



## INVITATION TO BIDDERS

The City of Gatlinburg is accepting sealed bids for the purchase of one (1) CNG Low Floor Trolley. The City of Gatlinburg has received funds under the Congestion Mitigation and Air Quality Improvement (CMAQ) Grant Program. The Federal Transit Administration (FTA) has provided funding to the Tennessee Department of Transportation (TDOT) under the authority provided in the Congestion Mitigation and Air Quality Improvement Program.

The specifications for the Trolley are contained in **Exhibits A and A-1** in this document. Certain Federal Transportation Authority "FTA" Clauses are contained in **Exhibit B**. All of these clauses must be read and agreed to. Interested bidders must supply an active DUNS number and SAMS number to participate in this project.

Bid forms and specifications may be obtained from Delea Patterson, AP/Purchasing, Gatlinburg City Hall, 1230 Parkway East, Suite 2, P.O. Box 5, Gatlinburg, Tennessee 37738, Telephone Number (865) 436-1409, email [deleap@gatlinburgtn.gov](mailto:deleap@gatlinburgtn.gov).

Specifications will also be available on City of Gatlinburg website at [www.gatlinburgtn.gov](http://www.gatlinburgtn.gov) in "Out for Bid" section. Preliminary bid results will available on this website as well shortly after bid opening.

Any specific questions regarding the equipment should be directed to Mass Transit Director, Buddy Parton, at 865-436-3897. Each interested party will need to contact Mr. Parton to arrange inspection of the construction area.

Bids shall be received until **2:30 PM on 1/28/2016 (Thursday)**, at which time they will be publicly opened and read aloud. No bid may be withdrawn for thirty (30) days. Bids shall be submitted in a sealed envelope with the Bidder's name, address, date and time of the bid opening, and the Quotation "**Bid on CNG Low Floor Trolley**" stated clearly on the outside of the envelope containing the bid. Vendors may bid on all items or whichever items desired. The bid is opened to all bidders who can provide desired products.

The City of Gatlinburg reserves the right to waive any informalities in, or to reject any or all bids and to accept the bid deemed most favorable to the interests of the City.

## **GENERAL PROVISIONS**

Prices quoted shall not include Federal or State taxes, if any are applicable. The successful bidder shall furnish tax exemption forms, if required, with their invoices.

The prices quoted are that for which the materials or services will be delivered F.O.B. Gatlinburg, Tennessee.

Any additions, deletions, or variations from the following specifications must be noted.

Inspection of the materials or equipment will be made by an agent of the City of Gatlinburg, and if found defective or fails in any way to meet the terms of this agreement, it will be rejected. Rejected materials or equipment will be replaced at the expense of the bidder.

All technical specifications must accompany bid.

The City of Gatlinburg reserves the right to defer payment for thirty (30) days after delivery. The City of Gatlinburg also reserves the right to reject any and/or all bids.

The bidder agrees to indemnify the City of Gatlinburg from any and all liability, loss or damage the City may suffer as a result of claims, demands, costs, or judgments against it arising from any and all work under this agreement.

The bidder agrees to notify the City, in writing, within thirty (30) days, by registered mail, at the City's address as stated in this agreement, of any claim against the bidder on the obligations indemnified against.

It is the policy of the City of Gatlinburg not to discriminate on the basis of race, color, national origin, age, sex, or disability in its hiring and employment practices, or in admission to, access to, or operation of its programs, services and activities. With regard to all aspects of this contract, contractor certifies and warrants it will comply with this policy.

## **BID SPECIFICATIONS FOR CNG LOW FLOOR TROLLEY**

Specifications for the CNG Low Floor Trolley are contained in **Exhibit A** and **Exhibit A-1** that accompany this bid document.

This bid is for the purchase of one (1) Trolley.

Vendor must also acknowledge acceptance and compliance with all of the FTA Clauses contained in **Exhibit B**.

Technical questions about specifications shall be directed to Mass Transit Director, Buddy Parton, at 865-436-3897.

Price will include for two (2) City of Gatlinburg employees, two (2) trips, a Pre-Construction Trip and a Pre-Delivery Trip per unit, which will include lodging, food, and transportation.

Price will include a minimum of sixteen hours of onsite training to be provided to the City's mechanics by the contractor's factory representative of the major components of the vehicle, following delivery and acceptance of the first vehicle.

All testing for engine, transmissions, brakes, and A/C must be supplied via disk for loading into lap top computer.

Two (2) service manuals and two (2) parts manuals, per trolley, shall be provided.

Two (2) electrical laminated wiring schematics, per trolley, shall be provided.

Delea Patterson, AP/Purchasing  
1230 Parkway East  
P.O. Box 5  
Gatlinburg, TN 37738

**RE: Bid on CNG Low Floor Trolley**

We agree to offer for sale to the City of Gatlinburg the requested items as noted above for the following price:

\$ \_\_\_\_\_  
Price per Low Floor Trolley, including delivery.

I have read and agreed to all of the applicable FTA Clauses contained in Exhibit B.  
YES \_\_\_ NO \_\_\_

Vendor SAM (System for Award Mgmt) Number: \_\_\_\_\_  
(Formerly referred to as CCR Number)

DUNS (Data Universal Numbering System) Number: \_\_\_\_\_

Does your bid contain deviations? If so, please list.  
DEVIATIONS \_\_\_ YES \_\_\_ NO: (Please check one)

\_\_\_\_\_

Signed/ \_\_\_\_\_

\_\_\_\_\_  
Name (Print) Date

\_\_\_\_\_  
Name of Company Telephone Number

\_\_\_\_\_  
Address Fax Number

\_\_\_\_\_  
City State Zip

**EACH BIDDER SHALL SUBMIT THIS STATEMENT OF COMPLIANCE  
WITH THEIR BID.**

For Title VI and IX compliance, we ask for voluntary disclosure of the following information:

Gender:    Male                    \_\_\_\_\_  
              Female                    \_\_\_\_\_

Race:       Caucasian                    \_\_\_\_\_  
              African American                    \_\_\_\_\_  
              Other (please specify) \_\_\_\_\_

**BIDDERS LIST \***

National Bus Sales  
P.O. Box 6549  
Marietta, GA 30065

Specialty Vehicle Manufacturing Corp.  
440 Mark Leany Drive  
Henderson, NV 89015

Molly Corporation  
P.O. Box 852  
Ogenquit, ME 03907

Hometown Trolley – Double K  
701 North Railroad Ave.  
Crandon, WI 54520

\*Project is open to all qualified companies, regardless of whether they are on this bidders list.

# EXHIBIT A

## TROLLEY SPECIFICATIONS

### Low Floor – Villager Model CNG Alternative Fuel

#### Principal Dimensions

Length overall – excluding cowcatcher.....	29.6'
Body Width – excluding mirrors .....	99"
Height Overall .....	118" - 128"
Interior Headroom – over aisle.....	98"
Gross Vehicle Weight Rating.....	22,000 lbs.
Wheelbases.....	208"
Drop Floor Entrance Height .....	7"
Floor Height .....	22" - 26"
Aisle Width .....	22" min.
Clear Door Opening.....	45" min.
Passenger Capacities .....	28-30

#### 1. Structure

##### 1.1. Chassis

Medium Duty Ford E550 Chassis, 22,000 GVW minimum

##### 1.2. Floor

The trolley floor/chassis is constructed of mild carbon steel box tube structure designed as a uni-body of the floor/chassis completely electric arc welding to create a cage like structure that is integrated with the side walls and roof. Out rigger supports are positioned in a grid pattern and placed strategically to provide strength and support to the overall structure preventing warping of the finished floor. The entire structure is welded from the floor/chassis to the walls and roof to provide strength, rigidity, and integrity to carry the ultimate loads and with stand road shock and vibration fatigue. The floor structure is sealed and sheeted with 26 gauge galvanized sheeting providing a vapor barrier, using a marine plywood sub flooring material that shall be waterproof and non-hygroscopic and resistant to mold growth as the base floor and attached to the framing using TEK screws. Each seam is then filled with filler and sanded smooth before installing the transit flooring.

### **1.3. Front, Rear and Side Walls**

**1.3.1.** All wall sections are constructed of a combination of 1 1/2 inch 16 gauge mild steel box tubing with a combination of 1 1/2" mild carbon steel tubing, electrically are welded together in a specialized framing jig. The lower half of the wall construction shall be a load bearing monocoque design to support the chassis load. Side, front and end fitting members shall be carried to the roofline and constructed to adequately carry the design loads and absorb impact and stress. This application creating a cage like structure that provides strength and durability preventing movement at all joints and stress points. The wall sections are sealed with Sika Flex 221 at all joints and seams. The entire structure is washed with Prep Sol 330 and primed with an epoxy primer, then sheeted with 20 gauge galvanealed sheeting using Sika Flex 552, then riveted with stainless steel Magna-Lok fasteners to the framing where necessary throughout each panel.

### **1.4. Roof**

**1.4.1.** The roof structure is made of 1 1/2 inch 16 gauge mild steel box tubing electrically are welded together to the wall members to prevent drumming or vibrations. The roof shall have a lantern style cupola to maintain the vintage theme of the 1800's streetcars. The top of the roof framing is sealed with Sika Flex 221, covered with .125 aluminum sheeting. All seams are welded to create a one-piece aluminum roof structure. Cupola windows are 1/8 inch safety tempered glass. The front and rear have a 6-inch minimum overhang and the sides a 3 -inch minimum overhang. The roof shall have a drip rail rain gutter running the entire perimeter of the roof.

