Johnson County Ambulance District
PO Box 48
Warrensburg, MO 64093
P: (660) 747 – 5735

Headquarters Facility
500 E Young Ave.
Warrensburg, MO 64093

Invitation to Bid
Johnson County Ambulance District
Warrensburg, MO 64093
Ambulance Vehicle

Johnson County Ambulance District (JCAD) is soliciting competitive, sealed bids from qualified vendors for the purchase of four (4) new Dodge 5500 4X4 diesel engine, Type 1 ambulances over the next 18-months. The Agency intends to purchase and receive two completed ambulance in calendar year 2020 and two completed ambulance in calendar year 2021.

The Johnson County Ambulance District reserves the right to reject any or all bids and to accept any bid that is most advantageous to the Johnson County Ambulance District. The Johnson County Ambulance District reserves the right to waive any formalities as may be deemed advantageous to the Johnson County Ambulance District permitted by law.

This invitation is extended to all qualified vendors/manufacturers that are specifically in the business of building emergency medical vehicles and/or equipment. Bid specifications and related bid documents can be obtained by contacting JCAD by:

Website: www.jocoamb.com
Email: contactjcad@gmail.com
Phone: (660) 747 – 5735
Postal Mail: PO Box 48
Warrensburg, MO 64093

Physical Address: 500 E Young Ave.
Warrensburg, MO 64093

The attached specification defines a heavy-duty, commercial emergency medical vehicle, built to withstand adverse driving conditions. These specifications are for a vehicle to be specifically designed, manufactured, and equipped for use as an ambulance and meets or exceed the current standards / specifications set forth The Commission on Accreditation of Ambulance Services Ground Vehicle Standard for Ambulances v.1.0 edition (CAAS GVS v1.0).

All bids shall be received prior to 3:00 P.M. August 8, 2019. Bids shall be submitted in a sealed envelope marked on the outside: **Bid for Ambulance 2019.**

Bids shall be opened in the Johnson County Ambulance District Headquarters. Bidding opening will occur on August 8, 2019 at 3:30 P.M. Proposals will not be discussed at this time.

Tentative announcement of decision August 16, 2019.

It is the full responsibility of the bidder to select the delivery method and to ensure the bid is received by JCAD prior to the specified time for the bid opening.
Submission of any bid signifies the Vendor's agreement that its bid and the content thereof are valid for 90-days following the submission deadline and will become part of the contract that is negotiated between JCAD and the successful vendor. All prices submitted with the proposal shall remain in effect for the 90-day period.

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A. GENERAL CONDITIONS

PARTY IDENTIFICATION:

AGENCY: "Agency" is hereinafter defined as the customer. The customer is an individual or a group of individuals whom represent the interest of the Johnson County Ambulance District and has been charged with the responsibility of purchasing one or more emergency medical vehicle(s).

BIDDER: "Bidder" is hereinafter defined as the vehicle manufacturer and/or its authorized representative. The bidder is an assigned representative who is authorized to commit to a contract with the "Agency".

VENDOR: "Vendor" is synonymous with "Bidder".

NOTICE TO BIDDERS: Bidders shall thoroughly examine any drawings, specifications, schedule, instructions and any other documents supplied as part of this invitation to bid.

Bidders shall make all investigations necessary to thoroughly inform themselves regarding the content of the written specifications, drawings and instructions supplied herein. No pleas of ignorance by the bidder pertaining to the content of the specifications, drawings, schedule or instructions will be considered by the agency once the deadline for bid submission has occurred. Failure or omission on the part of the bidder to make the necessary examinations and investigations into the content of the specifications shall not be accepted as a basis for making variations to the spec. Failure or omission by the bidder to make all clarifications or explanations of exceptions and conditions that exist or that may exist hereafter shall NOT be accepted as a basis for making variations to the requirements of the Agency or compensation to the bidder.

PURPOSE & EXLANATIONS: The purpose of this document is to provide minimum specifications for themanufacturer of an emergency medical care vehicle that meets the needs and desires of the Agency. This document also establishes essential criteria for the design, performance, equipment, and appearance of the vehicle. The object is to provide a vehicle that is in accordance with nationally recognized guidelines.

Effort was made to write non-vendor specific specification and criteria. The intention was to write the specifications in a manner that every vendor or manufacturer of quality ambulance could present a competitive bid proposal.

This is an engineer, design, construct and deliver specification and it is not the intention of the Agency to eliminate or disqualify vendors or manufacturers of similar or equal equipment of the types specified. All drawings are conception and not to scale. All measurements are approximate and subject to engineering change.

CORE DESIGN INTENT: The core design intent of the specifications supplied herein is to purchase an ambulance with the highest level of engineering excellence. The "core design" intent of this vehicle shall be centered on the patient's need for pre-hospital care, in conjunction with a safe working environment for the emergency medical personnel.

Careful consideration pertaining to safety, configuration, construction, and workmanship are based on working experiences by the Agency personnel who have direct, working contact with the subject vehicle specified herein. The "core design" of this ambulance was created as a result of resolving issues and improvement suggestions that have originated from the personnel most qualified to make such input.

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CLARIFICATIONS: Clarifications shall be written correspondence (postal mail or email) between the bidder, the agency and all other qualified bidders. A clarification shall include the paragraph number, page number, the text with unclear content (as written in the specification) and the definition of the clarification requested. Verbal clarifications shall be documented in writing and distributed to all other qualified bidders at least two business days prior to the deadline for bid submission.

EXPLANATION OF EXCEPTIONS: Bidders may take exceptions to any part of the bid contained herein with a written itemized schedule. The schedule shall include the paragraph number(s), the text that the bidder feels he can not comply with an explanation why the bidder feels that the requirement is not in the best interest of the Agency and/or an alternate bidder solution. Alternate bidder solutions may be considered by the agency, if the bidder can show the agency that the alternate solution is, in quality and quantity, equal to OR better than the specified item.

ALTERNATIVES: The Agency makes no claim that ALL potential issues or improvements are included in the specifications supplied herein. The Agency will consider any valid concern by any Bidder and will consider minor specification exceptions or alternatives of equal or better performance, provided that the exception(s) are steered toward meeting the "core design" intent.

TOTAL EXCEPTIONS: Bidders shall not take total exception to specifications. Bidders are required under this bid invitation to give, for the consideration of the Agency, a proposal that will comply with the written specifications, drawings and schedules supplied herein. The specifications supplied represent a compilation of input from all disciplines of users, patients, maintenance and management personnel who are directly affected by the vehicle's performance.

A bidder who submits a bid that takes "Total Exception" OR makes an offering of some "Standard" or "Stock" vehicle design will be viewed by the Agency as a Bidder who did not make, and is not prepared to make, a valid bid, and is not qualified to manufacture the ambulance as specified herein. Total Exception alternate bids will NOT be considered.

VEHICLE QUANTITY: The Agency is currently seeking to purchase two ambulance vehicles per the specifications set forth in this solicitation for bid. The Agency and/or other government agencies that qualify to purchase under this contract will reserve the right to increase the number of vehicles purchased without incurring an obligation to obtain bids from other vendors for a period of two years. A contract extension may be provided to the successful, qualified Bidder who has performed satisfactorily to the original contract.

VENDOR QUALIFICATIONS: Regardless of the chassis purchases, all qualified Bidders shall be members in good standing of the Ford Motor Company's Qualified Vehicle Modifier program (QVM) and General Motor's Specialty Vehicle Manufacturer program (SVM). Each bidder shall supply a copy of their valid Ford QVM certification and General Motors SVM certification with their bid package. If for any reason the Ford QVM certification and/or General Motors SVM certification has been withdrawn or suspended by Ford Motor Company and/or General Motors within the past five years, the bidder shall supply a full written explanation as to why it was withdrawn. The written explanation shall include any corrective actions taken to regain the Ford QVM certification and/or General Motors SVM certification.

All qualified Bidders shall be members in good standing of the National Truck Equipment Association (NTEA).

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MANUFACTURING ABILITY: The ambulance manufacturer must have significant experience in the construction of modular ambulance bodies. It is not required that the entire ambulance be built by the Bidder or ambulance manufacturer. If basic structural portions of the modular ambulance body are not built by the ambulance manufacturer, the Bidder shall refer to the component manufacturer. Accessories such a lighting, sirens, and medical equipment are not considered as basic components of the modular body.

PRODUCT LIABILITY INSURANCE: A Certificate of current liability insurance, with at least a Ten Million Dollar minimum shall be supplied with the bid submission. The proof of insurance shall bear the insurance carrier's name, address and phone number. The proof shall also bear the name and address of the insured. This document shall contain the coverage schedule, explaining the type of insurance, the policy number, the effective date of coverage, the policy expiration date and the individual limits.

NON-DISCRIMINATION AND EQUAL OPPORTUNITY: The Bidder, all contractors, and manufacturers agree to comply with all federal statutes relating to non-discrimination.

DRUG FREE WORKPLACE: The Bidder shall conduct business as a Drug Free Workplace. The Bidder/Manufacturer and ALL its sub-contractors shall provide notice to their employees and sub-contractors as required under the Drug-Free Workplace Act of 1988. A copy of Bidder's Drug-Free Workplace Policy shall be furnished to this agency upon request.

DEBARMENT STATUS: By submission of this bid response, the Bidder and/or its authorized representative, certify under penalty of perjury, that to the best of their knowledge and belief they are not currently debarred from submitting bids or bid on contracts by any agency within the State of Missouri, nor are they an agent of any person or entity that is currently debarred from submitting bids on contracts by any agency within the State of Missouri.

This agency will not tolerate Vendors who state compliance to specifications but deliver an incomplete product and/or sub-standard materials and workmanship. Vendors who have made delivery of such an ambulance without making every reasonable effort to remedy the defects found at the time of delivery or within the warranty period will be notified that they are DEBARRED from submitting bids to this agency in the future. This agency will not waste valuable time (more than once) trying to recover legal costs and deal with lost in-service time of new apparatus, working with vendors who are unresponsive to the needs of this agency.

B. NON-COLLUSIVE BID CERTIFICATION

By submission of this bid response, the Bidder and/or its authorized representative, certify under penalty of perjury, to the best of their knowledge and belief the following:

a. The prices submitted in response to this bid have been arrived at independently without collusion, consultation, communication, or agreement for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor, and;
b. Unless otherwise required by law, the prices which have been quoted in the bid response have not knowingly been disclosed by the Bidder and will not knowingly be disclosed by the Bidder, prior to the public opening, either directly or indirectly to any competitor, and;
c. No attempt has been made or will be made by the Bidder, for the purpose of restricting competition, to induce any person, partnership, or corporation not to submit a bid response.

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C. QUALTIY AND TESTING

QUALITY MANAGEMENT SYSTEM REGISTERED: The manufacturer shall have a certificate of registration for ISO 9001(TM) 2015 for their Quality Management System (QMS). The QMS provides establishment, documentation, implementation, maintenance and improvement of management systems that impact the final quality of the product. Registration of the vendor's QMS demonstrates an enduring commitment to quality, a sharp focus on the customer, and robust communication throughout the product process chain to the customer. This registration provides for oversight with routine inspection of the QMS to maintain certification status. Proof of certification shall be readily available upon demand. Proof of Certification shall be provided with bid during initial bid process.

QUALITY ASSURANCE: The vendor shall inspect and test all systems, electrical loads, per current Commission on Accreditation of Ambulance Services Ground Vehicle Standard for Ambulances v.1.0 edition (CAAS GVS v1.0). Testing results shall be documented and displayed in the Oxygen compartment and supplied with the delivery handbook.

A thorough quality compliance inspection by the agency's designated representative shall compare the Ambulance to the specifications within 10 calendar days of written notice of vehicle completion by the successful bidder. The notice may be faxed, followed by phone contact. The customer reserves the right to authorize the bidder's Dealer to conduct the inspection provided the Dealer is authorized and qualified to correct quality/compliance issues at the Dealer site.

NATIONAL TRUCK EQUIPMENT ASSOCIATION (NTEA) – AMBULANCE MANUFACTURERS (AMD) TESTING: The ambulance described herein shall be type tested to the National Truck Equipment Association's Ambulance Manufacturing Division latest version published standards and test expect where otherwise specified. The tests shall be conducted by an independent testing laboratory on a like test model. The module body bid herein shall contain extrusion shapes and general structural layout identical to the test body used in the test.

All electrical tests shall be recorded on an electrical system performance sheet and shall be included with the delivery documents. Such tests shall be conducted by a qualified quality control electrician at the ambulance manufacturing plant or by an independent testing laboratory.

AMD Standard 001 – Ambulance Body Structure Static Load Test

- **except the test weight shall be a minimum of 32,000 pounds.**

AMD Standard 002 – Body Door Retention Components Test.

Safety is this Agency's first concern. Entry and compartment door integrity is crucial to the safety of the patient, public, passengers and crew. If the Bidder has experienced any of the following door conditions as a result of collision, crash, roll over or other accidental impact, then the Bidder shall supply the Agency with a report containing the date, a full explanation of the incident and corrective actions taken.

A) Any entry door rendered inoperative.
B) Any door that has come open.
C) Foreign object penetration into patient cabin through the body structure.

Catastrophic door failure during a collision indicates mechanical defects in the design, hardware and/or the direct construction of the modular door. Any AMD Standard 002 testing prior to the incident is deemed invalid, regardless of the expiration date of the original test.

AMD Standard 003 – Oxygen Tank Retention System Static Test.

Safety is this Agency's first concern. Main cylinder control is extremely important and is crucial to the safety of the patient, public, passengers and crew. If the Bidder has experienced a cylinder rack separation from the oxygen compartment wall, OR if the cylinder has come loose from the cylinder restraining device, then the Bidder shall supply the Agency with a report containing the date, a full explanation of the incident and corrective actions taken to prevent future failures. Main Oxygen/Air Cylinders that come loose during a collision indicate mechanical defects in the design of the restraining device or the mounting method. Any AMD Standard 003 testing prior to the incident is deemed invalid, regardless of the expiration date of the original test.

AMD Standard 005 – 12-Volt (Low Voltage) Electrical System Test

Reliability and Safety is this Agency's first concern. The 12-volt electrical system must be functional under all normal or adverse driving and operating conditions. Each electrical device, electrical component, wire, wire route and connection quality shall be tested for reliability as a "SYSTEM" on each vehicle sold. If the Bidder has experienced an electrical fire or an electrical failure resulting in a disabled ambulance going to an emergency call or during transportation, the bidder shall supply the Agency with a report containing the date, a full explanation of the incident and corrective actions taken to prevent future electrical failures.

AMD Standard 006 – Patient Compartment Sound Level Test.

AMD Standard 007 – Patient Compartment Carbon Monoxide Level Test.

AMD Standard 008 – Patient Compartment Grab Rail Static Load Test.

AMD Standard 009 – 125V AC Electric Systems Test.

- The ambulance wiring shall comply with the National Electric Code in effect at the time of manufacture of the ambulance. The system specified herein shall be a 2-wire system with a ground. All outlets and 120-volt hard wired devices, on the ambulance, shall have ground fault interrupter protection.

AMD Standard 010 – Water Spray Test.

- This test shall be conducted on EACH ambulance manufactures for Agency by the quality assurance department.

AMD Standard 011 – Equipment Temperature Test.

- All interior systems, components, and permanently attached equipment shall function satisfactorily operate over a temperature range of 32 degrees and 110 degrees Fahrenheit per the National Truck Equipment Association, Ambulance Manufacturing Division Standard 011 - Equipment Temperature Test. This standard must be type certified by an independent testing laboratory on a like test model.

AMD Standard 012 – Interior Climate Control Test.

- The ambulance specified herein shall be equipped with a HVAC (Heating, Ventilation, and Air Conditioning) System that will meet or exceed the performance criteria set forth in the National Truck Equipment Association, Ambulance Manufacturing Division Standard 012 - Interior Climate Control Test. This standard must be type certified by an independent testing laboratory on a like test model.

AMD Standard 013 – Weight Distribution Guidelines.

AMD Standard 014 – Engine Cooling System Test.

AMD Standard 015 – Ambulance Main Oxygen System Test.

- The results of this test shall be posted inside the oxygen tank stowage compartment. A certificate shall be supplied, describing the test conditions, the initial test pressure, the final pressure and the name of the inspector who performed the test.

AMD Standard 016 – Patient Compartment Lighting Level Test.

AMD Standard 017 – Road Test.

AMD Standard 018 – Rear Step and Bumper Static Load Test.

