

MSV-BAT-4000-102-40, Thomas DUI Processing Vehicle

BASIC VEHICLE DIMENSIONS

Width:	Interior	96"
	Exterior	102"
Height:	Interior	83"
	Exterior	13' 4"
Length:	Exterior	41' 10"
Wheelbase:		231"

CHASSIS SPECIFICATIONS

MANUFACTURER

Thomas Built Bus, or equal

TYPE

Heavy-duty front engine transit type shall be provided.

AIR CLEANER

Shall be heavy-duty replaceable type. Shall be mounted outside the passenger compartment with proper ducting to provide adequate engine aspiration. Location of the air intake shall be above the radiator for cleanest possible air. The air cleaner shall be readily accessible for servicing. The air cleaner shall include a progressive locking air restriction indicator. Donaldson replaceable single-stage air cleaner or equal.

ALTERNATOR

Shall be Leece Neville 12 volt of not less than 200 amps and provide at least 50% of the rated charge at engine idle. Mounting shall be heavy-duty 2-leg type as specified in SAE-J-80.

AXLES

Front: Detroit 13,200 lb. capacity integral arm steer axle. Forged steel I-Beam type with greasable tie rod ends and 80" nominal track width. King pin size 1.794" diameter with sealed bushing and tapered roller thrust bearings. Turning angle shall be minimum 45 degrees to allow maximum maneuverability.

Rear: Detroit 23,000 lbs. capacity single reduction, spiral bevel gearing shall be provided.

BATTERIES

Provide two (2) 12-volt conventional, BCI Group 31 batteries with threaded stud terminals. Batteries will have minimum 760 cold cranking amps each at 0 degrees Fahrenheit; 200 minutes minimum reserve capacity at 80 degrees Fahrenheit. Separate battery for generator shall be provided.

BRAKES

Heavy-Duty Air Brakes: Service Brakes dual air brake system designed to meet all requirements of FMVSS-121 in effect at time of manufacture. Front chamber 24 sq. in. Rear chamber 30 sq. in. S cam type. Automatic slack adjusters. Brake size front 16 ½" x 6" x ¾" Lining area- 410 sq. in. each. Brake size rear 16 ½" x 8 5/8" x ¾" Lining area- 590 sq. in. each. Total lining area 1,000 sq. in. Parking brake will be 30 sq. in. Spring type combination rear service and parking brake. Activated by a dash mounted control valve. Parking brake will be 30 sq. in. Spring type combination rear service and parking brake.

Anti-lock Braking System: Bendix 4-channel ABS with indicator light on dash. Front wheel speeds are sensed individually and the front brake application pressure modulator is governed by the wheel approaching lock-up to minimize steering input. Rear wheel speeds are sensed individually and rear brake application pressure modulation is governed by individual wheel speeds to maximize braking effort. The system is activated by the ignition switch and actuated by brake application. Every time the ignition switch is turned on, the system runs an automatic function check.

Air/Brake System: Dual airflow with a Wabco 18.7 CFM compressor. The air compressor will be gear driver and water cooled. The air compressor inlet is from the engine intake manifold. The airlines consist of flexible tubing to meet the requirements of SAE standard J844 or J844 Type 38 where conditions do not exceed temperatures of 200°F. The air lines are color coded for easy identification as follows: Green = primary brake lines, Red = secondary brakes, Brown = parking brake, Yellow = compressor governor signal and Black = accessories. The air reservoirs include one (1) wet tank at 1500 cu. in. and two (2) dry tanks at 3000 cu. in. There are automatic air tank drains with heater. There is a spring set release with 30 sq. in. chambers and a dash mounted control valve.

Air Dryer: Bendix AD9 air dryer with heater. Desiccant air dryer removes moisture from brake system. Dual airflow with a Bendix Tu-Flo 550 13.2 CFM air compressor.

COOLING SYSTEM

Radiator 796 sq. in. core area radiator with betaweld construction, serpentine fins (3 rows with 16 FPI), 24 in. 10 blades nylon fan shall be provided. Electrically operated fan clutch shall be provided. The betaweld radiator core prevents "solder bloom" common to soldered cores and offers added durability of the core. The integral deaeration top tank and overflow bottle provides complete coolant deaeration recommended by engine manufacturer. This results in longer engine life.

DRIVE LINE

Spicer Life SPL size to be determined by engine transmission application. Guards for each driveshaft are included.

ELECTRICAL SYSTEM

12-volt negative ground with 150-amp circuit breaker with master disconnect shall be provided.

