City of Auburn, Maine
Financial Services
60 Court Street | Auburn, Maine 04210
www.auburnmaine.gov | 207.333.6601

January 31, 2020

Dear Bidder;

The City of Auburn is accepting Request for Bids for the furnishing of all necessary labor, equipment and material for the Auburn Fire Department's **"2020 Pumper Apparatus"** and other equipment as outlined in the attached specifications. The City reserves the right to accept or reject any or all proposals in whole or in part and to waive any informality the City may determine necessary. The City also reserves to itself the exclusive right to accept any proposals when it is deemed by the City to be in its best interest. The City of Auburn is governed by Title 1 M.R.S.A. § 401-410, otherwise known as the Freedom of Information Act, which considers bid specifications as public documents. In awarding any proposal, the City may consider, but not be limited to, any of the following factors: Bidder qualifications, price, experience, financial standing with the City, warranties, references, bonding, delivery date, and service of Bidder.

Vendors/Contractors shall be current on all amounts due to the City of Auburn prior to the City entering into any contract agreement. All proposals must include FOB to Auburn, Maine unless otherwise specified.

Proposals will not receive consideration unless submitted in accordance with the following instructions. Mark sealed envelopes plainly: **"2020 Pumper Apparatus – Bid #2020-018".**

Questions regarding this Request for Bids should be submitted in writing to Fire Chief Robert Chase, at rchase@auburnmaine.gov. Questions will be accepted until February 21st, and all responses will be made before February 28th, 2020.

Please submit your proposal to the City of Auburn by 2:00 p.m. **Thursday, March 5th, 2020.** Proposals will be opened at 2:00 p.m. Proposals must be delivered to **Derek Boulanger, Facilities Manager/Purchasing Agent, 60 Court Street, Auburn, Maine 04210** on or before the date and time appointed. No proposals will be accepted after the time and date listed above.

Sincerely,

Derek Boulanger

Facilities Manager/Purchasing Agent

BID PROPOSAL FORM

The undersigned proposes to furnish one and other accessories in accordance with the Instruction to Bidders and Specifications, both of which are incorporated herein by reference.

One (1) 1750 gpm pumper 1000 gallons water, 30 gallons foam cell

Make, Model and Year _____ **$** _____

Performance and Payment Bond **$** _____

Net FOB Auburn Highway Garage (Total Price) **$** _____

Delivery Date: _____

Name of Company: _____

Signed by: _____

Print Name: _____

Title: _____

Address: _____

E-mail: _____

Auburn Fire Department

550 Minot Ave, Auburn, ME 04210

One (1) Custom Built 1750 G.P.M. Pumper

SPECIFICATIONS FOR A TRIPLE COMBINATION PUMPER

Sealed bids will be received by City of Auburn, ME for the furnishing of all necessary labor, equipment and material for the Fire Apparatus and other equipment as outlined in the following specifications.

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to cover the furnishing and delivery of a complete fire apparatus. These detailed specifications cover the requirements as to the type of construction, finish, equipment and tests to which the fire apparatus shall conform. Minor details of construction and materials, which are not otherwise specified, are left to the discretion of the contractor.

INSTRUCTIONS TO BIDDERS

The purchaser's standards for bidding automotive fire apparatus must be strictly adhered to, and all bid forms and questions must be complete and submitted with the bid. **Omissions and variations shall result in immediate rejection of the bid.**

1. Bidders shall use the enclosed bid form for quotations. Whenever, in bid forms, an article is defined by using a trade name or catalog number, the term "or approved equal", if not inserted, shall be implied.
2. Bid proposals must be completed in full, in ink and must be signed by firm official. Bid proposal **must be notarized** prior to bid being sealed and will be disqualified if not notarized. Bids may be withdrawn prior to the time set for the official opening.
3. Bids will be opened publicly. Bidders or representatives may be present at bid opening.
4. Awards will be made to a responsible bidder, considering the quality of the materials, date of delivery, cost which meets specification and is in the best interest to the City of Auburn.
5. All transportation charges, including expense for freight, transfer express, mail, etc. shall be prepaid and be at the expense of the vendor unless otherwise specified in the bid.
6. The terms and cash discounts shall be specified. Time, in connection with discount offered, will be computed from date of delivery at destination after final inspection and acceptance or from date of correct invoice, whichever is later.
7. The City is exempt from payment of Federal Excise Taxes on the articles not for resale, Federal Transportation Tax on all shipments and Maine Sales Tax and Use Taxes. Please quote less these taxes. Upon application, exemption certificate will be furnished with the Purchase Order when required.
8. No contract may be assigned without the written consent of the Finance Director or her designee. The contract shall not be considered valid until a purchase order has been issued to the successful bidder.
9. Please state **"2020 Pumper Apparatus – Bid #2020-018"** on submitted sealed envelope.
10. The City of Auburn reserves the right to waive any formality and technicality in bids whichever is deemed best for the interest of the City of Auburn.

GENERAL CONDITIONS

1. Equal Employment Opportunity

The City of Auburn is an Equal Opportunity Employer and shall not discriminate against an applicant for employment, and employee or a citizen because of race, color, sex, marital status, physical and/or mental handicap, religion, age, ancestry or natural origin, unless based upon a bona-fide occupation qualification. Vendors and contractor or their agents doing business with the City shall not violate the above clause or the Civil Rights Acts of 1964. Violations by vendors shall be reviewed on a case-by-case basis and may mean an automatic breach of contract or service to the City of Auburn.

2. Save Harmless

The Bidder agrees to protect and save harmless the owner from all costs, expenses or damages that may arise out of alleged infringement of patents of materials used.

3. Subcontracting

The Bidder shall not subcontract any part of the work or materials or assign any monies due it without first obtaining the written consent of the municipality. The Bidder is responsible for all approved sub-contracted work. The Bidder is responsible for managing all aspects of sub-contracting work. Neither party shall assign or transfer its interest in the contract without the written consent of the other party.

