REQUEST FOR PROPOSALS FOR PUMPER ENGINE

Issued: August 6, 2024| **Due:** September 4, 2024

The Town of Bowdoinham is seeking proposals from qualified companies for providing one (1) pumper engine as specified in Attachment 1- Bowdoinham Pumper Engine Specifications.

GENERAL INSTRUCTIONS

AUTHORITY: This Request for Proposal ("RFP") of offers for professional services is issued in accordance with the Town purchasing policy of the Town of Bowdoinham, Maine ("the Town").

SCOPE: The terms of this RFP apply in like force to this proposal submission process and to any subsequent contract resulting therefrom.

PAYMENT: Payment in full shall be made upon delivery. Payment will be made by authorized personnel only, pending inspection and acceptance by the Town.

COLLUSIVE BIDDING: The contractor's signature on a submitted proposal is a guarantee by the contractor that the prices quoted have been arrived at without collusion with other eligible contractors or any other persons or entities in a manner that has the effect, or potential effect, of precluding the Town from obtaining the lowest possible competitive price. A proposal shall be signed by the person or persons legally authorized to bind a contractor to a contract.

SPECIFICATIONS: Contractors must submit a proposal in accordance with the terms and conditions and the scope of services set forth in this RFP.

INVESTIGATION: Contractors submitting bids shall make all investigations necessary to inform themselves regarding the services(s) requested and to be performed under this RFP and any resulting contract(s). By submitting a proposal, a contractor represents that it has read and fully understands this RFP and any addenda.

CLARIFICATION OF RFP: Contractors who request a clarification of the RFP requirements must submit questions in writing to Arthur Frizzle, Fire Chief by email at firechief@bowdoinham.com and by the deadline specified in Section III.A of this RFP, or present them orally at a scheduled pre-submission conference, if one has been scheduled. All written questions must be received by the Town no later than the date or time stated herein. The Town or its authorized staff and committees will issue a response in the form of an addendum to the RFP if substantive clarification is necessary. Oral instructions or information concerning this RFP provided by the Town or its employees and agents to prospective contractors shall not bind the Town or its committees.

ADDENDA: Any change to this RFP shall be made by written addendum issued no later than August 19, 2024. The Town is not responsible for any explanation, clarification, response or approval made or given in any manner except by authorized addendum.

PROPOSAL SUBMISSION: All proposals submitted in response to this RFP shall be filed with the Town in person or via mail (USPS, FedEx, UPS, etc.) at: Town of Bowdoinham, Attn: Pumper RFP, 13 School Street, Bowdoinham, ME 04008, by 4pm on September 4, 2024. Seven (7) hard copies of the proposal must be submitted.

ALTERNATE TERMS AND CONDITIONS: The Town, at its sole discretion, may entertain alternative terms and conditions which deviate from the RFP requirements. Alternative terms and conditions may be considered if overall contract performance would be improved but not compromised, and if they are in the best interest of the Town. Alternative terms and conditions must be submitted with the proposal and must be clearly identified and detailed in such a way that allows such deviations to be fully evaluated. Alternative terms and conditions are not encouraged and, unless explicitly accepted by the Town, are deemed to be rejected.

INSURANCE: For Town projects where the scope of work will be less than $200,000 the following levels of insurance will be required: The successful contractor shall provide a certificate of insurance indicating (1) workers' compensation that complies with state statutes, if required; (2) general liability in an amount not less than $250,000 for injuries including accidental death to any person and subject to the same limit to each person in an amount not less than $500,000 where more than one person is involved in any one accident; (3) property damage insurance in an amount not less than $500,000; and (4) all policies shall name the Town as an additional insured.

For Town projects where the scope of work will exceed $200,000 the following levels of insurance will be required: The successful contractor shall provide a certificate of insurance indicating (1) workers' compensation that complies with state statutes, if required; (2) general liability in an amount not less than $1,000,000 for injuries including accidental death to any person and subject to the same limit to each person in an amount not less than $5,000,000 where more than one person is involved in any one accident; (3) property damage insurance in an amount not less than $500,000; and (4) all policies shall name the Town as an additional insured.

COST OF PREPARING PROPOSAL: This RFP does not commit the Town to pay any costs incurred by a contractor in preparing and submitting a proposal or in making and preparing necessary investigations, studies or designs, or for procuring or contracting for services to be furnished under this RFP.

AWARD: All purchases or contracts which are based on competitive proposals will be awarded according to the provisions in the RFP. This RFP is not a commitment by the Town to enter into a contract for the services requested herein with any particular entity or contractor.
The Town reserves the right, in its sole discretion, to withdraw this RFP at any time prior to entering into such a contract and/or to reissue the RFP at a later date, if in the Town's sole estimate, it is in the best interest of the Town to do so. The Town and its authorized staff and committees reserve the right to reject any or all proposals, wholly or in part, or to award multiple contracts in whole or in part, at its sole discretion. The Town and its authorized staff and committees also reserve the right at its sole discretion to waive any deviations or errors that are not material, do not invalidate the legitimacy of the proposal, and do not improve the contractor's competitive position. All awards will be made in a manner deemed in the best interest of the Town.

LICENSES: A successful contractor that is awarded a contract under this RFP shall be responsible for obtaining any and all necessary licenses, permits and authorizations to perform work in the United States, State of Maine and the Town, at no cost to the Town.

CANCELLATION: The Town or its authorized staff or committees reserve the right to modify, revise or cancel this RFP, without liability to any contractors at its sole discretion. The receipt and review of proposals or the completion of interviews do not oblige the Town or its authorized staff or committees to award a contract.

LATE SUBMISSIONS: Proposals received after the scheduled closing time for filing may be rejected by the Town and its authorized staff and committees, without liability to a contractor. Contractors assume all responsibility for the timely submission of proposals in accordance with this RFP. The Town and its authorized staff and committees shall have no obligation to consider late-filed proposals.

CONFLICT OF INTEREST: A contractor submitting a proposal thereby certifies that no elected or appointed official, agent or employee of the Town who has a pecuniary interest in this RFP has participated in the preparation of this RFP or contract negotiations; that the proposal is made in good faith without fraud; that the contractor is competing solely on its own behalf without connection or obligation to any undisclosed person or firm and that the contractor (including all subcontractors) is able to perform all the services specified in this RFP without any conflict of interest. A breach of this provision shall be deemed an anticipatory default under the terms of any contract issued in accordance with the RFP.

PERFORMANCE, PAYMENT AND DEFAULT: The Town reserves the right to require a performance and/or payment bond from the successful contractor in a form and amount acceptable to the Town, without expense to the Town. In case of default of the contractor, the Town may enter into a contract for services specified in this RFP from other sources and hold the contractor responsible for any excess cost and other damages caused thereby, or may trigger the coverage provisions of the bonds, at the sole discretion of the Town. Contractors should price their proposals assuming a bond will be required.

PRICING: All rates and prices set forth in a proposal shall remain firm and irrevocable for at least ninety (90) calendar days following the deadline for the submission of proposals.

AUDIT REQUIREMENTS: A contractor that is awarded a contract under this RFP shall maintain such records as are required by the Town in order to allow the Town to fulfill its reporting requirements to the State of Maine or other agencies. A successful contractor shall allow the Town, or other agencies authorized by the Town, access to its records at reasonable hours, including all books, records, documents, and accounting procedures and practices relevant to the subject matter of the contract documents, for purposes of audit, for a minimum of six years.

VENUE: Any legal action or proceeding involving this RFP and any resulting contract shall be venued in a court of competent jurisdiction in Sagadahoc County, Maine, without regard to conflicts of law principles.

SCOPE OF THE REQUEST FOR PROPOSAL

A. Introduction and Background

The Town is seeking proposals from qualified firms with demonstrated experience and expertise to build and deliver a Pumper Engine as specified in Attachment 1 of this RFP.

Bowdoinham is a small town in the Midcoast area of Maine, just north of Topsham. The Town population is 3,011, with 1,410 households. and features many areas for recreation and is known as an artisan and farming community.

Scope of Work

Any entity selected by the Town, or its authorized staff and committees, pursuant to this RFP will be required to enter a not-to-exceed contract for the following services:

Build and deliver a Pumper Engine in accordance with the specifications in Attachment 1 of this RFP.

B. Timeline for Selection & Project Completion

- August 12, 2024: Questions/clarifications regarding RFP due
- August 14, 2024: Addenda issued, if needed, by 4:00 p.m. ET
- September 4, 2024: Proposals due by 4:00 p.m. ET.
- September 10, 2024: Proposals reviewed; Winning vendor selected
- September 11, 2024: Winning vendor notified; contract negotiated.
- September 25, 2024: Deadline for contract signing.
- The date by which the project must be fully completed to Town specifications will be negotiated as part of the contract.

By submitting a response to this RFP, respondents agree to include language in the project contract that calls for payment of liquidated damages in the amount of $150.00 per day if the project is not complete by a date determined by the Town and the vendor as negotiated in the contract for services. At the Town's sole option, it may trigger the liquidated damages clause in the event of a default or declare the contractor in breach, triggering payment or performance under the required bonds or payment of general compensatory damages by the contractor.

PROPOSAL PREPARATION AND SUBMISSION

A. RFP Clarification

Questions and requests for clarification regarding this RFP must be directed via email to the person listed. The deadline for initiating such questions and/or clarifications is August 12, 2024. Addenda will be issued, as needed, no later than August 14, 2024.

Refer written questions to:
Chief Arthur Frizzle - firechief@bowdoinham.com

B. Pre-Submission Conference

No pre submission conference will be held.

C. Proposal Format

Proposals must be submitted to the Town at the address above and at the time and date specified in section 2.C. Proposals must include the price sheet contained within this bid package. It is the proposer's responsibility to ensure that proposals are received prior to the specified closing date and time. Proposals received after the specified closing date and/or time may not be considered. The Town shall not be responsible for the proper identification and handling of any proposals submitted.

By submitting a proposal, the proposer is accepting the General Instructions of the RFP (reference page 1 of the RFP).

C. Required Proposal Content

The proposal must include the following information supporting the respondent's expertise in providing the required services:

1. Company representatives and contact information, including the name(s) of the person(s) authorized to represent the company in any negotiations; name(s) of the person(s) authorized to sign any contract that may result; contact person's name, mailing or street address; telephone and

facsimile numbers; and e-mail address(es).

2. The name(s) and resume(s) of the company's representative(s), both primary and backup, who will be responsible for providing any aspect of the requested services.

3. The name and resume of any clerk of the works or other company representative who you expect to be on the job site when work is in progress and to whom questions or concerns about the project can be addressed as they arise.

4. Company history and experience in providing the requested services, as described in the scope of work.

5. Evidence of a history of successful completion of similar projects, on time and within budget, including two (2) or three (3) examples of similar efforts, to include contact names and information. **Please include photographs if possible.**

6. A maximum fee that covers the complete scope of the project and all tasks. The maximum fee shall indicate (a) the estimated hours, (b) the hourly rate, (c) the total cost of all materials, and (d) the total that will not be exceeded to complete the Scope of Work tasks. **In addition, the respondent must include a completed price sheet.**

7. Detailed Pumper Enginer Specifications including any deviations from the specification in Attachment 1.

8. Proposed construction schedule, including start date and end date.

9. Proof of insurance at levels required by this RFP.

10. The proposal must be signed by the person submitting the proposal or a duly authorized representative of the firm submitting the proposal. The signature shall include the title of the individual signing the proposal.

EVALUATION AND ASSESSMENT OF PROPOSAL

The Town will evaluate and rank the written proposals. The following qualifications and standards are examples of anticipated considerations:

Scope of Proposal: Does the proposal meet project description?

Assigned Personnel: Do the people who will work on the project have the necessary skills? Are sufficient skilled people assigned to the project?

Availability: Can the work be completed in the timeframe required? Can targeted start and completion dates be met? Are other qualified personnel available, if required, to assist in meeting the project schedule? Is the project team available to attend meetings as required by the Scope of Work?

Cost and Work Hours: Are the work hours reasonable for the effort required in each project task or phase? Can the work be completed within the anticipated budget? Is the total not-to-exceed budget reasonable?

Capability and Experience: Does the respondent have the support capabilities, including personnel and

equipment, and the financial viability to complete the project? Has the respondent successfully completed previous projects of this type and scope?

The Town may, in its sole discretion, also consider additional factors or modify the criteria set forth above.

PROPOSAL ACCEPTANCE

All proposals shall remain firm, irrevocable and subject to acceptance for at least 90 calendar days after the submission deadline. Any contractor whose proposal is selected will be expected to sign a contract with the Town by September 25, 2024.

The Town reserves the right to reject any or all proposals and to waive any deviations or irregularities at its sole discretion. Any proposals received after the submission deadline may be rejected.

UNIFORM PRICING SHEET – Pumper Engine

****** All respondents must include a completed copy of this sheet with their responses ******

Although you may provide additional details within your response to this RFP, please complete the information below in aggregate so that the RFP review committee can ascertain your total cost for the project and any deviations you have proposed to our specifications.

COSTS

$_____GRAND TOTAL COST DEVIATIONS FROM SPECIFICATIONS

*Highlight any deviations you are proposing from the included Attachment 1-Pumper Truck Specifications.

Name & Title of Respondent: _____

Signature of Respondent: _____

Date: _____

Attachment 1: Bowdoinham Pumper Engine Specifications

Bidder Comply:	
YES	NO

SCOPE AND GENERAL REQUIREMENTS

It is the intent of the manufacturer to provide a new fire apparatus that will withstand the continuous use encountered in the emergency firefighting service. The apparatus shall be of the latest type, symmetrically proportioned and constructed with due consideration of the load to be sustained.

All parts not specifically mentioned herein, but which are necessary in order to furnish a complete fire apparatus, shall be furnished and shall conform to the best practices known to the fire apparatus industry.
The unit is to be of current year manufacture and is to be new and unused. The bid price shall not include any local, State, or Federal taxes. The Bidder shall not be liable for any State or Federally mandated tax or program after the sale of this apparatus.

These specifications shall be construed as minimum. Should the manufacturer's current published data or specifications exceed these, they shall be considered minimum and be furnished.

PRIME BIDDER, MANUFACTURER

The manufacturer shall be prime bidder and shall identify the location of their facility.

BIDDERS BACKGROUND

Bids are requested from responsible manufacturers who are engaged in the manufacture of fire apparatus. To insure reliable and complete acceptance of the apparatus, bidder shall have been in operation for a minimum of thirty (30) years in the manufacturing of fire apparatus.

The manufacturer of the apparatus must be fully owned and managed by a Parent Company, Corporation, or Individual(s) that is 100% held by United States of America based Company, Corporation, or United States citizen(s).
Proposals from any manufacturer that is fully or partially owned and/or operated by a foreign company, Corporation or Individual(s) under any type of ownership, partnership, or any similar type of agreement will be immediately rejected.

If the manufacturer of the apparatus, or if any owner, shareholder, or immediate relative of an owner or shareholder that has previously been involved in or held ownership in any company that has filed bankruptcy or any other type of reorganization plan, it must be clearly stated in the bid proposal. The statement must include details and dates of all occurrences.

FAMA COMPLIANCE

The apparatus manufacturer must be a current member of the Fire Apparatus Manufacturer's Association (FAMA) and must provide a certificate of membership.

FAIR, ETHICAL AND LEGAL COMPETITION

In order to ensure fair, ethical, and legal competition the apparatus manufacturer shall have ever been fined or convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

Bidder Comply:	
YES	NO

PROPRIETARY PARTS

It is the intention of the purchaser for all bidders to furnish the apparatus with major parts commonly used by the heavy-duty truck manufacturers and open market vendors whereas replacement parts are more readily available and at reduced cost. The use of proprietary parts may not be acceptable to the purchaser.

MANUFACTURER'S DISCRETION

Materials, parts, or procedures used are subject to change at the manufacturer's discretion at any time to provide equal or better products.

PRODUCT QUALITY AND WORKMANSHIP

The components provided and workmanship performed shall be of the highest quality available for this application. Special consideration shall be given to the following areas:
A). Accessibility to various components that require periodic maintenance or lubrication checks.
B). Ease of vehicle and pump operation.
C). Features beneficial to the intended operation of the apparatus.
Construction of the complete apparatus shall be designed to carry the loads intended to meet the road and terrain conditions and speed requirements desired when specified by the purchaser.
Welding shall not be employed in the assembly of the apparatus in a manner that will prevent the removal of any major component part for service and/or repair.

INSURANCE REQUIREMENTS

Each bidder must submit with their bid proposal a Certificate of Insurance listing the proposed manufacturer's product liability insurance coverage. Liability insurance shall be a minimum amount of ten (10) million dollars. Submitted certificate shall name the apparatus manufacturer, insurance company, policy number, and effective dates of the insurance policy. Bids submitted without the required certificate will be considered nonresponsive and automatically rejected. No exceptions are allowed to the minimum insurance coverage requirement.

The manufacturer shall maintain full insurance coverage on the purchaser's cab and chassis from the time of first possession by the manufacturer until the apparatus is delivered and accepted by the purchaser (No Exceptions). The purchaser reserves the right to require proof of insurance from the manufacturer's insurance carrier prior to entering into a contract for the apparatus.

PAYMENT TERMS

Full payment for the apparatus shall be made at the time of delivery of the completed vehicle. Due to insurance liability, the apparatus will not be left at the purchaser's location without full acceptance and payment or prior agreement between the Purchaser and Bidder.

Final delivery price shall not include any Local, State or Federal taxes. The manufacturer shall not be liable for any State or Federal mandated tax or program after sale or delivery of the apparatus.

Bidder Comply:	
YES	NO

DELIVERY REQUIREMENTS

Delivery of the completed vehicle shall be no more than 120 calendar days after delivery of the chassis to the apparatus manufacturer.

VEHICLE ACCEPTANCE AND DELIVERY

The customer shall pick up the vehicle at the manufacturing facility and shall supply evidence of sufficient insurance coverage to transport the vehicle.

FUEL TANK FILLED AT DELIVERY

The fuel tank and DEF tank (if applicable) shall be filled upon final delivery at the factory.

OVERALL HEIGHT

The overall height of the apparatus shall be **9' 5".**

OVERALL LENGTH

The overall length of the apparatus shall be **34' 10".**

OVERALL WIDTH

The overall width of the apparatus shall be **104.10".**

OVERALL WHEELBASE

The overall wheelbase of the apparatus shall be **211".**

PUMP MODULE WIDTH

The overall pump module width shall be **72".**

ANGLE OF APPROACH

No angle of approach restriction has been specified for this apparatus.

ANGLE OF DEPARTURE

No angle of departure restriction has been specified for this apparatus.

NFPA 1901 COMPLIANCE

The National Fire Protection Association standard #1901 (most recent edition) is hereby adopted and made a part of these specifications, the same as if they were written out in full detail, insofar as they apply except for any sections dealing with "Equipment Recommended for Various Types of Apparatus". Bidders are to provide only the equipment requested herein and the Department will supply the rest before the apparatus is put into service. The unit shall comply with all federal, state, ICC, and DOT motor vehicle regulations, standards, and laws relating to commercial vehicles as well as to fire apparatus on the date of the bid.

Bidder Comply:	
YES	NO

ROAD TEST CERTIFICATION

A road test shall be conducted with the finished apparatus fully loaded. During this time, the apparatus shall not show loss of power and/or overheating. The transmission driveshaft or shafts and rear axle shall run free from abnormal vibration or noise throughout the operating range of the apparatus. The apparatus, when loaded, shall
have not less than 25% or more than 45% of the weight on the front axle and not less than 55% or more than 75% on the rear axle.

A). The apparatus must be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.

B). The apparatus must be capable of accelerating from a steady speed of 15 mph to a true speed of 35 mph within 30 seconds. This shall be accomplished without moving the gear selector.

C). The fully loaded apparatus shall be capable of obtaining a speed of 50 to 55 mph on a level concrete highway.

D). The manufacturer shall furnish copies of the engine installation approvals signed by the appropriate engine company upon delivery of the chassis to the Fire Department.

E). The manufacturer shall furnish copies of the transmission approval signed by the transmission manufacturer upon delivery of the chassis to the Fire Department.

F). The manufacturer shall furnish copies of the front and rear axle approvals upon delivery of the apparatus to the Fire Department.