ELECTRICAL CONTROLS & INSTRUMENTS

Dash Mounted

- Directional signals indicator lamp
- Dual reading gauges – US Primary/Metric Secondary
- Engine coolant temperature gauge
- Fuel level gauge
- Headlight switch
- High/low beam indicator
- Ignition key operated engine shutoff
- Low air pressure warning light (air brake only)
- Oil pressure gauge
- Speedometer/odometer – 7 digits (including 10ths)
- Voltmeter
- 300-amp ammeter
- Transmission temperature gauge
- Momentary electric fast idle switch
- “Check Engine” engine fault code warning lamp
- “Engine Warning” fault code warning lamp
- High coolant temperature/low oil pressure warning buzzer and “EPS Stop Engine” warning lamp
- “Air Intake Heater” engine grid heater lamp

Steering Column Mounted

- Self-canceling combination turn signal
- High beam switch
- Horn
- Four-way flasher

ENGINE

Cummins 260 Horsepower Engine

Model	ISB-260
Displacement	409 Cu. In. (6.7L)
Rated Horsepower	260 HP (172 KW) at 2600
Governed Speed	2600
Rated Torque	620 lb-ft (705 NM) at 1600
Configuration	4-Cycle In-line 6 Un-sleeved with EGR
After Cooler	Air to Air
Fuel	Ultra Low Sulfur #2 Diesel
Crankcase Capacity	15 qt. (14.2 L)
Weight	1150 lb. (523 kg) with flywheel housing and air compressor
Idle Speed	800 RPM
Air Compressor	Wabco 18.7 CFM
Alternator Drive	Polyvee Belt
Starter	Denso 3 KW gear reduction type

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Fuel water separator with heater shall be provided

Cruise Control shall be provided.

Block Heater:

750-watt, 120-volt Kim single element immersion type block heater with electrical cord with sealed male 3-prong plug for the block heater. The electrical cord provides electrical connection inside the engine compartment or receptacle.

ENGINE COMPARTMENT

Shall be a durable, lightweight fiberglass engine cover hinged for access to the engine. There shall be a separate access door located in the cover for access to all engine fluid fill and checks without opening the engine cover. The engine cover shall not exceed 6" from the body floor at the rear and shall not extend more than 36" from the dash to provide improved visibility and maximum aisle space. The engine cover shall provide a highly effective seal with thermal and acoustic insulation.

EXHAUST SYSTEM

Tailpipe terminates under bumper, left side rear. Exhaust system features an ATD (After Treatment Device) and Selective Catalytic Reduction (SCR) system:

- Self insulated
- One (1) differential pressure
- Two (2) temperature sensors
- Diesel Exhaust Fluid (DEF) tank

A mitigator is included to reduce exhaust temperatures. The exhaust system is constructed of 409 stainless steel, insulated or thermal wrapped from the turbo to the ATD. From the ATD to the tailpipe, it is aluminized steel.

A Selective Catalytic Reduction (SCR) system is installed after the ATD to achieve near-zero emissions without any compromise of fuel economy, reliability, or durability. The SCR system reduces Oxides of Nitrogen (NOx) and Particulate Matter (PM) into harmless nitrogen gas and water vapor. DEF consumption will be approximately 2% of fuel consumption. Vehicle will be equipped with a "low fluid" lamp which will indicate to the driver when the DEF level is getting low.

FRAME

Mainframe shall be 10" web with 3" flanges and 1/4" thickness, with minimum section modulus of 10.04 cu. in. Resisting bending moment shall be 501,500 in.-lb. minimum, with yield strength of 50,000 lbs. Heavy duty "C" channel cross members shall be used. Front and rear inner chassis bumpers shall be bolted to chassis frame rails for added front and rear protection and reinforcement.

FUEL SYSTEM

Shall meet FMVSS 301. Fuel fill is located on the right side of the unit. A heated fuel/water separator shall be provided. There shall be nylon fuel lines in chassis with wire braid reinforced hoses from engine to chassis. Fuel lines will be color coded orange for easy identification.

FUEL TANK

60-gallon fuel tank mounted between rails, equipped with a protective cage shall meet FMVSS 301.

G.V.W.R.

33,000 lb. GVWR

HORN

Dual electric horn shall be provided.

OIL FILTER

Full flow spin-on oil filter shall be provided with replacement element.

SHOCK ABSORBERS

Front: Two (2) hydraulic direct-acting double action, 1-3/4" bore.

Rear: Two (2) hydraulic direct-acting double action, 1-3/4" bore.

SPRINGS/SUSPENSION

Front: 3-1/2" x 56" multi-leaf; rating 6,600 lbs.; 13,200 lb. Capacity.

Rear: 3" x 56" double slipper variable rate radius leaf; rating 23,000 lb. capacity.

STEERING

Power Ross TAS-65 integral steering gear with 20.42:1 ratio shall be provided. The steering includes a single adjustable drag link. The steering wheel is an 18" diameter soft-touch 2-spoke steering wheel with tilt/telescoping steering column. There is a 45-degree nominal turning angle with 11R22.5 tires Polyethylene boot secured to the floor that surrounds the steering column to provide sealing between the floor and the steering column.

TIRES

Six Goodyear (6) 11R22.5 14 ply radial tires shall be provided. Mud-Snow tire are available for the rear.

