



# **REQUEST FOR PROPOSAL**

## **MEDICAL AMBULANCE BUS**

7500 US HIGHWAY 90 WEST  
AT&T BUILDING, SUITE 200  
SAN ANTONIO, TEXAS 78227

**MARCH 15, 2011**

**SOUTHWEST TEXAS REGIONAL ADVISORY COUNCIL (STRAC)**

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BUS, MEDICAL AMBULANCE**

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**OVERVIEW**

The Southwest Texas Regional Advisory Council (STRAC) has initiated this request for proposal to facilitate the purchase of one (1) Medical Ambulance Bus for the purposes of deployment as part of the Emergency Medical Task Force initiative currently underway in the State of Texas. STRAC, as a participating agency in the Hospital Preparedness Program under the Department of State Health Services and the Office of the Assistant Secretary for Preparedness and Response shall utilize funding approved by the Department of State Health Services and the STRAC Regional EMS/Hospital Disaster Group to improve response capability to natural and manmade disasters.

**QUESTIONS**

Any questions concerning this Request for Proposal must be in writing or email, submitted to:

Joseph Palfini  
Director, Emergency Preparedness and Response Division  
Southwest Texas Regional Advisory Council (STRAC)  
7500 US Highway 90 West, AT&T Building, Suite 200  
San Antonio, Texas 78227      [joe.palfini@strac.org](mailto:joe.palfini@strac.org)

Answers to all questions will be distributed to all known bidders without identifying the company that asked the question.

Questions asked during any verbal conversation, either telephonic or in-person shall not be held binding unless followed up with a written submission.

**EVENT SCHEDULE**

The following is the anticipated schedule of events pertaining to this Request for Proposals. Any change or deviation from the schedule noted below will be made in writing to all known bidders and posted on the STRAC website, and all locations where this RFP has been posted.

|  |                |           |
|--|----------------|-----------|
| Request for Proposal Issued              | March 15, 2011 | 12:00 CST |
| Request for Proposal Submission Deadline | March 30, 2011 | 17:00 CST |
| Evaluation of Proposals                  | March 31, 2011 | 09:00 CST |
| Selection of Successful Bidder           | March 31, 2011 | 16:00 CST |
| Issuance of Purchase Order               | March 31, 2011 | 17:00 CST |

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**SUBMISSION INSTRUCTIONS**

Proposal Responses must be received in the STRAC Offices no later than close of business on Wednesday, March 30, 2011. Responses must be mailed or delivered to the address below and identified as "ATTN: Joseph Palfini / RE: RFP - Medical Ambulance Bus".

Submit proposals to:

SOUTHWEST TEXAS REGIONAL ADVISORY COUNCIL  
ATTN: Joseph Palfini / RE: RFP – Medical Ambulance Bus  
7500 US Highway 90 West, AT&T Building, Suite 200  
San Antonio, Texas 78227

Electronic mail or facsimile responses will not be accepted, nor will they be considered for award. Late responses will be returned unopened to the vendor.

Proposal information is restricted and is not publicly available until after award of the contract. All documents associated with the RFP, unless the vendor indicates that a portion of the proposal is proprietary, will be subject to public inspection under the Open Records Act. All materials, literature and product information obtained during the course of this Request for Proposal will become the property of STRAC, unless specifically requested by the vendor.

A person authorized to sign on behalf of the proposing company must sign the proposal.

**MODIFICATION OR WITHDRAWAL OF PROPOSALS**

A proposal that is in the possession of STRAC may be altered by a letter (either scanned or delivered) bearing the signature of the person authorized for bidding, provided it is received prior to the time and date of evaluation.

Likewise, a proposal may be withdrawn by the bidder prior to the evaluation process.

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**SECTION ONE – GENERAL INSTRUCTIONS**

**1.1 INSTRUCTIONS**

- 1.1.2 All Bids shall be submitted in duplicate.
- 1.1.3 All Bids are to be submitted in a sealed envelope.
- 1.1.4 Additional information or clarification of any of the instructions or information contained herein may be obtained from the STRAC.
- 1.1.5 The STRAC shall assume no responsibility for oral communications. All official correspondence in regard to the Specifications should be directed to and shall be issued by the STRAC Point of Contact in writing.
- 1.1.6 To better ensure fair competition and to permit a determination of the lowest Bidder, Bid Responses may be rejected if they show any omission, irregularity, alteration of form, addition, condition, unresponsiveness or unbalance.
- 1.1.7 Specifications provided are based on City, County and Regional needs and uses, estimated costs of operations and maintenance, and other significant or limiting factors to meet requirements and consistent with established policies. Minimum and maximum specifications, where included, are not established arbitrarily to limit competition or to exclude competitive Bidders.

**1.2 TAXES: Responsibility for payment, exemptions, forms to be filed, etc.**

- 1.2.1 The Successful Bidder is responsible for paying and, by submitting a Bid, agrees to pay all retail sales, income, real estate, sales and use, transportation, special and any other taxes applicable to and assessable against any goods, processes and operations incident to or related to this Invitation to Bid. The Successful Bidder is responsible for ascertaining applicable taxes and making all necessary arrangements to pay same.
- 1.2.2 All prices quoted shall be exclusive of any State, Federal or other applicable taxes, including Federal Excise Tax on trucks or any other goods or accessories.

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**1.4 MATERIAL SAFETY DATA SHEETS**

1.4.1 If goods provided to the Purchaser contain any ingredients that could be hazardous or injurious to a person's health, a Material Safety Data Sheet ("MSDS") shall be provided to the Purchasing Agent by the Successful Bidder. This requirement also applies to any goods used by the Successful Bidder when providing a service to the Purchaser.

**1.5 INSPECTION**

1.5.1 All goods delivered to and services performed for the Purchaser shall be subject to final inspection by the Purchaser and tests by the testing facilities of the STRAC and other independent testing laboratories as may be designated by the Purchasing Agent. If the result of tests indicates that any part of the goods or services are deficient in any respect, the Purchasing Agent, in his or her absolute discretion, may reject all or any part of the goods or services provided to the Purchaser. Variances in goods and services may be waived upon approval by the Purchasing Agent, in his or her absolute discretion.

**1.6 DISPUTES**

1.6.1 In cases of disputes as to whether the goods or services quoted or delivered meet Specifications, the decision of the STRAC representative shall be final and binding on both parties.

**1.7 LAW AND REGULATIONS**

1.7.1 The Successful Bidder shall comply with all applicable Federal, State, and local laws and ordinances. The Successful Bidder shall protect and indemnify the STRAC, and its agents or employees against any claim or liability arising from or based on the violation of any laws, ordinances, or regulations by the Successful Bidder and by any subcontractors, agents, or employees.

**1.8 INDEMNIFICATION**

1.8.1 If a Contract is awarded, the Successful Bidder shall be required to indemnify, defend, and hold the STRAC, its employees, and agents harmless from and against any and all claims, loss, liability, cost, and expenses, including attorney fees, howsoever arising or incurred, alleging personal injury, bodily injury, including death, or property damage arising out of or attributable to the Successful Bidder's performance of the Contract awarded.

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**1.9 TERMINATION PROCESS**

1.9.1 Termination for Cause:

1.9.1.1 Notwithstanding anything contained herein, if the Successful Bidder fails to fulfill its obligation under this Agreement properly and on time or otherwise violates any provision of this Agreement, the STRAC may terminate this Agreement by written notice to the Successful Bidder. The notice shall specify the acts or omissions relied upon as cause for termination. All finished or unfinished goods or services provided by the Successful Bidder shall, at the STRAC's option, become the STRAC's property. The STRAC shall pay the Successful Bidder fair and equitable compensation for satisfactory performance prior to receipt of notice of termination less the amount of damages caused by the Successful Bidder's breach. If the damages are more than the compensation payable to the Successful Bidder, the Successful Bidder shall remain liable after termination, and the STRAC may take all steps necessary to collect damages.

**1.10 PAYMENT TERMS**

1.10.1 Invoice(s) shall contain the following information: Purchase Order Number, Item Number, description of goods or services, quantities, unit prices, and extended totals. Payment terms, unless otherwise noted, shall be net thirty (30) days. The Southwest Texas Regional Advisory Council is not subject to retail sales, income, real estate, sales, use, transportation, or special taxes. The final payment shall be based upon acceptance of goods or services from the Successful Offeror and a final invoice submitted by the Successful Offeror and approved by the STRAC.

**1.11 AVAILABILITY OF FUNDS**

1.11.1 The obligations of the STRAC under any Contract awarded pursuant to this RFP are subject to the availability of funds appropriated by the Texas Department of Health Services, and to receipt and availability of appropriated funds.

**1.12 INTEGRATION**

1.12.1 The RFP, the Successful Bidder's Bid, and the Purchase Order contain the entire understanding between the parties, and any additions or modifications hereto may only be made in writing executed by both parties hereon.

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**1.13 CHANGES**

1.13.1 The STRAC reserves the right to add items to this Contract at the STRAC's sole discretion of the items meet the following criteria:

1.13.1.1 The items added are, in STRAC's sole opinion, within the general scope of work established for this Contract and/or are ancillary to the successful completion of Work under the resulting Contract.

1.13.1.2 The price for each item as offered by the Successful Bidder is, in the STRAC's sole opinion, fair and reasonable and consistent with the pricing for the balance of the resulting Contract.

1.13.1.3 The items added are relatively insignificant to the overall value and services under the agreement.

**1.14 MOST FAVORED PUBLIC ENTITY**

1.14.1 The Successful Bidder agrees that the prices charged the STRAC under this Contract do not exceed existing selling prices to its other customers for the same or substantially similar items or services for comparable quantities under similar terms and conditions.

**1.15 DAMAGE TO STRAC FACILITIES, BUILDINGS, OR GROUNDS**

1.15.1 The Successful Bidder shall repair, or cause to be repaired, at its own cost any and all damage to facilities, buildings, grounds, equipment, vehicles, or property caused by the Successful Bidder or employees, subcontractors, or agents of the Successful Bidder. Such repairs shall be made immediately after awareness of damage, or notice by STRAC, but in no event more than thirty (30) days after the occurrence.

