



STATE OF GEORGIA

(Department of Administrative Services, State Purchasing Division)

2022 TECHNICAL AND PERFORMANCE

SPECIFICATIONS

FOR

Light and Medium Transit Vehicles (Cutaway) Specifications (NON-AGENCY SPECIFIC)

NOTICE: This specification is NOT intended to restrict competition. Manufacturers/Dealer may bid their bus(es) in accordance with their standard manufacturing process. In the case where that process varies for this specification, Deviations must be submitted on the provided Request for Specification Deviation Document Form and Specification Deviation Certification and Compliance Form. Any deviation documented shall be “brand name, equivalent, or equal in performance” and must meet or exceed all FTA requirements (for FTA-compliant vehicles), and all Federal, State, and Local requirements. The state may, at any time during the evaluation and/or contract period, require the bidders to provide proof that the deviation meets the “brand name, equivalent or equal” in performance.

Specification Deviation Minimum Requirements The following are the minimum requirements that must be met for specification deviations to be in compliance:

1. All deviations must be documented in Attachment N: Supplier Specifications Deviation Document.
2. Supplier must certify in Attachment O: Certification of Specification Deviation Compliance that all deviations submitted are “brand name, equal or equivalent” in performance for the vehicle being offered and meet or exceed Federal/FTA requirements and clauses.
3. The FTA vehicle, as deviated, must not constitute a “Cardinal Change” as defined by the FTA Circular 4220.1F, Third Party Contracting Guidance. Deviations deemed as “Cardinal Changes” will be denied.
4. The FTA vehicle, as deviated, must be capable of meeting FTA's Buy America requirements codified at 49 U.S.C. A 5323(j).
5. The FTA vehicle model, as deviated, must meet a minimum performance standard in each of the following Altoona Tests: Maintainability, Reliability, Safety, Performance, Structural Integrity and Durability, Fuel Energy Economy, Noise (Interior and Exterior), and Emissions in the FTA Testing Facility (Altoona) and have a Bus Testing Report for the vehicle model being proposed.
6. The FTA vehicle, as deviated, must meet Federal Motor Vehicle Safety Standards for the vehicle being proposed and all deviated buses/vans sold must have a Manufacturer FMVSS Self-Certification Sticker.
7. The deviation does not include used or rebuilt parts.
8. The deviation, as documented, and certified does not include fraud or fraudulent statements or claims.
9. The FTA vehicle, as deviated, complies with all applicable requirements of the Americans with Disabilities Act of 1990 (ADA), as amended, 42 USC § 12101 et seq.; section 504 of the Rehabilitation Act of 1973, as amended, 29 USC § 794; 49 USC § 5301(d); and any implementing requirements FTA may issue.
10. Supplier must agree to all federal/FTA requirements and clauses in Attachment K: FTA Requirements and Clauses by signing the required certifications in Attachment L: FTA Required Certification Forms.

1. GENERAL:

- a. Unless otherwise specifically provided in the specifications, reference to any equipment, material, article, or patented process by trade name, make, or catalog number shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. A bidder may document deviations of any equipment, material, article, or process if the deviation is “brand name, equivalent or equal” in performance. All such deviations shall be accompanied by supporting technical data and background information, test results as may

be required. All requests for deviations must be submitted on the supplied Bidder Specifications Deviations (Attachment N) and shall be included with the proposal. These deviations will not be evaluated as part of the proposal, however, the customer may use the “a la carte” process or not accept the vehicle for purchase as deviated.

- All units or parts not specified shall be the manufacturer’s best quality and shall conform in materials, design, or workmanship to the best practice known in the transit industry. All parts shall be new and function for their intended purpose
- b. Bidder shall provide a Certification for Specifications Compliance Form in Attachment O for all deviations from the specifications on Attachment N. A copy of Form CER 10, located in Attachment M, will be submitted with each bus bid regardless of if it is an FTA bus or not.

2: UNIVERSAL SPECIFICATION

See Table 1 for specifications listed by vehicle type and length.

Table 1:

Vehicle Type	Engine	Gas/ Diesel	Transmission	Fuel Capacity	Alternator	Body Dimensions	Minimum Pass.
18 Ft. Light Transit Vehicle-11,500 GVWR Min Narrow Body	6.0 L	G	Automatic	30 Gal	220 amp Min.	88" Wide Max	8 Pax
20 Ft. Light Transit Vehicle-11,500 GVWR Min	6.0 L	G	Automatic	30 Gal	220 amp Min.	95" Wide Min	8 Pax
22 Ft Light Transit Vehicle-11,500 GVWR Min	6.0 L	G	Automatic	30 Gal	220 amp Min.	95" Wide Min	12 Pax
25 Ft Light Transit Vehicle-14,200 GVWR Min	6.0 L	G	Automatic	55 Gal	220 amp Min.	95" Wide Min	16 Pax
27 ft Light Transit Vehicle-14,200 GVWR Min	6.0 L	G	Automatic	55 Gal	220 amp Min.	95" Wide Min	20 Pax
33 Ft Light Transit Vehicle- 19,500 GVWR Min	6.0 L	G	Automatic	40 Gal	220 amp Min.	95" Wide Min	28 Pax
36 ft Light Medium Duty Transit Vehicle-25,000 GVWR Min	6.4 Diesel	D	Automatic	45 Gal	220 amp Min.	95" Wide Min	28 Pax
38 ft Light Medium Duty Transit Vehicle- 25,000 GVWR Min	6.4 Diesel	D	Automatic	45 Gal	220 amp Min.	95" Wide Min	36 Pax

