

Attachment A

Specifications



1. GENERAL SPECIFICATIONS

1.1. Scope

- 1.1.1. The intent of this specification is to describe the construction of **five (5)** 24-foot (approximate) long front-engine forward control Dodge Sprinter 3500 vans into outreach vehicles for use by the King County Library System (“Library”). These units shall be built on 11,030 lb. GVWR chassis for adequate support of the conversion, and diversified collection of approximately 2,000 items.
 - 1.1.1.1. All “base vehicles” shall be configured and constructed identically per Section 2 of these specifications.
 - 1.1.1.2. **Four (4)** of these vehicles shall then be converted by the successful vendor to operate as modular, rapidly convertible bookmobiles within a program tentatively dubbed “**Library2Go**” (L2G).
 - 1.1.1.3. **One (1)** of these vehicles shall then be converted by the successful vendor to operate as a computer training center dubbed the “**Digital Design Lab**” (DDL).
- 1.1.2. The vehicles described herein are intended to provide contemporary mobile library services to a broad mix of patrons including the elderly and children in an operationally efficient manner. The units will operate within a suburban/rural environment in northwestern Washington and shall be designed and equipped to safely operate in an environment of relatively hilly, paved roadways. Some short grades on secondary roads in this region can be up to 15%, with long interstate grades approaching 7%. Expected routes for this vehicle are an average of 50 miles daily on a 30-35 hour weekly schedule. The units will be kept outside when not in service. The approximate temperature range of this area is 20°F to 84°F, with occasional winter temperatures falling to -5°F and occasional summer temperatures reaching 100°F.
- 1.1.3. It is the Library’s utmost goal to ensure that these vehicles are well-equipped to operate efficiently and safely in this environment.
- 1.1.4. Weight loading will be of significant concern during the conversion of these vehicles due to limited payload capacity of these vehicles. Substantial effort has been put into the interior design with this factor in mind. **Vendor is cautioned to use the lightest materials available that will meet all specifications as described herein.**
- 1.1.5. The successful vendor shall furnish all materials not specifically denoted as “customer supplied”, as well as the labor to complete the conversion of the outreach vehicles specified herein, as shown on the attached drawings, or as required to complete and/or exceed the general intent of these specifications.



1.1.6. These specifications have been developed by Specialty Vehicle Services, LLC. ("SVS") under contract with the Library.

1.2. Brand Names

1.2.1.1. Any reference to a specific manufacturer or make or model of product not followed by "or equivalent" or "or equal" may not be substituted.

1.3. Manuals and Documentation

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

1.3.1.1. 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.

1.3.1.2. Two (2) each visual parts books or two (2) CD ROM sets if books are not available for the body, chassis, and generator.

1.3.1.3. One (1) line set for chassis.

1.3.1.4. Two (2) complete sets of conversion electrical schematics "as delivered".

1.3.1.4.1. These schematics shall include, at a minimum, one (1) overall 12VDC system layout and one (1) overall 120VAC system layout, including wire gauge, color, and circuit identification labeling as applicable.

1.3.1.4.2. Schematics shall include all information necessary for maintenance and service personnel to rapidly identify and diagnose electrically related issues.

1.3.1.4.3. Schematics shall be provided to SVS for review prior to scheduling of final inspections.

1.3.1.5. One (1) certified WA state weight ticket issued at point of entry; front, rear and total.

1.3.1.6. Three (3) complete key sets (ignition/doors, side door, interior locks, battery compartment); maximum keys per set shall be four (4).

1.3.1.7. One (1) complete dimensional layout drawing of interior front, rear, and both sides.



1.4. New Equipment

- 1.4.1. 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.

1.5. Quality & Standards

- 1.5.1. 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.
- 1.5.2. 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.
- 1.5.3. 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.
- 1.5.4. Welding fillets shall have good penetration, good fusion, good appearance, and shall show no cracks or undercutting.

1.6. Guarantee

- 1.6.1. The successful vendor shall furnish a warranty stating that the equipment is suitable for the service intended in accordance with the specifications. The vendor shall also furnish the Library with a minimum FULL ONE (1) YEAR WARRANTY and shall agree to replace and install without charge, within the warranty, any defective part or parts not suitable for the service intended or found to be defective due to poor workmanship. The proposal assessment will be weighted toward longer warranties and vendor is encouraged to offer, as an option, any available extended warranties with related literature and their costs. Warranty period shall start on the date the unit is put into service by the Library.
- 1.6.2. All warranty work shall be picked up and delivered by the vendor within a reasonable time, or repaired by the vendor at the Library facility. The



Library reserves the right to schedule and complete warranty work at a local facility of its choice if requests for resolution are not satisfied in a reasonable time frame. Vendor shall be given proper notice of such intent prior to execution and an invoice shall be forwarded to the vendor for payment.

- 1.6.3. That the Library may be assured of being able to maintain and repair equipment purchased, there shall be a local service facility with a stock of repair parts identified with the vendor's proposal. These specifications also require that common wear parts such as filters and hoses be available within 24 hours and all other parts within 48 hours.
- 1.6.4. **Proposal shall list names, locations, and contact information for the nearest authorized service, parts, and warranty facilities. This list shall include facilities related to van/bus, auxiliary HVAC system, inverter, conversion, etc.**
- 1.6.5. **Any and all extended warranty options applicable to this vehicle and its components shall be listed within vendor's proposal with associated costs.**

1.7. Inspections

1.7.1. The Library may make inspection visits during the vehicle conversions to help ensure specification compliance and trouble-free delivery. If the equipment/vehicle(s) are inspected after delivery and rejected because of deficiencies, it shall be the vendor's responsibility to pick up the vehicle, make the necessary corrections, and re-deliver the vehicle for 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

1.7.1.1. SVS Inspections. Equipment/vehicle(s) shall be inspected at vendor's place of business at least 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 costs of these trip(s) shall be the responsibility of SVS.

1.7.1.1.1. If major discrepancies are found and/or the vehicles are not deemed adequately complete at the time of final (pre-delivery) inspection, vendor shall be responsible for all SVS costs and fees related to a re-inspection.



- 1.7.1.2. Library Inspection. Equipment/vehicle(s) shall be inspected at vendor's place of business at any time during the conversion process by two (2) authorized representatives of the Library. This inspection may or may not be in conjunction with SVS inspections. **The cost of this trip, including all related air fare, lodging, car rental and meal costs shall be the responsibility of the Vendor and included in the proposal.**

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 8 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 all outreach vehicle conversions. 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 base vehicles shall be 2009 or current model year Dodge Sprinter Shuttle Bus 3500 with “mega roof”. The base vehicles shall be originally built by Dodge, and further modified (and sold) by Daimler Buses North America in accordance with these specifications. Units 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:
(approximate) | 24' |
| 2.3.2. | Overall exterior width:
(excluding mirrors) | 79.7" |
| 2.3.3. | Overall exterior height: | 113.4" |
| 2.3.4. | Interior length:
(load space) | 184.8" (load) |
| 2.3.5. | Interior height: | 84" |
| 2.3.6. | Interior width:
(line) | 70.2" (at floor) |
| 2.3.7. | Wheelbase: | 170.3" |
| 2.3.8. | Ground Clearance:
(at side door) | 7.5" (minimum) |
| 2.3.9. | Fuel tank capacity: | 25 gallons |
| 2.3.10. | GVWR: | 11,030 lbs. |

2.4. Base Vehicles

- 2.4.1. The five (5) base vehicles being used for this project shall identically configured, and include the following features and options. A dealer generated vehicle overview and specification has been included in this package for reference.
- 2.4.2. Dodge Sprinter 3500 Van, 170WB EXT (VB3L17)
- 2.4.2.1. Customer preferred package (22B), includes:



- 2.4.2.1.1. Driver seat base power outlet
- 2.4.2.1.2. Hinged lid for center stack bin
- 2.4.2.1.3. Locking glove box
- 2.4.2.1.4. Driver luxury bucket seat
- 2.4.2.1.5. Passenger luxury bucket seat
- 2.4.2.1.6. Speed control
- 2.4.2.1.7. Windshield with filter band
- 2.4.2.2. 3.0L V6 Turbo diesel engine, U.L.E.V
- 2.4.2.3. Five-speed automatic transmission
- 2.4.2.4. "Flame Red" monotone paint
- 2.4.2.5. Gray cloth bucket seats
- 2.4.2.6. 16" x 5.5" steel wheels
 - 2.4.2.6.1. Shall include stainless steel wheel liners (reference 3.1.5).
- 2.4.2.7. LT215/85R16 tires
- 2.4.2.8. Sunscreen glass
- 2.4.2.9. Motion sensor cargo compartment lighting
 - 2.4.2.9.1. Shall be reinstalled within the finished interior.
- 2.4.2.10. Rear door windows with wiper and washer
- 2.4.2.11. Suspension with heavy duty front and rear stabilization, includes:
 - 2.4.2.11.1. Front heavy duty stabilizer bar
 - 2.4.2.11.2. Heavy duty front springs and shocks
 - 2.4.2.11.3. Rear stabilizer bar
- 2.4.2.12. AM/FM CD radio with telephone connection, includes:
 - 2.4.2.12.1. Front speakers
 - 2.4.2.12.2. Cell phone prep wiring
- 2.4.2.13. Accessory group (ACL), includes:
 - 2.4.2.13.1. Bi-Xenon headlamps
 - 2.4.2.13.2. Fog lamps
 - 2.4.2.13.3. High pressure headlamp washer
 - 2.4.2.13.4. Light and rain sensor
 - 2.4.2.13.5. Windshield with band filter
- 2.4.2.14. Contractor group (ASM), includes:



