necessary information for trip arrangements, special equipment, payroll, reimbursement and other local needs. (See sample form in APPENDIX G.)

- IV Adult chaperones should be required on all activity trips. Responsibilities include passenger control, with the driver having final authority.

- V Discipline and emergency medical procedures should require a trip release to be signed by parents and should include procedures concerning difficult or severe behavioral and medical problems and emergency policies and contacts.

- c. Communication is essential. Drivers, students, chaperones and parents should be made aware of applicable rules and regulations. 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 special medical problems in the event of an emergency en route is necessary.

- I 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.

- II 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.
- III 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 vehicles are used, the Board of Education or Head Start agency 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 or Head Start agency.
- IV 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.
- V 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. 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.
- VI Driving hours shall be regulated. School districts and Head Start agencies shall have regulations based on the application of the Federal Motor Carrier Safety Regulation 49 CFR 395.5, which states that drivers may drive a maximum of 10 hours after 8 consecutive hours off duty; or may not drive after having been on duty for 15 hours, following 8 consecutive hours off duty. Off-duty time is not included in the 15-hour period. No motor carrier shall permit or require a driver of a passenger-carrying commercial motor vehicle to

drive, nor shall any driver drive a passenger-carrying commercial motor vehicle having been on duty 60/70 hours in any 7/8 consecutive days.

- VII 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.
  - VIII Passenger manifests (a list of all passengers being transported) should be kept by the driver and left with proper authorities at the school or institution.
  - IX Evacuation instruction, including an emergency evacuation drill, or at least verbal instructions, should be given by the driver before each trip. (See APPENDIX G.)
  - X Instruction on seat belt use and proper adjustment (when equipped). (See APPENDIX D.)
- d. Vehicles and equipment:
- I The following items should be taken into consideration when selecting trip vehicles:
    - i. Miles to be traveled;
    - ii. Terrain and climate conditions;
    - iii. Number and age group of students;
    - iv. Luggage and equipment requirements;
    - v. Driver familiarity with the vehicle and route; and
    - vi. Federal Motor Carrier Safety Administration regulations, if contract operated and crossing state lines.
  - II Consideration should be given for specialized equipment, or other items needed, such as these:

- i. Luggage storage;
- ii. Chains (pre-fitted prior to the trip) or sanders;
- iii. Extra heaters or air conditioning;
- iv. Public address system;
- v. Electronics (am/fm, two-way, music system) or cellular telephone;
- vi. Tires, including off-road tread or recaps on the rear axle (recaps on front axle are prohibited);
- vii. Spare tire;
- viii. 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;
- ix. Cash for telephone, fuel, bridge tolls, parking fees and personal needs;
- x. Emergency telephone numbers and other information; and
- xi. Global Positioning Systems (GPS), as appropriate.

III Inspection requirements should be the same as for regular route buses, and a detailed check should be made prior to activity trips.

IV School buses shall be prohibited from towing a trailer or any vehicle when students are on board the bus.

e. Training

Specialized training should be provided for activity trip drivers. Training should include, but not be limited to, the following topics:

- i. State laws and applicable policies and rules;
- ii. Familiarity with the activity trip vehicle and its components;
- iii. Familiarity with specialized equipment and how to use it, including cellular telephone and onboard global positioning

system (GPS);

- iv. Familiarity with local and state trip requirements;
- v. Route familiarization, which might include a dry run prior to the trip date, especially if extreme conditions, terrain or road difficulties may be encountered;
- vi. Discipline procedures on trips;
- vii. Driving under adverse conditions (night driving, slippery roads or unfamiliar mountainous driving);
- viii. Maps, destination locations and parking areas;
- ix. Parking location, if other than the student destination; and
- x. Provisions for bus security at the destination.

## 2. Non-related activity operations

### a. Introduction

This sub-section is intended to address the various uses of a school bus for operations other than to and from school and school-related activities.

### b. Use, procedures and policies

- I The school bus operator, in accordance with state regulations and/or laws governing school bus use, should establish procedures whereby school buses can be scheduled for non-routine use. Such scheduling should not conflict with, or be given priority over, the regular class-related demands for school buses by the school system or Head Start agency.
- II The school system or Head Start agency, as part of local government or in cooperation with transportation contractors, may utilize buses during times of community emergency or crisis, when demand for other public vehicles, such as trains and transit buses, is so great as to exceed available supply.

### c. Legal requirements

- I School buses operating on public roads and crossing state and national boundaries must adhere to the rules of the road in the

jurisdictions in which they are operating.

- II All applicable permits need to be procured in accordance with applicable state and local laws before the trip is undertaken.

d. Operational requirements

- I Vehicle equipment used for activities must be in good working order, well-maintained, and otherwise capable of withstanding the demands of the trip.
- II All activity buses and drivers should comply with all applicable state and federal requirements, including Federal Motor Carrier Safety Administration regulations applicable to inter- and intra-state passenger transportation.
- III Aisles and exits must be kept clear and free of blockages at all times.

**TRANSPORTATION  
FOR INFANTS,  
TODDLERS AND  
PRE-SCHOOL  
CHILDREN**

**WRITING COMMITTEE EDITS IN RED INK BY SECTION LOCATION:**

**NONE**

# INFANTS, TODDLERS AND PRE-SCHOOL CHILDREN

## INTRODUCTION

Infants, toddlers and pre-school children are the youngest, most vulnerable passengers on school buses. They depend on transportation personnel to provide a safe ride to and from early intervention, Head Start programs and Teen Parent Programs. Transportation is a critical component for children and their families, accessing services to support a child's growth and development. Transportation should be established as the mutual responsibility of parents and transportation and service-providers.

Programs supported and funded by federal, state and local governments have made great strides in developing, designing and providing services for young children and their families to develop each child's full potential. The school bus, for many children, is the primary vehicle that provides access to programs and services designed to meet individual needs of young children and families.

Transportation providers need to be knowledgeable and must develop skills to provide for the safety of young children while being transported in school buses. Infants, toddlers and pre-school children, in addition to those young children with special physical, cognitive or behavioral needs, present new challenges and responsibilities for transportation providers. These children require a great deal of supervision during the time they are in and around the school bus. Some issues that must be addressed to assure safe transportation in the school bus include physical handling, communication with young children, behavior management, knowledge of child safety restraint systems (CSRSs), wheelchair tiedown and occupant restraint systems, special equipment management, medically fragile and complex conditions, confidentiality, length of ride, personnel training and parental responsibilities.

Children under the age of five who reside in rural, suburban and urban areas are daily passengers in school buses. Since the exact number of children under the age of five riding in school buses is unknown, uniform transportation data on this population should be collected. This population includes children served in several programs for children from birth through age five. These programs include the Early Intervention Programs for Infants and Toddlers with Disabilities (Part C, Individuals with Disabilities Education Act), the Pre-schools Grant Program, the Early Education Program for Children with Disabilities, Head Start, Bureau of Indian Affairs Programs and Teen Parent programs. In addition, federal programs support a number of discretionary projects that are designed to promote services for young children with disabilities and their families.

Due to the numbers of young children under the age of five who are transported in school buses, it is essential to recommend guidelines for the use of child safety seats, occupant child safety restraint systems and securement systems. The purpose of this section is to assist transportation personnel by recommending policies, procedures and guidelines, while simultaneously recognizing the need for continued research studies to meet the needs of young children from birth to age five who ride school buses nationwide. (Refer to APPENDIX F for listings of laws and characteristics of disabilities.)

## **TRANSPORTATION SERVICES FOR INFANTS AND TODDLERS WITH DISABILITIES**

The Individualized Family Service Plan (IFSP), under Part C of the Individuals with Disabilities Education Act (IDEA), is the mechanism for addressing the unique needs of infants and toddlers with disabilities and their families. The IFSP process has two main parts: (1) the IFSP meeting, where parents and interagency personnel jointly make decisions about an eligible child's early intervention services; and (2) the IFSP document, itself, which is a written plan for the provision of early intervention services for the child and family.

The decision to provide the early intervention service of transportation is made on a case-by-case basis and is directly related to the need for this service. Given the significance of the IFSP process, there are numerous requirements concerning the IFSP document. The decision for a transportation representative to attend the IFSP meeting should be made on a case-by-case basis when a school bus is considered as the appropriate vehicle for transporting an infant or toddler to and from a program location. This decision should be based on the individual needs of the child and family, as well as the service provider. The transportation representative should be a member of the IFSP team whenever the unique needs of an individual child require specialized service beyond the scope of what is traditionally provided. The involvement of transportation personnel should occur as soon as it is known that a child with a specialized need requires transportation on a school bus.

## **TRANSPORTATION SERVICES FOR PRE-SCHOOL CHILDREN WITH DISABILITIES**

Pre-school children who ride school buses include children with and without disabilities. All pre-school children require careful planning when a school bus is selected as the mode of transportation to and from a state or local government early intervention program, special education, Head Start or Early Head Start program. These programs may have significantly different requirements governing transportation, and the transportation requirements should be reviewed carefully.

If a child is eligible for special education and the related service transportation under Part B of IDEA, the mechanism for addressing transportation services is the Individualized Education Program (IEP). The IEP process has two main parts: (1) the IEP meeting(s), when parents and school personnel jointly make decisions about a child's special educational program; and (2) the IEP itself, which is a written document of the decisions agreed upon at the IEP meeting. The IEP document is a commitment and management tool for the school district. The IEP defines resources and services to be provided to the student at no cost to the parents, and it states when and for how long these services will be provided. As such, the IEP becomes the tool to monitor compliance.

The "1997 IDEA Amendments" require that a public agency provide transportation for a pre-school age child as a related service to the site at which the public agency provides special education and related services to the child, if that site is different from the site at which the child receives other pre-school or day care services.

One of the major differences between the IFSP services and IEP is that the early intervention program under Part C for infants and toddlers is a year-round program, whereas special education services under Part B represent a school-year program, unless otherwise specified by the IEP team.

The decision for transportation personnel to attend IFSP and IEP meetings should be made on a case-by-case basis. This decision should be based on the individual needs of the child and family and the need for transportation personnel to provide this service safely. Transporting young children requires careful planning prior to initiating transportation services in school buses. Due to the ages of these children, the type of service and the frequency and duration of transportation required must be determined on a case-by-case basis.

Prior to initiation of service, the following questions and concerns should be addressed:

- A. Is the child medically stable to be transported? (This decision should be made in conjunction with a physician or school nurse whenever the question arises.)
- B. What is the length of the ride? Does the length of ride place the child at risk based upon the child's age, developmental and functional level and environmental factors, such as weather and temperature in the bus? (This decision should be made in conjunction with a physician or school nurse whenever the question arises.)
- C. Which physical, cognitive, communicative, social-emotional and behavioral concerns should be addressed prior to initiating transportation services? (Each of these areas should be addressed by qualified personnel.)
- D. Which assistive or adaptive devices are necessary to accommodate the special needs of a child during the provision of transportation services? (This should be addressed by qualified personnel.)
- E. What type of supervision is necessary to assure safe transportation? What parental responsibilities are to be addressed on the IFSP or IEP documents? (These decisions should be made by the full IFSP or IEP team.)
- F. When a child is medically fragile and requires special handling, who is responsible for emergency procedures? Who is responsible for monitoring universal precautions in the school bus if it is known that a child has an infectious disease that requires special precautions? (This decision should be made by the full IFSP or IEP team.)
- G. If a child is provided with a private-duty nurse (non-IEP), how are the services addressed on an IEP? It is recommended that authorized transportation, special education and early intervention personnel committed to special services converse prior to the IFSP or IEP team meeting. The mechanism for decision-making for all special services is the IFSP or IEP process for children receiving services under IDEA.

- H. What transportation equipment or equipment modification is required to accommodate the child's special needs and safety? (This decision should be made by the full IFSP or IEP Committee.)

## **HEAD START**

Head Start programs are required to provide special services for three- through five-year-old children with disabilities. Head Start programs are required to have a “Disabilities Coordinator” who is responsible for developing a disabilities service plan that provides for the special needs of children with disabilities and their parents. This plan must specify those services to be provided directly by Head Start and those that are provided by other agencies. Transportation is one of the related services addressed under 1308.4(o)(5).

The Department of Health and Human Services, Administration on Children, Youth and Families (ACYF), Administration for Children and Families (ACF) issued 45 CFR 1310 Head Start Program, Final Rule on January 18, 2001 (Volume 66, Federal Register Number 12). This final rule implements the statutory provision for establishing requirements for the safety features and safe operation of vehicles used by Head Start agencies to transport children participating in Head Start programs. The reference to obtain this final rule is listed in APPENDIX F.

Additional information is available from The Department of Health and Human Services, Administration on Children, Youth and Families (ACYF), Administration for Children and Families (ACF), issued January 16, 2004; 45 CFR 1310 Head Start Program [Federal Register: January 16, 2004 (Volume 69, Number 11)]. The reference to obtain this rule is listed in APPENDIX F.

Transportation is a related service to be provided to children with disabilities. When transportation to the program site and to special services can be accessed from other agencies, it should be used. When it is not available, program funds are to be used. Use of taxis is an allowable expense if there are no alternatives available and transportation is necessary to enable a child to be served.

## **GUIDELINES FOR INFANTS, TODDLERS AND PRE-SCHOOL CHILDREN**

The following guidelines are designed specifically to assist with transportation decision-making for infants, toddlers and pre-school children, including training drivers and attendants who transport infants, toddlers and preschool children.

- A. Administrator’s Role

The transportation supervisor (or designee) should be responsible for the supervision of transportation services for infants, toddlers and pre-school children. It is essential that this individual be knowledgeable about the unique needs of children in this age group.

Transportation personnel responsible for the daily transportation of young children should receive appropriate training from professionals qualified to make decisions

regarding child safety, seating, communication, physical handling, health and medical needs and other special circumstances, based on a curriculum developed by The National Highway Traffic Safety Administration (NHTSA) and The National Safe Kids Coalition which certifies child passenger safety technicians. The child passenger safety technician training is sponsored by a variety of organizations, including law enforcement, hospitals, public health, insurance companies, etc.

Each school district should have policies and procedures in place regarding the transportation of children from birth to age five. The policies and procedures should specify when it is required that the transportation supervisor or a designee attends IFSP, IEP or Head Start meetings. Transportation of children with special needs should be addressed on the IFSP or IEP when this service is provided.

The transportation supervisor or designee should be responsible for the following activities:

1. Selecting vehicles used for infants, toddlers and pre-school children;
2. Selecting equipment and CSRSs specific to the transportation of infants, toddlers, and pre-school children;
3. Disseminating information about “parents’ responsibilities” in their native language, whenever possible;
4. Providing information about appropriate practices when transporting young children with special needs, including confidentiality of information;
5. Establishing emergency policies and procedures, including practicing evacuation drills;
6. Establishing staffing requirements;
7. Assuring that transportation decisions for a child are made on a case-by-case basis and are appropriate to meet individual needs of a child in accordance with what is recorded on a child’s IFSP or IEP; and
8. Dissemination of pertinent student medical and behavioral information to support the school bus ride to and from school, including emergency information.

**B. School Bus Drivers**

The driver must be knowledgeable about his responsibility for each child in the school bus. This responsibility includes safely operating the school bus and supervising the safety of all young passengers. These recommendations should be followed with or

without the presence of a bus attendant. In addition to their regular duties, the drivers shall have knowledge and responsibility for the following:

1. General knowledge about the development of young children, including specific disability conditions;
2. Age-appropriate physical handling, communication and behavior management of young children;
3. Appropriate use of all the equipment (e.g., power lifts, child safety restraint systems, wheelchair tie down and occupant restraint systems. See APPENDIX E.);
4. Loading and unloading of children who are ambulatory or non-ambulatory;
5. Evacuation and evacuation drills, including practicing evacuation drills;
6. Transportation requirements on a child's IFSP or IEP, including confidentiality issues;
7. Special needs in the vehicle [e.g., apnea, asthma or other respiratory conditions, life-threatening allergies and their potential triggers, assistive devices, communicable diseases, gastrostomy tubes, oxygen, technological dependence, shunts, tracheostomy tubes, medical devices, medically complex and fragile conditions, uncontrollable seizure disorders and "Do Not Resuscitate" (DNR) orders];
8. Child protection laws (e.g., abuse and neglect); and
9. Effective communication skills with school staff, students, parents, law enforcement officials and the motoring public.