TRANSMISSION

Allison Series 2500 PTS 5-speed automatic transmission with transmission oil cooler, filter, and illuminated cable actuated shift control. Transmission is electronically controlled with lockup in the top four (4) gears.

WHEELS

Steel disc type with one-piece size to fit tire shall be provided. Stainless steel wheel inserts to be provided.

WIRING

Color-coded and numbered wiring shall be provided. Wiring harness must be enclosed in protective convoluted conduit. All wiring and plumbing must be routed down center under side of chassis for ease of access. All lines and hoses in harness to be grommeted and securely fastened to chassis crossmembers.

BODY SPECIFICATIONS**BATTERY MOUNTING**

Skirt-mounted battery box. This compartment will incorporate chassis, house and generator batteries. Box includes an all-aluminum roller bearing slide-out tray with a 1000 lb. capacity. Battery tray will have the capability of latching when extended and retracted. The tray will include a full width pull handle with an integrated latch. (NO EXCEPTIONS, Vendor must include photos of this style tray for this bid). Box must be back vented to allow off-gassing of batteries. Batteries will be secured in box using an adjustable aluminum angled bracket.

BUMPERS

Front: The front bumper is an integral part of the front fiberglass cap and reinforced with 2" x 2" steel tubing and ¼" x 4" plate steel connected directly to the frame rails. (NO EXCEPTIONS, Vendor must include photos of this style bumper without the front cap installed)

Rear: The rear bumper is 4" deep 6" high .25" thick steel tubing with contour angled end caps filled solid. Bumper will be mounted directly to the frame rails and painted to match the body.

CONSTRUCTION

MSV custom fiberglass and aluminum body; body framework will be a welded aluminum design. Sidewall horizontal and vertical structure will be 2" x 2" x .125" aluminum tubing. All horizontal and vertical structures to be welded top and bottom. All vertical tubing will be spaced on 16" centers. Insulation will be 2" Expanded Polystyrene (EPS). Interior sub wall to be 3/16" Luan grade plywood, (finished wall will be added). The exterior will be sheeting with .125" fiberglass gel-coating skin. Exterior panel's smooth fiberglass will go through a lamination process that will include a vacuum bonding procedure. Lower skirt panels will be constructed of aluminum sheeting with a low-profile rub rail between the upper body panel and lower skirt panel.

Roof will be constructed of 2" x 2" x .125" aluminum tubing on 16" centers with a truss system forming a contour exterior. Insulation will be 3" Expanded Polystyrene (EPS). Interior sub wall to be 3/16" Luan grade plywood, (finished wall will be added). The exterior will be .063 aluminum sheeting will go through a lamination process that will include a vacuum bonding procedure.

Floor will be constructed of 2" x 2" x .125" aluminum tubing on 12" centers. Insulation will be 2" Expanded Polystyrene (EPS). .040 aluminum sheeting will be installed on both the underside and interior floor structure. 3/4" Luan grade plywood sub-floor will be installed.

Mounting:

0.25 Aluminum tubular trusses will be used. The body longitudinal substructure shall be bolted to the chassis utilizing full floating rubber mounting pucks. The number and placement of full floating body isolation mounts shall be determined by final design weight of the body structure, the weight ratings of the mounts and the chassis manufacturer's recommendations found in his body builder's manual.

Cap:

The front of the vehicle shall have a custom fiberglass cap. Cap will be specifically constructed to match the contours on the chassis to form a continuous aerodynamic structure. "Box Trucks" and/or fiberglass pieces, wind dams or fairings not specifically designed to fit the chassis are not acceptable.

Lighting:

All lights must comply with FMVSS 108. All exterior lighting will be D.O.T. approved and feature LED lighting. Designs which do not meet all D.O.T. lighting requirements are not acceptable.

- Headlights: Dual seal beam halogen and LED daytime running lights
- LED Front Directional: Four 7" LED round amber directional lights: two (2) front and two (2) rear, surface mounted, sealed type lights with a universal-type sealed connector plug.
- LED Side Directional: Two (2) sealed, LED red, side directional lights will be included. One (1) LED amber light located behind the entrance door below window level guard rail and one (1) located left side similar position.
- Cluster Lights: Three (3) amber with protective metal shields mounted on the front body hood; three (3) red without shields mounted on the upper rear body hood.
- LED Clearance/Marker Lights with protective aluminum guards. This includes intermediate side marker lights. Two (2) front corners; two (2) rear corners; two (2) amidship side roof.
- Rear Directional/Stop/Back Up: Combination directional, stop and back-up lights in one (1) assembly.
- LED Stop/Tail lights
- One (1) license plate lights
- Universal-type sealed connector plug

DASHBOARD

Dashboard shall be angled for maximum visibility.

