

# New Castle – Henry County Public Library

## Request For Proposal (RFP) and Bookmobile Project Specifications

Version 1.4

Released: 8-Oct-2015

Project #: SVS00357

Prepared for: Emily Pratt – Outreach Services Librarian  
New Castle – Henry County Public Library  
376 South 15<sup>th</sup> Street  
New Castle, IN 47362

© Specialty Vehicle Services, LLC. 2015

w196 s8406 plum creek boulevard  
muskego, wisconsin 53150-8170 usa  
PHONE: 262.679.9096  
FACSIMILE: 262.457.4924  
[VEHICLESUCCESS.com](http://VEHICLESUCCESS.com)

## PROPOSAL INSTRUCTIONS

Prospective vendors ("vendors") are asked to provide proposals based on the following specifications and supplied drawing(s). These specifications should be regarded as minimal and potential vendors should include within their proposal all accessories and components not specifically specified, but necessary for the completed vehicle to meet or exceed the general intent.

This single vehicle project has been developed and is being managed by Specialty Vehicle Services, LLC. ("SVS"), under contract with the New Castle-Henry County Public Library ("Library") in New Castle, IN.

One (1) electronic PDF version shall be forwarded via email to:

**Michael Swendrowski:** [mswendrowski@vehiclesuccess.com](mailto:mswendrowski@vehiclesuccess.com)

**Cc: Winnie Logan:** [winniel@nchcpl.lib.in.us](mailto:winniel@nchcpl.lib.in.us)

To be properly considered for award of this project, your proposal must be received no later than:

**11:00am Friday, November 13th, 2015**

### Minimal items to include with proposal:

- ❑ Cost Proposal on company letterhead, signed by officer of company, including requested options pricing, proposed delivery time (in calendar days including weekends and holidays), and stated lifetime of the proposed unit.
- ❑ Detailed Exceptions/Clarifications document detailing any and all variations from the specifications detailed herein. The document shall also specifically accept all other RFP specifications as written herein unless detailed as an exception or clarification. **No manufacturer specifications will be considered a valid response.**
- ❑ Local service facility list for chassis, conversion, and all other major components.
- ❑ Extended warranty options, if available, including coverage and cost.
- ❑ A reference list of three (3) clients with delivered projects of similar complexity completed within the last three (3) years.
- ❑ Any company brochures, photos, or literature deemed beneficial in demonstrating company history and necessary experience required to successfully complete a project of this complexity.

## **Revisions**

Upon release of this RFP, all communications concerning this procurement must be directed to the Library or SVS. Unauthorized contact regarding the RFP with other than SVS or Library employees may result in disqualification.

SVS and/or Library shall respond in writing to written communications and reserves the right, at its sole discretion, to determine appropriate and adequate responses to written comments, questions, and requests for clarification. Should any question or response require revision to the specifications as originally published, such revisions will be made in writing, by formal addendum only.

## **Award Authority**

The Library and/or its representatives or agents, shall be the sole judge of the quality, construction, and suitability of the equipment, materials, and craftsmanship offered in its determination of the successful vendor.

## **Method of Award**

The successful vendor will be determined on the basis of both cost and criteria outline elsewhere in the solicitation as providing the greatest value to the Library. The vendor to whom the award is made will be notified within 30 days of RFP assessment. The Library, however, reserves the right to reject any and all proposals, and to waive any informality in proposals received whenever such waiver is in the best interest of Library. It also reserves the right to reject the proposal of a vendor who has previously failed to perform properly or complete on time contracts of a similar nature, or the proposal of a vendor who is not in a position to perform the contract.

## **Brand Names**

Any reference to a specific manufacturer or make or model of product not followed by "or equivalent" may not be substituted. The particulars listed within this specification shall be considered minimal, and the vendor is expected to increase them where necessary to meet or exceed the general intent.

## **Contract Alterations and Integration**

All documents including but not limited to this RFP, specifications, drawings, change orders, or other pertinent documents created by either party in the performance of this agreement shall be incorporated in the Contract between Library and the successful vendor. No alteration or variation of the terms of this Contract shall be valid unless made in writing and signed by the parties hereto, and no oral understanding or agreement not incorporated herein, shall be binding on any of the parties hereto.

**Contract Required**

The successful vendor will be required to enter into a written contract with the Library, setting forth the conditions specified in this RFP, as well as other standard terms and conditions. The successful vendor shall be solely liable for compliance with all specifications contained herein.

**Delivery**

Proposal shall state the time required for delivery in calendar days (including weekends and holidays) and/or firm calendar date. Extreme late delivery, determined by the Library to be thirty (30) days after the agreed upon contract delivery date, shall be cause for liquidated damages of \$200 per calendar day and/or contract cancellation. Exceptions shall be considered for delays caused by; strike, work stoppage, act of God, or sole act or acts of third parties over which the successful bidder has no control or authority.

The completed vehicle shall be delivered to the following address:

**New Castle-Henry County Public Library  
376 South 15<sup>th</sup> Street  
New Castle, IN 47362**

**Evaluation Criteria**

Library or its authorized agents may contact and evaluate the vendor's and/or subcontractor's references; contact any vendor to clarify any response; contact any current users of a vendor's services; solicit information from any available source concerning any aspect of a proposal; and seek and review any other information deemed pertinent to the evaluation process. Library or its authorized agents shall not be obligated to accept the lowest priced proposal, but shall make an award in the best interests of Library. Proposals shall be evaluated to determine the offertory's overall capability to provide the goods and/or services required, the proposed delivery dates, and the associated cost for providing such goods and/or services.

**Indemnification**

Vendor, at its own expense, shall indemnify and hold Library, its officers, employees, agents, customers, constituents, designees and assignees harmless from any loss, damage, liability or expense, on account of damage to property and injuries, including death, to all persons, arising from any occurrence caused by any act or omission of vendor, and at its expense, shall defend any suit or dispose of any claim or other proceedings brought against said indemnities on account of such damage or injury, and shall pay all expenses, including attorney's fee, and satisfy all judgments which may be incurred by or rendered against said indemnities. This obligation applies to all material under this contract, which will involve exposure to hazardous materials or items containing this material. Neither the requirements of this clause nor any act or failure to act by Library shall relieve the vendor of any responsibility or liability for the safety of Library, vendor, or subcontractor personnel or property. The vendor shall comply with

applicable Federal, State, and local laws, codes, ordinances and regulations (including the obtaining of licenses and permits) in conjunction with hazardous material.

### **Infringement**

The vendor must save, keep, hold harmless and fully indemnify the Library and its officers and employees and agents from all damages, or claims for damages, costs or expenses in law or equity that at any time arise or be set up for any infringement of patent rights, copyright or trademark on any person or persons in consequence of the use by Library, or by any of its officers, employees, or agents, of articles to be supplied under this proposal, and of which the vendor is not the patentee or assignee or has not the lawful right to sell same.

### **Insurance**

The vendor shall have in force or obtain Commercial General Liability insurance, including products and completed operations coverage, and Automobile Liability insurance in the amount not less than One Million Five Hundred Thousand Dollars (\$1,500,000) per occurrence. If a general aggregate limit is used, either the general aggregate limit shall apply separately to this contract or the general aggregate limit shall be twice the required occurrence limit. The vendor's insurance coverage shall be written on an occurrence basis.

Insurance is to be placed with insurers with a current Best Rating of A:VII unless otherwise accepted by Library.

Insurance, deductibles or self-insurance retentions shall be subject to Library's approval. Original Certificates of Insurance with endorsements shall be received and approved by Library before work commences, and insurance must be in effect for the duration of the contract. The absence of insurance or a reduction of stated limits shall cause all work on the project to cease. Any delays shall not increase costs to Library or increase the duration of the project.

The Library, its officers, officials, employees and volunteers are to be covered as additional insured by Endorsement CG 20 10 11 85 for Commercial General and Automobile Liability coverage.