- 2.4.2.14.1. 12V rear auxiliary power outlet
- 2.4.2.14.2. Two (2) additional keys
- 2.4.2.14.3. 220A alternator
- 2.4.2.14.4. 110A auxiliary battery
 - 2.4.2.14.4.1. Capacity shall be increased (reference 3.4.2).
- 2.4.2.14.5. Auxiliary battery disconnect relay
- 2.4.2.14.6. 12V driver seat base power outlet
- 2.4.2.14.7. Road hazard warning lamp
- 2.4.2.15. ParkSense front and rear park assist system, includes:
 - 2.4.2.15.1. Power heated mirrors
- 2.4.2.16. Delete wood floor
- 2.4.2.17. Rear window defroster
- 2.4.2.18. Delete right side sliding door
- 2.4.2.19. Premium instrument cluster
- 2.4.2.20. Engine bracket for auxiliary compressor (LBS)
- 2.4.2.21. Daytime running lamps
- 2.4.2.22. Trailer tow group, includes:
 - 2.4.2.22.1. Trailer hitch
 - 2.4.2.22.2. Trailer wiring with 7-pin connection
- 2.4.2.23. Roof – Mega painted body color
- 2.4.2.24. Puncture sealant & portable air compressor
- 2.4.2.25. Idle control – adjustable
- 2.4.2.26. Rear backup alarm
- 2.4.2.27. Luxury steering wheel
- 2.4.2.28. Top speed limitation (74 MPH)
- 2.4.2.29. 4.10 axle ratio
- 2.4.2.30. First aid kit
- 2.4.2.31. GVW rating – 11,030 lbs.
- 2.4.2.32. Heater booster
- 2.4.2.33. Parametric special module
- 2.4.2.34. Wheel chocks
- 2.4.2.35. Manufacturer’s Statement of Origin (“MSO”)



2.5. OEM Modifications (by Daimler Buses North America)

2.5.1.1. **Lift** – Ricon lift mounted on a plate (as floor is not to be installed) at rear double doors. Electrical supply, harness and wiring intact including dash mounted activation switch, wired remote at lift and all needed controls. System will be operationally functional. No interior trim is included.

2.5.1.1.1. Vendor shall complete the trim and integration of this installation during the conversion process.

2.5.1.2. **Door** – 38”W x 80”T, electric dual panel, outward opening door and all supporting structures. Exterior finish and paint to match chassis color. All electrical including dash mounted switch and associated harnesses. Door includes manual emergency release. System will be fully functional. No interior trim is included.

2.6. Dealer

Daimler Buses North America (“DBNA”) has been heavily involved in the development of these specially-configured vehicles. Vendors are urged to contact a responsible DBNA dealer for pre-configured base vehicle information (and pricing). The DBNA vendor located closest to KCLS is:

Dwayne Lane Auto Center

Attn: Sakol Hasaphongse – Commercial Account Manager

10515 Evergreen Way

Everett, WA 98204

Phone: 425.551.4932

Cell: 425.754.2555

Fax: 425.551.4961

Email: sakol@dwaynelane.com

Web: www.dwaynelane.com

3. **CONVERSION SPECIFICATIONS: FOUR (4) MODULAR BOOKMOBILES**

3.1. Exterior

3.1.1. Twelve (12) 19” x 4” (approximate) radius windows shall be installed in the “mega roof” structure of the OEM vehicle per concept drawings.

3.1.1.1. Windows shall be fixed pane, deep tint, tempered glass panels.

3.1.1.2. Windows shall be installed in a manner preventing potential water leaks.

3.1.1.3. Windows shall be trimmed within to compliment the interior.



- 3.1.2. One (1) auxiliary battery compartment shall be fabricated and installed on the driver's side of the vehicle, beneath the floor, to house the auxiliary batteries (reference 3.4.2.).
 - 3.1.2.1. Compartment shall be constructed of aluminum or equivalent materials, and include a tie-down system for the batteries.
 - 3.1.2.2. Compartment shall be properly vented to prevent build-up of battery gases.
 - 3.1.2.3. Door shall be constructed of aluminum and horizontally hinged with ¼" pin stainless steel continuous hinge.
 - 3.1.2.4. Door shall have positive "compression" style, "slam latch", or equivalent locking latch and a door hold-open devise.
 - 3.1.2.5. Compartment shall be kept as high as possible for maximum ground clearance.
- 3.1.3. The battery compartment, and all added exterior components, shall be finished with DuPont Imron 5000 or equivalent paint to match the OEM body color.
 - 3.1.3.1. 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.
 - 3.1.3.2. 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.
 - 3.1.3.3. Two (2) or three (3) evenly applied coats of DuPont Imron 5000 or equivalent paint, two (2) for dark colors and three (3) for light colors, 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.
- 3.1.4. Vehicle underbody shall be fully undercoated with rubberized spray to provide additional sound resonance dampening and underbody insulation protection.
- 3.1.5. Two (2) Yarder Manufacturing "Metropolitan Showcase" series ad-card sign frames shall be installed; one (1) on the rear exterior and one (1) on the curb side exterior.
 - 3.1.5.1. Approximate size of the rear frame shall be 16"x28", subject to final overall exterior graphics design and Library approval.



- 3.1.5.2. Approximate size of the curb side frame shall be 25" x 48", subject to final overall exterior graphics design and Library approval.
- 3.1.5.3. Reference: <http://www.yardermfg.com>
- 3.1.6. One (1) set of stainless steel wheel covers shall be installed on all outboard wheels.
 - 3.1.6.1. Shall include stainless steel braided valve stem extensions (for all tires).
 - 3.1.6.2. Reference: PN# WLKIT16D07 at <http://www.sprinteraccessories.com>
- 3.1.7. Vehicle shall have a "moderate" level vinyl graphics package in addition to the single color OEM base paint. Vendor shall indicate organization or persons involved with this project that the Library will bilaterally work with in the development and finalization of this graphics scheme.
 - 3.1.7.1. Vendor shall include a **\$6,000 allowance** for the development, printing and installation of this graphics package for each vehicle within their proposal.

3.2. Interior

- 3.2.1. The modular bookmobile interior shall be designed to accommodate a collection of approximately 2,000 items, which includes but is not limited to: books of various sizes, DVDs, CDs, books on disc, oversized materials of odd shapes, magazines, etc.
- 3.2.2. Vehicle ceiling, walls and underbody shall be insulated with 2" nominal thickness sprayed-in urethane foam insulation.
 - 3.2.2.1. Insulation shall fill all feasible cavities within the body structure to provide maximum insulation values.
 - 3.2.2.2. Underbody foam insulation shall be protected from road spray and elements by an additional layer of rubberized automotive undercoating.
- 3.2.3. Vehicle ceiling shall be finished with a lightweight substrate material overlaid with acoustical fabric. The fabric and padding (if applicable) shall be applied in a manner consistent with the lifetime of the vehicle. Color and texture of fabric shall be selected by the Library from the vendor's offerings.
 - 3.2.3.1. All upholstery used within the vehicle shall meet provisions of FMVSS-302.
- 3.2.4. Vehicle floor shall be sub-floored with 3/8" furniture grade plywood to provide a smooth and durable sub-surface and embed the "auxiliary cart lock down tracks" as depicted on the concept drawings and further described herein (reference section 3.2.17.6).



- 3.2.5. Floor covering shall be Milliken Image Series Two carpet squares or equivalent.
 - 3.2.5.1. Sub-flooring shall be properly prepared prior to installation of the floor covering.
 - 3.2.5.2. Carpet squares shall be installed in a manner consistent with the manufacturer's recommendations, but take into account the thickness of the "auxiliary cart lock down tracks" (reference 3.2.17.6).
 - 3.2.5.3. Any carpet remnants remaining from the carpet installation shall be shipped loose with the completed vehicles.
 - 3.2.5.4. Exact color and/or style are subject to approval by the Library, based in part on vendor's offerings.
- 3.2.6. Carpet runners shall be provided to apply over the main flooring, constructed as large as feasible to cover exposed and/or high traffic areas of the vehicle interior, without obstructing normal operations. Two (2) runners shall be provided for each vehicle. Runners shall be of a commercial quality and have sufficient backing to prevent sliding during normal operations.
 - 3.2.6.1. The Library shall select the color and style of this carpet from vendor's offerings.
- 3.2.7. Upper wall finishes shall be commercial grade "upholstery weight" fabric applied over a 1/8" layer of cork to lightweight substrate materials and fitted between the shelving uprights. These panels shall be securely mounted to allow use as a bulletin board if desired, yet easily replaceable if they ever become damaged. Smaller spaces and trim areas shall be finished in complimenting materials.
 - 3.2.7.1. The Library shall select the color and style of this fabric from vendor's offerings.
 - 3.2.7.2. All upholstery used within the vehicle shall meet provisions of FMVSS-302.
- 3.2.8. Lower wall finishes shall be Milliken Image Series Two carpet to match and/or compliment the floor carpeting.
 - 3.2.8.1. The Library shall select the color and style of this carpet from vendor's offerings.
- 3.2.9. The rear wheel wells shall be directly covered with Milliken Image Series Two carpet to match and/or compliment the floor carpeting.
 - 3.2.9.1. No boxes shall be constructed over the wheel wells.
 - 3.2.9.2. The Library shall select the color and style of this carpet from vendor's offerings.