### **1.5. Wheel Housing and Step Wells**

**1.5.1.** The wheel housing and step wells are fabricated of 12-gauge galvanealed steel and welded to the floor structure. The wheel housing and step wells are sound deadened and sealed with a rubberized asphalt undercoating to eliminate sound passage to the interior of the vehicle.

**1.5.2.** There shall be wheel covers on all wheel openings painted and trimmed to match the body design.

## **2. Paint, Insulation and Undercoating**

### **2.1. Paint**

**2.1.1.** The framing is washed with a metal prep wax and grease remover, and then primed with Sikkens Azko Knobel low VOC primer. All exterior panels are prepped with DX440, specially designed anti-corrosion resistance. The primer is

allowed proper drying time and sanded before applying the standard two tone Sikkens Azko Knobel single stage paint. A Standard Vintage pin-striping package shall be installed.

## **2.2. *Insulation and Undercoating***

**2.2.1.** The walls and roof are insulated with 1 1/2 inch dow bead board insulation in walls and in the roof. The engine compartment is properly sealed to prevent heat, noise, and fumes from entering the interior of the vehicle and insulated with a fire and heatproof sand barrier, foil faced Insultech sheeting. No interior body surface temperatures shall exceed 100 degrees Fahrenheit. The entire understructure is undercoated, to a 1/8 inch (minimum) thickness with rubberized asphalt based, emulsion type undercoating, to provide complete protection from oxidation due to the outside elements. All Metal surfaces are washed and primed with a zinc chromate PPG primer before assembly. All underside sections below the floor line are re-sealed after assembly and coated with 1/8 inch (minimum) thickness with rubberized asphalt based emulsion type undercoating.

**2.2.2.** All fasteners shall be stainless steel. Trim pieces and fixtures installed shall be treated with an anti-electrolysis corrosion preventive material.

## **3. *Bumpers***

### **3.1. *Bumpers***

**3.1.1.** Front and rear bumpers are one-piece, steel fabricated assemblies. The front and rear bumpers are 4 inches in height and designed to follow the contour angles of the front and rear caps. The placement of the bumpers shall be arranged to provide protection against body damage at standard SAE heights. The bumpers shall be PPG painted with 3 mil PPG Poly to match orange body color. There shall be tow hooks mounted underside of front and rear bumpers.

## **4. *Doors***

### **4.1. *Access Doors***

**4.1.1.** Access doors shall be provided where necessary to service engine, radiator, air conditioning components, batteries, fuel fill, fluids, electrical panels, and all other components or accessories requiring service.

### **4.2. *Entrance/Exit Door***

**4.2.1.** An electric operated, outward opening style entrance/exit doorway shall be provided on the curb (right) side and front with a clear minimum opening of 45 inches. Edges on the door shall have extruded rubber, sensitive edge that overlaps to

provide a sealed doorway and safety edge. The doors are operated by an overhead, electric rotary powered, door actuator. A momentary switch controls the door, which is located to the left of the driver and outside under the passenger side headlamp bucket. The door is designed to open or close in approximately 1.5 to 3.0 seconds. The front entrance shall incorporate an ADA ramp.

## **5. Mirrors**

### **5.1. Exterior Mirrors**

**5.1.1.** The vehicle shall be equipped with two (2) Rosco performance style mirrors or equivalent, one on each front corner, with dual head lens configuration, with an extra-large 12" flat lens and arm breakaway in two directions. Must have four-way remote control on all lenses. The top section of the two exterior mirrors, are a flat mirror while the bottom is a convex mirror. The mirrors are firmly attached to the vehicle in which precludes vibration at a normal speeds, and located so as to reflect to the operator a view of the highway to the rear along both sides of the vehicle. The mirrors are finished in flat black polyurethane enamel paint.

### **5.2. Interior Mirror**

**5.2.1.** A 7inch x 16inch rear view mirror will be located above and in front of the driver's area, for view of the interior of the vehicle. The mirror is mounted with a swivel point and is adjustable.

## **6. Mud Flaps, Fender Flares and Rub Rails**

### **6.1. Wheel wells**

**6.1.1.** The wheel wells have molded wheel well covers attached to the rounded wheel opening and easily removable for maintenance of tire area.

### **6.2. Mud flaps**

**6.2.1.** Shall be installed behind all wheels and extended within 3 inches of the road surface to prevent debris.

## **7. Windows/Windshield**

**7.1.** Windows and windshields are designed to allow maximum serviceability with minimum maintenance and shall be in accordance with FMVSS571.205.

### **7.2. Windshield**

**7.2.1.** There are three windshields to keep the authentic vintage trolley design along with side and rear windows that are arched at the top.

**7.3. *Passenger Windows***

- 7.3.1 The passenger windows have a vertical slider with a center glass drop sash design - with a 2 point latch system easily operable by the passengers.

**7.4. *Emergency Exit Windows***

- 7.4.1. There are a sufficient number of emergency exit windows located on driver side, passenger side, and rear of the coach to meet FMVSS 217 for emergency exits.

**7.5. *Driver Side Window***

- 7.5.1. The driver's area will have one clear T-slider arched windows for easy access to tolls.

**7.6. *Glazing and ratings are as follows:***

- 7.6.1. Windshields: 1/4 inch safety glass AS-1 rating no tinting  
7.6.2. Driver's windows: 1/8 inch tempered safety glass AS-2 rating no tinting  
7.6.3. Passenger windows: 1/8 inch tempered safety glass AS-3 rating 31 percent tint  
7.6.4. Cupola windows: 1/8 inch tempered safety glass AS-3 rating 31 percent tint  
7.6.5. Entry Door Windows: 1/8 inch tempered safety glass AS-2 rating no tint

**8. *Windshield Wipers***

- 8.1.1. Each windshield wiper has a separate, heavy duty, intermittent electrically powered windshield wiper motor located below the windshield. Windshield wiper blades are of sufficient length to clean the windshield surface. Electrically operated windshield washers, with a one-gallon reservoir provided for the windshields and shall be conveniently located for easy filling. The wiper motor shall be easily changed by an ASE certified mechanic within 20 minutes.

**9. *Engine Compartment***

- 9.1.1. The engine compartment shall be fully insulated with a foil faced fire retardant barrier material. There shall be a firewall of 11 gauge steel between engine compartment and passenger compartment. There shall be sufficient lighting for servicing in the engine compartment.

**10. *Interior Finish***

**10.1.1. *Floor/Sub Floor***

- 10.1.1.1. The floor shall be made of 3/4" 7 ply marine plywood sub flooring and shall be waterproof and non-hygroscopic and resistant to mold growth. The sub floor shall be attached to the floor framing with counter-sunk TEK screws. All joints and seams shall be seals and sanded smooth.

### **10.1.2. Floor Covering**

10.1.2.1. Floor covering shall be Altro non slip transit flooring. The floor covering shall be glued to the plywood sub floor and shall be laid smooth without any gaps or bubbles. There shall be a white standee line. The driver's platform area shall be covered with Barymat 5/8" thick sound deadening acoustic black matting. Tan color flooring preferred.

### **10.2. Walls and Trim**

10.2.1. All interior walls are covered with an Aluminum painted walls. The roof and cupola are also covered with aluminum painted materials. Aluminum painted floor. All edges of flooring along wall sections are sealed with a color matching rubberized silicone sealer.

## **11. Heating**

### **11.1. Driver Heater/Defroster**

11.1.1. The heater/defroster shall be manually controlled to provide the optimum of comfort to the driver in any type of weather. The driver's area shall be heated and ventilated by a separate forced air heater system. Driver's area heat is 22,000 BTU's. The windshield defroster airflow shall be through diffusers mounted on the dash panel below the windows and provide 52,000 BTU's.

### **11.2. Passenger Heaters**

11.2.1. The passenger area heaters shall consist of two units located beneath the seats to evenly distribute the heated air throughout the passenger compartment with a total of 70,000 BTU's. Switches located in the driver's compartment shall control all heating units. Combined with the defrost system the heating shall be a total of 144,000 BTU's

## **12. Air Conditioning**

12.1. The air conditioning unit shall be of R134A freon type with a minimum cooling capacity of 120,000 BTU's capable of maintaining a temperature inside the vehicle of not more than 72 degrees on a 100-degree outside temperature with 80 percent relative humidity. All Freon lines shall be of barrier type hose that shall be rated for Freon 134A use and mounted permanently to the vehicle. The evaporator system shall be mounted in the rear of the trolley interior passenger area. The evaporator shall have an easily accessible cleanable filter. Two (2) 120,000 compressors shall be installed in the engine area. The condenser is a rear skirt mounted on the driver side. There shall be a separate air conditioning unit located in the driver's area for driver's comfort.

### **13. Stanchions, Guard Rails and Grab Rails**

#### **13.1. *Entry Grab Rail***

13.1.1. There shall be a vertical stanchion, guardrail and modesty panel immediately to the left of the entry door. All railing shall be 1 1/4 inches to 1 1/2 inches OD by .050 inch smooth stainless steel or brass tubing. The guardrail shall be horizontally affixed to the stanchion and the wall of the vehicle at least 27 inches above the floor.