ROAD TEST FAILURE

In the event the apparatus fails to meet the test requirements of these specifications on the first trials, second trials may be made at the option of the manufacturer within thirty (30) days of the first trials. Such trials shall be final and conclusive and failure to comply with changes, as the purchaser may consider necessary to conform to any clause of the specifications within thirty (30) days after notice is given to the manufacturer of such changes, shall be cause for rejection of the apparatus. Permission to keep or store the apparatus in any building owned or occupied by the purchaser, or its use by the purchaser during the above-specified period with permission of the manufacturer, shall not constitute acceptance.

VEHICLE TOP SPEED

The rear axle shall be geared for a top speed of 65 to 68 mph at engine governed RPM.

NFPA TOP SPEED STATEMENT

NFPA-1901, 2016 Edition - 4.15.2. The maximum top speed of fire apparatus with a GVWR over 26,000 lbs. shall not exceed either 68 MPH or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

NFPA-1901, 2016 Edition - 4.15.3. If the combined water tank and foam agent tank capacities on the fire apparatus exceed 1250 gallons, or the GVWR of the vehicle is over 50,000 lbs., the maximum top

Bidder Comply:	
YES	NO

speed of the apparatus shall not exceed either 60 MPH or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

SAFETY SIGNS

The following safety signs shall be provided:

SEATED AND BELTED WARNING LABEL - FAMA# 07

A permanent label shall be provided that is visible to all occupants that states that they should be seated and belted while the apparatus is in motion. The label shall also state potential injuries or death that could be caused if the safety belts are not used properly.

CAB INTERIOR EQUIPMENT MOUNTING DANGER LABEL - FAMA# 10

A permanent label shall be provided inside of the cab warning of the dangers of unsecured equipment inside the cab. The label shall state that all equipment shall be properly secured and also warn of potential injury or death that could be caused by failing to do so.

DO NOT WEAR HELMET LABEL - FAMA# 15

A permanent label shall be provided inside of the cab in view of all seated positions stating that helmets should not be worn in cab. The label shall also warn of potential injury or death that could be caused by wearing helmet in cab.

VEHICLE BACKING LABEL - FAMA17

A permanent label shall be provided inside of the cab in view of the driver advising of proper procedures to following when the apparatus is in reverse motion. The label shall also warn of potential injury or death that be caused by failing to follow proper procedures.

- "Do Not Move Apparatus When Light Is On" sign adjacent to the warning light indicating a hazard if the apparatus is moved (as described in subsequent section).

CHASSIS DATA LABELS

The following information shall be on labels affixed to the vehicle:

Fluid Data:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid
- Pump primer fluid (if applicable)
- Drive axle(s) lubrication fluid
- Air conditioning refrigerant
- Air conditioning lubrication
- Power steering fluid
- Cab tilt mechanism fluid (if applicable)
- Transfer case fluid

Bidder Comply:	
YES	NO

- Equipment rack fluid (if applicable)
- Air compressor system lubricant
- Generator system lubricant (if applicable)

Chassis Data:

- Chassis Manufacturer
- Production Number
- Year Built
- Month Manufactured
- Vehicle Identification Number

Location shall be in the driver's compartment of the chassis cab.

OVERALL, HEIGHT, LENGTH, GVW DATA PLAQUE

A "high visibility" plate shall be permanently mounted in the cab, visible to the driver when seated. The plate shall show the overall height of the completed apparatus in feet and inches, the overall length of the completed apparatus in feet and inches.
The plate shall also show the gross vehicle weight rating (GVWR) in tons.

Text shall also be supplied on the plate, indicating that the information shown is current upon completion of the apparatus. If the overall height of the apparatus changes after the apparatus is put into service, then the purchaser must revise the dimensions on the plate.

"NO RIDE" LABEL

A label shall be located on the vehicle at the rear step areas, and at any cross walkways, if they exist. The label(s) shall warn personnel that riding in or on these areas while the vehicle is in motion is prohibited.

FAMA SAFETY GUIDE

One (1) copy of the latest edition of FAMA's Fire Apparatus Safety Guide shall be provided with the completed apparatus.

MODEL

The chassis shall be an FC-94 model. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. The chassis shall be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.

MODEL YEAR

The chassis shall have a vehicle identification number that reflects a 2024 model year.
8001-001 Country of Service United States of America

COUNTRY OF SERVICE

The chassis shall be put in service in the country of United States of America (USA).

Bidder Comply:	
YES	NO

The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis. The chassis manufacturer is not responsible for compliance to state, regional, or local regulations. Dealers should identify those regulations and order any necessary optional equipment from the chassis manufacturer, or their OEM needed to be in compliance with those regulations.

CAB AND CHASSIS LABELING LANGUAGE

The cab and chassis shall include the applicable caution, warning, and safety notice labels with text to be written in English.

APPARATUS TYPE

The apparatus shall be a pumper vehicle designed for emergency service use which shall be equipped with a permanently mounted fire pump which has a minimum rated capacity of 750 gallons per minute (3000 L/min). The apparatus shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.

VEHICLE TYPE

The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.

VEHICLE ANGLE OF APPROACH PACKAGE

The angle of approach of the apparatus shall be a minimum of 8.00 degrees. NFPA1901 Angle of Approach definition:

"To determine the angle of approach, place a thin steel strip against the front of the tires where they touch the ground or stretch a tight string from one front tire to the other at the front where they touch the ground. Determine the lowest point (component or equipment) on the vehicle forward of the front tire that would make the smallest angle of approach. Hang a plumb bob from the lowest point and mark the point on the ground where the point of the plumb bob touches. Measure the vertical distance from the ground to the point where the plumb bob was hung (distance *V*). Measure the horizontal distance from the plumb bob point to the steel strip or string running from front tire to front tire (distance *H*). Divide the vertical distance by the horizontal distance. The ratio of *V/H* is the tangent of the angle of approach. If the ratio is known, the angle of approach can be determined from a table of trigonometric functions of angles or from a math calculator. The standard requires a minimum angle of approach of 8.00 degrees: since the tangent of 8.00 degrees is 0.1405, if *V* divided by *H* is 0.1405 or larger, the angle of approach is 8.00 degrees or greater."

AXLE CONFIGURATION

The chassis shall feature a 4 x 2 axle configuration consisting of a single rear drive axle with a single front steer axle.

Bidder Comply:	
YES	NO

GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis shall be 18,000 pounds.

This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis shall be 27,000 pounds.

This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

PUMP PROVISION

The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location. Chassis driveline pump provisions shall include an interlock feature for automatic setting of the park brake when the vehicle is shifted into pump mode while the transmission is in neutral and the transmission output speed translates to less than 1 mph. When the conditions are met the driver side parking brake valve shall activate. Once shifted to road mode the condition for electric automatic brake engagement is no longer present and the driver's parking brake control valve shall function normally.

WATER & FOAM TANK CAPACITY

The chassis shall include a carrying capacity of 750 gallons (2839 liters) to 1250 gallons (4732 liters). The water and/or foam tank(s) shall be supplied and installed by the apparatus manufacturer.

CAB STYLE

The cab shall be a custom, fully enclosed, MFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to eight (8) seating positions.

The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels shall be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.

The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention.

Bidder Comply:	
YES	NO

The cab shall be constructed of 5052-H32 corrosion resistant aluminum plate. The cab shall incorporate tongue and groove fitted 6061-T6 0.13- & 0.19-inch-thick aluminum extrusions for extreme duty situations. A single formed, one (1) piece extrusion shall be used for the "A" pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls, and lower roof skin shall be 0.13 inch thick; the rear wall and raised roof skins shall be 0.09 inch thick; the front cab structure shall be 0.19 inch thick.

The exterior width of the cab shall be 94.00 inches wide with a minimum interior width of 88.00 inches. The overall cab length shall be 131.10 inches with 54.00 inches from the centerline of the front of the axle to the back of the cab.

The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab.

The cab shall offer an interior height of 57.50 inches from the front floor to the headliner in the non-raised roof area and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 51.88 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gea**r**. The front doors shall offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gea**r**. The rear doors shall offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening.

The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.

The first step for the driver and officer area shall measure approximately 11.50 inches deep X 31.13 inches wide. The intermediate step shall measure approximately 8.50 inches deep X 32.50 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure approximately 11.50 inches deep X 20.44 inches wide. The intermediate step shall measure approximately 10.25 inches deep X 22.75 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.80 inches.

CAB FRONT FASCIA

The front cab fascia shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick plate which shall be an integral part of the cab.

The cab fascia will encompass the entire front of the aluminum cab structure from the bottom of the windshield to the bottom of the cab and shall be the "Classic" design.

The front cab fascia shall include two (2) modules on each side accommodating a total of up to four (4)

Bidder Comply:	
YES	NO

Hi/Low beam headlights and two (2) turn signal lights or up to four (4) warning lights. Two (2) chrome plated bezels shall be provided on each side around each set of two lamps.

FRONT GRILLE

The front fascia shall include a 304 stainless steel front grille.

CAB UNDERCOAT

There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection.

CAB SIDE DRIP RAIL

There shall be a drip rail along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.

CAB PAINT EXTERIOR

The cab exterior shall be painted a single color per customers specified paint color.

CAB PAINT PROCESS/MANUFACTURER

The cab shall be painted with Sikkens paint prior to the installation of glass accessories and all other cab trims to ensure complete paint coverage and maximum corrosion protection of all metal surfaces.

All metal surfaces on the cab shall be mechanically etched by sanding disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once all imperfections on the exterior surfaces are removed and sanded smooth, body fillers shall be applied to the cab on all surfaces that require a critically aesthetic finish and sanded smooth.

The entire cab shall then be coated with a high-quality base primer that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be sanding the cab to a smooth finish followed by sealing the seams with an automotive seam sealer. The minimum thickness of the primer coat after sanding shall be 2.50 mils with a maximum thickness of 5.00 mils.

The cab shall then be painted the specific color(s) designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on an emergency scene. The paint shall have a minimum thickness of 1.00 mils with a maximum of 4 mills, followed by a clear top coat with a minimum of 2.5 mils and a maximum of 3.5 mils. The entire cab shall then be baked to speed the curing process of the coatings.

CAB PAINT PRIMARY/LOWER COLOR

The lower paint color shall be Sikkens FLNA 32557 Red.

CAB PAINT WARRANTY

Purchaser shall receive a Paint and Finish (Exterior Clear coated) One (1) Year limited warranty in accordance with, and subject to, warranty certificate RFW0701. The warranty certificate is incorporated

Bidder Comply:	
YES	NO

by reference into this proposal and included with this proposal or available upon request.

CAB PAINT INTERIOR

The visible interior cab structure surfaces shall be painted with a multi-tone silver gray texture finish.

CAB ENTRY DOORS

The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins shall be constructed of 0.13-inch aluminum plate.

The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.

All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38-inch pin and shall be constructed of stainless steel.

CAB ENTRY DOOR TYPE

All cab entry doors shall be barrier clear design resulting in exposed lower cab steps. The doors shall provide approximately 32.00 inches of clearance from the ground to the bottom of the door so cab doors may be opened un-hindered by most obstacles encountered, such as guard rails along interstate highways.

Entry doors shall include Pollak mechanical plunger style switches for electrical component activation.
1322-007 Cab Insulation Nonwoven Polyester Fiber

CAB INSULATION

The cab ceiling and walls shall include a nonwoven polyester fiber insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

CAB STRUCTURAL WARRANTY

The purchaser shall receive a Cab Structure (Aluminum) Five (5) Years limited warranty in accordance with, and subject to, warranty certificate RFW0601. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

CAB TEST INFORMATION

The cab shall have successfully completed the preload side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi –Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.

Bidder Comply:	
YES	NO

The above tests have been witnessed by and attested to by an independent third party. The test results were recorded using cameras, high speed imagers, accelerometers and strain gauges. Documentation of the testing shall be provided upon request.

ELECTRICAL SYSTEM

The chassis shall include a single starting electrical system which shall include a 12 volt direct current multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311-degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275-degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.

DATA RECORDING SYSTEM

The chassis shall have a Weldon Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the Weldon Multiplex electrical system. The following information shall be recorded:

Vehicle Speed
Acceleration
Deceleration
Engine Speed
Engine Throttle Position
ABS Event
Seat Occupied Status
Seat Belt Status
Master Optical Warning Device Switch Position
Time
Date

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system. The laptop connection shall be a panel mounted female type B USB connection point, remotely mounted in the left side foot well.

LOAD MANAGEMENT SYSTEM

The apparatus load management shall be performed by the included multiplex system. The multiplex system shall also feature the priority of sequences and shall shed electrical loads based on the priority list specifically programmed.

ACCESSORY POWER

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40-amp battery direct load. One (1) power stud shall be capable of carrying up to a 15-amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud.

A 225-amp battery direct power and ground stud shall be provided and installed on the chassis near the

Bidder Comply:	
YES	NO

left-hand battery box for OEM body connections.

EXTERIOR ELECTRICAL TERMINAL COATING

All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating to prevent corrosion.

ELECTRICAL SYSTEM WARRANTY

The purchaser shall receive an Electrical System One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0201. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

ENGINE

The chassis engine shall be a Cummins L9 engine. The L9 engine shall be an in-line six (6) cylinder, four-cycle diesel-powered engine. The engine shall offer a rating of 450 horsepower at 2100 RPM and shall be governed at 2200 RPM. The torque rating shall feature 1250-foot pounds of torque at 1200 RPM with 543 cubic inches (8.9 liters) of displacement.

The L9 engine shall feature a VGT™ Turbocharger, a high-pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and shall be EPA certified to meet the 2021-26 emissions standards using cooled exhaust gas recirculation and selective catalytic reduction technology.

The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent SAE 15W40 CK-4 low ash engine oil which shall be utilized for proper engine lubrication.

A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link shall also be provided at the back of the cab.

CAB ENGINE TUNNEL

The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade, 0.19 of an inch thick aluminum. The tunnel shall be a maximum of 41.50 inches wide X 25.50 inches high.

DIESEL PARTICULATE FILTER CONTROLS

There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit.

Bidder Comply:	
YES	NO

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.
1719-004 Engine High Idle Ctrl Automatic and Manual

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with an automatic high-idle speed control which shall be pre-set to operate the engine at a specified RPM to increase alternator output if the system voltage drops to 12.5 volts with multi-plex wired chassis and 12.8 volts using load manager with conventional wiring. This device shall automatically operate only when the engine is running, the transmission is neutral, and with the parking brake set. The automatic high idle will stay engaged for a minimum of ten (10) minutes and until the system, voltage has reached 13.0 volts. Application of the service brake will override the automatic high idle and reset timer. The vehicle shall be equipped with a high-idle speed rocker switch. It shall be pre-set so when activated, it will operate the engine at the specified RPM to increase alternator output. This device shall operate only when the engine is running, the transmission is neutral, and with the parking brake set. When automatically engaged the high idle shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake pedal is released, or when the transmission is placed in neutral. Switch shall not override automatic high idle between voltage parameters during timed cycle.

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

The engine shall include programming which will govern the top speed of the vehicle.

AUXILIARY ENGINE BRAKE

A compression brake for the six (6) cylinder engine shall be provided. A cutout relay shall be installed to disable the compression brake when in pump mode or when an ABS event occurs. The engine compression brake shall activate upon 0% accelerator when in operation mode and actuate the vehicle's brake lights.

The engine shall utilize a variable geometry turbo (VGT) as an integrated auxiliary engine brake to offer a variable rate of exhaust flow, which when activated in conjunction with the compression brake shall enhance the engine's compression braking capabilities.

AUXILIARY ENGINE BRAKE CONTROL

An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:

A valid gear ratio is detected.

The driver has requested or enabled engine compression brake operation.

The throttle is at a minimum engine speed position.

The electronic controller is not presently attempting to execute an

electronically controlled final drive gear shift.

The compression brake shall be controlled through an on/off switch and a low/medium/high selector switch.

ELECTRONIC ENGINE OIL LEVEL INDICATOR

The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.

FLUID FILLS

The engine oil, coolant, transmission, and power steering fluid fills shall be located under the cab. The windshield washer fill shall be accessible through the front left side mid step.

ENGINE DRAIN PLUG

The engine shall include an original equipment manufacturer installed oil drain plug.

ENGINE BLOCK HEATER

A Kim Hotstart 1000-watt, 120-volt engine coolant heater with automatic thermostat shall be installed. The block heater shall be connected to the electrical inlet.

ENGINE WARRANTY

The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.

REMOTE THROTTLE HARNESS

An apparatus interface wiring harness for the engine and transmission pump interlocks shall be supplied with the chassis. The harness shall include a connector for connection to a chassis pump panel harness supplied by the body builder and shall terminate in the left frame rail behind the cab for connection by the body builder. The harness shall include circuits deemed for a pump panel and shall contain circuits for a hand throttle, and a multiplexed gauge. Separate circuits shall also be included for a pump control switch, “Pump Engaged” and “OK to Pump” indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, clean power, customer ignition, air horn solenoid switch, high idle switch and high idle indicator light. The harness shall contain interlocks that will prevent shifting to road or pump mode unless the transmission output speed translates to less than 1 mph and the transmission is in neutral. The shift to pump mode shall also require the park brake be set.

ENGINE PROGRAMMING REMOTE THROTTLE

The engine ECM (Electronic Control Module) discreet wire remote throttle circuit shall be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required.

Bidder Comply:	
YES	NO

ENGINE PROGRAMMING IDLE SPEED

The engine's low idle speed will be programmed at 700 rpm.

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator. This ember separator shall be designed to protect the downstream air filter from embers using a combination of unique flat and crimped metal screens packaged in a heavy-duty galvanized steel frame. This multilayered screen shall trap embers and allow them to burn out before passing through the pack.

The engine air intake system shall also include an air cleaner mounted above the radiator. This air cleaner shall utilize a replaceable dry type of filter element designed to prevent dust and debris from being ingested into the engine. A service cover shall be provided on the housing, reducing the chance of contaminating the air intake system during air filter service.

The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, Horton fully variable type fan drive with SmartClutch J-1939 CAN controller. The clutch fan shall override the thermostatic variable speed and function as full on automatically in pump mode.

The variable speed fan clutch only engages at the amount needed for proper cooling to facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail-safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure. The fan speed shall include a J-1939 CAN clutch controller to receive signal from the engine control module to activate at variable rates of speed. Variable speeds shall be set through thermostatic and engine speed signals to run as efficiently and quietly as required to maintain temperature.

ENGINE COOLING SYSTEM

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

The cooling system shall be comprised of a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components shall include a surge tank, a charge air cooler bolted to the front of the radiator, recirculation shields, a shroud, a fan, and required tubing.

The radiator shall be a down-flow design constructed with aluminum cores, plastic end tanks, and a steel frame. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

Bidder Comply:	
YES	NO

The cooling system shall include a one piece injected molded polymer fan with a three (3) piece fiberglass fan shroud.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and rearward oriented sight glass to observe coolant in the system. A cold fill and observation line shall be included within the frame mounted translucent recovery bottle to monitor the level of the coolant. The surge tank shall have a dual seal cap that meets the engine manufacturer's pressure requirements and allows for expansion and recovery of coolant into a separate integral expansion chamber.

All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance. The charge air cooler shall be a cross-flow design constructed completely of aluminum with cast tanks. All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel “constant torque” style clamps meeting the engine manufacturer's requirements.
The radiator and charge air cooler shall be removable through the bottom of the chassis.

ENGINE COOLING SYSTEM PROTECTION

The engine cooling system shall include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris.

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit.
Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.

ELECTRONIC COOLANT LEVEL INDICATOR

The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.

COOLANT HOSES

The cooling systems hose shall be formed silicone hose and formed aluminized steel tubing and include stainless steel constant torque band clamps.

Bidder Comply:	
YES	NO

ENGINE COOLANT OVERFLOW BOTTLE

A remote engine coolant overflow expansion bottle shall be provided in case of over filling the coolant system. The overflow bottle shall capture the expansion fluid or overfill rather than allow the fluid to drain on the ground.