AMD Standard 019 – Measuring Guidelines: Cabinet & Compartments.

AMD Standard 020 – Floor Distributed Load Test.
AMD Standard 021 – Aspirator System Test, Primary Patient.
AMD Standard 022 – Cold Engine Start Test.
AMD Standard 023 – Siren Performance Test.
AMD Standard 024 – Perimeter Illumination Test.
AMD Standard 025 – Measuring Guidelines: Occupant Head Clearance Zones.
AMD Standard 026 – Ambulance Emergency Lighting Systems Configuration.

- The Agency has specified herein an emergency lighting specification that is a departure from S5.5 Emergency Lighting System Configuration and Table 1 – Emergency Lighting of AMD Standard 026 – Ambulance Emergency Lighting Systems Configuration.

AMD Standard 027 – Line Voltage Electrical System Test.

CRASHWORTHINESS: Safety is this Agency's first concern and is a primary objective for modular ambulance vehicles produced under this specification. The ambulance produced shall be prepared for operation in accordance with the OEM's recommendation, AMD Standards 001 through 027, and SAE J3026, J3027, J3043, J3043, J3057, J3058, and J3102. The ambulance shall successfully complete all parts of the quality conformance inspection.

In addition to compliance with design criteria incorporated herein, the bidder shall also provide certified documentation of proof of crash worthiness of vehicle(s) proposed. Crash worthiness of vehicle shall be demonstrated through a minimum of two actual crash tests of modular body ambulance under laboratory conditions. These crash tests will be similar in scope to testing performed by the National Highway Traffic Safety Administration and the Insurance Institute for Automobile Safety to verify the crash worthiness of passenger vehicles. An independent test laboratory accepted and utilized by the National Highway Traffic Safety Administration for their crash tests shall perform this testing and provide certification. Testing shall be performed and verified by SAE Member Engineers.

Test criteria shall be defined as a minimum of two actual high-speed impact crash tests between an ambulance and mid-size passenger vehicles. Collisions shall be into each side of manufacturer's standard production modular ambulance body mounted on a chassis (NOT the axle of the chassis), struck by an actual bullet vehicle. Crash energy at impact shall be a minimum of 3,000 pounds at over 40 miles per hour.

Reports from crash testing shall be certified by testing lab, and shall include the following minimum results:

1) The required six-point medic restraint system shall hold all attendants in their seats. There shall be no head contact with anything except head rests. There shall be no excessive excursion of the attendants in their seats regardless of which way they were facing.
2) The ambulance body structure shall remain intact after both impacts. Bending of body shall be localized to point of impact, and doors adjacent to the actual crash point shall continue to operate. There shall be no intrusion into the patient compartment.
3) The body mount and pucks shall remain intact as a result of the impacts. There shall be no visual damage to body mounts or floor structure.
4) All interior cabinetry and fixtures shall remain in place and undamaged.

This provision requires actual crash testing of an ambulance by high-speed moving vehicles to validate safety and crash worthiness. Crash simulations, acceleration testing, sled testing: barrier testing or other theoretical tests are not sufficient to meet this requirement. Certified documentation from a qualified independent testing laboratory shall be provided with the bid in order to validate compliance with this requirement.

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If bidder has performed additional crash tests, such as rollover impact testing, the Agency has interest in reviewing the test. The bidder is encouraged to submitted documentation of the crash tests to include conditions, methods, and results.

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION (NHTSA) RECALLS: Safety is this Agency's first concern. If the Bidder or ambulance manufacturer has received a NHTSA issued recall related to a manufactured ambulance and related equipment since January 1, 2015, then the Bidder shall supply the Agency with a report containing the date, NHTSA Recall ID Number, Subject, Make, Model, Model Years, and corrective actions taken. Discovery of a failure to disclose a NHTSA Recall will result in a disqualification from this bid.

D. CONFERENCES AND INSPECTIONS

PRE-CONSTRUCTION CONFERENCE: The successful Bidder shall be required, prior to manufacturing, to have a pre-construction conference at the Agency's headquarters location with representatives of the Agency to finalize all the construction details.

MID-POINT INSPECTION: The successful Bidder shall provide a mid-point inspection trip to the factory for Two (2) members of the Agency. This Inspection trip should not require more than three (3) total days for travel to and from factory and inspection. The successful Bidder shall cover all cost incurred, including, but not limited to air and ground transportation, hotel accommodations, and meals. Should the factory be more than 350 miles drive distance from the Agency, transportation shall be made via commercial aircraft.

FINAL INSPECTION: The successful Bidder shall provide a final inspection trip to the factory for Two (2) Members of the Agency. The completed ambulances shall be inspected at the factory and any necessary correction shall be made prior to the ambulance leaving the factory. The Agency will not accept and take ownership of the ambulance vehicle without a final inspection and approve by the designated Agency representatives.

This Inspection trip should not require more than three (3) total days for travel to and from factory and inspection. The successful Bidder shall cover all cost incurred, including, but not limited to air and ground transportation, hotel accommodations, and meals. Should the factory be more than 350 miles drive distance, transportation shall be made via commercial aircraft.

E. DELIVERY

DELIVERY SCHEDULE: The Agency intends to purchase and receive two completed ambulance in calendar year 2020 and two completed ambulance in calendar year 2021. The Bidder shall state the number of calendar days required for delivery of the completed ambulance(s), after receipt of an order and receipt of chassis by the manufacturer. If vendor fails to deliver within the specified time frame, then a reduction in purchase price of 5% shall be applied to the purchase for every ten (10) days past due of the delivery date specified in the bid.

The vendor is responsible for the delivery and cost of delivery of the completed product. The completed product shall be delivered to the headquarters facility of the Agency.

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FORCE MAJEURE: The Vendor shall be charged with liquidated damages or excess cost when delay in delivery is due to:

- Any preference or priority of an allocation order issued by the Agency.
- Unforeseeable causes beyond the reasonable control and without the fault, of the ambulance manufacturer, or acts of God and natural disasters, acts of the purchaser, fire, strikes, or freight embargoes.

If a delay in manufacture or delivery of the ambulance(s) is likely or will occur, the Vendor shall notify the Agency of the foreseeable delays. The Vendor will make efforts to resolve the reason or cause of the delay and will provide regular updates to the Agency.

F. BID WITHDAWAL: Only written bid withdrawal requests will be accepted. Bid withdrawals must be received before the advertised bid opening. Bid withdrawal requests received before the advertised bid opening will not be opened. The bid packet will be returned to the bidder at the bidders' expense or will be disposed of by Agency's document destruction.

G. BID PRICING: All bid pricing shall be complete and include warranty and delivery of the completed ambulance vehicle(s) to the headquarters facility of Agency. The Bid Form shall be used for the purpose of providing these prices. All bid prices and conditions must be specified on the Bid Form. Bid prices shall be valid for at least 90-days from the date of the Bid Opening.

The Agency is tax exempt and taxes should not be included in the bid quotations. Tax exempt certification will be provided to the successful Bidder.

H. BID SELECTION AND AWARD: The bid will be awarded to the lowest, responsible, responsive bidder that best meets the specifications taking into consideration price, quality of product, innovation, and reputation.

The Agency reserved the right to accept or reject any and all bids as deemed to be in the best interest of the Agency and is not bound to accept the lowest priced bid.

I. VENDOR GUARANTEE: By submitting a bid, the vendor binds them-self to all conditions in these specifications, irrespective of any formalities in their order acknowledgment. No attachment or part may be substituted or applied contrary to manufacturer's recommendations and standard practice. Any variance with the specifications must be stated with the submitted bid and may, after review of all consequences of the variance, disqualify the bid.

J. PAYMENT: Payment shall be made to the vendor at the time of delivery. It is the vendor's responsibility to submit invoices directly to Agency at the time of the ambulance vehicle delivery to the Agency. Invoices shall include purchase order number, description of item(s), quantities, unit price, extended price, and date of delivery.

Invoices exceeding the limits established by the purchase order or for materials or services not qualifying under the specifications as ordered, are subject to be disqualified for payment.

Final payment shall be made at the time of vehicle delivery to the Agency following inspection and acceptance of the vehicle and equipment. Delivery, acceptance, and final payment will be recognized as the original purchase date.

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K. INDEMNIFICATION: The bidder shall hold the Agency, included all Board members, officers, and employees, harmless from all liabilities, obligations, losses, claims, damages, actions, suits, proceedings, costs, expenses, including attorneys' fees, that:

- Arise out of, relate to, or result directly or indirectly from the bidder's failure to perform any of its obligations under this request for bids; or
- Are a result of a breach of any of the bidder's warranties. No indemnification responsibilities created by this section shall survive and be enforceable after the contract between the Agency and the vendor terminates or expires, and they shall be terminated only by written agreement of the vendor and the Agency.

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AMBULANCE SPECIFICATIONS

SECTION 1: VEHICLE CHASSIS

1.1 CHASSIS MAKE AND MODEL: 2019 or newer Dodge/ Ram 5500, regular cab, dual rear wheel, four- wheel drive chassis – ambulance package.

WHEEL-BASE: At least 192-inch wheelbase. The wheelbase shall be O.E.M.
ENGINE: A 6.7-liter Cummins turbo diesel heave-duty engine.
- Add: Block Heater
- Add: Transfer Case Skid Plate

EXHAUST SYSTEM: Diesel exhaust fluid (DEF) system
- Add: Manual DPF Regeneration

TRANSMISSION: A heavy duty 6 speed automatic transmission.
GROSS VEHICLE WEIGHT RATING (GVWR): At least 18,000 pounds.
FRONT AXLE WEIGHT RATING (FAWR): At least 7,000 pounds.
REAR AXEL WEIGHT RATING (RAWR): At least 13,500 pounds.
STABILIZER BAR: Front and rear.
REAR AXLE RATIO: Acceptable range 4.40 to 4.45
BRAKES: 4-wheel disc anti-lock brakes shall be supplied by the O.E.M. The parking brake shall be a foot operated, hand release independent mechanical brake, provided by the O.E.M.
- Add: Smart diesel exhaust brake

ALTERNATOR: Single alternator 220-Amps
BATTERIES: Two batteries located in O.E.M. location under chassis hood.
- Third battery for vehicle will be located in the manufactured ambulance module.

THROTTLE HIGH IDLE: O.E.M. voltage monitoring system with auto idle up control. A programmable throttle control shall be provided. The throttle shall be programmed for charge protect. The throttle control module shall be located in the ambulance manufacturer center cab console. The throttle shall be easily accessible through removable face panels. Program buttons shall not be readily accessible to end users.

1.2 CHASSIS SAFETY:
- Dual-sided airbags.
- Add: Forward Collision Mitigation system
- Add: 77-MPH maximum speed option

1.3 CHASSIS VEHICLE FEATURES:
- Tilt steering wheel
  - Add: Steering wheel mounted audio controls
- Cruise/ speed control
- Power windows and power door locks
  - O.E.M. Auto-lock feature disabled. Chassis cab and ambulance module doors shall not auto lock or unlock.
- OEM AMF/FM/CD in dash radio with four cab speakers
  - Add: Integrated voice command with Bluetooth
- O.E.M. cloth high back bucket seats – adjustable forward and aft.
- Cab interior color scheme: Black/ Diesel gray

- Dual O.E.M. power adjustable and heated mirror
- O.E.M. adjustable floor pedals (if available option)
- Three (3) integrated key fobs
- Two (2) extra base keys
- Interior Power:
  - Add: 115-Volt Auxiliary Power Outlet (400W)
- Tire Pressure Information System
- One (1) full size spare tire and wheel assembly shall be supplied and delivered with ambulance vehicle.
  - The spare tire and wheel assembly will not be carried on the unit
- O.E.M. daytime running lights.
  - Add: Front fog lamps

1.4 EXHAUST HEAT SHIELDS: Protective heat shields shall be installed above the exhaust system as recommended by the chassis manufacturer.

SECTION 2: SUSPENSION

2.1 LIQUID SUSPENSION SYSTEM: A Compressible Liquid Adaptive Suspension System (CLASS) shall be installed. The system shall include an automatic lowering feature, which is activated by opening the rear patient compartment doors. There shall be a switch near the rear doors which will defeat the lowering feature.

A Liquid Spring rear hydraulic strut suspension shall be installed in lieu of the standard rear O.E.M. single stage leaf springs. The suspension company shall be QS 9000 and ISO 9001 certified for excellence. The liquid suspension shall be rated at 13,600 pounds GAWR and installed per Liquid Spring Directions. Suspension Installation instructions and drawings shall be followed. All guidelines regarding chassis and axle capacity ratings as published by the OEM chassis manufacturer shall be adhered to.

2.2 KNEELING FEATURE: The rear suspension shall kneel when the triggering device is activated AND an enable switch, located in the cab console is activated. The kneeling feature shall activate in PARK position only. The kneeling feature shall NOT activate in any forward or reverse gear. The above rear suspension shall kneel when the trailing rear access door is opened.

SECTION 3: AMBULANCE BODY STRUCTURE AND CONSTRUCTION

3.1 MODULAR BODY STRUCTURAL DESIGN REQUIREMENTS: The module body shall be designed and fabricated with the following key elements in mind:

1. The safety of all vehicle occupants is of paramount concern.
2. The body design, including construction materials and fabrication techniques shall be proven to be durable.
3. The greatest possible load carrying capacity is desired.
4. The body shall be designed to be easily retrofitted to a new chassis (remount) should that need ever arise.

3.2 MODULAR BODY SPECIFICATIONS: The body structure and construction including doors and related all related components shall meet or exceed the Commission on Accreditation of Ambulance Services (CAAS) Ground Vehicle Standards (GVS) v1.0 edition specifications.

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3.3 AMBULANCE BODY STRUCTURE: The ambulance body shall be all welded aluminum. The body sheet shall be reinforced with structural members designed to resist deflection and hold up to extreme ambulance service operations and crashworthiness. The body shall be capable of providing impact, deformation, and penetration resistance in the event of a collision. The body shall be constructed and welded together on a roll-cage type interior super-structure with impact rails to provide optimum structural strength for patient and attendant protection.

The body structure shall be capable of passing a standalone static load test on a type-tested body. The test shall have been conducted in accordance to AMD-001 – Ambulance Body Structure Static Load Test expect the test weight requirement shall be a minimum of 32,000 pounds.

3.4 HORIZONTAL WALL SIDE IMPACT RAILS SUPPORT: In addition to the vertical wall supports there shall be at four side impact rails, located in the upper and lower sections of the side walls to provide additional protection in the event of a side body collision.

3.5 SKIN TO SUPPORT: All exterior aluminum body panels shall be attached to the underlying structural supports using a high performance, high strength bonding adhesive. The design and materials must be environmentally resistant and prevent vibration and oil-canning. In addition to the adhesive attachment system, all panels shall be welded to structural members at the perimeters only. Welding in the center of the panels is not desired as the process causes heat distortion of the body panels and diminishes the overall quality of the finished appearance.

Each body panel shall be welded to all horizontal frame members, including the roof extrusions. Additionally, the panels shall be welded to the vertical corner posts.

3.6 ROOF SHEET: The four (4) edges of the roof sheet shall be continuously welded to the roof rail extrusion to prevent leaks. All perimeter welds shall be ground smooth and worked smooth prior to the overall body paint and finish. Non-fully welded roof sheets to the roof rail extrusions do not meet the intent of this specification and are deems non-compliance to this specification.

3.7 WATERTIGHT PATIENT CABIN: The sub floor shall be shielded from moisture. All the areas of the body shall be thoroughly sealed from one to the other, creating a sealed patient cabin from the outside. Extrusion hollows shall be filled with expandable foam sealant to prevent fumes and moisture from entering.

3.8 MECHANICAL QUALITY ASSURANCE: All fasteners related to the suspension assembly are considered critical. All fasteners shall be tightened to the manufacturer's recommended torque by the primary installation mechanic. A secondary mechanic shall "put a wrench" and re-torque all the fasteners and then spray a contrasting color of paint onto the heads and nuts of each fastener.

3.9 LINE PROTECTION: All hydraulic lines, fittings, reservoirs and valves shall be protected against "stone pecking". Abrasion covers, such as nylon convolute loom over the lines are required. The entire assembled system shall be tested for leaks at every fitting connection point.

3.10 BODY CORNER CAPS: The front and rear upper body corners shall include a cavity built into the aluminum body that shall not sacrifice the body integrity. These cavities will be used to mount light fixtures.