#### **13.2. *Overhead Grab Rails***

13.2.1. Overhead grab rails shall be installed on each side of the trolley, running the entire length of the vehicle affixed to the cupola roof edge. These shall be mounted and securely fastened to the roof. The driver's barrier shall cover the area behind the driver with a modesty panel railing and Lexan shield. The entry shall have a grab rail located on each side of the step well. All required grab rails shall be located according to ADA regulations.

13.2.2. Leather Grab straps and Spiral Brass shall be available as optional upgraded equipment.

### **14. Modesty Panels**

14.1. Decorative modesty panels fabricated from steel and painted to coordinate with the color of the vehicle. (Shall be installed at the front of the seats located at the entry/exit area). The same modesty panels shall be located at the proper positions in the wheel chair assist areas.

### **15. Sound/Video System**

15.1. There shall be a standard sound system consisting of AM/FM radio/CD combination with 8 passenger area speakers and one driver's speaker location in the driver's area.

15.2. Shall have two auxiliary ports.

15.3. Shall have one D.C. 12 Volt LED TV, not to exceed 32".

15.4. Shall have one Mp3 player connected to radio and video system.

### **16. PA System**

16.1. A hand held microphone shall be attached to the overhead compartment, above and to the left of the driver and be capable of adjustment to the driver's left shoulder neck area. An output jack shall be provided in the operator's area for future installation of a handheld microphone. The PA system shall also incorporate selected inside/outside/both operation of internal and external speakers.

## **17. Passenger Signal System**

- 17.1. There shall be a passenger signal system using a dual chime indicating the general passenger area stop requested and the ADA area stop requested. The passenger area shall have cording at each seat with a leather pull strap. The ADA area shall have a touch tape conveniently located to each restraint position. When the stop requested is activated a lighted stop request sign is illuminated and will remain until the doors are opened for passenger exit.

## **18. Lighting**

### **18.1. Exterior Lighting**

- 18.1.1. All exterior lighting shall be 12V DC LED circuits in accordance with FMVSS 571.108.

### **18.2. Front of trolley:**

- 18.2.1. (2)-Headlight assemblies shall be single high/low beam round sealed beam halogen lights and shall have a beauty ring of brass or chrome. (J1395).
- 18.2.2. (2)-Amber turn signals shall be provided in the front section of the trolley, as turn, and flasher, (J589, J590b).
- 18.2.3. (3)-Amber identification shall be centered on the top front of the trolley, (J592E)
- 18.2.4. (2)-Amber identification lights shall be placed on each outer corner of the top front, (J592E).
- 18.2.5. A vintage style center headlight shall be installed in the center front of the trolley finished in either brass or chrome.

### **18.3. Rear of trolley:**

- 18.3.1. (3)-Red identification lights shall be centered on the top rear section of the trolley, (J592E).
- 18.3.2. (2)- Red Identification lights shall be placed on the top outer corner of the rear of the trolley (J592E).
- 18.3.3. (2)-Clear reverse lights shall be placed in the lower section of the rear of the trolley, (J593C).
- 18.3.4. (2)-Red stoplights shall be placed in the lower section of the rear of the trolley, (J1398).
- 18.3.5. (2)-Red taillights shall be placed in the lower section of the rear of the trolley, (J585E).
- 18.3.6. (2)-Turn signal lights shall be placed in the lower section of the rear of the trolley, (J1395).
- 18.3.7. (1)-License plate light shall be placed in the lower section of the rear of the trolley above the license plate. (J587)

**18.4. Sides of the trolley:**

**18.4.1.** (4)-Amber lights shall be placed on the sides of the trolley, (2) one each side of the top front corner, (2) one at each side of the lower front corner, (J592E).

**18.4.2.** (4)-Red lights shall be placed on the sides of the trolley, (2) one each side of the lower rear corner, (2) one each side of the top rear corner, (J592E).

**18.4.3.** (2)-Amber middle turn signals shall be placed on the lower middle section on each side of the trolley.

**19. Safety**

**19.1.** Hazard lights shall be installed on the trolley bus, (J1945, J1910).

**19.2.** (2)-Step well LED lights shall be installed at each entry/exit doorway.

**19.3.** (1)- Flood type LED light shall be installed in the wheel chair door area.

**20. Interior Lighting**

**20.1. Passenger Area Lighting**

**20.1.1.** All interior lighting shall meet FMVSS requirements. There shall be six (6) interior white, shatterproof, 8" dome style fixtures throughout the roof area of the vehicle. The bases shall be chrome finish. Separate switches shall operate the rear and front section of the passenger area.

**20.2. Entry/Exit Area**

**20.2.1.** At the entry/exit there shall be an overhead courtesy light that will come on when the door is opened and remain on until the door is closed again. Each step well area shall have (2) step well lights with top covers to shield from glaring light, and one overhead light. The step well lights will automatically come on when the door is opened and remain on until the door is closed.

**20.3. Driver's Area**

**20.3.1.** Over the driver's area there shall be a separately controlled light for the driver's convenience. There shall be a separate switch controlling the driver's light.

**21. Driver's Seat**

**21.1.1.** A USSC MLX driver's seat or equivalent shall be air suspension, provided with full adjustment functions.

## 22. Passenger Seating

22.1.1. Passenger seating in the trolley shall be authentic vintage tram design of oak slats and cast aluminum scrolled seat ends paint to match the color scheme of the trolley. All seats shall be 34 inches in width and shall have smooth urethane coated finish of a minimum of 3-5 coats. Seating arrangement shall be forward facing, perimeter or a combination.

## 23. Driver's Console

### 23.1. *Dash and Instrument Panel*

23.1.1. The driver's console shall be designed for the safety of the operations as well as the comfort of the driver. The forward dash console shall have a complete complement of instrumentation and controls consisting of:

- speedometer with an odometer
- voltmeter
- engine temperature gauge with warning lights
- water temperature
- oil pressure gauge
- fuel level gauge
- parking brake
- high-beam indicator
- directional signal indicator
- headlight beam switch
- radio AM/FM CD

23.1.2. To the left of the driver shall be all other vehicle accessory switches including:

- a master on/off switch
- A 12V- 2 speed driver's fan shall be mounted in the header area with a driver's control switch located in the switch panel.
- A sun visor shall be mounted in the header area over the drivers front windshield

### 23.2. *Horn and Trolley Bell*

23.2.1. A 12V horn shall be located at the front of the vehicle and protected from wheel splash.

### 23.3. *Trolley Bell*

23.3.1. An electric bell shall be mounted on the top front of the vehicle for the driver to ring manually by a pull cord located to the left of the driver's seat.

## **24. Electrical Wiring and Panel**

### **24.1. Electrical System Description**

- 24.1.1. All wiring shall meet FMVSS. The electrical system shall be 12V, using micro relays to allow driver's console switches to operate at lower amperage.
- 24.1.2. A wiring diagram shall be submitted that will match the wiring for each vehicle.
- 24.1.3. All switches and wiring circuits shall be protected with circuit breakers.
- 24.1.4. All circuit breakers will be labeled for identification and installed in the sealed weather proof, lockable electrical panel on the exterior of driver's side.
- 24.1.5. All circuits shall have LED diagnostics for ease during troubleshooting.
- 24.1.6. All switches shall be of heavy-duty transit design. All wiring shall meet SAE standard requirements.
- 24.1.7. All wiring shall be automotive stranded and shall be color-coded and labeled. All wiring shall be installed using quick disconnect harness junctions using weather-proof Packard pin connectors.
- 24.1.8. There shall be no more than 10 wires per harness and include 2 extra wires per harness for accessories.
- 24.1.9. All harnesses shall be secured at a maximum of 8" to 10" intervals.
- 24.1.10. Any wiring through wheel well area shall be protected by routing through metal convoluted tubing and flex loom.
- 24.1.11. All connectors are insulated; shrink-wrapped and soldered where necessary.
- 24.1.12. All wiring shall be protected by circuit breakers and a 200 ANL fast acting fuse shall be installed for added protection.

## **25. Batteries**

### **25.1. Description**

- 25.1.1. There shall be (2) Deka 1100 cca batteries.
- 25.1.2. These batteries shall be located in a stainless steel rollout battery tray. The battery connections shall be of sealed anticorrosion coating. An ANL fuse shall be installed for protection of all circuits.

### **25.2. Battery Disconnect**

- 25.2.1. There shall be a transit style master disconnect installed in the battery compartment for safety and maintenance.

## **26. American's with Disabilities Act (ADA) Equipment-Optional Equipment**

### **26.1. Wheel Chair Lift**

- 26.1.1. A ramp lift, Braun MDL # RA300 or equivalent, shall be provided in the front entrance of the trolley. A full ADA approved interlock system shall be installed.
- 26.1.2. The ADA ramp shall be installed to insure minimum ramp slope to street level.

**26.1.3.** The four way hazard warning lights shall be automatically activated when the ramp master switch is in the enabled or on position at the operator's console.

**26.2. *Wheel Chair Securements and Flip Seats***

**26.2.1.** The wheel chair tie downs shall be Q Straint retractable floor mounted restraint system to accommodate two wheel chair positions. There shall be a storage box located under the flip seat area for the restraint equipment.

**26.2.2.** There shall be a 2 passenger flip seat positioned parallel to the wall in each wheel chair area for use when not transporting a wheel chair seated passenger.

**26.2.3.** Priority seating signs will be provided at each wheelchair location. Characters on these signs will be per ADA provisions.