**1.16 CONDITIONS FOR PURCHASING ELSEWHERE**

1.16.1 *Time is of the essence.* Should the Successful Bidder fail to perform as specified, in accordance with the terms and conditions specified herein, the Purchasing Agent shall then have the right to procure goods and services in the open market or by contract, in which event the additional costs of such goods or services above the Contract price shall be charged against the Successful Bidder, and may be deducted from any funds payable or which may become payable to the Successful Bidder.

1.16.2 The Purchasing Agent may reject, at his or her sole discretion, any goods or

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services ordered from the Successful Bidder if they are delivered or performed subsequent to the placement of orders elsewhere.

**1.17 CHANGES/ERASURES TO BID RESPONSE**

1.17.1 To be considered, all erasures, interpolations and other changes in the Bid Response shall be signed or initialed by the Bidder.

**1.18 BIDDER'S UNDERSTANDING OF THE SCOPE OF RFP AND DUE DILIGENCE**

1.18.1 By submitting a Bid in response to this RFP, the Bidder represents that it has read and understands this RFP, including any Addenda, and has familiarized itself with Federal, State, and local laws, ordinances, rules, and regulations that may affect the cost or performance under this RFP or any resulting Contract. The failure or omission of any Bidder to receive or examine any form, instrument, addenda, or other document or to acquaint itself with conditions existing at any site shall in no way relieve that Bidder from any obligations with respect to its Bid Response or to any resulting Contract.

**1.19 BID RESPONSE MODIFICATIONS OR WITHDRAWAL**

1.19.1 A Bid Response may be modified or withdrawn by the Bidder anytime before the time and date set for the receipt of Bid Responses upon notice to the Purchasing Division in writing.

1.19.2 Modified and withdrawn Bids, clearly marked and dated, may be resubmitted to the STRAC up to the time and date set for the receipt of Bid Responses.

1.19.3 No Bid Response may be unilaterally modified or withdrawn after the time set for the receipt of Bid Response and for ninety (90) calendar days thereafter.

**1.20 CONTENT**

1.20.1 The contents of the Bid Response of the Successful Bidder may become contractual obligations. Failure of the Successful Bidder to accept these obligations in a Contract may result in cancellation of the award, and the Successful Bidder may not be eligible for future solicitations.

**1.21 CONFLICT OF INTEREST**

1.21.1 By submission of a Bid Response, Bidder agrees that it has no direct or indirect interest that would conflict in any manner or degree with performance by this RFP or any resulting contract of its services. The Bidder shall further covenant that, in the performance of any contract, the Bidder shall not employ any person or entity having any such known conflict.



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1.21.2 Failure of the Bidder to provide any information requested in the RFP may result in disqualification of the Bid Response.

**1.22 ACCEPTANCE OF TERMS AND CONDITIONS**

1.22.1 By submitting a Bid Response to this RFP, the Successful Bidder accepts the terms and conditions set forth herein.

**1.23 CONFIDENTIAL AND PROPRIETARY INFORMATION**

1.23.1 All information contained in the Bid is subject to production. Each Bidder shall be responsible for identifying all information in its Bid that it considers confidential and proprietary and not subject to release to the general public for any reason by including with its Bid a separate list entitled "Confidential and Proprietary Information". The list shall identify all such information and shall include the location of such information in the Bid, including page numbers, as well as an explanation as to why each piece of information is considered to be confidential and proprietary. All information not included on the list, even if marked as confidential or "proprietary, shall be considered public information and is subject to release on request.

1.23.2 Reasons given for considering information within a Bid Response confidential or proprietary shall be legally justifiable, which is within the sole discretion of the STRAC. Indicating that a Bid Response in its entirety is confidential and proprietary is not legally justifiable, is not acceptable, and may be grounds for the STRAC rejecting the Bid Response on the grounds that the Bid Response is not responsive.

1.23.3 Limitations to Liability: The Southwest Texas Regional Advisory Council assumes no responsibility and no liability for costs incurred by Successful Bidder in responding to the RFP, including requests for additional information. The STRAC assumes no responsibility and shall not be liable in any way for the release to the public of information that is contained in the Bid Response.

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**SECTION TWO – GENERAL SPECIFICATION**

**2.1 SCOPE**

- 2.1.1 These specifications are intended to cover the furnishing and delivery of one (1) medical ambulance buses for the Southwest Texas Regional Advisory Council.
- 2.1.2 These vehicles are considered to be emergency medical services vehicle, and as such have more stringent requirements as detailed in Section Two below.
- 2.1.3 All goods delivered shall be the manufacturer's current models, completely serviced by the Successful Bidder, and shall be delivered ready in all aspects to be placed in normal operating service.

**2.2 PRE-BID CONFERENCE**

- 2.2.1 A Pre-Bid Conference has been scheduled for **March 24, 2011 at 10:00 CST** in the Large Conference Room, Southwest Texas Regional Advisory Council, 7500 U.S. Highway 90 West, AT&T Building, Suite 200, San Antonio, TX 78227, to answer questions about this invitation for bid and the products or services to be provided hereunder. While attendance is not mandatory, all Bidders are strongly encouraged to attend. This Pre-Bid Conference can also be attended remotely using video teleconferencing or web-based collaboration, if arranged at least one week in advance. While every effort will be made to answer any questions concerning this bid raised by potential Bidders at the Pre-Bid Conference, such answers shall be considered unofficial until affirmed in writing by the Purchasing Agent in the form of an addendum.
- 2.2.2 Bidders are strongly encouraged to bring any issues regarding this request for proposal or the equipment to be provided to the Pre-Bid Conference or to the attention of the Purchaser prior to the deadline.
- 2.2.3 Any modifications, additions or deletions to the Specification that result from this meeting shall be in the form of an addendum published by the STRAC.
- 2.2.4 Bidders should register for the Pre-Bid Meeting at least 48 hours in advance of the meeting date and time by contacting the operational point of contact, Joseph Palfini at 210-259-6973. If no Bidders register, the meeting may be canceled without further notice to the Bidders.

**2.3 PURCHASE ORDER**

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- 2.3.1 Award and authorization for materials to be delivered shall be by Purchase Order issued by the Purchasing Agent.

**2.4 TERM OF CONTRACT**

- 2.4.1 This Contract shall be in effect through July 31, 2011. Funding for this vehicle is provided by Federal grant funds that will expire on this date. The vehicle shall be delivered no later than July 31, 2011 in order to give the Purchaser sufficient time to inspect and accept the vehicle, and secure the funding by the July 31, 2011 deadline.

- 2.4.2 **TIME IS OF THE ESSENCE: If the fully equipped vehicles as specified is not delivered per specifications and fully accepted by the Purchaser by July 31, 2011, the funding will be lost and the STRAC shall have the option of canceling the purchase without prejudice.**

**2.5 WARRANTY AND SERVICE**

- 2.5.1 The Successful Bidder warrants any goods furnished shall be of the highest quality, shall comply with Specifications, and shall be free from all defects in workmanship and materials for at least one (1) year. Any defective goods shall be immediately replaced free of cost to the STRAC. Additional warranty requirements are listed in the specifications.

**2.6 DELIVERY/INSTALLATION OF GOODS**

- 2.6.1 Successful Bidder shall guarantee delivery of the fully equipped vehicles to the Southwest Texas Regional Advisory Council, between the hours of 9:00 a.m. and 3:00 p.m., local time, Monday through Friday, excluding holidays. The Successful Bidder shall call Joe Palfini at 210-259-6973 no later than 48 hours prior to arrange delivery.
- 2.6.2 Successful Bidder shall provide a delivery ticket for each item delivered, marked clearly with the purchase order number issued by the Purchaser for the goods purchased and, if applicable, the name, model, and serial number.
- 2.6.3 All items shall be delivered F.O.B. destination and delivery costs and charges shall be included in the Bid Response. Unit prices quoted shall include delivery; all charges prepaid, and shall be exclusive of all taxes. No transportation, shipping, or handling charges shall be added to the invoice.

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**2.7 REGULAR DEALER**

2.7.1 Quotes shall be considered only from Bidders that qualify as a “regular dealer.” A “regular dealer” means a person or entity that owns, operates, or maintains a store, warehouse, or other establishment in which the goods required for the performance of the contract are bought, kept in stock, and regularly sold to the public in the usual course of business. To be a regular dealer, the Bidder shall engage in, as its principal business and in its own name, the purchase and sale of the goods that are the subject of this RFP.

**2.8 AWARD OF CONTRACT**

2.8.1 The Purchasing Agent shall award all Contracts to the lowest responsible, responsive Bidder, as determined by the STRAC Purchasing Agent, not earlier than seven (7) days after the public opening of bids. Price, delivery time, and compliance with the Technical Specifications shall be prime factors in determining the Successful Bidder as provided by applicable City, State and Federal laws. The decision of the Purchasing Agent is final.

2.8.2 The Southwest Texas Regional Advisory Council reserves the right to accept or reject any bid and to procure no or any quantity of goods or services that are the subject of this RFP, as deemed in its best interest of the STRAC and its partners by the Purchasing Agent.

**2.9 LITERATURE AND SAMPLES**

2.9.1 The Bidder shall provide three (3) copies of complete, current, and up-to-date manufacturer-published descriptive literature and specifications for the proposed goods with the Bid Response, giving full details as to type of goods to be furnished under a Contract.

2.9.2 Samples, when requested by the STRAC, shall be delivered to the Southwest Texas Regional Advisory Council, 7500 US Highway 90 West, Suite 200, San Antonio, TX 78227, within five (5) days of the request, unless otherwise specified. All packages shall be marked “SAMPLES FOR BID: MEDICAL AMBULANCE BUS”. Each sample shall bear the name of Bidder and item number, and shall be carefully tagged or marked in a clear and conspicuous manner. Failure of the Bidder to deliver required samples or to clearly identify samples may be considered sufficient reason for rejection of the Bid. All deliveries under a resulting Contract shall conform in all respects with samples as submitted and accepted as a basis for the award.