4. Warranty

The Bidder warrants that all work will be of good quality and free from faults and defects, and in conformance with the specifications. All work not so conforming to these standards may be considered defective. The Bidder agrees to be responsible for the acts and omissions of all its employees and all subcontractors, their agents and employees, and all other persons performing any of the work under a contract with the Bidder. If these specifications, either in whole or in part, do not meet all Federal and State of Maine DOT and ICC mandates, or the standards established in NPFA 1901 (2016 edition) it shall be the responsibility of the successful bidder to bring specifications into compliance prior to awarding bid.

QUALIFICATION OF BIDDERS

Bids will only be considered on vehicles constructed in the continental United States, whose manufacturers have an established reputation of permanency and reliability in the field of fire apparatus construction. Each manufacturer shall furnish satisfactory evidence of their ability to construct the apparatus as specified and shall state the location of the factory where the complete apparatus will be built. If the chassis, body, and water tank are manufactured in different facilities, the location of each facility shall be stated in the bid.

The solvency of manufacturers is a prime concern of the Purchaser. Each bid must include Dunn & Bradstreet Financial Report. Failure to submit such a statement may be grounds for rejection of the proposal.

If a bidder represents more than one fire Apparatus Company or brands of apparatus, they must only bid the top of the line that meets specification. Each bidder shall furnish satisfactory evidence of their ability to construct the apparatus specified.

Any apparatus manufacturer or their parent company who has had a performance bond called in the last 10 years, shall make it known upon bid submission.

Each bid shall be accompanied by a set of manufacturer's specifications consisting of a detailed description of the apparatus, construction methods, and equipment proposed to which the apparatus furnished under contract shall conform. These specifications shall indicate size, type, model and make of all components, parts and equipment, providing proof of compliance with each and every item in the department's advertised specifications. A letter only, even though written on company letterhead, shall not be sufficient. **Exceptions to this requirement shall not be acceptable.**

In accordance with the current edition of NFPA 1901 standards, the proposal shall specify whether the fire department or apparatus dealership shall provide required loose equipment.

The purchaser will utilize this advertised specification to compare all submitted bid proposals. To facilitate comparison, all bid proposal specifications shall be submitted in the same sequence as the advertised specification. Any bidder who fails to submit a set of bid proposal specifications, or who photocopies and submits these specifications as their own construction details will be considered non-responsive. This shall render such proposal ineligible for award.

The purchaser's specification shall, in all cases, govern the construction of the apparatus, unless a properly documented exception or deviation was approved. Any bid indicating that the manufacturer's proposal shall supersede the purchaser's specification will be considered a complete substitute and immediately rejected.

Bids to provide prototype or demo units will not be accepted.

THE PURCHASER HAS THE RIGHT TO REJECT ANY BIDS WHICH DO NOT MEET THESE SPECIFICATIONS AND IS THE SOLE DECIDER TO DEEM WHICH BID IS IN THE BEST INTEREST OF THE PURCHASER.

EXCEPTIONS

These specifications are based upon design and performance criteria which have been developed by the fire department as a result of extensive research and careful analysis. Subsequently these specifications reflect the only type of fire apparatus that is acceptable at this time and all specifications herein contained are considered as minimum.

Bidders shall indicate in the "yes/no" column if their bid complies on each item (paragraph) specified.

Any reference to specific Make, Model or Brand Name is indicated as it is preferred by the purchaser. However, it may be considered as a guide as to the quality of equipment that is required. The bidder may substitute with items that are equal to these specifications and/or performance providing that proper documentation to that effect is provided and the item is identified as an exception.

Exceptions must be listed and fully explained on a separate page. All deviations, no matter how slight, shall be clearly explained on a separate sheet, in the bid sequence, citing the page and paragraph number(s) of the specifications, how the proposal deviation is different, how the deviation meets or exceeds the specifications and why it is necessary, and entitled "EXCEPTIONS TO SPECIFICATIONS". The buyer reserves the right to require a bidder to provide proof in each case that a substituted item is equal to that specified. The buyer shall be the sole judge in determination of acceptable substitutes.

Proposals that are found to have deviations without listing them or bids taking total exceptions to these advertised specifications will be rejected (no exception).

Bids not including all exceptions is a material breach and shall result in the bid being immediately rejected (no exception).

BIDDER COMPLIES YES	NO

GENERAL DESIGN AND CONSTRUCTION

The cab, chassis, pump module, and body are to be entirely designed, assembled and painted by the prime vehicle manufacturer, which minimizes third party involvement on engineering, design, service and warranty issues. Private labeling of another manufacturer's chassis will not meet the requirements of this section. **No exceptions.**

All bidders shall provide a list of the company, manufacturing location, and engineering source for each individual major component, including but not limited to the welded cab assembly, the pumphouse module assembly, the chassis assembly, body and electrical system. Apparatus using any subcontracted cab, chassis, pump module, electrical system or body will not be acceptable.

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Association.

The bidder shall make accurate statements as to the apparatus weight and dimensions.

QUALITY AND WORKMANSHIP

All steel welding shall follow American welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding shall follow American welding Society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding shall follow American Welding Society B2.1-2000 requirements for structural welding of sheet metal. Flux core arc welding to use alloy rods, type 7000, American welding Society standards A5.20-E70T1. Employees classified as welders are tested and certified to meet the American Welding Society codes upon hire and every three (3) years thereafter. The manufacturer shall be required to have an American welding Society certified welding inspector in plant during working hours to monitor weld quality.

The manufacturer shall also be certified to operate a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International organization for
Standardization (ISO) specify the quality systems that shall be established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance shall be included with the bid.

To demonstrate the quality of the product and service, each bidder shall provide a list of at least six (6) fire departments/municipalities in the region that have bought a second time from the representing dealer. **An exception to this requirement shall not be acceptable.**

CONSTRUCTION TIME:

Each bidder shall state the number of calendar days required to construct and deliver the completed apparatus. Delivery time will be an important consideration to the purchaser.