ENGINE EXHAUST SYSTEM

The exhaust system shall include an end-in end-out horizontally mounted single module after treatment device, and downpipe from the charge air cooled turbo. The single module shall include four temperature sensors, diesel particulate filter (DPF), urea dosing module (UL2), and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust fluid solution consisting of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be mixed and injected into the system through the DPF and SCR.

The system shall utilize 0.07-inch-thick stainless steel exhaust tubing between the engine turbo and the DPF. Zero leak clamps seal all system joints between the turbo and DPF.

The single module after treatment through the end of the tailpipe shall be connected with zero leak clamps.

The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires. The exhaust system after treatment module shall be mounted below the frame in the outboard position.

DIESEL EXHAUST FLUID TANK

The exhaust system shall include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of six (6) usable gallons and shall be mounted on the left-hand side of the chassis frame behind the batteries below the frame.

The DEF tank shall be designed with a capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall be run through lines in the tank to help prevent the DEF from freezing and to provide a means of thawing the fluid if it should become frozen.

The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step.

ENGINE EXHAUST ACCESSORIES

An exhaust temperature mitigation device shall be shipped loose for installation by the body manufacturer on the vehicle. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gases at the exhaust outlet.

ENGINE EXHAUST WRAP

The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat which can be transferred from the exhaust.

Bidder Comply:	
YES	NO

The exhaust flex joint shall not include the thermal exhaust wrap.

EMISSIONS SYSTEMS WARRANTY

Purchaser shall receive a Regulated Emissions Systems Five (5) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0140. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

TRANSMISSION

The drive train shall include an Allison model EVS 3000 torque converter, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.
The transmission shall include two (2) internal oil filters which shall offer Allison formulated Castrol TranSynd™ synthetic transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The transmission gear ratios shall be:

1st	3.49:1
2nd	1.86:1
3rd	1.41:1
4th	1.00:1
5th	0.75:1
6th	0.65:1 (if applicable)
Rev	5.03:1

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will automatically select a four (4) speed operation. The fifth speed over drive shall be available with the activation of the mode button on the shifting pad.

TRANSMISSION FEATURE PROGRAMMING

The Allison Gen V/VI-E transmission EVS group package number 127 shall contain the 198 vocational packages in consideration of the duty of this apparatus as a pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.

This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

A transmission interface connector shall be provided in the cab. This package shall contain the following input/output circuits to the transmission control module. The Gen V/VI-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

Bidder Comply:	
YES	NO

Function ID	Description	Wire assignment
Inputs		
C	PTO Request	142
J	Fire Truck Pump Mode (4th Lockup)	122 / 123
Outputs		
C	Range Indicator	145 (4th)
G	PTO Enable Output	130
	Signal Return	103

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically.

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall have a graphical Vacuum Florescent Display (VFD) capable of displaying two lines of text. The shift selector shall provide mode indication and a prognostic indicator (wrench symbol) on the digital display. The prognostics monitor various operating parameters and shall alert you when a specific maintenance function is required.

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.

TRANSMISSION COOLING SYSTEM

The transmission shall include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements. The transmission cooling system shall feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.

TRANSMISSION DRAIN PLUG

The transmission shall include an original equipment manufacturer installed magnetic transmission fluid drain plug.

TRANSMISSION WARRANTY

The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

PTO LOCATION

The transmission shall have two (2) power take off (PTO) mounting locations, one (1) in the 8:00 o'clock position and one (1) in the 4:00 o'clock position.

Bidder Comply:	
YES	NO

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with MSI 1710 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat®. The drivelines shall include Meritor brand u-joints with thrust washers.

MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer.

MIDSHIP PUMP / GEARBOX MODEL

The midship pump/gearbox provisions shall be for a Hale QMAX pump.

MIDSHIP PUMP GEARBOX DROP

The Hale pump gearbox shall have an "X" (extra-long) drop length.

MIDSHIP PUMP RATIO

The ratio for the midship pump shall be 2.32:1 (23).

MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE

The midship pump shall be located so the dimension from the centerline of the suction to the centerline of the rear axle is 103.50 inches.

PUMP SHIFT CONTROLS

One (1) air pump shift control panel shall be located on the left hand side of the engine tunnel, integrated with the shifter pod. The following shall be provided on the panel: a three (3) position control lever; an engraved PUMP ENGAGED identification light; and an engraved OK TO PUMP identification light. The pump shift control panel shall be black with a yellow border outline and shall include pump instructions. An instruction plate describing the transmission shift selector position used for pumping shall be provided and located so it can be read from the driver's position per NFPA **16.10.1.3**. The road mode shall be selected when the control lever is in the forward position and pump mode shall be selected when the control lever is in the rearward position.

The control lever center position shall exhaust air from both pump and roadsides of the pump gear box shift cylinder.

PUMP SHIFT CONTROL PLUMBING

Air connections shall be provided from the air supply tank to the pump shift control valve and from the pump shift control valve to the frame mounted bracket. The frame mounted bracket shall include labeling identifying the pump and road connection points with threaded 0.25-inch NPT fittings on the solenoid for attaching the customer installed pump. The air supply shall be pressure protected by the service brake system.

Bidder Comply:	
YES	NO

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Fleet guard FS20121 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.

Water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.
A secondary fuel filter shall be included as approved by the engine manufacturer.

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be reinforced nylon tubing rated for diesel fuel. The fuel lines shall be brown in color and connected with brass fittings.

ELECTRIC FUEL PRIMER

Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.

FUEL TANK

The fuel tank shall have a capacity of fifty (50) gallons and shall measure 35.00 inches in width X 15.00 inches in height X 24.00 inches in length.

The baffled tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw. The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00- inch NPT fill ports for right- or left-hand fill. A 0.50-inch NPT drain plug shall be centered in the bottom of the tank. The fuel tank shall be mounted below the frame, behind the rear axle.

Two (2) three-piece strap hanger assemblies with “U” straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the upper tank mounting brackets. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

FUEL TANK MATERIAL AND FINISH

The fuel tank shall be constructed of 12-gauge aluminized steel. The exterior of the tank shall be powder coated black and then painted to match the frame components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The crosshatch adhesion test per ASTM D3359 Method B, results to be 5B minimum. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794, results to be 5B minimum.

Any proposals offering painted fuel tanks with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

Bidder Comply:	
YES	NO

FUEL TANK STRAP MATERIAL

The fuel tank straps shall be constructed of ASTM A-36 steel. The fuel tank straps shall be powder coated black and then painted to match the frame components if possible.

FUEL TANK FILL PORT

The fuel tank fill ports shall be offset with the left fill port located in the rearward position and the right fill port located in the middle position on the fuel tank.

FUEL TANK DRAIN PLUG

A 0.5-inch NPT magnetic drain plug shall be centered in the bottom of the fuel tank.

FRONT AXLE

The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-18. The axle shall include a 3.74-inch drop and a 71.00-inch king pin intersection (KPI). The axle shall include a conventional style hub with a standard knuckle. The weight capacity for the axle shall be rated to 18,000 pounds.

FRONT AXLE WARRANTY

The front axle shall be warranted by Meritor for five (5) years with unlimited miles under the general service application. Details of the Meritor warranty is provided on the PDF document attached to this option.

FRONT WHEEL BEARING LUBRICATION

The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

FRONT SHOCK ABSORBERS

Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the front suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.

The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and “road sensing” shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.

Proposals offering the use of conventional twin tube or “road sensing” designed shocks shall not be considered.

Bidder Comply:	
YES	NO

FRONT SUSPENSION

The front suspension shall include a four (4) leaf spring pack consisting of 54.00 inch long and 4.00-inch-wide taper leaf springs and shall feature a military double wrapped front eye. Both spring eyes shall have a case-hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 18,000 pounds.

STEERING COLUMN/ WHEEL

The cab shall include a Douglas Autotech steering column which shall include a seven (7) position tilt, a 2.25-inch telescopic adjustment, and an 18.00 inch, two (2) spoke steering wheel located at the driver's position. The steering wheel shall be covered with black polyurethane foam padding.
The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.

POWER STEERING PUMP

The hydraulic power steering pump shall be a TRW PS and shall be gear driven from the engine. The pump shall be a balanced, positive displacement, sliding vane type. The power steering system shall include an oil to air passive cooler.

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 50-degrees to the left and right.

POWER STEERING GEAR

The power steering gear shall be a TRW model TAS 85.

CHASSIS ALIGNMENT

The chassis frame rails shall be measured to ensure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.

REAR AXLE

The rear axle shall be a Meritor model RS-25-160 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 27,000 pounds.

The axle shall be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.63 inches for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.

Bidder Comply:	
YES	NO

The axle shall have heavy-duty Hypoid gearing for longer life, greater strength and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage will be used.

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

REAR AXLE WARRANTY

The rear axle shall be warranted by Meritor for five (5) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

VEHICLE TOP SPEED

The top speed of the vehicle shall be approximately 68 MPH +/-2 MPH at governed engine RPM.

REAR SUSPENSION

The single rear axle shall feature a Reyco 79KB vari-rate, self-leveling captive slipper type conventional multi-leaf spring suspension, with 57.50-inch X 3.00-inch springs. One (1) adjustable and one (1) fixed torque rod shall be provided.

The rear suspension capacity shall be rated from 21,000 to 31,500 pounds.

TIRE INTERMITTENT SERVICE RATING

The chassis shall be rated using Intermittent Service ratings provided to the emergency vehicle market by the tire manufacturers as the basis for determining the maximum vehicle load and speed.
3601-014 Frt Tire 385/65R 22.5 Michelin XZY3

FRONT TIRE

The front tires shall be Michelin 385/65R-22.5 18PR "J" tubeless radial XZY3 mixed service tread.

The front tire stamped load capacity shall be 18,740 pounds per axle with a nominal speed rating of 65 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity shall be 20,052 pounds per axle with a maximum speed of 65 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity shall be 18,740 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than

Bidder Comply:	
YES	NO

fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR TIRE

The rear tires shall be Michelin 12R-22.5 16PR "H" tubeless radial XDN2 all-weather tread.

The rear tire stamped load capacity shall be 27,120 pounds per axle with a nominal speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity shall be 29,020 pounds per axle with a maximum speed of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity shall match the nominal speed rating.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR AXLE RATIO

The rear axle ratio shall be 5.13:1.

TIRE PRESSURE INDICATOR

There shall be electronic chrome LED valve caps shipped loose for installation by the OEM which shall illuminate with a red LED when tire pressure drops 8psi provided. The valve caps are self-calibrating and set to the pressure of the tire upon installation.

FRONT WHEEL

The front wheels shall be Alcoa hub piloted, 22.50-inch X 12.25 inch aluminum wheels featuring a mirror polish on the outer face. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

REAR WHEEL

The outer rear wheels shall be Alcoa hub piloted, 22.50-inch X 9.00 inch aluminum wheels with a mirror polished outer surface. The inner rear wheels shall be Alcoa hub piloted, 22.50-inch X 9.00 inch aluminum wheels with bright machine finish. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include, at a minimum, a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a controlled service brake application during an

Bidder Comply:	
YES	NO

unlikely event including primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification.

The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI.

A four (4) sensor, four (4) modulator Anti-lock Braking System (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

FRONT BRAKES

The front brakes shall be Meritor EX225 Disc Plus disc brakes with 17.00 inch vented rotors.

REAR BRAKES

The rear brakes shall be Meritor 16.50-inch X 8.63 inch S-cam drum type. The brakes shall feature a cast iron shoe.

PARK BRAKE

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake.
The parking brake actuation valve shall be mounted to the left side of the engine tunnel integrated into the transmission shift pod console within easy access of the driver.

REAR BRAKE SLACK ADJUSTERS

The rear brakes shall include Meritor automatic slack adjusters installed on the axle which features a simple, durable design offering reduced weight. The automatic slack adjusters shall feature a manual adjusting nut which cannot inadvertently be backed off and threaded grease fittings for easy serviceability.

REAR BRAKE DUST SHIELDS

The rear brakes shall be equipped with brake dust shields.

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer with an integral 100-watt heater

Bidder Comply:	
YES	NO

with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle.

The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be located on the right-hand frame rail forward of the front wheel behind the right-hand cab step.

FRONT BRAKE CHAMBERS

The front brakes shall be provided with MGM type 24 long stroke brake chambers.

REAR BRAKE CHAMBERS

The rear axle shall include TSE 30/36 brake chambers which shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.

AIR COMPRESSOR

The air compressor provided for the engine shall be a Wabco® SS318 single cylinder pass-through drive type compressor which shall be capable of producing 18.7 CFM at 1200 engine RPMs. The air compressor shall feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. The compressor shall include an aluminum cylinder head which shall improve cooling, reduce weight and decrease carbon formation. Superior piston and bore finishing technology shall reduce oil consumption and significantly increasing the system component life.

AIR GOVERNOR

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air dryer bracket.

MOISTURE EJECTORS

Manual pet-cock type drain valves shall be installed on all reservoirs of the air supply system.

AIR SUPPLY LINES

The air system on the chassis shall be plumbed with color coded reinforced nylon tubing air lines. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

Push to connect type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

WHEELBASE

The chassis wheelbase shall be 181.00 inches.

Bidder Comply:	
YES	NO

REAR OVERHANG

The chassis rear overhang shall be 56.00 inches.

FRAME

The frame shall consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame rails shall be formed in the shape of a "C" channel, with the outer rail measuring 10.25 inches high X 3.50 inches deep upper and lower flanges X 0.38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and 0.38 inches thick. Each rail shall be constructed of 110,000 psi minimum yield high strength low alloy steel. Each double rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame shall measure 35.00 inches in width.

Proposals calculating the frame strength using the “box method” shall not be considered.

Proposals including heat treated rails shall not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.

A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The bolt heads shall be flanged type, held in place by distorted thread flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.
.
Any proposals not including additional reinforcement for each cross member shall not be considered.

All relief areas shall be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

FRAME PAINT

The frame shall be powder coated black prior to any attachment of components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The crosshatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils.

Any proposals offering painted frame with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

FRAME ASSEMBLY STRUCTURAL

Purchaser shall receive a Frame Assembly Structural Five (5) Years limited warranty in accordance with, and subject to, warranty certificate RFW0301. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

Bidder Comply:	
YES	NO

FRAME RAIL CORROSION

Purchaser shall receive a Frame Rail Corrosion (Powder Coat) Three (3) Years or 48,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0311. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

FRAME COMPONENTS CORROSION

Purchaser shall receive a Frame Components Corrosion (Powder Coat) One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0313. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

FRONT BUMPER

A one piece, two (2) rib wrap-around style, polished stainless steel front bumper shall be provided. The material shall be 10-gauge 304 stainless steel, 12.00 inches high and 99.00 inches wide.

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended approximately 24.00 inches ahead of the cab.

FRONT BUMPER APRON

The 24.00 inch extended front bumper shall include an apron constructed of 0.19-inch-thick embossed aluminum tread plate.

The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.

FRONT BUMPER DISCHARGE

The chassis shall include frame mounted 2.00 inch diameter plumbed pipe intended for use as a discharge trash line. The discharge pipe shall be routed from the left-hand front splay rail area behind the bumper to the area rear of the front axle, ahead of the battery box.

The discharge pipe shall be a, 2.00-inch stainless steel schedule 10 tube. The discharge shall include a Victaulic groove for connecting to the pump and discharge hose plumbing on each end of the tube.

The apparatus manufacturer shall plumb the discharge pipe to the pump and shall provide all valves as required.

FRONT BUMPER COMPARTMENT CENTER

The front bumper shall include a compartment in the bumper apron located in the center between the frame rails which may be used as a hose well. The compartment shall be constructed of 0.13 inch 5052-H32 grade aluminum and shall include drain holes in the bottom corners to allow excess moisture to escape. The compartment shall include a cover constructed of 0.19-inch-thick bright embossed aluminum tread plate.

Bidder Comply:	
YES	NO

FRONT BUMPER COMPARTMENT COVER HARDWARE

The front bumper compartment cover(s) shall include gas cylinder stays which shall hold the cover open. Each cover shall be held in the closed position via a D-ring style latch.

AIR HORN

The front bumper shall include two (2) Hadley brand E-Tone air horns which shall measure 21.00 inches long with a 6.00-inch round flare. The air horns shall be trumpet style with a chrome finish on the exterior and a painted finish deep inside the trumpet.

AIR HORN LOCATION

The air horns shall be recess mounted in the front bumper face, one (1) on the right side of the bumper in the inboard position relative to the right-hand frame rail and one (1) on the left side of the bumper in the inboard position relative to the left hand frame rail.

AIR HORN RESERVOIR

One (1) air reservoir, with a 1200 cubic inch capacity, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

ELECTRONIC SIREN SPEAKER

There shall be one (1) Federal Signal Inc. Dynamax® model ES100C, 100-watt speaker provided. The speaker shall measure 5.90 inches tall X 5.50 inches wide X 2.30 inches deep. The speaker shall include a Federal Signal "Electric F" style grille which shall measure 6.61 inches tall X 6.78 inches wide.

ELECTRONIC SIREN SPEAKER LOCATION

The electronic siren speaker shall be located on the front bumper face on the right side outboard of the frame rail in the far outboard position.

FRONT BUMPER TOW HOOKS

Two (2) heavy duty tow hooks, painted to match the frame components, shall be installed below the front bumper in the forward position, bolted directly to the underside of each chassis frame rail with grade 8 bolts.

CAB TILT SYSTEM

The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The cab tilt pump assembly shall be located on the right side of the chassis above the battery box.

The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the "Down" button to indicate safe road operation.
It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety

Bidder Comply:	
YES	NO

circuit.

Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.

Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90 inch ball and be anchored to frame brackets with 1.25 inch diameter studs.

A steel safety channel assembly, painted safety yellow shall be installed on the right-side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.

CAB TILT CONTROL RECEPTACLE

The cab tilt control cable shall include a receptacle which shall be temporarily located on the right-hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include 8.00 feet of cable with a six (6) pin Deutsch receptacle with a cap.

The remote-control pendant shall include 20.00 feet of cable with a mating Deutsch connector. The remote-control pendant shall be shipped loose with the chassis.

CAB TILT LOCK DOWN INDICATOR

The cab dash shall include a message located within the dual air pressure gauge which shall alert the driver when the cab is unlocked and ajar. The alert message shall cease to be displayed when the cab is in the fully lowered position and the hold down hooks are secured and locked to the cab mounts.
In addition to the alert message an audible alarm shall sound when the cab is unlocked and ajar with the parking brake released.

CAB WINDSHIELD

The cab windshield shall have a surface area of 2825.00 square inches and be of a two (2) piece wraparound design for maximum visibility.

The glass utilized for the windshield shall include standard automotive tint. The left and right windshield shall be fully interchangeable thereby minimizing stocking and replacement costs.

Each windshield shall be installed using black self-locking window rubber.

GLASS FRONT DOOR

The front cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

There shall be an irregular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as “cozy glass” ahead of the front door roll down windows.

Bidder Comply:	
YES	NO

The windows shall be mounted within the frame of the front doors trimmed with a black anodized ring on the exterior.

GLASS TINT FRONT DOOR

The windows located in the left and right front doors shall have a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS REAR DOOR RH

The rear right hand side door shall include a window which is 27.00 inches in width X 26.00 inches in height. This window shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

GLASS TINT REAR DOOR RIGHT HAND

The window located in the right-hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS REAR DOOR LH

The rear left hand side door shall include a window which is 27.00 inches in width X 26.00 inches in height. This window shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

GLASS TINT REAR DOOR LEFT HAND

The window located in the left-hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS SIDE MID RH

The cab shall include a window on the right side behind the front and ahead of the crew door which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self-locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

GLASS TINT SIDE MID RIGHT HAND

The window located on the right-hand side of the cab between the front and rear doors shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS SIDE MID LH

The cab shall include a window on the left side behind the front door and ahead of the crew door and above the wheel well which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self-locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

Bidder Comply:	
YES	NO

GLASS TINT SIDE MID LEFT HAND

The window located on the left-hand side of the cab between the front and rear doors shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

CLIMATE CONTROL

The cab shall include a 57,500 BTU @ 425 CFM front overhead heater/defroster which shall be provided and installed above the windshield between the sun visors.