(All Bus Lengths are +/- 18 Inches)

3. Vehicle Weight:

3.1 ALL FINAL VEHICLES SHALL MEET THE GVWR RATING FULL LOADED.

3.2.. Bidders shall use the following metric in the calculation to meet GVWR Weight

- *Seated passengers shall be calculated as 200 Pounds each
- *Wheelchair Lifts shall be calculated as 1000 lbs. each

NOTE: *These requirements are not qualified for a deviation

4. BASIC VEHICLE SPECIFICATIONS: (See Table 1)

4.1. Chassis must be the current model, under standard production by the chassis manufacturer. The following shall indicate the minimum requirements. All parts, accessories, equipment, and safety features considered standard, whether mentioned or not, shall be considered as required.

4.2. The bidder and/or vehicle shall comply with all applicable Federal Motor Vehicle Safety and Environmental Standards, Americans with Disabilities Act (ADA), Buy America (FTA Vehicles only), Disadvantaged Business Enterprise (DBE) provisions, Altoona Bus Testing (FTA Vehicles only), FTA Master Agreement (MA10) (FTA Vehicles Only), and Bid Specifications.

4.3 Wheelchair Passenger Capacity: (2) two Wheelchair positions

NOTE: In order to give the customer flexibility in seating configurations, bidders can provide additional wheelchair positions as an option.

4.4. **WHEELBASE** – 138 inches minimum

4.5. **BUMPER TO BUMPER** - 222 inches minimum

4.6. **ENGINE** - See Table 1.

4.7. **REAR AXLE RATIO** – Rear axle ratio shall be 4.10 or comparable.

4.8. ANTIFREEZE - Permanent type to 28 degrees Fahrenheit below zero.

4.9. COOLING SYSTEM - Heavy-duty radiator - engine temperature not to exceed 225 degrees Fahrenheit - equipped with coolant recovery kit, factory installed.

4.10. TRANSMISSION –automatic, heavy-duty to meet the needs of the vehicle. OEM transmission oil cooler shall be provided.

4.11. STEERING - Power Steering, tilt steering, and cruise.

4.12. BRAKES

- a. Two braking systems are required. Service brakes shall be hydraulic disc front and rear with ABS. The braking system shall be adequate for the GVWR of the vehicle.
- b. Front and Rear Disc Brakes shall be provided.
- c. Parking brake shall be foot operated.

NOTE: Other braking systems/parts or supplemental systems such as brake retarders should be included as Options

4.13. TIRES AND WHEELS

- a. Vehicle shall be equipped with heavy-duty ventilated pressed steel wheels. All wheels shall be painted white. The vehicle paint color and wheels shall be the same color.
- b. **Option Pricing: “Other Available Options” on Attachment G Cost Workbook** shall include pricing for an additional spare tire, the same that is on the vehicle as well as other available tire options.

- c. Tire size shall be a minimum of LT 225/75R-16E with all-season radial ply with steel cord reinforcement and highway-type tread. All tires and wheels shall be properly balanced and aligned. Wheels shall be painted white (outside only). **A FULL-SIZE spare tire/wheel shall be provided.**

4.14. TIRE CHANGING TOOLS – Provide as an “option”

4.15. ALTERNATOR – See Table 1: Twelve (12) volts minimum, 220 AMP capacity minimum alternator, and an automatic high idler. Diesel engines shall provide dual 145 AMP alternators in lieu of single 225 AMP alternators and OEM automatic high idler. The electrical legend shall be on the door of the electrical junction box. An alternator must be of sufficient size for the attributes of the bus it is serving.

4.16. BATTERY - Minimum 1150 cold cranking amps. The mounting for the battery under the body shall be the **slide-out** stainless steel type for easy access.

4.17. FUEL CAPACITY –OEM fuel tank provided. Each vehicle shall have a minimum of ½ tank of fuel upon delivery.

4.18. HORN – Shall be dual electric.

4.19. SUSPENSION SYSTEM – The front and rear axles must meet the total GVWR rating for the vehicle. Heavy-duty shock absorbers shall be installed on both the front and rear of the chassis. Heavy-duty springs, which are of sufficient strength to carry, without damage, their share of the actual weight of the vehicle plus anticipated loads and stresses, shall be installed on the front and rear.