PENALTY CLAUSE:

A **$500.00** per day late delivery penalty fee shall be enforced for each day the apparatus is delivered after the bidders stated delivery time.

BIDDER COMPLIES YES	NO

TERMS OF PAYMENT:

The City of Auburn will pay for the completed apparatus upon delivery and acceptance of the apparatus. Proposals requiring any payment prior to delivery may be negotiate with the successful bidder at the time of award.

Any potential to utilize progress payment discounts must be defined clearly in the proposal.

DELIVERY

Apparatus, to ensure proper break-in of all components while still under warranty, **shall be delivered under its own power** - rail or truck freight shall not be acceptable. A qualified delivery representative shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in proper operation, care and maintenance of the equipment delivered.

MANUALS AND SERVICE INFORMATION

The manufacturer shall supply at time of delivery, complete operation and maintenance manuals covering the complete apparatus as delivered. A permanent plate shall be mounted in the drivers compartment which specifies the quantity and type of fluid required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

SAFETY VIDEO

Since video is much more effective than written documentation and can be replayed for new personnel and as a refresher for existing personnel, an apparatus safety video, in DVD format shall be provided at time of delivery. This video shall address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus. Safety procedures for the following shall be included on the video: vehicle pre trip inspection, chassis operation, pump operation and maintenance.

PERFORMANCE TESTS AND REQUIREMENTS

A road test shall be conducted with the apparatus fully loaded and a continuous run of ten (10) miles or more shall be made under all driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axle shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. Vehicle shall adhere to the following parameters:

A. The apparatus, when fully equipped and loaded, shall have not less than 25 percent nor more than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle.
B. The apparatus shall be capable of accelerating to 35 mph from a standing start within 25 seconds on a level, dry, paved road without exceeding the maximum governed rpm of the engine.
C. The apparatus shall maintain a speed of at least 20 mph on any grade up to and including 6 percent in accordance with NFPA 1901
D. The service brakes shall be capable of stopping a fully loaded vehicle in 35 feet at 20 mph on a level concrete highway. The air brake system shall conform to Federal Motor vehicle Safety Standards (FMVSS) 121.

BIDDER COMPLIES YES	NO

E. The apparatus, fully loaded, shall be capable of obtaining a speed of 50 mph on a level concrete highway with the engine not exceeding the governed rpm (full load).

FAILURE TO MEET TEST

In the event the apparatus fails to meet the test requirements of these specifications on the first trial, second trials may be made at the option of the bidder within 30 days of the date of the first trial. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. failure to comply with changes to conform to any clause of the specifications, within 30 days after notice is given to the bidder of such changes, shall also 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 the permission of the bidder shall not constitute acceptance.

SERVICE AND WARRANTY SUPPORT (DEALERSHIP)

TO ENSURE FULL SERVICE AFTER DELIVERY, THE SELLING BIDDER/DEALERSHIP MUST BE CAPABLE OF PROVIDING SERVICE WHEN REQUIRED.

The bidder/dealership shall show that the company is in position to render prompt service and to furnish replacement parts.

Each bidder/dealership must be able to display that they are actively in the fire apparatus service business by operating a factory authorized service center and parts repository capable of satisfying the warranty service requirements and parts requirements of the vehicle(s) being purchased.

The bidder/dealership must state the location of this authorized service center. This service center must have a staff of factory-trained mechanics, who are EVT certified and well versed in all aspects of service for all major components of the apparatus including pump, with full authorization of the manufacturer.

The service center must be within one hundred fifty (150) miles of 550 Minot Ave. Auburn, Maine

SERVICE AND WARRANTY SUPPORT (MANUFACTURER)

The manufacturer shall provide details on the factory authorized service facilities capable of all service, and repairs, including all warranty work, for the apparatus. This should include the nearest service facility as well as any other regional facilities that may be called on to meet all the service and warranty work needs of the apparatus. The detail shall include the location of the service facility, number of EVT technician's on staff, capabilities and limitations of the service facility.

Parts identification shall be provided to both the dealer and the Fire Department for the specific truck reflected in this specification. It shall either be provided electronically via CD or available on-line and must be searchable or organized so it can be queried by apparatus system. This documentation will provide the ability to view complete bills of materials, digital photographs, parts drawings and assembly drawings.

PARTS AVAILABILITY

All parts must be made available for purchase directly to the Fire Department from the manufacturer. The bidder shall provide detailed documentation of service and

BIDDER COMPLIES YES	NO

replacement part resources. This shall include the location of spare parts inventories, total dollar value of parts, stocked in inventory as well as the average processing time from parts order to shipping.

The manufacturer shall employ a staff of adequate size (a minimum of 30 personnel) specifically dedicated to providing customer support and parts for the fielded fleet of vehicles it has produced.

The manufacturer must be capable of providing both in-house and on-site service for the apparatus.

The manufacturer shall offer regional factory hands-on repair and maintenance training classes.

The manufacturer shall employ a minimum of four certified EVT technicians on staff, not only providing technical expertise in the repair of fire apparatus, but also demonstrating the commitment to service after the sale.

LIABILITY

The successful bidder shall defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.

INSURANCE PROVIDED BY BIDDER

COMMERCIAL GENERAL LIABILITY INSURANCE:

The successful bidder shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance:

Each Occurrence: $1,000,000
Products/Completed Operations Aggregate: $1,000,000
Personal and Advertising Injury: $1,000,000
General Aggregate: $2,000,000

Coverage shall be written on a Commercial General Liability form. The policy shall be written on an occurrence form and shall include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy shall include Owner as an additional insured when required by written contract.