DOORS

Driver's door to be approximately 32.5" wide x 70.5" high outward opening type door. Door includes split sash glass mounted in the upper section of the door: laminated, tinted to 70% light transmission, 26.25" wide x 32.5" high. Steps to be custom molded into fiberglass cap custom designed for this chassis/body combination.

Front entrance door to be approximately 33" wide x 91" high outward opening type door. Door includes split sash glass mounted in the upper section of the door: laminated, tinted to 70% light transmission, 26.25" wide x 32.5" high. Tinted solid stationary glass mounted in the lower section of the door, 26.25" wide x 32.5" high, this is safety feature to be able to view patrons and roadside curb. Included will be a two-step stepwell with riser height is 9.5" tread depth is 10". A heavy-duty dual electric auxiliary step will be installed.

Body entrance door to be approximately 32" wide x 80" high, forward stainless steel full length piano hinge, outward opening sedan door. Door includes split tinted solid stationary glass mounted in the upper section of the door, 17.5" wide x 19.5" high. Center entrance door shall have exterior fold down steps with detachable handrail system. This design provides a flat floor and eliminates the hazard of an interior stepwell. The fold down steps shall be stowed in an underbelly storage compartment with adequate structural reinforcement to support a weight of occupants entering and exiting vehicle. (NO EXCEPTIONS)

Doors to be equipped with door closer. The door latch will be a heavy-duty Trimark door latch with positive acting latches located at both the top and the bottom of the door to ensure a positive seal and prevent leaks.

ELECTRICAL

Access: Main body wiring harness shall be fully accessible via removable raceways, removable shelves and access panels on driver's side of vehicle.

The wiring harness shall be protected by automatic reset circuit breakers.

Wiring shall be color-coded and numbered and flame retardant.

The main vehicle electrical junction box shall be located below the driver's window and accessible from the exterior via a hinged door with interior release mechanism. A wiring diagram shall be attached to the backside of the electrical access door.

Maintenance Manual: Detailed electrical trouble-shooting owner/operator, maintenance manual to be provided.

FUEL TANK OPENING

Exterior fuel tank opening shall have spring-loaded door with lock. Interior access plate shall be readily available for servicing.

GRAB RAILS

Exterior stainless-steel grab rails at each door. Interior horizontal grab rail on each door below upper window. Grab rails located at each stepwell.

HEATER & DEFROSTERS: FRONT

Minimum 91,000 high-pressure coil-type center front heater with defroster and booster pump.

LEVELING SYSTEM

One (1) Quadra heavy-duty fully automatic one-touch leveling system. The system shall use two-way straight acting jacks. Individual power units are attached to each individual jack. System shall include installing an air ride dump valve wired into system to release the air from the air bags during leveling.

MIRRORS

Exterior: Heated remote-controlled transit mirrors. Mirror heads are made of UV-resistant, heavy-duty ABS mirror heads. Mirror head featuring independently adjustable flat and convex glass (62 sq. in. flat glass and 30 sq. in. integral convex). Both upper flat and lower convex mirrors can be controlled independently.

MUD FLAPS

Rubber mud flaps front and rear shall be provided.

SEATING

Driver's seat with adjustable high back. Includes 6-position tilt and adjustment. Tilt adjustment control is mounted on the right side of the driver's seat. Seat cushion has four (4) position adjustments. For and aft adjustment by fingertip control.

STORAGE COMPARTMENTS

One (1) aluminum compartments will be designed and built to accommodate customer provided equipment. These compartments will be securely tied into body framework to avoid damage to the compartments and the equipment by road vibration and road surface faults. The latches will be locking Tri-Mark latches, keyed alike. Additional compartments to be installed for storage of generator, batteries, shoreline.

SUNVISORS

6" x 30" plastic sun-visor with finished edge mounted to windshield header shall be provided for the driver.

UNDERCOATING

Floor, skirts and wheelhouses shall be undercoated with asphalt emulsion water-based material or equal.

WINDOWS

Driver Area – Split-sash Window

Four (4) split-sash side windows will be included in the coach area of the vehicle.

WINDSHIELD

2-piece curved tinted glass shall be set in rubber. The windshield shall be designed for maximum driver visibility in all directions. Windshield to be 48" h x 107.5" wide tinted laminated safety glass. Material thickness shall be .28" maximum with a 9" blue shade band. Windshield shall be as low as possible to allow maximum downward view in front of vehicle.

WINDSHIELD WASHER

Electric-operated with wiper arm spray reservoir windshield washer shall be provided. Capacity shall be one (1) gallon.

WINDSHIELD WIPERS

Two (2) bottom-mounted electrically operated with parallelogram type arms with variable speed and intermittent feature. Wiper blades approximately 32" long and arms approximately 28" long.

CONVERSION PACKAGE

AUDIO/VIDEO/SURVEILLANCE

One (1) 20" LCD, PC Compatible TV, installed on a wall mount that provides display pitch and pivot adjustment. Signals run to this unit shall include local/off-air antenna, CATV, DSS, DVD.