**27. *Safety Equipment***

27.1. Drive shaft guards shall be installed between every pair of universal joints.

27.2. A covered storage box shall be installed to the right of Driver area.

27.3. A 5-pound type B.C. fire extinguisher shall be supplied and mounted.

27.4. A triangle flare kit shall be equipped.

27.5. A First Aid kit shall be supplied and mounted.

27.6. A body fluid clean up kit shall be provided.

27.7. A transit style battery master disconnect shall be installed.

27.8. An audible back-up alarm shall be installed.

27.9. All doors and wheel chair lift shall be interlocked through the shift inhibitor, parking brake, and/or braking system.

27.10. Entrance doors shall be equipped with a sensitive edging to prevent closing when obstructed.

27.11. All appropriate warning labels shall be installed.

27.12. A single back up camera shall be located in the rear of the trolley for backing up with a black and white monitor located on the driver's dash area.

27.13. A four (4) Camera system shall be installed with a DVR player for recordings.

**28. *Power Train***

**28.1. *Engine***

28.1.1 The engine shall be a 6.8 liter V-10 gasoline CNG SFI Flex fuel, 350 hp at 4700 rpm with 340 lb-ft torque.

**28.2. *Exhaust System***

28.2.1 The exhaust system shall be a stainless steel or aluminized stainless steel exhaust system. Complete units must meet United States noise level and exhaust emissions requirements.

Exhaust must extend rearward of the rear axle and exit from under the vehicle either from the rear or roadside of vehicle.

### ***28.3 Fuel System***

28.3.1 There shall be a 50 gallon fuel tank installed on the vehicle, GGE/Gas Gallon Equivalent. The tank will have internal baffles to prevent surging. The tank is to be located behind the rear axle with the fuel fill on the rear or passenger side of the vehicle. Shall meet all CNG specs.

### ***28.4 Charging System***

28.4.1 The Alternator shall be a 220 amp minimum at driving speed and 175 at idle. Design shall include a built-in integral type voltage regulator with integrated solid state circuitry.

28.4.2 A minimum of two 1100 cca heavy duty batteries shall be furnished. Each battery shall be 12 volt rated. Batteries shall be frame grounded. Batteries shall have a top mounted type posts. A "transit" style master disconnect shall be installed in the battery compartment.

28.4.3 The starter shall be a 12 volt rated electric type.

### ***28.5 Transmission***

28.5.1 The transmission shall be a heavy duty Allison HD or equivalent automatic electronically controlled 6-speed. The transmission shall have override and tow/haul mode with internal and external transmission oil cooler.

### ***28.6 Engine Wiring and Circuits***

28.6.1 All wiring furnished in the engine compartment area shall be automotive and number coded, meet FMVSS and be of SAE GXL insulated type cross linked Polyethylene fire retardant construction. All wiring furnished shall be routed in protective harnesses. When harnesses go through metal structure, rubber grommets shall be used to further protect the integrity of the harnesses.

28.6.2 Engine Circuits with the exception of the starter and instrument cluster feed circuits, shall be Circuit Breaker protected except where safety requires otherwise.

## **29. Axle and Suspension**

### ***29.1 Front Axle***

29.1.1 A heavy duty front axle and suspension shall have a load capacity of 9,000 pounds.

### ***29.2 Rear Axle***

29.2.1 The rear axle shall be hypoid drive axle and have a load capacity of 15,000 pounds, with 4.10 gas.

### ***29.3 Air Suspension***

29.3.1 A full Dallas Smith air suspension system is available as optional equipment. Other suspensions can be considered.

## **30. Tires and Wheels**

### ***30.1 Tire and Wheels***

30.1.1 Tires shall be Good Year 245/70R-19.5 E. All season steel belted radial. Seven (7) tires shall be provided which will include one (1) spare tire shipped loose.

30.1.2 The wheels shall be Alcoa 19.5 x 7.5, 8-lug aluminum wheels. Seven (7) wheels with dual rear shall be supplied included the spare shipped loose.

30.1.3 The wheel openings shall have matching wheel covers and trim.

## **31. Brake System**

### ***31.1 Disc Brakes***

31.1.1 The front brakes shall be commercial HD, pin slider caliper type. The rear brakes shall be disc type to match front. Anti-lock four wheel system. Install Telma retarder system.

### ***31.2 Parking Brake***

31.2 Foot operated, push to apply/push and release to disengage or equal of mfg. design.

## **32. Steering System**

### ***32.1 Steering System***

32.1.1 The steering wheel diameter shall be no less than 18" and no more than 20" The rim diameter shall be 7/8" to 1 1/4" and shaped for firm grip with comfort for long periods of time.

32.1.2 The steering wheel shall be removable with a standard or universal puller. Steering wheel spokes and wheel thickness should be such as to insure that visibility is within the range of a 95 percentile range as described in SAE standards. Placement of steering column must be as far forward as possible, but either inline or behind the instrument cluster.

32.1.3 The steering wheel shall have a rearward tilt adjustment range of no less than 40 degrees as measured from the horizontal and upright position.

32.1.4 The steering system shall be variable assist, power.

## **33. Jacking**

### ***33.1 Jacking***

33.1.1 It shall be possible to safely jack up the bus, at curb weight, with a common 10 ton floor jack with or without special adapter, when a tire or dual set is completely flat and the bus is on a level hard surface, without crawling under any portion of the trolley. Jacking from a single point shall permit raising the bus sufficiently high to remove and reinstall a wheel and tire assembly. Jacking pads located on the axle or suspension near the wheels shall permit easy and safe jacking with the flat tire or dual set on a 6-inch high run up block not wider than a single tire. Jacking a

changing any one tire shall be completed by a 2M mechanic helper in less than 30 minutes from the time the bus is approached. The bus shall withstand such jacking at any one or any combination of wheel locations without permanent deformation or damage.

33.1.2 Jacking pads shall be painted safety yellow for ease of identification.

#### **34. Scan Tool**

##### ***34.1 Scan Tool***

34.1.1 Should have scan tool with software (Diagnostic) for all components. One (1) lap top computer, per trolley, must be provided with Ford Service Windows 8.

#### **35. Towing**

##### ***35.1 Towing***

35.1.1 Should have Glad hand air hook-up for towing with air suspension.

#### **36. Destination Signs**

##### ***36.1 Destination Signs***

36.1.1 A Twin Vision, (Model 9061472008-Frt), (Model 9061472028-Side) all LED, automatic electronic Passenger Information Display Sign System shall be furnished and installed in the bus. The sign system shall meet applicable ADA requirements.

##### **36.1.2 Front Sign**

14 rows x 108 columns; display height minimum 4.2", display width 42".

The front sign shall be mounted in the front of the bus, near the top edge of the body, behind windshield protection, and in an enclosed but accessible compartment provided by the bus manufacturer.

The front sign message shall be readable by a person with 20/20 vision from a distance not less than 350 feet for signs of display height greater than 8 inches and from a distance not less than 275 feet for display heights less than 8 inches. The front sign shall have a viewing cone of equal readability at 65 degrees on either side of a line perpendicular to the center of the mean plane of the display. The intensity of the illumination of the display pixels shall appear, to the naked eye, to be approximately uniform throughout the full viewing cone.

##### **36.1.3 Side Sign**

14 rows x 72 columns; display height minimum 4.2", display width 28".

The side sign shall be located on the right side of the bus near the front door either mounted near the top of an existing window or in a separate enclosed but accessible weather-proof compartment provided by the bus manufacturer.

The side sign message shall be readable by a person with 20/20 vision, from a distance of not less than 110 feet. The side sign shall have a viewing cone of equal readability at 65 degrees on either side of a line perpendicular to the center of the mean plane of the display. The intensity of the illumination of the display pixels shall appear, to the naked eye, to be approximately uniform throughout the full viewing cone.

#### **36.1.4 Sign Enclosures**

All signs shall be enclosed in a manner such as to inhibit entry of dirt, dust, water and other contaminants during normal operation or cleaning. Access shall be provided to clean the inside of the bus window(s) associated with the sign and to remove or replace the sign components.

Access panels and display boards shall be mounted for ease of maintenance/replacement. Any exterior rear sign enclosure used shall be made of Polycarbonate material containing fiberglass reinforcement. The vehicle manufacturer shall comply with the sign manufacturers recommended mounting, mounting configuration, and installation procedures to assure optimum visibility and service accessibility of the sign system and system components.

#### **36.1.5 Display and Illumination**

The entire display area of all signs shall be readable in direct sunlight, at night, and in all lighting conditions between those two lighting extremes, with evenly distributed illumination appearance to the un-aided eye.

All sign displays shall consist of pixels utilizing High Intensity Light Emitting Diode's ("LED"), for superior outdoor environmental performance, (of Amber Illumination appearance of light wavelength of 590 NM). LED should be made of AlInGaP II, superior UV resistant Epoxy lens and superior resistance to the effects of moisture. Each pixel shall have a dedicated LED for illumination of that pixel in all lighting conditions. The sign system shall have multi-level intensity changes, which adjust automatically as a function of ambient lighting conditions. There shall be no requirement for any fan or any specialized cooling or air circulation.

This LED shall be mounted such as to be visible directly to the observer positioned in the viewing cone, allowing for full readability 65 degrees either side of the destination sign centerline. The LEDs shall be the only means of illumination of the sign system. The LED illumination source shall have an operating life M.T.B.F. of not less than 100,000 hours. Each LED shall not consume more than 0.02 Watts.

The characters formed by the system shall meet the requirements of the Americans with Disabilities Act (ADA) of 1990 Reference 49 CFR Section 38.39.