COMMERCIAL AUTOMOBILE LIABILITY INSURANCE:

The successful bidder shall, during the performance of the contract, keep in force at least the following minimum limits of commercial automobile liability insurance and coverage shall be written on a Commercial Automobile liability form:

Each Accident Combined Single Limit: $1,000,000

UMBRELLA/EXCESS LIABILITY INSURANCE:

The successful bidder shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Aggregate: $3,000,000
Each Occurrence: $3,000,000

BIDDER COMPLIES	
YES	NO

The umbrella policy shall be written on an occurrence basis and at a minimum provide excess to the bidder's General Liability and Automobile Liability policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage shall be provided by a carrier(s) rated A- or better by A.M. Best.

All policies shall provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance shall provide the following cancellation clause: Should any of the above described polices be cancelled before the expiration date thereof, notice shall be delivered in accordance with the policy provisions.

Bidder agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate shall show the purchaser as certificate holder.

INSURANCE PROVIDED BY MANUFACTURER

PRODUCT LIABILITY INSURANCE:
The manufacturer shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of Product Liability insurance:

Each Occurrence$1,000,000
Products/Completed Operations Aggregate$1,000,000

Coverage shall be written on a Commercial General Liability form. The policy shall be written on an occurrence form. The manufacturer's policy shall include the owner as additional insured when required by written contract between the Owner and a Pierce authorized dealer.

UMBRELLA/EXCESS LIABILITY INSURANCE:
The manufacturer shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Each Occurrence: $25,000,000
Aggregate: $25,000,000

The umbrella policy shall be written on an occurrence basis and provide excess to the manufacturer's General Liability/Products policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage shall be provided by a carrier(s) rated A- or better by A.M. Best.

All policies shall provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance shall provide the following cancellation clause: Should any of the above described polices be cancelled before the expiration date thereof, notice shall be delivered in accordance with the policy provisions.

BIDDER COMPLIES YES	NO

Manufacturer agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate shall show the purchaser as the certificate holder.

SINGLE SOURCE MANUFACTURER

Bids shall only be accepted from a single source apparatus manufacturer. The definition of single source is a manufacturer that designs and manufactures their products using an integrated approach, including the chassis, cab weldment, cab, pumphouse (including the sheet metal enclosure, valve controls, piping and operators panel) and body being designed, fabricated and assembled on the bidder's premises. The electrical system (hardwire) shall be both designed and integrated by the same apparatus manufacturer. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) must be from a single source manufacturer and not split between manufacturers (i.e. body, pumphouse, cab weldment and chassis). The bidder shall provide evidence that they comply with this requirement.

The bidder shall state the location of the factory where the apparatus is to be built.

NFPA 2016 STANDARDS

This unit shall comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions shall be set forth in the Statement of Exceptions.
Certification of slip resistance of all stepping, standing and walking surfaces shall be supplied with delivery of the apparatus.

All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and designated access paths to destination points shall be identified on the customer approval print and are shown as approximate. Actual location(s) shall be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack.

A plate that is highly visible to the driver while seated shall be provided. This plate shall show the overall height, length, and gross vehicle weight rating.

The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications.

An official of the company shall designate, in writing, who is qualified to witness and certify test results.

NFPA COMPLIANCY

Apparatus proposed by the bidder shall meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications shall be indicated in the proposal as "non-NFPA".

BIDDER COMPLIES YES	NO

VEHICLE INSPECTION PROGRAM CERTIFICATION

To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, shall be third-party, independent, audit-certified through a third party, that it is built and complies to all applicable standards in the current edition of NFPA 1901. The certification includes: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus (no exception).

A placard shall be affixed in the driver's side area stating the third-party agency, the date, the standard and the certificate number of the whole vehicle audit.

PUMP TEST

The pump shall be tested, approved, and certified at the manufacturer's expense. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details shall be forwarded to the Fire Department.

TRAINING

A qualified training engineer shall be provided by the bidder. The training engineer shall instruct the Auburn Fire Department personnel in the operation and maintenance of the chassis operation and other appurtenances on the apparatus for a period of not less than four (4) days (up to 8 hours per day)

INSPECTION TRIP(S)

Prebuild Conference

A prebuild conference for the apparatus is required and shall be held within 1 month of awarding the contract. Three (3) members of the Auburn Fire Department shall be transported to the factory for meetings with engineering staff to review the contents of the specification. All expenses for the trip shall be borne by the successful bidder. If a manufacturer builds components at different locations (chassis, cab shell, body, or tank) a trip to each facility shall be required to comply, no exceptions.

Inspection Trip

A final inspection for the apparatus is required and shall be held within one (1) month of completion. Three (3) members of the Auburn Fire Department shall be transported to the factory for meetings with engineering staff to review the contents of the specification and the truck’s compliance. All expenses for the trip shall be borne by the successful bidder. If a manufacturer builds components at different locations (chassis, cab shell, body, or tank,) a final inspection at each facility prior to shipment for final assembly shall be required, no exceptions.

NEW AND UNUSED

All components shall be new and unused (with the exception of use incidental to the construction, testing, transport and delivery of the apparatus). Any old or used components shall constitute grounds for automatic rejection of the entire apparatus.

Bidders must identify by manufacturer and model number purchased components utilized in the apparatus proposed in the bid submission. In order to make valid comparisons between bids, components must be accurately identified. Therefore, any bid or technical proposal which does not so identify the components being offered will not be considered.

BIDDER COMPLIES YES	NO

CONSTRUCTION REVIEW AND WEEKLY PROGRESS REPORTS

The successful bidder shall also provide weekly photographic progress reports and inspection services, provided by an independent third party.

1) Comprehensive review of the bid documents with the factory order to ensure accuracy.
2) Weekly progress reports including photographs of the apparatus or the major components as they are being constructed. The reports shall commence at the beginning of the manufacturing process and shall continue until just prior to the final inspection. The reports shall show the progress of the apparatus through the course of each week. Special attention shall be given to show the unique features and aspects of the apparatus as construction progresses.
3) In addition, after the final inspection has been completed by the customer or third party, the third party inspector shall review all items noted in the inspection for completion prior to the apparatus leaving the manufacturing facility for delivery to the local service area for pre-delivery service.