C. Bus Attendants (Monitors or Assistants)

The bus attendant should assume primary responsibility for the supervision and safety of children in the school bus during its operation. Bus attendants should be knowledgeable and well-informed about infant, toddler and pre-school child development for both children with and without special needs. Attendants should be knowledgeable about the following:

1. The cognitive, communication, physical, social-emotional, behavioral development and functional level of young children, including the unique needs of specific children in relationship to their disabilities;
2. Using age-appropriate physical handling, communication and behavior

management of young children;

3. Appropriate use of equipment in the school bus (e.g., power lifts; child safety restraint systems, such as child safety seats, safety vests and integrated seats; related securement systems, including vest mounting and safety belts; wheelchairs and wheelchair tiedowns and related occupant restraint systems, etc.) (See APPENDIX E.);
4. Loading and unloading of children who are ambulatory or non-ambulatory;
5. Evacuation and evacuation drills, including practicing evacuation drills;
6. Transportation requirements on the IFSP or IEP, including confidentiality;
7. Special needs in the vehicle [e.g., apnea, asthma or other respiratory conditions, life threatening allergies, and their potential triggers, assistive devices, communicable diseases, gastrostomy tubes, shunts, oxygen, technological dependence, tracheostomy tubes, medical devices, medically complex and fragile conditions, uncontrollable seizure disorders and “Do Not Resuscitate” (DNR) orders];
8. Child protection laws (e.g., abuse and neglect); and
9. Communicating effectively with school staff, students, parents, law enforcement officials and the motoring public.

#### D. Training

It is essential that all transportation personnel responsible for infants, toddlers and pre-school children receive training, which should include the following guidelines:

1. Training should be conducted by staff knowledgeable about the needs of young children who must be transported. Staff may include child passenger safety technicians, child development specialists, representatives of manufacturers of specialized equipment, nurses, occupational therapists, physical therapists, psychologists, respiratory therapists, special educators, transportation supervisors and other personnel, depending on the unique needs of the individuals being transported.
2. Training should take place both in a classroom and in the school bus.
3. There should be a checklist for the purpose of recording specific skills that have been mastered.
4. It is essential that all first aid training be specifically designed for infants,

toddlers and pre-school children.

5. All personnel transporting young children should be required to have a first aid course. On-going training should be conducted by certified personnel in their respective areas of expertise. The type of training provided should be related directly to the specific special services that the driver and attendant are required to provide, including developmentally appropriate practices. At a minimum, drivers and attendants should be able to operate any special equipment for which they are responsible, know how to manage infants, toddlers and pre-school children, be capable of implementing an IFSP- or IEP-approved health care service in accordance with state law and be trained about use and securement of adaptive and assistive devices.

Comprehensive training for transportation personnel providing daily services should include the following topics to support safe and appropriate transportation services for this young population and their families:

- a. Assistive-device management;
- b. Child Safety Restraint Systems (CSRSs);
- c. Communicable disease management practices;
- d. Communication (supervisors, school personnel, and parents);
- e. Confidentiality;
- f. Emergencies;
- g. Emergency evacuation drills, including practicing evacuation drills;
- h. Emergency information management requirements;
- i. Equipment;
- j. Federal and state regulations;
- k. General characteristics of children with disabilities impacting the school bus ride;
- l. Individualized Education Programs (IEPs);
- m. Individualized Family Service Plans (IFSPs);
- n. Loading and unloading;

- o. Medically fragile children;
- p. Medicine transport;
- q. Pick-up and drop-off, including provisions addressing when an authorized adult is not at the scheduled drop-off;
- r. Reports;
- s. Required record-keeping;
- t. Specialized communication;
- u. Special medical conditions;
- v. Technology-dependent conditions;
- w. Development of infants, toddlers and pre-school children with developmental delays and disabilities;
- x. Universal precautions;
- y. Use of webbing cutters;
- z. Vehicle selection;
- aa. Proper use of Wheelchair Tiedown and Occupant Restraint System (WTORS); and
- bb. Best practices in wheelchair transportation safety.

E. Equipment

Great strides have been made in the type of equipment used to assist infants, toddlers and pre-school children with special needs. These children present multiple challenges to providers of transportation. The school bus vehicle is significant because it is the mechanism for transporting young children who have special needs to and from support and development programs. To assure child passenger safety in the school bus, transportation personnel will need training to work with infants, toddlers and pre-school children who use a variety of equipment. Challenges relating to proper use and installation of Child Safety Restraint Systems (CSRSs), including car seats, arise. Many of these challenges are addressed in NHTSA's "Guideline for the Safe Transportation of Pre-school Age Children in School Buses" (February 1999).

**Note:** Refer to "Proper Use of Child Safety Restraint Systems in School Buses" at <https://one.nhtsa.gov/people/injury/buses/busseatbelt/>.

Infants, toddlers and pre-school children with special needs present a challenge for transportation personnel because school buses were not designed to transport young children as passengers.

Each pre-school age school bus passenger should use a child safety restraint system appropriate for the child's age, weight, height and specialized needs, as determined by the IEP or IFSP team.

**Note:** *The following standards are applicable to this section.*

FMVSS No. 208 *Occupant Protection*

FMVSS No. 209 *Seat Belt Assemblies*

FMVSS No. 210 *Seat Belt Assembly Anchorages*

FMVSS No. 213 *Child Restraint Systems*

FMVSS No. 217 *Bus Emergency Exits and Window Retention Release*

FMVSS No. 222 *School Bus Passenger Seating and Crash Protection*

FMVSS No. 225 *Uniform Child Restraint Anchorages*

All CSRSs used in the school bus must...

1. Meet requirements of FMVSS No. 213;
2. Be installed and used according to the manufacturer's instructions;
3. Not be under a recall that recommends non-use of the CSRS;
4. Have all parts intact and in working order;
5. Be secured to a vehicle seat with a safety belt that meets FMVSS No. 209 or anchorages to meet FMVSS No. 225 or FMVSS No. 210; and
6. Use safety belts or latch systems that are installed only on bus seats that meet FMVSS No. 210.

F. Child Safety Restraint Systems (CSRSs)

CSRSs used in school buses must be appropriate for the individual child and must be used correctly. All restraint systems used for transportation must be secured to the bus seat in the manner prescribed and approved by both the school bus and CSRS manufacturers.

1. Elements of Correct Installation of CSRSs

It is recognized that compartmentalization, the passive safety restraint system required in school buses under FMVSS No. 222, provides a higher level of safety to children over 40 pounds. Children diagnosed with medical complexities or fragility might require special securement or positioning systems.

a. Direction

Position (rear- or forward-facing) and adjust recline angle accordingly. Some rear-facing seats are designed for rear-facing only and may not be used in a forward-facing position. (Check manufacturer's instructions.)

b. Belt Paths and Harness Strap Location

Use the correct belt path and harness strap slots on the CSRS as directed by the manufacturer's instructions.

**Note:** Heavy coats should be removed to ensure a tighter fit.

c. Installation

To achieve tight installation, place hand on and push down in the CSRS to compress the bus seat cushion. With the buckle(s) engaged, pull the loose end of the seat belt(s) to tighten and lock the safety belt. The CSRS should not move more than one inch forward or side-to-side when tested by grasping the seat at the belt path.

2. Types of Restraints

a. Rear-facing CSRS (infant-only)

I These seats are designed for infants from birth to twenty or twenty-two pounds (manufacturer's instructions) and who usually are less than 26 inches in length. These seats are used in rear-facing position at a 45 degree recline, which provides support to the infant's head, neck and back.

II Harness straps must be at or below the infant's shoulders and must be snug. A snug strap should not allow any slack, should lie in a relatively straight line without sagging and should not press on the child's flesh or push the child's body into an unnatural position. When properly fitted, harness strap material should not be able to be pinched between thumb and forefinger. The harness retainer clip, which is designed to hold the harness straps in place, should always be placed at armpit level.

III Avoid any extra padding or blankets behind or beneath the infant.

b. Convertible CSRS (Rear-Facing)

I Rear-facing infant position is designed for children from birth to twenty pounds, one year of age (manufacturer's instructions), weighing up to twenty pounds and usually less than 26 inches in length. Many CSRSs are now available to accommodate larger children (30 to 35 lbs.) in the rear-facing position.

**Note:** See manufacturer's guidelines for weight and height restrictions. It is recommended that children ride rear-facing as long as recommended or allowed by the CSRS manufacturer.

II The rear-facing position at a 45 degree recline supports the infant's head, neck and back.

III The harness straps must be at or below the infant's shoulders.

i. Harness straps must be snug. A snug strap should not allow any slack, should lie in a relatively straight line without sagging and should not press on the child's flesh or push the child's body into an unnatural position. When properly fitted, harness strap material should not be able to be pinched between the thumb and forefinger.

ii. The harness retainer clip, which is designed to hold the harness straps in place, is always at armpit level.

IV Do not use any extra padding or blankets behind or beneath the infant.

V Avoid the use of a T-shield or tray shield with infants or young children with eyeglasses, feeding tubes, shunts or other medical devices that may come in contact with the shield. Avoid use of CSRSs with a shield with children who, due to their stature, may not fit into the seat snugly or may make contact with the shield with their face or neck.

c. Convertible CSRSs (Forward-Facing)

I Forward-facing CSRSs with five-point harness, T-Shield or tray-shield are designed for children above twenty to sixty pounds. (Rear-facing position should be maintained for as long as

recommended or advised by the manufacturer.) Some forward-facing-only seats are available to accommodate larger children.

- II All forward-facing seats should be adjusted to the upright position.
- III Harness straps must be in the upper slot at or above the child's shoulders. (Follow manufacturer's guidelines.)
- IV The seat may be used until the child reaches the maximum weight or height allowed per the manufacturer's guidelines or until the top of the child's ears are above the back of the shell.
- V Harness straps must be snug. A snug strap should not allow any slack, should lie in a relatively straight line without sagging and should not press on the child's flesh or push the child's body into an unnatural position. When properly fitted, harness strap material should not be able to be pinched between the thumb and forefinger.
- VI Avoid the use of a T-shield or tray shield with infants or young children with eyeglasses, feeding tubes, shunts or other medical devices that may come in contact with the shield. Avoid use of CSRSs with a shield with children who may not fit into the seat snugly due to their stature.

**Note:** *Some CSRSs cannot be installed properly in a twenty-inch bus seat (i.e., tray-shield and some convertible seats).*

d. Car Beds

**Note:** *A car bed for infants up to 20 pounds allows the infant to lie flat. The use of a car bed should be predicated on the advice of a physician or an appropriate medical support professional (e.g., physical/occupational therapist) and approved by qualified personnel at an IFSP team meeting.*

- I Lateral support can be added with rolled-up towels or receiving blankets at both sides of the infant. Do not place around the infant's head padding that would cause an airway blockage.

- II Beds must be secured to the bus seat, with the seat belt passing through both slide loops. Check and use manufacturer's instructions before using beds.
- III Adjust the harness system to a snug fit as specified by the manufacturer. Harness straps should lie flat (not twisted).
- IV Caution should be given to gastrostomy tubes and to tracheostomies and shunts.

e. Specialized Positioning Seats

- I Specialized positioning seats are used only when a child does not fit in a standard CSRS or has a particular condition warranting more support.
- II As per NHTSA's, "*Child Passenger Safety Training Instructor Guide on School Buses*," tether straps are not required in school buses; however, some special needs CSRSs require a tether strap. (See manufacturer's instructions and all NHTSA curricula to determine the specifics.)

When a tether strap is used, the seat to which it is tethered must be unoccupied. For further clarification on the proper use of tethers, consult with a CPS (Child Passenger Safety) technician.

- III The safety belt must be routed through the appropriate belt path specified by the manufacturer's instructions to secure the CSRS.
- IV If a retainer clip is used, it must be positioned at armpit level.
- V Caution should be given to gastrostomy tubes, tracheostomies, and shunts.

f. Safety Vests

**Note:** *This restraint must be used only on school bus seats. The entire seat directly behind the child in the seat-mounted vest must be unoccupied or have restrained occupants.*

- I Vest selection should be appropriate for the size and needs of the child. Proper fit must account for seasonal changes in clothing.

- II The decision to use a vest should be made by an IFSP or IEP team that includes qualified personnel and the parent.
- III The use of safety vests should be noted on the IFSP or IEP.
- IV Vests should be anchored, as specified by the manufacturer.
- V Caution should be given to gastrostomy tubes, tracheostomies, and shunts.
- VI Pre-school children, due to their age, weight, physical development and their overall mental ability, should be securely fitted with a crotch strap supplied by the manufacturer. (Only vests required under FMVSS 213 will have a crotch strap supplied by the manufacturer. It is not optional.)
- VII If unrestrained students share the seat with a student in a child safety restraint, the student using the restraint should be placed in a window seating position, but never in front of an emergency window.
- VIII The seat behind the child in a vest must be kept empty or occupied by a child who is also in a child safety restraint system.
- IX Portable seat mounting straps should be checked for proper fit by transportation personnel during pre-trip inspections.

g. Wheelchairs

- I All decisions regarding the use of wheelchairs in the school bus must be made by an IFSP or IEP team that includes qualified personnel and the parent and should be noted on the IFSP or IEP.
- II Appropriate positioning of a child in a wheelchair should be made by qualified personnel, including IFSP or IEP committee members, and should be noted on the IFSP or IEP.
- III The IFSP or IEP team, including qualified personnel, should determine when it is appropriate to transfer a child from a wheelchair and place the child in an age-appropriate CSRS on the original manufacturer's seat.

G. Bus Seat Designated for a Child Safety Restraint System

The transportation provider should ensure installation and use in accordance with the following NHTSA guidelines:

1. Locations of school bus seats designated for CSRSs should start at the front of the vehicle to provide drivers with quick access to the CSRS occupants.
2. CSRS anchorages on school bus seats should meet all applicable FMVSSs.
3. The non-adjustable end of the lap belt should be positioned at the center for a CSRS placed next to the window; or, at the aisle for a CSRS placed next to the aisle.
4. The non-adjustable end of the lap belt must not extend more than one to two inches from the seat.
5. When ordering new school buses, the maximum spacing specified under FMVSS No. 222, School Bus Passenger Seating and Crash Protection, (within 24 inches space from the seating reference point) is recommended for seats designated for CSRSs to provide adequate space for the CSRSs.
6. The combined width of CSRSs and/or other passengers on a single seat does not exceed the width of the seat.
7. If other students share seat positions with CSRSs, the CSRSs are placed in the window-seating position, excluding emergency exit windows.

H. Medical Equipment

All decisions regarding medical equipment in the school bus should be made in accordance with state laws and regulations. Decisions regarding medical equipment should be the joint decision of trained personnel who are knowledgeable about the type of medical assistance and support an infant, toddler or pre-school child may need while in a school bus. Decisions should be made by qualified team members in attendance at IFSP or IEP meetings, including the parent. The IFSP or IEP document should include all the appropriate information. Safe transportation specifications should be documented on the IFSP or IEP.

Some special considerations and recommendations are as follows:

1. All medical support equipment shall be secured at the mounting location to withstand a pulling force of five times the weight of the item.
2. Latched compartments are the preferred methods of transport.

3. All medical equipment should be secured below the window.
4. Oxygen equipment (liquid or gas) should be approved by the manufacturer for transport and should be securely mounted and secured to prevent damage and exposure to intense heat levels.

**Note:** Refer to the *SPECIALLY EQUIPPED SCHOOL BUS SPECIFICATIONS* section.

## I. Special Considerations

Because of the dependency of young children and the need to make decisions on a case-by-case basis, the following section on special considerations is provided for guidance on a variety of issues related to the transportation of infants, toddlers and pre-school children.