The cab shall also include a combination heater air-conditioning unit mounted on the engine tunnel. This unit shall offer eight (8) adjustable louvers, four (4) forward facing and four (4) rearward facing, a temperature control valve and two (2) blowers offering three (3) speeds which shall be capable of circulating 550 cubic feet of air per minute. The unit shall be rated for 42,500 BTU/Hr of cooling and 36,000 BTU/Hr of heating.
All defrost/heating systems shall be plumbed with one (1) seasonal shut-off valve at the front corner on the right side of the cab.

The air conditioner lines shall be a mixture of custom bend zinc coated steel fittings and Aeroquip flexible hose with Aeroquip EZ clip fittings.

CLIMATE CONTROL DRAIN

The climate control system shall include a gravity drain for water management. The gravity drain shall remove condensation from the air conditioning system without additional mechanical assistance.

CLIMATE CONTROL ACTIVATION

The heating and defrosting controls shall be located on the front overhead climate control unit. There shall be additional heating and air conditioning controls located on the engine tunnel mounted climate control unit.

A/C CONDENSER LOCATION

A roof mounted A/C condenser shall be installed centered on the cab forward of the raised roof against the slope rise.

A/C COMPRESSOR

The air-conditioning compressor shall be a belt driven, engine mounted, open type compressor that shall be capable of producing a minimum of 32,000 BTU at 1500 engine RPMs. The compressor shall utilize R-134A refrigerant and PAG oil.

UNDER CAB INSULATION

The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation, engineered for application inside diesel engine compartments.

The insulation shall act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation shall assist in sustaining the desired temperature within the cab interior.

Bidder Comply:	
YES	NO

The engine tunnel insulation shall measure approximately 0.30 inch thick including a multi-layer foil faced glass cloth and polyester fiber layer. The foil surface acts as protection against heat, moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.

The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by acrylic pressure sensitive adhesive.

INTERIOR TRIM FLOOR

The floor of the cab shall be covered with a multi-layer mat consisting of 0.25-inch-thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive and aluminum trim molding. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

INTERIOR TRIM

The cab interior shall include trim on the front ceiling, rear crew ceiling, and the cab walls. It shall be easily removable to assist in maintenance. The trim shall be constructed of insulated vinyl over a hard board backing.

REAR WALL INTERIOR TRIM

The rear wall of the cab shall be trimmed with vinyl.

HEADER TRIM

The cab interior shall feature header trim over the driver and officer dash constructed of 5052-H32 Marine Grade, 0.13-inch-thick aluminum.

TRIM CENTER DASH

The main center dash area shall be constructed of 5052-H32 Marine Grade, 0.13-inch-thick aluminum plate. There shall be four (4) holes located on the top of the dash near each outer edge of the electrical access cover for ventilation.

TRIM LH DASH

The left-hand dash shall be constructed of 5052-H32 Marine Grade, 0.13-inch-thick aluminum plate for a perfect fit around the instrument panel. For increased occupant protection the extreme duty left hand dash utilizes patent pending break away technology to reduce rigidity in the event of a frontal crash. The left-hand dash shall offer lower vertical surface area to the left and right of the steering column to accommodate control panels.

TRIM RH DASH

The right-hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate and shall include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. The glove compartment size will measure 14.00 inches wide X 6.38 inches high X 5.88 inches deep. The MDT provision shall be provided above the glove compartment.

Bidder Comply:	
YES	NO

ENGINE TUNNEL TRIM

The cab engine tunnel shall be covered with a multi-layer mat consisting of 0.25-inch closed cell foam with a 0.06-inch-thick non-slip vinyl surface with a pebble grain finish. The mat shall be held in place by pressure sensitive adhesive. The engine tunnel mat shall be trimmed with anodized aluminum stair nosing trim for an aesthetically pleasing appearance.

STEP TRIM

Each cab entry door shall include a three-step entry. The first step closest to the ground shall be constructed of polished 5032 H32 aluminum Grip Strut® grating with angled outer corners. The step shall feature a splash guard to reduce water and debris from splashing in to the step. The splash guard shall have an opening on the outer edge to allow debris and water to flow through rather than becoming trapped within the stepping surface. The lower step shall be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed with a Flex-Tred® adhesive grit surface material.

UNDER CAB ACCESS DOOR

The cab shall include an access door in the left crew step riser constructed of DA finish aluminum with a push and turn latch. The under-cab access door shall provide access to the diesel exhaust fluid fill.

INTERIOR DOOR TRIM

The interior trim on the doors of the cab shall consist of an aluminum panel constructed of Marine Grade 5052-H32 0.13 of an inch thick aluminum plate. The door panels shall include a painted finish.

CAB DOOR TRIM REFLECTIVE

The interior of each door shall include high visibility reflective tape. A white reflective tape shall be provided vertically along the rear outer edge of the door. The lowest portion of each door skin shall include a reflective tape chevron with red and white stripes and a manufacturer logo. The chevron tape shall measure 6.00 inches in height.

INTERIOR GRAB HANDLE "A" PILLAR

There shall be two (2) rubber covered 11.00 inch grab handles installed inside the cab, one on each “A” post at the left and right door openings. The left handle shall be located 7.88 inches above the bottom of the door window opening and the right handle shall be located 2.88 inches above the bottom of the door window opening. The handles shall assist personnel in entering and exiting the cab.

INTERIOR GRAB HANDLE FRONT DOOR

Each front door shall include one (1) ergonomically contoured 9.00-inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured black powder coat finish to assist personnel entering and exiting the cab.

Bidder Comply:	
YES	NO

INTERIOR GRAB HANDLE REAR DOOR

A black powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door. A 30.00-inch-long handle shall extend horizontally the width of the window just above the windowsill. The handle shall assist personnel in exiting and entering the cab.

INTERIOR SOFT TRIM COLOR

The cab interior soft trim surfaces shall be gray in color.

INTERIOR TRIM SUNVISOR

The header shall include two (2) sun visors, one on each side forward of the driver and officer seating positions above the windshield. Each sun visor shall be constructed of Masonite and covered with padded vinyl trim.

INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be gray in color.

CAB PAINT INTERIOR DOOR TRIM

The inner door panel surfaces shall be painted with multi-tone silver gray texture finish.

HEADER TRIM INTERIOR PAINT

The metal surfaces in the header area shall be coated with multi-tone silver gray texture finish.

TRIM CENTER DASH INTERIOR PAINT

The entire center dash shall be coated with multi-tone silver gray texture finish. Any accessory pods attached to the dash shall also be painted this color.

TRIM LH DASH INTERIOR PAINT

The left-hand dash shall be painted with a multi-tone silver gray texture finish.

TRIM RIGHT HAND DASH INTERIOR PAINT

The right-hand dash shall be painted with multi-tone silver gray texture finish.

DASH PANEL GROUP

The main center dash area shall include three (3) removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The center panel shall be within comfortable reach of both the driver and officer.

SWITCHES CENTER PANEL

The center dash panel shall include twelve (12) rocker switch positons in a single row across the top of the panel.

Bidder Comply:	
YES	NO

A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

SWITCHES LEFT PANEL

The left dash panel shall include eight (8) switches. There shall be six (6) switches across the top of the panel and two (2) staggered on the left-hand portion of the panel. Five (5) of the top row of switches shall be rocker type and the left one (1) shall be the headlight switch. The remaining switches shall consist of one (1) windshield wiper/washer control switch and one (1) instrument lamp dimmer switch.

A rocker switch with a blank legend installed directly above shall be provided for any position not designated by a specific option. The non-designated switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

SWITCHES RIGHT PANEL

The right dash panel shall include no rocker switches or legends.

SEAT BELT WARNING

A Weldon seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall activate a digital seat position indicator with a seat position legend and integrated audible alarm in the switch panel.

The warning system shall be activated when any seat is occupied with a minimum of 60 pounds and the corresponding seat belt remains unfastened. The warning system shall also be activated when any seat is occupied and the corresponding seat belt was fastened in an incorrect sequence. Once activated, the visual indicators and applicable audible alarm shall remain active until all occupied seats have the seat belts fastened.

SEAT MATERIAL

The USSC Valor seats shall include military grade high strength, wear resistant fabric made of durable ballistic polyester. A synthetic coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. The fabric shall include the integration VALORTech XD®, a proprietary antimicrobial agent, designed to resist toxicity and contaminants.

If applicable, Theatre style seats located in the cab shall be high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.

SEAT COLOR

All seats supplied with the chassis shall be gray in color. All seats shall include red seat belts.

Bidder Comply:	
YES	NO

SEAT BACK LOGO

The seat back shall include the “manufacturer” logo. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

SEAT DRIVER

The driver's seat shall be a USSC Valor P1A air suspension. The four-way seat shall feature a 3.00 inches vertical travel air suspension and manual fore and aft adjustment with 6.00 inches of travel. The suspension control shall be located on the seat below the front of the cushion. The seat shall also feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity.

The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK DRIVER

The driver’s seat shall include a standard seat back incorporating all belts to seat feature (ABTS). The seat back shall feature a contoured head rest.

SEAT MOUNTING DRIVER

The driver’s seat shall be installed in an ergonomic position in relation to the cab dash.

SEAT OFFICER

The officer’s seat shall be a USSC Valor slide adjustment seat. The seat shall feature a tapered and padded seat, and cushion. The two-way, manually adjustable tracks shall include 9.40 inches of fore and aft travel.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and

Bidder Comply:	
YES	NO

twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK OFFICER

The officer seat back shall include a Ziamatic brand model QM-EZL-F mechanical self-contained breathing apparatus (SCBA) bracket. The Mechanical Walk away bracket shall meet NFPA 1901-09 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs.

The bracket shall secure a self-contained breathing apparatus with most sizes of cylinders. The bracket shall feature a top clamp and a footplate which securely lock the SCBA. The top clamp shall be PVC coated to prevent damage to the cylinder. The steel back plate and cast aluminum footplate shall be powder coated. The bracket shall also include a pull release cable with a handle which activates the lever on the bracket saving the occupant from reaching behind the SCBA in order to release the bracket. The handle shall be located on the front of the seat in the center.

SEAT MOUNTING OFFICER

The officer's seat shall be installed in an ergonomic position in relation to the cab dash.

SEAT BELT ORIENTATION CREW

The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip. The seat belts shall include Ready Reach belt extenders to present belt over shoulder.

SEAT REAR FACING OUTER LOCATION

The crew area shall include two (2) rear facing crew seats, which include one (1) located directly behind the left side front seat and one (1) located directly behind the right-side front seat.

SEAT CREW REAR FACING OUTER

The crew area shall include a seat in the rear facing outboard position which shall be a USSC Valor ABTS Crew series. The seat shall feature an 18.00 inches wide padded seat cushion. The seat and cushion shall be hinged and compact in design for additional room and shall remain in the stored position until occupied.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

Bidder Comply:	
YES	NO

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the
weight through the center of gravity. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK REAR FACING OUTER

The rear facing outer seat back(s) shall include a Ziamatic brand model QM-EZL-F mechanical self-contained breathing apparatus (SCBA) bracket. The Mechanical Walk away bracket shall meet NFPA 1901-09 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs.

The bracket shall secure a self-contained breathing apparatus with most sizes of cylinders. The bracket shall feature a top clamp and a footplate which securely lock the SCBA. The top clamp shall be PVC coated to prevent damage to the cylinder. The steel back plate and cast aluminum footplate shall be

SEAT MOUNTING REAR FACING OUTER

The rear facing outer seats shall offer special mounting positions which shall be 2.00 inches towards the rear wall offering additional space between the front seats and the outer rear facing seats.

SEAT FORWARD FACING CENTER LOCATION

The crew area shall include two (2) forward facing center crew seats with both located at the center of the rear wall.

SEAT CREW FORWARD FACING CENTER

The crew area shall include a seat in the forward-facing center position which shall be a USSC Valor ABTS Crew series. The seat shall feature an 18.00 inches wide padded seat cushion. The seat and cushion shall be hinged and compact in design for additional room and shall remain in the stored position until occupied.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

Bidder Comply:	
YES	NO

SEAT BACK FORWARD-FACING CENTER

The forward- f a c i n g center seat backs shall include a Ziamatic brand model QM-EZL-F mechanical self-contained breathing apparatus (SCBA) bracket. The Mechanical Walk away bracket shall meet NFPA 1901-09 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs.

The bracket shall secure a self-contained breathing apparatus with most sizes of cylinders. The bracket shall feature a top clamp and a footplate which securely lock the SCBA. The top clamp shall be PVC coated to prevent damage the cylinder. The steel back plate and cast aluminum footplate shall be

SEAT FRAME FORWARD FACING

The forward-facing center seating positions shall include an enclosed seat frame located and installed on the rear wall. The seat frame shall measure 42.38 inches wide X 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of Marine Grade 5052-H32 0.19-inch-thick aluminum plate. The seat box shall be painted the same color as the remaining interior.

SEAT FRAME FORWARD FACING STORAGE ACCESS

There shall be two (2) access points on the side of the storage area, one (1) on the driver side and one (1) on the officer side.

SEAT MOUNTING FORWARD FACING CENTER

The forward-facing center seats shall be installed facing the front of the cab.

WINDSHIELD WIPER SYSTEM

The cab shall include a triple arm linkage wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers; each shall be affixed to a radial arm. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position.

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow "Check Message Center" indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a "Check Washer Fluid Level" message.

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of a fiber reinforced plastic composite with a black matt finish.

The interior exit door handles shall be flush paddle type with a black finish, which are incorporated into

Bidder Comply:	
YES	NO

the upper door pane. All cab entry doors shall include locks which are keyed alike. The door locks shall be designed to prevent accidental lockout.

DOOR LOCKS

Each cab entry door shall include a manually operated door lock. Each door lock may be actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door or by using a TriMark key from the exterior. The door locks are designed to prevent accidental lock out.

GRAB HANDLES

The cab shall include one (1) 18.00-inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle shall be made of SAE 304 stainless steel and be 1.25 inch diameter to enable non-slip assistance with a gloved hand.

REARVIEW MIRRORS

Retrac West Coast style single vision mirror heads model 1171H shall be provided and installed on each of the front cab doors. The mirrors shall be mounted to the cab doors with tubular stainless-steel swing away arms and the mirror heads shall be center mounted on the arms to provide rigid mounting to reduce vibration.

The flat mirrors shall measure 7.00 inches wide x 16.00 inches high. A separate lower 8.00 inch round manually adjustable convex mirror model 980-4 shall be provided below the flat mirror for a wider field of vision. The mirror glass shall be held in a plastic housing with a stainless-steel back. The mirrors shall be manufactured with the finest quality non-glare glass.

The flat mirrors shall be remotely adjustable vertically and horizontally via four way actuation switches. The control switches shall be mounted in the cab with in easy reach of the driver. The flat mirrors shall be heated for defrosting in cold weather conditions.

REARVIEW MIRROR HEAT SWITCH

The heat for the rearview mirrors shall be controlled through a rocker switch on the dash in the switch panel.

CAB FENDER

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Fender shall consist of an inner liner 16.00 inches wide made of ABS composite and an outer fenderette 5.00 inches wide made of polished aluminum.

CAB EXTERIOR FRONT & SIDE EMBLEMS

The cab shall include one (1) manufacturer emblem installed on the front grille.

Bidder Comply:	
YES	NO

IGNITION

A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a one-quarter turn Cole Hersee switch, both of which shall be mounted to the left of the steering wheel on the dash. A chrome push type starter button shall be provided adjacent to the master battery and ignition switches.

Each switch shall illuminate a green LED indicator light on the dash when the respective switch is placed in the "ON" position.

The starter button shall only operate when both the master battery and ignition switches are in the "ON" position.

BATTERY

The single start electrical system shall include three (3) Harris BCI 31 925 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541.

BATTERY TRAY

The batteries shall be installed on a steel battery tray located on the left side of the chassis, securely bolted to the frame rails. The battery tray shall be coated with the same material as the frame.

The battery tray shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the tray to allow for air flow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards.

BATTERY BOX COVER

The battery box shall include a steel cover which protects the top of the batteries on the left-hand side of the vehicle. The cover shall include flush latches which shall keep the cover secure as well as a black powder coated handle for convenience when opening.

BATTERY CABLE

The starting system shall include cables which shall be protected by 275- d e g r e e F. minimum high temperature flame retardant loom, sealed at the ends with heat shrink and sealant.

The battery terminals shall not be utilized for auxiliary connections. The only acceptable auxiliary connections shall be for the cross over link from the left bank to the right bank, power for jumper studs and starter cables. All other auxiliary connections will use remote studs mounted in the battery box area. There shall be four (4) remote studs labeled as Common Power, Common Ground, Clean Power, and Clean Ground.

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. These studs shall be located on the rear face of the left hand battery tray. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

Bidder Comply:	
YES	NO

ALTERNATOR

The charging system shall include a 320-amp Leece-Neville 12-volt alternator. The alternator shall include a self-exciting integral regulator.

STARTER MOTOR

The single start electrical system shall include a Delco brand starter motor.

BATTERY CONDITIONER

A Kussmaul Auto Charge Chief 4012 battery conditioner shall be supplied. The battery conditioner shall provide a 40-amp output for the chassis batteries and a 20-amp output circuit for accessory loads. The battery conditioner shall be mounted in the cab in the LH rear facing outer seating position and shall include a battery temperature sensor.

BATTERY CONDITIONER DISPLAY

A Kussmaul battery conditioner display with a digital status center display shall be integrated into the electrical inlet.

AUXILIARY AIR COMPRESSOR

A Kussmaul Pump 12V air compressor shall be supplied. The air compressor shall be installed under the dashboard on the right-hand side, forward of the officer's seating position. The air compressor shall be plumbed to the air brake system to maintain air pressure. The air compressor shall include an auto drain as an extra precaution to prevent moisture from entering the air system. The automatic moisture drain shall be plumbed into the system between the auxiliary air compressor pump and the air tanks.

ELECTRICAL INLET LOCATION

An electrical inlet shall be installed on the left-hand side of cab over the wheel well.

ELECTRICAL INLET

A Kussmaul 20-amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.

A single item or an addition of multiple items must not exceed the rating of the electric inlet that it's connected to.

Amp Draw Reference List: *Kussmaul 40 LPC Charger - 5 Amps Kussmaul 40/20 Charger - 8.5 Amps Kussmaul 80 LPC Charger - 13 Amps Kussmaul EV-40 - 6.2 Amps*
Blue Sea P12 7532 - 7.5 Amps Iota DLS-45/IQ4 - 11 Amps 1000W Engine Heater - 8.33 Amps 1500W Engine Heater - 12.5 Amps 120V Air Compressor - 4.2 Amps 120V Dometic HVAC - 15 Amps

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner and the block heater.

Bidder Comply:	
YES	NO

ELECTRICAL INLET COLOR

The electrical inlet connection shall include a yellow cover.

HEADLIGHTS

The cab front shall include four (4) rectangular LED headlamps with separate high and low beams mounted in bright chrome bezels. Each lamp shall include a heating system that de-ices the headlight.

FRONT TURN SIGNALS

The front fascia shall include two (2) Techniq model K60 4.00-inch X 6.00-inch amber LED sequential arrow turn signals which shall be installed in an outboard position within the front fascia chrome bezel.

HEADLIGHT LOCATION

The headlights shall be located on the front fascia of the cab directly below the front warning lights.

SIDE TURN/MARKER LIGHTS

The sides of the cab shall include two (2) Tecniq S170 LED side marker lights which shall be provided just behind the front cab radius corners. The lights shall be amber with chrome bezels.

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) Tecniq S170 LED cab marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level. The lights shall be amber with chrome bezels.

HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlights and marker lights shall be controlled through a rocker switch within easy reach of the driver. There shall be a dimmer switch within easy reach of the driver to adjust the brightness of the dash lights. The headlamps shall be equipped with the "Daytime Running" light feature, which shall illuminate the headlights when the ignition switch is in the "On" position and the parking brake is released.

INTERIOR OVERHEAD LIGHTS

The cab shall include an LED dome lamp located over each door. The lights shall include push switches on each lamp to activate both the clear and red portions of the light individually.

INTERIOR OVERHEAD LIGHTS ACTIVATION

The clear portion of each lamp shall be activated by opening the respective door.

LIGHTBAR PROVISION

There shall be a junction box located on the left-hand side of the roof with electrical connections for

Bidder Comply:	
YES	NO

a light bar. The light bar shall be provided and installed by the body manufacturer.