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**2.10 EXCEPTIONS SHEET**

2.10.1 Bidders shall include a clearly-identified Exception Sheet ***with the Bid Response*** that shall clearly identify (by RFP clause number) ***all*** exceptions being taken to these Specifications, even if identified elsewhere in the literature and/or Bid Response submitted. Any exceptions noted anywhere else in the literature submitted or the Bid Response and ***not*** included in the Exception Sheet shall be automatically rejected by the Purchaser and the Bidder, if awarded the contract, shall furnish the vehicle and equipment as specified herein, subject only to modifications as offered in the Exception Sheet and as accepted by the Purchaser.

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**SECTION THREE – TECHNICAL SPECIFICATIONS**

**3.1 MEETINGS:**

- 3.1.1 PRE-BUILD MEETING: The Successful Bidder shall provide a pre-build meeting for two (2) regional representatives. This meeting shall be held prior to the start of the vehicle construction to clarify any specification requirements. The meeting shall be scheduled at dates/times/locations mutually agreed upon between the manufacturer's representative and the regional representative. If the meeting is held more than one hundred (100) miles from San Antonio, TX, the Successful bidder shall be responsible for all costs such as travel, lodging, and meals.
- 3.1.2 INSPECTION TRIPS: The Successful Bidder shall provide two (2) factory inspection trip(s) for two (3) regional representatives. The inspection trip(s) shall be scheduled at times mutually agreed upon between the manufacturer's representative and the regional representative. All costs such as travel, lodging, and meals shall be the responsibility of the Successful Bidder.

**3.2 SUBMITTALS:**

- 3.2.1 APPROVAL DRAWING
- 3.2.1.1 A drawing of the proposed vehicle shall be prepared and provided to the STRAC for approval before construction begins. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.
- 3.2.1.2 A "revised" approval drawing of the vehicle shall be prepared and submitted by the Successful Bidder to the STRAC showing any changes made to the approval drawing.
- 3.2.2 ENGINE INSTALLATION CERTIFICATION The vehicle manufacturer shall provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the Successful Bidder's chassis. The certification shall be provided *with the Bid Response*.
- 3.2.3 AMP DRAW REPORT The Successful Bidder shall provide, *with the Bid Response* and again at delivery of the final drawing (prior to final approval), an itemized print out of the expected amp draw of the entire vehicle's electrical system.
- 3.2.4 ELECTRICAL WIRING DIAGRAMS Two (2) electrical wiring diagrams, prepared for the model of chassis and body, shall be provided with the vehicle on delivery to the STRAC.

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**4 SECTION FOUR - AMBULANCE BUS SPECIFICATIONS**

**4.1 DESCRIPTION**

- 4.1.1 The vehicle required shall be an Ambulance Bus. The purpose of the Ambulance Bus shall be to provide treatment and transportation of ambulatory and/or non-ambulatory patients at the scene of an emergency. The capabilities of this vehicle shall be transport of a minimum of fourteen (14) non-ambulatory patients or twenty-four (24) ambulatory or a combination of both, with the capability to expand to 20 non-ambulatory patients utilizing removable storage systems. The Ambulance Bus shall be an emergency vehicle and comply with all applicable national, State and local standards for emergency response vehicles. The bus shall be specifically designed for special missions such as the care and transportation of the ill or injured at a mass casualty incident, hospital/nursing home evacuation, and rehabilitation of emergency workers during extended operations or severe weather, or weapons of mass destruction mitigation, etc. The bus shall be designed to be self-sufficient with lighting, electrical generation, heating and air conditioning, ambulatory and non-ambulatory transport capability, medical oxygen distribution system, and storage capabilities for basic and advanced life support equipment. The bus shall be capable of being operated independently or in conjunction with conventional air and/or ground ambulances.
- 4.1.2 The Ambulance Bus will include a custom manufactured interior as specified. Twenty (20) stretchered patients with individual metered oxygen supply for each patient, dual large oxygen storage system, generator on slide out tray, attendant seating, medical storage compartments, paramedic work station, loading ramp and ramp storage assembly. Additional CAT5 wiring will be included to incorporate a local area network in the future, as well as availability of electrical power as per this specification.
- 4.1.3 For this RFP, the terms Ambulance Bus, Vehicle Bus and/or Ambus may be used interchangeably.



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**4.2 CHASSIS SPECIFICATIONS**

- 4.2.1 Chassis Type: Thomas Heavy Duty Front Engine Transit Chassis
- 4.2.2 Air Cleaner: Shall be heavy-duty replaceable type. Air cleaner 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 an air restriction indicator.
- 4.2.3 Air Inlet with Automatic Eject: A single air inlet with Kussmaul Air Eject or equivalent shall be provided. It shall allow station air to be supplied to the vehicle brake system through a shoreline hose. The inlet shall automatically disconnect the air line when the truck is started. It shall be equipped with a male coupling and shall be located in the driver side lower step well of the cab. A check valve shall be provided to prevent reverse flow of air. The inlet shall also be provided with the loose equipment.
- 4.2.4 Alternator: Shall be 12 volt/320 amps and provide at least 50% of the rated charge at engine idle.
- 4.2.5 Axles: Front: 13,200 lb capacity. I-Beam type with Serviceable Needle Bearing Kingpins with sealed bushing and tapered roller thrust bearings. Synthetic oil hubs.
- 4.2.6 Axles: Rear: Heavy Duty. 23,000 lbs. Capacity single reduction, spiral bevel gearing. Gear Ratio shall be so that vehicle can maintain a road speed of 75 MPH.
- 4.2.7 GVWR of the Front and Rear axles shall be large enough to properly handle the weight requirements of a 20 stretchered passenger Medical Ambulance/Evacuation Bus application.
- 4.2.8 Batteries: Triple GRP 31 with top mounted threaded studs. There shall be a minimum of 1,000 cold cranking amps per battery at 0 degree. Batteries shall have 200 minutes of reserve capacity per battery at 80 degrees Fahrenheit.
- 4.2.9 A master battery cut-off switch shall be provided within easy reach of the Driver.
- 4.2.10 Battery boxes (2) shall be located aft of left front wheel. Exterior doors shall have

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a security lock keyed the same.

- 4.2.11 Aft battery box to have single GRP 31 top mounted threaded studs and shall have a 1,000 CCA at 0 degrees Fahrenheit. Battery shall be dedicated to the generator only.
- 4.2.12 Block Heater: Engine to have a 750 watt block heater powered by the Kussmaul shoreline with an on/off switch located in the driver's area, allowing for disconnect during summer months.
- 4.2.13 Brakes: System designed to meet all requirements of FMVSS-121 in effect at time of manufacture.
- 4.2.14 Antilock Brakes: 4-channel ABS with indicator light on dash. Front wheel speeds are sensed individually and the wheel approaching lock up to minimize steering input governs front brake application pressure modulator. 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.
- 4.2.15 Air Brakes: Front chamber 24 sq in. Rear chamber 30 square inches, S-cam type. Automatic slack adjusters. Brake size front 16 ½" x 6" minimum. Brake size rear 16 ½" x 8" minimum. Parking brake will be 30 square inches. Spring type combination rear service and parking brake. Activated by a dash mounted control valve. A minimum of three air reservoirs with automatic air drain on the wet tank. Total reservoir capacity shall be a minimum of 4500 cubic inches. All airlines are to be color coded for ease of identification and service. The airlines shall be made of nylon or equal to withstand vibration. The system shall include dual air pressure gauge and alarm system which will automatically activate when air pressure reaches 60 psi or less. Air Dryer shall be Bendix AD- 9 with heater.
- 4.2.16 Cooling System: Heavy-duty stacked configuration radiator with a minimum capacity of approximately 50 quarts. For optimum airflow through cooling system the radiator shall include an integral de-aeration top tank to provide complete coolant de-aeration. Sight glass to be installed and clearly visible through the front grille. Cooling fan shall be 9 blades electronically and thermostatically controlled.
- 4.2.17 Cruise Control: Vehicle shall have cruise control.
- 4.2.18 Drive Line: Heavy-duty with safety guard to prevent shaft from whipping

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through the floor or dropping to the ground in the event of failure.

- 4.2.19 Engine: Cummins ISB 260 hp with 620 lb-ft torque @ 1400 RPM. Must be certified to meet 2010 US EPA Emission and utilize SCR Technology for industry commonality.
- 4.2.20 Engine/Transmission/Axle Ratio shall be rated to allow a road speed of 75 MPH.
- 4.2.21 Engine Compartment: Shall be a durable, lightweight fiberglass interior engine cover. 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 11" from the body floor at the rear and shall not extend more than 36" from the dash. The engine cover shall provide a highly effective seal with thermal and acoustic insulation. The top of the engine cover shall include a diamond metal step tread for durability.
- 4.2.22 Frame: Minimum frame size to be 10" x 3" x ¼" Yield strength to be a minimum of 50,000 psi. The frame shall be assembled using grade 8 bolts. The frame rails shall be full size and 1 piece from front to rear. Frame rails are punched.
- 4.2.23 Fuel Tank: 100-gallon capacity minimum, meeting all requirements of FMVSS-301. The tank shall be located between the frame rails and immediately aft of the rear axle. The bus floor shall include an access plate for servicing the sending unit of the fuel tank. An outside fuel filler door will be provided. Fuel tank is protected with a heavy duty cage. Left side fuel fill.
- 4.2.24 Instrument Panel:
- 4.2.24.1 Speedometer/7digit odometer with tenths on tripmeter
  - 4.2.24.2 Tachometer/Hourmeter
  - 4.2.24.3 Oil pressure gauge
  - 4.2.24.4 Water temperature gauge
  - 4.2.24.5 Fuel gauge
  - 4.2.24.6 Voltmeter
  - 4.2.24.7 Dual air pressure gauge
  - 4.2.24.8 Combination directional signal/headlight with dimmer switch
  - 4.2.24.9 Warning lights and buzzers for oil pressure,
  - 4.2.24.10 Water temperature, and air pressure
  - 4.2.24.11 Hazard warning switch on steering column
  - 4.2.24.12 Ammeter
  - 4.2.24.13 Key type starter and engine stop switch
  - 4.2.24.14 Dash to have digital display to allow for troubleshooting engine.