- 3.2.10. Since a bookmobile is a mobile library, and a quiet environment is most important in the successful operation of any library, the majority of 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.
- 3.2.11. Two (2) European swivel seat adaptors shall be provided and installed; one (1) each for the driver (PN# SSAD07) and passenger (PN# SSAS07) seats. These adaptors will raise the seat height be 1.75".
- 3.2.11.1. Reference: <http://www.sprinteraccessories.com>
- 3.2.12. One (1) staff desk shall be furnished as depicted in the concept drawing. Desk shall be constructed of solid wood and light gauge furniture-grade plywood, finished to compliment the interior. 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. Desk shall be appropriately configured for installation of technologies by the Library, including cable pass-through grommets and defined wire paths from desktop to other locations as designated.
- 3.2.12.1. Desk shall include a book return system including an appropriately sized drop slot and under desk mounted catch box. Catch box shall be open toward the staff area to allow for easy removal of materials.
- 3.2.12.2. Desk shall include a positive latching pencil/keyboard drawer beneath the work surface.
- 3.2.12.3. Desk shall include a sidewall mounted, 2-tier storage cavity with Lexan faces to provide storage for files and paper supplies.
- 3.2.13. One (1) storage closet shall be furnished as depicted in the concept drawing. Closet shall be constructed of furniture-grade light-gauge plywood with the same finish as that of the desk. Closet shall contain three (3) adjustable shelves within.
- 3.2.13.1. Door shall be a lockable wood finish door with brochure rack built-in per concept drawings.
- 3.2.13.2. Closet door shall include a key lock that is keyed alike to the storage cabinet.
- 3.2.14. One (1) interior storage cabinet shall be provided above the staff desk as depicted in the concept drawings with lockable bulletin board type door per final design.



- 3.2.14.1. Staff desk cabinet shall include an open shelf area for future peripheral installations. Storage cabinet shall include key lock that is keyed alike to the closet.
- 3.2.15. One (1) mechanical storage cabinet shall be provided in the passenger side rear corner of the vehicle. This cabinet shall be accessed from the rear of the vehicle only (with the rear doors open), and contain three (3) fixed shelves with keepers.
 - 3.2.15.1. Cabinet shall be finished to compliment the interior. Finish shall be selected by the Library from vendor's selections.
- 3.2.16. One (1) mechanical cabinet shall be fabricated above the vehicle cockpit area as depicted in the concept drawings. This cabinet shall house the auxiliary HVAC evaporator, inverter, and LCD monitor.
 - 3.2.16.1. Cabinet shall be constructed of structural aluminum to carry the weight of the components and finished in light gauge furniture grade plywood, covered with finishing materials.
 - 3.2.16.2. Cabinet shall include a filtered return air panel for the auxiliary HVAC system and ventilation for the inverter.
 - 3.2.16.3. Cabinet shall include an access panel for easy servicing of the components within.
 - 3.2.16.4. Cabinet shall be finished to compliment the interior. Finish shall be selected by the Library from vendor's selections.
- 3.2.17. An Acore Shelving & Products, Inc. aluminum shelving system shall be supplied and installed. Shelving components shall be powder coated after assembly where possible using coatings containing no lead or lead products. All components shall be constructed from superior grade lightweight materials and be built to withstand the unique stresses imposed by a mobile environment. The shelving layout shall be designed to accommodate approximately 2,000 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. All shelving running along the sidewalls of the vehicle shall tilt back 15 degrees. Shelving is anticipated to be a combination of 7" and 9" depths, with additional components described herein.
 - 3.2.17.1. The King County Library System "Library2Go" program requires that the interior materials be rapidly changed to cater to varying patron groups. The carts and shelving within the interior must be rapidly changeable using additional pre-stocked components. All efforts shall be made by the vendor in the construction of these vehicles, as applicable, to assist in this goal.
 - 3.2.17.2. System shall utilize nine (9) type "CS8", two-piece clamshell slotted shelf uprights, place on 36" centers. The uprights shall be mounted vertically to the side walls up to approximately 30" high,



and **angled inward approximately 8°** above that, to an approximate height of 66" measured from the vehicle floor.

- 3.2.17.3. This configuration has been design by SVS in conjunction with Acore to maximize the aisle width of the completed vehicle. All efforts shall be made to retain the "wide aisle" design intent during construction of these vehicles. All modifications that affect the aisle width of the completed vehicle shall be approved by SVS prior to installation.
- 3.2.17.4. Uprights shall be firmly attached directly to the vehicle side wall sub-structure in a manner suitable to withstand the stress and forces unique to a mobile environment, including, but not limited to back plate fastening of the uppermost area of the uprights.
- 3.2.17.5. The areas between the uprights shall be finished as detailed to provide a flush finished surface, with only the mounting surface of the upright exposed. The design of the upright mounting and sidewall finish integration shall be subject to Library approval prior to installation.
- 3.2.17.6. Three (3) 12' long, heavy-duty flanged "O" type, aircraft style tie-down tracks shall be installed flush into the flooring for securing up to eight (8) additional loaded book carts.
 - 3.2.17.6.1. These tracks shall be securely mounted to the OEM vehicle floor and flush with the finished floor height.
 - 3.2.17.6.2. Reference:
<http://www.uscargocontrol.com/heavydutyflangedtrack100-p-379.html>
- 3.2.17.7. Eight (8) sets of appropriately rated, over center or ratchet style straps shall be provided to secure up to eight (8) book carts to the floor tracks.
- 3.2.17.8. The complete Acore/SVS modular system is expected to include the following components:
 - 3.2.17.8.1. Nine (9) Acore CS8, two-piece clamshell slotted shelf uprights.
 - 3.2.17.8.2. Thirteen (13) Acore single sided "wall hugger" carts, specially modified for this project to fit completely between the uprights **OR** allow for floor lock-down when desired.
 - 3.2.17.8.3. Five (5) Acore "Wall Security Units", to allow locking of wall hugger carts to the upright system.
 - 3.2.17.8.4. Four (4) Acore AB9, 9" wall shelves.
 - 3.2.17.8.5. Two (2) Acore AB9(8°), 9" wall shelves, specially modified to accommodate the inward slanting upper uprights.
 - 3.2.17.8.6. Two (2) Acore DVD9, 9" double tier DVD shelves.



- 3.2.17.8.7. Fourteen (14) Acore AB7(8°), 7" wall shelves, specially modified to accommodate the inward slanting upper uprights.
- 3.2.17.9. Vehicle shall be configured as depicted in the finalized drawing upon delivery. All remaining components (extras) of this system shall be shipped loose with each vehicle.
- 3.2.17.10. System shall include shelf label color strips, colors to be determined.
- 3.2.17.11. Final configuration of the interior shelving and cabinetry shall be subject to approval of the Library prior to installation.
- 3.2.17.12. Finish, cabinetry and shelving installation shall provide a **minimum 38" aisle width**.
- 3.2.17.13. Acore Shelving & Products, Inc. has been heavily involved in the development of this specially modified system. Vendors are urged to contact the following for additional information and/or pricing:

Acore Shelving & Products

Attn: Don Thompson, Sr. - Owner

1460 N.E. State Road 16

P.O. Box 67

Starke, FL 32091

Phone: 904.964.4320

Fax: 904.966.2458

Email: acore@atlantic.net

Web: www.acoreshelving.com

3.3. Electrical System – AC

- 3.3.1. System shall be a 120-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.
- 3.3.2. All AC wiring shall be installed using multi-stranded, multi-conductor flexible armored 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. Two (2) 120VAC, 15A rated, 2-pole 3-wire weather resistant power inlets shall be provided on the driver’s side exterior of the vehicle.
 - 3.3.3.1. One (1) shall connect to the on-board inverter to provide bypass and battery charging power.
 - 3.3.3.2. One (1) shall connect to the dual-powered auxiliary HVAC system to provide maintenance heating and cooling.
- 3.3.4. Two (2) 120VAC, 15A rated, 50-foot, 12-gauge heavy-duty weather resistant extension cords shall be provided to connect the vehicle to shore power when available.
 - 3.3.4.1. These cords shall store in the rear corner mechanical cabinet.
- 3.3.5. A minimum of two (2) 15A-rated, UL listed, NEMA 5-15, three-hole grounded duplex receptacles shall be furnished inside the vehicle for general and specific uses. These receptacles shall be powered directly from the inverter system.
- 3.3.6. One (1) 15A-rated, UL listed, NEMA 5-15, three-hole GFCI duplex receptacle shall be furnished on the exterior of the vehicle, curbside. Receptacles shall be powered by the inverter system.
- 3.3.7. One (1) ProAir, LLC. model 310, or equivalent, dual-powered auxiliary HVAC system shall be installed per drawings (reference section 3.4.3 for additional details).
- 3.3.8. One (1) Xantrex RS3000, 3,000 watt sine wave inverter/charger system shall be installed.
 - 3.3.8.1. Unit shall be installed in the mechanical compartment above the vehicle cockpit area, with proper ventilation, per concept drawings.
 - 3.3.8.2. Unit shall back all installed receptacles, awning and people counter.
 - 3.3.8.3. Unit shall provide extensive diagnostic information and fault history.
 - 3.3.8.4. Unit shall be wired to allow input power pass through to connected loads when available.