3.11 DOOR FRAMING AND PAN: The door frame shall reinforce the perimeter of the skin pan. Each 3.11 door shall include an internal extrusion for added reinforcement. The extrusions shall extend around the entire perimeter of the door. An inner door pan shall fit flush with the inner edges of the door. The end result of the door design shall be a rigid door that will not bend, or rattle.

3.12 DOOR SKIN: The door-facing and edges shall be formed from a single sheet of aluminum. No welded seams are allowed. The formed edges must uniformly round off seamless for better paint adhesion and aesthetic appeal that does not require cutting and welding in the corners. All module doors shall be flush fit to the body side.

3.13 DOOR JAMB: The door jamb shall accommodate rigid fastening of compartment door hinges. A seamless door jamb exterior is required to minimize corrosion - extruded type door jambs do not meet this specification. The skin shall completely conceal the doorjamb from view. "No Exterior Door Extrusions Allowed".

SECTION 4: MODULE DESIGN AND CONFIGURATION

4.1 MODULAR DEMENSTIONS

OVERALL LENGTH: The overall length of the vehicle shall not exceed 318 inches.
MODULE LENGTH: The module 172 inches
MODULE WIDTH: The module shall be 95 inches, excluding lights and accessories.
MODULE HEIGHT: The overall exterior height shall not exceed 110 inches.
MODULE INTERIOR HEIGHT: The interior module height will not be less than 72 inches.

4.2 LOWERED MODULE SIDES / BODY DROP DESIGN: Drop 6” forward of the rear wheel well on both curbside and streetside.

4.3 CURBSIDE ACCESS DOOR: The curbside side access door shall be at least 79 inches high by 30 inches wide measured at the door jamb opening. The doors shall be flush without a protruding flange or lip. At the curbside side, module entry door, a full width, formed, stainless steel jamb protection plate shall be provided. Curbside door shall have a double action gas shock with a door swing set just over 90 degrees.

The curbside entry door shall be equipped with angled 45-degree, 3 point “V” grab handle 1 ¼ diameter, stainless steel with gray anti-microbial coating. The door handles shall be fastened directly to the horizontal door structure that is welded to the door assembly.

The interior skin of the door shall be covered in brushed aluminum. No aluminum diamond plate.

4.4 STEP WELL: A two (2) step welded brushed aluminum step well shall be provided at the curb side access door. Step will shall be illuminated by LED lighting.

- Skid/ slip resistant **Turtle Tile** ½-inch thick mattering shall be installed in the step well to meet the anti-slip requirements. Open grid pattern to allow air circulation. Color: Charcoal gray.

4.5 CURBSIDE ENTRY WALL GRAB RAIL: The rail shall be 1 ¼ diameter, 100% stainless steel with gray anti-microbial coating installed on cub-side wall to front of entry door. The grab rail shall be at least 15 inches in length. It shall be mounted to a tapping plate inside exterior compartment E4 to give it the required strength.

4.6 COMPARTMENT CONSTRUCTION: Unless specified otherwise, all exterior compartment walls, backs, ceiling, bottom, and interior of door shall be constructed of brushed aluminum sheets. No aluminum diamond plate. The compartment floor shall be even with the door jamb to allow sweep-out.

Drain holes shall be provided on the bottom of the compartments. Each hole shall be baffled to prevent splash water from entering the compartment.

There shall be baffled vent that allow for only one-way operation. The vents shall allow air to escape out of the compartment when the door is closed, but not for air to come back into the compartment to keep dirt and dust out of the compartment interior. Engineering shall determine the amount of these vents required by the volume of space in the compartment.

The compartment doors shall be flush without a protruding flange or lip. Exterior compartment door checks shall be installed to allow the door to open ninety degrees from the fully closed position.

- Unless specified otherwise, all exterior compartment doors shall be 2-point latch.
- Unless specified otherwise, all exterior compartment doors shall be held open with a spring-loaded gas cylinder.

Adjustable Shelving: When specified, a standard duty aluminum adjustable shelf shall be provided. Incrementally adjustable, non- aluminum shelf track is not acceptable.

4.7 TALK THROUGH: The ambulance and body bulkheads shall have an aligned window opening of at least 150 sq. inches for cab to module voice communications. This opening shall have a sliding Lexan window that is transparent and shatterproof.

4.8 REAR ACCESS DOORS: There shall be a rear door opening in the patient compartment measuring at least 46-inches wide by at least 60-inches high and aligned with the patient compartment aisle.

The rear of the module shall be equipped with double, hinged patient compartment access doors. The doors shall be flush without a protruding flange or lip.

Each rear door shall have a two-point slam action automotive type rotary latching system to the body. The right rear passage door shall have a lockable, chrome exterior handle. The left rear door shall have a non-locking, chrome exterior handle. The right rear door shall lock to the body of the module, not to the left rear door.

The both rear entry doors shall both be equipped with angled 45-degree, 3 point “V” grab handle 1 ¼ diameter, stainless steel with yellow anti-microbial coating. The door handles shall be fastened directly to the horizontal door structure that is welded to the door assembly.

At the rear access doors, a full width, formed, stainless steel jamb protection plate shall be provided. The stainless-steel protection package shall start from under the kick plate and follow the contour of the jamb extrusion, cover the end of the sub-floor and cover the last four inches of the vinyl floor covering. The last four inches of the protection plate shall be covered by anti-slip yellow/ black safety grit tape.

Rear access doors shall open at least 150 degrees. The door checks shall be 2-piece, heavy duty, cast aluminum, grabber type with gaskets. The door shall have a ½ round stock loop that plunges into a positive rubber/cast socket.

The interior skin of the door shall be covered in brushed aluminum. No aluminum diamond plate.

4.9 WATER & WEATHER SEALS ON DOORS: All exterior compartment door and modular access doors shall shut on molded; rubber weather-strip seal designed to protect the interior from water and weather. The seal shall insert into a groove in the inner door extrusion. Glue will not be acceptable except in the case of a double door compartment underlying door edge.

4.10 EXTERIOR ENTRY AND COMPARTMENT DOOR HANDLES: All exterior module door handles shall be rugged automotive style handles that are near flush with the outer door panel.

- Large chrome plated, die cast paddle handles shall be provided to open all module doors.
- Blind fasteners shall be used to fasten the handles to the door from the backside.
- Blind Stabilizer pins shall be incorporated on the backside of the handle for alignment purposes.
- Every paddle handle shall have an isolate gasket between the paddle body and the door skin.
- All door skin surfaces shall be painted prior to installation of the handle hardware. All paddles, on single hung and leading double doors shall be locking type and keyed the same.
- Trailing doors shall; have non-locking paddle handles, mounted on the outside of the door.
- When the door is in the locked position, the handle shall extend when pulled like an automotive handle (free floating) to show the operator that the door is locked and needs to be unlocked to be opened. Systems that utilize a handle that does not free float shall not be accepted as it could bind up the inner hardware and shorten the life of the door operation and timing.
- All exterior door locking handles shall be keyed the same as all other exterior compartments.

4.11 INTERIOR ENTRY AND COMPARTMENT DOOR HANDLES: The interior handle shall be lever type. A Lock/Unlock lever shall be installed below the inside lever handle and be clearly marked Lock/Unlock. The inner chrome plated handle shall have a black powder coated cast aluminum bezel for strength. There shall be no plastic parts utilized in this installation.

There shall be a latch at both the top and bottom interior of each patient access door (rear doors & curb side door). The purpose of these are emergency exit should the door rods become unattached from either the handle or latch assembly. The mechanisms shall be cable operated.

4.12 RECESSED REAR ACCESS GRAB RAIL: The rail shall be 1 ¼ diameter, 100% stainless steel with yellow anti-microbial coating. The grab rail shall be recessed in an ABS pan 1.5", located curbside of rear entry doors.

4.13 ENTRY DOOR WINDOWS: Both rear entry doors and the curb side entry door shall be equipped with fixed glass measuring at least 16-inches wide x 18-inches high upper windows. The windows shall have an anodized frame and blind inner mounting ring screws, fastened from the inside. The exterior portion of the frame shall have a full perimeter seal mated against the door skin. All glass shall be tinted safety glass.

Both rear access door shall be equipped with angled 45-degree, 3 point "V" grab handle 1 ¼ diameter, stainless steel with gray anti-microbial coating. The door handles shall be fastened directly to the horizontal door structure that is welded to the door assembly

4.14 MODULAR FLOOR CONSTRUCTION: The floor must be even and designed with floor support to adequately support the loads intended to be carried. The floor must be designed to prevent buckling, sagging, oil canning, or any other structural breakdown of the floor system. The floor design must include adequate insulation and materials to reduce road and engine noise inside the patient care compartment.

4.15 INSULATION: The module walls, ceiling, passage doors, exterior storage doors, the underside of the exterior storage compartments, the entire underside of the module floor, the rear wheel wells, and the underside of the curbside step area shall be insulated for thermal control and acoustical road noise protection.

- NFPA Class A material. Thermal rate testing shall be conducted in accordance with A.S.T.M. E84-89A, NFPA 255, and U.L. 723.
- Modular floor insulated for sound reduction (at least 75%) and enhanced temperature control without increasing load height.

4.16 DOOR REFLECTIVITY. Reflective material (red/silver chevron style) meeting FMVSS 108 requirements shall be installed on the lower ¼ of the interior brushed aluminum of all exterior compartment and modular doors.

- Curbside modular access door
- Both rear modular access doors
- Exterior compartment doors E1, E3, E4, E5, E6 (both doors), and E7.Comparment doors for E2 and E 8 are except from the reflectivity specification.

SECTION 5: AMBULANCE EXTERIOR

5.1 AMBULANCE EXTERIOR SPECIFICATIONS: The ambulance exterior design and shall meet or exceed the CAAS GVS) v1.0 edition specifications.

5.2 FRONT BUMPER, GRILLE AND GRILLE GUARD: O.E.M. grille. Aftermarket or proprietary grille by ambulance manufacturer is not acceptable.

Front steel bumper replacement with grille guard designed to provide bumper, grille, and headlight protection.

- Bumper and grille guard color: Black
- Bumper and Grille Guard suggested brand: **Thunder Struck** Elite Series
- Must bolt directly to chassis frame.
- Design must not impede and must accommodate OEM headlights and fog lamps.
- Specifications and design must allow for integration and installation of emergency siren and air horn into the bumper.

5.3 WHEEL/RIM APPEARANCE: All four outside chassis wheels shall be covered in polished, stainless steel wheel simulators. The wheel simulator design shall not affect tire and wheel balance when the vehicle is driven between zero and eighty miles per hour. The lugs shall be capped off with bright stainless steel, snap-on caps designed to cover wrench marks, normally remaining on the lug nuts.

5.4 TIRE VALVE EXTENSIONS: Tire valve extensions, stainless steel braided, dual rear wheel.

5.5 RUNNING BOARDS: Running boards (an auxiliary step) shall be constructed of at least 0.125-inch 3003-H14 alloy diamond plate. The design of the running board shall include multiple perforations with an aggressive traction and allow for water drainage. The aggressive traction shall be part of the running board and not a welded in section. One running board shall be provided on each side of the cab. The design shall include a splash shield at the forward end to protect the vehicle from spray and road debris.

- Surface will be coated in a rugged protective coating (Bed Liner type coating): Black

5.6 FRONT SPLASH SHIELDS: Splash shield protection plates made of at least 0.080-inch aluminum diamond plate are to be installed on the lower front face of the module body just aft of the cab access doors. The height of the protection is 24 inches up from the body skirt line. The front splash shield shall match the height of the plate corner guards that are to wrap around the lower corner posts of the module.

- Surface will be coated in a rugged protective coating (Bed liner type coating): Black
- The plates will be sealed to prevent moisture from collection under the plates.
- LED courtesy step lights will be mounted to the front of the modular body that will provide step lighting for the running boards.

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5.7 CORNER GUARDS: Corner protection plates made of at least 0.080-inch aluminum diamond plate are to be installed on each lower corner of the modular body. The height of the protection is 24 inches up from the body skirt line. The corner guards shall match the height of the front splash shield plate and the rear kick plate.

- Surface will be coated in a rugged protective coating (Bed liner type coating): Black
- The plates will be sealed to prevent moisture from collection under the plates.

5.8 RUB RAILS: The skirt-line of the modular body side, forward and aft on the rear wheels shall have C-channel rub rails formed with at least 0.125-inch diamond plate. Each rail shall be chamfered 45 degrees at both ends. The rails shall be fastened through the bottom of the rail into the bottom of the modular body. The rails shall not cut into the paint. They shall be mounted through nylon isolators in such a manner that they are spaced off the body to facilitate wash down of road debris.

- Surface will be coated in a rugged protective coating (Bed liner type coating): Black

5.9 REAR WHEEL FENDERS: Extruded rubber rear fenders flares shall be installed above each rear wheel opening. The fenders shall be secured using non-metallic mounting hardware.

5.10 MUD FLAPS: Mud flaps shall be mounted to the front fenders just behind the front tires and behind both sets of rear tires. The mud flaps shall be at ¼-inch thick natural rubber material. Each mud flap shall be through bolted to the fender with at least three (3) fasteners. Mud flaps will be sold black and free of any manufacturer logo.

5.11 REAR KICK PLATE: The rear kick plate shall be made of at least 0.100-inch-thick aluminum diamond plate and run from corner post to corner post. The height shall be from the skirt-line of the body to the bottom door jamb under the rear access doors.

Access to the recovery eyes shall be made through a finished access hole through the Diamond plate "Kick panel" under the rear doors. The access holes shall be at least five inches in diameter and the edges of the holes shall be covered in automotive edge trim. The trim must be bonded to the kick plate in addition to the clamp on ribbing that shall be built into the trim.

The kick plate shall feature a centered and illuminated recessed area to mount a standard U.S. six-inch-high by twelve-inch-wide license plate. The recessed area must be located as specified below and aesthetically TIG Welded around the perimeter of the opening. Threaded inserts and bolts to install the tag shall be installed and provided.

- License Plate-Tag Light: The tag area shall be LED illuminated with the park light circuit.
- Surface will be coated in a rugged protective coating (Bed liner type coating): Black
- The plates will be sealed to prevent moisture from collection under the plates.

5.12 REAR BUMER AND STEP ASSEMBLY: The rear of the vehicle shall be equipped with a sturdy. full-width step & bumper assembly to be fabricated from at least 0.125-inch aluminum diamond treadplate. The step & bumper shall be designed to prevent the accumulation of mud, ice, or snow. A flip up step shall be provided to allow closer access to the patient cabin floor. The step shall be as wide as the rear access door jamb. The design of the step footing shall include multiple perforations with an aggressive traction and allow for water drainage.

The rear bumper shall be bolted directly to the chassis frame. The top of the rear bumper shall be mounted below the body skirt-line, so that minor collisions do not damage the body. The bumper will be designed to collapse under the modular body upon impact.

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Formed hard, heavy duty rubber dock bumpers shall be attached to the rear bumper. These bumpers shall be designed and installed to protect the diamond plate from damage due to minor contact.

Surface of rear bumper and step assembly (excluding the rubber dock bumpers) will be coated in a rugged protective coating (Bed liner type coating): Black

5.13 REAR ACCESS DOOR HOLD-OPEN DEVICES: Cast Products "Grabber" style rear door hold-open devices. One loop shall be installed on each door, and the appropriate socket shall be installed on the body. These devices are to be chrome finish in lieu of Cast Products' standard finish.

5.14 TOW HOOKS: At the rear two vertically oriented, heavy-duty cast-iron tow hook eyes with a one-inch threaded stud shall be through bolted to a one-half inch thick steel plate that is continuously welded to the end of the O.E.M. Frame. The tow hook eyes shall be recessed into the kick panel so that the tangency of the eyes is co-planer with or set back up to one inch. The two tow hook eyes shall not be trip hazard to personnel entering and leaving the rear access doors.

The front tow hook eyes shall be O.E.M. with the chassis.

5.15 CORROSION PROTECTION: All module contact with dissimilar metals shall be minimized with the use of nylon screw-hole inserts to prevent fastener contact with the module body. Any holes that are drilled for application of materials shall be treated with an anti-electrolysis procedure to guard against any future corrosion. All exterior screws or bolts shall be stainless steel.

SECTION 6: EXTERIOR COMPARTMENT DESIGN AND CONFIGURATION

6.1 EXTERIOR COMPARMENT SPECIFICATIONS: All ambulance compartment design, construction, and configuration shall meet or exceed the Commission on Accreditation of Ambulance Services (CAAS) Ground Vehicle Standards (GVS) v1.0 edition specifications.