For any claims related to this project, the vendor's insurance coverage shall be primary and any insurance or self-insurance maintained by Library, its officers, officials, employees and volunteers shall not contribute to it.

Each insurance policy required shall be endorsed that a thirty (30) day notice be given to Library in the event of cancellation or modification to the stipulated insurance coverage.

In the event the vendor employs subcontractors as part of the work covered by this Agreement, it shall be the responsibility of the vendor to ensure that all subcontractors comply with the same insurance requirements that are stated in this Agreement.

### **Payments, Discounts, Taxes, and Invoices**

The payment schedule for this contract shall be 90% upon delivery and 10% upon completion of loading, evaluation and acceptance (approximately 30-days after delivery).

Vendor shall detail acceptance of these terms, proposed alternate, and/or any discounts offered in the proposal.

In connection with any discount offered, except when provision is made for testing period preceding acceptance by Library, time will be computed from the date of delivery of the unit as specified, or from the date correct invoices are received in the office specified by Library if the latter date is later than the date of delivery.

The Vendor shall submit invoices to Library for payment of goods and services rendered. Unless otherwise specified, payments will be made in accordance with Library protocol. The vendor's invoice must easily match the prices listed on their proposal and must include the vendor's social security number or federal tax ID.

The proposals to be made are **F.O.B. New Castle, IN** and shall be valid for ninety (90) days from after date of proposal opening. No "escalator" clauses or increase in bid price shall be accepted.

No charge for delivery, drayage, express, parcel post, packing, cartage, insurance, license fees, permits, cost of bonds, or for any other purpose will be paid by Library unless expressly included and itemized in the bid.

### **Vehicle Lifetime**

Vendor shall officially state the design lifetime of the vehicle with his or her proposal. This is the amount of time, from the date of delivery, which the Library can reasonably expect the vehicle, with routine and proper maintenance, to perform for the community before replacement is required.

## 1. GENERAL SPECIFICATIONS

### 1.1 Scope

- 1.1.1. The intent of this specification is to describe the construction of one (1) 34 foot long (approximate), heavy duty, front engine transit style bus into a Bookmobile for use by the New Castle – Henry County Public Library (“Library”). The unit shall be built on a BlueBird, Thomas Built or equivalent chassis for adequate support of the conversion and diversified collection of approximately 3,500 items.
- 1.1.2. The Bookmobile described herein is intended to provide contemporary mobile library services to a broad mix of patrons including the elderly and children in an operationally efficient manner. The unit will operate within a rural environment in central Indiana and shall be designed and equipped to safely operate in an environment of relatively hilly, primarily paved roadways. The unit will be kept inside the library garage when not in service.
- 1.1.3. It is the Library’s utmost goal to ensure that the Bookmobile is well-equipped to operate efficiently and safely in this environment.
- 1.1.4. The successful vendor shall furnish all materials not specifically denoted as “customer supplied”, as well as the labor to complete the conversion of the Bookmobile specified herein, as shown on the attached drawings, or as required to complete and/or exceed the general intent of these specifications.
- 1.1.5. These specifications have been developed by Specialty Vehicle Services, LLC. (“SVS”) under contract with the Library.

### 1.2. Brand Names

- 1.2.1. Any reference to a specific manufacturer or make or model of product not followed by "or equivalent" or "or equal" may not be substituted. The particulars listed within this specification shall be considered minimal, and the vendor is expected to increase them where necessary to meet or exceed the general intent.

### 1.3. Contacts

1.3.1. All technical correspondence shall be directed to:

**Specialty Vehicle Services, LLC.**  
 Michael Swendrowski - President  
 W196 S8406 Plum Creek Blvd.  
 Muskego, WI 53150  
 Phone: 262.679.9096  
 Email: [mswendrowski@vehiclesuccess.com](mailto:mswendrowski@vehiclesuccess.com)

1.3.2. All contractual correspondence shall be directed to:

**New Castle – Henry County Public Library**  
 Winnie Logan – Library Director  
 376 South 15<sup>th</sup> Street  
 New Castle, IN 47362  
 Phone: 765.575.4543  
 Email: [winniel@nchcpl.lib.in.us](mailto:winniel@nchcpl.lib.in.us)

### 1.4. Manuals and Documentation

1.4.1. The following shall be provided for each unit at the time the equipment is delivered:

- 1.4.1.1. Two (2) each technical service manual sets for the chassis, body, generator, and each component installed. Vendor shall include all manufacturer updates for the first year of service.
- 1.4.1.2. Two (2) each visual parts books or two (2) CD ROM sets if books are not available for the body, chassis, and generator.
- 1.4.1.3. One (1) line set for chassis.
- 1.4.1.4. One (1) certified IN weight ticket issued at point of entry; front, rear and total.
- 1.4.1.5. Three (3) complete key sets (ignition, doors, auxiliary locks, compartments, fuel); maximum keys per set shall be five (5).
- 1.4.1.6. Two (2) complete dimensional layout drawing of interior front, rear, and both sides.
- 1.4.1.7. Two (2) complete sets of “as built” electrical schematics for conversion. Schematics shall include, but not be limited to, 12VDC battery and circuit distribution, any unique control system configuration(s) and 120VAC distribution. Schematics shall provide service technicians the



information necessary to efficiently diagnose and troubleshoot any electrical issues.

#### 1.5. New Equipment

- 1.5.1. Equipment shall be new (unused), and of manufacturer's current model year production and shall comply with all applicable Federal environmental, motor vehicle, and safety regulations. The conversion shall be equipped with all features and accessories considered standard for the make and model vehicle/equipment provided as well as those specifically detailed within this specification.

#### 1.6. Quality & Standards

- 1.6.1. Conversion accessories shall be built and assembled in accordance with the specifications and shall conform to the best standard practices in the industry at the time of construction. All dimensions, weight, and performance values shall be in accordance to SAE J732c and J742b, as last revised. The vendor will provide all systems integration and testing. All electronics will be installed, fully operational, and tested by the vendor. The vehicle shall be equipped with all features and accessories considered standard for the make and model vehicle/equipment provided.
- 1.6.2. All equipment and construction methods shall meet all applicable regulations of the Occupational Safety and Health Act (OSHA), Federal Motor Vehicle Safety Standards (FMVSS), Department of Transportation (DOT), National Electrical Code (NEC), Federal and State noise and pollution control restrictions, and all other applicable local, state and/or federal regulations in effect at the time of execution.
- 1.6.3. Applicable wood products, ceiling/wall/floor finishes and adhesives used within the vehicle construction and for fabrication of interior cabinetry shall conform to California Air Resources Board (CARB) Phase 2 regulations pertaining to maximum formaldehyde emissions. These regulations require that formaldehyde emissions be equal or less than 0.05 ppm.
  - 1.6.3.1. Reference: [www.arb.ca.gov](http://www.arb.ca.gov)
- 1.6.4. All workmanship, welding, and construction shall be in the best manner of the trade. Workmanship shall be subject to inspection and approval by the Library.
- 1.6.5. Welding fillets shall have good penetration, good fusion, good appearance, and shall show no cracks or undercutting.

#### 1.7. Inspections

1.7.1. The Library may make inspection visits during the vehicle conversion to help ensure specification compliance and trouble-free delivery. If the equipment/vehicle(s) is inspected after delivery and rejected because of deficiencies, it shall be the vendor's responsibility to make the necessary corrections for re-inspection and acceptance. Payment and/or the commencement of a discount period (if applicable) will not be made until the defects are corrected and the vehicle returned.

1.7.1.1. SVS Inspections. Equipment/vehicle(s) shall be inspected at vendor's place of business once before delivery by an authorized representative of SVS for workmanship, appearance, proper functioning of all equipment and systems, and conformance to all other requirements of this specification. If deficiencies are detected, the vehicle will be rejected and the vendor will be required to make the necessary repairs, adjustments, or replacements. The cost of this trip shall be the responsibility of SVS.