### 1. Confidentiality

Confidentiality of information should be assured in accordance with the requirements of the Individuals with Disabilities Education Act Amendment of 1997 (Part B and Part C), Head Start Regulations and the Family Education Rights and Privacy Act Amendments of 1996. All transportation personnel should receive annual training regarding confidentiality requirements.

### 2. Emergency information

All parents, guardians or persons who are acting in *loco parentis* should be requested to fill out emergency transportation cards prior to initiating services. At a minimum, each emergency information card should request the following information: child's name, date of birth, program attending, height, weight, parents' names, address, (two) emergency contacts, child's doctor, hospital preferences, allergies, current medications, medical, communication and behavioral concerns, bus equipment required and special conditions, in accordance with state regulations. This information should be reviewed semiannually and updated at minimum annually, based upon the growth of infants and toddlers. The bus driver and attendant shall have access to this information in the school bus to safely transport students in CSRSs. A photo is recommended in accordance with the school district's policy. (This is especially helpful to substitute personnel and emergency personnel.)

### 3. Equipment Maintenance

Procedures should be established for scheduled maintenance, cleaning and inspection of all equipment, including CSRSs. Procedures should be in place to assure that all equipment is checked regularly for recalls and for product expiration dates. Procedures must be in place for cleaning CSRSs according to

manufacturers' instructions. Proper disposal of outdated equipment is important.

**Note:** A recall list may be found at [www-odi.nhtsa.dot.gov/recalls/-childseat.Cfm](http://www-odi.nhtsa.dot.gov/recalls/-childseat.Cfm)

#### 4. Evacuation

A written evacuation plan shall be prepared for all school buses transporting infants, toddlers and pre-school children. Evacuation drills shall be practiced on a scheduled basis, in accordance with approved written policies and procedures. Children attending Head Start are required to participate in at least three evacuation drills annually, including one in the bus in which the child will be riding. All buses shall be equipped with child-safe webbing cutters to assist in the emergency evacuation of children in child safety restraint systems and wheelchairs.

Written evacuation plans should consider the following questions:

- a. What are the child's physical and mental abilities?
- b. Can the child exit the bus independently?
- c. Which children can be removed from the bus without their CSRS or specialized equipment?
- d. Which children cannot be removed from the bus without their CSRS or specialized equipment?
- e. How can children be kept safe when removed from the bus?

**Note:** *If possible, depending on the width of the bus aisle, children in car seats should be evacuated from the bus in their car seats in order to maintain a controlled and safe environment once the children are off the bus.*

#### 5. Accessory Adaptive Equipment

All lap boards or trays, augmentative communication devices and ambulation equipment that attach to wheelchairs should be removed and secured during the time the child is transported in the school bus. The IEP team should address case-by-case where this is not advisable.

#### 6. Medically Complex and Fragile Children

Decisions regarding the safe transportation of medically complex and fragile

children should be made by qualified personnel and addressed on the child's IFSP or IEP prior to initiating transportation services. All school buses transporting medically complex and fragile children should be staffed by personnel who are knowledgeable about an individual child's specific medical needs and should be trained to administer first aid to young children. IEPs for medically fragile children should contain a healthcare plan written by the school nurse based on doctor's orders and/or standard medical practices for applicable health issues.

7. Transporting Medications

A written policy and procedure should address transporting medication between home and school. In no instance should a child be allowed to transport medicine to and from the school on his person.

8. Radios/Two Way Communication and Cell Phones

All school buses transporting infants, toddlers and pre-school children should have two-way communications systems and designated contact persons during the time the children are transported in the school bus. Cell phones may be utilized as a communication means, when approved by the school district or Head Start agency.

9. Supervision

All infants, toddlers and pre-school children should be supervised in the school bus, using the appropriate child-staff ratios based upon individually determined needs and state licensing requirements, if transportation to school and/or childcare center is involved. Additional supervisory personnel required to transport individual students should be determined on a case-by-case basis by qualified personnel. This information should be recorded on the IFSP or IEP document. If Head Start children must cross the street before boarding or after leaving the vehicle because curbside drop-off or pick-up is not feasible, they must be escorted across the street by the bus attendant or another adult. All children in these categories must be met by a responsible person, preferably an adult. Plans for alternative delivery, such as to Children's Protective Services, should be proceduralized, and a notice of disposition should be placed on the door. Unmet students should be returned to the school or other preplanned location, and school officials can attempt to contact parents for resolution.

10. Seating Plans

All school buses transporting infants, toddlers and pre-school children should

have a seating chart that is kept in the school bus. This is necessary in the event there is an emergency or there is a substitute driver or attendant. Decisions regarding seating should be made on an individual child basis using information known about the child's special needs and occupant protection requirements.

**Note:** CSRSs' placement and use should be according to NHTSA's, "Guideline for the Safe Transportation of Pre-School Age Children in School Buses" (February 1999).

11. Technology-Dependent Children

Decisions regarding the safe transportation of technology-dependent children should be made by qualified personnel and addressed on the child's IFSP or IEP. In all school buses transporting children who are technology-dependent, there should be qualified personnel who are knowledgeable about an individual child's specific medical needs and are trained to administer first aid or to carry out procedures specified on the child's IFSP or IEP. All medical service provisions should be in accordance with federal and state laws.

12. Universal Precautions

All transportation personnel involved in direct-service delivery for infants, toddlers and pre-school children should be directly trained in universal precautions related to the physical, day-to-day handling of young children and potential exposure to communicable and contagious diseases.

13. Post-Trip and Post-Run Segment Checks

Drivers are responsible for conducting a walk-through inspection of the school bus following drop-offs at each school and after the last delivery on each run segment. Prior to departing the bus for any length of time, a walk-through inspection must be conducted. The purpose of the walk-through inspection is to check on and under the seats for sleeping or hiding students and to identify any items which may have been dropped or left aboard the bus. Warning flag systems and/or electronic means may be used; however, the school bus driver is responsible for ensuring that the post-trip inspection has been made. Written policies and procedures should be in place for post-trip and post-run segment checks.

**TRANSPORTATION  
FOR STUDENTS  
WITH  
DISABILITIES  
AND SPECIAL  
HEALTH CARE  
NEEDS**

**WRITING COMMITTEE EDITS IN RED INK BY SECTION LOCATION:**

**LAWS AFFECTING TRANSPORTATION FOR STUDENTS WITH DISABILITIES**

## **TRANSPORTATION FOR STUDENTS WITH DISABILITIES AND SPECIAL HEALTH CARE NEEDS**

The purpose of this section is to recommend standard policies, procedures and guidelines for persons entrusted with the responsibility of managing transportation for students with disabilities. The term *special education* means, “specially designed instruction to meet the unique needs of a child with a disability.” When transportation is required to provide access to such instruction, it is considered a “related service.”

As part of the mandate of a Free Appropriate Public Education (FAPE), related services are required when determined necessary to assist a child with a disability to benefit from special education. *Transportation* as defined in *The Individuals with Disabilities Education Improvement Act (IDEIA)* includes:

- A. Travel to and from school and between schools;
- B. Travel in and around school buildings; and
- C. Specialized equipment (such as special or adaptive buses, lifts, and ramps), if required to provide special education for a child with a disability.

Though general in nature, the recommended guidelines, policies and procedures do contain adequate information as of the date of adoption of these guidelines to guide those persons responsible for student transportation in developing an action plan for the safe and appropriate delivery of transportation services for students with disabilities.

This section reviews the current laws and regulations governing special transportation related to the individualized education program (IEP) process, recommended staff training and policy development.

The transportation administrator and pertinent staff shall become familiar with the laws, guidelines, policies and procedures listed below.

### **LAWS AFFECTING TRANSPORTATION FOR STUDENTS WITH DISABILITIES**

- A. Laws
  - 1. It is possible for a school district to be required to provide specialized transportation services to a student with disabilities who is not in special education. Section 504 of P.L. 93-112, of the Rehabilitation Act of 1973, states in part, “No otherwise qualified disabled individual in the United States shall, solely by reason of his handicap, be excluded from participating in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.” In general terms, Section 504 of P.L. 93-112 (1), part of the Rehabilitation Act of 1973, “...requires that all students with disabilities (regardless of age) are eligible for a free appropriate

public education [FAPE].” It also requires that the facility, services and activities provided to the disabled to be comparable to those provided to the non-disabled, and that students with disabilities must have an equal opportunity for participation in any nonacademic and extracurricular services and activities provided by a school district.

2. Congress passed P.L. 94-142, in 1975, and regulations were promulgated by implementation of Part B of the Education for All Handicapped Children Act, effective October 1, 1977. A free appropriate public education (FAPE) is required for all students between the ages of 3 and 21 years who are deemed *disabled* and who need special education.
3. 2004, the reauthorization of the Education for All Handicapped Children Act of 1975 changed the name to Individuals with Disabilities Education Improvement Act (IDEIA). Subsequent reauthorizations made significant additional changes. These guidelines reflect the 2004 reauthorization of the law and the 2006 regulations implementing that law.

**Note:** *IDEA requires the public agency “...to provide non-academic and extracurricular services and activities in such manner necessary as to afford children with disabilities an equal opportunity for participation in those services” (Section 300.107). One of the ways to access those nonacademic services is transportation. This law continues the emphasis on the transportation of children with disabilities in the same ways children without disabilities are transported. Section 300.17 provides that a child with a disability must be allowed to participate in non-academic activities as much as possible with children without disabilities. Thus, the beginning point for consideration of the appropriate way in which to transport a child with disabilities is the “regular” (i.e., non-special needs) school bus. This “regular” environment must occur unless a child cannot travel safely in the regular bus, even with the use of specialized equipment or other supplementary aids and services.*

B. Characteristics/Conditions:

To be *disabled* under IDEA, a student must have certain characteristics or conditions that adversely affect educational performance, and, therefore, that require special education and related services. The disabilities are defined in the IDEA under Part B: Regulations. They appear in 34 Code of Federal Regulations (CFR), Part 300 Child with a Disability. The *terms* will be listed in this section as they appear in the CFR. The *definitions* can be found in APPENDIX E.

Disabilities are classified as follows:

1. Autism;
2. Deaf-Blindness;
3. Deafness;
4. Emotional Disturbance;
5. Hearing Impairment;
6. **Intellectual Disability;**
7. Multiple Disabilities;
8. Orthopedic Impairment;
9. Other Health Impairment;
10. Specific Learning Disability;
11. Speech or Language **Impairment;**
12. Traumatic Brain Injury; and
13. Visual Impairment, including Blindness.

## **INDIVIDUALIZED EDUCATION PROGRAM (IEP)—INDIVIDUALIZED FAMILY SERVICE PLAN (IFSP) PROCESS**

The 2006 IDEA Regulations echo the statutory purpose stated in the 2004 Reauthorization of the IDEA statute: "... to ensure that all children with disabilities have available to them a free appropriate public education that emphasizes special education and related services designed to meet their unique needs and prepare them for further education, employment and independent living; to ensure that the rights of children with disabilities and their parents are protected...and to assess and ensure the effectiveness of efforts to educate children with disabilities."

The IEP team is the formal group that designs a student's educational program, establishes measurable academic and functional goals and determines the related services that are necessary for a student to access special education. When transportation is considered as a related service, appropriate transportation staff, as related service providers, must be included in the IEP process to address safety and feasibility of various transportation options.

The safe transportation of a child with special needs requires a plan that considers and adapts the transportation services to the individual needs of the student. This plan is called an "Individual

Transportation Plan” (ITP) and functions as a sub-part of the IEP when transportation is a related service. The ITP addresses (but is not limited to) the following considerations and decisions:

A. Legal Considerations

The intent of the law is that the IEP team considers a number of stated issues related to the student’s educational program. “A continuum of alternative placements [must be] available to meet the needs of children with disabilities for special education and related services.” When transportation is considered as a related service, consideration needs to be given to the range of transportation services, including the use of supplementary aids and modifications available to students with disabilities to address questions about the appropriate mode of transportation for the student. The requirement that students with disabilities be transported “to the maximum extent appropriate” with students without disabilities (the “least restrictive environment,” or LRE) includes the focus on provision for safe transportation for each student.

B. The Individualized Education Program (IEP)

The IEP is a written statement of services a student is to receive. With respect to transportation, this information should contain necessary specificity so that transportation professionals, school personnel, parent and student know what services to expect.

Generally, modification of the IEP requires an IEP meeting. When change in transportation provisions is deemed necessary, transportation services personnel should contact the student’s case manager or other appropriate staff member. Such contact should also occur when transportation services personnel find they need more information or assistance from team members or if they find the program to be in any way unsafe or not meeting the student’s needs.

## **GUIDELINES**

The following guidelines are intended to assist in establishing a training program for administrative and school-based personnel enabling them to respond to the concerns presented by students with disabilities, as required by IDEA. The goal of such a training program is to teach the skills needed to respond to routine and emergency circumstances concerning transportation.

A. School/Education Administration

School administrators and education staff who help make program decisions for students with disabilities, including the requirement for transportation as a related service, are frequently unfamiliar with transportation capabilities and limits.

Those persons should have training in areas that include, but are not limited to, the following:

1. Situations under which transportation staff would be consulted, or included in the IEP Team process;
2. State and local transportation policies and procedures, including communications, reporting procedures, establishment of walk distances and pick-up and drop-off locations;
3. Transportation regulations and guidelines that could assist in determining if transportation would be appropriate as a related service;
4. Alternative transportation options;
5. Current legislative, legal and administrative decisions;
6. The application of least restrictive environment regulations to transportation placements;
7. The extent of training and skill levels available within the transportation staff and any additional training necessary to meet standards for qualified staff, as defined by local, state and federal standards;
8. The types of vehicles available for transporting students with disabilities;
9. The types of equipment and occupant securement systems available; and
10. Do Not Resuscitate (DNR) policies for local school districts, as well as current legislative and administrative decisions concerning this topic.

B. Transportation Administration

With increased responsibility being imposed on transportation providers through actions taken by legislative, legal and administrative authorities, persons in leadership roles must involve themselves to a greater degree.

The duties and responsibilities of transportation leadership likely will differ between various transportation providers; however, listed below are some areas of knowledge that are necessary to satisfactorily perform the leadership responsibilities.

1. Federal, state and local laws and regulations regarding the equipment required on vehicles used for transporting students with disabilities;
2. Federal, state and local laws and regulations regarding necessary personnel and training;
3. Operational regulations, such as student pick-up/drop-off, including service criteria requiring neighborhood bus stop, curb-to-school or door-to-school;

4. Special education transportation regulations and guidelines, such as student riding time and suspension period limitations;
5. Due-process rights and procedures for a student with disabilities;
6. Student referral, evaluation and IEP process;
7. A general knowledge of available resource persons and the location and availability of appropriate training;
8. Vehicle staffing requirements, including when an attendant might be needed, how and when substitutes will be assigned and how appropriate information and training will be shared with substitutes;
9. The availability of emergency medical services in the community and the identity of those who could assist if such an emergency were to occur during transportation;
10. State and local laws relating to child abuse and harassment/bullying reporting procedures;
11. State or local laws relating to limits of liability and policies and procedures for risk management;
12. Federal and state rules of confidentiality; and
13. Legislative and administrative decisions and procedures concerning DNR.

C. Drivers and Attendants

As direct service providers to students with disabilities, drivers and attendants have a hands-on responsibility to provide safe and appropriate transportation to students with disabilities, including operation of special equipment, management of student behavior and basic first aid, as necessary. Additionally, they must be knowledgeable in passenger-positioning, securing adaptive and assistive devices and child safety restraint systems (CSRSs) and must be familiar with the nature, needs and characteristics of the types of students they transport.