LIGHTBAR SWITCH

The light bar shall be controlled by a rocker switch located on the switch panel. This switch shall be clearly labeled for identification.

GROUND LIGHTS

Each door shall include a Tecniq T44 LED ground light mounted to the underside of the cab step below each door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life.

GROUND LIGHTS

The ground lighting shall be activated when the parking brake is set.

LOWER CAB STEP LIGHTS

The middle step located at each door shall include a Tecniq T44 LED light which shall activate with the opening of the respective door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life.

INTERMEDIATE STEP LIGHTS

The intermediate step well area at the front doors shall include a TecNiq D06 LED light within a chrome housing. The front egress step lights shall provide visibility to the step well area for the first step exiting the vehicle. The Egress step lights shall activate with entry step lighting.

ENGINE COMPARTMENT LIGHT

There shall be a LED NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall activate automatically when the cab is tilted.

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a flashing red TecNiq K50 LED light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.
The flashing red light shall be located centered left to right for greatest visibility.

The light and alarm shall be interlocked for activation when either a cab door is not firmly closed, or an apparatus compartment door is not closed, and the parking brake is released.

MASTER WARNING SWITCH

A master switch shall be included in the main rocker switch panel. The switch shall be a rocker type, red in color and labeled “Master” for identification. The switch shall feature control over all devices wired through it. Any warning device switch left in the “ON” position shall automatically power up when the master switch is activated.

Bidder Comply:	
YES	NO

HEADLIGHT FLASHER

An alternating high beam headlight flashing system shall be installed into the high beam headlight circuit which shall allow the high beams to flash alternately from left to right.

Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled “On Scene” when the park brake is applied.

HEADLIGHT FLASHER SWITCH

The flashing headlights shall be activated through a rocker switch on the switch panel. The rocker switch shall be clearly labeled for identification.

INBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right inboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a chrome bezel

INBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the inboard positions shall be red.

FRONT WARNING SWITCH

The front warning lights shall be controlled via rocker switch on the panel. This switch shall be clearly labeled for identification.

INTERSECTION WARNING LIGHTS

The chassis shall include two (2) Whelen M6 series Super LED intersection warning lights, one (1) each side. The lights shall feature multiple flash patterns including steady burn.

INTERSECTION WARNING LIGHTS COLOR

The intersection lights shall be red.

INTERSECTION WARNING LIGHTS LOCATION

The intersection lights shall be mounted on the side of the bumper in the rearward position.

SIDE AND INTERSECTOR WARNING SWITCH

The side and intersector warning lights shall be controlled by a rocker switch on the switch panel. This switch shall be clearly labeled for identification.

SIREN CONTROL HEAD

A Whelen 295HFS2 electronic siren control head with remote amplifier shall be provided and flush

Bidder Comply:	
YES	NO

mounted in the switch panel with a location specific to the customer's needs. The siren shall feature 200-watt output, hands free mode and shall be in "standby" mode awaiting instruction. The siren shall offer radio broadcast, public address, wail, yelp, or piercer tones and hands free operation which shall allow the operator to turn the siren on and off from the horn ring if a horn/siren selector switch option is also selected.

STEERING WHEEL HORN BUTTON SELECTOR SWITCH

A rocker switch shall be installed in the switch panel between the driver and officer to allow control of either the electric horn or the air horn from the steering wheel horn button. The electric horn shall sound by default when the selector switch is in either position to meet FMCSA requirements.

BACK-UP ALARM

An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. Each gauge shall be backlit with LED lamps. Stepper motor movements shall drive all gauges. The instrumentation system shall be multiplexed and shall receive ABS, engine, and transmission information over the J1939 data bus to reduce redundant sensors and wiring.

A twenty eight (28) icon lightbar message center with integral LCD odometer/trip odometer shall be included. The odometer shall display up to 999,999.9 miles. The trip odometer shall display 9,999.9 miles. The LCD message center screen shall be capable of custom configuration by the users for displaying certain vehicle status and diagnostic functions.

The instrument panel shall contain the following gauges:
One (1) three-movement gauge displaying vehicle speed, fuel level, and Diesel Exhaust Fluid (DEF) level. The primary scale on the speedometer shall read from 0 to 100 MPH, and the secondary scale on the speedometer shall read from 0 to 160 KM/H. The scale on the fuel and DEF level gauges shall read from empty to full as a fraction of full tank capacity. Red indicator lights in the gauge and an audible alarm shall indicate low fuel or low DEF at $1/8^{th}$ tank level.

One (1) three-movement gauge displaying engine RPM, and primary and secondary air system pressures shall be included. The scale on the tachometer shall read from 0 to 3000 RPM. The scale on the air pressure gauges shall read from 0 to 150 pounds per square inch (PSI) with a red line zone indicating critical levels of air pressure. Red indicator lights in the gauge and an audible alarm shall indicate low air pressure.

One (1) four-movement gauge displaying engine oil pressure, coolant temperature, voltmeter, and transmission temperature shall be included. The scale on the engine oil pressure gauge shall read from 0 to 100 pounds PSI with a red line zone indicating critical levels of oil pressure. A red indicator light in the gauge and audible alarm shall indicate low engine oil pressure. The scale on the coolant temperature gauge shall read from 100 to 250 degrees Fahrenheit (°F) with a red line zone indicating critical coolant temperatures. A red indicator light in the gauge and audible alarm shall indicate high
coolant temperature. The scale on the voltmeter shall read from 9 to 18 volts with a red line zone indicating critical levels of battery voltage. A red indicator light in the gauge and an audible alarm

Bidder Comply:	
YES	NO

shall indicate high or low system voltage. The low voltage alarm shall indicate when the system voltage has dropped below 11.8 volts for more than 120 seconds in accordance with the requirements of NFPA 1901. The scale on the transmission temperature gauge shall read from 100 to 300 degrees °F with a red line zone indicating critical temperatures. A red indicator light in the gauge and an audible alarm shall indicate a high transmission temperature.

The light bar portion of the message center shall include twenty-eight (28) LED backlit indicators. The lightbar shall be split with fourteen (14) indicators on each side of the LCD message screen. The lightbar shall contain the following indicators and produce the following audible alarms when supplied in conjunction with applicable configurations:

RED INDICATORS

Stop Engine – indicates critical engine fault
Air Filter Restricted – indicates excessive engine air intake restriction Park Brake – indicates parking brake is set
Seat Belt – indicates a seat is occupied and corresponding seat belt remains unfastened Low Coolant – indicates critically low engine coolant

AMBER INDICATORS

Malfunction Indicator Lamp (MIL) – indicates an engine emission control system fault Check Engine – indicates engine fault.
Check Transmission – indicates transmission fault
Anti-Lock Brake System (ABS) – indicates anti-lock brake system fault High exhaust system temperature – indicates elevated exhaust temperatures Water in Fuel – indicates presence of water in fuel filter
Wait to Start – indicates active engine air preheat cycle Windshield Washer Fluid – indicates washer fluid is low
DPF restriction – indicates a restriction of the diesel particulate filter
Regen Inhibit-indicates regeneration of the DPF has been inhibited by the operator
Range Inhibit – indicates a transmission operation is prevented and requested shift request may not occur.
SRS – indicates a problem in the supplemental restraint system
Check Message – indicates a vehicle status or diagnostic message on the LCD display requiring attention.

GREEN INDICATORS

Left and Right turn signal indicators
ATC - indicates low wheel traction for automatic traction control equipped vehicles, also indicates mud/snow mode is active for ATC system
High Idle - indicates engine high idle is active. Cruise Control - indicates cruise control is enabled
OK to Pump - indicates the pump is engaged and conditions have been met for pump operations
Pump Engaged - indicates the pump transmission is currently in pump gear
Auxiliary Brake - indicates secondary braking device is active

BLUE INDICATORS

High Beam indicator

Bidder Comply:	
YES	NO

AUDIBLE ALARMS

Air Filter Restriction Cab Tilt Lock Check Engine Check Transmission
Open Door/Compartment High Coolant Temperature High or Low System Voltage
High Transmission Temperature Low Air Pressure
Low Coolant Level Low DEF Level
Low Engine Oil Pressure Low Fuel
Seatbelt Indicator Stop Engine Water in Fuel
Extended Left/Right Turn Signal On ABS System Fault

BACKLIGHTING COLOR

The instrumentation gauges and the switch panel legends shall be backlit using red LED backlighting.

CAMERA REAR

One (1) Audiovox Voyager heavy duty box shaped HD camera shall be shipped loose for OEM installation in the body to afford the driver a clear view to the rear of the vehicle.

The camera system shall include a one-way communication device that shall be an integral part of the rear camera for the use of voice commands directly to the driver. The rear camera display shall activate when the vehicle's transmission is placed in reverse.

CAMERA DISPLAY

The camera system shall be wired to a 7.00-inch flip down HD monitor which shall include a color display and day and night brightness modes installed above the driver position.

CAB EXTERIOR PROTECTION

The cab face shall have a removable plastic film installed over the painted surfaces to protect the paint finish during transport to the body manufacturer.

FIRE EXTINGUISHER

A 2.50-pound D.O.T approved fire extinguisher with BC rating shall be shipped loose with the cab.

DOOR KEYS

The cab and chassis shall include a total of four (4) door keys for the manual door locks.

WARRANTY

Purchaser shall receive a Custom Chassis One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0101. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

CHASSIS OPERATION MANUAL

There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.

Bidder Comply:	
YES	NO

ENGINE AND TRANSMISSION OPERATION MANUALS

The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items:
(1) Hard copy of the Engine Operation and Maintenance manual with digital copy
(1) Digital copy of the Transmission Operator's manual
(1) Digital copy of the Engine Owner's manual

CAB/CHASSIS AS BUILT WIRING DIAGRAMS

The cab and chassis shall include two (2) digital copies of wiring schematics and option wiring diagrams.

PAINT CONFIRMATION

There shall be a paint confirmation letter sent to the body manufacturer with paint spray outs to confirm the cab primary paint color or primary and secondary paint color as specified by the paint options.
8039-001 Sales Terms

SALES TERMS

The sale of the chassis shall be governed by the terms contained on the Sales Terms – Acceptance of Purchase Order document, a copy of which is attached to this option.

DRIVELINE LAYOUT CONFIRMATION

During the design phase of the chassis the Chassis driveline engineer shall submit the driveline layout to an OEM engineer to review the chassis design for any potential problems integrating the OEM body to the chassis. The OEM engineer shall provide approval to the driveline engineer prior to driveline bills of materials being released.

HUB COVERS (front)

Stainless steel hub covers shall be provided on the front axle.

HUB COVERS (rear)

A pair of stainless-steel high-hat hub covers shall be provided on rear axle hubs.

CHROME LUG NUT COVERS

Chrome lug nut covers shall be supplied on front and rear wheels.

EXHAUST SYSTEM

The chassis exhaust system shall be provided as detailed in the chassis specifications. NO modifications shall be made by the apparatus manufacturer.

Bidder Comply:	
YES	NO

HOT EXHAUST DANGERS LABEL - FAMA# 04

A permanent label shall be provided near any hot exhaust surface that warns of potential injury or death that could be caused by contact with the surface. The label shall also state precautions that should be taken while working on or around the surface.

BUMPER

The front bumper shall be provided as detailed in the chassis specifications.

DRY-MAT - CHASSIS SUPLLIED FRONT BUMPER COMPARTMENT

The front bumper compartment shall contain turtle tile and dry-mat flooring to allow for hose to dry. The turtle tile shall be black in color.

REAR MUD FLAPS

A pair of black rubber mud flaps, with the Manufacturer's logo, shall be provided and installed behind the rear wheels.

CAB LIFT CONTROL LOCATION

The cab lift controls for tilting the cab shall be recess mounted in the right-hand side pump panel.

DUAL USB PORT

One (1) Kussmaul model # 091-219-5 shall be installed in the console. It shall contain two (2) 2.4-amp USB charging ports.

NFPA 1901 COMPLIANT PUMP

The fire pump and related plumbing on the specified apparatus shall be installed in accordance with applicable NFPA 1901 guidelines at the time the contract was placed.

HALE QMAX PUMP ASSEMBLY

The pump shall be of a size and design to mount on the chassis rails of commercial and custom truck chassis. The entire pump shall be assembled and tested at the pump manufacturer's factory. The pump shall be driven by a drive line from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable the pump to meet and exceed its rated performance.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by the latest NFPA Pamphlet No. 1901. Pump shall be free from objectionable pulsation and vibration.

The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength

Bidder Comply:	
YES	NO

of 30,000 PSI (2069 bar). All metal moving parts in contact with water shall be of high-quality bronze or stainless steel. Pump utilizing castings made of lower tensile strength cast iron not acceptable. The pump body shall be horizontally split on a single plane in two (2) sections for easy removal of entire impeller assembly including wear rings and bearings from beneath the pump without disturbing piping or the mounting of the pump in chassis.

The pump body shall extend as one piece across the truck chassis from side mounting to side mounting and incorporate the discharge manifolding system with a minimum of (2) 4" ports and (7) 3" ports. The pump shall have one (1) double suction impeller. The pump body shall have two opposed discharge volute cutwaters to eliminate radial unbalance. (No exceptions)

Pump shaft to be rigidly supported by three bearings for minimum deflection. One high lead bronze sleeve bearing to be located immediately adjacent to the impeller (on side opposite the gearbox). The sleeve bearing is to be lubricated by a force fed, automatic oil lubricated design, pressure balanced to exclude foreign material. (No exceptions.) The remaining bearings shall be heavy-duty, deep groove ball bearings in the gearbox, and they shall be splash lubricated. Pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machined and individually balanced. The vanes of the impeller intake eyes shall be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.

Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body, and of wrap-around double labyrinth design for maximum efficiency. (No exceptions.) The pump shaft shall be heat-treated, electric furnace, corrosion resistant stainless steel to be superfinished under for longer shaft life. The pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of gearbox.

ELECTRONIC PUMP MANUALS

Two (2) sets of electronic fire pump service and operation manuals shall be provided with the completed apparatus.

PUMP WARRANTY

The pump shall be covered by the Hale Pro-Tech 5-year pump warranty against workmanship and materials. Both parts and labor shall be covered for the first 2 years and years 3-5 shall have parts only coverage.

GEARBOX

Pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of drive through torque of the engine system. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The gearbox drive shafts shall be of heat-treated chrome nickel steel and at least 2-3/4 inches in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine. All gears, both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life, smooth, quiet running, and higher load carrying capability. An accurately cut spur design shall be

Bidder Comply:	
YES	NO

provided to eliminate all possible end thrust. (No exceptions.)

The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.

If the gearbox is equipped with a power shift, the shifting mechanism shall be a heat treated, hard anodized aluminum power cylinder, with stainless steel shaft. An in-cab control for rapid shift shall be provided that locks in road or pump.

MIDSHIP PUMP RATIO

The ratio for the midship pump shall be 2.32:1 (23).

MECHANICAL SEAL

The pump shall have a mechanical seal. One (1) only required on the suction (inboard) side of the pump. The mechanical seal shall be two (2) inches in diameter and shall be spring loaded, maintenance free and self-adjusting. Mechanical seal construction shall be a carbon sealing ring, stainless steel coil spring, Viton rubber cup, and a tungsten carbide seat with Teflon backup seal.

1500 GPM FIRE PUMP SPECIFICATIONS

The centrifugal type of fire pump shall be a Hale model QMAX midship mounted with a rated capacity of 1500 GPM. The pump shall meet NFPA 1901 requirements.
The pump shall be certified to meet the following deliveries:

1500 gpm (5678 L/M) @ 150 psi (10.3 bar)
1050 gpm (3974 L/M) @ 200 psi (13.8 bar)
750 gpm (2839 L/M) @ 250 psi (17.2 bar)

LEFT SIDE INLET - 6.00"

One (1) 6.00" steamer inlet with male NST threads shall be provided on the left side of the pump module. The inlet shall have a removable screen.

INLET CAP

One (1) 6.00" chrome plated cap with long handles and NST threads shall be supplied. The cap shall be capable of withstanding 500 PSI and be trimmed with the apparatus manufacturer's logo in the center of the cap.

RIGHT SIDE INLET - 6.00"

One (1) 6.00" steamer inlet with male NST threads shall be provided on the right side of the pump module. The inlet shall have a removable screen.

Bidder Comply:	
YES	NO

INLET CAP

One (1) 6.00" chrome plated cap with long handles and NST threads shall be supplied. The cap shall be capable of withstanding 500 PSI and be trimmed with the apparatus manufacturer's logo in the center of the cap.

FIRE PUMP SPLIT SHAFT DRIVESHAFTS AND INSTALLATION

The mid-ship split shaft fire pump shall be installed and shall include installation of the fire pump, modification and/or fabrication of new drivelines and all pump-mounting brackets.

PUMP DRIVELINE

The pump transmission driveline shall be supplied with 1710 series yokes and bearings to match the cab chassis driveline.

TRANSMISSION LOCK-UP DEVICE

The automatic chassis transmission shall be delivered to the body builder with high gear lock up device installed on the automatic transmission, to allow proper gear ratio for pump operation. The transmission shall be programmed by the chassis manufacturer to include this feature.

PUMP SHIFT CONTROLS

The pump shift controls shall be supplied with the custom chassis.

PIPING AND MANIFOLDS

All the plumbing and/or piping in the pump module shall be of 304 stainless steel or flexible piping for long life. All stainless-steel castings shall be a minimum of schedule 40. All NPT pipe thread connections larger than 0.75” connections shall be avoided in the construction of the plumbing system. The following valves shall have groove connection: rear discharge, tank fill, all 2.00” and 2.50” pre-connect valves.

The flexible piping shall be black SBR synthetic rubber hose with 300 working pounds and 1,200 pounds burst pressure for sizes 1.50” through 4.00”. Sizes 0.75”, 1.00” and 5.00” are rated at 250 lb. working and 1,000 lb. burst pressure. All sizes are rated at 30 HG vacuum. Reinforcement consists of two (2) plies of high tensile strength tire cord for all sizes sand helix wire installed in sizes 1.00” through 5.00” for maximum performance in tight bend applications. The material has a temperature rating of –40 degrees F to 210 degrees F. Full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. 0.75” and 1.00” male and Victaulic couplings are brass.

INDIVIDUAL DRAINS

All 2.00” or larger discharge outlets shall be equipped with a 0.75” ball valve drain valve or larger.

Bidder Comply:	
YES	NO

HOSE THREADS- NST

All hose threads shall be National Standard Thread (NST) on all base threads on the apparatus intake and discharges, unless otherwise specified.

MASTER PUMP DRAIN

The pump shall be equipped with a Class 1 Master Pump drain to allow draining of the lower pump cavities, volute and selected water carrying lines and accessories. The drain shall have an all-brass body with a stainless-steel return spring.

U.L. TEST POINTS

Two (2) U.L. test points shall be mounted on the pump panel for testing of the vacuum and pressures. The test points shall be a single piece with individual ports for suction and discharge.

VALVES

The valves shall be Akron Brass with stainless balls. The valves shall be bi-directional with full flow capability. The valves shall be of fixed pivot ball design with a flow pressure rating to meet NFPA-1901 standards. All 3.00" discharge valves shall be supplied with a true slow close mechanism per NFPA specifications.

INDIVIDUAL DRAINS

One (1) individual Class1 quarter-turn up drain valve shall be furnished for each 1.50" or larger discharge port and each 2.50" gated auxiliary suction.

DISCHARGE GAUGES

Individual Class 1 2.50"-line gauges for each 2.00" or larger discharge shall be provided and mounted adjacent to the discharge valve control handle. The gauges shall indicate pressure from 0 to 400 PSI. The pressure gauge shall be fully filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation to minus 40 degrees F. To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature material and be sealed from the water system using an isolating Sub Z diaphragm located in the stem.

PUMP CERTIFICATION

The fire pump shall be tested to meet the flow requirements of the pump. A written certification shall be provided with the completed vehicle.