1.7.1.1.1. SVS Secondary Inspection. Dependent on the severity of deficiencies found during the inspection, a secondary inspection may be deemed necessary to verify that all corrections have properly made, prior to delivery of the completed unit to the Library. The Library shall have sole authority to authorize the secondary inspection. **The costs of any secondary inspections deemed necessary shall be the responsibility of the vendor.**

1.7.1.2. Library Inspection. Equipment/vehicle(s) may be inspected at vendor's place of business at any time during the conversion process by authorized representatives of the Library. These inspections may or may not be in conjunction with SVS inspections. The cost of these trips shall be the responsibility of the Library.

## 1.8. Training

1.8.1. Vendor shall provide in service training and familiarization for operators and maintenance personnel. Training shall be conducted by factory-trained personnel and shall be comprehensive enough to allow Library staff to operate and maintain the equipment provided with maximum safety and design efficiencies.

1.8.1.1. Training shall occur at the Library facilities at the time of delivery and last approximately 6 hours.

## 2. VEHICLE SPECIFICATIONS

### 2.1. Intent

- 2.1.1. It is the intent of the following section to describe the type of vehicle that shall be used for the Bookmobile. Accessories and construction techniques not specifically mentioned herein, but necessary to furnish a complete unit ready for immediate use shall also be included.

### 2.2. Type

- 2.2.1. The chassis shall be a 2016 or current model year BlueBird, Thomas Built or equivalent heavy duty forward control front engine transit type bus. The chassis, body and accessories shall be built and assembled in accordance with the specifications and shall conform to the best standard practices in the industry at the time of construction.

### 2.3. Capacities/Dimensions

- |        |                          |                              |
|--------|--------------------------|------------------------------|
| 2.3.1. | Overall exterior length: | 34' (approximate)            |
| 2.3.2. | Overall exterior width:  | 96" (excluding mirrors)      |
| 2.3.3. | Overall exterior height: | 131" (including ACs)         |
| 2.3.4. | Interior height:         | 77" (approximate)            |
| 2.3.5. | Interior width:          | 87" (finished)               |
| 2.3.6. | Wheelbase:               | 169-174" (approximate)       |
| 2.3.7. | Ground Clearance:        | 12" (minimum)                |
| 2.3.8. | Fuel tank capacity:      | 60.00 gallons                |
| 2.3.9. | GVWR:                    | 25,900lbs. (no CDL required) |

**IMPORTANT NOTE:** Unit GVWR shall be de-rated by final stage manufacturer to 25,900lbs and overall height cannot exceed 142" due to garage door limitations.

### 2.4. Chassis

#### 2.4.1. Engine

- 2.4.1.1. Cummins ISL-260, or equivalent, in-line six-cylinder, 4-cycle, 260HP @ 2,000RPM, 660 lb.ft. torque @ 1,300RPM.

- 2.4.1.2. Engine shall be capable of running on #2 diesel or ultra low sulfur diesel, or bio-diesel fuel (B20) at user's discretion with no modifications.
- 2.4.1.3. Current EPA/CARB emission certification
- 2.4.1.4. Electronic cruise control
- 2.4.1.5. Engine oil drain plug, magnetic
- 2.4.1.6. Engine shutdown system
- 2.4.1.7. Fuel/water separator and fuel filter in single assembly; with water-in-fuel sensor mounted on engine
- 2.4.1.8. Air cleaner restriction indicator, air cleaner mounted
- 2.4.1.9. Engine oil filter, spin-on type
- 2.4.1.10. 25" diameter cooling fan
- 2.4.1.11. Charge air and down-flow radiator mounted in tandem at vehicle front.
- 2.4.1.12. Single element paper type air cleaner
- 2.4.1.13. High-idle engine speed control, dash mounted.
- 2.4.1.14. Denso starting motor without thermal over crank protection.
- 2.4.1.15. Interior engine cover ("doghouse") shall be heavily insulated and well-sealed to prevent excessive noise and heat/cold from entering cabin.

#### 2.4.2. Exhaust System

- 2.4.2.1. Shall meet or exceed current EPA/CARB emissions requirements
- 2.4.2.2. 409 stainless steel system, insulated or thermal wrapped where required
- 2.4.2.3. Tailpipe exit driver's side rear under bumper
- 2.4.2.4. Shall include a After Treatment Device (ATD) and Diesel Exhaust Fluid (DEF) tank with "low fluid" indicator lamp
- 2.4.2.5. Shall also include a Selective Catalytic Reduction (SCR) system

#### 2.4.3. Transmission and Equipment

- 2.4.3.1. Allison 3000 or equivalent, 5-speed automatic (non-fire emergency)
- 2.4.3.2. No PTO provisions
- 2.4.3.3. Dash-mounted push-button gear selector
- 2.4.3.4. Transmission-mounted oil filter and magnet in oil pan
- 2.4.3.5. Stainless steel lower coolant pipes

#### 2.4.3.6. Synthetic transmission fluid

### 2.4.4. Front Axle, Suspension and Equipment

2.4.4.1. 13,200 lb. (approx.) rated heavy duty I-beam, integral steer axle

2.4.4.2. Parabolic front spring suspension, 13,200lb. (approx.) capacity

2.4.4.3. Two (2) front shock absorbers, direct acting.

2.4.4.4. Tilt and telescoping steering column

2.4.4.5. 4-spoke, 18" diameter steering wheel

2.4.4.6. TRW THP-60 or equivalent power steering gear, 20.4 to 1 ratio.

### 2.4.5. Rear Axle, Suspension and equipment

2.4.5.1. Meritor 21,000 lb. (approx.) rated single reduction rear axle.

2.4.5.2. Rear axle drain plug; magnetic

2.4.5.3. Parabolic rear spring suspension, 23,000 lb. (approx.) capacity.

2.4.5.4. Two (2) rear direct acting shock absorbers

2.4.5.5. Spicer 70 series or equivalent driveline, dynamically balanced with coated slip section and drive shaft guards.

### 2.4.6. Brake System

2.4.6.1. Meritor-Wabco 4S/4M ABS or equivalent hydraulic antilock system.

2.4.6.2. Parking brake with dash-mounted control.

### 2.4.7. Frame and Equipment

2.4.7.1. 10" x 3" x ¼" high strength low alloy steel frame rails (50,000 PSI yield).

2.4.7.2. Full width front and rear bumpers, FMVSS approved.

2.4.7.3. Front and rear tow hooks (4 total), frame-mounted.

### 2.4.8. Fuel Tank and Equipment

2.4.8.1. 60-gallon top draw, rectangular steel fuel tank, center mounted, with access plate.

2.4.8.2. Fuel filter/water separator with temperature controlled electric heater and filter restriction/change indicator

2.4.8.3. Reinforced nylon fuel hose throughout.

#### 2.4.9. Front Tires, Hubs & Wheels

- 2.4.9.1. Two (2) 22.5" x 8 ¼" steel, 10-stud, hub-piloted wheels
- 2.4.9.2. Two (2) Goodyear or Michelin 11R22.5, H-ply tubeless highway tread tires.
- 2.4.9.3. Oil-lubricated wheel bearings and seals.

#### 2.4.10. Rear Tires, Hubs & Wheels

- 2.4.10.1. Four (4) 22.5" x 8 ¼" steel, 10-stud, hub-piloted wheels.
- 2.4.10.2. Four (4) Goodyear or Michelin 11R22.5, H-ply tubeless mud/snow tread tires.
- 2.4.10.3. Oil lubricated rear seals and wheel bearings.