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- 4.2.25 Rust-proofing: All chassis framing, fasteners, and suspension system are to be painted with a rust inhibiting paint or coating.
- 4.2.26 Shock Absorbers: Heavy duty direct acting double action piston type. 2 front and 2 rear.
- 4.2.27 Springs/Suspension: Front: Heavy-duty taper leaf type (parabolic leaf), rated at a minimum of 6,600 lbs. each side front. Springs to be mounted inboard to provide at least 45 degree turn angle.
- 4.2.28 Springs/Suspension: Rear: Heavy-duty Air-Ride suspension shall be provided. The two air springs shall have two parabolic trailer arms with rubber bushings for lubrication free maintenance. Suspension capacity shall be 23,000 GVW.
- 4.2.29 Rear Air suspension shall be equipped with a rear dump valve for the purpose of kneeling the rear of the bus upon loading and unloading of stretcher patients.
- 4.2.30 Steering: Integral full power Ross TAS-65 20.42:1 ratio with tilt and telescoping 18" 2 spoke padded steering wheel.
- 4.2.31 Tires: Single front and dual rear. Goodyear or Michelin 11R x 22.5 - 14 Ply Tires.
- 4.2.32 Transmission: Allison 3000 Transmission.
- 4.2.33 Wheels: Steel disc type 8.25 x 22.5 10 hole hub piloted wheels. 1-piece size to fit tire selected. Front and rear wheels to be fitted with polished aluminum covers.
- 4.2.34 Wiring: Color coded and numbered. Wiring harness enclosed in protective convoluted conduit. Wiring shall be protected by a manual resetting circuit breaker.

**4.3 BODY SPECIFICATIONS:**

- 4.3.1 Air Horn: Two (2) Air horn shall be supplied and mounted in the front bumper activated by a floor switch.
- 4.3.2 Backing Alarm:  
A smart backing alarm shall be provided that sounds whenever the vehicle is in reverse. The smart alarm automatically adjusts its sound output, maintaining a minimum of 5DB(A) above noise level, up to a maximum rated output of 112 DB.

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- 4.3.3 Backing Camera: Backing camera has a 6" color LCD monitor with sound.
- 4.3.4 Battery Mounting: Two skirt mounted battery boxes. 14.25" High x 25.5" Wide x 22.75" Deep. Steel roller (ball bearing type) slides and slide out tray.
- 4.3.5 Bumper:
- 4.3.5.1 Front: Shall be chrome and shall be a minimum of 9 12" high after forming with a minimum section modulus of .5369 square inches for added strength.
- 4.3.5.2 Rear: Shall be one-piece 3/16" steel x 12" high. The rear bumper shall extend off of the back of the bus 10" for ease of loading and unloading stretcher patients. Top of the bumper shall have a welded 1/8" thick diamond plate step.
- 4.3.6 Construction: The bus body shall be constructed of prime commercial quality 20 gauge steel. The bus body shall be constructed to meet or exceed all state and federal requirements in effect at the time of manufacture. The internal skeletal structure is welded. Roof Bows: The roof bow frame assembly shall consist of 14 gauge hat section bows extending from the bottom of floor line on one side to the other. Bow frames shall be continuous, one-piece, 14 gauge rolled channel hat sections 1 ½ " deep, mounted on 27" centers to provide a rollbar type protection.
- 4.3.7 Floor: The floor shall be constructed of 14 gauge "C" channels forming an "I" beam crossmember every 9". These "I" beam crossmembers shall be equal to a 9-gauge thickness at the floor sill and shall extend the full width of the flat floor area and shall be designed so as not to trap moisture. All floor crossmembers shall be welded to 16 gauge rail, which extend the entire length of the body floor on each side. This floor bumper shall also serve as the interior seat rail, to be used for mounting seats. This floor bumper shall be welded at each point of intersection with the body bows.
- 4.3.8 Color: Solid color exterior polyurethane paint
- 4.3.9 Defrosters: Defrosters shall be sufficient in capacity to keep windshield clear of fog, snow, and ice. Unit to have full-length windshield defroster channel for supplying hot air to windshield.
- 4.3.10 Door: Entrance, Front – Outward opening sedan type door upper and lower clear view glass, with key lock and door stay to hold door in open position.

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- 4.3.11 Door: Rear Loading Rear loading door shall be of sufficient size to accommodate stretcher patients to be carried through and into the bus. Minimum Dimensions shall be approximately 36"W x 71"H. Door is split upper type with pneumatic shocks to hold top portion of door in the open position for loading of patients. Door shall have a locking mechanism that locks the door in the closed position or open position to prevent the door from closing while vehicle is being loaded or unloaded. Glass in rear loading door shall have privacy tinting to allow light in and to limit viewing of the inside of the bus from the outside.
- 4.3.12 Drip Molding: Threaded through bows the entire length of vehicle to form a roll cage.
- 4.3.13 Electrical: Access- Main body wiring harness is fully accessible thru removable raceways, removable shelves and access panels on driver's side of vehicle.
- 4.3.14 Wiring harness is protected by manual reset circuit breakers.
- 4.3.15 Wiring is color coded and numbered and flame retardant.
- 4.3.16 The main vehicle electrical junction box is located below the driver's window and accessible from the exterior thru a hinged door with locking exterior release. A Wiring diagram is attached to back side of electrical access door.
- 4.3.17 Floor Construction: Floor constructed of 14-gauge galvanized or Galvalume steel C channels forming an I-beam cross-member every 9" equal to 10-gauge thickness and shall extend full length of body. Crossmembers shall also extend the full width of body except at the wheelhouse area. All floor cross-members are to be welded to a 14 gauge steel floor channel bumper extending completely around the outside edge of floor construction. This bumper is also to be welded at each point of intersection with body bows. There shall be a marine grade plywood sub-floor of a nominal 5/8". Altro "Chroma" 2.7mil series floor covering only. Color shall be Mineral TFCR 2730.
- 4.3.18 Fuel Tank Opening: Exterior: The exterior fuel fill opening shall be covered with a hinged metal door, which contains a positive latch. Interior: The interior fuel tank opening shall contain an access plate in the floor located above the fuel tank for servicing fuel tank sender and connections.

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- 4.3.19 Generator Compartment: Generator compartment shall be located in front of rear wheels on driver's side. Compartment shall be lighted with LED lighting and be large enough for a 20kw generator and insulation. Generator compartment shall have exterior door that when opened, will maintain open position with pneumatic springs or by chaining door open.
- 4.3.20 Heater & Defrosters: Front heater/defroster shall be of the copper coil design type with aluminum fins. Heater to be easily serviceable, with cleanable air filters. The front heater shall have a minimum rating of 90,000 BTU's with ducting for driver's heat. The heater ratings shall be based on testing as outlined by SBMI. The heater fans shall blow air toward the front and rear.
- 4.3.21 Air Conditioning and Heating System: Four (4) 13,500 BTU (each) roof mounted air conditioner/heating units, 110volt. Roof sections will be reinforced where units are mounted. Each climate control unit shall be wired separately and protected with an individual circuit breaker in the electrical control panel. System will have additional ducting providing conditioned air to the driver. One HVAC unit shall be powered by the shoreline to provide cooling and heating while vehicle is not in operation.
- 4.3.22 Exhaust Fans, Interior: Two (2) air exhaust fans in the interior floor area shall exhaust interior air as exterior air is brought into the vehicle from air conditioning / heating units or through roof hatches.
- 4.3.23 Insulation: Ceiling, sides, and rear panels shall be insulated with a minimum 1 ½ " thick blanket-type fiberglass insulation to properly deaden sound, reduce vibration, and provide a thermal barrier. The insulation shall be fire-resistant of type approved by Underwriters Laboratories, Inc. A 1/2" sound absorbing foam rubber padding with black vinyl pebble grain surface shall be installed on the toe board/firewall area to reduce noise and heat in the driver's area.
- 4.3.24 Lighting: Lights/Exterior: Headlights - Dual seal beam (Halogen). Head lights shall have wig wag switch capability.
- 4.3.24.1 Front Directional- (2) In Headlight Assembly
  - 4.3.24.2 Side Directional- (2) LED amber and (2) red
  - 4.3.24.3 Cluster Lights- (3) amber LED front and (3) Red LED rear
  - 4.3.24.4 Marker Lights- (2) front LED corners, (2) rear LED corners and



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- (2) (each side) amid ship LED roof
- 4.3.24.5 Rear Directional- (2) 5" x 8" rectangular LED Amber
- 4.3.24.6 Stop/Tail- (2) 5" x 8" rectangular LED Red and (2) 4" Round LED Red
- 4.3.24.7 Back-Up- (2) 5" x 8" rectangular LED white.
- 4.3.24.8 All lights comply with FMVSS 108. All exterior emergency lighting shall comply with NFPA 1901 standards.
- 4.3.25 Mirrors: Interior- 6" x 30" safety glass with rubber edges
- 4.3.26 Mirrors: Exterior- Heated remote control transit mirrors.
- 4.3.27 Mirror heads are made of ABS plastic. Flat mirror size is 7" x 9.75". Convex mirror size is 6" x 3.75". Total head size is 8" x 15". Mounting arms and bases are cast aluminum, painted black. Both upper flat and lower convex mirrors can be controlled independently.
- 4.3.28 Mounting: Bus body shall be mounted to chassis frame in such a manner as to prevent shifting. Body and lock tab mounting bracket. Rubber mounting pads reinforced with fiber shall be used to cushion the body on the chassis at every floor cross-member. Body to chassis mount brackets to be double bolted.
- 4.3.29 Mud Flaps: Rubber mud flaps front and rear. Rear mud flap to be full width of body
- 4.3.30 Mud Guards: Reinforced steel mud guards front and rear of all wheels from floor to bottom of skirt.
- 4.3.31 Paneling: Exterior Roof:  
The roof panels are to be 20 gauge zinc-coated steel, riveted to each body bow frame. The roof panels are to be one piece from window header to window header lengthwise over seams. All roof sheets are to be overlapped from the front to the rear and sealed to prevent leaks. The rear most roof panel will be overlapped by the corresponding sheet as installed to the front of the bus. Each bus shall be completely water tested for assurance of no leaks. Roof shall be reinforced with internally welded roof reinforcements from rafter to rafter longitudinally, and riveted or welded to roof bows to provide extra strength in the overhead area. Exterior panels shall be primed both sides before assembly.