D. Training components

To perform the responsibilities assigned in a safe and effective manner requires a substantial degree of specific training. Some training components that transportation staff must have are the following:

1. Introduction to special education, including characteristics of disabling conditions, the student referral, assessment, IEP process and confidentiality of student information;
2. Legal issues, including federal and state laws, administrative rules and local policy;
3. Operational policies and procedures, including:
  - a. Pre-trip and post-trip inspection procedures for all assistive equipment and devices, CSRSs, securement systems and safety equipment;
  - b. Loading/unloading;

**Note:** *During loading and unloading, the driver should remain in the driver's seat to observe traffic flow and the overall safety of the school bus relative to highway and surrounding activity unless it is necessary for the driver to leave this position to assist with the loading or unloading of students. The driver must secure the bus before leaving the driver's seat. [See item (III) below.]*

- c. Securing the bus:
  - I Engage the emergency brake;
  - II Place the vehicle transmission in "neutral" or "park"; and
  - III Activate the side stop arm and traffic control lights when allowable by state law;
- d. Pick-up/drop-off location;
- e. Evacuation procedures, including the use of emergency equipment, such as webbing cutter(s), fire blanket(s), evacuation aids, etc.;
- f. Lifting/positioning procedures/body mechanics;
- g. Student accountability and observation, including recognizing signs of neglect or abuse;
- h. Post-trip vehicle interior inspections for students or articles left in the bus prior to parking;
- i. Reporting and record-keeping;

- j. Lines of responsibility relative to individuals' roles as educational team members;
- k. Lines of communication, including parents and educational staff;
- l. Route hazard analysis and route management, including medical emergencies, no adult at home, inclement weather, field trips, etc.;
- m. Behavior management:
  - I Techniques for behavior modification and the development of appropriate behavior;
  - II Procedures and techniques for dealing with inappropriate or unacceptable student behavior that creates emergency conditions or poses a risk to health and safety, including possession and transportation of weapons, drugs, etc., and awareness of gang activities, harassment/bullying and/or other inappropriate behaviors;
  - III Procedures for documenting and reporting inappropriate or unacceptable student behavior; and
  - IV Intervention strategies and techniques and emergency response procedures for use with individual students as outlined in their respective IEP and ITP;
- n. Bloodborne pathogens and universal precaution procedures, including use of personal protective equipment;
- o. Policies and procedures that ensure confidentiality of personal identifying information; and
- p. Basic First Aid, CPR and proper medical support equipment usage as students' conditions require.

E. Special Equipment Securement, Use and Operation

A variety of equipment is required on vehicles used to transport students with special needs. It is necessary for transportation staff to be familiar with the design and operating procedures for this special equipment, as well as to know how to conduct equipment inspection and (depending on local policy) to make simple "field adjustments" to correct minor equipment breakdowns or malfunctions. It is the driver's responsibility to ensure that all assistive and safety-related equipment on the bus is inspected prior to and following each trip as part of an overall vehicle pre-trip

and post-trip inspection protocol. Defects or missing equipment must be documented and reported immediately to the transportation or maintenance office in writing or electronically in a standard inspection format. All safety- and operations-related defects must be repaired and missing equipment replaced prior to operating the school bus to transport students. Depending on local policy and training, an attendant may assist the driver with the actual inspection process.

Equipment and procedures include, but are not limited to, the following examples:

1. Power lifts, including procedures for manual operation;
  - a. During lift operations (including manual) no one shall be allowed to stand on the lift platform.

**Note:** *Children using mobility aids/devices other than a wheelchair or equivalent (resulting in other than a seated position) who need to use the lift, should use a wheelchair or other wheel-based mobility device for boarding or exiting the bus, and then should be transferred to a bus seat for the ride. If the wheelchair is to be transported, it must be secured properly.*

- b. Wheelchairs or other wheel-based mobility devices should not be placed on the lift unless they are equipped with a functional wheel-locking system. Powered/motorized wheelchairs must have the power switched to “off” and the motor locks engaged before the lift is activated to raise or lower the chair.

**Note:** *Always adhere to state-specific requirements.*

- c. Mobility device placement on the lift platform is outward, facing away from the side of the bus, with wheels locked and/or motor locks activated. Platform safety straps, if provided, must be properly secured before the lift platform is raised or lowered. Mobility device occupant positioning belts/harness must be properly worn by the occupant. The lift is operated by a trained adult standing outside the bus at ground level, adjacent to the lift platform while maintaining a continual hold on the wheelchair. A second adult should be positioned inside the bus to either unload or load the wheelchair (and occupant) from or onto the lift platform at the passenger compartment level. Subject to local policy and resolution of potential liability issues, parents, guardians or other persons authorized and trained by the local school administration may assist with the loading or unloading of students.

2. Emergency escape exits, including doors, windows and roof hatches;

**Note:** *The width of aisles and emergency exits may limit the evacuation and emergency response procedures possible in any given scenario. The evacuation planning process and training provided must include strategies to offset these limiting factors.*

3. Special fire suppression systems, including emergency fire blanket and evacuation aid;
4. Power cut-off switches;
5. Emergency communications systems;
6. Climate-control;
7. Adaptive and assistive devices used to support and secure students, including mobile seating devices, child safety restraint systems (CSRSs), safety vests, wheelchair tiedown/occupant restraint systems (WTORS), assistive technology devices, trays and securement hardware, including their storage and securement when not in use;
8. Two-way electronic voice communication THAT CAN BE USED AT ANY POINT IN THE VEHICLE'S ROUTE should be provided in all school buses equipped, as well as used, to transport passengers with disabilities and special health care needs;
9. Service animals that can be transported to assist the student with disabilities;

**Note:** *District policies and procedures, as well as training, should be established prior to transport.*

10. All portable equipment and special accessory items, including the equipment listed in the SPECIALLY EQUIPPED BUS SPECIFICATIONS Section 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 of the box's integrity and securement to the bus.

**Note:** *If these specifications provide specific requirements for securement of a particular type of equipment (e.g., wheelchairs), the specific specification shall prevail.*

11. All lap boards or trays and ambulation equipment that attach to wheelchairs shall be removed and secured during the time the child is transported in the school bus. The IEP team should address case-by-case where this is not advisable.

F. Selecting Securement Points on Wheelchairs

Decision-making should be a TEAM effort, not an individual's responsibility. Information on wheelchairs, to include WC19-compliant chairs, shall be made available to transportation personnel. Always consult school staff or a qualified professional.

1. Wheelchairs should be transported in a forward-facing orientation.
2. Securement systems for wheelchairs should be used in accordance with the manufacturer's specifications and recommendations and should include an occupant restraint of a minimum of a lap/shoulder belt and a 4- point wheelchair tie down (Refer to the SPECIALLY EQUIPPED SCHOOL BUS SPECIFICATIONS section.)
3. Wheelchairs designed for transportation safety have securement points called "transit options," which will be labeled appropriately. The manufacturer's designated securement point shall be used. (Refer to APPENDIX E for guidelines on WC19 from the Ride Safe information provided by ANSI/RESNA, University of Michigan transportation Research Institute [UMTRI].)
4. On wheelchairs without the transit options, points are frequently located just below the wheelchair's seat on non-detachable structural frame members. In addition, the following beneficial criteria should be taken into account:
  - a. Welded sites are preferred; but
  - b. Frame members held together with hardened bolts are acceptable.
5. Rear tie down straps should be anchored directly behind the securement points on the wheelchair, with the front straps angled slightly outward to increase stability.
6. The lap portion of the occupant restraint system should be threaded through the space between the armrest and the seating frame to achieve proper placement low over the hip bones of the occupant. The lap belt should never be placed over the armrest or with the belt assembly twisted. When optimally placed, the belt's webbing's bottom edge should be touching the occupant's thighs. When looking at the lap belt's path to the floor from the

side of the chair, the belt should be angled between 45 and 75 degrees to the horizontal. When using an integrated system (in which the occupant restraint is attached to the rear tiedowns of the wheelchair securement system), the rear wheelchair securement site must be selected with this in mind. Whether using an integrated or a parallel system (in which occupant restraint belts are separate of tiedown belts), at no time should the occupant ever carry the load of the wheelchair or its tiedown system. The occupant must be secured separate of the wheelchair and its tiedowns.

7. Proper positioning for the shoulder restraint is over the shoulder and across the upper chest or torso of the occupant when connecting it to the lap belt. The shoulder belt shall not be placed across the neck of the occupant. A height adjuster may be required to achieve appropriate belt position for the torso portion of the occupant restraint.
8. On a tilt-in-space wheelchair, the four sites must be either on the base of the wheelchair or on the seat/frame portion of the chair. For example, it is not effective to have the front hooks on the base of the chair and the rear hooks on the seat/frame portion of the chair since that combination would create a “teeter-totter” effect. (This warning does not apply to wheelchairs that meet WC19 specifications.)

**Note:** *With advances in wheelchair manufacturing design and specifications, verify manufacturer’s instructions and/or recommendations for maximum attachment strength.*

9. Wheelchair securements must **not** be attached to the crossbar, since this may cause the wheelchair to collapse.
10. Homemade brackets are never acceptable. Securement and restraint systems installed to secure wheelchair/mobility aids and to restrain the occupants should be used all together and in accordance with the manufacturer’s recommendations.
11. Immediately after their use, all securement hardware not permanently affixed to vehicle floors and sidewalls (tracks, plates) should be detached and stored in a bag, box or other compartment.
12. Wheelchair tracks or plates should be swept, vacuumed or otherwise cleaned as needed to keep the equipment functional.

G. Medical/Health Issues:

Legal mandates make it necessary to transport most students who have severe medical/health conditions, and transportation staff may find it necessary to obtain or provide emergency health care to students during the transportation process. Staff may be exposed to contagious and/or communicable diseases; therefore, training regarding medical health issues, including universal precautions, intervention and management, should be given to all personnel.

1. Precautionary handling

All transportation staff, including drivers, attendants, technicians and service personnel (e.g., washing and cleaning staff) should be trained in universal precautions relative to the handling of and exposure to contagious and communicable disease, and they should be informed about available immunizations.

Suggested topics for training with respect to the precautionary approach to medical and health issues may include, but also not limited to, the following topics:

- a. Characteristics of contagious and communicable diseases;
- b. Disease management techniques; and
- c. Use of protective equipment and devices.

2. Care, intervention and management

Medically complex, technology-dependent and/or highly disruptive students require specific care and intervention. Knowledge of basic first aid and cardiopulmonary resuscitation (CPR) procedures provides adequate training to care for most health concerns during transportation. For those students who need additional care, management or intervention, or who present specific health risks, a health care plan shall be developed during the assessment/evaluation process by the IEP Team. This plan details the care and training needed, as well as the qualifications necessary for those who will carry out the plan, and specifies and provides the transportation department with the following information:

- a. A brief description of the student's current medical, health or behavioral status, as well as an emergency card including the student's photo (when available) with current information that shall include address, emergency phone numbers, etc.;

- b. A description of the medical/health care or intervention necessary during transportation, including the frequency required;
- c. A description of who should provide the care or intervention;
- d. Types and extent of additional training or skills necessary for the driver and/or attendant;

**Note:** *Training may include the inspection, operation and use and care of the student's special adaptive/assistive equipment, including items such as oxygen containment systems, suctioning equipment, apnea monitors, ventilation equipment, etc.*

- e. A description of emergency procedures to be implemented during a medical/health crisis, including specific observable signs/symptoms that prompt action, and appropriate communication with medical staff;
- f. A description of the procedures to be followed in changing the care plan when conditions indicate a change is warranted;
- g. A written emergency evacuation plan that gives detailed, student-specific procedures; and
- h. A description of the precautionary measures, if any, that need to be taken in regard to severe allergies, oxygen dependency, etc.

**Note:** *Although it is recommended that drivers and/or attendants provide only routine/customary, non-medical assistance as needed, there are some necessary tasks which non-medical personnel can be trained to handle. However, those issues that require either ongoing care or diagnosis should be handled only by a trained medical professional. Specialized training, when necessary, should be provided.*

## **CONFIDENTIALITY**

Information provided to transportation staff to assist in the orderly and safe transportation of a student, including disabling condition, medical/health issues, or other personal characteristics or information, is protected by the provisions of the Family Educational Rights and Privacy Act (FERPA) and the IDEA; therefore, transportation staff shall be trained regarding confidentiality requirements.

## DEVELOPMENT

In education, there are many laws, rules and regulations that dictate the service that *must* be provided, but few of them offer directions or suggestions as to *how* the service is to be provided. Transportation policies and procedures should be developed, adopted by the governing board or superintendent, as appropriate, and periodically updated to reflect changes in federal, state and local regulations. Despite such policies and procedures, an individual student's IEP or Section 504 plan or a Behavioral Intervention Plan (BIP) may override specific provisions.

- A. Local policies and procedures should address the following issues:
  1. Transporting medications;
  2. Student management and discipline;
  3. Physical intervention and management;
  4. Securing the vehicle, loading and unloading;
  5. Safety vests and other positioning devices;
  6. A plan for students with disabilities during early closing of school due to inclement weather or other emergencies;
  7. Authority to operate special equipment (driver, attendant, parent, students, school staff or others);
  8. A plan to address occasions when no adult is home to receive a student who requires assistance and/or supervision, which plan may include an alternative, supervised drop-off location;
  9. A plan to remove from service those pieces of specially designed equipment that are damaged or that present a safety hazard;
  10. A plan to address insufficient information in the student referral process;
  11. Student pick-up and drop-off locations;
  12. Control and management of confidential information;
  13. A plan for community emergency medical and law enforcement personnel involvement; and
  14. District policy for Do Not Resuscitate (DNR) requests from parents, to include all appropriate school and transportation personnel.

**Note:** Classroom and school bus policies may differ; however, drivers and attendants should adhere to transportation policies.

B. Policy Approval

All policies shall be in writing, and formally approved by the appropriate education authority. Procedures shall include establishing time lines for periodic reviews or revisions.

## EMERGENCY EVACUATION OF STUDENTS WITH DISABILITIES

Each bus route should have a written emergency evacuation plan. This plan should reflect each student's ability to evacuate or help others. Students with disabilities should participate in required evacuation drills and should only be excluded if their participation would present a health risk. Parents should be notified in advance of such barriers to their child's participation. Every effort should be made to ensure that ALL students have a reasonable understanding of the concept of an emergency and how they will exit the bus.

The driver and the attendant must be familiar with any equipment in the bus that would aid in an actual evacuation, (e.g., the use of all emergency exits, emergency/fire blankets, webbing cutters, etc.). It is important to enlist the help of school liaisons, parents and other personnel (e.g., physical therapists) to train and help students and staff understand emergency procedures including how to exit the bus without use of their mobility devices and equipment (wheelchair, etc.). Local emergency personnel should be involved in developing the plans, especially if the students transported have complex medical conditions.

## EXTENDED SCHOOL YEAR

Transportation as a related service may be required under Extended School Year provisions of IDEA:

A. Extended School Year (§300.106) IDEA Definition:

1. The term *extended school year services* means "special education and related services that are provided to a child with a disability...
  - a. Beyond the normal school year of the public agency;
  - b. In accordance with the child's IEP; and
  - c. At no cost to the parents of the child and that meet the standards of the State Education Agency (SEA)."
2. Each public agency shall ensure that extended school year services are available, as necessary to provide Free Appropriate Public Education (FAPE).

B. OH Subpart C - 6

1. Extended school year services must be provided only if a child's IEP team determines on an individual basis and in accordance with the IEP provisions that the services are necessary for the provision of FAPE to the child.
2. In implementing these requirements, a public agency may not...
  - a. Limit extended school year services to particular categories of disabilities; or
  - b. Unilaterally limit the type, amount or duration of those services.

**SCHOOL  
TRANSPORTATION  
SECURITY AND  
EMERGENCY  
PREPAREDNESS**

**WRITING COMMITTEE EDITS IN RED INK BY SECTION LOCATION:**

**INTRODUCTION**

**TRANSPORTATION PERSONNEL AND THEIR TRAINING**

**SCHOOL BUS SECURITY EQUIPMENT AND EMERGING TECHNOLOGY**

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# SCHOOL TRANSPORTATION SECURITY AND EMERGENCY PREPAREDNESS

## INTRODUCTION

Each school day **approximately 15** percent (57 million) of the United States' population is located in our nation's schools. Approximately half of these children (25 million) use a school bus for transportation to and from school each day. Additionally, millions of children ride school buses each day for school activity trips.

A review of past criminal and terrorist actions and statements makes it clear that buses, including school buses, can be used as weapons, as well as being viable targets.