One (1) 42" PC Compatible TV, installed in exterior storage compartment. Signals run to this unit shall include local/off-air antenna, CATV, DSS and DVD. Construction of cabinet to provide for adequate ventilation and removable or hinged access panel to easily plug into rear inputs/outputs on TV. Additionally, plates shall be installed in the back of this cabinet with plug in outlets for Audio/Video In & Out, as well as PC (through the use of a DCI cable) with wiring pre-run to the TV.

One (1) weatherproof microphone jack will be installed, connected to a PA Amplifier and two exterior Bose speakers (black). System designed shall be installed to allow presentations to be conducted on the curbside of vehicle with the use of the microphone. Speakers shall also be routed through one (1) Kicker amplifier (or approved equal) and tied into exterior Plasma TV. Final location to be determined at pre-construction meeting.

Two (2) 13" LCD televisions installed near rack mount located behind driver. Monitor #1 shall be wired to reflect what is being recorded through DVR.

One (1) Omni-Directional Roadstar, or equal, antenna with signal booster to be installed and wired to splitter for use on both 20" and 42" televisions.

One (1) exterior CATV inlet in weatherproof compartment shall be included and routed to splitter for use on both the 20" and 42" televisions.

One (1) KVH TracVision R4 Stationary Satellite TV antenna, wired to both 20" and 42" televisions.

One (1) 19" Compact In-wall slide out rack mount shall be installed, model # 8746SR18 (31.5" H) or approved equal, for use with all CCTV equipment. Custom shelves, with fan and mounting plates shall be provided. Wiring for equipment in this rack shall be of sufficient length for easy mobility of the rack system.

One (1) combination Samsung DVDVCR330 VCR/DVD-R player installed in front electronics cabinet.

One (1) Everfocus EDSR900 9-Channel Full-Size Digital Video Recorder installed in rack mount.

AWNING

One (1) 20' Dometic A&E Weatherpro Powered Awning will be installed according to final floor plan. Hardware to be black. Customer to choose color from manufacturer's selections after award of bid.

BEVERAGE HOLDER

Two (2) - two beverage capacity holders, capable of holding large & small sized drinks, shall be furnished within easy reach of the passenger and driver seats.

CABINETRY - FINISH

All interior cabinetry shall be finished using a UV wood acrylate finish cured with Ultra Violet light – one scaler coat plus one topcoat, both cured to total dry thickness of .8 – 1.0 mil. Finish shall contain 0% formaldehyde content, 0% VOC emissions, and exceed AWI, NKB, and ANSI standards with a 30%-40% reflection level.

Countertops shall be high-impact laminate covering.

CABINETRY - CONSTRUCTION

All interior cabinets shall be constructed using cabinet grade, hardwood veneer plywood. Plywood shall be constructed using cross-grain and long-grain Poplar and Fir core layers, sanded to ensure maximum smoothness.

Interior cabinetry shall be constructed from pre-engineered components produced by a CNC router, with accuracy to design of +/- .0001". Component design files shall be kept by the vendor for a minimum of 15 years to allow for identical field replacement should such become necessary. All cabinet components shall be identified with a UPC bar code and written description to additionally facilitate this requirement.

All exposed edges shall have a 3mm, hardened PVC edgeband applied to ensure durability and superior aesthetical qualities. Banding shall be applied using AD-20, EVA Ethylene – Vinylacetate based adhesive and using only machinery.

Storage – Storage cabinets will be constructed according to final floorplan. Drawers and cabinets with include Southco flush mounted latches. Final layout to be determined upon award of bid.

Bulkhead to be pocket door configuration to allow for easily entry and egress without disrupting flow of traffic within the unit.

CEILING

Ceiling will be a drop style ceiling with ducted air conditioning vents. Interior lights will also be recessed in the ceiling. Padded Vinyl Headliner to be installed throughout the vehicle. Customer to choose color from manufacturers selections.

CLOCKS

Two (2) 4" high LED digit 24-hour clocks will be provided. One master clock with CDMA time synchronization will be mounted in the driver's compartment and one slave clock connected by low-voltage cable will be mounted in the main cabin area. Clocks to be BRG Precision models or equal.

COMMUNICATIONS

Install one (1) 20' antenna raceway on driver side roof line, all plates to be installed with gaskets in lieu of silicone and extra care to be taken with pulling wires to reduce chafing. Drip/drain holes shall be installed underneath raceway to allow any water to escape.

Three (3) aluminum cable pass through ports shall be provided, two on driver's side and one on curb side. Shall be approximately 4" square with lockable, weather tight covers.

ELECTRICAL SYSTEM

AC Electrical System:

Shall be a 120/240 VAC system rated for anticipated conversion load. System shall include 125A rated distribution panel configured with UL LED listed type magnetic/hydraulic circuit breakers.