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- 4.3.32 Paneling: Exterior:  
Exterior panels shall be primed both sides before assembly for rust prevention. The exterior side panels shall be at least 20-gauge sheet steel, riveted to both flanges of the roof bows.
- 4.3.33 Reflectors: (3) on each side and (2) on rear.
- 4.3.34 Roof Escape Hatches: (2) two roof escape hatches
- 4.3.35 Hatches are capable of opening fore or aft to allow air to enter or exit the vehicle.
- 4.3.36 Rub Rails: Two aluminum rub rails with rubber inserts. One located below regular window line and the other located at the floor line.
- 4.3.37 Rubber Fenderettes: (4) Installed at each wheelhouse opening.
- 4.3.38 Seat: Driver: Deluxe air operated high back driver's seat with dual armrest and dual shocks. Driver seat belt is to be integrated into the seat. Seat will move aft and fore, up and down and recline. Seat shall also have air operated lower lumbar support. Vinyl cover to match interior of the vehicle.
- 4.3.39 Service Access Openings: Service Access Openings shall be provided for access to the following components: Engine access door for servicing, engine oil, transmission fluid and power steering fluid without removing the engine cover. Left and right front hinged panels for access to wiper motors, heater filters, washer reservoir, and electrical components. Center front access panel door - removable without tools to access the radiator.
- 4.3.40 Step Well: Step well shall consist of (3) steps covered with non-skid rubber tread (Altro Flooring). 12-volt LED lighting will be provided in the step-well area. Step well to have sound abatement package to help eliminate road noise. Step well to have hand rails on each side of steps. Step well to have chassis step well guard to aid in preventing damage to step well.
- 4.3.41 Storage Compartments: Exterior- (1) Lighted storage compartments with door and lock 56" long minimum. Box is located driver's side behind rear axle.

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- 4.3.42 Switch Panel: Shall be mounted to the left of the driver with switches for the electrical components. Rocker type switches are to be supplied. The switches shall provide illuminated lenses, international symbols and labeling for the appropriate functions. The switches are to be rated at 20 amps minimum at 12-volts DC. Control panel illumination to be controlled by the headlamp switch rheostat. Switches are to be angled at 45° for driver accessibility.
- 4.3.43 Undercoating: Entire underbody and MAB conversion options, located under floor, shall be completely undercoated with asphalt emulsion water-based undercoating after body to chassis mounting for maximum rust-proofing.
- 4.3.44 Visor: Front and left sun visors for driver.
- 4.3.45 Window: Driver's Area - Split window transit style with tempered tinted glass and latch.
- 4.3.46 Windshield: 4-piece flat tinted glass set in rubber with 5" tinted band.
- 4.3.47 Windshield Washer: Washer reservoir to be one gallon capacity and accessible through interior access door located at the top of the stepwell. Electric operated with wiper arm spray reservoir (1) gallon capacity.
- 4.3.48 Windshield Wipers: (2) Bottom mounted electrically operated with parallelogram type arms with variable speed and intermittent feature. Access to wiper motors to be provided through hinged exterior access panels.

**4.4 CONVERSION PACKAGE**

- 4.4.1 12v Power Outlets: (1) 12v plug in style outlets for 12v equipment power shall be located within easy reach of the driver. 12v outlets shall be installed for each patient (near patient's feet on wall), 12v outlets shall be installed for medical equipment that will be used on the bus and 12v outlets will be installed near all attendant seats. 12v Power Outlets shall be equipped with a medical diode isolator.
- 4.4.2 Additional 12v outlets shall be provided for customer installation of communications system. Outlets shall be under dash near driver and behind nurse's station. 12v Power Outlets shall be equipped with a medical diode isolator.

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- 4.4.3 Air Brake Inlet (1) external quick connect air line fitting to allow external air line to be attached to bus while secured in parking bay to maintain air brake/air ride system pressure.
- 4.4.4 A/C Heating System: (4) 13,500 BTU (each) roof mounted air conditioner/heating units with thermostats. 110 volt. Roof sections shall be reinforced where units are mounted. Each climate control unit shall be wired separately and protected with individual circuit breaker in the electrical control panel.
- 4.4.5 Battery Charger: 40 amp, exterior hookup battery charger shall be supplied. Charger must be designed to maintain vehicle's batteries at peak charge while vehicle is not being operated and run off the shoreline. Exterior battery charge readout monitor shall be located near the battery charger exterior hookup location.
- 4.4.6 Carbon Monoxide / Four Gas Detector: Manufacturer will install (2) four-gas detector/monitor with alarms (provided by the Southwest Texas Regional Advisory Council), (1) at the rear of the bus and (1) at the front of the bus to warn of unsafe buildup of carbon monoxide, oxygen, combustibles and hydrogen sulfide in the bus cabin.
- 4.4.7 Ceiling Grab Rails: Stainless steel ceiling grab rails shall be located front to back on each side of the bus aisle.
- 4.4.8 Curtain: A non-light penetrating sliding curtain shall be installed immediately behind the driver from floor to ceiling and from side to side to keep all light from reaching the driver's area during vehicle operation at night.
- 4.4.9 Electrical System:
- 4.4.9.1 Alternator  
A twelve volt (12 V) or greater electrical alternator shall be provided. It shall be 12 volt/320 amp and provide at least 50% of the rated charge at engine idle.
- 4.4.9.2 Alternator Output  
The alternator shall have a minimum output at idle to meet the minimum continuous electrical load of the vehicle as defined in NFPA 1901/2009 13.3.3, at 200°F (93°C) ambient temperature within the engine

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compartment, and shall be provided with full automatic regulation.

**4.4.9.3 Alternator to Battery Wiring**

The alternator shall be wired directly to the batteries through the ammeter shunt(s), if one is provided, and not through the master load disconnect switch.

**4.4.9.4 Battery "ON" Indicator**

A green "battery on" pilot light that is visible from the driver's position shall be provided. A second pilot light shall be located on the outside of the vehicle to warn that the batteries are on when the vehicle is parked.

**4.4.9.5 Battery Access**

The batteries shall be readily accessible for examination, testing, and maintenance.

**4.4.9.6 Battery Charge Status**

The charge status of the battery shall be determined either by direct measurement of the battery charge or indirectly by monitoring the electrical system voltage.

**4.4.9.7 Battery Charger**

An exterior hookup battery charger shall be supplied. Charger shall be designed to maintain vehicle's batteries at peak charge while vehicle is not being operated. Exterior battery charge readout monitor shall be located near the battery charger exterior hookup location (shoreline).

**4.4.9.8 Battery Compartment Ventilation**

Where an enclosed battery compartment is provided, it shall be ventilated to the exterior to prevent the buildup of heat and explosive fumes.

**4.4.9.9 Battery Conditioner / Charger - Onboard**

An onboard battery conditioner or charger or a polarized inlet shall be provided for charging all batteries. The associated line voltage electrical power system shall be installed in accordance with NFPA 1901/2009 Chapter 22.

**4.4.9.10 Battery Connections**

Electronic control systems and similar devices shall be permitted to be otherwise connected if so specified by their manufacturer.

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- 4.4.9.11      **Battery Mounting**  
The batteries shall be mounted to prevent movement during vehicle operation and shall be protected against accumulations of road spray, snow, and road debris.
- 4.4.9.12      **Battery Protection**  
The batteries shall be protected against vibration and temperatures that exceed the battery manufacturer's recommendation.
- 4.4.9.13      **Battery System CCA Rating**  
The battery system cold cranking amps (CCA) rating shall meet or exceed the minimum CCA recommendations of the engine manufacturer.
- 4.4.9.14      **Battery Type**  
Batteries shall be of the high-cycle type.
- 4.4.9.15      **Cable Covering**  
The overall covering of jacketed cables shall be moisture resistant and have a minimum continuous temperature rating of 194°F (90°C), except where good engineering practice dictates special consideration for cable installations exposed to higher temperatures.
- 4.4.9.16      **Circuit Protection**  
Circuit protection shall be accomplished by utilizing fuses, circuit breakers, fusible links, or solid state equivalent devices.
- 4.4.9.17      **Circuit Protection Devices**  
If a mechanical-type device is used, it shall conform to one of the following SAE standards:
- 4.4.9.17.1      SAE J156, Fusible Links
  - 4.4.9.17.2      SAE J553, Circuit Breakers
  - 4.4.9.17.3      SAE J554, Electric Fuses (Cartridge Type)
  - 4.4.9.17.4      SAE J1888, High Current Time Lag Electric Fuses
  - 4.4.9.17.5      SAE J2077, Miniature Blade Type Electrical Fuses
- 4.4.9.18      **Circuit Specifications**  
All circuits shall otherwise be wired in conformance with SAE J1292, Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring.

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4.4.9.19 Conductor Covering

The overall covering of conductors shall be moisture-resistant loom or braid that has a minimum continuous rating of 194°F (90°C) except where good engineering practice dictates special consideration for loom installations exposed to higher temperatures.

4.4.9.20 Conductor Insulation

Physical and dimensional values of conductor insulation shall be in conformance with the requirements of SAE J1127 or SAE J1128, except where good engineering practice dictates special conductor insulation.

4.4.9.21 Conductor Material

Conductor materials and stranding, other than copper, shall be permitted if all applicable requirements for physical, electrical, and environmental conditions are met as dictated by the end application.

4.4.9.22 Conductor Specifications

All conductors shall be constructed in accordance with SAE J1127 or SAE J1128, except where good engineering practice dictates special strand construction.

4.4.9.23 Switches, Relays, etc.

Switches, relays, terminals, and connectors shall have a direct current (dc) rating of 125 percent of maximum current for which the circuit is protected.

4.4.9.24 Wire Specifications

All insulated wire and cable shall conform to SAE J1127, Low Voltage Battery Cable, or SAE J1128, Low Voltage Primary Cable, type SXL, GXL, or TXL.