Stabilizer bars shall be provided if offered by chassis manufacturers

An eccentric Castor/camber pinch-bolt busing kit will be installed after body mounting. Front-end alignment shall be performed after kit installation and prior to delivery of the vehicle. Certification of front-end alignment shall be provided at delivery.

4.20 EXHAUST SYSTEM: The exhaust system, unless prohibited by the chassis manufacturer, shall exit the rear roadside of bus.

4.21 CATALYTIC CONVERTER PROTECTION SYSTEM: Vehicles shall have a Catalytic Converter Protection System.

4.21. BUMPERS - Front bumper to be chrome wrap-around type. The rear bumper shall be painted to match the vehicle color and securely bolted with grade 8 bolts to the vehicle frame rails.

4.22. MIRRORS AND VISORS

a. Exterior Mirrors - will be a Rosco, Vel-Vac, Lucerex, or equivalent, mirror mounting, left and right sides. Each mirror head shall include a standard and convex mirror. A Vanguard Super viewer or approved equal, 8 inch by 10 inches, shall be provided and mounted on the rear door window.

b. Interior Mirror - will be a full-size mirror located above the driver's seat 6" x 16" ~~day/night type~~, made of safety glass, rounded corners, protective edges, and at least 22 square inches of clear vision, reflective surface area. OEM interior mirror day/night type will be provided.

4.23. Visors - Sun visors will be provided on driver's side only and will be adjustable horizontally and vertically.

5.0. BODY SPECIFICATIONS

5.1. GENERAL DIMENSIONS:

a. Length: See Table 1.

b. Interior Height: 72" minimum (70 inches for vehicles under 20 feet in length)

c. Aisle Width: 15" minimum

d. Seat Width: 17 1/2" per person

5.2. INSTRUMENTS, INSTRUMENT PANEL, AND CONTROLS

- a. All instruments shall be easily accessible for maintenance and repair.
- b. All control knobs and switches shall be labeled.
- c. Above instruments and gauges shall be mounted on the instrument panel clearly visible to the driver in normal seat position (not above the driver's head).
- d. Instrument panel shall have lamps of sufficient candlepower to illuminate all instruments and gauges.
- e. Chassis shall be equipped with the following instruments and gauges. **Lights, in lieu of gauges, are NOT acceptable except as noted.**
 1. Speedometer
 2. Odometer to give accrued mileage
 3. Gauges: ammeter or volt meter, oil pressure & water
 4. Fuel gauge
 5. High beam headlamp indicator (light acceptable)
 6. Switches and controls for the heater, defroster, and air-conditioner for passenger compartment to be controlled by the driver
 7. Variable speed intermittent wiper control and windshield washer
 8. AM/FM radio with digital clock
 9. Switches for passenger compartment lights

6.0. SAFETY EQUIPMENT

6.1. FIRE EXTINGUISHER - A dry chemical (ABC) type with a minimum 5-pound capacity shall be furnished and securely mounted within the vehicle.

6.2. FIRST AID KIT - a first aid kit with a minimum of ten different units shall be furnished and securely mounted

within.

6.3. BIOHAZARD CLEANUP KIT (SPILL KIT) – Provide spill kit that complies with OSHA Bloodborne Pathogen Guidelines to include the requirements of 1) 29 CFR Part 1910.1030 Occupational Exposure to Bloodborne Pathogens; Final Rule of Dec. 6, 1991 (2) OSHA Instruction CPL2-2.69 November 27, 2001, Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens one [PRECISE® QTB HOSPITAL CLEANER DISINFECTANT](#) (8 oz) **or** [DISPATCH® HOSPITAL CLEANER DISINFECTANT WITH BLEACH](#) (8 oz).

- a. disposable (non-latex) gloves
- b. absorbent powder
- c. paperboard spatulas (2)
- d. paper towel
- e. biohazard bag and twist tie
- f. antiseptic hand wipe, and easy-to-follow, step-by-step instructions

6.5. Additional Items can be added as options.

6.6. REFLECTOR KIT – Three (3) portable warning reflectors shall be furnished and secured inside the vehicle (**DOT APPROVED**).

6.7. SEAT BELT CUTTER - a seat belt cutter shall be installed near the driver. It must be visible and easily accessible.

6.8. BACK-UPCK UP ALARM - A backup alarm shall be installed to sound when the vehicle is in reverse.

6.9. DOOR ALARM - A door alarm shall be provided that will be activated when the lift door and/or rear door is ajar.

7.0. EXTERIOR COLOR --Exterior base color will be solid white.

NOTE: All other paint colors will be “Options”.

8.0. INTERIOR COLOR - The interior color shall be a neutral white or grey color and shall harmonize with the color of the

roof liner and any side paneling. The ~~rubber~~ flooring shall be gray.