All compartment design and dimensions are subject to engineer review.

6.2 CURBSIDE REAR EXTERIOR COMPARTMENT (E1): Purpose will be the storage of equipment such as Combi-Carrier scoop stretchers.
Dimensions: 80-inches H x 10-inches W x 18.5-inches D.

- Compartment Light: One LED light ceiling mounted.
- Single Door, right-side hinged, 2-point latch.
  - Compartment door only 70-inches high.

6.3 CURBSIDE REAR EXTERIOR COMPARTMENT (E2): Battery compartment
Dimensions: sized to accommodate 3rd vehicle battery and allow the insert and removal of battery.

6.4 CURBSIDE FRONT MIDDLE LOWER COMPARTMENT (E3): Purpose will be the storage of equipment.

Dimensions: 18-inches H x 36-inches W x 20-inches D.

- Adjustable Shelf: A standard duty aluminum adjustable shelf shall be provided. Incrementally adjustable, non- aluminum shelf track is not acceptable.
- Compartment Light: LED strip lighting outlining the sides and top of the compartment opening.
- One 125-volt AC duplex receptacle.
- Double Door, 2-point latch

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6.5 CURBSIDE FRONT MIDDLE UPPER COMARTMENT (E4): Purpose will be the storage of equipment. This compartment will be accessible from the exterior and interior of the module. Dimensions: 34-inches H x 24-inches W x 20-inches D.

- Adjustable Shelf: A standard duty aluminum adjustable shelf shall be provided. Incrementally adjustable, non- aluminum shelf track is not acceptable.
- Compartment Light: LED strip lighting outlining the sides and top of the compartment opening.
- One 125-volt AC duplex receptacle.
- Exterior, Single Door, right-side hinged

6.6 STREETSIDE REAR COMPARTMENT (E5): Purpose will be the storage of equipment including a stair-chair. Dimensions: 42-inches H x 30-inches W x 18-inches D.

- Compartment Light: One LED light ceiling mounted.
- Single Door, left side hinged
- Fixed Bracket: Shall have bracket fabricated and installed to hold a Ferno Stair Chair on the interior of the compartment door.

6.7 STREETSIDE FRONT MIDDLE COMPARTMENT (E6): Purpose will be the storage of equipment. Dimensions: 42-inch H x 50-inch W x 18-inch D.

- Adjustable Shelf: A standard duty aluminum adjustable shelf shall be provided. Incrementally adjustable, non- aluminum shelf track is not acceptable.
- Compartment Light: LED strip lighting outlining the sides and top of the compartment opening.
- One 125-volt AC duplex receptacle
- One ABC dry-chemical 5 lb. fire extinguisher and an Amerex 807 Heavy Duty 5 lb. Vehicle Extinguisher Bracket.
- Double Door

6.8 STREETSIDE FRONT LOWER COMPARTMENT (E7): This compartment shall provide storage of one “H” oxygen cylinder will house the main oxygen supply for the ambulance. It must be designed and configured to utilize a **Zico Ziamatic Corp** motorized tank lift system specified for use of an “H” oxygen cylinder. Dimensions: 68-inch high x 16-inch wide x 18-inch deep.

- Single Exterior Door, left side hinged
- Compartment Light: One LED light ceiling mounted.
- Interior Compartment Access: The cylinder valve controls shall be accessible from inside the vehicle.
- Oxygen cylinder shall be provided by Agency and installed after delivery.

6.9 STREETSIDE FRONT UPPER COMPARTMENT (E8): This compartment will house mechanical and electrical equipment and components.

- Single Door, left-side hinged, single-point latch
- The compartment will house the inverter and Agency trunk radios.
- CONDUIT: An empty one- and one-half inch diameter conduit designed to add wires after vehicle delivery shall be supplied and installed. The conduit shall have semi-rigid, smooth, non-conductive interior. The outer jacket shall be a non-conductive, spiraled rigid coil designed to maintain the original shape of the liner, throughout the length of the conduit run.
  The conduit shall originate in E8 exterior compartment and terminate in the patient compartment behind the curbside action area – F1 compartment.

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SECTION 7: INTERIOR COMPARTMENT DESIGN AND CONFIGURATION

7.1 INTERIOR COMPARMENT SPECIFICATIONS: All ambulance compartment design, construction, and configuration shall meet or exceed the Commission on Accreditation of Ambulance Services (CAAS) Ground Vehicle Standards (GVS) v1.0 edition specifications.

All compartment design and dimensions are subject to engineer review. Cabinet dimensions are approximate based on available space and design.

7.2 INTERIOR COMPARTMENT DESIGN SAFETY:

- The design shall be free of all sharp projects. The design shall reduce or eliminate sharp edges and corners.
- Upholstered padding/ cushions shall be installed at the upper interior area of the doorframes.
- Upholstered padding/ cushions shall be installed at the upper interior areas that have a potential for personnel head bump.
- Upholstered padding/ cushions shall be installed where necessary on exposed corners and edges.
- Any component or equipment in the interior ceiling shall be installed flush/ flat with ceiling or recessed. This includes any ceiling handrails/ grab rails, light fixtures, IV hanging hardware, and oxygen ports.

7.3 HEADLINER/ CEILING: The patient compartment headliner substrate material shall be one quarter inch thick, hardwood plywood. The substrate shall be covered with a minimum 28 mil thick gloss white laminate. An upholstered center panel shall provide access to ceiling wiring and be covered in the same upholstery type as the seating.

7.4 RECESSED CURB SIDE OVER HEAD GRAB RAIL: A 72-inch long recessed 1 ¼ diameter, stainless steel overhead handrail/ grab rail shall be installed curb side. The rail shall be coated with gray anti-microbial coating.

7.5 I. V. BAG HANGING HARDWARE: Self-contained recessed I. V. Hook assembly shall be installed in the ceiling as designated below. The I. V. Hook assembly shall fold and stow recessed in a cast aluminum housing. The hooks are to be spiral shaped to preclude I. V. Bag from falling off with push button release for each fluid bag. The I. V. Hook assembly shall hold (2) two bags of fluid. A rubber with Velcro anti-sway device shall be included for IV retention, without depending on adjacent cabinetry.

- I.V. Hook Locations NO. 1: Street side 45-inches forward of rear doors.
- I.V. Hook Locations NO. 2: Street side 70-inches forward of rear doors.

7.6 INTERIOR WHEEL WELLS COVERAGE: Interior of wheel wells shall not protrude into the floor walk space in such a way as to create a trip hazard. If wheel wells coverage is exposed it shall be constructed of brushed aluminum.

7.7 INTERIOR WALLS AND CABINERY: The patient cabinet walls and exterior of cabinets substrate material shall be covered with a minimum 45mil thick gloss gray laminate. The cabinet interior, including the inside of the cabinet doors, shall be finished in high impact, abrasion resistant white colored laminate that is at least 28 mil thick.

All trim throughout the interior conversion will be anodized aluminum or formed stainless steel**.** All exposed corners within the patient compartment will have padded or rounded corners. Rounded corners will not compromise maximum cabinet assembly strength. The trim will be bonded with a high strength adhesive.

Mitered joints throughout the interior conversion will have a gap-less, hairline fit. Cabinet to cabinet joints will not require more than 7/32 diameter welting to create a finished/well-fit look. Cabinets will fit tightly against the ceiling as well.

All cabinet doors and drawers will fit the opening. When specified, flush fitting doors will have even door to opening gaps. All doors will open and close bind free. Drawers will slide in and out freely, without drag. All drawers will be mounted on side mounted, full extension drawer slides, rated no less than 75 pounds per pair. All hinged wood core doors will have positive latches. High traffic, high cycle doors will have adjustable tension, brass bodied catches. All hinged polycarbonate doors will have adjustable tension, brass bodied catches.

7.8 POLYCARBONATE (LEXAN): Polycarbonate or Lexan shall be used for all transparent cabinetry doors and talk-through window.

- All polycarbonate (Lexan) assemblies will be scratch free and all edges will be smooth and free of saw marks and sharp edges.
- All polycarbonate (Lexan) will be at least 3/16 inch thick unless otherwise specified.
- Color: Transparent – medium tint – gray
- Acrylic or Plexiglas is not an acceptable substitute or alternative material.

7.9 SLIDING LEXAN DOORS: Unless otherwise specified, all sliding Lexan doors will have a mitered framed, sliding transparent Lexan door assembly. On sliding Lexan doors, the Lexan will be 3/16 inch thick. Each door will be fitted with a full length, extruded aluminum door handle. The door pull extrusion will also add bend resistance to the door. The door track/Frame extrusion will incorporate a flocked natural rubber track insert to prevent the doors from sliding free during transit. The corners of the assembly will have drive-in corner spline. Each spline will be riveted into place. All extrusions will be anodized. Sliding Lexan doors will be part of a restocking feature frame.

7.10 UPHOLSTERY: All vinyl upholstery shall be seamless construction for protection against blood borne pathogen contamination. Color will be determined at pre-construction meeting.

7.11 SOLD SURFACE COUNTERTOP: The patient area countertop(s) shall be constructed of solid surface material.

- Laminate is not acceptable.
- Must be seamless and sealed at wall contact to prevent fluid penetration.
- Must be durable and scratch resistance material.
- Countertop shall have at least a 1/2-inch lip to prevent items from sliding off.
- Color will be determined at pre-construction meeting.

7.12 FLOOR COVERING: The floor in the patient compartment shall be covered with resilient vinyl flooring that has a high strength-to-weight ratio.

- Non-slip, smooth surface. Embossed steel plating, coin pattern, or other raised patters are not acceptable.
- Must be antimicrobial and resilient to disinfectant cleaning products.
- Must be installed as one piece and seamless throughout the patient care compartment.
- The flooring shall cover 3-inches up on both the streetside and curbside.
- Flooring edging must be sealed to prevent fluids penetration.
- Color will be determined at pre-construction meeting.

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7.13 REAR THRESHOLD: Stainless steel threshold, 6" wide the full width at the rear doors. Safety yellow with diagonal strips nonskid tape shall be installed over threshold.

7.14 BRUSHED ALUMINUM STREETSIDE AND CURBSIDE RISERS: The riser beneath the streetside and curbside attendant seating and mobility track will be covered with a single sheet of brushed aluminum. The brushed aluminum shall be installed flush with the riser. The bottom of brushed aluminum sheet will be set and sealed against the 3-inch rolled flooring.

- Brushed aluminum sheets must be seamless, one-piece free of exposed or sharp edges.

7.15 STREETSIDE REAR INTERIOR CABINET - UPPER (A1): Purpose will be the storage of medical supplies. Dimensions: 18-inches high x 22 to 30-inches wide x 18-inches deep.

- Cabinet doors: Sliding Lexan doors attached to a left-side hinged restocking feature frame.
- One adjustable shelf

7.16 STREET SIDE REAR INTERIOR CABINET - LOWER (A2): Purpose will be the storage of medical supplies. Dimensions: 20-inches high x 30-inches wide x 18-inches deep.

- Cabinet doors: Sliding Lexan doors attached to a left-side hinged restocking feature frame.
- One adjustable shelf

7.17 STREETSIDE FRONT MIDDLE INTERIOR CABINET – UPPER (B1): Purpose will be the storage of medical supplies. Dimensions: 18-inches high x 22-inches wide x 12-inches deep.

- Cabinet doors: Sliding Lexan doors attached to a left-side hinged restocking feature frame.
- One adjustable shelf
- Vertical department dividers on top and bottom.

7.18 STREETSIDE FRONT INTERIOR CABINET – UPPER (C1): Purpose will be the storage of medical supplies. Dimensions: 18-inches high x 26-inches wide x 12-inches deep.

- Cabinet doors: Sliding Lexan doors attached to a left-side hinged restocking feature frame.
- One adjustable shelf
- Vertical department dividers on top and bottom.

7.19 STREETSIDE FRONT INTERIOR CABINET – LOWER (C2): Purpose will be the storage of medical supplies. Dimensions: 18-inches high x 26-inches wide x 12-inches deep.

- Cabinet doors: Sliding Lexan doors attached to a left-side hinged restocking feature frame.
- One adjustable shelf
- Vertical department dividers on top and bottom.
- One 12-Volt power outlet

7.20 CURBSIDE REAR INTERIOR CABINET – UPPER (D1): Purpose will be the storage of medical supplies. Cabinet opening forward facing allowing access by attendant seated.
Dimensions: 20-inches high x 20 to 21-inches wide x 12.5-inches deep.

- Cabinet doors: Double 3/8-inch Lexan doors with 2-point latch.
- One adjustable shelf
- Floor of cabinet will house a Smith Works IV Warmer (14.5"Wx12"Dx2.5"H)
- One 12-Volt power outlet inside bottom portion of cabinet.

7.21 CURBSIDE REAR INTERIOR CABINET – LOWER (D2): Purpose will be the storage of medical supplies. Cabinet opening forward facing allowing access by attendant seated.
Dimensions: 20-inches high x 20 to 21-inches wide x 12.5-inches deep.

- Cabinet doors: Double 3/8-inch Lexan doors with 2-point latch.
- One adjustable shelf

7.22 CURBSIDE REAR WASTE DISPOSAL (below D2): Opening access forward facing allowing access by attendant seated.

- House a recessed 3-quart Bemis WallSafe sharps container. The sharps container mount will have hardware the prevents the ejection of the sharp's container in the event of a collision or rollover accident.
- House a recessed plastic waste container from materials designed to withstand strong disinfectant cleaners.
- Waste container enclosure will be covered by a single 3/8-inch Lexan overlay flip up door with a "C" handle and torque hinges. The cover door must allow for the removal of the waste container.

7.23 CURBSIDE FRONT MIDDLE INTERIOR COMPARTMENT– UPPER (F1): Purpose will be the installation of recessed radio control heads.
Dimensions: 10-inches high x 12-inches wide x 5.5-inches deep.

- Compartment cover: Removable, solid wood.
- A conduit shall originate in E8 exterior compartment and terminate in F1 compartment.

7.24 CURBSIDE FRONT ANGLED UPPER CABINET: Contains Cabinet G1, G2, & control panel. *Reference conceptual drawing for desired location.*
Dimensions: Max 16-inches from ceiling to bottom
Max 21-inches from curb side wall
Approx. 18 to 20 inches on angled cabinet face – opening rear allowing seated attended access.

7.25 CURBSIDE FRONT INTERIOR ANGLED CABINET – UPPER (G1): Purpose will be the storage of medical supplies. *Reference conceptual drawing for desired location.*

- Cabinet will be used for the secure storage of narcotic/ controlled substance medication.
- Dimensions to allow storage of narc box 6.5-inches wide x 7.5-inches long x 2.5 inches thick/ deep.
- Cabinet door: Solid wood, hinged left.
- Cabinet door lock: **CompX E-Lock 300 Series**

7.26 CURBSIDE FRONT INTERIOR CABINET – STAIRWELL SIDE (G2): Purpose will be the storage document binders. This compartment will be part of the angled cabinet. The "dead space" located near the curb side wall directly behind F1& the control panel shall be utilized as a small storage cabinet.

- At least 12-inches high x 3.5-inches wide (from curb side wall) x 10.5-inches deep.
- Must accommodate two 1-inch three ring binders (Dimensions per binder are 11.62 inches height x 10.25 inches wide x 1.62 inches deep)
- Cabinet open will be forward accessible from the stairwell.
- Cabinet doors: Single 3/8-inch Lexan door with 1-point latch.

7.27 PATIENT COMPARTMENT CONTROL PANEL – ANGLED UPPER CABINET: The control panel system will be located below G1. *Reference conceptual drawing for desired location.*

7.28 CURBSIDE FRONT COMARTMENT (E4) – INTERIOR ACCESS: Purpose will be the storage of equipment. This compartment will be accessible from the exterior and interior of the module. *Reference conceptual drawing for desired location.*
Dimensions: 36-inches high x 24-inches wide x 21-inches deep.

- Cabinet door: Solid wood, hinged left with 2-point latch. Door size must be engineered to allow for 90-opening.Cabinet door will have a cable attached in the top hinge side corner to prevent door from extending past 100 degrees open.

7.29 CURBSIDE FRONT DRAWERS CABINETRY: Purpose will be the storage of medical equipment that can be accessed by the curbside seated attendant. This drawer cabinetry will be at part of the cabinetry contacting Compartment E4. *Reference conceptual drawing for desired location.* Dimensions: 36-inches high x 12-inches wide x 21-inches deep.