4.4.9.25 Wiring

All shall be color coded and numbered. Wiring harness shall be enclosed in protective convoluted conduit. Wiring shall be protected by a manual resetting circuit breaker.

4.4.9.26 Wiring Identification

Wiring shall be uniquely identified at least every 2 ft (0.6 m) by color coding or permanent marking with a circuit function code. The identification shall reference a wiring diagram. [See NFPA 1901/2009

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4.20.2.3(6).]

4.4.9.27 Wiring Restraining

Wiring shall be restrained to prevent damage caused by chafing or ice buildup and protected against heat, liquid contaminants, or other environmental factors.

4.4.9.28 Wiring Size and Type

The circuit feeder wire shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for which the circuit is protected.

4.4.9.29 Wiring Specifications

All electrical circuit feeder wiring supplied and installed by the vehicle manufacturer shall meet the requirements of NFPA 1901/2009 13.2.1 through 13.2.8.

4.4.9.30 Wiring Voltage Drops

Voltage drops in all wiring from the power source to the using device shall not exceed ten (10) percent.

4.4.9.31 Documentation

The manufacturer shall deliver the following with the vehicle:

4.4.9.31.1 Documentation of the electrical system performance tests

4.4.9.31.2 A written electrical load analysis.

4.4.9.32 Electrical Access

Main body wiring harness shall be fully accessible through removable raceways, removable shelves and access panels on driver's side of vehicle. Wiring harness shall be protected by manual 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 thru a hinged door with locking exterior release. A wiring diagram shall be attached to back side of electrical access door.

4.4.9.33 Electrical Device Temperature Exposure

Any alternator, electrical starting device, ignition wiring, distributor, or ignition coil shall be moisture resistant and protected such that it is not exposed to a temperature that exceeds the component manufacturer's



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recommendations.

**4.4.9.34 Electrical System**

Shall be a 120/240 volt rated system and shall include a waterproof interior service panel junction box. The box shall have a 125 Amp rated capacity with UL Listed resetting type circuit breakers. Each of the AC/Heat units shall be protected with an individual circuit breaker. All of the A/C electrical system shall be installed using EPM 12ga. 3-conductor (10\3) multi-stranded boat wire, 600 volt UL approved. All wire shall be color coded and grounded throughout the system. Ten (10) interior quad outlets shall be provided. Locations shall be determined by interior layout.

**4.4.9.35 Electromagnetic Interference**

Electromagnetic interference suppression shall be provided, as required, to satisfy the radiation limits specified in SAE J551/1, Performance Levels and Methods of Measurement of Electromagnetic Compatibility of Vehicles, Boats (up to 15 m), and Machines (16.6 Hz to 18 GHz).

**4.4.9.36 Ground Connections and Star Washers**

The use of star washers for circuit ground connections shall not be permitted.

**4.4.9.37 Insulation Altering**

Wire nut, insulation displacement, and insulation piercing connections shall not be used.

**4.4.9.38 Jump-Starting**

An exterior means shall be provided for jump-starting the engine utilizing an Anderson-type connection.

**4.4.9.39 Low Voltage Electrical - General**

Any low voltage electrical systems or warning devices installed on the vehicle shall be appropriate for the mounting location and intended electrical load and shall meet the specific requirements of NFPA 1901-2009 Section Chapter 13.

**4.4.9.40 Low Voltage Failure Alarm Specifications**

If electrical system voltage is monitored, the alarm shall sound if the system voltage at the battery or at the master load disconnect switch drops below 11.8 V for 12 V nominal systems, 23.6 V for 24 V nominal systems, or 35.4 V for 42 V nominal systems for more than 120 seconds.

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4.4.9.41 Low Voltage System Failure Alarm

The condition of the low voltage electrical system shall be monitored by a warning system that provides both an audible and a visual signal to persons on, in, or near the vehicle of an impending electrical system failure caused by the excessive discharge of the battery set.

4.4.9.42 Low Voltage System Testing and Certification

The vehicle low voltage electrical system shall be tested as required by this section, the test results shall be certified by the vehicle manufacturer, and the certified test results shall be delivered with the vehicle.

4.4.9.43 Master Battery Switch

A master battery switch, to activate the battery system, shall be provided inside the cab within easy reach of the driver.

An indicator light shall be provided on the instrument panel to notify the driver of the status of the battery system.

4.4.9.44 Master Load Disconnect

A master load disconnect switch shall be provided between the starter solenoid(s) and the remainder of the electrical loads on the vehicle.

4.4.9.45 Minimum Continuous Load

With the engine off, the battery system shall be able to provide the minimum continuous electrical load for ten (10) minutes without discharging more than fifty (50) percent of the reserve capacity and then to restart the engine.

4.4.9.46 Minimum Continuous Load Calculation

The minimum continuous electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode during emergency operations:

4.4.9.46.1 The propulsion engine and transmission

4.4.9.46.2 All legally required clearance and marker lights, headlights, and other electrical devices except windshield wipers and four-way hazard flashers

4.4.9.46.3 The radio(s) at a duty cycle of 10 percent transmit and 90 percent receive (for calculation and testing purposes, a default value of 5 A continuous)

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- 4.4.9.46.4 The lighting necessary to produce 2 fc (20 lx) of illumination on all walking surfaces on the vehicle and on the ground at all egress points onto and off the vehicle 5 fc (50 lx) of illumination on all control and instrument panels, and 50 percent of the total compartment lighting loads
- 4.4.9.46.5 The minimum optical warning system required in Section 13.8, where the vehicle is blocking the right-of-way
- 4.4.9.46.6 The continuous electrical current required to simultaneously operate any medical devices

4.4.9.47 Outlets - Electrical

Ten (10) interior quad 110v AC electrical outlet shall be provided at locations determined during the Pre-Build Meeting for powering medical equipment.

4.4.9.48 Over-current Protection

Circuits shall be provided with properly rated low voltage over-current protective devices.

4.4.9.49 Over-current Protection Access

Such devices shall be readily accessible and protected against heat in excess of the over-current device's design range, mechanical damage, and water spray.

4.4.9.50 Shoreline - Electrical

A shoreline electrical connection shall be provided on the exterior of the vehicle to allow connection to an existing power source such as a building or other generator to operate all on-board options. This feature shall allow vehicle to remain connected to external power source for an unlimited amount of time. Shall include power to one air conditioner, battery charger, block heater and other systems listed in this specification.

4.4.9.51 Starter – Solenoid to the Battery

The starter solenoids shall be connected directly to the batteries.

- 4.4.10 Emergency Lighting/Flashlight: Three (3) StreamLight Litebox rechargeable HIM – one million candlepower high intensity flashlight mounted at each nurse's station and in the driver's compartment. A 12v outlet shall be dedicated to this

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flashlight to maintain battery charge.

- 4.4.11 Exhaust Fan: Interior: (2) air exhaust fans in the interior floor area to exhaust interior air as exterior air is brought into the vehicle from air conditioning/heating units, through open doors/window or from roof escape hatch vents
- 4.4.12 Generator: Diesel powered 20 KW 175 watt Martin Diesel Generator. Generator will be equipped with air bag shock isolators to decrease vibration. Fuel source shall come from the main vehicle fuel tank. Generator shall be mounted on a slide out tray for easy servicing. Dual locks shall lock the generator in the stowed position when the tray is returned to normal operating position.
- 4.4.13 Generator compartment shall have a sealed ball bearing slide out tray for easy access for servicing generator. Compartment to be insulated to reduce heat and noise transferred to interior of the vehicle. Generator exhaust shall exit left side of the vehicle.
- 4.4.14 Generator Controls: Generator start, run, stop, preheat switch and hour meter shall be located within easy reach of driver. Exterior generator service controls shall be located in the generator compartment.
- 4.4.15 Graphics: The final Lettering and Graphics package shall be specified by the Purchaser during the pre-build conference. The package shall include:
  - 4.4.15.1 Chevron Markings, Rear  
The vehicle body's outer rear portion shall have reflective band six inch (6") wide striping installed over 100% of available surface area. The chevron style stripe shall be applied at a 45-degree angle, pointing towards the center upper portion of the rear panel. Color of the chevrons shall be finalized during the Pre-Build Conference.
  - 4.4.15.2 Decal Installation  
Decals per agreement during the Pre-Build conference.
  - 4.4.15.3 Paint Color  
Exterior polyurethane paint, of a color to be decided at the Pre Build Conference, shall be applied and approved prior to the application of decals.
- 4.4.16 Intravenous Fluid Hangers: (7) Recessed ceiling mounted IV Hangers. IV hangers

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to be mounted at the head of each stretcher position.

- 4.4.17 Lighting: Interior- (13) interior 12 volt LED dome lights, with driver's dome light with separate switch. Rheostat control for all interior lighting with control switch located at the nurse's station.
- 4.4.18 LED Ceiling Lights - Whelen model 86CE1 ceiling mounted LED operational recessed lighting located in approximately every other ceiling panel location throughout bus and over nurse's station. Lighting to show exact patient skin tone.
- 4.4.19 Checkout Timer – A dial located next to the front door will illuminate 40% of the interior lights for a maximum of 15 minutes without having the electrical system on.
- 4.4.20 Exterior Under-Vehicle Lights - Minimum of Eight (8) waterproof under-vehicle exterior LED lights to illuminate the area around and under the vehicle.
- 4.4.21 Scene Lights - (8) Fire Research 900 series flush mounted LED or Whelen Pioneer series flush mounted LED scene lights, (3) on each side of vehicle and (2) on the rear of the vehicle. Turn on/off switches located in the front and the rear of the vehicle, separate from emergency lighting / switch panel. When vehicle is placed in reverse, both the rear scene lights and the rear lights on both sides of the MAB should illuminate.
- 4.4.22 The bus shall be equipped with lighting that is capable of providing illumination at a minimum level of 2 fc (20 lx) on ground areas within 30 inches of the edge of the vehicle in areas designed for personnel to climb on to the vehicle or descend from the vehicle to the ground level.
- 4.4.23 Nurses/Paramedic's Station: (1) Paramedic's Station 47"W x 36 2/4"T x 27.75"D with (6) six pull out drawers located in front of the vehicle on the driver's side. An additional station is located amidships as well, per the final design confirmed at the Pre-Build Conference.
- 4.4.24 Overhead Cabinets: Overhead cabinets with Plexiglas sliding doors shall be located above the nurse's station.