9.0. SEATS

- 9.1. Passenger seating color shall be the customer selection. The driver's seat color shall be customer selection, fully padded, deluxe bucket type of heavy-duty construction, with armrest, easily adjusted forward and backward without the use of tools. The seat shall be equipped with an automatic locking retractable seat belt and shoulder harness.
- 9.2. Final seating plans will be coordinated with the buyer at the time of order. **All seating shall meet or exceed the Federal Motor Vehicle Safety Standard No. 302**
- 9.2.1. Passenger seats and driver's seat material shall be fully padded. Material shall match the color of the passenger seats. **Vinyl (Oxen or Newport).**
 - 9.2.2. **All other levels of seat fabric and vinyl will be upgraded in the published options.**
 - 9.2.3. All passenger seating will meet current ADA Guidelines. Seats shall be Freedman or Equivalent, mid-hi forward facing. Seat belts shall be non-retractable. All passenger seats shall be fully padded commercial covering. Bidders shall provide a diagram of their proposed seating layout. Seats shall be securely anchored to the seat tracks. Seat tracks shall be welded to the floor structural members. Seat mounting and the sub-floor shall meet or exceed FMVSS 207 and 210 requirements for seating.
 - 9.2.4. Driver's Seat shall be OEM or High Back Reclining with Right Hand Armrest. Power seat with electric seat adjustments shall be provided if it comes as standard equipment for the chassis manufacturer. Seat shall have heavy-duty metal retractable seat belts installed. The seat shall be contoured bucket type, adjustable forward and backward with a retractable seat belt unless precluded by location within the vehicle, A retractable passenger seat belt and shoulder harness complying with all applicable ADA and FMVSS requirements shall be provided for each wheelchair securement device.

10. INTERIOR

The Interior will be insulated against the weather and operating noise. The sidewall and roof insulation will provide a minimum R-6.0 rating. Walls and headliner shall be manufacturer ~~standard~~ anti-vandal and interior wall panel. Home-type

wall paneling or carpeting will not be acceptable. All interior colors shall harmonize with exterior vehicle colors. The interior walls and headliner shall meet the requirements of FMVSS 302.

11. FLOORING

11.1 The vehicle floor will be a unitized welded box steel construction. The subfloor will be covered with a minimum of 5/8" exterior grade plywood and must be securely fastened to the frame structure. The plywood is supported by a substructure of 11 gauge (0.125") high-strength low-alloy steel (HSLAS) with a yield strength of 50,000 psi and a tensile strength of 60,000 psi, formed into channel sections which are utilized as full-width cross members on approximately 16" to 20" centers. The HSLAS has better corrosion resistance than hot rolled steel. A longitudinal sill of 18-gauge steel is welded directly to the cross members of the floor assembly ensuring adequate strength to carry required loads and withstand road shocks. To ensure safety and compliance with FMVSS Regulations a gas tank shield is provided. The shield provides a barrier between the tailpipe and the gas tank preventing direct contact in case of tail pipe breakage and reducing the heat exchange from the tailpipe to the fuel tank.

11.2 Seats shall be securely anchored to seat tracks that shall be welded to the floor structural members. seat mounting and the sub-floor shall meet or exceed FMVSS 207 and 210 requirements for seating.

NOTE: Supplier should include the alternative method of securing seating as an "Other Available Option" .

11.3 The floor covering shall have a non-slip surface that remains effective in all weather conditions and complies with all ADA requirements. The wear layer shall be a homogenous floor and have a pure 100% compact PVC wear layer and not use fillers such as chalk or quartz. The floor covering shall meet FMVSS302 and Docket 90. The floor covering thickness shall be a minimum of 2.25 mm and designed to be extremely durable and last the life of a heavy-duty bus. The floor shall have silicon carbide and emboss that makes the floor highly slip-resistant and ADA-compliant. Any decorative pattern shall be made with PVC-colored chips and shall be consistent throughout the wear layer of the floor covering. Intermediate layer shall be a fiberglass-reinforced grid to ensure dimensional stability \leq 0.2% according to ASTM D 1204. The backing shall be a non-woven textile backing to ensure good mechanical

adhesion on all types of substrates. All seams will be heat welded to eliminate the possibility of water intrusion. The flooring shall be anti-microbial and has been tested to show that it can kill 99.8% of coronavirus on the surface within 12 hours. The warranty shall be for 12 years.

11.4. A raised floor shall be provided as an option. No wheel wells shall be exposed. A flat floor will be required from the front door to the rear of the vehicle.

12. HEATING AND COOLING –

12.1. A front heater and defroster are to be supplied. The unit is to be OEM factory supplied and shall have the maximum BTU rating available. Auxiliary Rear Heater shall provide a maximum amount of comfort for vehicle passengers - the BTU rating in noted in Table 2 below shall be a minimum of 35,000 - the heater is to be located in the rear of the vehicle. **The unit shall be out of the way of any passenger traffic.** The front air conditioning system shall be an in-dash type OEM maximum duty available.