AUTOMATIC FIRE PUMP PRIMING SYSTEM

A Trident Model #31.011.3 automatic air operated priming system shall be installed. The unit shall be of all brass and stainless-steel construction and designed for fire pumps of 1,250 GPM or more.
The primer shall be mounted above the pump impeller so that the priming line will automatically drain

Bidder Comply:	
YES	NO

back to the pump. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass 'wye' type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

The 12-volt primer control shall be an "automatic" type, with a pump panel three-way switch to operate an air solenoid valve. The air valve shall direct air pressure from the air brake system to the primer. To prevent freezing, no water shall enter the primer valve control.

A vacuum gauge 2.00" in diameter, with graduations from zero to 30 feet, shall be installed in the primer control panel. The gauge shall be physically connected to the vacuum side of the primer and read only when the primer is running so it will never see or be subject to damage from high pump intake pressures.
The automatic priming switch shall have three positions as follows:

- **"Prime" –** the lower position shall be a momentary "push to prime". The "Prime" position also allows the operator to "ramp" test the primer without the fire pump being engaged.

- **"Off"** -- center position

- **"Auto-Prime"** – in the upper position, a "green" LED pilot light shall be illuminated when the switch is the auto-prime position. The "Auto-Prime" operates automatically when the pump pressure drops below 20 PSIG. The primer shuts "off" automatically when the pump pressure is re-established and exceeds 20 PSIG. The "Auto" mode only operates when the fire pump is engaged.

CLASS ONE STAINLESS STEEL INTAKE RELIEF VALVE

The apparatus shall be equipped with a Class1 inlet relief valve that is of all stainless-steel construction. It shall have an adjustable pressure relief setting from 75 psi to 350 psi and is factory preset at 125 psi. The valve shall have a 2.50" male NST threaded discharge outlet. The valve shall meet NFPA 1901 requirements for pump inlet relief valve.

PUMP COOLING/BYPASS LINE

There shall be a 0.25" line installed from the discharge side of the pump to the water tank. The line shall be used to cool the pump during long periods of pumping when water is not being discharged. The pump cooler shall be controlled with a quarter-turn ball valve on main pump panel and shall be clearly labeled "Pump Cooler".

PRESSURE GOVERNOR and ENGINE MONITORING DISPLAY

Fire Research PumpBoss Max series PBA501-D00 pressure governor and control module kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 2" from the front of the control module. The control LCD shall be 3.5" in size with a minimum brightness of 1000 nits and optically bonded to 3mm Borofloat Glass. Inputs for monitored engine information

Bidder Comply:	
YES	NO

shall be from a J1939 data bus or independent sensors. Outputs for engine control shall be on the J1939 data bus. Inputs from the pump discharge and intake pressure sensors shall be electrical.
The following continuous displays shall be provided:
Engine RPM; shown on LCD screen
Check engine and stop engine warning; shown on LCD screen
Engine oil pressure; shown on LCD screen
Engine coolant temperature; shown on LCD screen
Transmission Temperature; shown on LCD screen
Battery voltage; shown on LCD screen
Pressure and RPM operating mode LEDs
Pressure / RPM setting; shown on LCD screen
Throttle ready / Ok to Pump LEDs.

On screen (LCD) message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. LCD Screen and LED's intensity shall be automatically adjusted for day and nighttime operation.
The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

High Battery Voltage
Low Battery Voltage (Engine Off)
Low Battery Voltage (Engine Running)
High Transmission Temperature
Low Engine Oil Pressure
High Engine Coolant Temperature
Out of Water (visual alarm only)
No Engine Response (visual alarm only).

The program features shall be accessed via push buttons located on the front of the control module. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

The pressure governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. Throttle ready and Ok to Pump LED shall light when the interlock signal is recognized. The pressure governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the pressure governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The pressure governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor control module shall be programmed at installation for a specific engine.

Bidder Comply:	
YES	NO

LEFT SIDE AUXILIARY SUCTION

One (1) 2.50" intake shall be located on the left side panel. The valve shall come equipped with an inlet strainer and a 2.50" NST chrome inlet swivel.

An Akron Brass 2.50" generation II swing-out valve shall be provided for the LH auxiliary suction.

The valve shall be controlled at the pump operator's control panel with a top mount control.

The intake shall also come equipped with a quarter-turn 0.75" drain valve and a matching color-coded bezel.

One (1) 2.50" chrome plated plug shall be provided. The plug shall be equipped with MNST threads, rocker lugs, and chain.

TANK TO PUMP LINE

One (1) 3.00" tank to the pump line shall be provided for connection between the water tank and the fire pump. The valve shall be a 3.00" Akron Brass quarter turn ball type.

An Akron Brass 3.00" generation II swing-out valve shall be provided for the tank to pump line.

The valve shall be controlled at the pump operator's control panel with a top mount control.

TANK FILL/ RECIRULATION LINE

One (1) 2.00" discharge with an Akron Brass valve shall be plumbed to the tank. The valve shall be a quarter turn ball type and fixed pivot design to allow easy operation at all pump pressures.

An Akron Brass 2.00" generation II swing-out valve shall be provided for the tank fill/ recirculation line.

The valve shall be controlled at the pump operator's control panel with a top mount control.

DRIVER SIDE DISCHARGE #1

One (1) 2.50" discharge shall be located on the left side front panel.

An Akron Brass 2.50" generation II swing-out valve shall be provided for the LH side front panel discharge.

The valve shall be controlled at the pump operator's control panel with a top mount control.

The discharge shall also come equipped with a quarter-turn 0.75" drain valve and a matching color-coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters.

Bidder Comply:	
YES	NO

The discharge shall be equipped with an integral, stainless steel, 30-degree elbow terminating with 2.50" MNST threads.

One (1) 2.50" chrome plated cap with self-venting lungs shall be provided. The cap shall be equipped with FNST threads, rocker lugs, and chain.

DRIVER SIDE DISCHARGE #2

One (1) 2.50" discharge shall be located on the left side rear panel.
An Akron Brass 2.50" generation II swing-out valve shall be provided for the LH side rear panel discharge.

The valve shall be controlled at the pump operator's control panel with a top mount control.

The discharge shall also come equipped with a quarter-turn 0.75" drain valve and a matching color-coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters.

The discharge shall be equipped with an integral, stainless steel, 30-degree elbow terminating with 2.50" MNST threads.

One (1) 2.50" chrome plated cap with self-venting lungs shall be provided. The cap shall be equipped with FNST threads, rocker lugs, and chain.

OFFICER SIDE DISCHARGE #1

One (1) 3.00" discharge shall be located on the right-side front panel.

An Akron Brass 3.00" generation II swing-out valve shall be provided for the RH side front panel discharge. The valve shall be of a slow-close design so as not to allow the valve to open or close in less than 3 seconds.

The valve shall be controlled at the pump operator's control panel with a top mount control.

The discharge shall also come equipped with a quarter-turn 0.75" drain valve and a matching color-coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters.

The 3.00" outlet shall be equipped with an integral, stainless steel, 30-degree elbow terminating with 3.00" MNST threads.

OFFICER SIDE DISCHARGE #2

One (1) 2.50" discharge shall be located on the right-side rear panel.

Bidder Comply:	
YES	NO

An Akron Brass 2.50" generation II swing-out valve shall be provided for the RH side rear panel discharge.

The valve shall be controlled at the pump operator's control panel with a top mount control.

The discharge shall also come equipped with a quarter-turn 0.75" drain valve and a matching color-coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters.

The discharge shall be equipped with an integral, stainless steel, 30-degree elbow terminating with 2.50" MNST threads.

One (1) 2.50" chrome plated cap with self-venting lungs shall be provided. The cap shall be equipped with FNST threads, rocker lugs, and chain.

SPEEDLAY PRE-CONNECT DISCHARGE #1

One (1) 1.75" speedlay pre-connect shall be installed ahead of the pump panel.

The speedlay shall be plumbed using 2.00" stainless steel pipe, and/or flexible piping. The speedlay discharge shall terminate below the hose bed floor with a 1.50" NSTM chicksan swivel adapter.

An Akron Brass 2.00" valve shall be provided for the discharge.

The speedlay hose bed floor shall be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

An Akron Brass 2.00" generation II swing-out valve shall be provided for Speedlay #1 discharge.

The valve shall be controlled at the pump operator's control panel with a top mount control.

The discharge shall also come equipped with a quarter-turn 0.75" drain valve and a matching color-coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters.

Crosslay discharge #1 shall be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 1.75" fire hose.

Speedlay discharge #1 shall be foam capable.

Bidder Comply:	
YES	NO

SPEEDLAY PRE-CONNECT DISCHARGE #2

One (1) 1.75" speedlay pre-connect shall be installed ahead of the pump panel.

The speedlay shall be plumbed using 2.00" stainless steel pipe, and/or flexible piping. The speedlay discharge shall terminate below the hose bed floor with a 1.50" NSTM chicksan swivel adapter.

An Akron Brass 2.00" valve shall be provided for the discharge.

The speedlay hose bed floor shall be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

An Akron Brass 2.00" generation II swing-out valve shall be provided for Speedlay #2 discharge.

The valve shall be controlled at the pump operator's control panel with a top mount control.

The discharge shall also come equipped with a quarter-turn 0.75" drain valve and a matching color-coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters.

Crosslay discharge #2 shall be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 1.75" fire hose.

Speedlay discharge #2 shall be foam capable.

SPEEDLAY CONFIGURATION

The two (2) 1.50" speedlay pre-connects shall be located ahead of the pump panel. Class1 high pressure flex hose with stainless steel couplings shall be used in the plumbing to a 90º swivel elbow to keep the hose from kinking when pulled from either side of the apparatus.

SPEEDLAY END COVERS - WEBBING

The speedlay hose beds shall be enclosed on each end using heavy-duty webbing to prevent hose from accidently unloading.

The webbing shall be black in color.

DECK GUN DISCHARGE

One (1) 3.00" discharge shall be located on the top of the pump. The 3.00" outlet shall be equipped with an integral, stainless-steel flange terminating with 3.00" Victaulic. The discharge shall be plumbed to the top of the module using 3.00” schedule 10 stainless steel pipe. The pipe shall terminate in a 3.00” MNPT thread. The pipe shall be held in place by a 2-piece stainless steel bracket.

Bidder Comply:	
YES	NO

An Akron Brass 3.00" generation II swing-out valve shall be provided for the deck gun discharge. The valve shall be of a slow-close design so as not to allow the valve to open or close in less than 3 seconds.

The valve shall be controlled at the pump operator's control panel with a top mount control.

One (1) Class1 automatic 0.75" drain valve(s) shall be installed. The valve shall have an all-brass body with heavy duty neoprene seal. The valve shall be normally open and shall close at 6 psi using an all-brass check assembly with stainless steel spring.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters.

FRONT DISCHARGE

One (1) 1.50" discharge shall be plumbed to the front bumper of the vehicle.

The front discharge shall be plumbed utilizing 2.00" schedule 10 stainless steel piping and/or flexible hose, 45-degree elbows, and a limited number of 90-degree sweep elbows in an assembly from the pump to the front of the vehicle.

An Akron Brass 2.00" generation II swing-out valve shall be provided for front discharge.

The valve shall be controlled at the pump operator's control panel with a top mount control.

The discharge shall also come equipped with a quarter-turn 0.75" drain valve and a matching color-coded bezel.

A 2.50" Class1 discharge pressure gauge (0-400 PSI) shall be provided. The face of the gauge shall be a WHITE dial with black letters.

The front discharge shall be foam capable.

DISCHARGE ADAPTER

The discharge shall terminate with a 1.50" NST mattydale swivel shall be located through the center of the hose box flooring.

4.50" MASTER PRESSURE GAUGE

One (1) Class1, 4.50" liquid filled master pressure gauge with stainless steel bezel shall be provided, reading from 0 Hg. to 400 psi. It shall be accurate to within 1%. The gauge shall have a white face and black markings. The gauge shall be located on the pump operator's panel.

4.50" MASTER INTAKE GAUGE

One (1) Class 1, 4.50" liquid filled master intake gauge(s) with stainless steel bezel shall be provided, reading from -30" Hg. to 400 psi. It shall be accurate to within 1%. The gauge shall have a white face and black markings. The gauge shall be located on the pump operator's panel.

Bidder Comply:	
YES	NO

LED WATER LEVEL GAUGE (PUMP PANEL)

One (1) Hale model # “ITL-40R” Tank Level Gauge for indicating water level shall be installed on the pump operator's panel. The tank level gauge shall indicate the liquid level or volume on an easy-to-read LED display with a visual indicator at nine (9) precise levels, using one (1) color. The system shall include the ability to display “text messages” and have built-in diagnostic capabilities. Additional secondary displays (if requested) are to be easily integrated and will receive data from the same source as the Master Display. The LED display shall be red in color.

CLASS1 MINI WATER LEVEL GAUGE

One (1) Hale Intelli-Tank model # 610-00049 remote mini tank level gauge for indicating the water level of the tank shall be provided in the cab. The tank level gauge shall indicate the liquid level on an easy 4 light display and show increments of 1/4 of a tank.

PUMP MODULE BODY

The pump module body shall be a self-supported structure mounted independently from the body and chassis cab. The pump module shall be constructed entirely of extrusions and aluminum plate. The framework shall be formed from beveled aluminum alloy extrusions and shall be electrically seam welded at each joint using 5356 aluminum alloy welding wire. The main framework to be 3.00 x 3.00 x 0.18, or 3.00 x 1.50 webbed 0.25, 6063-T5 aluminum extrusion. The pump module design must allow normal frame deflection through isolation mounts without imposing stress on the pump module structure or side running boards. The pump module shall consist of a welded framework, properly braced to withstand chassis frame flexing. The pump module support shall be bolted to the frame rails of the chassis.

WALKWAY

An aluminum treadplate walkway shall be provided at the front of the top operator's module and shall be approximately 21.00" deep.

TOP OPERATED PUMP CONTROL PANEL

The pump operator's control panel shall be a top console operated panel, with the operator facing the rear of the apparatus when using the controls. The control surface shall be straight across the width of the module.

PUMP MODULE PANELS

The pump module panels shall be 14 gauge brushed stainless steel.

PUMP PANEL LIGHT SHIELD(S)

LED strip lights shall be installed under an instrument panel light hood on the top mount operator's panel, left side and right-side pump panel areas.

Bidder Comply:	
YES	NO

A weather resistant switch, located on the pump operator's panel shall be provided to activate the lights.

PUMP COMPARTMENT LIGHTS

Two (2) lights shall be provided inside the pump compartment area. Each light shall operate at 12 volts DC and shall be controlled by a switch located on the light head.

LEFT SIDE RUNNING BOARD

The left pump panel shall be equipped with a side running board. The running board shall be constructed of 0.125" embossed fire apparatus bright aluminum treadplate. It shall be a minimum of approximately 11.00" deep x the width of the module. The running board shall have an upward bend on the inside edge to act as a kick plate. The running board shall be attached to a frame mounted outrigger support structure. The running board shall have a 3.00" downward bend on the front and side faces with a 1.00" underside return for superior strength.

RIGHT SIDE RUNNING BOARD

The right pump panel shall be equipped with a side running board. The running board shall be constructed of 0.125" embossed fire apparatus bright aluminum treadplate. It shall be a minimum of approximately 11.00" deep x the width of the module. The running board shall have an upward bend on the inside edge to act as a kick plate. The running board shall be attached to a frame mounted outrigger support structure. The running board shall have a 3.00" downward bend on the front and side faces with a 1.00" underside return for superior strength.

HOSE RESTRAINT LABEL - FAMA# 22

A permanent label shall be provided near any hose storage area. The label shall instruct the operator to ensure that all hose is properly secured prior to placing the apparatus in motion and to provide warning of potential dangers, including injury or death, in failing to do so.

INTAKE/DISCHARGE CAP PRESSURE LABEL - FAMA# 18

A permanent label shall be provided in all areas where intakes and discharges are capped. The label shall give instruction on how to properly remove the cap. The label shall also warn of potential dangers, injury or death that be caused by failing to follow proper cap removal procedures.

TRAINED OPERATOR ONLY LABEL - FAMA# 25]

A permanent label shall be provided on the pump panel that states that only properly trained personnel should operate the apparatus and shall indicate that injury or death could occur as a result.

PUMP PANEL ID PLATE

An identification plate shall be installed on the pump operator control panel to identify the fire pump serial number, model number, and performance.

Bidder Comply:	
YES	NO

COLOR CODED PUMP PANEL LABELING AND NAMEPLATES

Discharge and intake valve controls shall be color coded in compliance to guidelines of applicable sections of NFPA standards. Innovative Controls permanent type nameplates and instruction panels shall be installed on the pump panel for safe operation of the pumping equipment and controls.

FOAMPRO 1600 FOAM SYSTEM

The apparatus shall be equipped with an electronic, fully automatic, variable speed, direct injection, discharge side foam proportioning system. The system shall be capable of handling Class A foam concentration. The foam proportioning operation shall be based on direct measurement of water flows and remain consistent within the specified flows and pressures. System must be capable of delivering accuracy to within 3% of calibrated settings over the advertised operation range when installed according to factory standards. The system shall be equipped with a control module suitable for installation on the pump panel. Incorporated within the motor driver shall be a microprocessor that receives input from the system flowmeter, while also monitoring foam concentrate pump output, comparing values to ensure that the operator preset proportional amount of foam concentrate is injected into the discharge side of the fire pump.
The control module shall enable the pump operator to:

- Activate the foam proportioning system.
- Select proportioning rates from 0.1% to 1.0%
- See a “low concentrate” warning light flash when the foam tank runs low and in two minutes, if
- foam concentrate is not added to the tank, shut the foam concentrate pump down

A 12-volt electric motor driven positive displacement plunger pump shall be provided. The pump capacity shall be from 0.1 gpm (0.38 L/min) to 1.7 gpm (6.4 L/min) at 200 psi (13.8 BAR) with a maximum operating pressure up to 400 psi (27.6 BAR). The pump shall have the capability to draw 3 foot of lift. The system will draw a maximum of 30 amps @ 12. The motor shall be controlled by the microprocessor (mounted to the base of the pump). It shall receive signals from the control module and power the 1/3 hp (.25 Kw) electric motor in a variable speed duty cycle to ensure that the correct proportion of concentrate is injected into the water stream.
A full flow check valve shall be provided in the discharge piping to prevent foam contamination of fire pump and water tank. A 12 psi (.83 BAR) opening pressure check valve shall be provided in concentrate line.

FOAM SYSTEM RATING PLACARD FOR FOAM PRO 1600 SYSTEM

There shall be a Foam Pro part number 6032-0018 foam system rating placard provided in close proximity to the pump operator's position as required by NFPA 1901.

FOAM SYSTEM SCHEMATIC PLACARD FOR SINGLE TANK SYSTEM

There shall be a Foam Pro part number 6032-0015 foam system layout placard provided and located in close proximity to the pump operator's position as required by NFPA 1901.

Bidder Comply:	
YES	NO

ITL-40 FOAM LEVEL GAUGE

The apparatus shall be equipped with a Class1 “ITL-40” Tank Level Gauge for indicating foam level. The Tank Level Gauge shall indicate the liquid level or volume on an easy-to-read LED display and show increments of 1/8 of a tank.

Each tank level gauge system shall include:

1) A pressure transducer that is mounted on the outside of the tank in an easily accessible area. Sealed foam tanks will require zero pressure vacuum vents.
2) A super bright LED display viewable from 180 degrees with a visual indication at nine accurate levels.
3) A set of weather resistant connectors to connect to the digital display, to the pressure transducer and to the apparatus power. Additional (slave) displays (if requested) are to be easily integrated and will receive data from the same source as the Master Display. No additional transducers shall be required.
4) The system shall include the ability to display “text messages”
5) The system shall include built-in diagnostic capabilities.

1000 GALLON POLY TANK- "L" DESIGN

The tank shall have a capacity of 1000 US gallons / 832 Imperial gallons / 3785 liters.

TANK MATERIAL

This material shall be a non-corrosive stress relieved thermoplastic and UV stabilized for maximum protection. Tank shell thickness may vary depending on the application and may range from 0.50" to 1.00” as required. Internal baffles are generally 0.375” in thickness.

CONSTRUCTION

The booster and/or foam tank shall be of a specific configuration and is so designed to be completely independent of the body and compartments. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal. The transverse and longitudinal swash partitions shall be manufactured of a minimum of 0.375" polypropylene.