#### **36.1.6 Programming**

The various signs shall be programmable to display independent messages or the same messages; up to two destination messages and one public relations message shall be pre-selectable. The

operator shall be able to quickly change between the pre-selected messages without re-entering a message code. Public relations messages shall be capable of being displayed alternately with the regular text and route messages or displayed separately.

An emergency message shall be activated by a push button or toggle switch in a location to be approved by the procuring agency. The emergency message shall be displayed on signs facing outside the vehicle while signs inside the vehicle, including the OCU display, remain unchanged. The emergency message shall be cancelled by entering a new destination code, or power cycling (after removal of the emergency signal).

### **36.1.7 Message Memory Transfer and Update**

The sign system shall be reprogrammable on the vehicle with the use of a PCMCIA card. The PCMCIA card slot shall be provided on the OCU face for this purpose. The maximum reprogramming time for a 10,000 line listing shall be one minute. PCMCIA cards, of appropriate memory capacity based on requirements of the message listing noted below (but not less than 0.5 megabyte) shall be supplied at the rate of one card for each 50 systems, or fraction thereof, but in any event not less than two such PCMCIA cards shall be supplied.

### **36.1.8 Electronic System Requirements**

All electronic circuit boards used in the sign system shall be conformal coated to meet the requirements of military specification MIL-I-46058C. All sign system components shall be certified to have been subjected to a "burn-in" test of a minimum of twelve (12) hours operation in a temperature of 150 degrees F. prior to final inspection.

### **36.1.9 Interconnecting Cabling**

Data Communication: Single twisted pair (two conductors) cable

Power Cabling: Three Conductors connecting to the switched and unswitched (battery) power and a return (battery)

OCU Unit cable: Single twisted pair cable between the OCU and front sign.

## **37. Automatic Announcement System**

### ***37.1 Automatic Announcement System***

#### **37.1.1 Overview**

This specification describes a system to automate the announcement of route and stop information for transit vehicles. The system requires the installation of vehicle hardware to provide tracking, control, and voice announcement capabilities, as well as control software to configure and maintain route information.

### **37.1.2 Vehicle Hardware**

Each transit vehicle on which this system will operate must be equipped with a global positioning system (GPS) receiver, mobile data terminal (MDT), and public address (PA) system and must be compatible with the existing digital 2-way radio based Kenwood/Datalink Systems AVL solution currently in place.

### **37.1.3 GPS**

A GPS receiver and antenna is used to determine the vehicle's location. The antenna must be installed with a clear view of the sky to ensure accuracy. The GPS receiver may be a standalone unit, connected to the MDT, or may be built in to the MDT itself.

### **37.1.4 MDT**

The MDT controls the announcement process in the vehicle. It must include a display and input mechanism to allow the vehicle driver to configure the system. It must also have an audio output to connect to the PA system. The MDT must process location data from an internal or external GPS receiver, and use this location to determine the vehicle's progress on its route. A digital input must be provided to connect to the vehicle's "stop requested" signal, and a second digital input should be available to connect to the vehicle's door switch.

All configuration data should be stored on a removable memory card, allowing quick updating of the system when required.

The MDT should also transmit its location over a wireless link to the control software. This link should use a low cost network, and ideally make use of any existing communications equipment in the vehicle.

### **37.1.5 PA System**

The PA system is used to announce the stop locations to the passengers on the bus. At least one internal speaker must be installed. Another speaker should be installed near the entry doors, allowing people waiting at the stop to hear the current route and destination. When making announcements, the system may control which speaker plays the sound, or simply play all sounds through all speakers.

### **37.1.6 Control Software**

A software application must be provided to configure the system. This system must allow the entry of multiple transit routes, each with a list of ordered stops. Each route and stop must be assigned a voice prompt, which will be in the form of a digital recording (the system does not need to provide text to speech functionality). "Stop requested", "current stop" and "next stop" voice prompts must also be assigned.

The control software will generate a set of files to be copied onto memory cards. These memory cards will be inserted into the MDTs to provide the route data and voice recordings required in the vehicle.

An integrated or separate component of the control software should provide an automatic vehicle location (AVL) feature for monitoring transit vehicle locations. This software should receive location data via the wireless network used by the vehicle MDTs.

### **37.1.7 Operation**

The in-vehicle components of the system will be operated by the driver. Control software will be accessed by an administrator to configure the system.

### **37.1.8 Vehicle**

When turned on, the MDT enters an off duty state, and displays a route selection prompt. When commencing a route, the driver will select the appropriate route from the list. The MDT will then display the list of stops for that route, and the driver will select the current or most recent stop location. As the transit vehicle nears the next stop, the MDT will automatically announce the stop using the appropriate digital recording from its memory card, preceded by the “next stop” prompt.

When a passenger triggers the “stop requested” signal, the MDT will play the “stop requested” voice prompt.

Once the bus door opens, the MDT will announce the current stop location, preceded by the “current stop” prompt, then the route name and next stop.

At any time, the driver may select a new route or stop location. By default, the MDT will assume the route is circular, and will continue with the same route until the driver changes it.

At the end of the shift, the driver will select the off duty state via the MDT.

The MDT should also send its current position to the control software periodically. This update may take place based on time or distance intervals, and should include updates at each stop.

### **37.1.9 Control Software**

The control software must provide a user interface for editing the route and stop data. A main screen should display the route list including stops, and allow editing this list. A map must be included to show the stop locations, and allow editing by moving stops on the map. Voice recordings shall be attached to each stop, as well as the generic voice prompts used by the system. These recordings can be loaded from existing files on the server.

The software must contain an export function to load all required data onto memory cards for insertion into the MDTs.

## **38. AVL Data Radio Integration**

### **38.1.1 AVL Data Radio Integration**

The AVL data only radio shall be installed in a similar manner as the voice radio with a separate antenna for the radio and an external antenna for the GPS unit.

The AVL data only radio shall be paired with the AVL Systems Tracker via a short serial cable of a length to minimize the installed footprint in the Trolley.

The AVL data only radio shall be located in a Trolley location that provides ready access by maintenance but not the passengers and driver. The installer shall follow all the requirements set-forth by City fleet maintenance and the manufacturer of the Trolleys.

The AVL data tracker system shall require no driver intervention for operation including power cycling.

### **38.1.2 AVL Data Radio**

The AVL data radio shall be co-located with the AVL Systems Tracker.

All operational software / firmware and hardware shall be pre-installed in the AVL Systems Tracker to support the Kenwood NX-800 digital radio and have simultaneous optional cellular (CDMA) operation, OBD II or J-1708 / J1939 engine interface, multiple input/outputs, 3 axis digital accelerometer, and 2x RS-232 serial interfaces for future data needs, and optional add-on integrated gateway with WiFi for in vehicle hotspot/client operation.

The AVL Systems Tracker installed in the trolleys must be capable of Over the Air Provisioning for activation of installed options and must be capable to be upgraded as future data technologies are available without requiring a complete systems hardware change, i.e. 3G → 4G → 5G etc.

The AVL Systems Tracker shall be programmed per the City's requirements to provide reports to all the City defined control points which includes Passenger Advisory Information Sign at main hub and external web based applications.

# EXHIBIT A-1

## CNG SYSTEM SPECS



Green Alternative Systems

GASN-F53-EFS3-14-A

Ford F-53 CNG Fuel System Specifications

### FUEL CAPACITY:

Minimum 64 GGE (Gas Gallon Equivalent)

### OPERATING SYSTEM:

2014-2015 Year Ford QVM/QVC Engine System

### CERTIFICATIONS:

EMISSIONS: Certified to current Federal EPA & CARB emissions requirements

Ford: QVM Certified Installer

### FTA BUS TESTING:

Completed 7 year/200,000 mile test as a complete system per this specification, as installed by the upfitter of record (GAS) per the FTA (Federal Transit Administration) bus testing site in Altoona, PA.