#### 2.4.11. Electrical System

- 2.4.11.1. 12-volt, negative grounded
- 2.4.11.2. Leece-Neville 240A minimum, with internal regulator, self-diagnostic system, aluminum housing and heavy-duty bearings.
  - 2.4.11.2.1. Alternator shall have a minimum idle output of 100A.
- 2.4.11.3. Three (3) group 31, maintenance free 12-volt batteries, 700 CCA each
- 2.4.11.4. Battery box, skirt mounted with slide-out tray or other form of maintenance access.
- 2.4.11.5. SAE blade type electrical fuses
- 2.4.11.6. Headlight dimmer switch integral with turn signal switch
- 2.4.11.7. Dual electric horn
- 2.4.11.8. Parking light integral with front turn signal and rear tail light
- 2.4.11.9. Halogen headlights, composite aero design for two-light system, including daytime running lights
- 2.4.11.10. Electric starter switch, key-operated
- 2.4.11.11. Self-cancelling turn signal switch with headlight dimmer and "flash to pass" feature
- 2.4.11.12. Dual motor windshield wipers with intermittent feature

- 2.4.11.13. Front heater and defrosting system, 90,000 BTU, with integrated ductwork and controls.
- 2.4.11.14. One (1) 12VDC circular power receptacle
- 2.4.11.15. Back up alarm, electric, 102 dBA
- 2.4.11.16. Manual reset SAE type III circuit breakers with trip indicators
- 2.4.11.17. Chassis wiring shall be color coded and continuously numbered

#### 2.4.12. Instruments and Controls

- 2.4.12.1. Gauge cluster (English)
- 2.4.12.2. Electronic speedometer
- 2.4.12.3. Electronic engine oil pressure
- 2.4.12.4. Electronic water temperature
- 2.4.12.5. Electronic fuel
- 2.4.12.6. Electronic tachometer
- 2.4.12.7. Hour meter
- 2.4.12.8. Odometer display; miles, trip miles, engine hours, trip hours, fault code readout
- 2.4.12.9. Warning system; low fuel, low oil pressure, high engine coolant temperature, low battery voltage (visual and audible)
- 2.4.12.10. Allison transmission oil temperature gauge
- 2.4.12.11. On-board diagnostics display of fault coded in gauge cluster

#### 2.5. Body

- 2.5.1. BlueBird, Thomas Built or approved equivalent.
- 2.5.2. 34' overall length (approximate)
- 2.5.3. 96" overall width (excluding mirrors)
- 2.5.4. 77" interior height minimum
- 2.5.5. 14 gauge rolled channel steel roof bows extending to bottom of skirting
- 2.5.6. 14 gauge "C" channel steel welded floor structure, with 5/8" exterior grade plywood subfloor.
- 2.5.7. 18-gauge, double lapped, coated steel roof sheeting, with integral drip rails and superior rust-proofing.

- 2.5.8. 16-gauge, smooth, coated steel side sheeting with superior rust-proofing.
- 2.5.9. 2" nominal thickness 2-part polyurethane foam insulation in ceiling, sidewalls and underbody – R7 insulation value minimum.
  - 2.5.9.1. Underbody insulation shall be additionally coated with rubberized undercoating.
- 2.5.10. Front and rear mud flaps; no logos or advertising
- 2.5.11. Two-piece continuous safety plate laminated windshield. 4148 sq. in. minimum surface area with glare resistant band at top.
  - 2.5.11.1. Windshield shall include two (2) 6" x 30" (approximate) sun visors; one (1) mounted on each side.
- 2.5.12. Two (2) "half-slide" windows with screens shall be provided; one (1) each on the driver and passenger side of cockpit.
  - 2.5.12.1. All glass furnished shall be automotive approved safety type. All glass shall be safety glazed and meet DOT GMVSS 205, SAE recommended practice J673b and J674a, and ANSI "Safety Code for Safety Glazing Materials" Z26.1-1977 as supplemented by Z26.1a-1980.
- 2.5.13. Three (3) 26"T x 34"W (approximate) "half-slide" windows with fiberglass screens shall be installed in the sidewalls per preliminary layout.
  - 2.5.13.1. Windows shall be an emergency egress type.
  - 2.5.13.2. Windows shall be dark tinted.
  - 2.5.13.3. All glass furnished shall be automotive approved safety type. All glass shall be safety glazed and meet DOT GMVSS 205, SAE recommended practice J673b and J674a, and ANSI "Safety Code for Safety Glazing Materials" Z26.1-1977 as supplemented by Z26.1a-1980.
- 2.5.14. One (1) 26"T x 34"W (approximate) fixed pane window shall be installed in the rear wall.
  - 2.5.14.1. Window shall be an emergency egress type.
  - 2.5.14.2. Window shall be dark tinted.
  - 2.5.14.3. All glass furnished shall be automotive approved safety type. All glass shall be safety glazed and meet DOT GMVSS 205, SAE recommended practice J673b and J674a, and ANSI "Safety Code for Safety Glazing Materials" Z26.1-1977 as supplemented by Z26.1a-1980.
- 2.5.15. FMVSS 108 lights and reflectors, LED at all locations available
  - 2.5.15.1. Two (2) halogen sealed beam headlights.
  - 2.5.15.2. Two (2) LED white back-up lights.
  - 2.5.15.3. Four (4) LED amber directional lights; two (2) front and two (2) rear.



- 2.5.15.4. Two (2) LED sealed side directional lights.
- 2.5.15.5. LED clearance/market lights with intermediate side marker lights.
- 2.5.15.6. Two (2) LED red stop/tail lights.
- 2.5.16. Integrated heated remote-control mirrors or equivalent, with flat and convex assemblies.
- 2.5.17. Wiring shall consist of modular chassis wiring harnesses. The harnesses shall utilize sealed style connectors to provide optimal electrical connection. There shall be a harness for dash electrical, the printed circuit board connectors, and for various other systems inside the front electrical compartment. There shall be a main chassis harness connecting the front and rear of the bus. A junction box located in the engine compartment will utilize a sealed connector and a vehicle electrical center for rear circuit breakers, gauges and switches to control ignition, compartment lights and rear starting. Multiple wiring harnesses aid in troubleshooting and provide access to the electrical system.
- 2.5.18. All chassis wiring is to be color coded and numbered according to a logical and intuitive wire numbering system. For extra protection, exterior (outside) harnesses are routed through convoluted tubing.
- 2.5.19. All cockpit switches shall be rated for 125% of load, clearly labeled and illuminated for ease of nighttime operations.

### 3. CONVERSION SPECIFICATIONS

#### 3.1. Exterior

3.1.1. Two (2) 33" x 78" (approximate) passenger side "sedan type" mid entry (patron) doors placed per approved drawings. Doors shall be of double-wall commercial quality aluminum construction and internally insulated between inner and outer skins.

3.1.1.1. Doors shall be fitted with one (1) Yale 5100 series or equivalent door closer each to control the movement of the door.

3.1.1.2. Doors shall be equipped with one (1) heavy-duty cast aluminum, positive hold-open device each.

3.1.1.2.1. Shall secure the door open at approximately 160 degrees.

3.1.1.3. Door interior shall be finished to compliment interior.

3.1.1.4. Door shall have tinted safety glass upper horizontal sliding window with screen, and tinted safety lower fixed-pane window.

3.1.1.5. Door shall utilize continuous stainless steel, aluminum or similar non-corrosive type vertically-mounted hinges.

3.1.1.6. One (1) OEM standard slam lock with integral dead bolt entrance latch shall be installed on each door.

3.1.1.6.1. Slam locks shall be keyed alike.

3.1.1.6.2. Latch shall include provision to hold the strike pin back for a free swing door operation at the user's discretion.

3.1.1.7. One (1) Yale 112 series or equivalent heavy-duty latch bolt shall be installed, in addition to the main latch on each door.

3.1.1.7.1. Latch bolts shall be keyed alike.

3.1.1.8. Step well shall be a two or three step configuration with 10" - 12" deep treads and 7" - 9.25" high risers. Each step shall incorporate heavy-duty, slip resistant commercial rubber step tread reinforced with aluminum back. The front edge of each tread shall incorporate a 2" safety yellow or white edge. Step wells shall contain 12VDC lighting to assist with entry/egress.

3.1.1.9. Door/step well areas shall be outfitted with a total of four (4) 1.25" diameter stainless steel handrails each to provide solid entry/egress assistance.