System shall be wired using UL approved, tinned copper multi-stranded boat cable. All wiring shall be color-coded: black = hot, white = neutral and green = ground. Additionally, wiring shall be labeled with machine-generated, self-laminating labels, listing circuit number and/or designation at all termination points. All wiring shall adhere to applicable NEC and FMVSS regulations.

Wiring shall be supported on 20" to 24" centers with insulated, non-conductive clamps. Wire bundles shall be tied with trimmed nylon ties. Extreme care shall be taken to prevent chafing, abrasion, and exposure to high heat. Wiring run in external areas shall be encased in conduit to further protect against damage.

A minimum of thirteen (13), 15 amp. minimum rated, UL Listed NEMA 5-15R three-hole grounded duplex type wall outlets shall be furnished inside the coach, located where required at regular intervals down both sides of the length of the unit. A maximum of four (4) duplex wall outlets shall be wired per circuit for maximum system safety. In addition to the above outlets, three (3) 15 amp. minimum rated, UL Listed NEMA 5-15R three-hole grounded, duplex wall type outlets shall be furnished to supply 120 volt rated AC power from the inverter system for Breath Alcohol Testing equipment. Location to be specified at pre-construction conference.

A minimum of two (2), 15 Amp. minimum rated, UL Listed NEMA 5-15R three-hole grounded Weatherproof duplex type wall outlets shall be furnished on curbside and two (2) installed on driver's side of unit.

DC Electrical System:

Shall be a 12 VDC system rated for anticipated conversion load. System shall include a 125A rated distribution panel configured with UL listed type magnetic/hydraulic circuit breakers with LED indicators to show activation. System will include a 12V voltmeter, and 12V low voltage alarm. Circuit breaker functions shall be clearly designated by printed labels. Wiring shall be labeled with machine-generated, self-laminating labels, listing circuit number and/or designation at all termination points.

INVERTER SYSTEM: A Xantrex 2000-Watt pure sine wave static inverter with remote switch will be installed. System to include minimum of 120 minutes backup power and AC line conditioning capabilities.

There shall be a minimum of six 12V cigarette outlet style outlets at locations to be determined at the pre-construction meeting.

Auxiliary battery system shall include one (1) Group 31 deep-cycle battery for generator, two (2) 8D batteries for 12V lighting and two (2) 8D batteries for inverter, all mounted in an exterior compartment (or suitable alternative) and two (2) 90 amp, three-stage, fully regulated battery chargers. Battery chargers must be fully regulated to prevent battery overcharging.

Charging system shall include provisions for automatic and manual battery bank merging to provide redundant battery power for vehicle and generator starting. System shall provide battery isolation during operation periods when the vehicle engine is not running to prevent depletion of both battery systems.

Wiring Requirements:

All high-current battery cabling shall utilize full-length cable runs sized to load; splices are not acceptable. Terminal ends shall be crimped with manufacturer recommended tooling and sealed using color-coded wrap.

All added wiring for 12VDC load runs shall be AWG 8,10,12, and 14, and conform to MIL-W-1678D type D. Wire terminals used shall conform to MIL-T-7928. Terminals shall be insulated with insulation grip, Type II, Class 2, and crimped with tooling recommended by manufacturer.

All added wiring shall be supported on 12" centers and bundles shall be tied with trimmed nylon ties. Entire system shall be installed to modern US automotive standards using best practices available at time of installation. Plastic grommets and/or dielectric sealants shall be used to protect wiring and/or looms where they pass through sheet metal, bulkheads, or structural supports. Convoluted polyethylene tubing shall be used to protect against chafing and abrasion where required. Extreme care shall be exercised to provide for easy serviceability of the system in future years. Extreme care shall be taken to avoid the engine manifold, engine exhaust, muffler, or any high-heat items that may subject the wiring to severe overheating during long periods of operation. These shall be the minimum acceptable wiring standards.

Air Conditioner units shall be wired to its own individual circuit and circuit breaker

EMERGENCY WARNING EQUIPMENT

One (1) Federal Signal Siren with 200W Speaker shall be included. Controller to be mounted in dash console.

One (1) Grover Air Horn (model 1601 or approved equal) installed per final drawings.

FLOOR COVERING

Install commercial-grade PVC or rubber floor covering. Customer will choose from a selection of colors and available products upon award.

FLOORPLAN

Custom floorplan designed and engineered using Computer Aided Drafting (CAD) technology. Floorplan will be provided on Size B paper and designed in 3/8" scale. CAD technology will be capable of both two-dimensional line drawings as well as computer simulated three dimensional renderings including conceptual interior colors and ergonomic simulation. Vendor must provide these drawings at time of bid, thus showing their capability to meet these requirements. Electrical (as built) schematics/drawings will be provided upon delivery of vehicle.

GALLEY

One (1) 3.6 cubic foot, 12-volt/110volt refrigerator

One (1) 1.2 cubic foot microwave

One (1) Bunn VP 17-2 w/ 3 pot coffee maker. Install Sani-Dex handwipe 135 count canister with spare set of wipes.