- Three slide-out drawers sized to fit available space. Latch handle to be located right side closest to curbside attendant seat.
- Recessed compartment for a 1200cc BEMS suction canister located below three drawers. At least 12-inches top to bottom.

7.30 CURBSIDE COUNTERTOP: A hard, solid surface countertop located on the top surface of compartment E4 and the curbside drawer cabinet forward of the attendant seat.
Dimensions: 36-inches wide x 21-inches deep.

- **Ferno iNTREXX Track** for mounting of a Ferno Defibrillator Swivel Mount will be installed over compartment E4. Agency will provide the Ferno Defibrillator Swivel Mount. *Reference conceptual drawing for desired location.*
- One 125-V power outlet behind and above countertop.
- The hard surface area over the drawers near the attendant seat shall have ½-inch high lip.

7.31 CURBSIDE ATTENDANT SEAT: EVS 2160 attendant seat on Mobility1-186 Tracking System

- Backpack belting system
- 48-inch track
- Minimum of 12 inches of floor space for feet forward facing.

7.32 CURBSIDE ATTENDANT ACTION AREA:

- **Ferno iNTREXX Track** for mounting of a Ferno Tablet Mount will be installed between the cabinet drawers and attendant seat. Agency will provide the Ferno Tablet Mount. *Reference conceptual drawing for desired location.*
- Two 125-V power outlets above track.
- One 12-Volt power outlet above track.
- Agency mobile radio heads will be mounted below cabinet E1.

7.33 VACUUM (SUCTION) SYSTEM: Suction collection container and hosing shall be secured in a "boxed in" compartment of the curbside action area located near floor below curbside front drawers. *Reference conceptual drawing for desired location.*

- SSCOR On-board suction unit with Bemis Disposable 1200cc canister

7.34 STREETSIDE COUNTERTOP: A hard, solid surface countertop located on the top surface of compartment E6 and below cabinet B1.
Dimensions: 22-inches wide x 18-inches deep.

- The hard surface area shall have ½ -inch high lip.

7.35 STREETSIDE WASTE DISPOSAL: A sharps container and waste container shall be recessed in the hard surface countertop at the rear-most end of compartment E6 and below cabinet B1.

- House a recessed 3-quart Bemis WallSafe sharps container. The sharps container mount will have hardware the prevents the ejection of the sharp's container in the event of a collision or rollover accident.
- House a recessed plastic waste container from materials designed to withstand strong disinfectant cleaners.
- Waste container enclosure will be covered by a single 3/8-inch Lexan overlay flip up door with a "C" handle and torque hinges. The cover door must allow for the removal of the waste container.

7.36 STREETSIDE ATTENDANT SEAT: EVS 2160 attendant seat on Mobility1-186 Tracking System
- Backpack belting system
- 48-inch track
- Minimum of 12 inches of floor space for feet forward facing.

7.37 STREETSIDE ATTENDANT ACTION AREA:
- **Ferno iNTREXX Track** for mounting of a Ferno Tablet Mount will be installed between the countertop and attendant seat. Agency will provide the Ferno Tablet Mount. *Reference conceptual drawing for desired location.*
- Two 125-V power outlets above track.
- One 12-Volt power outlet above track.
- Oxygen Outlet below B1.

7.38 FORWARD ATTENDANT SEAT: EVS 1860 attendant seat with integrated child restraint system and flip up seat.
- Backpack belting system
- EVS CBPED1760/1860 standard height pedestal base.
- Seat to be centered with cot and set-back 12 inches from head of cot.

7.39 FORWARD INTERIOR CABINET – BEHIND FORWARD ATTENDANT SEAT: Purpose will be to house the primary electrical distribution area and climate control systems.
Dimensions: To be determined by engineering needs. Minimal size is desired.
- Cabinet door: Solid wood, hinged left with 2-point latch. Door size must be engineered to allow for adequate access.

7.40 FORWARD INTERIOR CABINET (H1): Purpose will be the storage of medical supplies.
Dimensions: 12-inches high x 24-inches wide x 10-inches deep.
- Cabinet doors: Sliding Lexan doors attached to a left-side hinged restocking feature frame.
- One adjustable shelf
- Vertical department dividers on top and bottom.

7.41 FORWARD INTERIOR GLOVE STORAGE: A four (4) box glove dispenser unit with hinged Lexan access panel located on forward wall (reference drawing for conceptual location).
Approximate Dimensions: 10.5 -inches high x 21-inches wide x 4-inches deep.
- Four(4) cut-outs positions to allow removal of gloves from boxes.
- Lexan access panel will be hinged on bottom with a C handle latch centered on top.

7.42 FORWARD WALL RECESSED TIE DOWN ANCHORS: Four recessed tie down anchors shall be installed on the forward wall below the talk through window. Specific location will be determined at pre-construction meeting.
- Stainless steel recessed pan fitting flush mount D-ring.
- Working Load Limit at least $2,000 for each fitting.
- Fittings must be bolted into module frame.

7.43 FORWARD WALL OXYGEN CYLINDER BRACKETS: Two portable oxygen cylinder brackets will be mounted on forward edge above curbside stepwell.
- **Zico Ziamatic Corp** strapless “D” cylinder brackets.

7.44 FORWARD WALL FIRE EXTINGUISHER BRACKET: One ABC dry-chemical 5 lb. fire extinguisher and a **Amerex 807** heavy-duty 5 lb. vehicle brackets will be mounted on forward edge above curbside stepwell left of the oxygen cylinder brackets.

7.45 MAIN OXYGEN CYLINDER ACCESS WINDOW: Access to the main oxygen cylinder valve will provided from the inside of the patient care module.

- A Lexan access panel, right side hinged with a C handle latch

7.46 CLOCK: Digital clock shall be installed center of rear access door head protection.

7.47 TWO (2) STEREO SPEAKERS: Two (2) stereo speakers installed into the patient compartment in center pad. Volume control in curbside action area panel.

SECTON 8: COT MOUNT

8.1 COT MOUNT REINFORMEMENT PLATES: The module sub-floor shall be designed to allow for the installation of a **Stryker Power Load** and/or **Stryker Performance Load** system.

8.2 COT SYSTEM: The Agency intends to install a **Stryker Power Load System**. The cot mount design and installation must accommodate both the **Stryker Power Load** and the **Stryker Performance Load** including electrical power.

- The ambulance manufacturer shall supply the floor mounting hardware and electrical system. Installation shall meet the Stryker's installation guidelines.
- The Stryker load system and cot will be provided by Agency and dropped shipped to the ambulance manufacturer for installation before final inspection and delivery.

8.3 COT MOUNT LOCATION: The cot mount shall be installed as a single position. The cot shall be set one and one-half inches streetside of center. The cot shall be set so the foot of the cot at 10-inches from the rear door opening. *Final installation per equipment manufacturer instructions and guidelines.*

SECTION 9: INTERIOR MODULE LIGHTING

9.1 PATIENT CABIN DOME LIGHTS: The patient cabin shall have eight dual intensity LED dome lights in the ceiling. The domes centers shall be aligned along two, four light banks. The left bank shall provide light directly over the patient; the right bank shall provide light directly over the aisle/ curbside attendant seat. The lights shall be recessed into the headliner and shall not protrude creating a head strike concern.

Housing finish shall be white. Mounting screws must be rounded and shall not create sharp edges.

Each bank of lights shall have its own switch to operate on/off and high/low power. The dome lights shall be activated by switches on both the curbside attendant control panel and the master control console in the cab.

Acceptable Interior LED Dome Light Manufacturers:

- **Kinequip LED** or **TecNiq LED** or **Whelen LED**.

9.2 PATIENT COMPARTMENT LIGHT TIMER: A timer system shall provide temporary illumination of the inside of the patient compartment for check out purposes. The timer shall power all the patient compartment dome lights mounted in the ceiling panels.

- When off shore-line power, the lights shall illuminate when an entry door is open and shall stay illuminated for 20-minutes. The switch input shall be wired directly to the vehicle batteries.
- When on short-line power, the lights shall illuminate when the entry door is open and stay on as long as the entry door is open.

9.3 CURBSIDE ATTENDANT ACTION AREA LIGHTING: A 8 to 12-inch linear 250 lumen or greater white LED area light shall be installed in the curbside attendant action area below Compartment F1.

- Shall provide 180 degrees wife light-beam to illuminate large area or shall have rotating function to adjust light to desired direction.
- Power on/off switch at the sign of light or integrated in light housing.
- Housing color preference is silver or gray. White is acceptable if other color options unavailable.

9.4 STREETSIDE ATTENDANT ACTION AREA LIGHTING: A 8 to 12-inch linear 250 lumen or greater white LED area light shall be installed in the streetside attendant action area below Cabinet B1.

- Shall provide 180 degrees wife light-beam to illuminate large area or shall have rotating function to adjust light to desired direction.
- Power on/off switch at the sign of light or integrated in light housing.
- Housing color preference is silver or gray. White is acceptable if other color options unavailable.

SECTION 10: EXTERIOR LIGHTING

10.1 MODULAR BODY CORNER LIGHTS: The front and rear body corner caps shall include DOT approved compliant light fixtures with clear lenses. The front lenses shall house ICC fixtures that include amber LED's to be mounted to the front and front corners. The rear lenses shall house ICC fixtures that include red LED's to the rear and rear corners.

10.2 MODULAR BODY CLEARANCE LIGHTS: Clearance lights shall be provided per FMVSS 108. Three amber LED lights shall be provided on the front of the module. Three red LED lights shall be provided on the rear of the module.

10.3 MODULAR BODY SIDE MARKER LIGHTS: Whelen M2 Series LED Flasher – Amber/Clear (M2WAC) shall be installed as side marker lights in accordance with FMVSS 108. The marker lights shall flash alternately with the rear turn signal lights.

10.4 BRAKE LIGHT / TAILLIGHT / TURN SIGNAL: Whelen M9 Series – Red Brake/Tail/ Turn Light (M9BTTX) shall be installed on rear module to operate as taillight, break light and turn signal.

10.5 TURN SIGNAL LIGHT: **Whelen M9 Series** – Amber Turn Signal (M9T) shall be installed on rear module below brake light to operate as left and right signal lights.

10.6 BACK UP LIGHT: **Whelen M9 Series** – White Back Up Light (M9BUW) shall be installed on rear module below turn signal lights.

10.7 LEFT & RIGHT SCENE LIGHTS: **Two Whelen M9 Series** Scene Lights (M9LZC) shall be installed on the left side and the right side of the module.

- The scene lights shall come on with two separate rocker switches labeled Right Flood and Left Flood, located in the center cab console controlled by the master switch.
  - The right (curbside) scene lights shall also come on when the side entry door is opened.
  - Scene lights to activate with the opening of any exterior compartment door on the corresponding side of the module.

10.8 REAR LOAD LIGHTS: Two Whelen M9 Series Scene Lights (M9LZC) shall be installed on the rear of the module, above the rear access doors. left side and the right side of the module.

- The rear load lights shall come on with a separate rocker switch located in the cab console controlled by a master switch. The switch shall be labeled "Rear Flood" and shall control both rear load lights on the rear of the body and above the rear access doors. The rear load lights shall also come on when rear doors are opened.

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10.9 REVERSE ACTIVATED EMERGENCY LIGHTS: As a safety feature the exterior emergency warning lights shall be automatically activated when the vehicle is placed in reverse position.

10.10 REAR LICENSE PLATE LIGHT: A LED license plate light will be installed on the rear bumper to illuminate the license plate.

10.11 LIGHT FLANGES AND TRIM: Whelen M Series lights shall be embellished by black trim flanges.

10.12 CAB SPOTLIGHT: GoLight GL2021, Black, Permanent Mount with Hardwired Dash Mount Control.

- GoLight to be mounted on cab roof toward back of cab.
- The ON/OFF toggle switch and 4-way joystick that operates the GoLight to be installed in the cab center console on passenger seat side and labeled "Spotlight".

SECTION 11: EMERGENCY WARING LIGHTS AND SIREN

11.1 EMERGENCY LIGHTING SYSTEM CONFIGURATION: The Agency shall specify emergency waring light system. Patterns and configurations shall comply with any related state or local regulation.

Missouri Regulation 19 CSR 30-40.309, Section (2), A… states: *Exceptions to these standards/ specifications may include the following: 1. Image elements (such as paint) may be altered to the agency's preference; 2. Variation of warning lights is allowed for: type and color of lens, strobe lights in lieu of halogen lights, additional warning lights beyond the U.S. Department of Transportation KKK-A-1822, National Fire Protection Association 1917 Standard for Automotive Ambulances 2016 edition or the Commission on Accreditation of Ambulance Services Ground Vehicle Standard for Ambulances v.1.0 edition specifications;*

11.2 PRIMARY / SECONDARY SWITCH: The warning light system shall be controlled with a switch(es) located in the cab console. The switch(es) shall allow for "Off" position, "Primary" position, and "Secondary" position. Each output of the switch shall be indicated with a small lamp, integrated in the switch legend area. The switch shall have an engraved, illuminated legend that clearly defines the function of the switch. System shall automatically drop into secondary mode when the vehicle transmission is placed into park position.

11.3 FLASH PATTERN PROGRAMMABILITY: The specified **Whelen M Series** lighting shall feature programmable flash patterns. Agency will coordinate with manufacture to establish and set flash pattern before final delivery.

11.4 FRONT GRILL WARNING LIGHTS: Two **Whelen M Series** – M2 Wide Angle Super-LED Surface Mount lights (M2WDC). Red with clear lens. To be mounted onto the vehicle front chassis grill located to be visible through the grill guard. All connects shall be waterproof.

11.5 FRONT INTERSECTION LIGHTS: Two **Whelen M Series** – M2 Wide Angle Super-LED Surface Mount lights (M2WDC). Red with clear lens. To be mounted on the front cab fenders.

11.6 FRONT UPPER MODULAR BODY LIGHTS: There shall be a total of five (5) **Whelen M9 Series** lights installed across the front upper modular body.

- Curbside – outermost light: Whelen M92J – Red/ Blue
- Curbside – inner light: Whelen M92D – Red/ White
- Center: Whelen M9C – White/Clear
- Streetside – inner light: Whelen M92D – Red/ White
- Streetside – outermost light: Whelen M92J – Red/ Blue

11.7 SIDE UPPER MODULAR BODY LIGHTS: There shall be two (2) **Whelen M9 Series** lights installed at the front upper corner and rear upper corner on both sides of the modular box. The lights will be Whelen M92D – Red/ White.

11.8 SIDE FACING REAR INTERSECTION LIGHTS ON MODULAR BODY: There shall be a **Whelen M Series** – M2 Wide Angle Super-LED Surface Mount lights (M2WDC) - Red with clear lens on each side of the module. The lights shall be mounted over each rear wheel well opening on the modular body.

11.9 REAR UPPER MODULAR BODY LIGHTS: There shall be a total of three (3) **Whelen M9 Series** lights installed across the rear upper modular body.

- Streetside – outermost light: Whelen M92J – Red/ Blue
- Center: Whelen M9A – Amber
- Curbside – outermost light: Whelen M92J – Red/ Blue

11.10 REAR MID MODULAR BODY LIGHTS: There shall be TWO (2) Whelen M Series – M2 Wide Angle Super-LED Surface Mount lights (M2WDC) - Red with clear lens on each side of the rear access doors alighted with the windows.

11.11 LIGHT FLANGES AND TRIM: The **Whelen M Series** lights shall be embellished by black trim flanges.

11.12 ELECTRONIC SIREN: Whelen 200-Watt Dual Tone Siren (295HFSC9).

- Siren control shall be installed in cab center console on driver side.
- Switch shall select horn ring output: Siren functions or OEM horn

11.13 SIREN SPEAKERS: Two 100-Watt Whelen Siren Speakers that are compatible with the Whelen 200-Watt Dual Tone Siren (295HFSC9) shall be installed in the front chassis grill or bumper location.

11.14 AIR HORNS: Single Trumpet Emergency Air Horn

- Sound output: Load greater than 145 decibels fire engine air horn sound.
- Air horn trumpet to be mounted under front of chassis and into the front bump. The round flare should be forward facing and clear of the bumper to prevent rebound of sound.
- A 3 to 5-gallon air tank
- A 12-volt, heavy duty 200 psi compatible air compressor. Air compressor shall be at least a 70% duty cycle.
- Air horn activation switch shall be installed in the cab center console on driver side and labeled “Air Horn”.