12.2. A separate rear auxiliary air conditioning system shall be provided. The rear air conditioning system shall have a left-hand skirt mounted multi-fan condenser with a dual compressor system. The unit shall be installed and completely recessed into the vehicle skirt to protect coils and fans from mud, dirt, and road hazards. No part of the system is to protrude below the body skirt, and an access screen shall be provided for easy access to condenser coils from the exterior of the vehicle. The Rear A/C main output vent shall be adjustable up and down and side to side. The fan shall be controlled with a multi-speed fan and thermostatically controlled from the driver's area.

Refer to Table 2 below for minimum capacities:

Table 2

Bus Length	BTU	Compressor
18'	50,000 min BTU	Single Compressor
20'	55,000 min BTU	Single Compressor
22'	60,000 min BTU	Dual Compressor
25'	70,000 min BTU	Dual Compressor
28'	105,000 min BTU	Dual Compressor
32'	115,000 min BTU	Dual Compressor

36'	135,000 min BTU	Dual Compressor
38'	135,000 min BTU	Dual Compressor

13. STANCHIONS AND ASSIST BARS

13.1. Padded vertical stanchion bars, a minimum of 1 1/4" in diameter, shall be provided for both sides of the front passenger entrance and behind the driver's seat. Horizontal stanchion bars with padded modesty panels shall be located on both the left side of the front passenger entrance and behind the driver's seat. The Modesty panel will be vinyl covered and match the interior color.

13.2. Both the left and right sides of the step-well area shall have additional entrance assist rails. The rails are to be attached to the inside wall of the bottom step and to the stanchion bars at top of the step. **The entrance grab rails must be parallel. The padding on the stanchion bars shall be the full length of the bar and shall not twist or turn when handled.**

13.3. Ceiling grab rail shall be provided to meet ADA requirements.

14. PRIORITY SEATING SIGNS - Each vehicle shall contain signs that indicate that seats in the front of the vehicle are priority seats for persons with disabilities. Each securement system shall have a sign designating it as such. The size and appearance of signs must meet ADA requirements.

15. INTERIOR LIGHTING The basic interior bus lighting configuration shall include **LED Lights** for the driver's compartment dome light, instrument panel lights, switch panel backlighting, **LED Lights** for the passenger area, and a stepwell light that adequately illuminates the stepwell area with the door open and will be wired to automatically activate when the passenger door is opened. Standard LED Light assemblies shall be used in all areas.

16. EXTERIOR LIGHTING

16.1 All exterior lights on the **Bus Body** must meet U.S. DOT requirements and shall be **LED Lights** only.

16.2 Chassis manufacture headlamps are acceptable for high and low beams. Headlights shall have a daytime running light option.

- a. The flasher unit for directional signals and emergency flashers shall be replaceable from inside the vehicle and shall be a simple plug-in unit.
- b. A license plate LED light shall be provided on the rear of the vehicle.
- c. Two (2) backup LED lights shall be provided.

17. BODY

17.1. The body shall be the standard manufacturer body and must meet all Federal Safety Requirements.

17.2. The materials used and the assembly method of the roof, side panels, and floor shall be the manufacturer's standard construction uniformly connected, lapped, and sealed providing a weather and dust-proof body

17.3. The body structure shall be built as an integral unit adequately reinforced at all joints and corners where stress concentration may occur to adequately carry required loads and withstand road shock.

17.3.1. The side and end framing shall be so designed and constructed that they will carry their proportion of the stresses around these openings. All body supports in body side and roof sections shall be of durable box construction securely fastened to the under-frame structure so that the entire frame shall act as one unit without any movement at the joining. The body structure shall be designed to resist wear.

17.3.2. The vehicle body structure must incorporate a full jig-welded steel body framing for the floor. The roof must be designed to prevent water leaks.

17.3.3. The entire floor shall be a jig-welded structure. The floor structure shall be the equivalent to steel tubing, C channel, or G Channel.

17.3.4. The sidewall structure shall be sufficient to handle the load-bearing roof and must meet FMVSS safety standards.

17.3.5. The roof structure must meet FMVSS 220.

17.3.6 . The entire body exterior shell structure (sidewalls, roof, and front and rear cap shall be combined to be shall integral one-piece body structure. The body structure must meet FMVSS 220.

17.3.7. The body shall be bolted through the sub-floor structure to the chassis frame as recommended by the chassis manufacturer. **Welding of any body understructure to the chassis frame will not be permitted.**

17.3.8. Sidewalls The sidewall and roof shall be joined at the roof gutter above the windows. All panels shall be installed so that they will shed water, that is, the leading panel shall be lapped over the following panel and in no case shall the sealing of the panels be dependent on caulking alone.

17.3.9. Inside walls and ceiling shall be insulated. The insulation shall be a minimum R Factor of 6.

17.3.10. All nuts, bolts, clips, washers, clamps, and like fasteners shall be zinc or cadmium plated or phosphate coated to prevent corrosion.