TABLE OF CONTENTS

A table of contents shall be provided with all proposals, for ease in locating items which shall be provided by the bidder.

BID BOND

All bidders shall provide a bid bond as security for the bid in the form of a **10% bid bond** to accompany their bid. This bid bond shall be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond shall be issued by an authorized representative of the Surety Company and shall be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond shall include language, which assures that the bidder/principal shall give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.
Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle shall apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle shall not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision shall prevail.

PERFORMANCE BOND, 1 YEAR AND LABOR AND MATERIAL PAYMENT BOND

The successful bidder shall furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond shall be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category

BIDDER COMPLIES YES	NO

of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required.

Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Basic One (1) Year Limited Warranty period included within this proposal. Owner agrees that the penal amount of this bond shall be simultaneously amended to 100% percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type shall not exceed one (1) year from the date of such satisfactory acceptance and delivery, or the actual Basic One (1) Year Limited Warranty period, whichever is shorter.

The bidder shall specify the cost of the bond on the pricing schedule.

APPROVAL DRAWING

A drawing of the proposed apparatus shall be provided for approval before construction begins. The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.

A "revised" approval drawing of the apparatus shall be prepared and submitted by the manufacturer to the purchaser showing any changes made to the approval drawing.

ELECTRICAL WIRING DIAGRAMS

Two (2) electrical wiring diagrams, prepared for the model of chassis and body, shall be provided.

WARRANTY:

Each bidder shall submit a copy of the proposed warranty in compliance with State and Federal regulations. It shall provide coverage for a minimum (1) year period for parts and labor. The bidder shall perform warranty items services that can be completed within the confines of the City of Auburn's fire department facilities when practical, either wise at an appropriate license service facility within One Hundred and Fifty (150) miles of the station.

All warranties shall commence at the time of delivery and full acceptance that the apparatus confirms to the specifications herein for a period of one (1) year from said acceptance date.

CHASSIS

Chassis provided shall be a new, tilt-type custom fire apparatus. The chassis shall be manufactured by the apparatus body builder eliminating any split responsibility. The chassis shall be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required.

WHEELBASE

The wheelbase of the vehicle shall be provided in the specification and shall be kept as short as possible to accommodate other features specified herein.

BIDDER COMPLIES YES	NO

GVW RATING
The gross vehicle weight rating shall be a minimum of 51,000.

FRAME
The chassis frame shall be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails shall be heat-treated steel measuring 10.25" x 3.50" x .375".

Each rail shall have a section modulus of 16.00 cubic inches, yield strength of 110,000 psi, and a resisting bending moment (rbm) of 1,827045 inch-pounds.

FRAME REINFORCEMENT
A full-length mainframe "C" liner shall be provided.

The liner shall be an internal "C" design, heat-treated steel measuring 9.38" x 3.13" x 0.25". Each reinforcement member shall have a section modulus of 3.90 cubic inches, yield strength of 120,000 psi and resisting bending moment (rbm) of 938,762 in-lb.

FRONT AXLE
THE FRONT AXLE SHALL BE A REVERSE "I" BEAM TYPE WITH INCLINED KING PINS AND WITH A RATED CAPACITY OF 20,000 LB. FRONT SUSPENSION

The front springs shall be a three (3)-leaf, taper leaf design, 54.00" long x 4.00" wide, with a ground rating of 20,000 lb.

The two (2) top leaves shall wrap the forward spring hanger pin. The top leaf shall also wrap the rear spring hanger pin. Both the front and rear eyes shall be Berlin style wraps that shall place the eyes in the horizontal plane within the main leaf. This shall reduce bending stress from acceleration and braking.

SHOCK ABSORBERS
To provide a smoother ride, heavy-duty telescoping shock absorbers shall be provided on the front axle.

The shocks shall be covered by the manufacturer`s standard warranty.

FRONT OIL SEALS
Oil seals with viewing window shall be provided on the front axle.

FRONT TIRES
Front tires shall be 315/80R22.50 radials, 20 ply "ribbed" tread, rated for 20,400 lb maximum axle load and 68 mph maximum speed.

The tires shall be mounted on polished aluminum disc wheels.

REAR AXLE
The rear axle shall be a single axle assembly with a capacity of 31,000 lb.

TOP SPEED OF VEHICLE
A rear axle ratio shall be furnished to allow the vehicle to reach a top speed of 68 mph.

REAR SUSPENSION
The rear suspension shall be 55-1219HD Heavy Duty Navistar International Leaf Spring Assembly.

BIDDER COMPLIES YES	NO

SHOCK ABSORBERS
Heavy-duty Monroe Magnum 70 telescoping shock absorbers shall be provided on the rear axle.

WEIGHT REVIEW
A weight review shall be conducted on the proposed apparatus and provided to the purchaser with bid.

REAR OIL SEALS
Oil seals shall be provided on the rear axle(s).

REAR TIRES
Rear tires shall be four (4) 315/80R22.50 radials with 20 ply WHA tread, rated for 36,360 lb maximum axle load and 68 mph maximum speed.

The tires shall be mounted on polished aluminum disc wheels.

Valve stem extensions shall be installed on all inside rear wheels to allow for tire pressure checking.

TIRE BALANCE
All tires shall be balanced with balancing beads. The beads shall be inserted into the tire and eliminate the need for wheel weights.

FRONT HUB COVERS
Stainless-steel hub covers shall be provided on the front axle. An oil level viewing window shall be provided.

CHROME LUG NUT COVERS
Chrome lug nut covers shall be supplied on front and rear wheels.

MUD FLAPS
Mud flaps shall be installed behind the front and rear wheels of the apparatus.