11.15 REVERSE ALARM: A 97 to 107 decibel audible back up alarm shall be installed to activate when the vehicle is placed into reverse gear. The reverse alarm shall not be powered through the module master switch and the alarm must operate even when the module master power switch is off. No cutoff switch will be installed for the reverse alarm.

SECTION 12: ELECTRICAL SYSTEM

12.1 MODULE GROUNDING: A minimum of (2) two braided ground straps shall be through bolted to the chassis frame and the floor structure of the modular body. The bolts shall be at least 3/8 diameter. A flat washer shall be provided under the head of the bolt, over the strap lug. Additionally, an internal tooth lock washer shall preclude loosening. Conventional stranded copper cables are not acceptable because they do not suppress RFI and does not meet SAE J551.

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12.2 GENERAL GROUNDS: All devices wired within the ambulance conversion shall be centrally grounded. Each device shall have a separate ground wire routed to a central buss bar then grounded via fine strand cable to the module body. Local grounds are acceptable only when the device is drawing at or less than 100 milliamps (0.1 amps).

12.3 ELECTRICAL WIRING AND CIRCUITS: All electrical circuits shall have wiring and circuit protection suitable to the demand and must meet the national electric code (nec) wiring requirements.

- All added/ installed wiring (18 GA through 10 GA) shall be color coded and stamped with code numbers and functions every 4 to 6 inches for easy identification.
- All 12-volt wire insulation shall be GXL cross-linked polyethylene. Wire conductors shall be stranded copper.
- All wire within the conversion shall be protected and run in split convoluted loom with a melting temperature of 300 degrees, Fahrenheit.
- All wire harnesses shall be clamped and routed to eliminate possibility of damage due to cut/chaffed wire.
- Grommets made of rubber or plastic shall be used where harnesses pass through metal or wood.
- Large holes and irregular shaped wire passages shall use automotive edge trim to protect the wire conduit/loom.
- Wire harnesses shall be neatly clamped into protective routing areas away from heat sources, unfriendly edges or moving devices.
- All electrical connections shall be protected from the weather by being enclosed in a weather tight encasement or Deutsch Connectors. Marine or automotive sealants/ tapes are only to be sued in addition to the weather tight connectors.

12.4 THREE BATTERY SYSTEM: The ambulance conversion and chassis shall run with three maintenance free 12-volt batteries. Batteries shall be installed to provide main power for the vehicle. Two of the batteries shall remain OEM under hood and the other battery shall be located exterior modular body compartment stated in this specification. All three batteries must match the requirements of the OEM system, same model and type. Each battery shall be rated at a minimum OEM rating. Batteries will be wired parallel for higher amperage.

12.5 BATTERY SWITCH: A conversion disconnect switch shall be supplied to remove positive polarity from the ambulance conversion circuits. Constant battery power shall be supplied for device memories. The design must ensure that none of the chassis functions shall be affected by this switch. The switch shall be easily assessable to the vehicle driver and clearly indicate the ON and OFF position. An indicator light shall illuminate on the cab console panel.

12.6 SEQUENCER, AUTOMATIC LOAD MANAGER: An integrated sequential switching of lamp loads is required. The LOAD MANAGER sequencer assures that loads are applied and removed gradually, thus eliminating the possibility of inducing failures in the vehicle's equipment. The sequencer shall be initiated by the "Emergency Master" switch. The sequencer priority shall be set at the pre-build conference.

The LOAD MANAGER shall monitor the vehicles battery voltage. When the electrical loads have exceeded the charging system output, the voltage falls. When the voltage falls to 11.5 volts, the LOAD MANAGER will begin to shed up to five loads. The load shed priority shall be set by the circuit significance, followed closely by circuit draw. The LOAD MANAGER will shed loads until the voltage level begins to rise.

12.7 GROUND STRAPS: Four (4) 7/8" wide by 1/8" thick, fine strand, woven straps shall provide a ground path from the module body to the chassis frame. Woven straps filter out RFI noise originating from alternators, strobe power supplies and other devices, that may find their way into intercom, stereo and two-way communication radios. Each end of the ground straps shall be through bolted with 3/8" diameter, grade 5 or 8, hex head bolts and lock nuts. Each connection site shall be cleaned to the bare metal prior to fastening the strap. The connections shall have a dielectric anti corrosion spray applied.

12.8 12-VOLT POWER INVERTER: A highly reliable **Vanner** 20-1050CUL-DC electronic power conversion unit shall be supplied, installed and wired to the outlets specified. A Built in 30A automatic transfer switch shall transfer all loads from the inverter to the shoreline, when the shoreline cord is plugged into 125 vac shoreline power. The device shall convert 12-volt DC battery power into 1,050 watts of regulated modified 125-volt AC power. The location of the inverter shall be the exterior Compartment E8.

- Portable equipment charging circuits: Included in inverter
- Portable equipment power source: Ignition and /or inverter

12.9 BATTERY CHARGER/CONDITIONER: When the system is connected to shore/utility power, the battery charger (built into the inverter) will automatically charge the batteries, then keep them fully charged. The system's microprocessor controls the charging sequence, starting with the high charger (55 Amp) mode. When the batteries are fully charged, it switches to the ready/maintenance mode to keep the battery "topped up". The battery charger shall be designed to charge either lead acid flooded (wet) or gel type batteries.

The built-in battery charger shall be wired to the vehicle batteries to allow charging/conditioning when the shoreline is energized.

12.10 EXTRA CIRCUIT BREAKER: One spare 15-amp manual resetting circuit breaker shall be installed as a provision for the possible installation, at a later time, of additional electrical equipment.

12.11 POWER SOURCE FOR COMMUNICATION RADIO(S) No 1: Positive and Negative polarity 10-gauge wires shall be supplied and installed for subsequent installation of communications radio(s).

- 30 Amp with buss bar
- Radio Power Source: Output of the conversion main power (Battery) switch.
- The location shall be the exterior Compartment E8. This is the location of the radio trunk.

12.12 POWER SOURCE FOR COMMUNICATION RADIO(S) No 2: Positive and Negative polarity 10-gauge wires shall be supplied and installed for subsequent installation of communications radio(s).

- 30 Amp with buss bar
- Radio Power Source: Output of the conversion main power (Battery) switch.
- Location: The power source shall be located in interior curbside compartment F1. This is the location of the radio control head(s).

12.13 SHORE LINE INLET AND AUTO EJECT: The 125-Volt shoreline inlet, 20 Amp auto eject.

- A **Kussmaul** super auto eject shoreline inlet receptable with yellow cover.
- Inlet Location: Front of module body on driver's side.
- 125-volt, 20-amp circuit breaker with ground fault circuit interrupter (GFCI) electronic ground leakage detection shall be installed in the load center of the shoreline circuit.
- Block Heater: Wire to shoreline with female plug.
- A mating connector shall be shipped loose with the completed ambulance.

12.14 125-VAC OUTLETS: All outlets shall be UL listed, 125 Volt, 15A, Hospital grade. IVORY. All 125 VAC outlets shall be back lighted when power is applied to outlet.

One 125-volt AC duplex receptacle - Location 1: Inside exterior curbside compartment E3
One 125-volt AC duplex receptacle - Location 2: Inside exterior curbside compartment E4
One 125-volt AC duplex receptacle - Location 3: Inside exterior streetside compartment E6
One 125-volt AC duplex receptacle - Location 4: Curbside wall above curbside countertop.
Two 125-volt AC duplex receptacle - Location 5: Curbside wall attendant action area.
One 125-volt AC duplex receptacle - Location 6: Inside interior cabinet C2.
Two 125-volt AC duplex receptacle - Location 7: Streetside wall attendant action area
One 125-volt AC duplex receptacle - Location 8: Cab console on passenger side wall.
One 125-volt AC duplex receptacle - Location 9: Cab back wall behind driver's seat.

12.15 12-VOLT OUTLETS: Outlet shall be 12- volt, direct current, 20 Ampere, automotive "cigar" lighter size commercial outlet. The outlet shall be separately protected and shall be electrically isolated from other electrical functions on the vehicle. The input for the outlet shall be wired to the output of the battery switch.

12 Volt Outlet Location 1: Inside interior cabinet D1 – bottom portion of cabinet.
12 Volt Outlet Location 2: Curbside wall attendant action area.
12 Volt Outlet Location 3: Streetside wall attendant action area.
12 Volt Outlet Location4: Cab console on passenger side wall

SECTON 13: ELECTRICAL CONTROL SYSTEM

13.1 MULTIPLEX ELECTRICAL CONTROL SYSTEM: The electrical control system shall be a programmable and customizable multiplex electrical control system. The system components shall include a front cab and rear model switch panel.

System Function:

- Module power switch
  - Provided on both cab and rear model control panels.
- Load management with voltage monitor
  - Low voltage alarm
- Sequenced start circuit activation
- Electrical system diagnostics
- Climate control HVAC operation
- Oxygen control and warning system with tank PSI display
  - Low oxygen tank pressure alarm
- Patient module dome light control
- Patient module suction/ aspirator operation
- Patient module ventilation / exhaust operation
- Warning light flasher control
  - Emergency master switch shall activate all emergency waring lights.
  - Individual control of warning lights
- Left, right, and rear scene light activation
- Exterior door open warning

Bidder must specific manufacturer, make and model of the multiplex electrical control system.

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13.2 MODULE CONTROL PANEL: The electrical system control panel shall be located streetside in the attendant action area below cabinet G1.

Panel Functional Control:

- Module power switch
- Climate control HVAC operation
- Oxygen control and warning system with tank PSI display
  - Low oxygen tank pressure alarm
- Patient module dome light control
- Patient module suction/ aspirator operation
- Patient module ventilation / exhaust operation

13.3 CAB CONSOLE SWITCH PANEL: The electrical system control panel shall be located in the center cab console.

Panel Functional Control:

- Module power switch.
- Load management with voltage monitor
  - Low voltage alarm
- Sequenced start circuit activation
- Electrical system diagnostics
- Climate control HVAC operation
- Oxygen control and warning system with tank PSI display
  - Low oxygen tank pressure alarm
- Patient module dome light control
- Warning light flasher control
  - Emergency master switch shall activate all emergency waring lights.
  - Individual control of warning lights
- Exterior door open warning

13.4 CONTROL / SWITCH PANEL DESIGN: Both front cab and rear module electrical system control panels must be designed so they can be easily decontaminated.

- Must be designed and installed with no openings or crevices on the panel face.
- Panel surface must be antimicrobial and cleanable with any commercially available disinfectant commonly used by EMS services.
- The panels must be spill resistant to moisture penetration from accidental spilled beverages.

13.5 PATIENT COMPARTMENT LIGHT TIMER: A timer system shall provide temporary illumination of the inside of the patient compartment for check out purposes. The timer shall power all the patient compartment dome lights mounted in the ceiling panels.

- When off shore-line power, the lights shall illuminate when an entry door is open and shall stay illuminated for 20-minutes. The switch input shall be wired directly to the vehicle batteries.
- When on short-line power, the lights shall illuminate when the entry door is open and stay on as long as the entry door is open.

13.6 EMERGENCY ALERT BUTTON: An emergency alert button or momentary switch shall be installed in the streetside in the attendant action area below cabinet G1. This button shall be separate and easily accessible to the attendant seated streetside. The button shall activate an audible waring chime/ alarm in the front cab to alert the driver.

13.7 ADDITIONAL MODULE DOOR OPEN WARING: A bright red LED light and audible waring chime/ alarm shall be installed on the front center cab console that will flash and activate if any exterior module door is open when the vehicle is not in Park.

- **Whelen OS** Square Lens Series Model OSR00MCR

SECTION 14: POWERED DOOR LOCKS

14.1 POWER MODULE DOOR LOCKS: Each compartment and/or entry doors listed below shall Lock or Unlock with a single depression of a momentary switch. Each door shall be fitted with a bidirectional, momentary electric solenoid designed to operate a mechanical rod in a linear fashion. The rod shall mechanically interface with the door lock mechanism inside the door. All rod connections shall be designed for high cycle operation without mechanical disconnection.

- The battery compartment shall NOT have the power lock/unlock feature. This compartment shall remain key operated.

14.2 AUTOMATICALLY LOCKS: Cab and module compartment and/or entry doors must automatically lock when vehicle is place is placed in Drive or Reverse and automatically unlock when the vehicle is placed in park.

14.3 DOOR LOCK SWITCHES: The door lock(s) shall be wired to activate with the OEM cab door locks and their switches in the cab. The module entry doors shall have internal integrated electric door lock activation switches.

14.4 OEM Key FOB: The door lock(s) shall be wired to activate with the OEM cab door locks and their switches in the cab as well as the OEM remote key fob activator.

14.5 HIDDEN, EXTERIOR DOOR UNLOCK SWITCH: There shall be a waterproof remote door lock switch installed “hidden” in the chassis front grill/ bumper area. This switch will unlock all cab and module compartment and/or entry doors in the event the vehicle keys and/or key FOB is accidently lock inside the vehicle.

SECTION 15: HVAC SYSTEM

15.1 HVAC SYSTEM: A thermostatically controlled temperature control system with quick and simple operation while maintaining a uniform temperature throughout the patient compartment.

- The HVAC system shall include air duct system to direct the airflow in such a way as to provide uniform temperature levels throughout the patient compartment.
- Must provide for high volume of air movement with minimal noise.
- Air return shall be filtered to minimize contamination of the HVAC cores.
- The cab and module environment systems shall be simultaneously capable of maintaining individually separate temperatures (heat in one while AC in other).
- Heating and cooling may be selected automatically (thermostatically) or manually. The default temperature setting will be 70 degrees when vehicle is powered at start up.
- The unit and all components must be located for easy access for service needs.

15.2 AC UNIT LOCATION: On the floor behind the attendant seat.

15.3 AC UNIT CONDENSOR: Tie into OEM, dual fans and an evaporator.

15.4 EXTERIOR AC CONDENSOR LOCATION: The exterior AC condenser and fans shall be mounted on the front exterior of module above chassis cab.

15.5 HVAC DUCTED DELIVERY SYSTEM: The HCAC will have a ducted delivery system in the ceiling with eight (8) adjustable vents. Two registers shall be located in the in face of A/C cabinet. All ducting must be insulated & foil wrapped.

15.6 THEREMOSTAT: The thermostat shall be mounted in the streetside action area below Cabinet B1.

15.7 HEATER HOSES: Heater hoses for the cab shall remain O.E.M. Nomex rubber hoses shall route from the O.E.M tie in point to the rear heater core.

15.8 PATIENT COMPARMENT VENTING SYSTEM: A three-speed exhaust fan with a minimum of 300 CMF shall be installed. The exhaust shall vent through the side or rear of the vehicle, not through the roof. The venting system on/off and speed control will be operated through a multiplex electrical system and integrated into the control panel located on the curb-side attendant action area.

SECTION 16: OXYGEN SYSTEM

16.1 OXYGEN SYSTEM SPECIFICATIONS: All oxygen system components including regulators, brackets, hoses, and outlets shall be medical grade and meet the specification prescribed in current CAAS GVS v1.0.

16.2 MAIN OXYGEN CYLINDER BRACKET: Zico Ziamatic Corp motorized tank lift system specified for use of an "H" oxygen cylinder mounted in exterior compartment E7.

- Oxygen cylinder will be provided by Agency and installed after delivery.

16.3 OXYGEN REGULATOR: A **"fixed"** 50 psi output medical regulator shall be supplied.

16.4 MULTIPLEX ELECTRIC SYSTEM – ELECTRICAL OXYGEN CONTROL: The oxygen system on/off shall be operated through a multiplex electrical system and integrated into the control panel located on the curb-side attendant action area. Panel located under Cabinet G1.

The condition of the oxygen system shall be continually monitored and reported through the multiplex electrical system. The system shall display the main oxygen cylinder pressure.

A programable audible and visual warning system shall activate if the main oxygen cylinder pressure falls below the set minimum low pressure. The audible and visual warning system shall have a acknowledge receipt and reset (silence) option in both the patient compartment attendant action area and on the control panel in the front cab.

- Low cylinder pressure alarm shall be set a 250 psi or below.

16.5 OXYGEN GUAGE: Integrated as part of the multiplex electronic cylinder pressure monitoring system.

16.6 OXYGEN LINES: There shall be no connections installed in the line between the regulator and the manifold assembly. All connections shall be DISS style and shall be specific to medical oxygen gas being supplied. The oxygen lines shall be protected from crimping through the installation of a flexible spring guard on the portion of the line in the cylinder storage compartment.