- 3.3.8.5. Unit shall provide 150 amps of power factor corrected multi-stage battery charging capability for the auxiliary battery bank.
- 3.3.8.6. Unit shall utilize and monitor the expanded auxiliary battery bank.
- 3.3.8.7. Unit shall be controlled by a Xantrex 809-0910 remote panel, mounted near the staff workstation, and installed per manufacturer specification.
- 3.3.9. One (1) Girard Systems G-2000, or equivalent, automatic retractable lateral arm awning system shall be installed on the passenger side of the vehicle per concept drawings.
 - 3.3.9.1. Custom brackets shall be fabricated to mount the awning case in the desired location.
 - 3.3.9.2. Awning shall be 12' long by 9' 9" deep (approximate).
 - 3.3.9.3. Awning shall operate automatically with 120VAC motors, automatically retract in high motion conditions, have a remote control in addition to the interior mounted switches, and have a manual override system. System shall include the following parts:
 - 3.3.9.3.1. 9800230-00 RTS universal receiver
 - 3.3.9.3.2. 9800166-W01 Eolis wireless motion sensor
 - 3.3.9.3.3. 9600127-00 ACL current limiter
 - 3.3.9.3.4. 9800131-01 single channel wireless switch
 - 3.3.9.4. System shall be powered from the inverter system (reference 3.3.8).
 - 3.3.9.5. Fabric and color shall be selected by the Library from manufacturer's offerings.
 - 3.3.9.6. Girard Systems has been involved in the development of this project. For additional information, please contact Major Pogue at (949) 456-0386.
 - 3.3.9.7. Reference: <http://www.girardrvawnings.com>
- 3.3.10. One (1) Elmech Q-scan Uniplex, or equivalent, people counter shall be installed at the side entry door.
 - 3.3.10.1. System shall include magnetically activated, 4-digit 12mm high LED displays.
 - 3.3.10.2. System shall count each person crossing the beam, regardless of the direction of approach.
 - 3.3.10.3. Systems shall include non-volatile memories to protect against power failure.
 - 3.3.10.4. System shall be powered by the inverter.



3.3.10.5. Reference: <http://www.q-scan.co.uk/uniplex.htm>

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.
 - 3.4.1.1. 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.
 - 3.4.1.2. 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.
 - 3.4.1.3. 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.
 - 3.4.1.4. 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.
 - 3.4.1.5. All auxiliary electrical circuits shall be safety protected from current overloading by heavy-duty automotive circuit breakers, each properly capacity sized to the circuit they serve, and located as close as practical to the battery. A master circuit breaker, minimum 150-amp shall also be furnished.
 - 3.4.1.6. 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.

- 3.4.1.7. 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.
- 3.4.1.8. All wiring shall be routed meeting the following minimum requirements:
 - 3.4.1.8.1. No contact with sharp or puncturing edges.
 - 3.4.1.8.2. No tension or strain between fixed points.
 - 3.4.1.8.3. Adequate and safe clearance of moving parts.
 - 3.4.1.8.4. 5-inch clearance from radiant heat sources.
 - 3.4.1.8.5. Adequately secured to prevent pinching.
 - 3.4.1.8.6. Wiring to be color-coded and numbered, grease-, oil- and moisture-resistant and securely fastened.
- 3.4.1.9. 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.
- 3.4.2. Four (4) Interstate U2200, or equivalent, group GC-2, 6V deep-cycle, multi-purpose batteries shall be provided as an auxiliary battery bank for stationary 12VDC component power.
 - 3.4.2.1. These batteries shall tie to the OEM auxiliary battery to increase the capacity of this auxiliary bank.



- 3.4.2.1.1. The positive battery cable for this connection shall be protected on both ends against short-circuiting via the use of high-amp, resettable 12VDC circuit breakers.
- 3.4.2.2. Batteries shall be configured in a “series/parallel” manner for a 12VDC reference.
- 3.4.2.3. Batteries shall be installed within an underbody battery compartment with a positive hold-down system.
- 3.4.3. One (1) ProAir, LLC. model 310, or equivalent, ductable 120VAC/12VDC heater/air conditioner unit shall be installed in the front mechanical cabinet. This unit is designed to be powered primarily by the vehicle’s engine, but has the capability to run from the shore power to help maintain interior cabin temperature with the engine off.
 - 3.4.3.1. Unit shall provide 35,000 BTU/hr heating 32,000 BTU/hr cooling from the 12VDC system (engine driven) and 14,000 BTU/hr heating and 10,000 BTU/hr cooling from the 120VAC system.
 - 3.4.3.1.1. An OEM heater booster option (option “XC2”) is included with the vehicle to improve heater coolant flow.
 - 3.4.3.2. Unit shall be driven by a properly sized engine mounted AC compressor and engine cooling system.
 - 3.4.3.2.1. An OEM compressor mount option (option “LBS”) is included with the vehicle to facilitate this compressor.
 - 3.4.3.3. The system condenser unit shall be mounted underbody in an area allowing proper dissipation of the heat produced.
 - 3.4.3.4. Refrigerant and coolant lines connecting this unit to the engine shall be heavily insulated, properly routed and secured.
 - 3.4.3.5. Unit shall be controlled by a dash-mounted control system.
 - 3.4.3.6. Heating and cooling output shall be integrated/ducted throughout the vehicle interior via ducting/venting integrated into the perimeter light/wire valances per concept drawings. Ducting/venting shall include approximately seven (7), 7” x 4” adjustable vents.
 - 3.4.3.7. Reference: <http://www.proairllc.com>
- 3.4.4. One (1) REI 700890, or equivalent, two-channel transit PA amplifier shall be installed to allow public address capabilities across the rear and outside speakers. Unit shall include a microphone, auxiliary audio input (connected to the OEM radio system), and internal and external volume controls.
 - 3.4.4.1. System shall include two (2) REI 230049, or equivalent, 4” weather resistant polypropylene speakers, with flush-mount louvered aluminum grills, installed on the exterior of the vehicle, curb side.



- 3.4.4.1.1. These speakers shall play audio from the OEM stereo in addition to public address audio.
- 3.4.4.2. System shall include two (2) REI 230002, or equivalent, 5” speakers, with grey metal grills, installed on the interior ceiling of the vehicle.
 - 3.4.4.2.1. These speakers shall play audio from the OEM stereo in addition to public address audio.
- 3.4.4.3. Reference: <http://www.radioeng.com>
- 3.4.5. One (1) REI, or equivalent, back-up camera/monitor system shall be installed.
 - 3.4.5.1. System shall include one (1) REI 710201, or equivalent, 7” LCD monitor shall be mounted on the dash area for easy view of the driver.
 - 3.4.5.2. System shall include one (1) REI 710182, or equivalent, rear mount back up camera shall be installed on the rear exterior of the vehicle. This heated camera shall be connected to the dash monitor, and include infrared night and a motorized damage weather protection shield.
 - 3.4.5.2.1. This camera must show as a reverse image, and automatically trigger from the vehicle’s reverse circuit, for rear view requirements.
 - 3.4.5.3. Reference: <http://www.radioeng.com>
- 3.4.6. One (1) REI R4001 Digital Bus-Watch, or equivalent, mobile DVR video monitoring system shall be installed. System shall include on-screen display (via on-board monitor or laptop computer), MPEG-4 video compression, 1 to 30fps selectable frame rate, and continuous, ignition, scheduled and event triggered recording modes.
 - 3.4.6.1. System shall be mounted in a location out of general view, but still readily accessible for staff.
 - 3.4.6.2. System shall include one (1) REI 710144, or equivalent, GPS receiver, to provide vehicle position data to the system.
 - 3.4.6.3. System shall include one (1) REI 71043 inertia sensor/accelerometer module, to provide movement data to the system.
 - 3.4.6.4. System shall include one (1) REI 512026, or equivalent, event signal harness.
 - 3.4.6.4.1. This harness shall allow event triggering from the condition of the side entry doors (an installed switch may be required) and/or the condition of the vehicle security system.