AUTOMATIC TIRE CHAINS
One (1) pair of Onspot automatic tire chains shall be provided at the rear. System shall be provided with brass cap style arm pivot. System shall be electric over air operated with a locking switch on cab instrument panel. System to be operable at speeds up to 35 mph.

WHEEL CHOCKS
There shall be one (1) pair of folding aluminum alloy, wheel chocks provided.

WHEEL CHOCK BRACKETS
There shall be one (1) pair of, horizontal mounting wheel chock brackets designed for the provided wheel chocks. The brackets shall be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets shall be mounted forward of the rear wheels.

ANTI-LOCK BRAKE SYSTEM
The vehicle shall be equipped with an anti-lock braking system. The ABS shall provide a 4-channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology shall control the anti-lock

BIDDER COMPLIES	
YES	NO

braking system. Each wheel shall be monitored by the system. When any particular wheel begins to lockup, a signal to be sent to the control unit. This control unit shall then reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system shall eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

The brake system shall meet or exceed the design and performance requirements of the current Federal Motor Vehicle Safety Standard (FMVSS)-121, and the test requirements of the current NFPA 1901 Standard.

A dual-treadle brake valve shall correctly proportion the braking power between the front and rear systems. The air system shall be provided with a rapid pressure build-up feature, designed to meet current NFPA 1901 requirements, to allow the vehicle to begin its emergency response as quickly as possible.

BRAKES

Front brakes shall be disc type with automatic pad wear adjustment and 17.00" rotors for improved stopping distance.
Rear brakes shall be disc type, with automatic pad wear adjustment and 17.00” rotors for improved stopping distance.

BRAKE SYSTEM AIR COMPRESSOR

The air compressor shall be a Cummins/WABCO with 18.7 cubic feet per minute output.

BRAKE SYSTEM

The brake system shall include:

- Brake treadle valve
- Heated automatic moisture ejector on air dryer
- The total system shall carry a sufficient volume of air to comply with FMVSS-121.
- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi
- Spring set parking brake system
- Parking brake operated by a push-pull style control valve
- A parking "brake on" indicator light on instrument panel
- Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, with an automatic spring brake application at 40 psi
- A pressure protection valve to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa)
- 1/4 turn drain valves on each air tank

The air tank must be protected from corrosion. The method of corrosion protection must be detailed in the submitted bid.

To reduce the effects of corrosion, the air tank shall be mounted with stainless-steel brackets (no exception).

BRAKE SYSTEM AIR DRYER

The air dryer shall be properly sized for the brake system with internal wet tank, spin-on coalescing filter cartridge and appropriately sized heater.

BIDDER COMPLIES YES	NO

BRAKE LINES

Color-coded nylon brake lines shall be provided. The lines shall be wrapped in a heat protective loom where necessary in the chassis.

AIR INLET

One (1) air inlet with 3D series male coupling shall be provided. It shall allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet shall be located forward in the driver side lower step well of cab. A check valve shall be provided to prevent reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system. A mating female fitting shall also be provided with the loose equipment.

ENGINE

The chassis shall be powered by an electronically controlled engine as described below:

Make:	Cummins
Model:	L9
Power:	450 hp at 2100 rpm
Torque:	1250 lb-ft at 1400 rpm
Governed Speed:	2200 rpm
Emissions Level:	EPA 2017
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	543 cubic inches (8.9L)
Starter:	Delco 39MT™
Fuel Filters:	Spin-on style primary filter with water separator and water-in-fuel sensor. Secondary spin-on style filter.

The engine shall include On-board diagnostics (OBD), which provides self-diagnostic and reporting. The system shall give the owner or repair technician access to state of health information for various vehicle sub systems. The system shall monitor vehicle systems, engine and after treatment. The system shall illuminate a malfunction indicator light on the dash console if a problem is detected.

HIGH IDLE

A high idle switch shall be provided, inside the cab, on the instrument panel, that shall automatically maintain a preset engine rpm. A switch shall be installed, at the cab instrument panel, for activation/deactivation.

The high idle shall be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light shall be provided, adjacent to the switch. The light shall illuminate when the above conditions are met. The light shall be labeled "OK to Engage High Idle."

ENGINE BRAKE

A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.

The driver shall be able to turn the engine brake system on/off and have a high, medium and low setting.

BIDDER COMPLIES YES	NO

The engine brake shall activate when the system is on and the throttle is released.

The high setting of the brake application shall activate and work simultaneously with the variable geometry turbo (VGT) provided on the engine.

The engine brake shall be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.

The ABS system shall automatically disengage the auxiliary braking device, when required.

CLUTCH FAN

A fan clutch shall be provided. The fan clutch shall be automatic when the pump transmission is in "Road" position, and constantly engaged when in "Pump" position.

ENGINE AIR INTAKE

A stainless-steel metal screen shall be installed at the inlet of the air intake system that shall meet NFPA 1901 requirements.

The air cleaner and stainless-steel screen shall be easily accessible

EXHAUST SYSTEM

The exhaust system shall be stainless-steel from the turbo to the engine's aftertreatment device and shall be 4.00" in diameter. The exhaust system shall include a single module aftertreatment device to meet current EPA standards. An insulation wrap shall be provided on all exhaust pipes between the turbo and aftertreatment device to minimize the heat loss to the aftertreatment device. The exhaust shall terminate horizontally ahead of the right-side rear wheels. A tailpipe diffuser shall be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields shall be provided to isolate chassis and body components from the heat of the tailpipe diffuser.

The end of the exhaust tail pipe shall be modified to accommodate a Plymovent in-house exhaust extraction system. A stop ring shall be provided on the tail pipe to properly position the Plymovent nozzle. Exhaust and Regen systems shall be designed to not be negatively affected by the use of the Plymovent system upon apparatus start-up, for up to 60 seconds after apparatus is shut down or for periods when the apparatus may run while connected to the Plymovent for up to 3 minutes.