- a. Wheel-housings shall be of steel construction, Wheel-housings are to be constructed and adequately reinforced to prevent deflection. Ample clearance shall be provided for tires under load and operating on both smooth and rough terrain.
- b. Access doors shall be provided where necessary to service transmission, engine, radiator, battery and air conditioning components.
- c. The entire body frame under the structure of the vehicle is to be fully undercoated with non-flammable resin-type material, ploy oleum or equivalent, applied at the time of manufacture. Any bright metal exterior trim shall be stainless steel, polished aluminum, or chrome plated.

18. WINDOWS

18.1. The vehicle shall be an all-window unit. All windows will comply with FMVSS 217. The windshield will be a one-piece assembly glazed with 3/16" tinted safety laminated safety glass with a density of tint in accordance with ASA standards for tinted safety glass.

18.2. The driver's window will be capable of opening by either sliding or rolling down.

18.3. Passenger side windows will be transit type, as opposed to school type, and will provide a view level extending 28" above the bus floor to the top window at approximately 64" above the bus floor. Vertical mullions between side windows including trim will not exceed 11". Side and rear windows will be tinted a neutral color complementary to the bus exterior. Maximum solar energy transmittance will not exceed 37%, as measured by ASTM E-424, and luminous transmittance will be no more than 31%, as measured by ASTM D-1003. Each window will be glazed with 1/8" tempered safety glass.

18.4. Passenger side windows will be sealed type except that a top horizontal T-slider opening section will be provided. The opening section will be a minimum 6" in height and will provide a minimum viewing area of 56 square inches. Positive locking latches will be provided.

18.5. A minimum of one emergency escape window will be provided on each side of the bus. A rear emergency door with an upper window and a lower window shall be provided. The doors shall be labeled, and operating instructions will be clearly visible. **Red marker lights shall be provided above each escape window and shall illuminate when the vehicle is operating.**

18.6. All windows will be designed and installed in compliance with FMVSS 217.

18.7. Side window dimensions shall be minimum 24" wide x 36" high minimum.

18.8. Transition windows will be provided in the area immediately in front of the passenger entry door.

19. FRONT ENTRANCE DOORS

19.1. The driver's door shall be equipped with a diamond plate running board **securely supported and securely fastened to the vehicle**. Step shall be DOT approved.

19.2. The passenger entrance doors, located opposite the driver, shall be a two-leaf, outward opening type, operated manually by the driver. **The engine must remain accessible for maintenance without having to first remove the bus door operator**. The doors shall have a clear center opening width minimum of 28" and a height of 80" minimum.

19.3. The vehicle shall be equipped with a 14-gauge minimum steel doorframe. All components are to be of welded construction. Entry doors must provide full visibility for the driver.

20. REAR ENTRANCE DOOR

The rear door must have an upper and lower window with an upper window tinted the same as the passenger side windows and a lower window to allow sight immediately behind the vehicle for the driver. The door is to be equipped with an emergency exit handle and a door-ajar buzzer.

21. STEPWELL

The passenger entrance door shall have a lowered step-well constructed of 11-gauge minimum galvanized or stainless steel. All components are to be of welded construction. **The distance from the ground to the bottom edge of the first step shall be a maximum of 12 inches**. There shall be a maximum of 9" rise in the steps. The steps will be fully recessed, enclosed, and protected from weather and other adverse conditions. Each step shall be covered with a non-slip step covering. All step edges, thresholds, and the boarding edge of the ramp or lift platform shall have a band of yellow color running the full width of the step or edge which contrasts from the step tread or lift or ramp surface, either light-on-dark or dark-on-light.

22. LIFT AND PLATFORM

22.1. The platform shall be of steel construction with see-through grating. The platform shall have a minimum width of 33 inches and a minimum length of 51 inches. The side of the platform shall be a minimum of 4-1/4" measured at the platform surface. The platform shall have a bolt-on detachable feature allowing for longer retrofits in the field and incorporate a 3-inch adjustable leveling feature allowing for field adjustment.

22.2. The outward barrier roll stop shall be spring-loaded and a minimum of 10 inches high measured from the platform surface. A 1-inch passive inboard barrier shall be required on the platform. 3M Yellow reflective tape shall be mounted along the full exterior length of the side barriers.

22.3. Dual handrails are to be provided and shall be of bolt-on design, 1-1/4 inch minimum diameter, minimum 30 inches high, and withstand a 100-pound force in any direction, including vertical.

22.4. The wheel-chair lift shall be of modular steel frame construction.

22.5. The design shall be of box frame construction providing rigidity without depending on the vehicle body for reinforcement and lift alignment.

22.6. The frame and platform design shall have been tested to a minimum static load of 3000 pounds. The lift shall have an 1100-pound tested lift capacity and an 800-pound continuous lifting capacity.