16.7 OXYGEN OUTLETS: All outlet latch shall be designed to accept (Ohio) style, quarter turn / quick release adapters.

Oxygen Outlet – Location 1: Patient compartment ceiling directly over head of stretcher. The outlet shall be recessed in an ABS pan.

Oxygen Outlet – Location 2: Patient compartment ceiling directly over the stretcher just rear of oxygen outlet 1. The outlet shall be recessed in an ABS pan.

Oxygen Outlet – Location 3: Street-side wall below Cabinet B1.

16.8 MANUAL OXYGEN BYPASS: There shall be a manual oxygen bypass install on street-side wall below cabinet B1. This manual bypass will allow oxygen flow in the event of loss of electrical power or failure of the multiplex electric system.

SECTION 17: SUCTION / ASPIRATOR EQUIPMENT

An **SSCOR** suction system shall be furnished and installed in the curbside attendant action area. SSCOR On-board suction unit with Bemis Disposable 1200cc canister

- Suction collection container and hosing shall be secured in a "boxed in" compartment of the curbside action area located near floor below curbside front drawers. *Reference conceptual drawing for desired location.*
- The suction system on/off will be operated through a multiplex electrical system and integrated into the control panel located on the curb-side attendant action area.
- Regulator & gauge: Located in curbside attendant action area.
- Plumbing: The collection canister shall be connected directly to the regulator panel in the action area.
- Suction Pump: The suction pump shall be installed in a compartment behind suction canister. The exhaust tube shall be routed to the outside of the vehicle. The pump shall be mounted on rubber vibration isolators to minimize any vibration noise emitted into the patient cabin. Access to this pump will be made through an access panel located inside exterior compartment E4.
- Suction pump exhaust shall be vented to the exterior of the vehicle.

SECTION 18: RADIO COMMUNICATIONS SYSTEM

18.1 RADIO COMMUNICATIONS SYSTEM: Two (2) antenna bases with attached coax cable shall be installed on the module roof.

18.2 ANTENNA BASE: Thick roof mounts KE794

18.3 COMMUNICATIONS RADIO ANTENNA PRE-COAX No 1: This coaxial cable shall be RG58-U type. Leave an 18" service loop at the mod roof and a 36" tail at the interior termination point. A tag shall specify the other termination point for each coax provided.

- Origination Point: The Coaxial cable shall originate on the module roof. The port location shall be centered side to side and approximately 36-inchs back from the front edge of the module roof.
- Termination Point: Inside exterior compartment E8. This is the location of the radio trunk.

18.4 COMMUNICATIONS RADIO ANTENNA PRE-COAX No 2: This coaxial cable shall be RG58-U type. Leave an 18" service loop at the mod roof and a 36" tail at the interior termination point. A tag shall specify the other termination point for each coax provided.

- Origination Point: The Coaxial cable shall originate on the module roof. The port location shall be centered side to side and approximately 24-inches back from the front edge of the module roof.
- Termination Point: Inside exterior compartment E8. This is the location of the radio trunk.

18.5 RADIO PULL WIRE: A pull wire shall be installed to aid radio cable installation. The pull wire shall be installed in the conduit originate in E8 exterior compartment and terminate in the patient compartment behind the curbside action area – F1 compartment.

18.6 RADIO EQUIPMENT AND INSTALLATION: Radio equipment and installation shall be provided by the Agency after purchase of ambulance.

SECTION 19: CAMERA SYSTEM & BACKUP SENSORS

19.1 CAMERA SYSTEM SPECIFICATIONS: A durable, commercial grade camera system designed for emergency vehicle use with a digital color display screen and recording DVR shall be installed.

- Suggested system Brand/ Manufacturer: **Rear View Safety, Inc. (RVS).**

Bidder must specific Brand/ Manufacturer of the camera system.

19.2 CAMERAS: Seven camera system. The cameras shall meet the following specifications:

- All cameras shall record in color with infra-red night vision.
- All exterior mounted cameras must be completely waterproof.
- Cameras inside the patient compartment and the exterior rear-view back up camera shall record audio.
- All cameras are to be hard wired. Wireless cameras will not meet this requirement.

19.3 CAMERA LOCATIONS AND VIEWS:

1. Forward facing dash camera installed on windshield in location of deleted rear-view mirror. Positioned to record vehicle travel path and drivers view. At least 120-degree view.
2. Driver view camera installed in cab. Positioned to record drivers face and hands.
3. Exterior rear-view back up camera. Positioned to provide driver with monitor display view and record back-up/ reverse travel path of ambulance. At least 150-degree view.
4. Exterior sideview camera installed on the streetside of the ambulance module. At least 120-dgree view.
5. Exterior sideview camera installed on the curbside of the ambulance module. At least 120-dgree view.
6. Interior patient compartment view camera installed at the front of the compartment. Positioned to record rear facing view of patient compartment.
7. Interior patient compartment view camera installed above rear compartment door of the compartment. Positioned to provide driver with monitor display view and to record forward facing view of patient compartment.

19.4 AUDIO RECORDING LOCATIONS:

- Audio sounds shall be recorded in the patient module compartment and exterior at the rear of the ambulance.
- Audio sound shall NOT be recorded in the front chassis cab.

19.5 DIGITAL DISPLAY MONITOR: A seven-inch digital color single view monitor. The display monitor shall be mounted in the front cab positioned to allow the driver to use and view the monitor as a reverse/ backup monitor.

The monitor shall display the camera view from the interior patient compartment camera installed above rear compartment door when the vehicle is in park or in drive. The monitor shall automatically switch and display the exterior rear-view back up camera when the vehicle is placed in reverse.

19.6 DVR: Eight (8) channel mobile DVR. Commercial grade DVR designed for on-board vehicle recording.

- Capable of recording eight (8) cameras simultaneously.
- One (1) TB hard drive
- Hard drive must be lockable for security.
- Must be vibration and shock rated.

19.7 PROGRAMMED RECORDING TIMES: The camera system and recording DVR shall be active and recording during the following operation:

- When the vehicle is started, and the engine is running.
- The camera system will be programmed to record for 20-minutes after engine is shut-down.

SECTION 20: CAB CONSOLE AND STORAGE

20.1 CAB CONSOLE DESIGN: A console shall be designed installed in the cab. The final design will be determined at the pre-construction meeting.

- The console shall be constructed with a durable material and installed at floor level contour matched to the cab floor.
- The surface shall be fluid and spill resistant.
- The console design and installation must not interfere with the OEM vehicle controls, gauges, operations, or safety features (including airbag function).
- The console shall be free of any sharp edges or corners.

20.2 CAB CONSOLE FUNCTION: The console shall house the following:

- Cab module switch panel
- Siren control panel
- GoLight on/off and joystick
- Radio control head
- Map light
- Two 12-volt lighter plug outlets
- Two USB charging ports
- One 125-volt AC duplex receptacle: Cab consul on passenger side wall.
- Two (2) individual plastic insert cub holders (to accept cups up to 3.625-inch diameter). Must be removal to be washed.
- Paddle arm rests for driver and passenger.
- Storage for tablet and map books.

20.3 CAB BACK WALL:

- Glove box holder to hold 4 gloves boxes with a Lexan hinged lid to be vertically installed against back wall of the cab accessible between the seats.
- One 125-volt AC duplex receptacle behind driver’s seat.

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SECTION 21: PAINT AND GRAPHICS

21.1 IMAGE ELEMENTS: The Agency shall specify image elements such as paint and exterior graphics. Missouri Regulation 19 CSR 30-40.309, Section (2), A… states: *Exceptions to these standards/ specifications may include the following: 1. Image elements (such as paint) may be altered to the agency's preference…*

21.2 PAINTING QUALITY: A paint process shall provide the highest possible gloss as well as superior color and luster retention characteristics. The process must provide resistance to salt sprays, chemical sprays, humidity, weather, and temperature changes. Paint must be resistant to chipping.

The final paint application shall be free of material application imperfections. A through and detailed inspection of the final paint job will be made Agency at the final inspection.

21.3 PAINT FILM COVERAGE: All stages of primer and paint shall cover all surfaces. Hinge mating surfaces on the doors and jambs shall be painted. Bare aluminum and primer only preparation is not acceptable under door hinges. Doors shall be painted without actuation handles installed and doors removed from body. Paint film thickness to be no less than 4.1 mil thickness.

21.4 CLEAR COAT: The clear coat shall be manufactured by the same company as the primer and base coat. Two coats of "clear coat" polyurethane shall be applied per the manufacturer's instructions.

21.5 PAINT COLOR: The module color shall be 100% color match to the chassis OEM color.

21.6 VINYL GRAPHIS AND DECALS: Agency shall specify image elements for the graphics and image designs at the pre-construction meeting. The design shall include:

- Single six-inch red stripping belt with two (2) three-inch white QRS on top of red belt. Both belts to be outlined in black. Striping belt to be wrap around corner post and stop at the rear panel.
- The words "JOHNSON COUNTY AMBULANCE DISTRICT" blue with white border and black outline, non-reflective vinyl centered center between QRS on both sides of ambulance.
- Large Star-of-Life emblem blue with white border and black outline reflective vinyl located rear of QRS on both sides of ambulance.
- On front module above cab, two medium sized Star-of-Life emblems blue with white border and black outline non-reflective vinyl.
- On front module above cab – on front of AC compressor housing, the word "JCAD" in blue with white border and black outline non-reflective vinyl.
- On module roof, a 32-inch blue star of life in non-reflective vinyl.
- All vinyl graphics and decals shall be single unit. Layering or pin stripping is not acceptable.

21.7 BACK CHEVORN: *Pictures of graphic design will be provided.*

- Full coverage of the back of the module will be covered in reflective, Red/ White vinyl Chevron.
- Large, blue reflective vinyl Star of Life centered on back of ambulance.
- The words AMBULANCE in blue reflective vinyl applied to rear of ambulance below Star of Life.
- All vinyl graphics and decals shall be single unit. Layering or pin stripping is not acceptable.

21.8 REFLECTOR PACKAGE: Six reflectors shall be supplied on the outside of the module body in compliance with FMVSS 108. The reflectors shall be located at skirt line level and the area size shall be at least 3.75 square inches. Each side shall have one AMBER forward reflector and one RED rearward reflector. The rear of the body shall have one RED reflector, located just above the diamond plate kick plate.

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SECTION 22: ADDITIONAL ITEMS

22.1 STANDARD MANDATORY SIGNAGE: "No Smoking Oxygen Equipped" and "Fasten Seat Belts" signs shall be conspicuously placed in the front cab and patient module compartment.

22.2 VEHICLE KEYS & KEY FOBS:

- A minimum of (3) three OEM vehicle keys & key fobs will be shipped with vehicle.
- A minimum of (3) three set so lockable compartment keys will be shipped with vehicle.

22.3 MANUALS AND HANDBOOKS: The final stage ambulance manufacturer (FSAM) shall furnish one copy of a handbook of instructions in electronic media. This handbook shall contain all items and information as outline in CAAS GVS v1.0: C18.

22.4 CHASSIS OWNER'S MANUAL: All OEM chassis owners and instruction manuals shall be furnished with each vehicle.

22.5 OEM SPARE TIME: The OEM wheel and spare tire supplied with chassis shall be shipped loose with delivery of ambulance.

SECTION 23: WARRANTY

23.1 MANUFACTURER LIMITED WARRANTY: A Limited Warranty of at least 48-months or 48,000 miles from date of original purchase (date of deliver to agency).

23.2 BODY STRUCTURE WARRANTY: At least 10-year body structure warranty.

23.3 CONVERSION WARRANTY: At least 7 Year, 70,000 mile Mechanical & Electrical including Workmanship. Warranty shall include multiplex electrical system and control panels.

23.4 PAINT WARRANTY: The conversion paint shall be warranted to the original owner for a period of at least 7 years, 70,000 miles.

23.5 PAINT COATING CORROSION WARRANTY: At least 36-month paint coating corrosion warranty.

23.6 ADDITIONAL WARRANTIES: Bidder may provide terms and description of any additional warranties.

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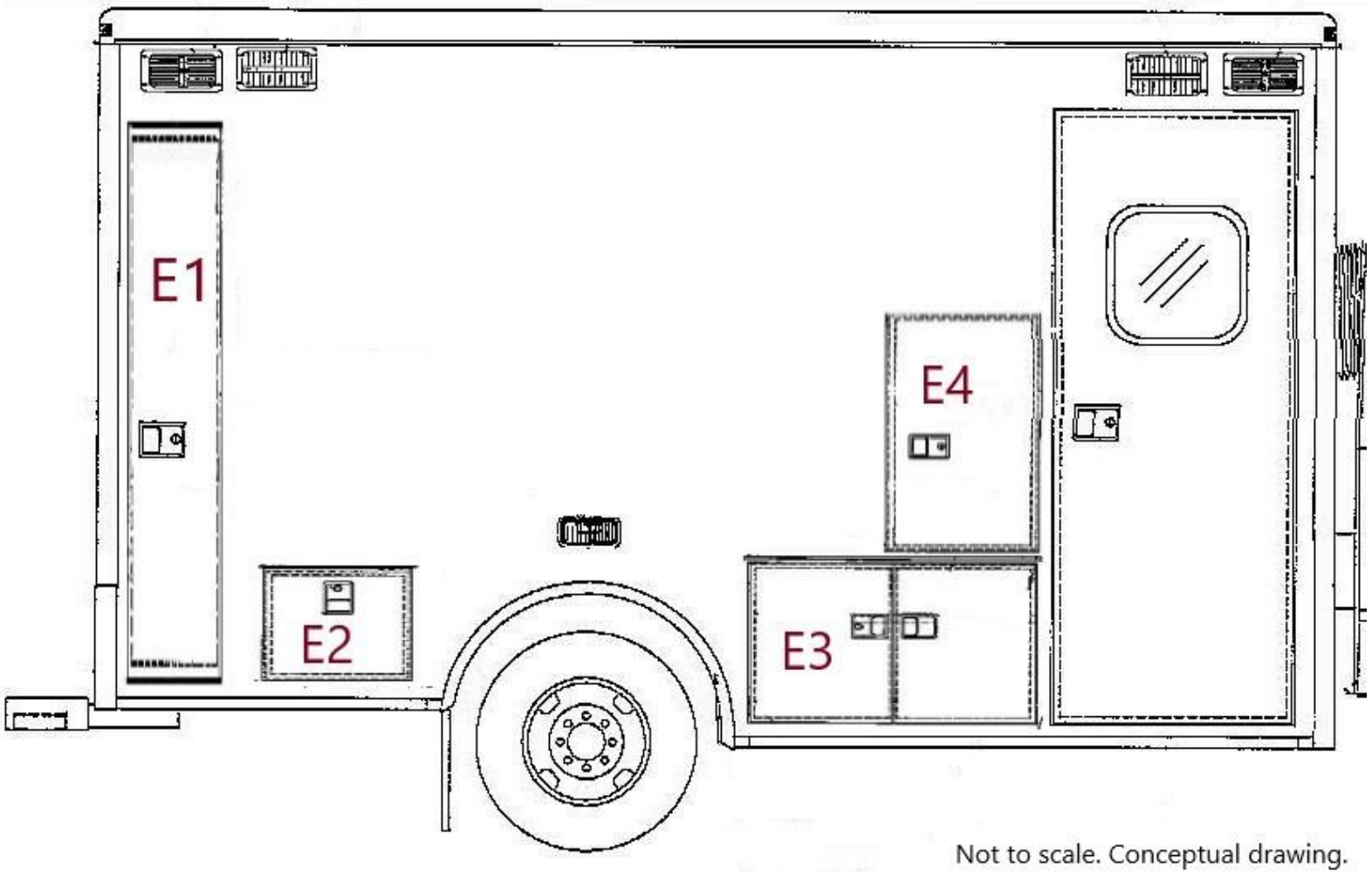
CONCEPTUAL DRAWINGS