- 3.4.6.5. System shall include one (1) REI 710277, or equivalent, 4mm exterior camera, mounted curbside exterior, to monitor the area directly adjacent to the vehicle.
- 3.4.6.6. System shall include one (1) REI 710135, or equivalent, 2.8mm interior camera with IR night view and built-in microphone, mounted interior in the dash area, facing the rear.
- 3.4.6.7. System shall include REI 621000, or equivalent, Digital Bus-Watch software.
- 3.4.6.8. System shall include a USB cable routed to the staff desk for connection to the staff laptop computer.
- 3.4.6.9. Reference: <http://www.radioeng.com>
- 3.4.7. One (1) Viper 5002 Responder, 2-way security system, or equivalent, shall be installed. System shall be wired to all entry points and additionally include:
 - 3.4.7.1. Shock sensor
 - 3.4.7.2. Starter kill
 - 3.4.7.3. Keyless entry
 - 3.4.7.4. Six-tone siren
 - 3.4.7.5. Horn honk
 - 3.4.7.6. Dome light supervision
 - 3.4.7.7. Anti-carjacking (VRS)
 - 3.4.7.8. One (1) 2-way LCD transceiver (pages key fob transmitter upon alarm) and one (1) 4-button 1-way transmitter
 - 3.4.7.9. Auxiliary channel wired to trigger the mobile DVR monitoring system (reference 3.4.6).
 - 3.4.7.10. Reference: <http://www.viper.com>
- 3.4.8. One (1) Mobile Video Zone MVXLCDN26, or equivalent, 26" TFT LCD universal wall mount monitor module shall be installed in the rear face of the mechanical cabinet above the vehicle cockpit area. This monitor shall be flush-mounted facing the rear, as depicted in the concept drawings.
 - 3.4.8.1. Monitor shall be powered from the 12VDC auxiliary battery system and controlled by a dash-mounted, illuminated switch, properly labeled for this operation.
 - 3.4.8.2. Monitor shall include one (1) S-video and one (1) VGA extension cables, routed to the staff desk, for ease of connection to a laptop computer positioned on the work surface.



- 3.4.8.3. Reference:
http://www.mobilevideozone.com/product_view.aspx?product_ID=8FD8688D-88A1-4107-9EF6-F060D8E64AE5
- 3.4.9. One (1) AM Solar AM100-22B solar panel system, or equivalent, shall be provided for auxiliary battery recharging.
 - 3.4.9.1. System shall include one (1) Sunrunner AM100, 132 watt solar panel, mounted with rocker foot mounts to the center of the roof per concept drawings.
 - 3.4.9.2. System shall include HPV-22D charge controller. Monitor shall be mounted near the staff desk.
 - 3.4.9.3. System shall utilize a CB combiner box mounted on the roof to provide a weatherproof entry point.
 - 3.4.9.4. System shall include a 100-22 wire harness.
 - 3.4.9.5. Reference: <http://www.amsolar.com>
- 3.4.10. Two (2) Fan-tastic Vent 6000 RBTA, 3-speed 12VDC reversible powered roof vents shall be installed per concept drawings. Units shall feature a built-in thermostat and rain sensor.
 - 3.4.10.1. Reference: <http://www.fantasticvent.com>
- 3.4.11. Eight (8) Thin-Lite model 147, 12VDC fluorescent light fixtures shall be installed in the light valances per concept drawings.
 - 3.4.11.1. Lights shall be powered by the auxiliary battery system and controlled by an illuminated on/off switch mounted in the dash.
- 3.4.12. Four (4) Thin-Lite model 163, 12VDC weatherproof fluorescent outdoor area lights shall be installed; two (2) on the curbside and two (2) on the street side exterior of the vehicle.
 - 3.4.12.1. Lights shall be powered by the auxiliary battery system and controlled by illuminated on/off switches mounted in the dash.
- 3.4.13. Step well lighting (12VDC) shall be provided at the side entry.
 - 3.4.13.1. Shall be wired to operate in conjunction with the condition of the door, with an illuminated on/off switch mounted in the dash.
- 3.4.14. Two (2) 12VDC receptacles shall be installed near the staff desk, for technology power.
 - 3.4.14.1. Receptacles shall be powered by the auxiliary battery system and controlled by an illuminated on/off switch mounted in the dash
- 3.4.15. The OEM provided motion sensing dome lights (item 2.4.2.9) shall be reinstalled within the finished interior with full OEM capabilities.
- 3.4.16. One (1) Sierra Wireless AirLink MP595W, or equivalent, wireless CDMA ruggedized modem shall be provided.



- 3.4.16.1. Modem shall be powered by the 12VDC system and connect to the desk area via 10/100 Mbps RJ-45 cabling.
- 3.4.16.2. Modem shall include 802.11 b/g WiFi chip to provide a hotspot around the vehicle, and allow peak download data rates of 3.1 Mbps.
- 3.4.16.3. Modem shall include high-gain, 800/1900 MHz, exterior-mounted antenna for maximum performance.
- 3.4.16.4. Modem shall be configured for use on the Verizon or Sprint service networks (CDMA EV-DO Revision A).

3.5. Miscellaneous Components

- 3.5.1. One (1) battery-operated Carbon Monoxide (CO) detector shall be installed on the interior ceiling.
- 3.5.2. One (1) battery-operated smoke detector shall be installed on the interior ceiling.
- 3.5.3. One (1) 5 lb. ABC fire extinguisher shall be installed within the completed vehicle.
- 3.5.4. One (1) State DOT approved first aid kit shall be supplied and installed within the completed vehicle.
- 3.5.5. One (1) set of three (3) red emergency reflective triangles with dedicated ABS plastic enclosure shall be provided and installed.
- 3.5.6. One (1) engraved "vehicle height" tag shall be applied in the dash area to indicate overall vehicle height.

4. **CONVERSION SPECIFICATIONS: ONE (1) COMPUTER TRAINING VEHICLE**

4.1. Exterior

- 4.1.1. Twelve (12) 19" x 4" (approximate) radius windows shall be installed in the "mega roof" structure of the OEM vehicle per concept drawings.
 - 4.1.1.1. Windows shall be fixed pane, deep tint, tempered glass panels.
 - 4.1.1.2. Windows shall be installed in a manner preventing potential water leaks.
 - 4.1.1.3. Windows shall be trimmed within to compliment the interior.
- 4.1.2. One (1) auxiliary battery compartment shall be fabricated and installed on the driver's side of the vehicle, beneath the floor, to house the auxiliary batteries (reference 3.4.2.).
 - 4.1.2.1. Compartment shall be constructed of aluminum or equivalent materials, and include a tie-down system for the batteries.



- 4.1.2.2. Compartment shall be properly vented to prevent build-up of battery gases.
- 4.1.2.3. Door shall be constructed of aluminum and horizontally hinged with ¼" pin stainless steel continuous hinge.
- 4.1.2.4. Door shall have positive "compression" style, "slam latch", or equivalent locking latch and a door hold-open devise.
- 4.1.2.5. Compartment shall be kept as high as possible for maximum ground clearance.
- 4.1.3. The battery compartment, and all added exterior components, shall be finished with DuPont Imron 5000 or equivalent paint to match the OEM body color.
 - 4.1.3.1. 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.
 - 4.1.3.2. 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.
 - 4.1.3.3. Two (2) or three (3) evenly applied coats of DuPont Imron 5000 or equivalent paint, two (2) for dark colors and three (3) for light colors, 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.
- 4.1.4. Vehicle underbody shall be fully undercoated with rubberized spray to provide additional sound resonance dampening and underbody insulation protection.
- 4.1.5. Two (2) Yarder Manufacturing "Metropolitan Showcase" series ad-card sign frames shall be installed; one (1) on the rear exterior and one (1) on the curb side exterior.
 - 4.1.5.1. Approximate size of the rear frame shall be 16"x28", subject to final overall exterior graphics design and Library approval.
 - 4.1.5.2. Approximate size of the curb side frame shall be 25" x 48", subject to final overall exterior graphics design and Library approval.
 - 4.1.5.3. Reference: <http://www.yardermfg.com>
- 4.1.6. One (1) set of stainless steel wheel covers shall be installed on all outboard wheels.



- 4.1.6.1. Shall include stainless steel braided valve stem extensions (for all tires).
- 4.1.6.2. Reference: PN# WLKIT16D07 at <http://www.sprinteraccessories.com>
- 4.1.7. Vehicle shall have a “moderate” level vinyl graphics package in addition to the single color OEM base paint. Vendor shall indicate organization or persons involved with this project that the Library will bilaterally work with in the development and finalization of this graphics scheme.
 - 4.1.7.1. Vendor shall include a **\$6,000 allowance** for the development, printing and installation of this graphics package for each vehicle within their proposal.