Until recently, school transportation has been centered on two main objectives: safety and efficiency of school bus operations. Since September 11, 2001, transportation system security has been added into the equation. In addition to the threat from foreign and domestic terrorist groups, the school bus driver and passengers may be targets of violence from students, unauthorized boarders and criminal elements outside the school bus. School transportation professionals must give school transportation security and emergency preparedness at least the same level of commitment as has been given to safety and efficiency. **Additionally**, school systems must give school buses as much priority as the school buildings.

Recent events demonstrate that terrorists totally disregard the sanctity of education facilities and school children. Individual terrorists and/or terrorist organizations look for targets that will strike fear into our society. Terrorists and individuals with criminal intent select emotional targets when actions against the more traditional military, government and economic targets do not achieve their desired goals. Current violent activities indicate a change in tactics and targets.

School transportation is a lot like the electric and water companies—service performed flawlessly attracts little notice. Society rarely gives school bus transportation a second thought— unless something goes wrong, which is a relatively rare event.

Complacency and the attitude that “it won't happen here” set the stage for terrorists to perpetrate their crimes. The transportation industry must increase awareness and mitigate the potential for terrorist attacks on school transportation systems. The initial step is for transporters to become aware of potential problems and to identify practical solutions.

Following a systematic and reasonable plan will help transporters not only to improve their ability to **identify and** prevent acts of terrorism, but also to strengthen their ability to react to the more common events that plague the transportation industry. Transporters will be better prepared to address vandalism, property loss, petty theft, fights or disturbances, child abductions and sexual predators, **student trafficking and hijacking/kidnapping**, thus giving an added bonus of increased level of student and employee protection and safety.

The information in this segment is not intended to be a comprehensive guide on school transportation security or to supersede any federal, state or local policies and plans. Rather, the purpose of this information is to assist school transportation officials and school transportation service providers when establishing or revising their state or local policies and plans concerning school transportation security. Another resource to consider is Security **Action Items (SAI) or best practices** for consideration published by the Transportation Security Administration (TSA). (See APPENDIX H.)

School transportation providers should also seek to be part of the community emergency management plans. It is important to know where school buses fit into the larger picture. Transportation departments need to know where their buses are **and communicate** on the priority scale, compared to other segments of the community, should a large-scale emergency occur in the local area. Things to consider may vary, depending on time of day (i.e., route time) or year. Transportation departments can also play a vital role during emergency situations that require a large-scale evacuation from an area. In addition to moving students from school buildings, unutilized buses can serve the community as well. The Transportation Department should be aware if they are part of another groups plan. Often times too many groups (unrealistically) count on school buses. There may not be enough available buses for everyone's needs.

### **Planning and Policy Considerations**

- A. Does the school district have a written security policy and crisis response plan, including procedures that include transportation personnel, equipment and facilities? Does the plan/policy coordinate with procedures in the school buildings? Is the plan/policy site-specific for all school facility locations? Are student transporters represented in school facility planning sessions?
- B. Has a transportation system security and emergency procedures assessment been performed annually? (See APPENDIX H.)
- C. Does the plan/policy contain information on threat vulnerability identification and consequence?
- D. Does the plan/policy provide for any proactive or preventive technology solutions, that are currently available and that can potentially act as early detection or prevention of potential threats? (i.e., GPS, lot cameras, onboard cameras with transmission capabilities).
- E. Does the planning and policy process include appropriate stakeholders (e.g., first responders, law enforcement, fire department, **government officials (local/state/federal)** and media, such as print, radio, television, etc.)?
- F. Is the plan disseminated only to authorized personnel or persons with a documented "need to know," and are non-disclosure statements being utilized?

- G. Are the procedures of the plan/policy routinely tested and exercised with means for assessment, evaluation and improvement at least annually?
- H. Does the plan/policy provide information on how to recognize suspicious people, activities, packages and devices as outlined by the Transportation Security Administration (TSA) First Observer **Plus™** Program?
- I. Does the plan/policy require security inspections of vehicles and facilities?
- J. Does the plan/policy require pre-trip, post-trip and unattended stoppage period vehicle security inspections?
- K. Does the plan/policy address commonly used terrorist weapons (e.g., improvised explosive devices, chemical, biological and radiological agents)?
- L. Does the plan/policy contain directives on incident management and command as outlined by the National Incident Management System (NIMS) and Incident Command System (ICS)?
- M. **Does the plan/policy cover enroute incidents/emergencies?**
- N. **Does the plan/policy identify who (outside of First Responders) should be informed and how, as an emergency incident is being reported?**

### **Security Assessments**

Vigilance, which requires an awareness of vulnerabilities, is the first step to better security. In order to determine and understand the threat level to the student transportation system, a system-wide security assessment shall be conducted, understood and updated annually. The assessment should include participation by school administrators, local and state police and medical and hospital administrators and local emergency managers. The assessment will help to identify weaknesses and strengths within the operation. The assessment should begin at the front line of any transportation system—the driver—and support employees (i.e., cleaning and fueling personnel) and continue up through all levels of the organization. This should also include any viable means by which to immediately detect or prevent threats on board. After completing the security assessment, appropriate plans/policies and procedures can be developed and implemented.

A security assessment should consider the following security issues:

- A. The complete assessment team should review the current security plans/policies and procedures by asking the following questions:
  - 1. What security plans/policies and procedures exist?
  - 2. Do they address facilities, **information technology**, equipment, personnel and

passengers?

3. Have these plans/policies and procedures ever been tested in an exercise?
4. Have the plans/policies and procedures ever been used for a real emergency?
5. Were the plans/policies effective?
6. Do the security plans and policies identify a “security coordinator” for each school and facility with written responsibilities?
7. Do the security plans/policies include policies and procedures for vetting of transportation personnel?
8. Were the security plans and policies developed in cooperation with local first responders?
9. Are the security plans/policies annually reviewed and updated?
10. Where are the security plans/policies stored?
11. Is there a central person responsible for security plans, policies and training?
12. Is the “security coordinator” available to school and emergency responders on a 24/7 basis?

B. Review existing lines of communication by asking the following questions:

1. What lines of communication exist within the operation?
2. Do they interrelate with local law enforcement, fire and emergency services?
3. Are they clearly defined and documented?
4. Are all employees trained and familiar with them?
5. Have these lines of communication been tested and proven?
6. Is there an alternate communication plan if the normal systems are unavailable?
7. Were the communications effective, as tested?
8. Are phone numbers for personnel available for after hours, weekends and vacations?

- C. Review personnel security by asking the following questions:
1. Are all employees and visitors required to wear identification badges? Do they wear them?
  2. Is there a "sign in/sign out" system or a personnel identification measure in place?
  3. Are all employees required to wear **visible identification and/or** uniforms? Do employees comply?
  4. Are students registered on a particular bus?
  5. Are drivers provided with a list of riders and are students carrying an ID?
  6. Are there procedures for accounting for each individual student, especially on activity trips?
  7. Do evacuation plans exist? Are they practiced and how often?
  8. Is there a designated place to relocate staff or students?
  9. On activity, field or extracurricular or school-chartered bus trips, are students instructed in safe riding practices and on the location and operation of emergency exits?
- D. Review operational security by asking the following questions:
1. Are all vehicle doors, hatches and compartments locked when vehicles are unattended? Are keys left in the bus or ignition?
  2. Are facilities and buses equipped with camera or video surveillance equipment or intrusion alarms that are monitored?
  3. Do plans/policies and procedures for locking doors and gates exist? Are the codes or combinations changed regularly?
  4. Are off-site parking locations secure?
  5. Is the exterior of the transportation facility, administration building and maintenance facility secure?
  6. Is the bus yard secure?
  7. Are fencing, walls or vehicle or personnel gates and lighting available?

8. Is there surveillance equipment being monitored and/or recording? What is being surveilled (e.g., gates, doors, lobbies, vehicles, etc.)?
9. Is the interior, (i.e., all rooms, storage areas and closets) of the transportation facility, administration building and maintenance facility secure?
10. Are roofs secure?
11. Are all bus routes being evaluated with safety and security issues considered?
12. Where are buses staged during the route if there is a layover period?
13. Are buses left unattended at schools or other secured areas during layover periods?
14. Are all schools and school parking areas safe and secure?
15. Are commonly used school activity sites safe and secure?
16. Do drivers leave the bus to watch the activity?
17. Is a walk-around safety and security inspection of the bus performed prior to departure and after the vehicle has been left unattended?
18. Is there a pre-trip inspection prior to departure for home?
19. Do computer and communications systems exist?
20. How is access to computers or systems controlled? What are their limitations?
21. How can computers be compromised? If they can be compromised, what can be done to prevent it?
22. Is the communication system (e.g., two-way radio, land telephone line, cellular telephone, etc.) capable of recording?
23. Is the bus fleet equipped with real time GPS? Does the public have the ability to track the bus location?
24. Does the communication system have redundancy, and is it routinely tested? Are all trained in the appropriate level of the National Incident Management System (NIMS), is it reviewed regularly, and is everyone (drivers, dispatchers, administrators) familiar with NIMS?

25. Do emergency back-up systems for information and communication exist? What are their limitations?
26. How can emergency back-up systems be compromised, and if they can be compromised, what can be done to prevent it?
27. Are the back-up systems stored off site? Are they secure?
28. Is there a plan available that does not require electrical energy? Does the transportation department have a backup generator?

### **Security Plans/Policies and Procedures**

The assessment should indicate any gaps in existing plans, policies and procedures. Also, board- and administration-approved security plans, policies and procedures should be developed. These plans, policies and procedures must be supported and enforced by the entire transportation organization. Plan/policy recommendations should include, but not be limited to, the following items:

- A. Consider the security interest of students when establishing district plans/policies which make routes, schedules and locations available to parents and guardians on the internet.
- B. Establish board-approved plans/policies on the use of employee uniforms and identification badges and student registration (bus passes). Consideration should be given for a means to appropriately identify that a student may be met by a parent, guardian or other authorized person.
- C. Establish board-approved plans/policies on property security, (e.g., locked doors and gates, security cameras, alarms, employee photographs, public entry, etc.).
- D. Establish communication procedures regarding the use of two-way radios, cell phones, VHF radios, combination phones, etc.
- E. Establish command and control procedures that include a chain of command and specify the decision-makers in any given situation.
- F. Establish emergency or security reporting procedures, (e.g., whom the driver calls in a security threat or emergency). Determine what circumstances constitute a security threat or emergency and when a driver must report a security threat or emergency to a supervisor.
- G. Establish a board-approved plan/policy determining regularly scheduled system safety and security training.
- H. Establish a board-approved plan/policy for enforcing safety and security policies and

procedures.

- I. Establish post-trip inspection practices before the driver leaves the vehicle.

## **TRANSPORTATION PERSONNEL AND THEIR TRAINING**

School transportation already focuses on safety training. A security assessment likely will indicate a need for renewed and expanded focus on security—especially extreme threats. Security training should be a primary element of plans/policies and procedures. Individual awareness is among the best weapons for preventing crime and increasing personal and business security. Any person armed with awareness is less likely to become a victim or to allow a crime to be committed. Armed with awareness, most school bus drivers and **transportation personnel** can either eliminate or significantly reduce property losses and crime. While not the primary goal of a good security program, it is highly likely that routine vandalism and crime will be reduced.

Drivers should be thoroughly familiar with their vehicles, their students, **service areas** and **stop locations** on their routes. They should have a thorough knowledge of the operational plans, policies, procedures and training on possible threats. Armed with this knowledge, drivers can better assess the level of threat in any given situation and respond according to established plans and policies.

### **Suggested Training Topics**

- A. Plans/Policies and Procedures
  1. What to do in case of emergencies or an increase in security threat;
  2. How to use available communication systems;
  3. Rules for hostage situations;
  4. How to conduct security inspections of vehicles (similar to basic bus pre-trip safety inspection);
  5. How to respond to threats of violence from students, unauthorized boarders and others outside the school bus; and
  6. How to respond to directives from incident management and commands.
- B. Identification and Prevention
  1. How to determine the threat level;
  2. How to identify, report and prevent suspicious, criminal or terrorist activity;
  3. How to identify and prevent entry of suspicious people, packages and placement of suspicious packages or devices;

4. How to identify illegal entry (structure or vehicle); and
  5. How to identify and respond to improvised explosive devices (IEDs) and suspicious items/packages.
- C. Response and Reports
1. How to respond to shootings or snipers;
  2. How to respond to fights or disturbances;
  3. How to respond to vandalism or property damage;
  4. How to respond to child abductions, sexual predators or child custody issues;
  5. How to respond to threats of violence from students, unauthorized boarders and criminal elements outside the school bus;
  6. How to respond to weapons on the bus;
  7. How to raise drivers' level of awareness to identify suspicious people, activities, packages and devices [Transportation Security Administration (TSA) First Observer Plus™ Program];
  8. First aid/CPR training for staff; and
  9. Instruction in each particular district's standard response protocol provided to transportation staff to ensure appropriate response during a crisis.
- D. Safety and Security Equipment
1. Instructions on how to use all the safety and security equipment should be available to drivers.
  2. Training processes should include the use of drills and tabletop exercises to test and practice the plans/policies and procedures.

## **SCHOOL BUS SECURITY EQUIPMENT AND EMERGING TECHNOLOGY**

- A. Global Positioning System technology;
- B. Silent alarm and two-way communication system (e.g., "panic button");
- C. Flashing front and rear marker identification lamps to signal predetermined emergency message (e.g., hostage, intruder on board, etc.);

- D. Name of student transportation provider and identification number on the bus roof;
- E. Ability to lock entrance (service) door, emergency door(s) and outside compartments;
- F. A reinforced entrance (service) door to prevent forced entry into the bus; and
- G. Video and audio in bus cabin such that first responders may see and hear the threat real-time (i.e., as it is happening) for maximum assessment and real time solutions.

### **Unauthorized Riders and Visitors**

School bus transportation systems have dealt with unauthorized visitors, from the neighborhood dog to upset parents. Once an uninvited person enters the bus, drivers **jeopardize loss of** ultimate control of their vehicle. The only persons authorized to gain access to a school bus are those students who meet the eligibility requirements, school administrators, law enforcement and transportation personnel. Non-students, including the driver's friend, are never allowed on a school bus. The driver should make every effort short of physical confrontation to ensure that students who are not eligible are not permitted on the bus. Districts should have procedures in place that address whether or not parents are allowed to enter the school bus even if it is to assist with the securement or loading and unloading of their children. Drivers should receive training and education on these policies. If the district allows a guest to ride home with regular riders, districts should have a procedure that has written documentation giving parental approval that includes the date. Drivers should be trained to be aware of surroundings at bus stops. This should include a plan if an unrecognized or suspicious person is loitering at the bus stop. For the safety of all students, once the students board the bus, they will not be allowed off the bus until the bus reaches their assigned stop.

Providing drivers with a list of eligible riders for their routes will allow drivers to become more familiar with their day-to-day student riders. Policies can state whether students are allowed to ride a particular bus without prior registration or written permission. This practice can help districts monitor the load capacity of buses and assist drivers with pupil management. During activity trips the student roster and the number of students should be included when dispatching the bus. Student counts should be confirmed after stops where students are allowed to leave the bus.

### **Child Abductions**

While there is heightened awareness today about children being abducted from bus stops or while walking to and from bus stops or school, the transportation industry has dealt with parental or custody abductions during loading or unloading. School bus drivers should be apprised if a child riding the school bus is involved in a custody dispute. Drivers should be trained to notice unusual cars or people at bus stops and how to respond. Drivers should maintain schedules as close as possible to minimize students' exposure to elements or potential abductions.

## **ROUTE HAZARDS**

Transporters are more likely to experience hundreds of small security incidents during their careers than they are likely to experience a terrorist attack. If plans are developed for reasonable preventive measures for extreme threat, transporters will be better prepared to respond to more common security incidents, such as a suspicious person or vehicle at a bus stop, a vehicle following a school bus on its route, an angry parent entering the bus, a vehicle driving recklessly around the bus (road rage), an unusual package left on the bus, or a hostile student making threats to other students or the driver.