All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. Tolerances in design allow for a maximum variation of 0.125” on all dimensions.

The tank cover shall be constructed of 0.50" thick polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 0.375" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2.00" minimum polypropylene dowels spaced a maximum of 40.00” apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions. A minimum of two (2) lifting dowels shall accommodate the necessary lifting hardware.

TANK OUTLETS

There will be two (2) standard tank outlets: one (1) for the tank-to-pump suction line, which shall be sized to provide adequate water flow to the pump; and, one (1) for tank fill line, which shall be sized according to the NFPA minimum size chart for booster tanks. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank and be capable of withstanding sustained fill rates of up to 1000 gpm.

CAPACITY CERTIFICATION

All water and foam tanks shall be tested and certified as to capacity.

CENTER OF GRAVITY

A center of gravity calculation shall be determined for each tank and provided as requested in order to provide the apparatus manufacturer with the necessary data to design and certify the apparatus with respect to the NFPA requirements regarding rollover stability. This information may be used by the apparatus manufacturer to assist in the calculation of the apparatus's ability to meet the tilt table static rollover threshold or calculated Center of Gravity requirements per NFPA.

WATER FILL TOWER AND COVER

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 0.50" polypropylene and shall be a minimum dimension of 12.00" x 12.00" outer perimeter. The tower shall have a 0.25" thick removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.

FILL TOWER LOCATION

The fill tower shall be located in the left front area of the tank.

Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with a minimum I.D. of 4.00" that is designed to run through the tank and shall be piped to discharge water behind the rear wheels as required in NFPA 1901 so as to not interfere with rear tire traction.

SUMP

There shall be one (1) sump standard per tank. The sump shall be constructed of a minimum of 0.50" polypropylene and be located in the left front quarter of the tank, unless specified otherwise. On all tanks that require a front suction, a 3.00" schedule 40 polypropylene pipe shall be installed that will incorporate a dip tube from the front of the tank to the sump location. The sump shall have a minimum 3.00" N.P.T. threaded outlet on the bottom for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3.00" above the inside floor.

Bidder Comply:	
YES	NO

WATER TANK CLEAN-OUT PLUG

A 3.00" cleanout plug shall be provided in the bottom of the tank.

FOAM TANK - 20 US GALLONS - CLASS A

A foam tank shall be installed inside the main water tank. The foam tank shall have a capacity of 20 U.S. gallons for Class A foam and shall be constructed of PT3™ polypropylene material. This material shall be a non-corrosive stress relieved thermoplastic and UV stabilized for maximum protection. Tank shell thickness may vary depending on the application and may range from 0.50" to 1.00" as required. Internal baffles are generally 0.375" in thickness.

CLASS A FOAM FILL TOWER

The foam tank shall have a manual fill tower. The fill tower shall be constructed of 0.50" PT3 polypropylene and shall be a minimum dimension of 10.00" x 10.00" outer perimeter. The capacity of the tank shall be engraved on the top of the fill tower lid. The tower shall have a 0.25" thick removable polypropylene screen and a stainless steel hinged-type cover. Inside the fill tower, approximately 1.50" down from the top, there shall be an anti-foam fill tube that extends down to the bottom of the tank. A pressure vacuum vent shall be provided in the lid of the fill tower.

HOSE BED -72.00"- LOW DESIGN

The body shall have an intergraded upper hose bed. The floor of the hose bed shall be a removable welded assembly constructed of 6.00" wide aluminum hose bed slats and structural channel cross members. Two (2) cross car Unistrut style channels shall be incorporated in the design for divider mounting.

ALUMINUM HOSEBED DIVIDERS

There shall be One (2) hosebed divider(s) provided. The hosebed divider(s) shall be constructed of 0.25" smooth aluminum plate with an extruded aluminum base welded to the bottom. The divider(s) shall be adjustable from side to side in the hose bed to accommodate varying hose loads.

HOSEBED PARTITION REINFORCEMENT

The top and rear edge of each of the hose bed partitions will have a 0.75" integral tubing reinforcement welded on for additional support.

HOSE BED COVER

A heavy duty 18 oz. vinyl hose bed cover shall be provided to protect the hose load from the weather. The cover shall extend from the front of the hosebed to the rear and then extend downward to cover the exposed rear of the bed and from the left side to the right side of the hosebed. The cover shall be secured utilizing a velcro fastening system at the front and sides of the hosebed body.
The vinyl cover shall be red in color.

Bidder Comply:	
YES	NO

BODY DESIGN AND CONSTRUCTION

The body shall be modular in design, allowing it to be removed and remounted on a new chassis. The body shall be fabricated using aluminum extrusions, angle, smooth aluminum sheet and aluminum treadplate. The apparatus body shall have full height compartments on both sides.
The body shall have an “L" tank design in order to incorporate a lowered hose bed.

FLOOR AND UNDERSTRUCTURE

The tank area floor shall be a single piece design made of 0.1875" Aluminum Sheet. The floor shall be supported by extruded 6061 aluminum alloy 2.00" x 4.00" x 0.250" wall structural tube crossmembers.

BODY AND COMPARTMENT FABRICATION - 3/16" ALUMINUM

All compartment panels and body side sheets will be fabricated entirely of 0.1875" aluminum (5052-H32).

COMPARTMENT CONSTRUCTION

The compartments shall be completely formed of 0.1875" 5052-H32 aluminum alloy.
Compartment floors will be welded to the compartment walls and have a sweep out design for easy cleaning.

ACCESS PANELS

Removable access panels will be provided (if applicable) to access fuel tank sender, electrical junction compartment and rear body mounts.

Protective panels will be located in the rear compartments providing access to the lights and associated wiring. The covers will also serve as protective covers to prevent inadvertent damage to lights or wiring from tools or equipment located in the compartment.

COMPARTMENT LOUVERS

Ventilation between compartments to atmosphere shall be provided and located to avoid water entry into compartments.

COMPARTMENT SHELF TRACKS - ALUMINUM

All side body compartments be furnished with adjustable shelving track installed. The shelving track shall include a minimum of four (4) aluminum Uni-strut style channel tracks, mounted vertically on compartment side walls or vertical partitions.

COMPARTMENT SHELVING - SIDE COMPARTMENTS

Adjustable shelving shall be installed in the side compartments as identified later in this specification. Each shelf shall be made of 0.1875” smooth aluminum with a 2.00” high perimeter on the front and rear with side supports. Shelving will be vertically adjustable with spring nuts in aluminum strut channel.

FENDER PANELS

A single piece wheel well panel made of 0.1875" aluminum sheet shall be installed with no sharp edges to cut or damage cleaning equipment used in the wheel well area. The wheel well design shall provide for maximum wheel jounce and for use of tire chains without contacting the fender panel.

REAR WHEEL WELL LINERS

The rear wheel wells shall be equipped with replaceable circular liners to prevent road debris damage to adjacent side compartments. The liners shall be made from a single circular panel of 0.125" smooth aluminum and shall be the full depth of the side compartments. They shall be bolted in place and shall feature end flange bottom drains.

REAR BODY FENDERETTES

A roll-formed, polished stainless steel fenderette shall be installed around the outboard edge of the rear wheel well openings to protect the body sides from road debris. They shall be bolted to the body and shall be replaceable.

BODY FRONT WALL OVERLAY

The front face of the side compartments, next to the driver and officer pump panels will be overlaid with full height aluminum tread plate protection panels.

TOP PROTECTION

The top of the welded in compartment ceiling will be overlaid with aluminum tread plate to provide an NFPA compliant stepping surface.

BODY SIDE RUB RAILS

Replaceable extruded aluminum channel rub rails, 2.00" high x 0.75" deep x 0.125" wall, shall be provided below the lower side compartments. Each rub rail shall have a black rubber bumper strip and mounting stand-off spacers. All rub rail ends shall be angle cut, back toward the body to eliminate the possibility of snagging crew clothing or equipment.

REAR TOW HOOKS

Two (2) painted tow eyes will be furnished on the rear of the vehicle. The two eyes will be made from plate steel and will be bolted directly to the chassis frame rails with grade 8 bolts and will extend below the body.

BODY WIDTH

The width of the apparatus body from the outside face of the left compartments to the outside face of the right compartments shall be 100.00" wide.

Bidder Comply:	
YES	NO

LEFT HAND SIDE COMPARTMENT HEIGHT

The left-hand side body compartments shall be 70.00".

RIGHT HAND SIDECOMPARTMENT HEIGHT

The right-hand side body compartments shall be 70.00".

COMPARTMENT DEPTH

The side compartments on the left- and right-hand side of the pumper body shall have a usable depth of 28.00" in the lower 30.00" tall area and 13.75" in the upper portion.

The compartments above the wheel wells shall have a usable depth of 13.75".

ROLL-UP DOORS

All lower compartment doors shall be equipped with AMDOR brand roll-up doors. The slats shall be 1.00” double wall aluminum with continuous ball and socket hinge joints designed to prevent water ingression and weather tight recessed dual durometer seals.

The interior door curtains shall be smooth to prevent equipment hang-ups. The door tracks and side frames shall each be one-piece aluminum. Each side seal shall be recessed, and non-marring with UV stabilizers to prevent warping.

The bottom panel flange shall have cut-outs for ease of access with gloved hands. The door strikers shall provide support beneath the lift bar to prevent door curtain bounce and potential false door ajar indications.

DOOR LOCKS- KEYED, MANUAL

Each roll-up door shall have a cylindrical lock installed by the roll-up door manufacturer.

The lock key type shall be: J-236

COMPARTMENT LIGHT(S)

One (1) full height Luma Bar LED strip light(s) shall be installed inside each of the body compartments.

The compartment light(s) shall be controlled by a magnetic "On-Off" switch located on each compartment door.

L1 COMPARTMENT

There shall be a full height/ split depth compartment located ahead of the rear wheels on the left side of apparatus body. This compartment shall be designated as L1 within these specifications.

Bidder Comply:	
YES	NO

- Compartment Dimensions: 46.50" wide x 62.00" high
- Door Opening: 41.50" wide x 57.00" high

ADJUSTABLE SHELVING TRACKS

There shall be vertically mounted uni-strut shelf trac for shelving installation.

ADJUSTABLE SHELF

There shall be One (1) 0.1875" aluminum full depth adjustable shelf/ shelves located in the compartment.

L2 COMPARTMENT

There shall be a standard height compartment located above the rear wheels on the left side of the apparatus body. This compartment shall be designated as L2 within these specifications.

- Compartment Dimensions: 59.00" wide x 29.50" high
- Door Opening: 54.00" wide x 24.50" high

ADJUSTABLE SHELVING TRACKS

There shall be vertically mounted uni-strut shelf trac for shelving installation.

ADJUSTABLE SHELF

There shall be One (1) 0.1875" aluminum half depth adjustable shelf/ shelves located in the compartment.

L3 COMPARTMENT

There shall be a full height compartment located behind the rear wheels on the left side of the apparatus body. This compartment shall be designated as L3 within these specifications.
- Compartment Dimensions: 56.50" wide x 62.00" high
- Door Opening: 51.50" wide x 57.00" high

ADJUSTABLE SHELVING TRACKS

There shall be vertically mounted uni-strut shelf trac for shelving installation.

ADJUSTABLE SHELF

There shall be One (1) 0.1875" aluminum full depth adjustable shelf/ shelves located in the compartment.

Bidder Comply:	
YES	NO

R1 COMPARTMENT

There shall be a full height compartment located ahead of the rear wheels on the right side of the apparatus body. This compartment shall be designated as R1 within these specifications.

- Compartment Dimensions: 46.50" wide x 62.00" high
- Door Opening: 41.50" wide x 57.00" high

ADJUSTABLE SHELVING TRACKS

There shall be vertically mounted uni-strut shelf trac for shelving installation.

ADJUSTABLE SHELF

There shall be One (1) 0.1875" aluminum full depth adjustable shelf/ shelves located in the compartment.

R2 COMPARTMENT

There shall be a standard height compartment located above the rear wheels on the right side of the apparatus body. This compartment shall be designated as R2 within these specifications.

- Compartment Dimensions: 59.00" wide x 29.50" high
- Door Opening: 54.00" wide x 24.50" high

ADJUSTABLE SHELVING TRACKS

There shall be vertically mounted uni-strut shelf trac for shelving installation.

ADJUSTABLE SHELF

There shall be One (1) 0.1875" aluminum half depth adjustable shelf/ shelves located in the compartment.

R3 COMPARTMENT

There shall be a full height compartment located behind the rear wheels on the right side of the apparatus body. This compartment shall be designated as R3 within these specifications.

- Compartment Dimensions: 56.50" wide x 62.00" high
- Door Opening: 51.50" wide x 57.00" high

ADJUSTABLE SHELVING TRACKS

There shall be vertically mounted uni-strut shelf trac for shelving installation.

Bidder Comply:	
YES	NO

ADJUSTABLE SHELF

There shall be One (1) 0.1875" aluminum full depth adjustable shelf/ shelves located in the compartment.

REAR BODY CONFIGURATION

The CR1 compartment will form a “flat back” design with no recess at the rear of the body.

CENTER REAR COMPARTMENT

There shall be a standard height compartment located at the rear of the apparatus body. This compartment shall be designated as CR1 within these specifications.

- Compartment Dimensions: 42.00" wide x 26.00" high
- Door Opening: 38.00" wide x 20.00" high
- Compartment Depth: 28.00" deep

ADJUSTABLE SHELVING TRACKS

There shall be vertically mounted uni-strut shelf trac for shelving installation.

ADJUSTABLE SHELF

There shall be One (1) 0.1875" aluminum full depth adjustable shelf/ shelves located in the compartment.

REAR STEP - 12 D X 100 W - TAPERED ENDS

The rear step shall be 12.00" deep and extend beyond the body compartments. The step shall be 100.00” wide and have tapered corners for improved clearance. The step shall be fabricated from 0.1875" tread plate plate and shall be rigidly reinforced. The rear edge of the step shall be designed to accommodate the rear clearance lights. The rear step overlay shall be bolted in place with an approximate 0.25" clearance gap between the step and rear body panel.

HARD SUCTION STORAGE

One (1) horizontally mounted aluminum hard suction hose trays with velcro straps shall be provided above the left side body compartments.

HARD SUCTION STORAGE

One (1) horizontally mounted aluminum hard suction hose trays with velcro straps shall be provided above the right side body compartments.

PIKE POLE STORAGE

Two (2) pike pole storage tubes shall be provided in the ladder compartment.

Bidder Comply:	
YES	NO

PIKE POLE SOURCE

The pike poles shall be provided by the purchaser.

SCBA BOTTLE COMPARTMENTS

Four (4) SCBA bottle tube compartments shall be installed, one (1) over each wheel well area. The compartments shall be constructed of a black molded non-abrasive plastic polymer designed to provide SCBA scuff protection. The doors shall be stainless steel with a brushed finish and have a black weatherproof SouthCo. latch assembly.

FUEL FILL

An aluminum cup style fuel fill shall be installed in the left-hand side wheel well rear of the axle. It shall be labeled “Ultra Low Sulphur Diesel Fuel Only”.

STEPS

All steps shall have a surface area of at least 35 square inches and shall be able to withstand a load of at least 500 pounds. Steps shall be provided at any area that personnel may need to climb and shall be adequately lighted.

FOLDING STEPS- LEFT HAND SIDE REAR OF BODY

Two (2) Innovative Controls model 3004234 lighted folding steps shall be provided on the left hand side rear of the body.

FOLDING STEP- RIGHT HAND SIDE REAR OF BODY

One (1) Innovative Controls model 3004234 lighted folding step shall be provided on the right hand side rear of the body.

FOLDING STEPS – RIGHT HAND SIDE FRONT OF BODY

Four (4) Innovative Controls model 3007732 lighted folding steps shall be provided on the right hand side front of the body.

STEP LIGHTS ACTIVATION

The step light(s) shall be wired to activate with the parking brake.

EXTERIOR GRAB RAILS

Each grab rail shall be Hansen non-slip, 1.25" diameter extruded polished aluminum grab rails with rubber inserts designed to provide maximum gripping ability, strength, and durability.

Bidder Comply:	
YES	NO

TWO (2) VERTICAL RAILS ON REAR

Two (2) vertical grab rails shall be mounted on the rear of the body, one (1) on each side.

RIGHT HAND SIDE FRONT OF BODY GRAB RAIL

One (1) grab rail shall be mounted on the front of the body on the right-hand side.

ONE (1) HANDRAIL, BELOW HOSE BED LEVEL

One (1) horizontal, full width handrail shall be installed on the rear, below the level of the hose bed.

NFPA 1901 CERTIFIED 12 VOLT ELECTRICAL SYSTEM

The 12-volt apparatus body electrical system shall be provided and shall be in compliance with NFPA 1901 testing and certification procedures as follows:

NFPA MINIMUM ELECTRICAL LOAD DEFINITION

The NFPA 1901 defined minimum electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode:

1. Propulsion engine and transmission.
2. The clearance and marker lights.
3. Communication equipment. 5 amp default.
4. Illumination of all walking surfaces, the ground at all egress points, control and instrumentation panels and 50% of total compartment lighting.
5. Minimum warning lights required for "blocking right of way" mode.
6. The current to simultaneously operate and fire pump and all specified electrical devices.
7. Anything defined by the purchaser, in the advertised specifications, to be critical to the mission of the apparatus.

RESERVE CAPACITY TEST

The first electrical test to be performed will be the Reserve Capacity Test. All items listed in NFPA Minimum Load Definition shall be activated with the engine shut off. After 10 minutes of operation, the items 1-7 shall be deactivated. After deactivation, the battery system shall have ample reserve to start the engine.

ALTERNATOR PERFORMANCE TEST AT IDLE

The second electrical test to be performed shall be the Alternator Performance Test at Full Load. All electrical loads shall be activated with the engine running up to the governed rpm for two hours. During the test, the system voltage shall not drop below 11.7 volts or have excessive battery discharge for more than 120 seconds. Any loads not defined in the NFPA Minimum Electrical Load may be load managed to pass test.

Bidder Comply:	
YES	NO

TEST CONDITIONS

All electrical testing shall be performed with the engine compartment at approximately 200 degrees.

12 VOLT ELECTRICAL SYSTEM

The electrical system shall include all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The electrical equipment installed by the apparatus manufacturer shall conform to current automotive electrical system standards, the latest Federal DOT standards, and the requirements of the applicable NFPA standards.

All wiring shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for the protected circuit. Voltage drops in all wiring from the power source to the device shall not exceed 10 percent. The wiring and wiring harness and insulation shall be in conformance to applicable SAE and NFPA standards. The wiring harness shall conform to SAE J-1128 with GXL temperature properties. All exposed wiring shall be protected in a loom with a minimum 289-degree Fahrenheit rating. All wiring looms shall be properly supported and attached to body members. The electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.

The wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection and shall be installed in accordance with the device manufacturer's instructions. Electrical connections shall be with mechanical type fasteners and large rubber grommets where wiring passes through metal panels.

There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless they are enclosed in a junction box or covered with a removable electrical panel. The wiring shall be secured in place and protected against heat, liquid contaminants and damage. Wiring shall be uniquely identified every three-inches (3") by color coding or permanent marking with a circuit function code.

The electrical circuits shall be provided with low voltage overcurrent protective devices. Such devices shall be accessible and located in required terminal connection locations or weather resistant enclosures. The overcurrent protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for

which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

The electrical system shall include the following:

Electrical terminals in weather exposed areas shall have non-conductive grease or spray applied. A corrosion preventative compound shall be applicable to all terminal plugs located outside of the cab or body.

The electrical wiring shall be harnessed or be placed in a protective loom.

Bidder Comply:	
YES	NO

Holes made in the roof shall be caulked with silicone. Large fender washers shall be used when fastening equipment to the underside of the cab roof.

Any electrical component that is installed in an exposed area shall be mounted in a manner that will not allow moisture to accumulate in it.

All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.

ROCKER SWITCHES

The warning lights and electrical functions shall be controlled by switch panels as detailed in the chassis specification.

CAB GROUND LIGHTS

The cab ground lights shall be supplied with the custom chassis.