GENERATOR

24 kW Tier 4 Diesel Generator to be installed. Generator fuel line will be tied into the existing chassis fuel tank. This fuel line will be installed approximately so generator cannot use the last 25% of fuel tank.

The generator shall be mounted beneath the vehicle utilizing a "tilt-down tray" mounting frame system with a front access door set. Access to the sides and rear of the generator shall be via removable sound attenuation panels. General generator installation shall be in full accordance with manufacturer's recommendations including any air flow restrictions associated with the installation method.

GENERATOR COMPARTMENT

An aluminum compartment will be designed and built to accommodate the required generator. The compartment will be securely tied into body framework to avoid damage to the compartment and the equipment by road vibration and road surface faults. Generator shall have double swing-out doors for ease of access. The doors will have ventilation panels of louvered metal installed as required to move air over and around the generator, away from air inlets, and meeting manufacturer's requirements. The generator compartment must be insulated to maximum possible for elimination of heat, noise, and fumes to the coach area through walls and/or flooring without interfering with necessary airflow. Insulation will surround all possible areas of the generator compartment. The latches will be locking Trimark flush mounted latches, keyed alike.

GENERATOR CONTROLS

Generator start, stop preheat switch and hour meter shall be located in the front interior of vehicle.

GRAPHICS

Graphics to be determined, not included.

Vendor will supply sample graphic packages showing basic graphics to a full vinyl wrap package. Graphics must be 3M™ Scotchprint™ and installed by a 3M™ Scotchprint™ Graphics Certified installer. Installer must be a member of the United Application Standards Group (UASG). When you choose 3M's matched component products to produce Scotchprint® Graphics, you'll know that every component has been designed, developed, tested and manufactured for superior performance and total compatibility. The result is a range of perfectly balanced products that print, cut and apply consistently. With 3M matched component products, you can create graphics that meet your needs, from short-term promotional to long-term durable applications.

HVAC

Air Conditioning:

Three (3) 15,000 BTU roof mounted Coleman air conditioners, 110 volt. Roof section to be reinforced where air conditioners are to be mounted.

Heaters:

Four (4) Electric fan forced air heaters with variable control 1500 watts.

Thermostat:

One (1) thermostat for both heaters and air conditioners that will control up to four (4) zones.

CHASSIS AIR CONDITIONING

Install a 36,000 BTU cab Rifled Air Conditioning system. System will include a BH10 dash evaporator and RC-10 condenser. Vents shall be integrated in dash area of cab.

One (1) fresh air power vent (restroom) and one (1) escape hatch installed in centerline of roof. Vent shall include a screen, manually operated and to be weatherproof when closed.

LABELS

All compartments and controls shall have permanently etched labels where required.

LAYOUT

CAB AREA:

Eight-gun locker to be installed in driver's area, underneath rack mount equipment. Rack mount shall be installed to allow for all electronics components. TV's to be mounted above or beside rack mount where space allows.

Curb side area shall have supplied and installed jump seat and beverage holder on wall. Final location to be determined upon final approved drawing.

Bass panels shall be mounted in crash bulkhead where space allows.

SERVER/IT STORAGE:

Configured with 19" Rack Mount on swing pole and installed in such a manner where equipment can be easily installed and accessed. Extra care taken to ensure that depth (approx. 30") of cabinet allows for easy installation of future server and other equipment. Satellite preparation package shall be installed and routed to this cabinet.

GALLEY:

See **Galley** section of this document for details.

BOOKING:

Booking desk to be approximately 39" in height. Upper cabinet to be shortened from BAT #1 from 24" to 20".

OFFICER WORK STATION:

Curb side of vehicle, opposite of Booking desk shall have two facing workstations with base cabinet. This desk shall be approximately 51" wide with base cabinet of no more than 23" wide, thus allowing ease of movement in and out of desk areas.

DRE AREA:

Changes to this area shall include flat upholstered bench seating (no back) both sides of table. Table shall be non-folding, shortened from length of BAT #1 to allow for the absence of support legs. Entire room to be widened where possible to allow for easier movement into and out of this area. The depth of this room shall be moved to approximately 32" to reduce choke point in vehicle.

BREATH TESTING STATION #1:

Breath testing area to be configured with bench seating for arrestees and handcuff bar located on bench seat base. Officer area to include wall facing desk for breath testing equipment and upper cabinet.

A/V CLOSET:

Closet to be constructed as in previous vehicle, however, access panels for external TV shall be installed to allow easy access to input/output jacks on Plasma TV. Wiring shall also be run, with access plates on

the inside of this cabinet so that customer can plug in PC/Laptop or other audio/video equipment into the Plasma TV without removing access panels.