School transportation officials should establish a program to routinely evaluate all school bus stops and routes for potential hazards. There are fixed hazards that cannot be avoided (e.g., railroad crossings, streams, limited visibility, traffic congestion, etc.). Another hazard more prevalent today is the residences of sexual predators. Great care must be used if stops must be placed near the residence of a known sexual predator.

Weather conditions, such as snow, ice, fog, extreme heat or cold and rain, can create an unexpected route hazard that had not previously existed. Route evaluations should note areas that may flood during rain or hills that frequently become icy.

Events such as earthquakes and tornados may give little advance warning to drivers. Route information could also include the location of police/fire/rescue stations, hospitals, schools and other emergency care facilities where a school bus may pull off the road and await aid in the event of an emergency. It is important that school bus drivers and substitute drivers be provided with route hazard information in a standard, consistent manner, and the information should be available to the driver no matter which bus is driven on that day.

## **VULNERABLE ACTIVITIES**

### **A. Bus Stop**

School bus drivers must participate in transportation security and emergency preparedness activities. During these activities, drivers should learn how to recognize situations which could create an incident. When the bus driver opens the door, an entrance into the school bus is created where the driver has little control over who will enter the bus. At school bus stops, drivers should be aware of abnormal behavior or unidentified people loitering or parked cars that usually are not parked at the stop. Regular drivers learn to recognize waiting parents, but if strangers are at the stop, it would be appropriate to ask students who is at the stop to meet them. If other adults are not present, it may be best for the school bus driver to wait before opening the door to give more time to observe the behavior of the person in question. Drivers should be trained to observe gang clothing and clothing that may obscure weapons. Additionally, drivers should be alert to people taking photos or making suspicious notes at bus stops or schools.

Special note about bus stop alertness: Many urban school systems partner with municipally-operated mass transit agencies for the right to have (generally older) students ride to and from class rather than to devote a classic “yellow school bus” to that route. While the practice reduces urban congestion and very effectively fits urban needs, access to the bus cannot be controlled as it is with dedicated student service. Under federal transit rules, drivers may not deny service to anyone waiting at a designated transit bus stop lest they risk loss of federal operating assistance.

For systems utilizing this cooperative model, it is important to ensure that transit vehicle drivers understand the new and heightened level of responsibility associated with transporting students—especially minor students—places on them. Every new rider could pose a threat to students. School transportation agreements for open transit ridership should include additional security awareness training for transit-employed operators.

#### B. Railroad Crossing

Opening the door and driver’s window prior to crossing is required at all active railroad crossings. Prior to opening the door, the driver should observe if there are people that are out of place, loitering at the railroad crossing. Drivers should be trained and empowered to decide if obeying the law and opening the door creates more of a safety hazard than purposely not completing the process at the railroad stop and thus violating a law or rule. Keen observation would tell a driver if the behavior outside the bus is suspicious and a greater threat than failing to open the door.

#### C. Fueling Facilities

If drivers fuel their buses at locations other than the compound where the buses are stored, the drivers may find themselves and/or their buses vulnerable. External fueling stations often do not have limited access, and the public does not keep a regular schedule. Therefore, school bus drivers would find it difficult to observe things out of the ordinary. The facts that school buses usually fuel on a regular schedule and that drivers exit the bus are factors that expose buses during fueling. Drivers should always remove the key from the ignition when they leave the driver compartment. Training may help drivers increase their awareness.

#### D. Activity Trips

Often drivers are allowed to leave their buses during activities when students are engaged elsewhere. Districts should have policies and training that inform the driver about what action they should take when returning to their vehicles. The vehicle should be locked when the driver is not present and a post-trip inspection completed prior to departure. Similarly, on the driver’s return to a bus after an extended layover

when the vehicle has not been attended, a complete safety and security walk-around inspection should be conducted prior to departure.

E. Rented or Leased Buses

In accordance with federal law and with many state statutes, operations that allow school buses to be rented or leased **must** have a process in place to assure that the driver is properly licensed. Consideration should be given to the security threat of allowing vehicles to be used in high-risk areas.

## **WEAPONS**

Weapons (or objects that look like and/or could be used as weapons) are not permitted on school buses or school grounds. Drivers should receive training to learn behaviors that students may exhibit when carrying a weapon. Unusual gait, pocket sag and nervous behavior are all identifiable. Any time students say they have a weapon, the situation should be treated as **a potential threat**. Drivers should practice steps they would take to protect other students. Conversations that promise retaliation should be taken seriously. Student transportation providers should have policies and procedures in place that prohibit weapons on campus, and the policies and procedures should extend to the school bus.

Drivers should be trained to watch for suspicious packages left unattended on the bus or around the transportation facility. Transportation facilities should promote good housekeeping practices so that unattended packages stand out and are not lost in clutter.

In the event that a school shooting is unfolding on campus, student transportation providers and transportation centers should have a communication plan and routing options so that additional students can be diverted and not delivered into an unsafe setting.

During lockdown procedures at schools, drivers should be trained and should have a designated alternate drop site so that students can be delivered to a safe location.

## **EMERGENCY RELEASE OF STUDENTS**

Many types of events can cause a school to release students early. Stormy weather, building fire, school violence or bomb threat, for example, can unexpectedly expose students to the elements and lack of building cover. Districts should have plans in place that spell out where students will be relocated and how parents will be notified. If students are being transported home early, the district should have a plan in place to ensure that parents are notified. Operations should have alternate load zones established for each school in case the primary location is unavailable or more buses are needed to evacuate an entire school.

Buses that frequently travel during inclement weather should be prepared for situations that prohibit the bus from continuing on its route. Drivers should receive training regarding appropriate procedures to employ in the event that weather emergencies occur while they are on their routes.

Transportation centers should have a backup plan in case of a power failure. Normal communication methods may not work during a catastrophe.

## **FACILITIES AND BUS PARKING**

School bus facilities should have limited access both during the day and night. Fencing and gates should be installed around the premises. **Plants and trees should be kept away from fences and gates to deny hiding places for potential predators.** Keys should not be left in the ignition when the buses are unattended. If the facilities are equipped with camera or video surveillance equipment, the **school district or company** should have plans, policies and procedures in place to monitor the cameras. The plan should include what is surveyed and recorded. Transportation centers should have policies and procedures for locking doors and gates. If codes or combinations are used, then a procedure should be in place to routinely change the codes. If keys are used, a process should be in place to retrieve keys from employees who separate from employment. The security plan should address school buses that are routinely stored off site.

Plans should include whether drivers may leave the school bus during layover periods and activities and where they may park the bus. Plans should address to what extent the drivers will secure the bus (e.g., all doors, hatches and compartments) and the type of inspection a driver should complete before using the bus following non-active periods.

If possible, school bus drivers should have a method to check in or contact transportation supervisors or emergency officials should the drivers need assistance.

At the school bus facility, all employees and visitors should be required to wear identification badges or have a method to check in. Drivers should have some type of check-in process prior to dispatch.

## **HIRING PROCESS**

Operations should conduct background checks on all supervisors, trainers, drivers, bus attendants, technicians and dispatchers. Backgrounds may be checked through fingerprinting, local criminal record search, driving records and employment history. Specific criteria should be determined prior to hiring transportation personnel. APPENDIX D of this publication includes sample school bus driver applications, sample job description and new employee hiring procedures.

## **SCHOOL BUS EQUIPMENT GUIDE FOR LAW ENFORCEMENT AND FIRE DEPARTMENT PERSONNEL**

School transportation providers should **establish relationships and** work with local emergency responders (law enforcement, fire departments, medical services, etc.) to ensure that they have appropriate fleet information when responding to an emergency involving a school bus. Information required by emergency responders will vary, depending on their individual needs and abilities. Good communication with emergency responders prior to an emergency occurring will ensure that responders will have the information that they need. Information issues to discuss include variation of

fleet vehicles, ways to quickly identify bus specifics (e.g., passenger capacity and presence of wheelchairs) and how to operate the various emergency exits of their buses.

## RESOURCES

Department of Homeland Security, [www.dhs.gov](http://www.dhs.gov)

- [Transportation Security Administration, www.tsa.gov](http://www.tsa.gov)
  - [Federal Bureau of Investigation, www.fbi.gov](http://www.fbi.gov)
  - [Federal Emergency Management Agency, www.fema.gov](http://www.fema.gov)
  - [Department of Education, www.ed.gov](http://www.ed.gov)
  - [State Departments of Education, http://www2.ed.gov/about/contacts/state/index.html](http://www2.ed.gov/about/contacts/state/index.html)
  - [Department of Transportation agencies, www.dot.gov](http://www.dot.gov)
  - [National Highway Traffic Safety Administration, www.nhtsa.dot.gov](http://www.nhtsa.dot.gov)
  - [Federal Highway Administration, www.fhwa.dot.gov](http://www.fhwa.dot.gov)
  - [Federal Transit Administration, www.fta.dotl.gov](http://www.fta.dotl.gov)
  - [Federal Motor Carrier Safety Administration, www.fmcsa.dot.gov](http://www.fmcsa.dot.gov)
  - [First Observer Plus™, https://www.tsa.gov/for-industr/firstobserver](https://www.tsa.gov/for-industr/firstobserver)
  - [Emergency Management and Response-Information Sharing and Analysis Center \(EMR-ISAC\), https://www.isao.org/information-sharing-group/sector/emergency-management-and-response-isac/](https://www.isao.org/information-sharing-group/sector/emergency-management-and-response-isac/)
  - [School Bus Security Issues – Inspect-Track-Know Alert Produced by South Carolina DOE Office of Transportation](#)
  - [School Bus Counter Terrorism Guide – TSA Handbook](#)
- Indiana State Police Unarmed Response to an Active Shooter Event, <https://secure.in.gov/isp/idex.htm>

**APPENDIX H:  
School  
Transportation  
Security and  
Emergency  
Preparedness**

**WRITING COMMITTEE EDITS IN RED INK BY SECTION LOCATION:**

**APPENDIX H: SCHOOL TRANSPORTATION  
BEST PRACTICES FOR EMERGENCY MANAGEMENT PLANNING**

**MANAGEMENT AND ADMINISTRATION**

**PERSONNEL SECURITY**

**VEHICLE SECURITY**

## APPENDIX H: SCHOOL TRANSPORTATION BEST PRACTICES FOR EMERGENCY MANAGEMENT PLANNING

This document contains **recommended** best practices the Transportation Security Administration (TSA) believes could be useful to public and private School Student Transportation Providers and School Bus Operators to enhance security in each individual district. It is also important for all levels of employees (superintendents, managers, supervisors, administrators, and other frontline employees and those with security-sensitive functions) to be familiar with security practices relevant to their roles and responsibilities (or required by the provider or operator's security plan) and how to implement them.

These best practices have been compiled by TSA's **Policy, Plans and Engagement**, Highway and Motor Carrier **Section**, after consultation with individual stakeholders and organizations representing this community, including the National School Transportation Association (NSTA), National Association of Pupil Transportation (NAPT), National Association of State Directors of Pupil Transportation Services (NASDPTS), as well as, other Federal and public security partners. They also reflect information obtained from TSA **Baseline Assessment for Security Enhancement (BASE)**, and the congressionally mandated TSA School Bus Risk Assessment.<sup>1</sup> These practices support the security goals for TSA and this mode identified in DHS sector-specific security plans.

**No current federal regulation applies to security provisions within the school transportation industry.** The best practices identified in this document are voluntary and are not intended to conflict with or supersede any existing regulatory or statutory requirements. They remain dynamic and subject to revision as experience, continued security partner feedback and the identification of new threats may require. TSA intends to continue to share best practices with school transportation representatives and welcomes ongoing feedback from the industry. To the extent that TSA should develop more official guidance in the future, TSA will consider these ongoing discussions and all received comments as part of those efforts.

**TSA highway specialists can be reached by e-mail at [HighwaySecurity@tsa.dhs.gov](mailto:HighwaySecurity@tsa.dhs.gov).**

The following definitions are applicable to this document:

**Critical Assets.** TSA understands that the most critical asset in the school transportation business are the student passengers. In this document, however, critical assets also means equipment, facilities, etc. managed, owned or operated by School Bus Operators or School Student Transportation Providers that are identified through a Risk Assessment as necessary for the continuity of operation during security incidents.

**First Observer Plus™** means the portion of the TSA-recognized security domain awareness training program specific to **highway** transportation, which is available **online at [---

<sup>1</sup> This classified document was submitted to Congress in February 2010](https://www.tsa.gov/for-</a></b></p></div><div data-bbox=)**

[industry/firstobserver](#) to providers and school bus operators to enhance provider employee recognition and reporting of suspected security threats.<sup>2</sup>

**Security-Sensitive Employee** means any employee of a school bus operator or school student transportation provider that performs functions that are connected with, or responsible for, the secure movement of students and/or critical assets. It includes frontline employees such as drivers, security personnel, dispatchers, maintenance and maintenance support personnel.

**School Bus Operators or School Student Transportation Providers** means public and/or private entities providing home-to-school or school-to-home transportation services for a school or school district.

**School Bus Operators or School Student Transportation Provider Employees** means both full-time and part-time workers, including contractors, employed by public and/or private entities providing pupil transportation services for a school or school district.

**Secure Areas** means areas (both physical and virtual) identified, categorized and designated as needing to be protected and thereby restricted from general and public access (access may be limited through implementation of a tiered access control program).

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<sup>2</sup> More information is available at <https://www.tsa.gov/for-industry/firstobserver>.

## GENERAL SECURITY

The security recommendations provided below are TSA suggested "Security Options for Consideration" for highway transportation industries to use in an effort to enhance their security posture. These actions are countermeasures designed to minimize vulnerabilities identified during the BASE Review processes. They should be reviewed and considered for incorporation into the district's/company's current security practices.

### MANAGEMENT AND ADMINISTRATION

A. Designation of Primary and Alternate Security Coordinators

Designate a qualified employee as a Security Coordinator. The Coordinator would be ultimately responsible for managing the district's/company's security measures. Duties would include coordinating and working with other district/company/agency managers and employees to ensure that security risks are **identified and** being effectively managed. An Alternate Security Coordinator should also be named to act on security issues in the absence of the primary Security Coordinator. Security duties of the Security Coordinator should be specifically set forth and documented. **Both primary and alternate coordinators should be available 24/7/365 for communication with both local administrators and TSA.**

B. Conduct A Thorough Vulnerability Assessment

Management should conduct and document a site-specific Vulnerability Assessment for each district/company location. In order for districts/companies to properly address security issues and to develop security mitigation policies, the district/company must first understand what weaknesses (vulnerabilities) it possesses. These vulnerabilities should then be prioritized so that the most critical district/company assets (facilities, vehicles, IT, employees, other) that are necessary for continuation of operations are protected. Funds to correct vulnerabilities should be identified and made available to the extent possible.

C. Develop A Written Security Plan (Security Specific Protocols)

Develop security specific protocols in the form of a Security Plan. The security plan should be reviewed and approved at the management and executive levels. The security plan should be site specific and cover actions to be taken to prevent security breaches, identify who should be notified in the event of a security incident, and how to respond. The security plan should be routinely reviewed (at least once a year) for accurate contact information and current policy updates. Limit access to the security plan to employees with a "need to know". TSA can supply a Security Plan template, if requested.

D. Plan for Continuity of Operations

Establish a written plan to restore operations to any **alternate** site following an emergency event **at their district's/company's primary worksite**. Some recommendations to be considered would be the ability to relocate **or duplicate important resources and data to allow** work from an alternate **location** and/or an auxiliary power source.

E. Develop a Communications Plan

Management should establish a communication plan to include standard operating procedures (SOP) during normal as well as emergency conditions. The plan should include procedures for communication between drivers, appropriate district/company/agency personnel and law enforcement or emergency responders during a security related incident. Contingencies for the loss of all **standard** communications should be addressed. This is not intended to preclude the use of personal or issued cell phones.

F. Safeguard Business and Security Critical Information

Procedures for limiting access to district/company/agency internal and external security information should be established. Management should establish policies to secure, control and restrict (need to know) access to sensitive information such as personnel information, unused/blank forms, business information and security policies. Management should implement procedures to maintain accountability for all at-risk assets (cargo, passengers, computers, equipment and vehicles) at all times while in transport or under district/company control. Adequate inventory control measures should be in place that can track shipments, product information, material location, passenger information, and delivery/arrival verification.