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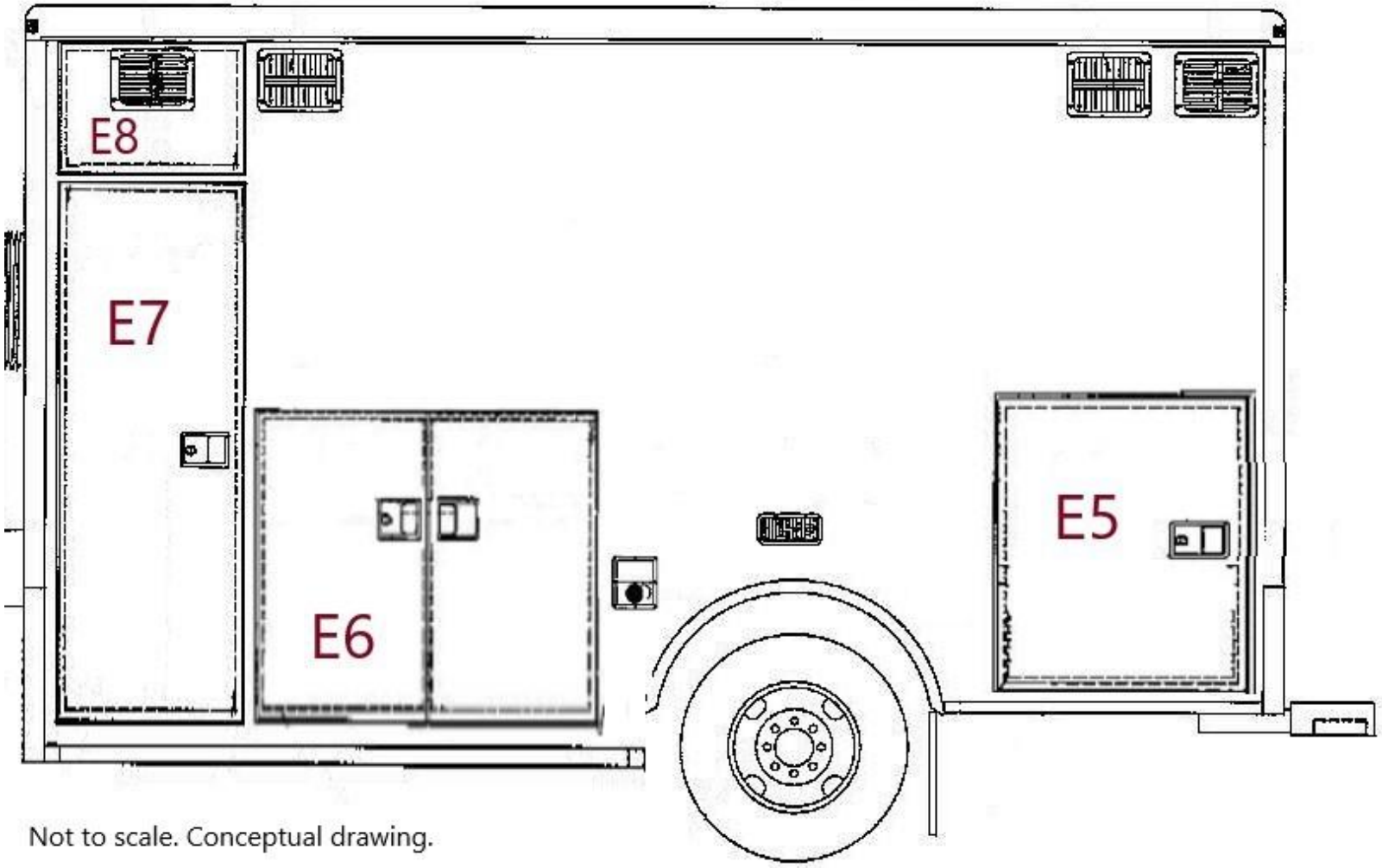

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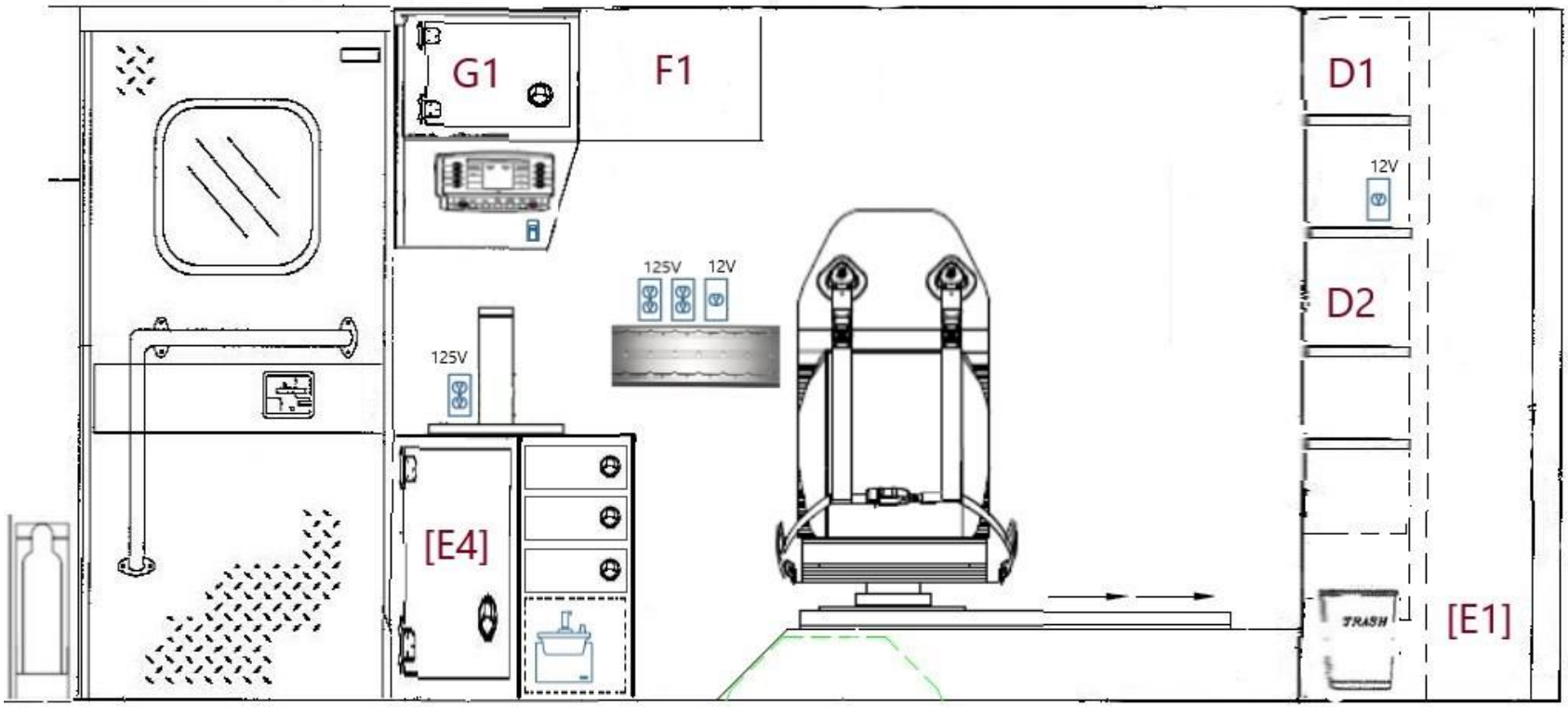

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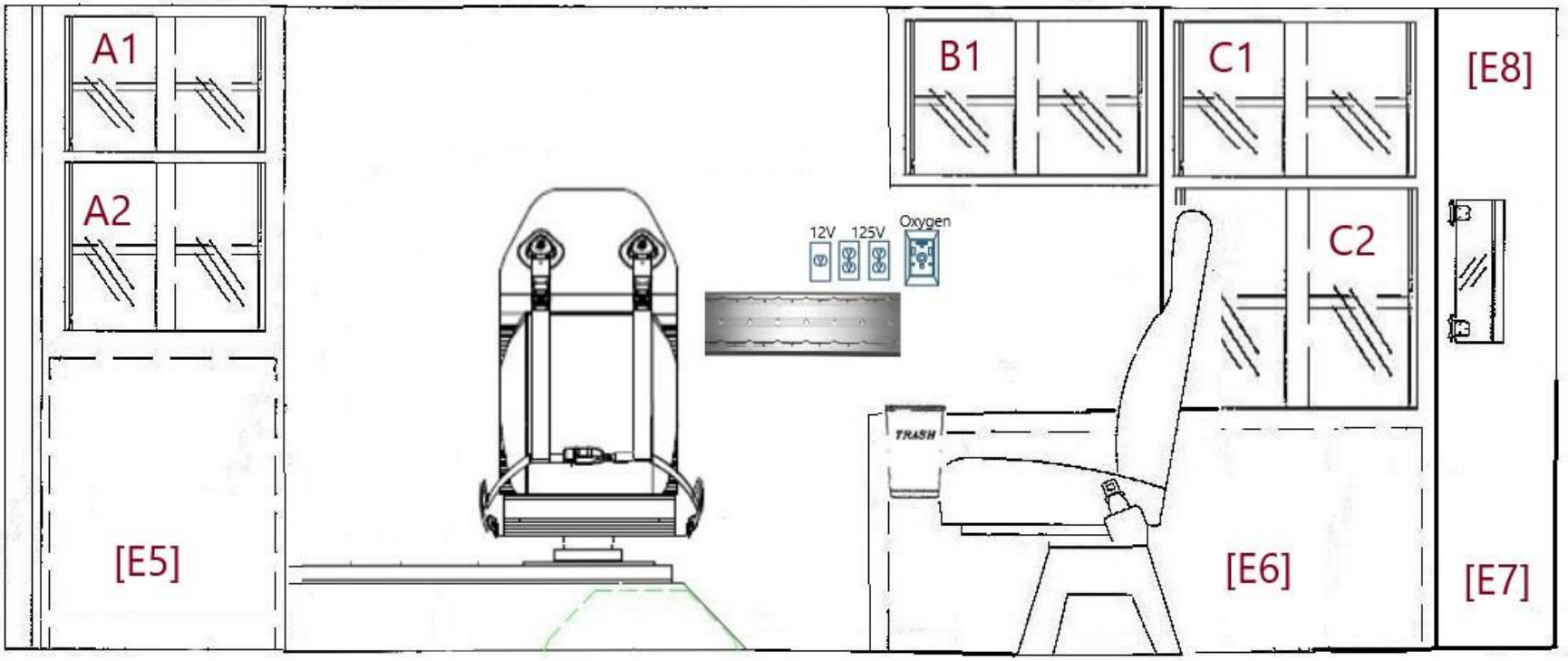

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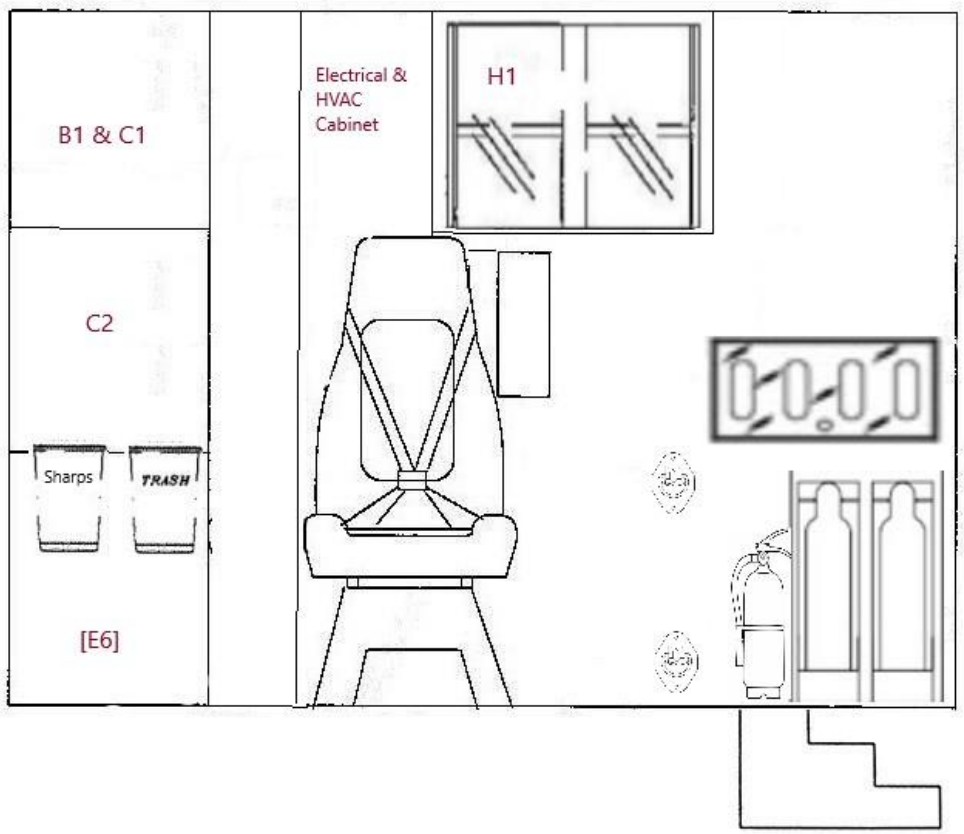

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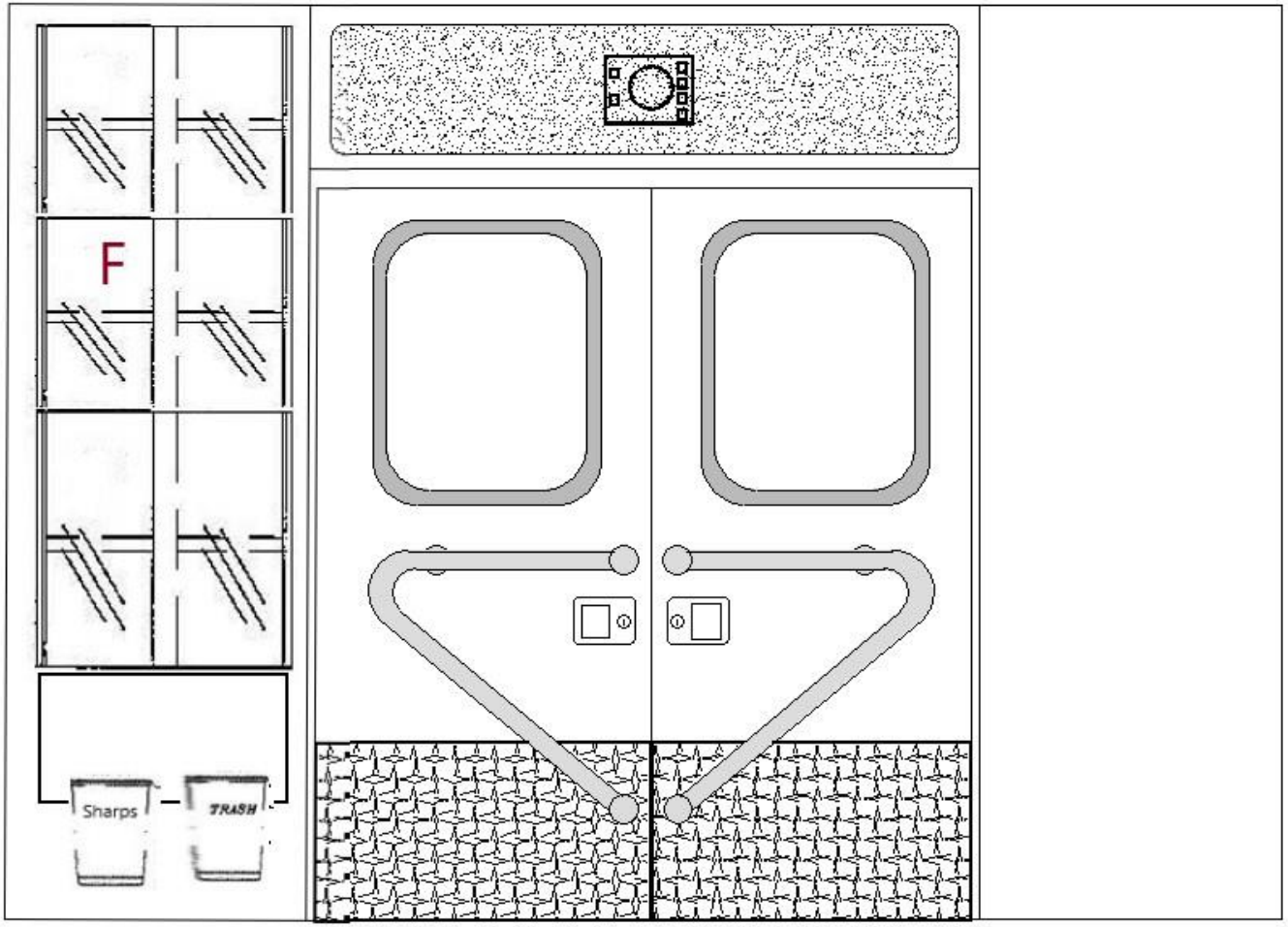

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