RADIATOR

The coolant system design shall meet or exceed the requirements of the engine and transmission manufacturer under all conditions for which the apparatus is designed.

The radiator and the complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system standards.

The cooling system shall include an aluminum tube-and-fin radiator with.

The radiator shall be compatible with commercial antifreeze solutions.

The radiator assembly shall be isolated from the chassis frame rails with rubber isolators to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven terrain.

BIDDER COMPLIES YES	NO

The radiator shall include a de-aeration/expansion tank. For visual coolant level inspection, the radiator shall have a built-in sight glass.

A drain port shall be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.

Shields or baffles shall be provided to prevent recirculation of hot air to the inlet side of the radiator.

COOLANT LINES

Rubber hose shall be used for all engine coolant lines to be installed by the chassis manufacturer.

Hose clamps shall be stainless-steel constant torque type to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

FUEL TANK

A 65-gallon fuel tank shall be provided and mounted at the rear of the chassis. The tank shall be constructed of **aluminum** with the exterior painted to match the chassis frame. It shall be equipped with baffles and a vent. To eliminate the effects of corrosion, the fuel tank shall be mounted with stainless-steel straps. (no exception).

A .75" drain plug shall be provided in a low point of the tank for drainage.

A fill inlet shall be located on the left-hand side of the body, include a twist of cap with retaining chain, and be covered with a hinged, spring loaded, stainless-steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."

The tank shall meet all FHWA 393.67 requirements, including a fill capacity of 95 percent of tank volume.

All fuel lines shall be provided as recommended by the engine manufacturer.

DIESEL EXHAUST FLUID TANK

A 4.5-gallon diesel exhaust fluid (DEF) tank shall be provided.

A 0.50" drain plug shall be provided in a low point of the tank for drainage.

A fill inlet shall be located on the driver's side of the apparatus, have a blue screw on cap, and be covered with a hinged, spring loaded, polished stainless-steel door that is marked "Diesel Exhaust Fluid Only".

The tank shall meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing.

The tank shall include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.

TRANSMISSION

An Allison 5th generation, Model EVS 3000P, electronic torque converting automatic transmission shall be provided.

BIDDER COMPLIES	
YES	NO

The transmission shall be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display shall indicate when service is due.

Two (2) PTO openings shall be located on both sides of converter housing (positions 4 o'clock and 8 o'clock) as viewed from the rear.

A transmission temperature gauge with red light and audible alarm shall be installed on the cab dash.

TRANSMISSION SHIFTER

A five (5)-speed push-button shift module shall be mounted to right of driver on console. Shift position indicator shall be indirectly lit for after dark operation.

The transmission ratio shall be:

1st	3.49 to 1.00
2nd	1.86 to 1.00
3rd	1.41 to 1.00
4th	1.00 to 1.00
5th	0.75 to 1.00
R	5.03 to 1.00

TRANSMISSION COOLER

A transmission cooler must meet the recommendations of the transmission manufacturer.

DRIVELINE

Drivelines shall be a heavy-duty metal tube and be equipped with universal joints.

The shafts shall be axially straight, concentric with axis and dynamically balanced before installation.

STEERING

Dual steering gear, with integral heavy-duty power steering, shall be provided. For reduced system temperatures, the power steering shall incorporate an air to oil cooler and hydraulic pump with integral pressure and flow control. All power steering lines shall have wire braded lines with crimped fittings.
The system shall be able to operate mechanically should the hydraulic system fail.

A tilt and telescopic steering column shall be provided to improve fit for a broader range of driver configurations.

STEERING WHEEL

The steering wheel shall be 18.00" in diameter, have tilting and telescoping capabilities, with a center horn button

BUMPER

A one (1)-piece, polished stainless-steel bumper shall be attached to the front of the frame. The method of reinforcing the bumper shall be detailed.

The bumper shall not extend more than 20.00" from front face of cab.

BIDDER COMPLIES YES	NO

GRAVEL PAN

A gravel pan, constructed of bright aluminum treadplate, shall be furnished between the bumper and cab face. The gravel pan shall be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.

CENTER HOSE TRAY

A hose tray, constructed of aluminum, shall be recessed in the center of the bumper extension.
The tray shall have a capacity of 150' of 1.75" double jacket cotton-polyester hose.

Grating shall be provided at the bottom of the tray for water dissipation. Drain holes shall also be provided.

CENTER HOSE TRAY COVER

A bright aluminum treadplate cover shall be provided over the center hose tray.

The cover shall be "notched" allowing the hose to be pre connected to hose the connection.

The cover shall be attached with a stainless-steel hinge.

A D-ring latch shall secure the cover in the closed position and a pneumatic stay arm shall hold the cover in the open position.

PASSENGER SIDE BUMPER TRAY

A storage tray constructed of aluminum shall be recessed into the front bumper extension. The tray shall be located on the officer side of the bumper outboard of the frame rail and be approximately 14" deep (13" from the top of the grating). Grating shall be provided at the bottom of the tray for water dissipation. Drain holes shall also be provided. This box is intended to hold a minimum of 5 collapsible traffic cones which measure 16”X16” X 2” (wide when collapsed)

PASSENGER SIDE BUMPER TRAY COVER

A bright aluminum treadplate cover shall be provided that will extend up to 3” above the gravel pan, allowing the tray to hold the 16” traffic cones.

The cover shall be attached with a stainless-steel hinge.

A D-Handle shall secure the cover in the closed position and a pneumatic stay arm shall hold the cover in the open position.

TOW HOOKS

Two (2) chromed steel tow hooks shall be installed under the bumper and attached to the front frame members. The tow hooks shall be designed and positioned to allow up to a 6,000 lb. straight horizontal pull in line with the centerline of the vehicle. The tow hooks shall not be used for lifting of the apparatus.