G. Be Aware of Industry Security Best Practices and TSA Options for Consideration

Security management should become familiar with and implement security practices recommended by industry groups, trade associations or government transportation entities to further enhance transportation security. The steps outlined in this document are considered "Security Options for Consideration" **or "Security Action Items" (SAI)**.

## **PERSONNEL SECURITY**

A. Conduct Licensing and Background Checks for Drivers/Employees/Contractors

Management should have procedures in place to verify that commercial drivers possess proper commercial driver's licenses with required endorsements for the

type of vehicles they operate and passengers they transport. Also verify that drivers possess any other documents required (Health card, TWIC, school bus, etc.).

During the hiring process, an employer should conduct a background check for all employees (both drivers and non-drivers) who have access to district/company vehicles, the facilities, or critical information. These checks generally include criminal history, sex offender registries and motor vehicle records. Background checks should also be required on contracted employees and service providers with unescorted access to district/company facilities, secured areas, or equipment. Appropriate criteria to prohibit a person from becoming employed or continuing employment should be established.

B. Develop and Follow Security Training Plan(s)

General security training for all employees should be conducted, along with additional in-depth security training for personnel having specific security related responsibilities. Districts/Companies should ensure that contracted employees are also trained. Any regulatory requirements for security training should also be met. Refresher training should be conducted not less than every three years. Training should include personnel security, physical security, enroute security, and IT security. Records should be maintained to ensure employees received the proper training and refresher training. **TSA recommends all employees view the First Observer Plus™ security awareness video at <https://www.tsa.gov/for-industry/firstobserver>.**

A. Participate in Security Exercises & Drills

In an effort to maintain proper security procedures and correct problems, management should consider security drills and exercises to practice and evaluate security readiness of employees and security procedures. Include outside personnel or agencies (Law Enforcement, Fire Department and/or other First Responders). Include these sources in the evaluation portion of the exercise. **These exercises provide a good opportunity to exchange information with first responders and law enforcement about how each other operates. Bus operators can help responders understand how to access vehicle functions or implement evacuation plans. In turn, responders can explain their needs and procedures to make them more effective in emergency events.**

## **FACILITY SECURITY**

A. Maintain Facility Access Control

Management should control points of entry to all facilities for both employees and visitors, and should secure all other points of access. District/Company issued photo

IDs or other visible forms of employee identification should be provided to all employees, including drivers. Certain areas within a facility should be designated as "secure" (i.e. dispatch area, computer room, admin areas, etc.) with limited employee access. A safe and secure "challenge procedure" should be established to address unidentified persons. Vendors, contractors, and visitors with unescorted access to restricted areas should be required to follow established security procedures before entry is authorized.

B. Implement Strong Physical Security

Districts/Companies/Facilities should have appropriate physical security measures to prevent unauthorized entry, access, or attack. Consider establishing appropriate physical security measures to protect critical assets as defined in the security plan. Measures may include the following:

- Fencing and barricades
- Video monitoring and intrusion detection alarm systems
- Security Guards
- Delivery control areas
- Adequate locks to control public access
- Security Lighting
- Key Control

C. Enhance Internal and External Cyber Security- Information Technology

Policies and procedures to protect security critical data are important. Strict password requirements and IT security training should be in place. The policy should address current methods for restricting access to data by employees as well as external sources. Information systems should be protected from unauthorized access, tested, and backed up. Awareness of security compromises that originate through social media should also be addressed.

## VEHICLE SECURITY

A. Develop a Robust Vehicle Security Program

Policies should be implemented to ensure vehicles are capable of being locked (unless prohibited by law) and are secured when not in service or when parked unattended. The policies should establish a vehicle key control program and secured parking areas. Districts/Companies should also consider enhanced security equipment for vehicles such as GPS tracking systems, on-board cameras, and panic button capabilities. **When possible, avoid "single key" purchase where all vehicles use identical keys.**

B. Develop a Solid Passenger Security Program

Policies should be implemented to protect passenger or cargo areas. Consideration may be given to implementing and employing additional on-board personnel (school bus or motor coach). Policies should require that drivers and maintenance personnel lock and verify that vehicles are secured when the vehicles are left unattended, while in transport or when out of service.

C. Plan for High Alert Level Contingencies

Establish operational policies that should be implemented during periods of increased threat conditions under the National Threat Advisory System (NTAS). These protocols may include cancelling trips or having vehicles return to the facility; enhancing facility security; initiating enhanced communication protocols; or other actions capable of being implemented when directed by competent government authority or when deemed appropriate by management. Management or security personnel should monitor media or other sources for national or local security threat information that should be shared within the company as warranted.

D. Conduct Regular Security Inspections

Establish a security inspection policy for drivers to conduct security inspections in addition to safety inspections. Security inspections should be performed in conjunction with required pre- and post-trip safety inspections and after any stop in which the vehicle is left unattended. For school buses and motor coaches, passenger ticket verification or passenger count should be required during the boarding and/or re-boarding process.

E. Have Procedures for Reporting Suspicious Activities

Districts/Companies/Facilities should establish reporting policies and procedures for employees (drivers and non-drivers) to follow when they observe suspicious security activities or cargo/passenger anomalies. The procedures should include who is to be notified and require written reports be prepared to maintain accuracy and as much detail as possible.

F. Chain of Custody/Scheduled Service

Policies for scheduling should include pre-planning that establishes an estimated time of arrival (ETA) for pick up drop off times and school buses and motor coaches should be required to confirm and report arrival at their final destination or final trip of the day.

G. Preplanning Emergency Routes

Preplanning routes during normal operations, as well as during heightened alert periods, should be practiced. Travel routes should be evaluated while considering factors such as population, travel distances, threats, condition of highways and roadways, road closures, emergency response capabilities and locations of stops in cities and towns. Consider policies governing operations during periods of heightened alert levels.

The "Security Options for Consideration" shown here are used as the framework for developing the components necessary for an effective Security Plan.

# An Overview of the T-START Program

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The *Transportation Security Template and Assessment Review Toolkit (T-START)* is a compilation of five (5) separate Security Guidance “Modules” prepared by TSA’s Surface Division that addresses highway transportation security issues. The five Modules are designed to assist companies in developing effective security practices and in the construction of a *Security Plan*.

A *Security Plan* is a written document that sets forth actions to be taken by a given transportation entity to address security related prevention, preparation and recovery issues. While a company may have an overall “corporate” Security Plan that sets company-wide security policies that are to be followed, each company location should also have its own site specific plan, setting forth security practices that are unique to that single location. The five (5) T-START Modules are:

**Module 1 – Understanding Security Management** – Appreciating the value of security and the importance of management endorsement of security protocols are critical. Concerns should range from protecting your company against petty theft to preventing it from being the target of a terrorist attack. Ensuring executive-level support is in place, identifying funding sources, engaging all employees in security practices and identifying who will be responsible for developing and implementing the steps needed to secure your company are all essential tasks.

**Module 2 – Understanding Risk** - Learning to assess the “Risks” your company may face from possible criminal/terrorist activities by examining and understanding the threats, vulnerabilities and consequences that is a vital step in security planning.

**Module 3 – Conducting a Vulnerability Assessment** – Completing an assessment of existing security practices and policies to identify potential security weaknesses is important. By using the “Vulnerability Assessment Matrix” provided here, a company can identify and prioritize security weaknesses identified. The vulnerabilities reviewed correlate directly with TSA’s “Highway Baseline Assessment for Security Enhancements” (BASE) Program.

**Module 4 – Considering Security Options** – Becoming knowledgeable about the various industry security “Best Practices” or TSA’s “Security Options” available to stakeholders in the highway transportation industry, and implementing those deemed appropriate is the critical phase where your company’s security practices become operational.

**Module 5 – Preparing a Security Plan** – Documenting (and maintaining) your security policies, requirements and actions in the form of a “Security Plan” is the final crucial step toward an effective security program. Using the template provided here, or other appropriate source, to record your company’s security operations will ensure a strong corporate security posture. (Refer to Module 5 – “Security Plan Template”).

Any or all of the five Modules that comprise TSA’s “*Transportation Security Template and Assessment Review Toolkit*” (T-START) can be referenced for security planning guidance, depending on the needs of the individual company. **To request a complete CD send an email request to [highwaysecurity@dhs.gov](mailto:highwaysecurity@dhs.gov).**

## SAMPLE SECURITY AND PLANNING CHECKLIST

Numbering		Evaluation Criteria	YES	NO
<b>1.</b>		<b>MANAGEMENT AND OVERSIGHT OF SECURITY PLANS</b>		
1.1		Does the school district have a written security policy and crisis response plan including procedures that include transportation personnel, equipment and facilities?		
	1.1.A	What elements does the security plan encompass?		
		Response Plan		
		Emergency Plan		
		Disaster Recovery Plan		
		Other:		
	1.1.B	Does someone review and update the Security Plan?		
		If so, how often?		
		Monthly		
		Quarterly		
		Annually		
		Every three years		
		Every five years		
		As needed		
		Other:		
	1.1.C	Does the student transportation provider/site limit access to the Security Plan to employees with a need to know?		
	1.1.D	Are the plan/policy and procedures communicated to all personnel?		
1.2		Does the student transportation provider designate a security coordinator?		
	1.2.A	Are the security coordinator's duties documented?		
	1.2.B	Does the student transportation provider exchange unclassified security-related information with industry peers?		
1.3		Is the security plan site-specific for all school and facility locations?		
1.4		Does the plan/policy coordinate with procedures in the school buildings?		
1.5		Does the planning and policy process include appropriate stakeholders (e.g., first responders, law enforcement, fire department and media: print, radio, television, etc.)?		
1.6		Does the plan/policy provide for any proactive or preventive technology solutions, that are currently available and that can potentially act as early detection or prevention of potential threats?		
1.7		Is there a plan available that does not require electrical energy?		
1.8		Does the plan/policy contain directives on incident management and command?		
1.9		Does the plan/policy include training requirements for school employees?		
1.10		Does the plan/policy address pre- and post-trip requirements?		
<b>2.</b>		<b>THREAT ASSESSMENT</b>		
2.1		Does the student transportation provider monitor external sources for threat information?		
	2.1.A	If so, what sources?		
		Federal Bureau of Investigation (FBI)		
		Homeland Security Advisory System Threat Level (DHS)		
		Law Enforcement Officer (LEO)		
		News		

		TSA/DHS threat specific information		
		Other:		
2.2		Does the student transportation provider have a procedure for distributing threat information?		
	2.2.A	If so, is the procedure documented?		
2.3		Are school bus routes evaluated annually?		
<b>3.</b>		<b>VULNERABILITY ASSESSMENT</b>		
3.1		Does the student transportation provider conduct vulnerability assessments?		
	3.1.A	Where are the vulnerability assessments documented?		
		In the Security Plan		
		Other:		
	3.1.B	If so, how often are they reviewed?		
		Monthly		
		Quarterly		
		Annually		
		Every 3 years		
		Every 5 years		
		As needed		
		Other		
	3.1.C	Do the student transportation provider's vulnerability assessments recommend corrective actions?		
	3.1.D	Does the student transportation provider implement the security measures recommended by its vulnerability assessments?		
3.2		Is a security coordinator identified for each school and facility?		
3.3		Do computer and communications systems exist?		
	3.3.A	How is access to computers or systems controlled?		
		What are their limitations?		
	3.3.B	Can the computers be compromised?		
		If so, what can be done to prevent it?		
3.4		Is the communication system (e.g., two-way radio, land telephone line, cellular telephone, etc.) capable of recording?		
3.5		Is there a code system to identify emergencies or threats?		
3.6		Do emergency back-up systems for information and communication exist?		
		If so, what are their limitations?		
	3.6.A	Can emergency back-up systems be compromised?		
		If they can be compromised, what can be done to prevent it?		
	3.6.B	Are the back-up systems stored off site?		
		Are they secure?		
3.7		Do evacuation plans exist?		
3.8		Is there a designated place to relocate staff or students?		
<b>4.</b>		<b>PERSONNEL SECURITY</b>		
4.1		Does the student transportation provider conduct background checks?		
	4.1.A	If so, for which employees?		
		Drivers		

		Non-drivers		
		Management		
		Contractors		
	4.1.B	What background information is checked?		
		Driving Records		
		Criminal Records		
		Employment History		
		Employment Eligibility		
	4.2	Does the student transportation provider have criteria for disqualification for employment based on driving/criminal/employment history checks?		
	4.3	Does the student transportation provider provide identification cards to employees?		
	4.3.A	If so, what technologies do the identification cards incorporate?		
		Photographs		
		RFID/Proximity		
		Other:		
	4.3.B	Does the student transportation provider require employees to display their identification cards while on duty?		
	4.3.C	Does the student transportation provider issue identification cards to contractor personnel?		
	4.4	Is there a "sign in/sign out" system?		
	4.5	Are all employees required to wear uniforms? Do they comply?		
	<b>5.</b>	<b>TRAINING</b>		
	5.1	Does the student transportation provider conduct security training for new employees? Do they comply?		
	5.1.A	If so, what type?		
		Security Awareness training		
		Security Plan training		
	5.2	Does the student transportation provider conduct security training for current employees?		
	5.2.A	If so, when?		
		Annually		
		Every one-three years		
		More than three years		
		Change of job		
		Other:		
	5.3	Does the student transportation provider conduct security training based on a formal curriculum?		
		If so, which curriculum?		
		Security Awareness Training CD (DOT)		
		First Observer (TSA)		
		School Transportation Security Awareness (TSA)		
		Secure Transport (TSA)		
		Security Self-Assessment CD (TSA)		
		Other:		
	5.4	Are the student transportation provider's drivers members of the First Observer program?		
	5.5	Does the student transportation provider maintain employee security training records?		

6.		<b>PHYSICAL SECURITY COUNTERMEASURES</b>		
6.1		Do the student transportation provider's facilities have physical security barriers?		
	6.1.A	If so, what type?		
		Fencing		
		Locking Gates		
		Keypad/PIN		
		Jersey Wall		
		Bollards		
		Other:		
6.2		Do the student transportation provider's facilities have intrusion detection systems?		
	6.2.A	If so, what type?		
		Door/Window Detectors		
		Motion Alarms		
		Siren		
		Silent Alarm		
		Other:		
6.3		Do the student transportation provider's facilities have security cameras? If so:		
	6.3.A	Do the security cameras pan/tilt/zoom?		
	6.3.B	How are the security camera feeds monitored?		
		During operation hours		
		24/7		
		Cameras are not monitored		
6.4		Does the student transportation provider have a key control program?		
	6.4.A	If so, what kind?		
		Facility key control program		
		Vehicle key control program		
	6.4.B	Are keys retrieved from departing employees?		
	6.4.C	Are access codes changed?		
		If so how frequently?		
		Annually		
		Every one-three months		
		Other:		
6.5		Does the student transportation provider's facilities have designated secure areas?		
	6.5.A	If so, what kind?		
		Dispatch		
		IT/computer room		
		Admin offices		
		Maintenance		
		Financial		
		Loading dock		
		Warehouse		
		Storage tanks		
		Other:		
	6.5.B	Does the student transportation provider use security measures to protect secure areas?		