PUMP PANEL GROUND LIGHTS -SUPPLIED WITH PUMP

Two (2) LED ground lights with outward facing angle brackets shall be installed under the pump panel running boards. One (1) light shall be located on the driver's side and one (1) light located on the officer side of the apparatus

FRONT OF BODY GROUND LIGHTS

Two (2) LED ground lights with outward facing angle brackets shall be installed under the front of the body. One (1) light shall be located on the driver's side, and one (1) light shall be located on the officer side of the apparatus.

REAR STEP GROUND LIGHTS

Two (2) LED ground lights with an outward facing angle bracket shall be installed under rear step of the apparatus, one (1) each side.

GROUND LIGHTS ACTIVATION

The ground lights shall automatically activate when the parking brake is applied.

REAR DIRECTIONALS

Rear directional lighting shall be supplied as follows:

Two (2) Whelen model M62BTT LED brake/taillights shall be installed on the rear of the body. Each light shall have a red lens.

Two (2) Whelen model M62T Amber LED turn signal lights shall be installed on the rear of the body. Each light shall have a color lens.

Bidder Comply:	
YES	NO

Two (2) Whelen model M62BU LED reverse lights shall be installed on the rear of the body.

HOUSINGS FOR DIRECTIONALS

The two (2) sets of Whelen rear signal lights shall each be housed in a vertical chrome plated housing, designed to hold four (4) lights each. The fourth opening shall be for the lower rear warning lights. The lights shall be mounted in order, from top to bottom, as described above.

Two (2) amber LED side marker and turn lights shall be provided on the apparatus lower side, forward of rear axle, one (1) each side if the apparatus is 30 feet long or longer.

MARKER LIGHTS

LED marker lights shall be installed on the vehicle in conformance to the Department of Transportation requirements. The side and rear of the body will be provided with reflectors. All marker lights shall be incorporated into the headlight circuit of the cab/chassis.

Two (2) amber reflectors shall be provided on the apparatus body lower side, as far forward and low as practical, one (1) each side if the apparatus is 30 feet long or longer.

Four (4) red reflectors shall be provided on the apparatus rear, one (1) each side and two (2) on the rear.

LICENSE PLATE BRACKET

There shall be a license plate bracket mounted on the rear of the apparatus. A clear LED light shall be incorporated into the bracket.

HOSE BED LOADING LIGHT

One (1) 12V LED hosebed floodlight shall be installed on the front of the hosebed of the apparatus. This light shall provide illumination of the hosebed area.

WORK LIGHTS ACTIVATION

The work light(s) shall be wired to activate with the parking brake.

SIDE FACING UPPER CAB SCENE LIGHTS

One (1) pair of Whelen M92SLC EZ Series LED scene lights shall be installed, one (1) on each side of the cab. The light(s) shall be supplied and installed with a chrome bezel.

SIDE FACING UPPER FRONT BODY SCENE LIGHTS

One (1) pair of Whelen M92SLC EZ Series LED scene lights shall be installed. The lights shall be located on the left and right sides of the upper front portion of the apparatus body.

Bidder Comply:	
YES	NO

Each light shall be supplied and installed with a chrome bezel.

SIDE FACING UPPER REAR BODY SCENE LIGHTS

One (1) pair of Whelen M92SLC EZ Series LED scene lights shall be installed. The lights shall be located on the left and right sides of the upper rear portion of the apparatus body.

Each light shall be supplied and installed with a chrome bezel.

REAR FACING UPPER BODY SCENE LIGHTS

One (1) pair of Whelen M92SLC EZ Series LED scene lights shall be installed. The lights shall be located on the rear of the apparatus body, one (1) each side.

Each light shall be supplied and installed with a chrome bezel.

SCENE ACTIVATION

The scene lights shall be activated by individual rocker switches located in the switch panel, one (1) for each side of the apparatus.

SCENE LIGHT SWITCHING

The rear scene lights shall activate automatically upon placing the transmission into reverse.

WARNING LIGHT FLASH PATTERN

All of the perimeter warning lights shall be set to the default NFPA flash pattern as provided by the warning light manufacturer.

HEADLIGHT FLASHER

An alternating high beam headlight flashing system shall be supplied with the custom chassis.

CAB FRONT LIGHTBAR

One (1) Whelen Freedom IV LED 72.00" lightbar shall be mounted on the front of the cab roof. The lightbar shall feature eight (8) red LED light modules and two (2) clear LED light modules. The entire lightbar shall feature a clear lens. The clear lights shall be disabled with park brake engaged.

LIGHT BAR SWITCH

The light bar shall be controlled by a rocker switch located on the switch panel. The switch shall be labeled "LIGHT BAR". The switch shall only be active when the master warning switch is engaged.

Bidder Comply:	
YES	NO

SIDE FACING UPPER FRONT BODY WARNING LIGHTS

One (1) pair of Whelen model M9 LED warning lights shall be installed, one (1) each side of the upper front portion of the apparatus body.

The driver side warning light shall be a Whelen Model M9R red LED with red lens.

The officer side warning light shall be a Whelen Model M9R red LED with red lens.

Each light shall be mounted with a Whelen Model M9FC chrome flange.

SIDE FACING UPPER REAR BODY WARNING LIGHTS

One (1) pair of Whelen model M9 LED warning lights shall be installed, one (1) each side of the upper rear portion of the apparatus body.

The driver side warning light shall be a Whelen Model M9R red LED with red lens.

The officer side warning light shall be a Whelen Model M9R red LED with red lens.

Each light shall be mounted with a Whelen Model M9FC chrome flange.

UPPER REAR WARNING LIGHTS

One (1) pair of Whelen model M9 LED warning lights shall be installed, one (1) each side of the upper rear of the apparatus body.

The driver side warning light shall be a Whelen Model M9R red LED with blue lens.

The officer side warning light shall be a Whelen Model M9R red LED with red lens.

Each light shall be mounted with a Whelen Model M9FC chrome flange.

UPPER WARNING SWITCH

The upper warning lights shall be controlled by a rocker switch on the switch panel. The switch shall be labeled "UPPER LEVEL WARNING". The switch shall only be active when the master warning switch is engaged.

LOWER FRONT WARNING LIGHTS

The lower front warning lights shall be supplied with the custom chassis.

LOWER INTERSECTION WARNING LIGHTS

The lower intersection warning lights shall be supplied with the custom chassis.

Bidder Comply:	
YES	NO

LOWER CHASSIS SIDE WARNING LIGHTS

One (1) pair of Whelen model M6 LED warning lights shall be installed, one (1) each side of the cab mounted over the front wheel well directly over the center of the front axle.

The driver side warning light shall be a Whelen Model M6R red Super-LED with red lens.

The officer side warning light shall be a Whelen Model M6R red Super-LED with red lens.

Each light shall be mounted with a Whelen Model M6FC chrome flange.

LOWER MID-BODY WARNING LIGHTS

One (1) pair of Whelen model M6 Series LED warning lights shall be installed, one (1) each side of the apparatus, mid-body.

The driver side warning light shall be a Whelen Model M6R red Super-LED with red lens.

The officer side warning light shall be a Whelen Model M6R red Super-LED with red lens.

Each light shall be mounted with a Whelen Model M6FC chrome flange.

LOWER REAR WARNING LIGHTS

One (1) pair of Whelen model M6 Series LED warning lights shall be installed, one (1) each side of the lower rear of the apparatus body.

The driver side warning light shall be a Whelen Model M6R red Super-LED with red lens.

The officer side warning light shall be a Whelen Model M6R red Super-LED with red lens.

The warning lights on the rear of the body shall be mounted in lower section of each tail light casting.

LOWER WARNING SWITCH

The lower warning lights shall be controlled by a rocker switch on the switch panel. The switch shall be labeled "LOWER-LEVEL WARNING". The switch shall only be active when the master warning switch is engaged.

ELECTRIC SIREN AND CONTROL

The electric siren shall be supplied with the custom chassis.

ELECTRONIC SIREN SPEAKER

The electronic siren speaker(s) shall be supplied with the custom chassis.

Bidder Comply:	
YES	NO

12V COMMAND LIGHT TOWER – CAB ROOF

One (1) 12V command light SL442D-W1 light tower shall be supplied and installed on the cab roof.

ULTIMATE POWER 2000-WATT INVERTER

There shall be an ultimate power 2000 – Watt inverter supplied and installed on the apparatus. Location of inverter shall be determined at preconstruction meeting with the Bowdoinham Fire Department.

120V RECEPTACLES – REAR BODY PANEL

Two (2) 120-volt receptacles shall be installed on the rear body panel of the apparatus. These receptacles shall be located as high as possible within the reaching position of fire department personnel. The final location of these receptacles shall be determined before installation on unit.

SUCTION HOSE

One (1) additional 10-foot section of six (6) inch PVC lightweight suction hose shall be supplied on the apparatus. It shall be installed on an adjustable trough in a stacked position on top of an additional 10’ suction hose on the driver’s side.

MANUAL HURRICANE DECK GUN

A TFT Hurricane monitor shall be supplied and mounted on the deck gun discharge of the unit to provide the maximum travel clearance.

A set of TFT stacked tips and stream straightener shall be provided with the monitor.

FRC EVOLUTION 12V TELESCOPING LIGHTS – FRONT OF BODY

Two (2) Fire Research Evolution II, LED model FCA530-V20, side mount, push up, telescopic lights shall be mounted one (1) each side on the front of body.

The light poles shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall rotate 360 degrees.

The outer pole shall be a grooved aluminum extrusion and qualify as an NFPA compliant handrail.

The pole mounting brackets shall have a 3 1/2" offset.

The wiring shall extend from the pole bottom with a 4' retractile cord.

Each lamp head shall have eight (8) ultra-bright white LEDs and shall operate at 12 volts DC, draw 13 amps, and generate 20,000 lumens.

Bidder Comply:	
YES	NO

Each lamp head shall direct 50 percent of the light onto the action area while providing 50 percent to illuminate the working area.

The lamp head angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob.

Each lamp head shall incorporate heat-dissipating fins and be no more than 5 3/16" deep by 3 5/16" high by 11 1/2" wide.

The lamp head and mounting arm shall be powder coated white. The floodlights shall be for fire service use.

EVACUATION BUTTON ON PUMP PANEL

There shall be one (1) evacuation button supplied and installed on the pump operator's panel.

2 ½" DIRECT TANK FILL

One (1) 2-1/2" NST direct tank fill shall be provided at the rear of the body, on the driver's side, as low as possible.

The direct tank fill shall be gated with a 2-1/2" Fireman's Friend (TTMA 6-bolt attachment pattern) check-type fill valve.

The fill valve shall be capable of flowing at a rate in excess of 1,000 gallons per minute and will be of a self-deflecting design, requiring no additional diffusion device.

The fill valve shall be constructed of stainless steel, with a spring actuated piston-type sealing mechanism to minimize seal wear and provide positive sealing of the valve.

The fill shall be equipped with a 30-degree elbow terminating with a 2-1/2" NST female swivel connection.

WHELEN TAL 65 TRAFFIC ADVISOR – REAR OF BODY

One (1) Whelen LED "Traffic Advisor", model TAL65 36", rear directional light shall be installed on the rear of the body.

The light shall be equipped with six (6) lamps.

The directional light shall be activated by a control module.

The control module shall be conveniently located near the driver's position.

The rear directional light shall be wired through the load management system of the unit.

Bidder Comply:	
YES	NO

FEDERAL Q2B SIREN – DRIVER SIDE OF FRONT BUMPER

One (1) Federal Model Q2B mechanical siren shall be provided to provide audible warning. The Q2B siren shall be pedestal mounted on top of the extended bumper on the driver's side. The siren shall be equipped with a Federal model #P, chrome housing and pedestal.

A floor mounted foot switch shall be provided for the officer to activate the electro/mechanical siren. A dash mounted push button switch shall be provided for the officer to control the brake on the electro/mechanical siren.

6" FRONT SUCTION

A 6" NST front suction inlet shall be provided at the front of the vehicle, plumbed from the pump. The front inlet shall be located above the right-hand side of the front bumper extension and shall terminate with a chromed brass, chicksan style swivel to allow a minimum of 180-degree rotation of the inlet for suction hose attachment.

The front suction pipe shall be equipped with a chrome, 6", NSTM thread adapter. The front inlet shall be plumbed utilizing 5", schedule 10, stainless steel piping, 45-degree elbows, and a limited number of 90-degree sweep elbows in an assembly from the pump to the front of the cab.

A manual drain shall be provided ahead of the front wheel and a panel-controlled drain shall be provided aft of the front wheel. A minimum of two (2) grooved pipe couplings shall be furnished in this assembly to allow for flex and serviceability.

6" NST FRONT SUCTION PRESSURE VENTED CAP

A 6", NST chrome plated long handle vented cap(s) shall be installed on front suction.

CHASSIS PAINT

The chassis shall be painted by the OEM Chassis Manufacturer.

PAINT PROCESS

The body exterior shall have no mounted components prior to painting to assure full coverage of treatments. Compartment doors (if applicable) will be painted separately to assure proper paint coverage on the body, doorjambs and door edges.

All surfaces shall be sanded to remove all burrs and imperfections before etching and treatment.

The body shall be totally removed from the chassis during the painting process to ensure the entire unit is covered.

PPG wax & grease solvent shall be used to clean and prep the body surface prior to any sanding. The surface shall then be rinsed with freshwater. This step removes wax, grease and other surface contaminants, thus leaving a bright, clean and conditioned surface.

Bidder Comply:	
YES	NO

PAINT FINISH

The body shall be painted with a PPG Delfleet Evolution Paint System.

As part of the curing process the painted body shall go through a baking process. The painted components shall be baked at 185 degrees for 3 hours to achieve a complete coating cure on the finished product.

After baking and ample cool down time, the coated surface shall be sanded using 3M 1000, 1200, and or 1500 grit sandpaper to remove surface defects. In the final step, the surface shall be buffed with 3M Super-duty compound to add extra shine to coated surface. No more than .5 mil shall be removed in this process.
All products and technicians shall be certified by PPG every two (2) years.

ANTI-CORROSION PROTECTION

Where dissimilar metals must be joined, overlaid, share perforations or otherwise come in contact with each other to achieve construction, performance or aesthetic requirements, such items shall be separated by a continuous contact, nonconductive coating or film to prevent or otherwise mitigate the effects of electrolysis. Only stainless-steel hardware and fasteners shall be used in the construction of the apparatus. Where stainless steel fasteners pass through an aluminum

component, the fastener contact surfaces, including the head, washer and nut shall be coated with ECK anti-corrosion material.

UNDERCOATING

The body underside, including the sub-frame and the inside of the wheel wells, NOT THE WHEEL WELL LINERS, shall be thoroughly coated with SWT commercial automotive undercoat and sound deadening material to protect the body module against corrosion. The coating shall be black and shall be tested to ASTM B117 Salt Spray test for 1,000 hours at 10-mils.

COMPARTMENT INTERIOR FINISH

The interior of the compartments shall be finished painted with Multispec #344767 Gray Stone scuff resistant paint to provide a protective application over all of the compartment interior surfaces.

WHEEL RIMS

The chassis wheels shall be as furnished by the chassis OEM. No additional finishes shall be provided by the apparatus manufacturer.

LETTERING

Reflective lettering shall be applied to the cab doors at the direction of the purchaser.
Photos or drawings of the lettering and striping layout shall be provided by the purchaser prior to construction.

Bidder Comply:	
YES	NO

GRAPHICS PACKAGE

A graphics package to match the customer's existing apparatus fleet will be provided by the dealer.

PUMP HOUSE HEATER

There shall be a pumphouse heater installed with a switch located on the operator's panel.

REFLECTIVE STRIPE

There shall be a reflective Scotchlite band located on the apparatus cab and body. The band shall be per the purchaser's size, design and color specifications. The reflective band shall be in compliance with current NFPA requirements.

Photos or drawings of the layout shall be provided by the purchaser prior to construction.

REAR CHEVRON STRIPING

At least 50% of the rear facing vertical surface shall be covered with alternating strips of reflective striping.
Each stripe shall be a minimum of 6.00" in width and shall be applied to the apparatus at 45° angle.

RED & FLUORESCENT YELLOW GREEN ORALITE V98

The Oralite V98 reflective tape shall be #12 red and #112 fluorescent yellow green in color.

LOGO PLATE

One (1) manufacturer logo plate will be affixed to the finished apparatus.

SUCTION HOSE

Two (2) 6.00" X 10' section(s) of KOCHEK, PVC type hard, suction hose shall be provided on the apparatus. The hose(s) shall be light weight type with pyrolite, long handle female x rocker lug male, NST threads. The hose shall be black in color.

WHEEL CHOCKS

All NFPA required wheel chocks will be supplied and installed by the Purchaser before the apparatus is placed into service.

Per NFPA 1900 Section 8.15.2 Wheel chocks for structural apparatus shall each hold the apparatus under the following conditions:

1. Apparatus loaded to its GVWR or GCWR
2. Road surface pitched to 10 percent for the length of the apparatus.
3. Hard road surface such as asphalt or concrete
4. Transmission in neutral

Bidder Comply:	
YES	NO

5. Parking brake released

EXTENSION LADDER, 2 SECTION – RIGHT HAND SIDE INTERNAL LADDER STORAGE

One (1) 24 foot, Alco-Lite model# PEL-24, two (2) section aluminum extension Ladder shall be supplied with the finished apparatus.

ROOF LADDER

One (1) 14 foot, Alco-Lite model # PRL-14, single section aluminum roof ladder with folding roof hooks shall be supplied with the finished apparatus.

FOLDING ATTIC LADDER

One (1) 10 foot, Alco-Lite model# FL-10, aluminum folding attic ladder shall be supplied with the finished apparatus.

ONE YEAR APPARATUS WARRANTY

The complete apparatus detailed herein shall be warranted against defects in materials and workmanship for a period of twelve (12) months, effective upon pick up or delivery of the completed apparatus to the purchaser, as detailed in the respective warranty documents. Any unauthorized alterations or modifications to the apparatus shall void this warranty.

Other warrantees, as provided by individual component manufacturers may extend beyond this warranty.

APPARATUS BODY WARRANTY, TEN YEAR

The apparatus body as detailed herein shall have a structural warranty against defects in materials and workmanship for a period of ten (10) years, effective upon final payment in full by the Purchaser, and pick up or delivery of the completed apparatus to the Purchaser. Any unauthorized alterations or modifications to the body shall void this warranty.

PLUMBING WARRANTY, TEN YEARS

A Stainless-Steel Plumbing/Piping warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years effective upon final payment in full by the Purchaser, and pick up or delivery of the completed apparatus to the Purchaser. Any unauthorized alterations or modifications to the plumbing shall void this warranty.

PAINT WARRANTY, FIVE YEAR

The finish paint as used on the proposed apparatus shall be warranted against defects in materials and workmanship for a prorated period of five (5) years, effective upon final payment in full by the Purchaser, and pick up or delivery of the completed apparatus to the Purchaser. Any unauthorized alterations or modifications to the apparatus shall void this warranty.

Bidder Comply:	
YES	NO

TANK WARRANTY, LIFETIME

United Plastic Fabricating, Inc. (hereinafter called "UPF") warrants each POLY-TANK®, Booster/Foam Tank POLYSIDE® Wetside Tank, Integrator Tank/Body, ELLIPSE™ Elliptical

Tank, Ellip-T-Tank Tank and DEFENDER™ Skid Tank to be free from defects in material and workmanship for the service life of the original vehicle (vehicle must be actively used in an emergency response for fire suppression). All UPF Tanks must be installed and operated in accordance with the UPF Installation and Operating Guidelines.

APPARATUS ELECTRICAL WARRANTY, TWO YEAR

The apparatus electrical system as detailed herein shall have an electrical warranty against defects in materials and workmanship for a period of two (2) years, effective upon final payment in full by the Purchaser, and pick up or delivery of the completed apparatus to the Purchaser. Any unauthorized alterations or modifications to the electrical system shall make this warranty.

AKRON BRASS WARRANTY

The Akron Brass valves shall be warranted by Akron Brass for a period of ten (10) years from the date of delivery. The warranty for electronics shall be warranted by Akron Brass for a period of five (5) years from the date of delivery.

EQUIPMENT MOUNTING ALLOWANCE

A $10,000.00 equipment mounting allowance shall be offered as an option in the bid proposal as a line item.