3.1.1.9.1. One (1) 36" approximate length handrail shall be installed vertically on the exterior, just aft of the door.

- 3.1.1.9.2. Two (2) angle-mounted handrails shall be installed one each side of the step well.
- 3.1.1.9.3. One (1) angle-mounted handrail shall be installed to the interior of the door below the upper window.
- 3.1.1.10. Two (2) electric-operated, single auxiliary steps or approved equal shall be installed beneath these step wells. Steps shall be finished with a non-skid surface. Steps shall be configured with a single dash-mounted control switch for both steps.
  - 3.1.1.10.1. Height of deployed steps shall be consistent with the overall staircase run - for smooth patron entry/egress.
  - 3.1.1.10.2. Steps shall be finished with a non-skid surface with a safety yellow, non-skid front strip.
  - 3.1.1.10.3. Steps shall include a light to illuminate the step surface at night.
  - 3.1.1.10.4. Steps shall include an audible/visual indicator system to warn the driver that the step is extended when the ignition key is activated.
  - 3.1.1.10.5. Steps shall be controlled in the driver's area and operable regardless of the ignition key position.
  - 3.1.1.10.6. One (1) complete step assembly shall be included and shipped loose with the completed vehicle as a spare.
- 3.1.2. Four (4) 14" x 22" single dome white acrylic skylights shall be installed with white PVC interior trim.
- 3.1.3. One (1) generator compartment shall be fabricated to mount and enclose the generator. Generator mounting shall be configured to allow easy access to the unit routine service points, as well as easy removal of the unit for overhauls. This compartment shall be located on the driver's side.

**This compartment MUST maintain a minimum 12" ground clearance.**

- 3.1.1.1. Compartment shall be constructed of 12-gauge aluminum, or approved equal non-corrosive materials.
- 3.1.1.2. Door shall be constructed of aluminum and hinged with ¼" pin stainless steel continuous hinges.
- 3.1.1.3. Doors shall have positive "compression" style, "slam latch", or approved equal latches and a door hold-back devise.
- 3.1.1.4. Doors shall be keyed-alike with other exterior compartments.
- 3.1.1.5. Compartment and door, shall be insulated with Glacier Bay Barrier Ultra dB Flex and Panel or approved equal acoustical insulation.

- 3.1.3.1. Compartment shall be ventilated to allow ambient heat escape, but adequately sealed to protect the power unit from road slush, snow, spray and salt.
- 3.1.3.2. Compartment shall be oversized approximately 125% in anticipation of pending generator size/configuration changes and future generator replacements.
- 3.1.4. One (1) underbody mechanical compartment shall be installed to house the auxiliary batteries, transfer switch, and other mechanicals.
  - 3.1.4.1. Compartment shall be constructed of aluminum or approved equal materials.
  - 3.1.4.2. Door(s) shall be constructed of aluminum and horizontally hinged with ¼" pin stainless steel continuous hinges.
  - 3.1.4.3. Door(s) shall have positive "compression" style, "slam latch", or approved equal latches and a door hold-back device.
  - 3.1.4.4. Doors shall be keyed-alike with other exterior compartments.
  - 3.1.4.5. Compartment shall be located adjacent to the power unit compartment.
- 3.1.5. One (1) underbody table storage compartment shall be installed to house additional a 4' folding resin table and four (4) folding chairs. Compartment shall be of maximum size available and located based on final design. This compartment shall be sealed to prevent moisture penetration.

**Compartments MUST maintain a minimum 12" ground clearance.**

- 3.1.5.1. Compartment shall be constructed of aluminum or equivalent materials.
- 3.1.5.2. Doors shall be constructed of aluminum and vertically hinged with ¼" pin stainless steel continuous hinges.
- 3.1.5.3. Doors shall have positive "compression" style, "slam latch", or equivalent latches and a door hold-back device.
- 3.1.6. Vehicle underbody shall be fully undercoated with rubberized spray to provide additional sound resonance dampening and underbody insulation protection.
- 3.1.7. Vehicle shall be painted single color: to be selected by Library post award from manufacturer's selections (not white). Additionally, where the vehicle is cut or modified, or additional fabricated components are added to the exterior, exposed metal shall be properly prepared and painted to match vehicle exterior color.
  - 3.1.7.1. Panels shall be properly cleaned and prepared for paint application in accordance with standard commercial practice and to requirements of the construction materials involved. Surfaces shall be properly cleaned and inspected before cover materials are applied.

- 3.1.7.2. The prepared surfaces shall be spray primed with synthetic base primer, which contains corrosion resistant pigments and resins. Extra coats shall be applied around moisture catching moldings, etc. All hidden areas such as overlapping metal, underside of moldings, underside or rubber extrusions at windows shall be cleaned and primed and where necessary and caulked with sealing compound during construction.
- 3.1.7.3. DuPont or equivalent paint shall be applied to all areas of the metal. Each coat shall be properly dried and evenly sanded before the following coat is applied. "Orange peel" surfacing will not be acceptable.
- 3.1.8. Vehicle shall have vinyl graphics applied by a local vendor post-delivery.

## 3.2. Interior

- 3.2.1. The Bookmobile interior shall be designed to accommodate a collection of approximately 3,500 items, which includes but is not limited to: books of various sizes, DVDs, CDs, oversized materials of odd shapes, magazines, etc.
- 3.2.2. Since a bookmobile is a mobile library, and a quiet environment is most important in the successful operation of any library, all interior finishes shall contribute to absorbing ambient sounds. Appropriate panels, ceiling and flooring shall have superior acoustic qualities in addition to durability and aesthetics. Sound control measures shall comply with the Occupational Safety and Health Act (OSHA) sound level (dbA) requirement in effect at time of award of contract, for an eight (8) hour maximum operator exposure time; measured at operator's ear with engine at governed RPM.
- 3.2.3. Main floor covering shall be seamless commercial grade carpeting or equivalent.
  - 3.2.3.1. Sub-flooring shall be properly prepared prior to installation of the floor covering.
  - 3.2.3.2. Floor covering shall be installed in a manner consistent with the manufacturer's recommendations.
  - 3.2.3.3. Any remnants remaining from the installation shall be shipped loose with the completed vehicle.
  - 3.2.3.4. Covering shall have a 10-year (minimum) limited warranty.
  - 3.2.3.5. The Library will select the exact color and pattern of covering from vendor's selections based in part on other interior color choices.
  - 3.2.3.6. Covering shall comply with "California Air Resources Board (CARB) Phase 2 regulations pertaining to maximum formaldehyde emissions. These regulations require that formaldehyde emissions be equal or less than 0.05 ppm.

- 3.2.4. Floor in driver and passenger cockpit area shall be covered with complimentary commercial duty covering.
  - 3.2.4.1. Covering shall be chosen by the Library from manufacturer's selections.
- 3.2.5. Wheel boxes shall be fabricated and installed over the OEM wheel humps. Boxes shall be trimmed to compliment the interior and provide seating.
- 3.2.6. Cork type fabric covered bulletin boards shall be installed wherever possible in the vehicle, including, but not limited to, all overhead cabinet doors. Number and size of bulletin boards furnished shall be determined by the exact configuration of interior. Bulletin boards shall be as large as possible and installed where space is available inside the coach. Smaller spaces and trim areas shall be finished in complimenting materials. All upholstery used within the vehicle shall meet provisions of FMVSS-302
- 3.2.7. Ceiling shall be finished with eco-friendly, sound absorbent materials chosen by the Library from manufacturer's selections.
- 3.2.8. One (1) staff workstation shall be fabricated and installed in the driver's side rear corner per concept drawing. Workstation shall be constructed of furniture-grade plywood with the same finish as that of the bookshelves. Desktop shall be constructed of minimum 3/4" thick furniture-grade plywood with a high-impact laminated plastic bonded to the plywood and installed to allow easy removal and replacement as these surfaces are subject to excessive wear and tear.
  - 3.2.8.1. Desk shall be appropriately configured for installation of technologies by the Library, including cable pass-through grommets.
  - 3.2.8.2. Desk face (modesty panel) shall be set 4" – 5" off the floor to allow heat circulation beneath the work surface.
  - 3.2.8.3. Desk shall have a finished height of 30" and a positive latching pencil drawer a minimum of 26" from the floor (for adequate knee space).
- 3.2.9. One (1) full-width staff workstation shall be fabricated and installed in the front of the vehicle per concept drawing. Workstation shall be constructed of furniture-grade plywood with the same finish as that of the bookshelves. Desktop shall be constructed of minimum 3/4" thick furniture-grade plywood with a high-impact laminated plastic bonded to the plywood and installed to allow easy removal and replacement as these surfaces are subject to excessive wear and tear.
  - 3.2.9.1. Work surface shall be full width with a 22" flip-down bridge for staff pass-through. Bridge shall include heavy duty support hardware and a mechanism to keep it from swaying during transit.