### FUEL SYSTEM INSTALLATION STANDARD:

NFPA 52: Vehicular Gaseous Fuel Systems Code 2013 Edition

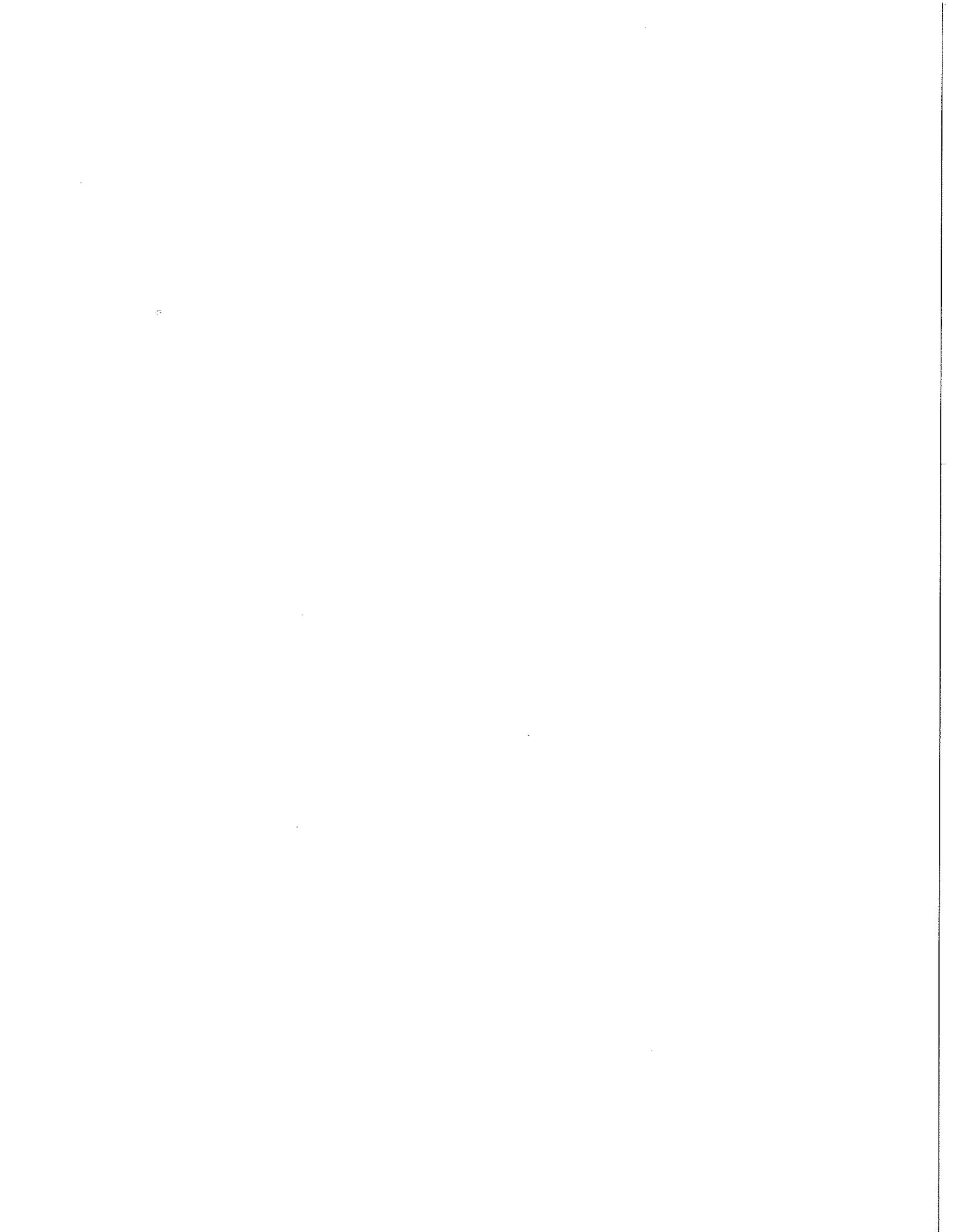
### Stainless Steel Tubing 3/8" and 1/2" Diameter:

- All 3/8" tubing minimum specification .049 wall thicknesses rated for working pressure of 4800 psi
- All 1/2" tubing minimum specification .049" wall thicknesses rated for working pressure of 3700 psi

### High Pressure Hoses:

All high pressure hoses meet the following standards:

- Factory Tested Electrically conductive nylon hose for CNG
- Static dissipative, smooth-bore nylon core
- Internal fiber reinforcement to enhance hose pressure rating
- Perforated polyurethane cover to resist abrasions
- Temperature range -40 to 150 °F
- Working pressure at 70 °F – 5000 PSI
- Minimum burst pressure at 70 °F – 20,000 PSI
- All fuel hoses in engine compartment heat shielded by aluminum foil-faced fiberglass fabric with a high-temperature acrylic pressure-sensitive adhesive backing for proper installation. Protection to high heat exposure and retains residual strength after exposure to flame.



## Stainless Steel Fittings

### Design:

- The tube fitting will be a controlled-phased, sequential-gripping device consisting of four machined components – the body, front ferrule, back ferrule, and nut – that are produced by a single manufacturer and engineered to work in a wide range of system conditions.
- The back ferrule will have a uniform surface hardening. This surface hardening will be a low-temperature carburization, avoiding carbide formation.
- The back ferrule of stainless steel fittings will hold the tube with a hinging colletting action. The radial hinging colletting action of the back ferrule will grip the tube adjacent to and outboard from the swaging point to enhance the vibration endurance.
- The hinging colletting action will cause the mid portion of the back ferrule to press onto the tube while keeping the back end of the back ferrule away from the tube surface. The back ferrule will not bow during assembly.
- The stainless steel material, from which tube fitting bodies and components are made will be restricted to a minimum chromium content of 17.0% and a minimum nickel content of 12.0% for improved corrosion resistance, and to a maximum carbon content of 0.05 %, which provides better corrosion-resistant weld-ability.

### Performance:

- The tube fitting will produce a leak-tight seal in pressure or vacuum service.
- The tube fitting will function on standard ASTM stainless steel tubing, fully annealed according to ASTM A269 or A213 (standard 90 HRB max hardness per ASTM)

### Approvals:

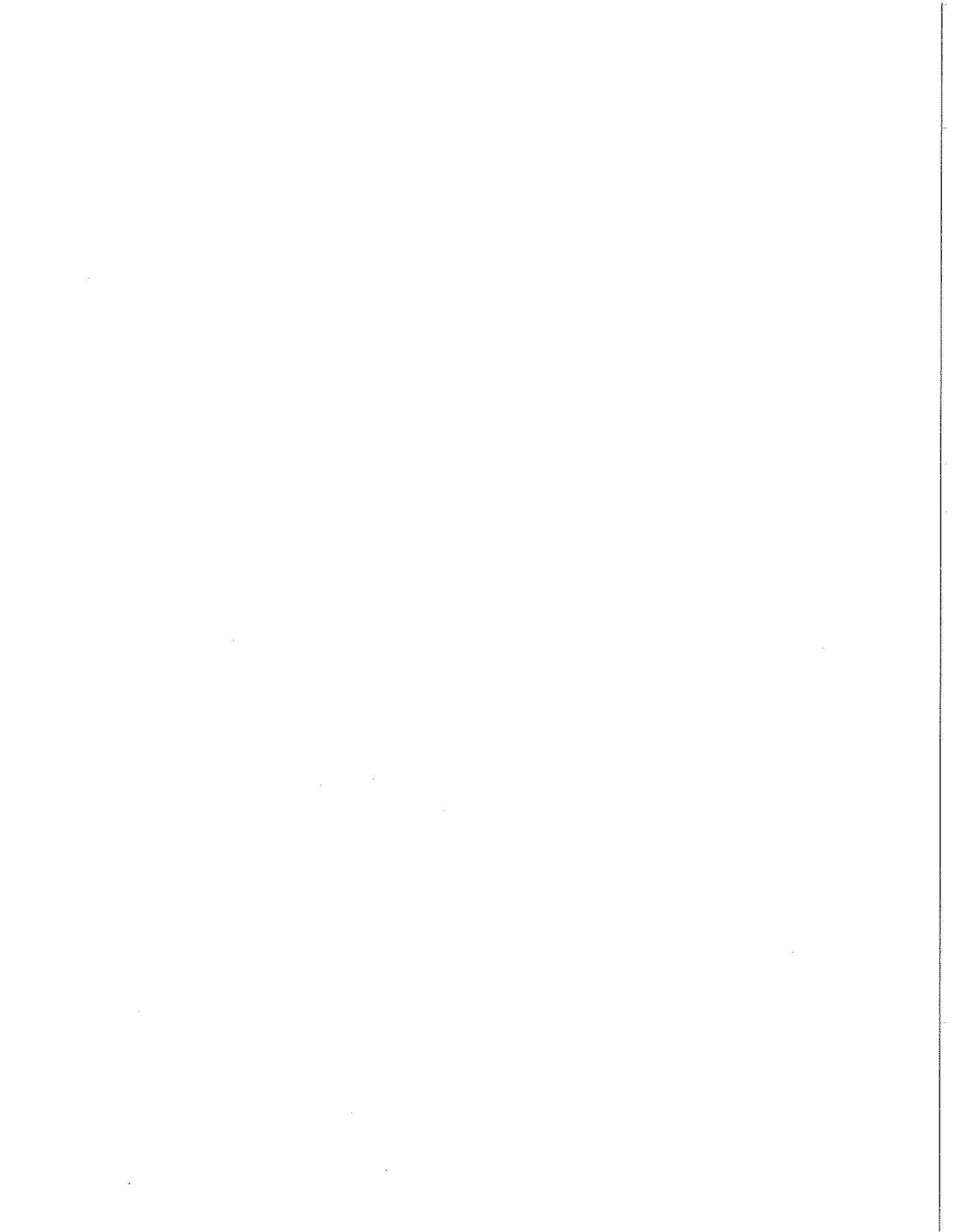
- The tube fitting will have independent approval, which is accomplished by third-party witnessed performance testing by an outside agency acceptable to the customer, such as ASTM F-1387, TUV Automotive ECE Nr. 110, Det Norske Veritas, METI/KHK, Lloyd's register and The American Bureau of Shipping.

### Quality Assurance:

- All tube fittings components will be stamped to identify manufacturer and material.
- All tube fittings will have a gaugeable shoulder to check for sufficient pull-up on initial installation. The gaugeable shoulder will allow a gap inspection gauge to be inserted between the hex of the nut and the hex of the body shoulder. Consistently the gap inspection gauge will not fit between the nut and the shoulder hexes of a sufficiently tightened fitting on the initial installation.
- No component of any other tube fitting manufacturer will be interchanged or intermixed with the four components (body, nut, front ferrule, and back ferrule) of the tube fitting.
- Pipe, tubing, fittings, gaskets, and packing material compatible with the CNG fuel under the maximum service conditions.
- All fittings and tubing are ANSI approved for CNG application capable of withstanding a hydrostatic test of at least four times the rated service pressure without structural failure (NFPA 52)

### Pressure Regulators:

- A pressure regulator inlet and each chamber designed for its service pressure with a pressure safety factor of at least four times service pressure without structural failure.