4.2. Interior

- 4.2.1. The computer training lab interior shall be designed to accommodate up to five (5) students in addition to two (2) staff, in a quiet and relaxed setting.
- 4.2.2. Vehicle ceiling, walls and underbody shall be insulated with 2” nominal thickness sprayed-in urethane foam insulation.
 - 4.2.2.1. Insulation shall fill all feasible cavities within the body structure to provide maximum insulation values.
 - 4.2.2.2. Underbody foam insulation shall be protected from road spray and elements by an additional layer of rubberized automotive undercoating.
- 4.2.3. Vehicle ceiling shall be finished with a lightweight substrate material overlaid with acoustical fabric. The fabric and padding (if applicable) shall be applied in a manner consistent with the lifetime of the vehicle. Color and texture of fabric shall be selected by the Library from the vendor’s offerings.
 - 4.2.3.1. All upholstery used within the vehicle shall meet provisions of FMVSS-302.
- 4.2.4. Vehicle floor shall be sub-floored with 3/8” furniture grade plywood to provide a smooth and durable sub-surface and embed the “auxiliary cart lock down tracks” as depicted on the concept drawings and further described herein (reference section **Error! Reference source not found.**).
- 4.2.5. Floor covering shall be Milliken Image Series Two carpet squares or equivalent.
 - 4.2.5.1. Sub-flooring shall be properly prepared prior to installation of the floor covering.



- 4.2.5.2. Carpet squares shall be installed in a manner consistent with the manufacturer's recommendations, but take into account the thickness of the "auxiliary cart lock down tracks" (reference **Error! Reference source not found.**).
- 4.2.5.3. Any carpet remnants remaining from the carpet installation shall be shipped loose with the completed vehicles.
- 4.2.5.4. Exact color and/or style are subject to approval by the Library, based in part on vendor's offerings.
- 4.2.6. Carpet runners shall be provided to apply over the main flooring, constructed as large as feasible to cover exposed and/or high traffic areas of the vehicle interior, without obstructing normal operations. Two (2) runners shall be provided for each vehicle. Runners shall be of a commercial quality and have sufficient backing to prevent sliding during normal operations.
 - 4.2.6.1. The Library shall select the color and style of this carpet from vendor's offerings.
- 4.2.7. Upper wall finishes shall be commercial grade "upholstery weight" fabric applied over a 1/8" layer of cork to lightweight substrate materials and fitted between the shelving uprights. These panels shall be securely mounted to allow use as a bulletin board if desired, yet easily replaceable if they ever become damaged. Smaller spaces and trim areas shall be finished in complimenting materials.
 - 4.2.7.1. The Library shall select the color and style of this fabric from vendor's offerings.
 - 4.2.7.2. All upholstery used within the vehicle shall meet provisions of FMVSS-302.
- 4.2.8. Lower wall finishes shall be Milliken Image Series Two carpet to match and/or compliment the floor carpeting.
 - 4.2.8.1. The Library shall select the color and style of this carpet from vendor's offerings.
- 4.2.9. Since mobile learning center, and a quiet environment is most important in the successful operation of any educational environment, the majority of 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.
- 4.2.10. Two (2) European swivel seat adaptors shall be provided and installed; one (1) each for the driver (PN# SSAD07) and passenger (PN# SSAS07) seats. These adaptors will raise the seat height be 1.75".



- 4.2.10.1. Reference: <http://www.sprinteraccessories.com>
- 4.2.11. One (1) staff desk shall be furnished as depicted in the concept drawing. Desk shall be constructed of solid wood and light gauge furniture-grade plywood, finished to compliment the interior. 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. Desk shall be appropriately configured for installation of technologies by the Library, including cable pass-through grommets and defined wire paths from desktop to other locations as designated.
- 4.2.11.1. Desk shall include a positive latching pencil/keyboard drawer beneath the work surface.
- 4.2.11.2. Desk shall include a sidewall mounted, 2-tier storage cavity with Lexan faces to provide storage for files and paper supplies.
- 4.2.12. One (1) interior storage cabinet shall be provided above the staff desk as depicted in the concept drawings with lockable bulletin board type door per final design.
- 4.2.12.1. Staff desk cabinet shall include an open shelf area for future peripheral installations. Storage cabinet shall include key lock that is keyed alike to the other interior cabinets.
- 4.2.13. One (1) storage closet shall be furnished as depicted in the concept drawing. Closet shall be constructed of furniture-grade light-gauge plywood with the same finish as that of the desk. Closet shall contain three (3) adjustable shelves within.
- 4.2.13.1. Door shall be a lockable wood finish door with brochure rack built-in per concept drawings.
- 4.2.13.2. Closet door shall include a key lock that is keyed alike to the other interior cabinets.
- 4.2.14. One (1) storage cabinet shall be furnished as depicted in the concept drawings. Cabinet shall be constructed of furniture-grade, light gauge plywood with the same finish as that of the desk. Cabinet shall contain four (4) adjustable shelves within.
- 4.2.14.1. Doors shall be a lockable fabric covered cork doors.
- 4.2.14.2. Doors shall include a key lock that is keyed alike to the other interior cabinets.
- 4.2.15. One (1) printer cabinet shall be furnished as depicted in the concept drawings. Cabinet shall be constructed of solid wood and light gauge furniture-grade plywood, finished to compliment the interior. The worktop 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. Cabinet shall be appropriately configured for installation of technologies, including cable pass-through grommets and defined wire paths from worktop to other locations as designated.

- 4.2.16. One (1) mechanical storage cabinet shall be provided in the passenger side rear corner of the vehicle. This cabinet shall be accessed from the rear of the vehicle only (with the rear doors open), and contain three (3) fixed shelves with keepers.
 - 4.2.16.1. Cabinet shall be finished to compliment the interior. Finish shall be selected by the Library from vendor's selections.
- 4.2.17. One (1) mechanical cabinet shall be fabricated above the vehicle cockpit area as depicted in the concept drawings. This cabinet shall house the auxiliary HVAC evaporator, inverter, and LCD monitor.
 - 4.2.17.1. Cabinet shall be constructed of structural aluminum to carry the weight of the components and finished in light gauge furniture grade plywood, covered with finishing materials.
 - 4.2.17.2. Cabinet shall include a filtered return air panel for the auxiliary HVAC system and ventilation for the inverter.
 - 4.2.17.3. Cabinet shall include an access panel for easy servicing of the components within.
 - 4.2.17.4. Cabinet shall be finished to compliment the interior. Finish shall be selected by the Library from vendor's selections.
- 4.2.18. Two (2) 12' long, heavy-duty flanged "O" type, aircraft style tie-down tracks shall be installed flush into the flooring for securing additional loaded book carts and/or other loads.
 - 4.2.18.1. These tracks shall be securely mounted to the OEM vehicle floor and flush with the finished floor height.
 - 4.2.18.2. System shall include four (4) "ratchet" or "over-center" type straps for securing of loads.
 - 4.2.18.3. Reference:
<http://www.uscargocontrol.com/heavydutyflangedtrack100-p-379.html>
- 4.2.19. Five (5) modular work surfaces shall be fabricated and installed per concept drawings. These surfaces shall be constructed of ¾" 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.
 - 4.2.19.1. These surfaces shall utilize Acore surface brackets (reference 4.2.20.5.2) for attachment to the uprights and to allow surface height adjustability.



- 4.2.20. An Acore Shelving & Products, Inc. modular aluminum system shall be supplied and installed. Shelving components shall be powder coated after assembly where possible using coatings containing no lead or lead products. All components shall be constructed from superior grade lightweight materials and be built to withstand the unique stresses imposed by a mobile environment. The layout shall be designed to accommodate five (5) students with additional components described herein.
- 4.2.20.1. System shall utilize nine (9) type “CS8”, two-piece clamshell slotted shelf uprights, place on 36” centers. The uprights shall be mounted vertically to the side walls up to approximately 30” high, and **angled inward approximately 8°** above that, to an approximate height of 66” measured from the vehicle floor.
- 4.2.20.2. This configuration has been design by SVS in conjunction with Acore to maximize the aisle width of the completed vehicle. All efforts shall be made to retain the “wide aisle” design intent during construction of these vehicles. All modifications that affect the aisle width of the completed vehicle shall be approved by SVS prior to installation.
- 4.2.20.3. Uprights shall be firmly attached directly to the vehicle side wall sub-structure in a manner suitable to withstand the stress and forces unique to a mobile environment, including, but not limited to back plate fastening of the uppermost area of the uprights.
- 4.2.20.4. The areas between the uprights shall be finished as detailed to provide a flush finished surface, with only the mounting surface of the upright exposed. The design of the upright mounting and sidewall finish integration shall be subject to Library approval prior to installation.
- 4.2.20.5. The complete Acore/SVS modular system is expected to include the following components:
- 4.2.20.5.1. Nine (9) Acore CS8, two-piece clamshell slotted shelf uprights.
- 4.2.20.5.2. Five (5) pairs of surface brackets (for mounting of the work surfaces).
- 4.2.20.5.3. Five (5) Acore AB7(8°), 7” wall shelves, specially modified to accommodate the inward slanting upper uprights.
- 4.2.20.6. Vehicle shall be configured as depicted in the finalized drawing upon delivery. All remaining components (extras) of this system shall be shipped loose with each vehicle.
- 4.2.20.7. Final configuration of the interior shelving and cabinetry shall be subject to approval of the Library prior to installation.