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- 4.4.25 Oxygen System: Oxygen system shall be a split design, (two separate oxygen systems). Individual metered oxygen connections with quick disconnect fittings for (20) twenty patients shall be provided. Oxygen tanks shall be located in an area that gives unobstructed access for ease of maintenance and refill. Oxygen tanks shall be mounted in sliding oxygen tank cradle assemblies that slides in/out for ease of maintenance or changing of the tanks. Oxygen system shall have an oxygen monitoring system with master alarm, zone valve box. Oxygen system will be installed by NFPA 99/ASSE/ASSME Certified Personnel. There shall be a minimum of (20) individual metered oxygen ports for patients. All patients shall have an individual adjustable metered oxygen supply (.05 – 25.0). One additional oxygen wall connection shall be mounted adjacent to each existing oxygen wall supply that feeds the individual metered oxygen ports for patients. This additional connection provides additional respiratory therapy to an individual patient without interrupting the oxygen flow to multiple patients. Emergency oxygen cutoff valve shall be located within easy reach of attendants and driver. Oxygen monitoring system shall be located on the main nurse's work station. Monitoring system shall have a leak detection mode as well as an oxygen level monitoring display for each oxygen system.
- 4.4.26 Oxygen External Connection: Oxygen system shall be capable of being connected to exterior oxygen source (liquid or other source) which will allow the MAB vehicle to remain on-site with continuous oxygen supply for an indefinite period of time.
- 4.4.27 Radio AM/FM/CD: AM/FM/CD Radio with Navigation System, to include (2) speakers shall be installed so controls are easily accessible to the driver. Speakers to be placed throughout the vehicle with individual volume control.
- 4.4.28 Ramp Assembly: A storable loading and unloading ramp will be provided. The two piece ramp with side hand rails will attach to the rear of the bus for loading or unloading of stretcher patients through the back door of the vehicle. The ramp shall be adjustable so that loading or unloading of patients can be done at any angle from 45 up down to ground level. Ramp and ramp storage assembly shall be constructed of heavy duty aluminum. Ramp shall have a minimum weight rating of at least 1,500 pounds and shall be a minimum of 46" wide.
- 4.4.29 Refrigerator: (1) 110v Refrigerator shall be powered by either shore power or generator power. Refrigerator shall be located under the nurse's station countertop.

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- 4.4.30 Safety Equipment: (2) 5 lb fire extinguishers.
- 4.4.31 Seats: Attendants: (5) Mid-High Back Flip Up Attendant Seats shall be provided. All seats shall have restraining belts for attendants.
- 4.4.32 Seat: Driver Attendant: Guardian high back seat with restraining system and Pediatric / Child Restraint System
- 4.4.33 Seats: Rehab: (24) Wall mounted flip down seats (24 seated persons). When stretchers are removed and stored on opposite side of bus, seats can be folded down to allow additional seating. Seats will have a securement device to hold seat in up position. Each seat to have passenger restraining belt.
- 4.4.34 Sliding Stretcher Receiver: Stretchers shall be carried into the vehicle and set into the sliding stretcher assembly. The sliding stretcher assemblies are then slid and locked into place to prevent movement of stretchers. Locking pins shall eliminate any horizontal movement of the patient stretcher tray assembly. The stretcher receiver assembly shall have a vertical elimination bracket on each end of the assembly to prevent the stretcher from moving in a vertical movement after the stretcher has been stowed. Sliding Stretcher Assembly Part Number MAB-62550 only.
- 4.4.35 Storage Compartments Interior: Stainless steel medical storage compartments with pull out doors. Compartments are located under attendant seats where available. All compartments are made out of laminated wood covered with stainless steel cover.
- 4.4.36 Large Medical Equipment storage box: (1) three drawer medical equipment/supplies storage compartment 63" L x 28" H x 24" D located across the aisle from the nurse's station.
- 4.4.37 Large Medical Storage Closet: (1) Large medical storage closet shall be located immediately behind the generator compartment and adjacent to the two (2) mid-section attendant seats on the driver's side. Compartment shall have a locking device to secure the door.



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- 4.4.38 Overhead Removable Storage Compartments :  
Over each stretcher location there shall be large removable stainless steel storage cabinets with sliding doors. Compartments shall be large and shall provide storage for medical supplies or medical equipment. All cabinets shall be easily removable within five (5) minutes and when removed seven (7) additional stretchers can be easily installed within five (5) minutes. Stretcher receivers shall be incorporated into the design of the stretcher receiver assembly so that no additional installations of any type are necessary.
- 4.4.39 Stretchers:  
(18) Adjustable headrest type non-folding stretchers, 74" x 19". Stretchers shall have a load limit weight of 350 pounds each
- 4.4.40 Stretchers:  
Stryker Rolling: (2) Stryker MX-PRO rolling gurney type stretcher located in the rear corners of the vehicle
- 4.4.41 Stretcher Tray Assembly: (18) Stainless steel stretcher tray assemblies shall be provided. Trays shall slide in and out on sliding stretcher assembly. Tray construction shall be stainless steel having all sides of the stretcher tray assembly sloping toward the patient's feet area where a drain plug and discharge cleanout connection is located. Each stretcher tray shall be easily removable within 1 minute without using any tools (provided by Southwest Texas Regional Advisory Council).
- 4.4.42 Stretcher Mounting System: Stretchers shall be mounted in a "stacked assembly" with slide out feature.
- 4.4.43 Suction Units: Installation of (5) 12v suction units shall be mounted in the vehicle. Each suction unit will have its own 12v outlet to maintain battery level
- 4.4.44 Wheelchair Tiedown Positions: Floor tracking shall be installed and spaced so that, if necessary, wheelchair occupants can utilize the entire open floor area for a wheelchair tie-down system.
- 4.4.45 Wheelchair Tiedown System: (8) wheelchair tiedown kits shall be supplied, SureLok Model FF627S-4C .
- 4.4.46 Winch Assembly: (1) under floor fold up winch assembly shall be mounted in the aisle area of the floor approximately at the midpoint of the vehicle. Winch

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shall be rated at 3500 pounds and will allow caregivers to connect winch to rolling stretcher for loading and unloading bariatric patients.

- 4.4.47 Wiring: All wiring needed by purchaser for future equipment use shall be run by the manufacturer during production. Purchaser shall provide manufacturer with locations and numbers of wires needed.

**4.5 Performance Standards**

**4.5.1 Angle of Approach and Departure**

An angle of approach and departure of at least 8 degrees shall be maintained at the front and rear of the vehicle when it is loaded to the estimated in-service weight.

**4.5.2 Carrying Capacity**

The GAWR and the GCWR or GVWR of the chassis shall be adequate to carry the weight of the vehicle when loaded to its estimated in-service weight.

**4.5.3 Generator Test**

The generator shall be tested, approved, and certified at the Successful Bidder's expense. The test results shall be provided to the STRAC at the time of delivery.

**4.5.4 Height, Maximum (overall)**

The maximum overall height of this vehicle shall be one hundred thirty-eight inches (138").

**4.5.5 Load Balance**

This vehicle shall be engineered to comply with gross axle weight ratings (GAWR), the overall gross vehicle weight rating (GVWR), and the chassis manufacturer's load balance guidelines.

**4.5.6 Load Distribution**

This vehicle, when loaded to its estimated in-service weight, shall have a side-to-side tire load variation of no more than seven (7) percent of the total tire load for that axle. Load Distribution Documentation

The vehicle manufacturer shall calculate the load distribution for the vehicle, and that load distribution plan shall be delivered with the vehicle.

**4.5.7 Vehicle Weight Certification**

A final manufacturer's certification of the GVWR or GCWR, along with a certification of each GAWR, shall be supplied on a label affixed to the vehicle.

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**4.6 Protection**

**4.6.1 Lift and Tow Mounts**

Mounted to the frame extension shall be lift and tow mounts. The lift and tow mounts shall be designed and positioned to adapt to certain tow truck lift systems. The lift and tow mounts with eyes shall be painted bright orange.

**4.6.2 Tow Bar**

A tow bar shall be installed under the tailboard at center of truck. Tow bar shall be fabricated of 1.00" cold rolled steel (CRS) bar rolled into a 3.00" radius. Tow bar assembly shall be constructed of .38" structural angle. When force is applied to the bar, it shall be transmitted to the frame rail.

Tow bar assembly shall be designed and positioned to allow up to a 30-degree upward angled pull of 17,000 pounds, or a 20,000-pound straight horizontal pull in line with the centerline of the vehicle.

Tow bar design shall have been fully tested and evaluated using strain gauge testing and finite element analysis techniques. Test reports to be submitted to the STRAC upon delivery of the equipment.

**4.6.3 Tow Hooks**

Front and rear tow hooks or tow eyes shall be attached to the frame structure to allow towing (not lifting) of the vehicle without damage.

**4.7 Radio / Communications Equipment**

**4.7.1 Antennae**

The vehicle shall be wired to accommodate antennas for the local and regional two-way radio systems as well as computer wireless antenna. Antennae will be provided by the Southwest Texas Regional Advisory Council. All antenna locations will be finalized at the Pre-Build Conference.

**4.7.2 Radio Wiring, Equipment and Installation**

The Successful Bidder shall install wiring and antennae for radio and satellite systems to allow integration of this unit with local, regional and State radio systems. Installation will include the driver's compartment and the Crew Chief's seat, aft of the side door. All radios, antenna and manufacturer's cabling will be provided by STRAC. The successful bidder is responsible for installation per the radio manufacturer's instructions. Dedicated Radio Equipment Connection

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**4.7.3 Intercom System**

A radio communications/intercom system with headsets at the driver seat and each attendant seat and at the paramedic's station. The headsets at the driver seat and at the paramedic's station shall have the ability to talk on the intercom as well as the dual radio interface communications system (Motorola XTL 5000 P-25 compatible radio) that will be installed by the purchaser after delivery.