		If so, what areas?		
		Keys		
		Keypad/PIN		
		ID cards		
		Guards		
		Other:		
6.6		Does the student transportation provider record access to secure areas?		
	6.6.A	If so, whose access to secure areas is recorded?		
		Employee access		
		Contractor access		
	6.6.B	Are the access records to secure areas periodically reviewed?		
<b>7.</b>		<b>ENROUTE SECURITY</b>		
7.1		Does the student transportation provider require drivers to conduct pre- and post-trip security inspections?		
7.2		Does the student transportation provider have measures in place to ensure continuity of operations (including security) during a power/connectivity/facility outage?		
	7.2.A	If so, what measures?		
		Data back-up		
		Uninterruptible power supply		
		Back-up control center Remote access		
		Other:		
7.3		Are students registered on a particular bus?		
	7.3.A	Do students have passes?		
	7.3.B	Do students have other identification?		
7.4		Are drivers provided with a list of riders?		
7.5		Are there procedures for accounting for each individual student, especially on activity trips?		
7.6		On activity, field or extracurricular or school-chartered bus trips, are students instructed in safe riding practices and on the location and operation of emergency exits?		
	7.6.A	Are students counted at every stop prior to resuming the trip?		
7.7		Are routes evaluated annually?		
	7.7.A	Are stops evaluated annually?		
	7.7.B	Are bus waiting areas evaluated annually?		
	7.7.C	Are school loading zones evaluated annually?		
<b>8.</b>		<b>COMMUNICATION</b>		
8.1		What lines of communication exist within the operation?		
8.2		Do they interrelate with local law enforcement, fire and emergency services?		
8.3		Are they clearly defined and documented?		
8.4		Are all employees trained and familiar with them?		
8.5		Have these lines of communication been tested and proven?		
8.6		Is there an alternate communication plan if the normal systems are unavailable?		
8.7		Were the communications effective, as tested?		
<b>9.</b>		<b>SECURITY EXERCISES/DRILLS</b>		
9.1		Does the student transportation provider conduct security exercises/drills?		
	9.1.A	If so, how often?		

		Monthly		
		Quarterly		
		Every 6 months		
		Annually		
		Other:		
9.2		Does the student transportation provider include external personnel or agencies (e.g., law enforcement/first responders) when conducting security exercises/drills?		
9.3		Does the student transportation provider maintain written documentation of the results/lessons learned from security exercises/drills?		
9.4		Do the procedures of the plan/policy require routinely conducting security exercises/drills; along with a means for assessment, evaluation and improvement at least annually?		

**SPECIALLY  
EQUIPPED  
SCHOOL BUS  
SPECIFICATIONS**

**WRITING COMMITTEE EDITS IN RED INK BY SECTION LOCATION:**

**IDENTIFICATION**

**SECUREMENT AND RESTRAINT SYSTEM FOR WHEELCHAIRS AND WHEELCHAIR-SEATED OCCUPANTS**

**SPECIAL LIGHT**

# SPECIALLY EQUIPPED SCHOOL BUS SPECIFICATIONS

## INTRODUCTION

The specifications in this section are intended to supplement 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 that the field of special transportation is characterized by varied needs for individual cases and by rapidly emerging technologies for meeting individual student 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 that is designed, equipped and/or modified to accommodate students with special transportation needs.

## GENERAL REQUIREMENTS

1. Specially equipped school buses shall comply with the *National School Transportation Specifications and Procedures* and with the Federal Motor Vehicle Safety Standards (FMVSSs) 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 position to at least one 30 inches wide emergency exit door. A wheelchair securement position shall never be located directly in front of (blocking) a power lift door location.

## 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 the International Symbol of Accessibility below the window line. Such emblems shall be white on blue or black background, shall not exceed 12 inches square in size and shall be of a high-intensity retroreflective material meeting the requirements of Federal Highway Administration (FHWA) FP-85, *Standard Specifications for Construction of Roads and Bridges on*

*Federal Highway Projects. Labels (2) shall be located as follows: one on the front bumper and one on the rear of the bus body or the rear bumper.*

## **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 a wheelchair during vehicle operation shall be regarded as four designated seating positions, and each lift area shall count as four designated seating positions.

## **POWER LIFTS**

- A. The power lift shall be located on the right side of the bus body.

**Note:** *The lift may be located on the left side of the bus if, and only if, the bus is used to deliver students only to the left side of one-way streets.*

- B. Vehicle lift and installation

General: Vehicle lifts and installations shall comply with the requirements set forth in FMVSS 403, *Platform Lift Systems for Motor Vehicles*, and FMVSS 404, *Platform Lift Installations in Motor Vehicles*.

Design loads: 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, 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, based on the ultimate strength of the material.

Lift capacity: The lifting mechanism and platform shall be capable of operating effectively with a wheelchair and occupant mass of at least 800 pounds.

Controls: (See 49 CFR 571.403, S6.7, *Control systems*.)

Emergency operations: (See 49 CFR 571.403, S6.9, *Backup operation*.)

Power or equipment failures: (See 49 CFR 571.403, S6.2.2, *Maximum platform velocity*.)

Platform barriers: (See 49 CFR 571.403, S6.4.7, *Wheelchair retention*.)

Platform surface: (See 49 CFR 571.403, S6.4.2, S6.4.3, *Platform requirements*.) (See also "Wheelchair or Mobility Aid Envelope" figure at the end of this subsection.)

Platform gaps and entrance ramps: (See 49 CFR 571.403, S6.4.4, *Gaps, transitions and openings*.)

Platform deflection: (See 49 CFR 571.403, S6.4.5, *Platform deflection*.)

Platform movement: (See 49 CFR 571.403, S6.2.3, *Maximum platform acceleration*.)

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

Handrails: (See 49 CFR 571.403, S6.4.9, *Handrails*.)

Circuit breaker: A resettable circuit breaker shall be installed between the power source and the 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.

Excessive pressure: (See 49 CFR 571.403, S6.8, *Jacking prevention*.)

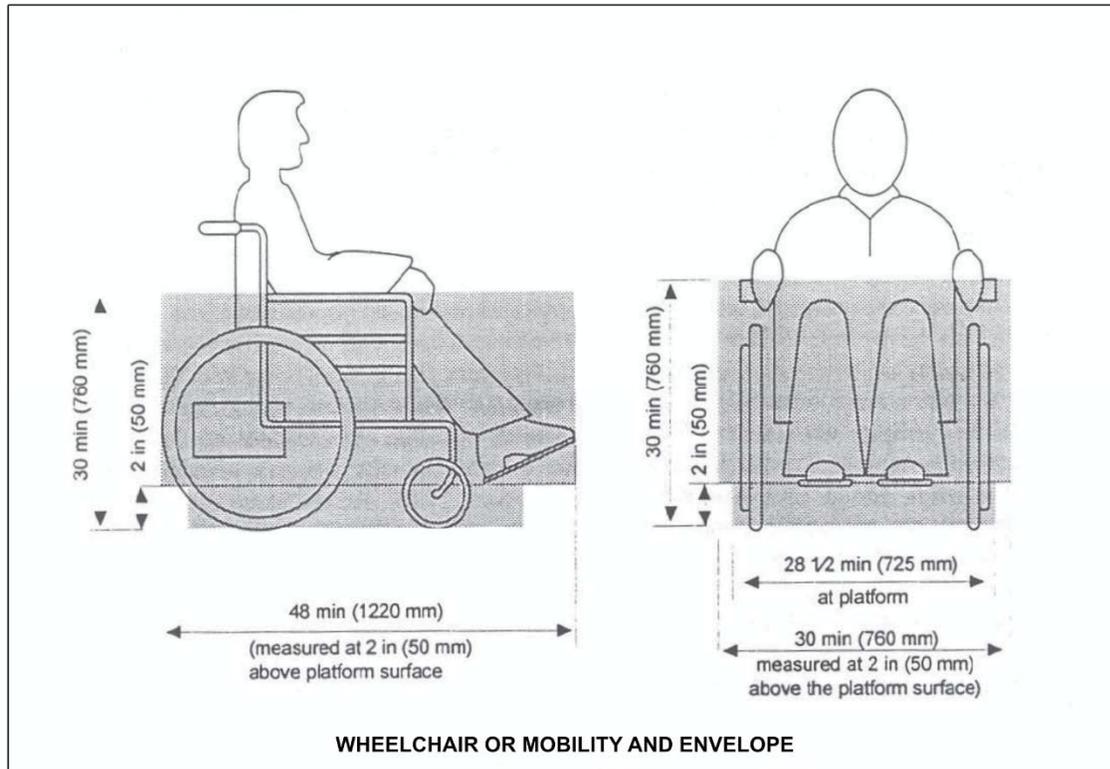
Documentation: The following information shall be provided with each vehicle equipped with a lift:

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.)

Detailed instructions regarding use of the lift shall be readily visible when the lift door is open, including a diagram showing the proper placement and positioning of wheelchair/mobility aids on the lift.

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

Identification and certification: Each lift shall be permanently and legibly marked or shall incorporate a non-removable label or tag that states it conforms to all applicable requirements of the current *National School Transportation Specifications and Procedures*. In addition, and upon request of the original titled purchaser, the lift manufacturer or an authorized representative 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

- A. On power lift-equipped vehicles, steps shall be the full width of the stepwell, excluding the thickness of the doors in the open position.
- B. 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 handrail shall be located on the opposite side of the entrance door from the handrail required in the BUS BODY AND CHASSIS section and shall meet the same requirements for handrails.

## RESTRAINING DEVICES

- A. On power lift-equipped school buses with a GVWR of 10,000 pounds or more, seat frames may be equipped with attachment points to which belt assemblies can be attached for use with child safety restraint systems (CSRSs) that comply with FMVSS No. 213, *Child Restraint Systems*. Any belt assembly anchorage shall comply with FMVSS No. 210, *Seat Belt Assembly Anchorages*.
- B. Alternatively, a child restraint anchorage system that complies with FMVSS No. 225, *Child Restraint Anchorage Systems*, may be installed.
- C. Seat belt assemblies, if installed, shall conform to FMVSS No. 209, *Seat Belt*

*Assemblies.*

- D. Child safety 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 No. 213.

## **SEATING ARRANGEMENTS**

Flexibility in seat spacing to accommodate special devices shall be permitted to meet passenger requirements. All seating shall meet the requirements of FMVSS No. 222, *School Bus Passenger Seating and Crash Protection*.

## **SECUREMENT AND RESTRAINT SYSTEM FOR WHEELCHAIRS AND WHEELCHAIR-SEATED OCCUPANTS**

For purposes of understanding the various aspects and components of this section, the terms *securement* and *tie down* and the phrases *securement system* or *tiedown system* are used exclusively in reference to the devices that anchor the wheelchair to the vehicle. The term *restraint* and the phrase *restraint system* are used exclusively in reference to the equipment that is intended to limit the movement of the wheelchair occupant in a crash or sudden maneuver. The term *wheelchair tie down and occupant restraint system (WTORS)* is used to refer to the total system that secures the wheelchair and restrains the wheelchair occupant.

- A. **WTORS** — general requirements:
  - 1. A wheelchair tie down and occupant restraint system installed in specially equipped school buses shall be designed, installed, and operated for use with forward-facing wheelchair-seated passengers and shall comply with all applicable requirements of FMVSS 222, *School Bus Passenger Seating and Crash Protection*, and SAE J2249, *Wheelchair Tie down and Occupant Restraint Systems for Use in Motor Vehicles*. **An Ansi/Resna WC18-compliant WTORS may be specified when transporting a wheelchair that is fully compliant with WC19 (2012), which includes a crash-tested wheelchair-anchored pelvic belt.**
  - 2. The WTORS, including the anchorage track, floor plates, pockets or other anchorages, shall be provided by the same manufacturer or shall be certified to be compatible by manufacturers of all equipment/systems used.
  - 3. Wheelchair securement positions shall be located such that wheelchairs and their occupants do not block access to the lift door.
  - 4. A device for storage of the WTORS shall be provided. When the system is not

in use, the storage device shall allow for clean storage of the system, shall keep the system securely contained within the passenger compartment, shall provide reasonable protection from vandalism and shall enable the system to be readily accessed for use.

5. The WTORS, including the storage device, shall meet the flammability standards established in FMVSS No. 302, *Flammability of Interior Materials*.
  6. The following information shall be provided with each vehicle equipped with a securement and restraint system:
    - a. 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.)
    - b. 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.
  7. The WTORS manufacturer shall make training materials available to ensure the proper use and maintenance of the WTORS. These may include instructional videos, classroom curriculum, system test results or other related materials.
- B. Wheelchair Securement/Tiedown: (See 49 CFR 571.222, S5.4.1, S5.4.2.) Each wheelchair position in a specially equipped school bus shall have a minimum clear floor area of 30 inches laterally by 48 inches longitudinally. Additional floor area may be required for some wheelchairs. Consultation between the user and the manufacturer is recommended to ensure that adequate area is provided.
- C. Occupant restraint system: (See 49 CFR 571.222, S5.4.3, S5.4.4.) If the upper torso belt anchorage is higher than 44 inches measured from the vehicle floor, an adjustment device, as part of the occupant restraint system, shall be supplied.

## **SPECIAL LIGHT**

Doorways in which lifts are installed shall be equipped with a special **interior light that is located above the lift and** that provides a minimum of two foot-candles of illumination measured on the floor of the bus immediately adjacent to the lift during lift operation.

## **SPECIAL SERVICE ENTRANCE**

- A. Power lift-equipped bodies shall have a special service entrance to accommodate

the power lift.

**Note:** A special service entrance shall not be required if the lift is designed to operate within the regular service entrance, is capable of stowing such that the regular service entrance is not blocked in any way and a person entering or exiting the bus is not impeded in any way.

- B. 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.

**Note:** A special service entrance and door may be located on the left side of the bus only if the bus is used only to deliver students to the left side of one-way streets and its use is limited to that function.

- C. 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.
- D. A drip molding shall be installed above the special service entrance to effectively divert water from the entrance.
- E. Door posts and headers at the special service entrance shall be reinforced sufficiently to provide support and strength equivalent to the areas of the side of the bus not used for the special service entrance.

## **SPECIAL SERVICE ENTRANCE DOORS**

- A. A single door or double doors may be used for the special service entrance.
- B. A single door shall be hinged to the forward side of the entrance unless this would obstruct the regular service entrance. If the door is hinged to the rearward side of the doorway, the door shall utilize a safety mechanism that will prevent the door from swinging open should the primary door latch fail. If double doors are used, the system shall be designed to prevent the door(s) from being blown open by the aerodynamic forces created by the forward motion of the bus, and/or shall incorporate a safety mechanism to provide secondary protection should the primary latching mechanism(s) fail.
- C. All doors shall have positive fastening devices to hold doors in the “open” position when the special service entrance is in use.
- D. All doors shall be weather sealed.

- E. 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 have strength that is greater than, or equivalent to, the strength of the emergency exit door.
- F. Door materials, panels and structural components shall have strength equivalent to the conventional service and emergency doors. Color, rub rail extensions, lettering and other exterior features shall match adjacent sections of the body.
- G. Each door shall have windows set in a waterproof manner that are visually similar in size and location to adjacent non-door windows. Glazing shall be of the same type and tinting (if applicable) as standard fixed glass in other body locations.
- H. Door(s) shall be equipped with a device that will actuate an audible or visible signal located in the driver's compartment when the door(s) is not securely closed and the ignition is in the "on" position.
- I. A switch shall be installed so that the lift mechanism will not operate when the lift platform door(s) is closed.
- J. Special service entrance doors shall be equipped with padding at the top edge of the door opening. The padding shall be at least three inches wide and one inch thick and shall extend the full width of the door opening.

## **SUPPORT EQUIPMENT AND ACCESSORIES**

- A. In addition to the webbing cutter required in the BUS BODY AND CHASSIS section, each specially equipped school bus that is set up to accommodate wheelchairs or other assistive or restraint devices with webbing attached shall contain an additional webbing cutter properly secured in a location to be determined by the purchaser. The webbing cutter shall meet the requirements listed in the BUS BODY AND CHASSIS section, seats and Restraining Barriers, paragraph E.
- B. Special equipment or supplies that are used in the bus for mobility assistance, health support or safety purposes shall meet local, federal and engineering standards that may apply, including requirements for proper identification. Equipment that may be used for these purposes includes, but is not limited to:
  - 1. Wheelchairs and other mobile seating devices. (See subsection on Securement and Restraint System for Wheelchairs and Wheelchair-seated Occupants.)

2. Crutches, walkers, canes and other ambulating devices to assist ambulation.
  3. Medical support equipment. This may include respiratory devices, such as oxygen bottles (which should be no larger than 38 cubic feet for compressed gas) or ventilators. 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.
- C. Each specially 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.
- D. If transporting oxygen, refer to AMD Standard 003.