- 3.2.9.2. Desk and associated shelving shall be appropriately configured for installation of technologies by the Library, including cable pass-through grommets.
- 3.2.9.3. Desk face (modesty panel) shall be set 4" – 5" off the floor to allow heat circulation beneath the work surface.
- 3.2.9.4. Desks shall have a finished of 30" - 32" and a positive latching pencil drawer.
- 3.2.9.5. Passenger side desk shall incorporate a book drop material return slot in the face with a permanent catch bin within the desk; easily accessible from the staff side of the desk.
- 3.2.10. One (1) closet shall be constructed in the passenger rear corner as depicted in the concept drawing.
  - 3.2.10.1. Closet shall include a fixed mounted shelf in the upper area (for the microwave oven), a clothes bar below, and three (3) coat hooks mounted within.
  - 3.2.10.2. Closet door shall be finished with fabric covered cork.
- 3.2.11. One (1) 51" x 26" (approximate) restroom shall be fabricated and per finalized design with selected vendor.
  - 3.2.11.1. Restroom shall utilize a sliding door configuration for space conservation.
  - 3.2.11.2. Restroom shall include a wall mounted toilet paper and hand sanitizer dispenser.
  - 3.2.11.3. Restroom shall include a separate light with wall-mounted on-off switch.
  - 3.2.11.4. Restroom shall have a lockable door with key access on the main cabin side.
- 3.2.12. All bookshelves shall be constructed from superior grade materials and be built to withstand the unique stresses imposed by a mobile environment. The shelving layout shall be designed to accommodate approximately 3,500 items, which includes but is not limited to: books of various sizes, DVDs, CDs, videos, books on CD, oversized materials of odd shapes, magazines, etc. Shelving shall allow for easy access to body wiring and concealed components. All shelving running along the sidewalls of the coach shall slope back 15 degrees. All shelving running along the rear wall of the coach shall slope back 20 degrees. All shelves shall be a minimum 7.0 inches deep and be constructed of minimum 3/4" thick wood.
  - 3.2.12.1. The wood used in all vertical uprights shall be a minimum 3/4" thick. With the exception of the shelves located in the wheel well areas, all shelves shall be a maximum of 36 inches wide. With the exception of the lowest (bottom) shelves, all shelves shall be adjustable. Vertical spacing between shelves shall be on 10-1/2" centers and vertically adjustable up

or down continuously on maximum 1.5-inch centers. The hardware used to allow adjustability shall positively secure the shelving in the selected location to prevent accidental dislodging of the shelf in transit. All wood shall be finished to “high-end” furniture quality with a maple or birch wood finish color. Exact sizes and locations shall be authorized by the Library prior to installation.

- 3.2.12.2. It is anticipated that there be a combination of standard and oversize 9” shelves in several sections. The oversize shelves shall include clear Lexan dividers to aid in the storage of odd size books and magazines.

- 3.2.12.2.1. The oversize section(s) shall include a wood finish “bump out” surface above, finished to compliment the interior.

- 3.2.12.3. Five (5) extra shelves shall be provided and shipped loose with the completed Bookmobile.

- 3.2.12.4. Finish, cabinetry and component mounting shall allow an approximate 62” aisle width.

- 3.2.12.5. Final configuration of the interior shelving and cabinetry shall be subject to approval of the Library prior to installation.

- 3.2.13. Two (2) display racks for flyers and brochures shall be provided and located as depicted in the concept drawing. Racks shall be capable of displaying a variety of materials and include removable dividers. Exact size shall be determined by the Library.

- 3.2.14. Two (2) high-back, high-quality seats shall be installed for the driver and front passenger.

- 3.2.14.1. Seats shall have 9.5” of fore and aft adjustment, height adjustment, armrests, and 180° swivel capabilities.

- 3.2.14.2. Seats shall be covered in a durable fabric complimenting the vehicle interior. Color shall be selected by the Library from vendor’s offerings.

- 3.2.14.3. Seats shall be installed and include 3-point detachable seatbelt systems per FMVSS 207

- 3.2.15. One (1) high-back, high-quality seat shall be installed at the rear staff desk per preliminary drawing(s).

- 3.2.15.1. Seat shall have 9.5” of fore and aft adjustment, height adjustment, armrests, and 90° swivel capabilities.

- 3.2.15.2. Seats shall be covered in a durable fabric complimenting the vehicle interior. Color shall be selected by the Library from vendor’s offerings.

- 3.2.15.3. Seats shall be installed and include 3-point detachable seatbelt systems per FMVSS 207



- 3.2.16. High-quality infinitely adjustable honeycomb shades shall be provided for the windshields and driver/passenger front windows, and rear window. Shades shall include side-mounted guide strings to limit movement during transit. Shade color shall be chosen by the Library from vendor's offerings.

### 3.3. Electrical System – AC

- 3.3.1. System shall be a 120/240-volt rated, single-phase type system designed to provide and distribute electrical power at a level of performance that meets the requirements of all components and/or accessories utilizing such power throughout the vehicle.
- 3.3.1.1. System furnished shall be designed and installed to meet all requirements of the National Electrical Code (NEC), with all system components, accessories, plugs, receptacles, switches and circuit breakers being Underwriter's Laboratories (UL) listed and approved.
- 3.3.1.2. System furnished shall also meet any and all applicable state code requirements and regulations pertaining to the design and installation of AC electrical systems.
- 3.3.1.3. Electrical and mechanical systems shall comply with all associated section and subsections of the California Health and Safety Code, Section 18026, including all external references, as enforced by the California Department of Housing and Community Development.
- 3.3.2. All AC wiring shall be installed using multi-stranded, multi-conductor flexible armored, THHN (in non-metallic conduit), or boat rated cable; 600 volt rated, UL approved or equivalent. All wire shall be color-coded and grounded throughout the system. Aluminum wire is not acceptable due to its history of involvement in electrical system fires. Since the body and chassis of a motor vehicle is constantly flexing in torsion when in use, fixed type conduit is not acceptable due to the long-term potential electrical shorting and the resulting potential of fire hazard.
- 3.3.2.1. Wiring and harnesses shall be installed in easily accessible locations to aid long-term serviceability and maintain a minimum 2" air-insulated clearance from parallel low-voltage wiring harnesses per NEMA standards.
- 3.3.2.2. All wiring shall be sized using NEMA ratings to 125% of anticipated load.
- 3.3.3. One (1) Onan 8.5 HDKAU/41934, 8.5KW quiet diesel generator set shall be installed. Unit shall certified by the Environmental Protection Agency (EPA) to conform to Tier 4 emissions regulations, and feature Advanced Control.
- 3.3.3.1. Unit shall feature load-matching, variable speed operation and pure sine wave output.