22.7. The power supply shall be an electric hydraulic system, operating one (1) single-acting cylinder.

22.8. The hydraulic power pack pump shall be mounted inside the frame structure of the lift, maximizing floor, and seating space. This hydraulic system shall be of a gravity-down design, requiring no limit switches or bypass valves to stop the downward travel of the platform. There shall be no dual-cylinder power-down operation. An emergency backup pump shall be provided. The manual backup system is provided to ensure the operation of the lift in case of electrical failure.

23. LIFT ACCESS DOOR

The lift access door or doors **with window(s)** shall provide a minimum of 68 inches of head clearance and shall be minimum 44 inches wide. The door shall be securely attached to the vehicle and shall not leak water. When in the fully open position, the door shall be equipped with a stainless steel "T-Latch" or gas strut hold-open device to prevent the door from closing accidentally while in use. All components are to be of welded construction. The vehicle shall be equipped with a Wheelchair Emblem on the rear of the vehicle.

24. WHEELCHAIR LIFT EQUIPMENT

24.1. The wheelchair lift shall be the Braun Millennium-2 Series, fully automatic wheelchair lift. The lift capacity minimum shall be 800 pounds. Wheelchair equipment shall meet ADA regulations. The wheelchair lift shall include a platform with a minimum clear width of 30" and a minimum clear length of 48". The wheelchair lift shall incorporate an emergency method of operating if the power to the lift fails. The wheelchair lift shall include guards on the front/rear of platform handrails on both sides of the platform. (ADA 38.21).

NOTE: Provide a Century 2 Wheelchair Lift Series with a handrail with a belt as an option. The lifting capacity minimum shall be 1,000 pounds.

24.2. Wheelchair shall have a ground cable installed from the lift frame to Ford Frame Rail to conform to Braun Corporation installation procedures.

24.3. Intermotive Intelligent Lift Interlock shall be provided to ensure that the vehicle cannot be moved.

24.4. If a micro switch is mounted under the steering column to sense when the transmission is in park, the switch must be able to be easily adjusted to compensate for wear in shift linkage. Just screwing it to the steering column support is not acceptable.

24.5. Wheelchair lift controls are a customer option. The microphone box shall be waterproof. Lift controls shall be secured to the microphone box. Controls shall be placed close to the-Lift door. The door shall hinge on the right or left side according to the location of the microphone box.

NOTE: Bidders should provide an option(s) for lift controls and should coordinate the location of the Lift control box during the ordering phase.

24.6. Illumination of the wheelchair lift platform shall be accomplished with an exterior light located below the window level and shielded to protect the eyes of entering and exiting passengers (ADA 38.21).

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24.7. Wheelchair lift door(s) shall incorporate light on the dash to indicate that the door is not closed. An interior light shall activate when the door is open to illuminate wheelchair loading and unloading. (ADA 38.31).

24.8. American Disabilities Act (ADA) regulations shall supersede all requirements included in these specifications.

25. WHEELCHAIR SECUREMENT AREA

25.1. Securement Devices: There shall be two (2) wheelchair tie-down spaces.

25.2. Wheelchair securement areas must have a clear floor area of 30" by 48" for all wheelchair positions.

25.3. Wheelchairs must be secured in a forward-facing position. (ADA 28.23.d.4).

25.4. Wheelchair securement must include a seat belt and shoulder harness for the wheelchair occupant. These belts shall not be used in lieu of a device, which secures the wheelchair itself. (ADA 38.23.d.7).

25.5. Q'Straint QRT Deluxe with L Track shall be installed. Shoulder belts shall be retractable. A minimum of two (2) or more Q-Straint nylon storage bags shall be sufficient to store all belts and shall be located on the wall and near the wheelchair lift door area.

25.6. American Disabilities Act (ADA) regulations shall supersede all requirements included in the specifications.

25.8. All floor-mounted attachments shall be flush mounted, and must meet the specifications as outlined in the ADA regulations Subpart B-Buses, Vans and Systems, 38.23 Mobility aid accessibility (d) Securement devices, as well as ANSI/RESNA WC-18. Retractors must be self-tensioning and self-locking.

NOTE: Acceptable kits are Q'Straint QRT-360 (Q-10007) and Sure-Lok WC-18 TITAN (AL812S-4C).

26. MANUALS

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- a. Standard OEM Operator manuals Warranty Guides and operating manual that comes with a particular option, if applicable shall be delivered with the vehicle. **Payment for the vehicle will not be processed until all required manuals are received and approved.**
- b. Coach inspection schedules
- c. Braun wheelchair lift parts and repair manual
- d. Coach body manuals
- e. Coach manufacturer electrical wiring diagrams
- f. Wiring diagrams
- g. Air Conditioning Parts and Repair Manual

NOTE: Any other documents/Manuals can be offered as options

27. NOT USED

28. Camera System

28.1. Customers decide the Camera System(s)

NOTE: Provide a minimum of two camera systems inclusive of hard drives in the Sourced Goods Section of the Cost Worksheet as available options.