Additional wiring shall be installed for networked printer, fax machine and portable radio rack charger. (electrical and network connections)

LAVATORY:

- 12V exhaust fan
- Toilet Paper Dispenser
- Incinolet Electric Incinerating Toilet
- Reserve liners and dispenser for toilet
- Waterless Hand Sanitizer Dispenser
- Paper towel dispenser
- Stainless steel mirror
- Stainless steel sink with Gooseneck faucet
- 12v water pump
- Insta-Hot hot water system
- 10 Gallon fresh water and 10-gallon gray water tanks
- Door to have key entry lock from outside, Schlage or approved equal.

Lavatory depth shall be reduced to approximately 34" to allow for easier movement through the hallway and thus reduce this choke point in the vehicle.

BREATH TESTING STATION #2:

Breath testing area to be configured with bench seating for arrestees and handcuff bar located on bench seat base. Officer area to include wall facing desk for breath testing equipment and upper cabinet.

STORAGE/COAT CLOSET:

Storage shall be constructed in this area to allow for one prisoner belonging storage, drawer storage and one tall coat closet.

HOLDING CELL:

This area shall be constructed just as the previous vehicle was, however, the dimensions shall be larger to allow for coverage of the engine area. Additionally, there will be a step up to enter both holding cells and seats shall be mounted on the second (upper) portion of the flooring. Drainage shall be designed either in center of each cell and plumbed outward away from the engine or floor will be angled with drainage on either side of the engine for proper flow of water. Final design shall be reflected in engineered drawings.

LIGHTING, INTERIOR

Eighteen (18) interior white 12V Thinlites, model #656 or equal, will be installed on the interior of the vehicle throughout coach interior.

Two (2) Hella "Cargo-Light" LED Dome lights installed, one in each holding cell.

One (1) Red LED light installed in DRE area.

One (1) Federal Signal 18" Littlite with rheostat controller shall be installed on the dash console, or where deemed acceptable to illuminate switches.

One (1) Incandescent dome light installed in cab area.

Four (4) double tube, 12V fluorescent lights with red covers, to be installed in the ceiling area of vehicle.

DC Powered "Exit" sign located at each patron entrance door.

LIGHTING, EXTERIOR

Five (5) Whelen Series 810CA0ZR, or equal, Surface mount Scene Lights will be mounted on the exterior of the vehicle, two (2) on the curbside, two (2) on the street side and one (1) on the rear of the vehicle.

Four (4) Whelen 900, or equal, LED (blue) lights to be mounted on the exterior of the vehicle, two (2) on the front and two (2) on the rear of the vehicle.

Six (6) Whelen 700 Series, or equal, LED (blue) lights installed on the exterior of the vehicle, three on curbside and three on the driver's side.

One (1) wig-wag controller for headlamps shall be provided and installed.

Two (2) Hella Model 550, or equal, Amber fog lights mounted on the front bumper area of vehicle.

All switches shall be identified with engraved/etched plates indicating the light that that switch would activate.

NETWORKING/IT & TELEPHONY

One (1) 12-port patch panel supplied and installed in IT Closet

One (1) phone line routed from IT Cabinet to Equipment Closet, for dedicated fax.

Two (2) analog phone lines in coach and one (1) inlet on exterior.

One (1) CAT 6 inlet in exterior weatherproof compartment.

Eight CAT 6 outlets, location to be determined upon final floor plan.

Satellite preparation package to include weatherproof roof top compartment with 120v power. Additional wiring to consist of two (2) coaxial cables routed from roof down to IT Closet. Load frame provided by satellite vendor shall be installed, by Matthews Specialty Vehicles, Inc., on roof prior to build-out.

ROOF ACCESS/CATWALK

One (1) 15" ladder with grip tape rungs shall be installed on curb side rear of vehicle. Catwalk shall run from that point forward to the front of the vehicle and be of sufficient width to allow for safe walking.

SAFETY EQUIPMENT

One (1) 5 lb. fire extinguisher

One (1) back-up alarm

One (1) first aid kit

One (1) set of reflective triangles

One (1) Tri-View Backup Camera System with Monitor

SECURITY SYSTEM

One (1) Audiovox or approved equal, alarm system shall be installed with starter/disable option provided. One (1) motion sensor shall be placed at location acceptable to the State Police.

SHORELINE CORD

Heavy-duty, hard-wired, rubber covered 120/240-volt, 50ft. shoreline cord with marine type power reel shall be installed. Transfer switch to prevent simultaneous use of generator and shoreline cord will be located in interior front of vehicle.

WALLS

Install pre-laminated panels to the walls, screws will be exposed and spaced every 16". Seams will be trimmed with white "T" Molding. All seams should be evenly space (1/8") and screws along the seams should be covered by the "T" molding. Color to be determined by customer after award of bid.

WARRANTY

1-year limited warranty/unlimited miles on all conversion completed by Matthews Specialty Vehicles, Inc. Other warranties as determined by manufacturer's specifications. (Details available upon request)

WINDOW COVERINGS

Window shades shall be installed on all windows, including windshield. Color to be chosen by customer.