- 3.3.3.2. Unit shall be rated for a mobile continuous 8.5kW and 8.5kVA per ISO 3046, ISO 8528-1, and rating guideline 2.14 with a voltage regulation at no load/full load of +/- 1% and a frequency regulation of +/- 0.1 %.
- 3.3.3.3. Unit shall contain integral shut-down protection system to protect against high engine temperature, low oil pressure, loss of coolant, over crank safety, over speed, over/under voltage, over/under frequency and auxiliary fault.
- 3.3.3.4. Unit shall draw its fuel from the main vehicle fuel tank through a separate tap that does not allow the generator to draw the fuel level below 1/8 tank.
  - 3.3.3.4.1. Unit shall be capable of running on ultra-low sulfur B20 fuel in addition to ultra-low sulfur diesel with no modification necessary.
- 3.3.3.5. Unit shall utilize the auxiliary battery bank for starting/re-charging.
- 3.3.3.6. Unit exhaust shall exit on the driver's side.
- 3.3.3.7. Installation shall include a remote gauge panel (Onan 300-5218 or 300-5027) with on/off switch, DC voltmeter, water temperature gauge, oil pressure switch and hour meter mounted near the interior distribution panels.
- 3.3.4. One (1) 125/250VAC, 50A rated, 3-pole 4-wire twist-lock waterproof inlet shall be provided on the driver's side of the vehicle for connection to shore power.
  - 3.3.4.1. One (1) twenty-five foot (25') 125/250VAC, 50A rated cord shall be provided for shore connection to the library facility.
- 3.3.5. One (1) 100A (minimum) rated distribution panel shall be installed flush-mounted in the console over the windshield.
  - 3.3.5.1. All AC electrical circuits shall be safety protected from short circuits and current overloading by UL approved resetting type circuit breakers, each properly capacity sized to the circuit they serve. A master circuit breaker that controls all AC electrical system circuits shall also be furnished.
  - 3.3.5.2. Panel(s) shall be readily accessible, yet out of view of the general public.
- 3.3.6. A minimum of twelve (12) 15A-rated, UL listed, NEMA 5-15, three-hole grounded duplex receptacles shall be furnished for general and specific uses.
  - 3.3.6.1. One (1) weatherproof receptacle shall be installed on the curbside exterior of the vehicle for outside use.
- 3.3.7. Two (2) Dometic Penguin or equivalent, 13,500 BTU, high efficiency rooftop mounted low-profile air conditioners shall be installed per drawings.
  - 3.3.7.1. Units shall provide 13,500 BTUs of cooling.
  - 3.3.7.2. Units shall include self-contained, low-profile ceiling assembly with remote controls.

- 3.3.7.3. Units shall be controlled by central thermostat in the front workstation area.
- 3.3.8. One (1) 700 watt microwave oven shall be installed in the rear closet per finalized plans.
- 3.3.9. One (1) Incinolet “RV” or equivalent, electric incinerating toilet shall be installed in the restroom.
  - 3.3.9.1. Unit shall serve 4 individuals and operate at 120VAC, 1,800watts.
  - 3.3.9.2. Unit exhaust shall be routed to the rear of the vehicle (well away from patron doors).
- 3.3.10. One (1) Xantrex Freedom SW 2012, 2000w inverter/charger shall be installed to back-up technology power and recharge the auxiliary battery bank whenever there is shore or generator power available.
  - 3.3.10.1. Unit shall feature pure sine wave output and battery over-voltage and under-voltage protection.
  - 3.3.10.2. Unit shall include a 100A, 3-stage battery charger with manual equalize connected to the auxiliary battery bank.
  - 3.3.10.3. Unit shall be controlled with a Xantrex Freedom SCP system control panel, mounted near the interior distribution panels.
  - 3.3.10.4. A minimum of six (6) 15A-rated, UL listed, NEMA 5-15, three-hole grounded duplex receptacles shall be furnished inside the vehicle for technology connections. These receptacles shall be powered by the inverter system and orange in color.
    - 3.3.10.4.1. Shall include one (1) quad receptacle associated with the removable patron workstation.
    - 3.3.10.4.2. Staff receptacles shall be mounted below associated work surfaces.
    - 3.3.10.4.3. Library shall determine locations of additional receptacles during the engineering review.
- 3.3.11. One (1) Xantrex Automatic Generator Start (“AGS”) panel and control module system shall be installed.
  - 3.3.11.1. Control panel shall be mounted in the front area of the vehicle.
  - 3.3.11.2. System shall be wired and configured to automatically start/stop the on-board generator upon any combination of low battery voltage or “HVAC request” activation from the central thermostat.

### 3.4. Electrical System – DC/Other

- 3.4.1. Shall be a 12-volt, negative ground type system designed to provide and distribute electrical power at a level of performance that meets the requirements of all components and/or accessories utilizing such power throughout the vehicle.
- 3.4.2. Design emphasis of system furnished shall be on both reliability and serviceability. System furnished shall be a modular type design, modular being defined as a system where major power train, chassis, body component assemblies, including lighting, wiring and switch harnesses, and heater harnesses are easily separable for purposes of repair or replacement, using either simple hand tool or automotive type plug-in connectors. Special emphasis shall be made on accessibility to all wiring harnesses in all locations. Wiring shall not be rendered un-accessible behind permanently installed panels or appointments.
- 3.4.3. The power source for all body electrical equipment furnished shall be taken from a single point on the power train specifically designed for this purpose.
- 3.4.4. The main ground wire grounding the body to the chassis shall be minimum 8-gauge size; all ground wires furnished for insulated-return type systems shall be equal in size to the feed wire in the respective circuit. Redundant grounds shall be used if required to attain a satisfactory level of system performance desired. For maximum system reliability, all serrated eyelets and screws or bolts utilized at points of ground shall be either coated or plated with an electrical conductive type material to improve their resistance to corrosion.
- 3.4.5. All electromagnetic type switches, relays and solenoids furnished shall be suppressed to protect the entire electrical system from major damage from the large negative voltage spikes these devices can produce.
- 3.4.6. All auxiliary electrical circuits shall be safety protected from current overloading by automatic resetting type heavy-duty automotive circuit breakers, each properly capacity sized to the circuit they serve. A master circuit breaker, minimum 150-amp shall also be furnished.
- 3.4.7. All terminals and connectors furnished shall be designed and approved by their manufacturer for heavy-duty automotive vocational application; material shall be a corrosion-resistant type. To eliminate disconnects; all terminals furnished shall incorporate a positive locking, seated type design to assure terminal position. Socket (female side of connectors shall be wired to electrical source side of circuit and plug (male) side of connector shall be wired to electrical load side of the circuit to help prevent a short circuit when disconnected. All connections made on the vehicle underbody shall be adequately protected against moisture and corrosion with dielectric grease, heat shrink tubing, or other similar techniques.
- 3.4.8. All insulated cable furnished shall comply with SAE Standards J1127 and J1128. All wiring furnished in the engine compartment area, where extreme heat and

fire are of concern, shall be multi-stranded, low-voltage insulated automotive type cross-linked polyethylene fire-retardant SAE approved SXL type. All wiring furnished in the body portion of the coach shall be multi-stranded, low-voltage insulated automotive type; either SAE approved SXL or GXL types are acceptable. All wiring in each circuit shall be of sufficient size, and with 125% capacity rating of anticipated load to transmit the electrical current load of the circuit. Sizing shall take into account the length of the circuit and the voltage drop occurring in the circuit. Voltage at the load shall be +/- 5% of rated voltage when measured in a normal operating state.