- 4.2.20.8. Finish, cabinetry and work surface installation shall provide a **minimum 38” aisle width.**
- 4.2.20.9. Acore Shelving & Products, Inc. has been heavily involved in the development of this specially modified system. Vendors are urged to contact the following for additional information and/or pricing:

Acore Shelving & Products

Attn: Don Thompson, Sr. - Owner

1460 N.E. State Road 16

P.O. Box 67

Stark, FL 32091

Phone: 904.964.4320

Fax: 904.966.2458

Email: acore@atlantic.net

Web: www.acoreshelving.com

4.3. Electrical System – AC

- 4.3.1. System shall be a 120-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.
 - 4.3.1.1. 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.
 - 4.3.1.2. System furnished shall also meet any and all applicable state code requirements and regulations pertaining to the design and installation of AC electrical systems.
- 4.3.2. All AC wiring shall be installed using multi-stranded, multi-conductor flexible armored 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.
 - 4.3.2.1. 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.
 - 4.3.2.2. All wiring shall be sized using NEMA ratings to 125% of anticipated load.



- 4.3.3. Two (2) 120VAC, 15A rated, 2-pole 3-wire weather resistant power inlets shall be provided on the driver's side exterior of the vehicle.
 - 4.3.3.1. One (1) shall connect to the on-board inverter to provide bypass and battery charging power.
 - 4.3.3.2. One (1) shall connect to the dual-powered auxiliary HVAC system to provide maintenance heating and cooling.
- 4.3.4. Two (2) 120VAC, 15A rated, 50-foot, 12-gauge heavy-duty weather resistant extension cords shall be provided to connect the vehicle to shore power when available.
 - 4.3.4.1. These cords shall store in the rear corner mechanical cabinet.
- 4.3.5. A minimum of eight (8) 15A-rated, UL listed, NEMA 5-15, three-hole grounded duplex receptacles shall be furnished inside the vehicle for general and specific uses. These receptacles shall be powered directly from the inverter system.
- 4.3.6. One (1) 15A-rated, UL listed, NEMA 5-15, three-hole GFCI duplex receptacle shall be furnished on the exterior of the vehicle, curbside. Receptacles shall be powered by the inverter system.
- 4.3.7. One (1) ProAir, LLC. model 310, or equivalent, dual-powered auxiliary HVAC system shall be installed per drawings (reference section 3.4.3 for additional details).
- 4.3.8. One (1) Xantrex RS3000, 3,000 watt sine wave inverter/charger system shall be installed.
 - 4.3.8.1. Unit shall be installed in the mechanical compartment above the vehicle cockpit area, with proper ventilation, per concept drawings.
 - 4.3.8.2. Unit shall back all installed receptacles, awning and people counter.
 - 4.3.8.3. Unit shall provide extensive diagnostic information and fault history.
 - 4.3.8.4. Unit shall be wired to allow input power pass through to connected loads when available.
 - 4.3.8.5. Unit shall provide 150 amps of power factor corrected multi-stage battery charging capability for the auxiliary battery bank.
 - 4.3.8.6. Unit shall utilize and monitor the expanded auxiliary battery bank.
 - 4.3.8.7. Unit shall be controlled by a Xantrex 809-0910 remote panel, mounted near the staff workstation, and installed per manufacturer specification.
- 4.3.9. One (1) Girard Systems G-2000, or equivalent, automatic retractable lateral arm awning system shall be installed on the passenger side of the vehicle per concept drawings.



- 4.3.9.1. Custom brackets shall be fabricated to mount the awning case in the desired location.
- 4.3.9.2. Awning shall be 12' long by 9' 9" deep (approximate).
- 4.3.9.3. Awning shall operate automatically with 120VAC motors, automatically retract in high motion conditions, have a remote control in addition to the interior mounted switches, and have a manual override system. System shall include the following parts:
 - 4.3.9.3.1. 9800230-00 RTS universal receiver
 - 4.3.9.3.2. 9800166-W01 Eolis wireless motion sensor
 - 4.3.9.3.3. 9600127-00 ACL current limiter
 - 4.3.9.3.4. 9800131-01 single channel wireless switch
- 4.3.9.4. System shall be powered from the inverter system (reference 3.3.8).
- 4.3.9.5. Fabric and color shall be selected by the Library from manufacturer's offerings.
- 4.3.9.6. Girard Systems has been involved in the development of this project. For additional information, please contact Major Pogue at (949) 456-0386.
- 4.3.9.7. Reference: <http://www.girardrvawnings.com>

4.4. Electrical System – DC/Other

- 4.4.1. 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.
 - 4.4.1.1. 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.
 - 4.4.1.2. 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.



- 4.4.1.3. 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.
- 4.4.1.4. 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.
- 4.4.1.5. All auxiliary electrical circuits shall be safety protected from current overloading by heavy-duty automotive circuit breakers, each properly capacity sized to the circuit they serve, and located as close as practical to the battery. A master circuit breaker, minimum 150-amp shall also be furnished.
- 4.4.1.6. 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.
- 4.4.1.7. 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.



- 4.4.1.8. All wiring shall be routed meeting the following minimum requirements:
 - 4.4.1.8.1. No contact with sharp or puncturing edges.
 - 4.4.1.8.2. No tension or strain between fixed points.
 - 4.4.1.8.3. Adequate and safe clearance of moving parts.
 - 4.4.1.8.4. 5-inch clearance from radiant heat sources.
 - 4.4.1.8.5. Adequately secured to prevent pinching.
 - 4.4.1.8.6. Wiring to be color-coded and numbered, grease-, oil- and moisture-resistant and securely fastened.
- 4.4.1.9. 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.
- 4.4.2. Four (4) Interstate U2200, or equivalent, group GC-2, 6V deep-cycle, multi-purpose batteries shall be provided as an auxiliary battery bank for stationary 12VDC component power.
 - 4.4.2.1. These batteries shall tie to the OEM auxiliary battery to increase the capacity of this auxiliary bank.
 - 4.4.2.1.1. The positive battery cable for this connection shall be protected on both ends against short-circuiting via the use of high-amp, resettable 12VDC circuit breakers.
 - 4.4.2.2. Batteries shall be configured in a “series/parallel” manner for a 12VDC reference.
 - 4.4.2.3. Batteries shall be installed within an underbody battery compartment with a positive hold-down system.
- 4.4.3. One (1) ProAir, LLC. model 310, or equivalent, ductable 120VAC/12VDC heater/air conditioner unit shall be installed in the front mechanical cabinet. This unit is designed to be powered primarily by the vehicle’s engine, but has the capability to run from the shore power to help maintain interior cabin temperature with the engine off.
 - 4.4.3.1. Unit shall provide 35,000 BTU/hr heating 32,000 BTU/hr cooling from the 12VDC system (engine driven) and 14,000 BTU/hr heating and 10,000 BTU/hr cooling from the 120VAC system.
 - 4.4.3.1.1. An OEM heater booster option (option “XC2”) is included with the vehicle to improve heater coolant flow.
 - 4.4.3.2. Unit shall be driven by a properly sized engine mounted AC compressor and engine cooling system.
 - 4.4.3.2.1. An OEM compressor mount option (option “LBS”) is included with the vehicle to facilitate this compressor.



- 4.4.3.3. The system condenser unit shall be mounted underbody in an area allowing proper dissipation of the heat produced.
- 4.4.3.4. Refrigerant and coolant lines connecting this unit to the engine shall be heavily insulated, properly routed and secured.
- 4.4.3.5. Unit shall be controlled by a dash-mounted control system.
- 4.4.3.6. Heating and cooling output shall be integrated/ducted throughout the vehicle interior via ducting/venting integrated into the perimeter light/wire valances per concept drawings. Ducting/venting shall include approximately seven (7), 7" x 4" adjustable vents.
- 4.4.3.7. Reference: <http://www.proairllc.com>
- 4.4.4. One (1) REI 700890, or equivalent, two-channel transit PA amplifier shall be installed to allow public address capabilities across the rear and outside speakers. Unit shall include a microphone, auxiliary audio input (connected to the OEM radio system), and internal and external volume controls.
 - 4.4.4.1. System shall include two (2) REI 230049, or equivalent, 4" weather resistant polypropylene speakers, with flush-mount louvered aluminum grills, installed on the exterior of the vehicle, curb side.
 - 4.4.4.1.1. These speakers shall play audio from the OEM stereo in addition to public address audio.
 - 4.4.4.2. System shall include two (2) REI 230002, or equivalent, 5" speakers, with grey metal grills, installed on the interior ceiling of the vehicle.
 - 4.4.4.2.1. These speakers shall play audio from the OEM stereo in addition to public address audio.
 - 4.4.4.3. Reference: <http://www.radioeng.com>
- 4.4.5. One (1) REI, or equivalent, back-up camera/monitor system shall be installed.
 - 4.4.5.1. System shall include one (1) REI 710201, or equivalent, 7" LCD monitor shall be mounted on the dash area for easy view of the driver.
 - 4.4.5.2. System shall include one (1) REI 710182, or equivalent, rear mount back up camera shall be installed on the rear exterior of the vehicle. This heated camera shall be connected to the dash monitor, and include infrared night and a motorized damage weather protection shield.
 - 4.4.5.2.1. This camera must show as a reverse image, and automatically trigger from the vehicle's reverse circuit, for rear view requirements.
 - 4.4.5.3. Reference: <http://www.radioeng.com>