### Cylinder Specifications:

- All CNG vehicle fuel cylinders meet the federal government's FMVSS 304 (49 CFR 571.304), Compressed Natural Gas Fuel Container Integrity. All CNG vehicle fuel cylinders meet ANSI/CSA NGV2, Basic Requirements for Compressed Natural Gas Vehicle Fuel Containers.
- Cylinders fabricated of aluminum materials or composite materials with full carbon fiber hoop wrap (Type 3) or (Type 4).
- Marked service life of CNG cylinder 20 years from manufacture date. \* Cylinders manufactured, inspected, marked, tested, retested, equipped, and used in accordance with the following: (1) U.S. Department of Transportation (DOT) or Transport Canada (TC) regulations, exemptions, or special permits (2) ANSI/IAS NGV2, Basic Requirements for Compressed Natural Gas Vehicle (NGV) Fuel Containers, specifically for CNG service (3) CSA B51, Boiler, Pressure Vessel and Pressure Piping Code
- All cylinders equipped with electric shut-off valves wired to vehicle module allowing full integration manufacturers' original equipment safety features pertaining to rollover and inertia protection.
- All cylinder solenoid valves equipped with a pressure relief device, excess flow valve, and manual tap for optimal safety.

### Cylinder Protection:

- Each fuel supply cylinder rack secured to the vehicle body, bed, or frame to prevent damage from road hazards, slippage, loosening, or rotation using a method capable of withstanding a static force in the six principal directions container(s) [Front, Back, Left, Right, Top and Bottom].
- Stainless steel shielding constructed in a way to provide proper drainage of water that may cause structural damage.

### Additional Safety Features:

CNG fuel delivery system equipped with a stainless steel purge valve to allow proper ventilation of fuel for optimal serviceability.

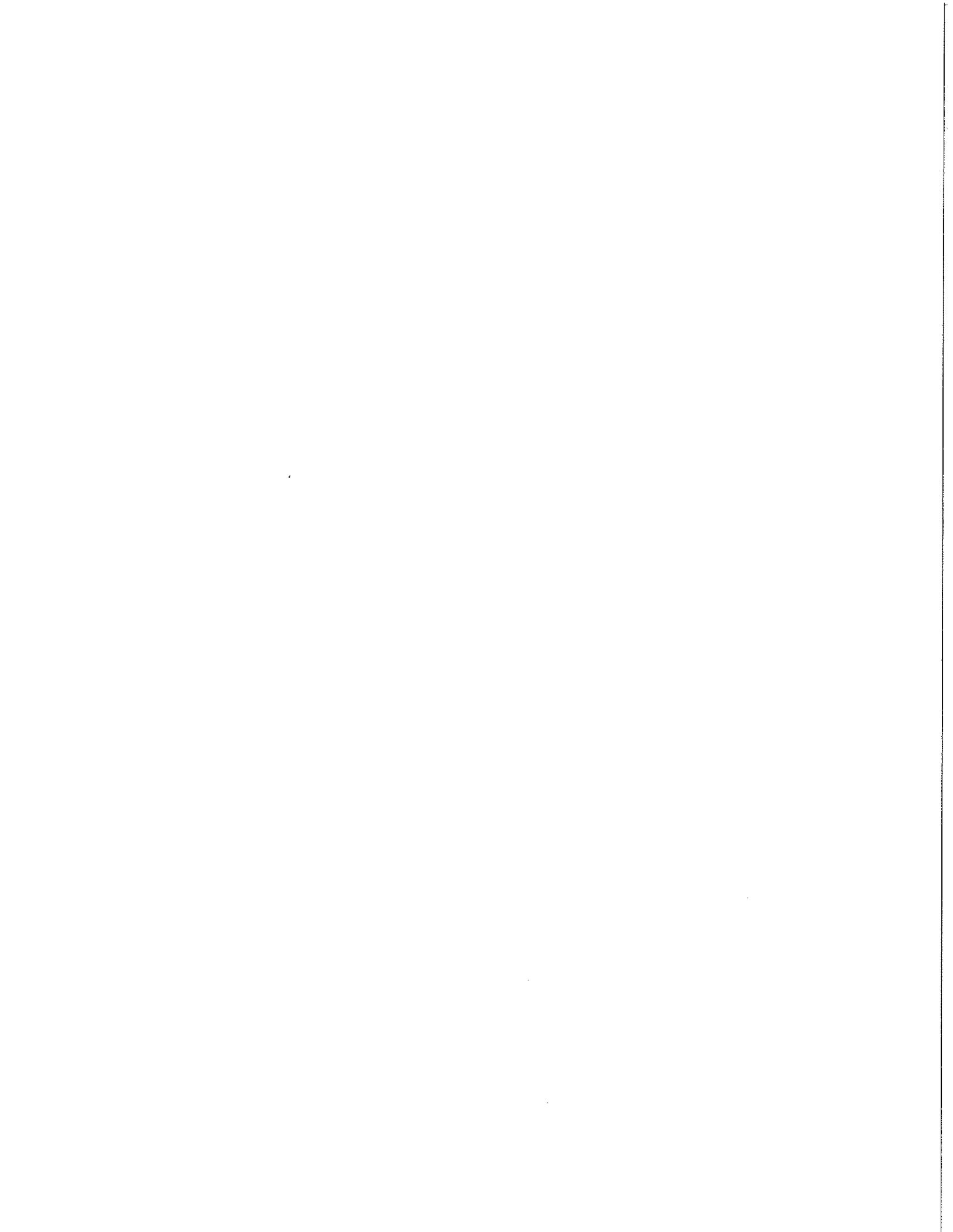
All cylinders mounting brackets powder coated cold bent steel and designed to reduce chances of corrosion and stress cracking.

All fasteners made in America with fully traceable head markings; Grade 8, with a minimum SAE specification of 150,000 PSI tensile strength.

All fasteners used to mount cylinder brackets to the frame of the vehicle 20% stronger than standard Grade 8 cap-screws with a minimum 180,000 PSI tensile strength.

All vehicles equipped with a Sherex 1000 model De-Fueling Port with electrical actuator.

All vehicles equipped with two pressure gauges for driver safety. One mounted externally at the fuel fill receptacle so the driver can distinguish the fuel pressures at every inspection. A second pressure gauge mounted at the undercarriage by the manual fuel shut-off valve.



**--EXHIBIT B – FEDERALLY REQUIRED CLAUSES--**

*CITY OF GATLINBURG - LOW FLOOR TROLLEYS BID*

**FEDERAL GOVERNMENT REQUIRED BIDDER CERTIFICATIONS  
(FTA)  
For FTA Grant Assisted Purchases**

Name of Bidder: \_\_\_\_\_

**DISADVANTAGED BUSINESS ENTERPRISE & EQUAL EMPLOYMENT  
OPPORTUNITY CERTIFICATIONS**

**(1) Transit Vehicle Manufacturer (TVM) Disadvantaged Business Enterprise**  
Pursuant to the provisions of Section 105(f) of the Surface Transportation Assistance Act of 1982, each bidder for this contract must certify that it has complied with the requirements of 49 CFR Part 26.49, regarding the participation of disadvantaged business enterprises in FTA-assisted procurements of transit vehicles. Absent this certification, properly completed and signed, a bid shall be deemed non-responsive.

Certification: I hereby certify, for the bidder named below, that it has complied with the provisions of 49 CFR Part 26.49 and that I am duly authorized by said bidder to make this certification.

\_\_\_\_\_  
Name of Bidder/Company Name

\_\_\_\_\_  
(Date of Signature)

\_\_\_\_\_  
(Signature of Representative)

\_\_\_\_\_  
(Type or Print Name & Title of that Representative)

1. The first part of the document is a list of names.

2. The second part is a list of addresses.

3. The third part is a list of telephone numbers.

4. The fourth part is a list of dates.

5. The fifth part is a list of times.

6. The sixth part is a list of names and addresses.

7. The seventh part is a list of names and addresses.

8. The eighth part is a list of names and addresses.

9. The ninth part is a list of names and addresses.

10. The tenth part is a list of names and addresses.

**(2) Equal Employment Opportunity**

The bidder, and any and all subcontractors of the bidder, are required to comply with Executive Order 11246, entitled "Equal Employment Opportunity", as amended by Executive Order 11375, and supplemented in U.S. Department of Labor regulation (41 CFR Part 60).

Certification: I hereby certify, for the bidder named above, that it has complied with the provisions of Executive Order 11246, as amended by Executive Order 11375, and supplemented in U.S. Dept. of Labor Regulation (41 CFR Part 60) and that I am duly authorized by said bidder to make this certification.

\_\_\_\_\_  
Name of Bidder/Company Name

\_\_\_\_\_  
(Date of Signature)

\_\_\_\_\_  
(Signature of Representative)

\_\_\_\_\_  
(Type or Print Name & Title of that Representative)

The first of these is the fact that the  
the world is a very different place than it  
was in the past. The world is now a  
global village, and the distance between  
people is much smaller than it was  
before.

The second of these is the fact that  
the world is now a much more  
diverse place than it was in the  
past. There are now many more  
different cultures and languages  
being spoken in the world than  
there were in the past.