- 3.4.9. All wiring shall be routed meeting the following minimum requirements:
  - 3.4.9.1. No contact with sharp or puncturing edges.
  - 3.4.9.2. No tension or strain between fixed points.
  - 3.4.9.3. Adequate and safe clearance of moving parts.
  - 3.4.9.4. 5-inch clearance from radiant heat sources.
  - 3.4.9.5. Adequately secured to prevent pinching.
  - 3.4.9.6. Wiring to be color-coded and numbered, grease-, oil- and moisture-resistant and securely fastened.
- 3.4.10. All wiring furnished shall be routed in protective harnesses, either woven vinyl or corrugated vinyl or nylon types acceptable. When harnesses go through metal structure, rubber grommets shall be used to further protect the integrity of the harnesses.
- 3.4.11. One (1) AM/FM weather band radio with auxiliary input and BlueTooth shall be installed.
  - 3.4.11.1. Radio shall include six (6) total speakers; four (4) mounted on the interior ceiling and two (2) weatherproof speakers mounted on the curbside exterior.
  - 3.4.11.2. Shall include exterior mounted AM/FM antenna.
  - 3.4.11.3. Shall include a public address (PA) microphone mounted near the driver's seat.
- 3.4.12. Eight (8) Interstate 2200, or equivalent 6V deep-cycle golf cart batteries shall be provided as an auxiliary battery bank for stationary 12VDC component power.
  - 3.4.12.1. Bank shall be configured in a series/parallel manner to provide a 12VDC reference.
  - 3.4.12.2. Both the vehicle alternator and the inverter/charger (and the solar panels if selected) shall charge these batteries.
  - 3.4.12.3. Batteries shall be installed within the underbody battery compartment with a positive hold-down system.

- 3.4.12.4. Battery connection cables associated with this system shall be protected on both sides with a 150A minimum, high amp, and resettable circuit breaker.
- 3.4.12.5. Batteries shall be installed within the underbody mechanical compartment with a positive hold-down system.
- 3.4.12.6. Batteries shall power installed auxiliary systems only.
- 3.4.13. One (1) Blue Sea ML-ACR or equivalent heavy-duty battery isolation/merge system shall be installed to allow charging of both the main and auxiliary battery banks from the vehicle alternator, isolation during stationary operations, and merging of the battery banks for emergency starting.
  - 3.4.13.1. System shall include dash-mounted control switch with indicator lights.
  - 3.4.13.2. Battery connection cables associated with this system shall be protected on both sides with a 150A minimum, high amp, resettable circuit breaker.
- 3.4.14. Two (2) Fantastic Vent 3000, 3-speed, reversible roof vents shall be installed.
- 3.4.15. A 12VDC, LED main cabin lighting system shall be installed to provide interior lighting meeting library minimum stack ratings.
  - 3.4.15.1. Lighting fixtures shall be alternately configured on two (2) circuits to allow a “zig-zag” lighting option at the user’s discretion.
  - 3.4.15.2. 3-way switches for each of the two (2) circuits shall be installed in two (2) areas; near the patron door and near the driver’s seat.
  - 3.4.15.3. Lighting level should be 6 foot-candles (ft-c) minimum measured on the stack face (vertically) at a height of 12", and 35 ft-c maximum at any height to achieve no more than a 6-to-1 maximum-to-minimum ratio across the entire stack face.
  - 3.4.15.4. Light output temperature shall be a “warm” white between 3400K – 4300K.
  - 3.4.15.5. Lighting system design shall be approved by the Library prior to installation.
- 3.4.16. Six (6) 12VDC receptacles with standard and 2.1 amp USB charge ports shall be installed.
  - 3.4.16.1. Receptacles shall be independently fused and powered by the auxiliary batteries.
- 3.4.17. Two (2) Whelen 600 series or equivalent, 12VDC LED weatherproof white “scene” lights shall be installed on the curbside exterior. Lights shall be switched in the driver’s area.

- 3.4.18. One (1) rear view, color LCD system shall be installed with additional side-view camera. System shall include all components necessary for the intended application and be wired with all features enabled.
  - 3.4.18.1. Shall include one (1) 7 inch (minimum) LCD color monitor mounted on (or in) the dash for easy view of the driver.
  - 3.4.18.2. Shall include one (1) video camera with sun shields and built-in microphone mounted to rear exterior. Shall have a vibration and shock resistant mounting, waterproof, and a minimum viewing angle of 114 degrees horizontal and 90 degrees vertical.
  - 3.4.18.3. Shall include one (1) video camera with built-in microphone mounted to the passenger side exterior.
- 3.4.19. Two (2) Espar AIRTRONIC D8LC or equivalent diesel fueled air heaters shall be installed in the main interior cabin. Heating system shall include integrated ducting and rotatable/closable vents to help ensure even distribution of the heat and further ensure that the areas beneath the staff desks are not cold.
  - 3.4.19.1. Units shall produce 27,296 btu/hr each at 151 cfm.
  - 3.4.19.2. Units shall vent combustion air to the exterior of the coach body.
  - 3.4.19.3. Heating output shall be integrated throughout the interior for even heating in two (2) zones per finalized design.
  - 3.4.19.4. Units shall be controlled by the central thermostat.
  - 3.4.19.5. Units shall be fueled from the main vehicle diesel fuel tank.
  - 3.4.19.6. System shall be installed in compliance with ANSI A-119.2 and NFPA regulations.
- 3.4.20. One (1) Duo Therm Comfort Control Center thermostat shall be installed in the front area. Unit shall utilize a series of advanced heat sensing devices to track temperatures in each of two (2) zones (front and rear) and activate heat or air conditioning as needed to maintain selected temperatures.
  - 3.4.20.1. Unit shall be a full digital system creating up to four (4) zones from one centralized location.
  - 3.4.20.2. Unit shall utilize a LCD readout and Intellisist technology to allow easy setting changes.
  - 3.4.20.3. Unit shall interconnect with optional AGS system (if selected) to provide "HVAC request" auto start signal.
- 3.4.21. One (1) twenty-one foot (21') long Dometic 9100 Weatherpro or equivalent power awning shall be installed on the curbside of the vehicle.
  - 3.4.21.1. Awning shall include a wind sensor to close the awning when it detects high sustained winds.

- 3.4.21.2. Awning shall include a knee action design to allow flex in moderate wind and automatically release any accumulated water away from the door.
- 3.4.21.3. Awning shall include a hard wired switch mounted just inside the main patron door, as well as a hand-held wireless remote control.
- 3.4.21.4. Color of awning shall be chosen post-award by the Library from manufacturer's standard selections.
- 3.4.22. One (1) Cisco 819 4G LTE M2M gateway modem shall be provided and installed.
  - 3.4.22.1. Modem installation shall include two (2) high-gain multi-frequency low profile rooftop antennas and a range extender.
  - 3.4.22.2. Installation shall include two (2) RJ45 hardwire connections run to the areas beneath the two (2) workstation.
  - 3.4.22.3. Modem shall include 802.11 b/g/n Wi-Fi hotspot with simultaneous client mode for cellular offloading.
  - 3.4.22.4. Unit shall be configured for both Verizon and AT&T networks.

### 3.5. Miscellaneous Components

- 3.5.1. One (1) SkyScan or equivalent atomic clock shall be furnished, with a minimum 2-inch main character size. Unit shall include readouts for interior and exterior temperature (via wireless remote sensor), day and date, and receive its synchronization signal from NIST.
  - 3.5.1.1. Clock shall be firmly and securely attached to a wall in an easy to see location.
  - 3.5.1.2. Clock shall include a long-life premium alkaline battery, installed and running when coach is delivered.
- 3.5.2. One (1) battery-operated Carbon Monoxide (CO) detector shall be installed on the interior ceiling.
- 3.5.3. One (1) battery-operated smoke detector shall be installed on the interior ceiling.
- 3.5.4. Two (2) 5 lb. ABC fire extinguishers shall be installed in the interior, one front and one rear.
- 3.5.5. One (1) IN State DOT approved first aid kit shall be supplied and installed within the completed vehicle.
- 3.5.6. One (1) set of three (3) red emergency reflective triangles with dedicated ABS plastic enclosure shall be provided and installed.

## 4. **OPTIONAL ITEMS** (please quote each item separately)



#### 4.1. Solar panel system

4.1.1. One (1) SunRunner or equivalent, solar panel system shall be provided and installed.

4.1.1.1. System shall include four (4) GO160 solar panels, one (1) SunRunner Gold 30MPPT/8 system core, and one (1) C-Box combiner box.

4.1.1.2. System shall charge both the main and auxiliary battery banks with a potential total of 640 watts.

4.1.1.3. The design of this system is subject to approval by the Library prior to installation.

-----END OF SPECIFICATIONS-----