- 4.4.6. One (1) REI R4001 Digital Bus-Watch, or equivalent, mobile DVR video monitoring system shall be installed. System shall include on-screen display (via on-board monitor or laptop computer), MPEG-4 video compression, 1 to 30fps selectable frame rate, and continuous, ignition, scheduled and event triggered recording modes.
 - 4.4.6.1. System shall be mounted in a location out of general view, but still readily accessible for staff.
 - 4.4.6.2. System shall include one (1) REI 710144, or equivalent, GPS receiver, to provide vehicle position data to the system.
 - 4.4.6.3. System shall include one (1) REI 71043 inertia sensor/accelerometer module, to provide movement data to the system.
 - 4.4.6.4. System shall include one (1) REI 512026, or equivalent, event signal harness.
 - 4.4.6.4.1. This harness shall allow event triggering from the condition of the side entry doors (an installed switch may be required) and/or the condition of the vehicle security system.
 - 4.4.6.5. System shall include one (1) REI 710277, or equivalent, 4mm exterior camera, mounted curbside exterior, to monitor the area directly adjacent to the vehicle.
 - 4.4.6.6. System shall include one (1) REI 710135, or equivalent, 2.8mm interior camera with IR night view and built-in microphone, mounted interior in the dash area, facing the rear.
 - 4.4.6.7. System shall include REI 621000, or equivalent, Digital Bus-Watch software.
 - 4.4.6.8. System shall include a USB cable routed to the staff desk for connection to the staff laptop computer.
 - 4.4.6.9. Reference: <http://www.radioeng.com>
- 4.4.7. One (1) Viper 5002 Responder, 2-way security system, or equivalent, shall be installed. System shall be wired to all entry points and additionally include:
 - 4.4.7.1. Shock sensor
 - 4.4.7.2. Starter kill
 - 4.4.7.3. Keyless entry
 - 4.4.7.4. Six-tone siren
 - 4.4.7.5. Horn honk
 - 4.4.7.6. Dome light supervision
 - 4.4.7.7. Anti-carjacking (VRS)



- 4.4.7.8. One (1) 2-way LCD transceiver (pages key fob transmitter upon alarm) and one (1) 4-button 1-way transmitter
- 4.4.7.9. Auxiliary channel wired to trigger the mobile DVR monitoring system (reference 3.4.6).
- 4.4.7.10. Reference: <http://www.viper.com>
- 4.4.8. One (1) Mobile Video Zone MVXLCDN26, or equivalent, 26" TFT LCD universal wall mount monitor module shall be installed in the rear face of the mechanical cabinet above the vehicle cockpit area. This monitor shall be flush-mounted facing the rear, as depicted in the concept drawings.
 - 4.4.8.1. Monitor shall be powered from the 12VDC auxiliary battery system and controlled by a dash-mounted, illuminated switch, properly labeled for this operation.
 - 4.4.8.2. Monitor shall include one (1) S-video and one (1) VGA extension cables, routed to the staff desk, for ease of connection to a laptop computer positioned on the work surface.
 - 4.4.8.3. Reference: http://www.mobilevideozone.com/product_view.aspx?product_ID=8FD8688D-88A1-4107-9EF6-F060D8E64AE5
- 4.4.9. One (1) AM Solar AM100-22B solar panel system, or equivalent, shall be provided for auxiliary battery recharging.
 - 4.4.9.1. System shall include one (1) Sunrunner AM100, 132 watt solar panel, mounted with rocker foot mounts to the center of the roof per concept drawings.
 - 4.4.9.2. System shall include HPV-22D charge controller. Monitor shall be mounted near the staff desk.
 - 4.4.9.3. System shall utilize a CB combiner box mounted on the roof to provide a weatherproof entry point.
 - 4.4.9.4. System shall include a 100-22 wire harness.
 - 4.4.9.5. Reference: <http://www.amsolar.com>
- 4.4.10. Two (2) Fan-tastic Vent 6000 RBTA, 3-speed 12VDC reversible powered roof vents shall be installed per concept drawings. Units shall feature a built-in thermostat and rain sensor.
 - 4.4.10.1. Reference: <http://www.fantasticvent.com>
- 4.4.11. Eight (8) Thin-Lite model 147, 12VDC fluorescent light fixtures shall be installed in the light valances per concept drawings.
 - 4.4.11.1. Lights shall be powered by the auxiliary battery system and controlled by two (2) illuminated on/off switches mounted in the dash. Switches shall allow control of alternating fixtures within each bank of lighting.



4.4.12. Four (4) Thin-Lite model 163, 12VDC weatherproof fluorescent outdoor area lights shall be installed; two (2) on the curbside exterior and two (2) on the street side of the vehicle.

4.4.12.1. Lights shall be powered by the auxiliary battery system and controlled by illuminated on/off switches mounted in the dash.

4.4.13. Stepwell lighting (12VDC) shall be provided at the side entry.

4.4.13.1. Shall be wired to operate in conjunction with the condition of the door, with an illuminated on/off switch mounted in the dash.

4.4.14. Seven (7) 12VDC receptacles shall be installed near the staff desk, for technology power.

4.4.14.1. Receptacles shall be powered by the auxiliary battery system and controlled by an illuminated on/off switch mounted in the dash

4.4.15. The OEM provided motion sensing dome lights (item 2.4.2.9) shall be reinstalled within the finished interior with full OEM capabilities.

4.5. Technology Equipment and Systems

The following equipment and systems shall be provided and/or installed with/in the completed computer lab as part of this specification. Dedicated storage shall be provided aboard the vehicle to provide a secure place for safe transit of each item.

4.5.1. One (1) CAT6, 1000Mbps local area network (LAN) system shall be installed, terminated and verified within the van per concept drawings.

4.5.1.1. System shall connect the six (6) laptop computers and network printer, as well as four (4) additional RJ45 connection plates per schedule (10 total outputs), including one (1) mounted on the vehicle exterior (curbside).

4.5.1.2. System shall be fully verified prior to acceptance.

4.5.2. One (1) Linksys RV016, 10/100 16-port VPN router shall be supplied and installed per network drawing.

4.5.3. Six (6) Sierra Wireless AirLink MP595W, or equivalent, wireless CDMA ruggedized modems shall be provided.

4.5.3.1. Modems shall be powered by the 12VDC system and connect to the network router via 10/100 Mbps RJ-45 cabling per network drawing.

4.5.3.2. Modems shall include 802.11 b/g WiFi chips to provide a hotspot around the vehicle, and allow peak download data rates of 3.1 Mbps.

4.5.3.3. Modems shall include high-gain, 800/1900 MHz, exterior-mounted antennas for maximum performance.



- 4.5.3.4. Modems shall be configured for use on the Verizon or Sprint service networks (CDMA EV-DO Revision A).
- 4.5.4. Fifteen (15) Apple MacBook Pro laptop computers.
 - 4.5.4.1. 15-inch: 2.4GHz
 - 4.5.4.2. Intel Core 2 Duo
 - 4.5.4.3. 2GB Memory
 - 4.5.4.4. NVIDIA GeForce 9400M + 9600M GT with 256MB
 - 4.5.4.5. Illuminated keyboard
 - 4.5.4.6. CD R, CD RW, DVD-R, DVD-RW drive
 - 4.5.4.7. Reference:
http://store.apple.com/us/browse/home/shop_mac/family/macbook_pro?mco=MTlwMDQ
- 4.5.5. Ten (10) Wacom Bamboo Fun digital tablets with stylus.
 - 4.5.5.1. Reference: <http://www.wacom.com/bambootablet/bamboofun.php>
- 4.5.6. One (1) John Lemmon Films, Inc. Ready Animator with light source.
 - 4.5.6.1. Reference: <http://www.readyanimator.com/pricing.html>
- 4.5.7. One (1) HP L1956A#B1H ScanJet G4010 photo scanner.
- 4.5.8. One (1) Nikon 25583 Coolpix P50 8mp digital camera (black). Camera features a compact design with 8.1 Mega pixel sensor, 3.6x optical zoom, and MMC, SD, and SDHC supported memory.
- 4.5.9. One (1) Panasonic HDC-SD0, flash card camcorder.
- 4.5.10. One (1) 41"W x 75"T (approximate) manually retractable "green screen" shall be provided and installed as depicted in the concept drawings, to provide a backdrop for digital photography. This screen shall be mounted to the vehicle ceiling as depicted in the concept drawings.

4.6. Miscellaneous Components

- 4.6.1. One (1) battery-operated Carbon Monoxide (CO) detector shall be installed on the interior ceiling.
- 4.6.2. One (1) battery-operated smoke detector shall be installed on the interior ceiling.
- 4.6.3. One (1) 5 lb. ABC fire extinguisher shall be installed within the completed vehicle.
- 4.6.4. One (1) State DOT approved first aid kit shall be supplied and installed within the completed vehicle.



- 4.6.5. One (1) set of three (3) red emergency reflective triangles with dedicated ABS plastic enclosure shall be provided and installed.
- 4.6.6. One (1) engraved "vehicle height" tag shall be applied in the dash area to indicate overall vehicle height.

-----END OF SPECIFICATIONS (DRAWINGS FOLLOW)-----