29. AVL SYSTEM

AVL System shall be the customer's Choice. AVL System shall include GPS Receiver, GPS Heading Sensor, GPS Heading Sensor Cable, GPS Power Cable w/Inline Fuse, GPRS Modem Power Cable, Programmed GPRS Modem, Cable RS232 6', License, AVL Software, Receiver Power Cable, Discrete Cable, and Discrete Button. The system shall be compatible with the existing AVL System. AVL System shall be mounted above the destination cabinet to maintain security. The cabinet shall provide one lockable latch.

NOTE: Supplier should provide additional AVL systems as unpublished options

30. AUTOMATIC FIRE SUPPRESSION SYSTEM

Bidder should provide an automatic fire suppression system as unpublished options

31. FINISHING PROCEDURES

All welds shall be ground smooth. All bare metal components shall be prepped and painted according to the White-Book Specifications with or equal to Ditzler Metal Prep 79 and painted with Ditzler DAS 1980 primer sealer and finished with Ditzler acrylic enamel paint that matches the vehicle.

32. RUSTPROOFING

This item requires that a compound or sealant be applied to all appropriate interior and exterior surfaces of the vehicle. **Seams must be penetrated by the compound** to retard rusting of the metal. All critical areas shall be treated. Critical areas include, but are not limited to: gravel/water shields, suspension systems, battery supports, wheel wells, rocker panels, hidden boxed-in areas, the interior of doors, exterior door bottoms, pillars, and clipped-on moldings. Care must be taken that the application does not interfere with any mechanical, electrical, or heat transfer details of the vehicle.

The end product of this specification is to provide for a long life for the body of the vehicle by preventing of premature rust destruction. The rust-proofing system used shall be equivalent to or better than the Ziebart Class A Rust Protection System or Rusty Jones.

33. WATER TEST

A water test shall be conducted on each vehicle to insure that there are no leaks prior to delivery of the vehicle. A copy of the written test results shall be presented to the Department at the delivery of each vehicle. **The Bidder will supply a detailed written description of their testing method with their bid.** If water leaks become evident during the water test, the leaks will be repaired in a professional manner. Excessive caulking will not be acceptable. The vehicle will undergo additional testing to ensure that there are no further leaks. Copies of these additional test results shall also be presented to the Department at the delivery of each vehicle. The vehicle shall be warranted against leaks for the period covered by the manufacturer's warranty.

34. WARRANTY/SERVICE

34.1. Warranty shall be the standard manufacturer's warranty. The manufacturer shall state the terms and conditions of the vehicle warranty. In no case shall the warranty be less than 36 months or 36,000 miles on the vehicle chassis.

NOTE: Provide Extended Warranties in the Additional Options Section of the Cost Worksheet.

34.2. Any and all materials, specialties, equipment, or accessories that prove defective in normal operation within the above shall be replaced or repaired by the manufacturer free of any and all cost to the vehicle operator, including material, labor, and transportation costs.

34.3. Warranty replacement and/or repairs shall be furnished promptly by the successful bidder, not to exceed thirty (30) days from the date the Suppliers have been notified.

34.4. The bidder shall provide written assurance with the bid package regarding warranty service and repairs.

34.5. BIDDER MUST PROVIDE A WARRANTY REPAIR CENTER AND ONGOING SERVICE FACILITY IN THE ATLANTA AREA AND BE ABLE TO SERVICE AND PERFORM WARRANTY WORK RELATED TO BODY EQUIPMENT OTHER THAN CHASSIS SUPPLIED (i.e. - WHEELCHAIR LIFTS AND EQUIPMENT, ADD ON AIR CONDITIONING SYSTEMS, ETC.).

35. MANUALS

- a. See number 26 above
- b. **Training Material** – All training materials provided by the individual component manufacturer(s) will be provided to the end user. Provide training material for each vehicle equipped with a wheelchair lift. The material shall provide training for the proper use of wheelchair tie-down devices and proper securement of wheelchair patrons.
- c. **DRIVER'S TRAINING** - Upon delivery of each vehicle; the Contractor shall conduct training on the proper operation of the vehicle and its equipment (such as; lift, tie-downs, safety equipment, etc.).

36. MATERIALS

All materials used in the conversion of the bus shall conform in all respects to the American Society of Testing Materials, Society of Automotive Engineers, or similar association standards. Materials used shall be of first quality and shall be exactly duplicated in manufacture, design, and construction on each bus. All exterior and interior panels shall be riveted, welded, or fastened in a professional manner to the body frame.

37. DOCUMENTS

- a. **The MSO (Certificate of Origin) and the MV1 (Tag and Title Application) must be typed as requested by the purchaser and provided at the time of delivery**
- b. Provide all warranty manuals

38. BUS TESTING

*****FOR ALL FTA BUSES: Provide certification that the vehicle has been Altoona Bus Tested for a minimum of four years/100,000 miles (see attachment). Provide a copy of the complete Altoona Test Report or documentation that buses are currently being tested to meet Altoona requirements. Test data shall be provided with the bid response.