**4.7.4 Ramp**

A storable loading and unloading ramp shall be provided. The ramp shall attach to the rear of the bus for loading or unloading of stretcher patients through the back door of the vehicle. The ramp shall be adjustable so that loading or unloading of patients can be done at any angle from 45 degrees up and down to ground level. Ramp shall have the appropriate handrails and guards. Ramp and ramp storage assembly shall be hot dipped galvanized. Ramp shall have a minimum weight rating of at least 1,000 pounds.

**4.8 Safety**

**4.8.1 Aggressive Walking Surface**

All exterior surfaces designated as stepping, standing, and walking areas shall comply with the required average slip resistance of the current NFPA standards.

**4.8.2 Alarm, Parking Brake**

Electric Horn Sounds in Repetitive Manner When Vehicle Park Brake is "NOT" Set, With Ignition "OFF" and any Door Opened.

**4.8.3 Side View and Rear View Camera System**

Backing camera with a minimum 6" color LCD monitor with sound shall be provided and installed.

Additional monitors for left and right side view cameras will be located on each side of the backing monitor.

**4.8.4 Enclosed Crew Riding Positions**

Each crew riding position enclosed by stretcher supports shall be outfitted with sufficient padding, to include the head strike zone, to minimize injuries during an accident. When possible, square edges should be rounded as well.

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4.8.5 Maximum Noise Level

At any seat location, the maximum noise level shall be 90 dBA without any warning devices in operation, as measured by the test procedure defined in 49 CFR 393.94(c), Vehicular interior noise levels test procedure, except that the test shall be performed with the vehicle traveling at a steady speed of 45 mph (72 km/hr) on a level, paved, smooth-surface road.

4.8.6 Seat Belts

Seat Belt – Forward Facing Side wall

All forward-facing seats adjacent to a side wall shall be provided with a Type 2 pelvic and upper torso restraint-style seat belt assembly.

4.8.7 Seat Belt Anchorage

All seat belt assembly and anchorages shall conform to the Federal Motor Vehicle Safety Standard (FMVSS) No. 210, "Seat belt assembly anchorages."

4.8.8 Seats

Seat Adjustment

When independent vertical and/or horizontal seat adjustment is provided, it shall be fully adjustable within ten (10) seconds.

4.8.9 Seats, Rehab

Twenty Four (24) wall mounted flip down seats for firefighter rehab, walking wounded or attendants. When stretchers are removed seats can be folded down to allow additional seating.

4.8.10 Signage

4.8.10.1 Fuel Tank Opening Signage

The tank fill opening shall be marked with a label indicating the type of fuel to be used.

4.8.10.2 GVWR Signage

The Successful Bidder shall permanently affix a high-visibility label in a location visible to the driver while seated showing the vehicle's GVW.

4.8.10.3 Number of Passengers

A label that states the number of personnel the vehicle is designed to carry shall be located in an area visible to the driver.

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4.8.10.4

Signage - Cab

A permanent label in the driving compartment shall specify the quantity and type of the following fluids used in the vehicle and tire information:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Drive axle(s) lubrication fluid
- Air conditioning refrigerant
- Air conditioning lubrication oil
- Power steering fluid
- Transfer case fluid
- Generator system lubricant
- Front tire cold pressure
- Rear tire cold pressure
- Maximum tire speed ratings

4.8.10.5

Vehicle Height / Length Signage

The label shall show the height of the completed vehicle in feet and inches, the length of the completed vehicle in feet and inches, and the GVWR in tons. Wording on the label shall indicate that the information shown was current when the vehicle was manufactured and that, if the overall height changes while the vehicle is in service, the owner must revise that dimension on the plate.

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**4.9 Storage**

**4.9.1 Compartment Louvers**

All body compartments shall have a minimum of one (1) set of louvers to provide the proper airflow inside the compartment and to prevent water from dripping into the compartment.

**4.9.2 Compartment Storage Exterior**

One (1) lighted storage compartment with door and lock fifty-four inches (54") long minimum. Box shall be located driver's side behind rear axle.

**4.9.3 Compartment Storage Interior**

Six (6) Six stainless steel medical storage compartments with pull out doors 19.5"W x 15.75"T x 18"D.

Compartments shall be located under attendant seats. All compartments shall be made out of laminated wood covered with stainless steel cover. Large Medical Equipment storage box: One (1) four (4)-drawer medical equipment/supplies storage compartment 63"L x 28"H x 24"D shall be located across the aisle from the paramedic's station.

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**4.10 Warning Systems – Visual (Emergency Lighting):**

4.10.1 Electrical Connection

Each optical warning device shall be installed on the vehicle and connected to the electrical system in accordance with the requirements of the manufacturer of the device.

4.10.2 Emergency Switch Panel

The emergency switch panel will include a master switch and individual light controls.

4.10.3 Headlight Flashers

The high beam headlights shall flash alternatively between the left and right side, with a control switch located in the cab on the switch panel.

4.10.4 The flashing shall automatically cancel when the headlight switch is activated, or when the parking brake is set.

4.10.5 Exterior Emergency Lighting package.

4.10.5.1 Zone A (front):

Upper – (7) 900 series Whelen LED Light heads – alternating from outside to outside, Red – White – Red – White – Red – White – Red, all lights to have clear lens and colored LEDs.

Lower: (2) Whelen NFPA 1901 Compliant 60R02FRR 6"x4" 600 Series Red Super LED light heads – grille mounted. Clear lens.

Lower Windshield – Whelen Dominator Super LED Light Bar located below windshield (Red, Amber, White, White, Red, Blue). All lights to have clear lens and colored LEDs.

Front corners (2) Whelen NFPA 1901 Compliant 60R02FRR 6"x4" 600 Series Super LED light heads – Clear lenses – (1) each red LED and (1) each clear LED.

4.10.5.2 Zone B (right side):

Upper - (6) Whelen NFPA 1901 Compliant 90RR5FRR 9"x7" 900

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Series Red Super LED light heads; Clear lens with colored LED.

Lower - (5) Whelen NFPA 1901 Compliant 60R02FRR 6"x4" 600 Series Super LED light heads – Blue – Amber – Blue – Amber - Blue in color; Clear lens with colored LED

4.10.5.3 Zone C (rear):

(4) Whelen NFPA 1901 Compliant 90RR5FRR 9"x7" 900 Series Red Super LED light head. (2) Whelen NFPA 1901 Compliant 90RR5FAR 9"x7" 900 Series Amber Super LED light head. (1) Whelen PS00FRR LED Light (Red) and (1) Whelen PS00FAR LED Light (Amber) shall be mounted on each side of the rear loading door just above bumper. All Light have Clear Lens.

Whelen 900 series scene lights mount on each side of the top of the rear loading door. Lights shall have 12 degree down angle and shall be controlled by a switch at the rear of the bus. Scene light shall illuminate when the vehicle is placed in reverse.

4.10.5.4 Zone D (left side):

Upper - (6) Whelen NFPA 1901 Compliant 90RR5FRR 9"x7" 900 Series Red Super LED light heads; Clear lens with colored LED.

Lower - (5) Whelen NFPA 1901 Compliant 60R02FRR 6"x4" 600 Series Super LED light heads – Blue – Amber – Blue – Amber - Blue in color; Clear lens with colored LED.

4.10.5.5 Opticom

Wiring and Installation of an Opticom emitter shall be provided. The wiring for the Opticom shall be switched by an on/off switch located in the cab instrument panel and by the parking brake. The parking brake shall turn off the opticom when applied.

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**4.11 Warning Systems – Audible (Sirens)**

4.11.1 Audible Warning Device Placement

Air horns, electric siren(s), and electronic siren speaker(s) shall be mounted as low and as far forward on the vehicle as is practical.

4.11.2 Audible Warning System – Siren Switch

A means shall be provided to allow the activation of the siren within convenient reach of the driver.

4.11.3 Siren

One (1) Whelen 295HFSC9 (with dipswitch #1 in ON position with Tap 2 to Horn Ring) hands free electronic siren, and Park Kill; cab console mounted controls, two 100W bumper mounted speakers.

4.11.4 Speakers

There will be two (2) speakers provided. The speakers shall be a Whelen SA314 100watt models mounted in the front bumper. The speaker shall be connected to the siren amplifier. The speaker shall be recessed in the front bumper on the driver and passenger's side

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**5 Training, Factory**

- 5.1** The Successful Bidder shall supply a minimum of eight (8) hours of mechanical familiarization training for a minimum of two (2) mechanics. The training shall be held at a location agreed upon prior to delivery.
- 5.2** The Successful Bidder must also provide all relevant training materials, resources and documentation to the Purchaser at time of delivery to include, but not limited to:
- 5.3** Manual CD Chassis Service
- 5.4** Manual CD Parts
- 5.5** Manual CD Body Part, only
- 5.6** Manual, Chassis Operation
- 5.7** Manual, Chassis Service
- 5.8** Manual, Service
- 5.9** Any other materials or documentation deemed appropriate by the Purchaser to include any installed equipment.

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**6 Warranty**

Warranty to include or exceed:

- 6.1** Medical Ambulance Bus Conversion  
(2) Two Year - Unlimited Miles
- 6.2** Generator  
(2) Two Year / 1500 Hours
- 6.3** Rooftop Heat/Air Conditioning  
(2) Two Year - Unlimited Mileage
- 6.4** Basic IC Vehicle  
One Year - Unlimited Miles
- 6.5** Body  
(5) Five Year - Unlimited Miles  
Includes structural components, roof, floor, sides, and front and rear sections; frame rails and cross-members; paint adhesion and rust protection
- 6.6** Body  
One Year / 12,000 miles  
Includes components supplied by outside vendors
- 6.7** Drivetrain  
(4) Four Year / 48,000 Miles  
Includes front and rear axles, propshaft
- 6.8** Engine  
(5) Five Year - Unlimited Miles
- 6.9** Allison Transmission  
(2) Two Year - Unlimited Miles