There are many reasons for this.

One of the main reasons is that

the world is now a much more

**CERTIFICATION TO RESTRICTIONS ON LOBBYING**

I, \_\_\_\_\_, hereby  
(Name and Title of Official)

certify on behalf of \_\_\_\_\_ that:  
(Name of Bidder/Company Name)

- 1. No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.
- 2. If any funds other than federal appropriated funds have been paid or will be paid to any person influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form – LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.
- 3. The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including sub-contracts, sub-grants and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The undersigned certifies or affirms the truthfulness and accuracy of the contents of the statements submitted on or with this certification and understands that the provisions of 31 U.S.C. Section 3801, et seq., are applicable thereto.

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Type or Print Name

Date of Signature: \_\_\_\_\_

1910

LIBRARY OF THE UNIVERSITY OF CHICAGO

1910

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The University of Chicago Library has received from the University of Chicago Press a copy of the book "The University of Chicago Press" published by the University of Chicago Press. The book is a history of the University of Chicago Press and its publications. It is a valuable work for the library and should be added to the collection.

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**CERTIFICATION TO FEDERAL GOVERNMENT REQUIRED CLAUSES (FTA)**

Affirmation of Bidder's Authorized Representative

Name of Bidder: \_\_\_\_\_

Name and Relationship of Authorized Representative: \_\_\_\_\_

BY SIGNING BELOW, on behalf of the Bidder, I declare that the bidder has duly authorized me to make this certification and bind the Bidder's compliance. Thus, the Bidder agrees to comply with all Federal statutes and regulations, and follow applicable Federal directives, and comply with the requirements of these clauses as indicated on the ensuing pages, Federal Government Required Clauses (FTA).

The Bidder affirms the truthfulness of this certification it has made, and acknowledges that the Program Fraud Civil Remedies Act of 1986, 31 U.S.C. 3801 *et seq.*, and implementing U.S. DOT regulations "Program Fraud Civil Remedies "49 CFR Part 31 apply to any certification, assurance or submission made to FTA. The criminal provisions of 18 U.S.C. 1001 apply to any certification, assurance, or submission made in connection with a Federal public transportation program authorized in 49 U.S.C. Chapter 53 or any other statute.

In signing this document, I declare that the foregoing certification and any other statements made by me on behalf of the Bidder are true and correct.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name (Print): \_\_\_\_\_

Authorized Representative of Applicant

**CERTIFICATION OF COMPLIANCE WITH FEDERAL BUY AMERICA REQUIREMENTS (Part 1)**

All vehicles included in this bid must meet the requirements of 49 U.S.C. 5323(j) (49 CFR Part 661 – Buy America, and 49 CFR Part 663.13). Bidders are required to submit certifications of compliance, as incorporated below, with Federal Buy America requirements with their bids in order to be considered responsive.

49 CFR Part 661 requires that vehicles purchased with Federal Transit Administration (FTA) funds meet the following criteria:

- 1) All Iron, Steel and Manufactured products used in the manufacture of the vehicle must be produced in the United States (49 CFR 661.5); OR

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2) The cost of components and subcomponents of the vehicle that are produced in the United States is more than sixty percent (60%) of the cost of all components and subcomponents of the vehicle and final assembly must take place in the United States (49 CFR 661.11).

**Certification of Compliance with 49 U.S.C. 5323(j)(1)**

The bidder certifies that it will comply with the requirements of 49 U.S.C. 5323(j)(1) and the regulations at 49 CFR Part 661.5.

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Type or Print Name

Date of Signature: \_\_\_\_\_

-----OR-----

**Certification of Compliance with 49 U.S.C. 5323(j)(2)(C)**

The bidder certifies that it will comply with the requirements of 49 U.S.C. 5323(j)(2)(c) and the regulations at 49 CFR Part 661.11.

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Type or Print Name

Date of Signature: \_\_\_\_\_

-----OR-----  
\_\_\_\_\_

**Certificate of Non-Compliance with 49 U.S.C. 5323(j)(2)(C)**

The bidder certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j) and 49 CFR 661.5 or 661.11, but may qualify for a waiver pursuant to the exceptions established under 49 U.S.C. 5323(j)(2)(A), 5323(j)(2)(B), or 5323(j)(2)(D), and 49 CFR 661.7.

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Type or Print Name

Date of Signature: \_\_\_\_\_



**CERTIFICATION OF COMPLIANCE WITH FEDERAL BUY AMERICA REQUIREMENTS (Part 2) (Federally Mandated Pre-Award and Post-Delivery Audit Requirements)**

All vehicles included in this bid must meet the requirements of 49 U.S.C. 5323(j) (49 CFR Part 661 – Buy America, and 49 CFR Part 663.13). In accordance with the Federal Government Required Clauses (FTA) of this contract, “If the Bidder certifies compliance with Buy America, it shall submit documentation which lists 1) component and subcomponent parts of the rolling stock to be purchased identified by manufacturer of the parts, their country of origin and costs; and 2) the location of the final assembly point for the rolling stock, including a description of the activities that will take place at the final assembly point and the cost of final assembly.”

COST DOCUMENTATION  
Total Cost per Vehicle = 100%

<u>Component*</u>	<u>Manufacturer</u>	<u>Country of Origin</u>	<u>% of Total Cost</u>
1) _____	_____	_____	_____
2) _____	_____	_____	_____
3) _____	_____	_____	_____
4) _____	_____	_____	_____
5) _____	_____	_____	_____
6) _____	_____	_____	_____
7) _____	_____	_____	_____
8) _____	_____	_____	_____
9) _____	_____	_____	_____
10) _____	_____	_____	_____

\*A minimum of seven components must be listed. Component costs should not include final assembly costs.

- Total percentage of vehicle manufactured in U.S.: \_\_\_\_\_%
- Point of final assembly: \_\_\_\_\_
- Major activities to be undertaken at final assembly location:

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Signature of Authorized Representative

Type or Print Name

Date of Signature: \_\_\_\_\_

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**CERTIFICATION OF COMPLIANCE WITH FEDERAL MOTOR VEHICLE SAFETY STANDARDS (FMVSS)**

The bidder hereby certifies that vehicles to be provided under the resultant contract award comply with all stipulated and relevant Federal Motor Vehicle Safety Standards (FMVSS). In accordance with the Federal Government Required Clauses (FTA) of this contract, the bidder shall ensure that all vehicles will be affixed with a bus "manufacturer's FMVSS self-certification sticker information that the vehicle complies with relevant FMVSS"

\_\_\_\_\_  
Name of Bidder/Company Name

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Type or Print name

The Bidder understands through this certification that all vehicles provided under this contract shall conform to Federal regulations in effect at time of vehicle delivery.

**FTA BUS TESTING (STURRA) CERTIFICATION**

The undersigned bidder [Contractor/Manufacturer] certifies that the vehicle model or vehicle models offered in this bid submission complies with 49 CFR Part 665 Bus Testing Regulation. A copy of the STURRA test report prepared by the Federal Transit Administration's (FTA) Altoona, Pennsylvania Bus Testing Center is attached to this certification and is a true and correct copy of the test report as prepared by the facility.

If a copy of a STURRA test report prepared by the FTA Altoona, Pennsylvania Bus Testing Center is not attached, the undersigned has completed this certification and appropriately initialed with the understanding that such vehicle model or models either will fully complete Altoona Testing prior to first vehicle orders and that such test report is forwarded to the Tennessee Department of General Services, Central Procurement Office for verification, or vehicle model or models bid will be subject to disqualification from bid award for non-compliance. The time frame for compliance or non-compliance, for vehicle models bid that do not have a STURRA test report submitted, will be subject to determination by the Tennessee Department of Transportation, Division of Multimodal Transportation Resources and the Tennessee Department of General Services, Central Procurement Office.

The undersigned understands that misrepresenting the testing status of a vehicle acquired with Federal financial assistance may subject the undersigned to civil penalties as outlined in the U.S. Department of Transportation's regulation on Program Fraud Civil Remedies, 49 CFR Part 31. In addition, the undersigned understands that FTA may suspend or debar a manufacturer under the procedures in 49 CFR Part 29.

1. The first part of the document is a list of names and titles, including the names of the authors and the titles of their works. This list is organized in a structured manner, likely serving as a table of contents or a reference list.

2. The second part of the document contains a series of numbered entries, each corresponding to a specific item or document. These entries provide detailed information about each item, such as its title, author, and other relevant details. The numbering suggests a sequential or categorized list.

3. The third part of the document appears to be a collection of smaller, possibly individual entries or notes. These entries are less structured than the previous ones and may represent supplementary information or specific observations related to the main list.

4. The fourth part of the document contains a series of entries that seem to be organized into a specific format, possibly a table or a list of key points. These entries provide a more concise summary of the information presented in the previous sections.

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7. The seventh part of the document consists of a series of entries that are organized into a structured format, similar to the first part. These entries provide a detailed overview of the items listed, including their titles and authors.

\_\_\_\_\_  
Name of Bidder/Company Name

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Type or Print Name

Date of Signature: \_\_\_\_\_

Check one that applies:

Copy of Altoona Test Report (STURRA) for vehicle model bid is attached  
(initial) \_\_\_\_\_.

STURRA Test Report #: \_\_\_\_\_

Copy of Altoona Test Report (STURRA) for vehicle model bid is not attached  
(initial) \_\_\_\_\_.

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