CAB

The cab shall be designed specifically for the fire service and manufactured by the chassis builder.
The cab shall be built by the apparatus manufacturer in a facility located on the manufacturer's premises (no exception).

BIDDER COMPLIES	
YES	NO

For reasons of structural integrity and enhanced occupant protection, the cab shall be a heavy-duty design, constructed to the following minimal standards.

The cab shall have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts), and rear wall areas. The A-pillar shall be constructed of solid A356-T5 aluminum castings. The B-pillar and C-pillar shall be constructed from 0.13" wall extrusions. The rear wall shall be constructed of two (2) 2.00" x 2.00" outer aluminum extrusions and two (2) 2.00" x 1.00" inner aluminum extrusions. All main vertical structural members shall run from the floor to 4.625" x 3.864" x 0.090" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.25" thick corner casting at each of the front corners of the roof assembly.

The front of the cab shall be constructed of a 0.13" firewall plate, covered with a 0.090" front skin (for a total thickness of 0.22"), and reinforced with a full width x 0.50" thick cross-cab support located just below the windshield and fully welded to the engine tunnel. The cross-cab support shall run the full width of the cab and weld to each A-pillar, the 0.13" firewall plate, and the front skin.

The cab floors shall be constructed of 0.125" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.375" of structural material at the front floor area. The front floor area shall also be supported with two (2) triangular 0.30" wall extrusions that also provides the mounting point for the cab lift. This tubing shall run from the floor wireway of the cab to the engine tunnel side plates, creating the structure to support the forces created when lifting the cab.

The cab shall be a minimum of 96.00" wide (outside door skin to outside door skin).

The crew cab section shall have a raised roof to increase head height.

The floor to ceiling height inside the crew cab shall be 64.50" (minimum) in the center and outboard positions.

The crew cab shall be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The cab shall be a full tilt cab style.

The cab mount system must isolate the cab structure from stresses caused by chassis twisting and body movements and vibrations.

CAB ROOF DRIP RAIL

For enhanced protection from inclement weather, a drip rail shall be furnished on the sides of the cab. The drip rail shall be painted to match the cab roof and bonded to the sides of the cab. The drip rail shall extend the full length of the cab roof.

INTERIOR CAB INSULATION

The cab shall include insulation in the ceiling, the side walls, and in the rear wall to maximize acoustic absorption and thermal insulation.

BIDDER COMPLIES YES	NO

FENDER LINERS
Full circular inner fender liners in the wheel wells shall be provided. Liners shall be made of the same material as the cab. Composite material will not be accepted.

WINDSHIELD
A safety glass windshield shall be provided. The windshield shall be full width and shall provide the occupants with a panoramic view. The windshield shall consist of three (3) layers: outer light, middle safety laminate, and inner light. Windshield weather seal shall be warrantied against leaks for 5 years.

WINDSHIELD WIPERS
Windshield wipers with washer shall be provided that meet FMVSS and SAE requirements Windshield wipers shall each have an electric motor, air operated wipers are not acceptable. The washer reservoir shall have a minimum capacity of one gallon

ENGINE TUNNEL
The engine hood shall be insulated for protection from heat and sound. The noise insulation keeps the dBA level within the limits stated in the current NFPA 1901 standards.

MOUNTING PLATE ON ENGINE TUNNEL
Equipment installation provisions shall be installed on the engine tunnel.

A 0.188" smooth aluminum plate shall be bolted to the top surface of the engine tunnel. The plate shall follow the contour of the engine tunnel and shall run the entire length of the engine tunnel. The plate shall be spaced off the engine tunnel One Inch to allow for wire routing below the plate.

The mounting surface shall be painted to match the interior of the cab.

Bidder shall provide total mounting space available in square inches.

CAB REAR WALL EXTERIOR COVERING
The exterior surface of the rear wall of the cab shall be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered

CAB LIFT
A hydraulic cab lift system shall be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves.

The hydraulic pump shall have a manual override system as a backup in the event of an electrical failure.

Lift controls shall be located on the right-side pump panel or front area of the body in a convenient location.

The cab shall be capable of tilting to accommodate engine maintenance and removal.

The cab shall be locked down by a 2-point normally closed spring-loaded hook type latch that fully engages after the cab has been lowered. The system shall be hydraulically actuated to release the normally closed locks when the cab lift control is in the raised position and cab lift system is under pressure. When the cab is completely lowered and

BIDDER COMPLIES	
YES	NO

system pressure has been relieved, the spring-loaded latch mechanisms shall return to the normally closed and locked position.

The hydraulic cylinders shall be equipped with a velocity fuse that protects the cab from accidentally descending when the control is in the tilt position. For increased safety, a redundant mechanical stay arm shall be provided that must move into place on the right side between the chassis and cab frame when the cab is in the raised position. This device shall be manually stowed to its original position before the cab can be lowered.

CAB LIFT INTERLOCK

The cab lift system shall be interlocked to the parking brake. The cab tilt mechanism shall be active only when the parking brake is set, and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism shall be disabled.

GRILLE

A bright finished aluminum mesh grille screen, inserted behind a bright finished grille surround, shall be provided on the front center of the cab.

DOOR JAMB SCUFF PLATES

All cab door jambs shall be furnished with a polished stainless-steel scuff plate, mounted on the striker side of the jamb.

SIDE OF CAB MOLDING

Chrome molding shall be provided on both sides of cab.

MIRRORS

A Retrac, Model 613423, dual vision, motorized, west coast style mirror, with chrome finish, shall be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass shall be heated and adjustable with remote control within reach of the driver.

DOORS

The forward cab doors shall be a minimum of 37.50" wide x 63.37" high. The crew cab doors shall be located on the sides of the cab and shall be constructed in the same manner as the forward cab doors.

The crew cab door openings shall be a minimum of 34.30" wide x 73.25" high.

The forward cab and crew cab doors shall be constructed of extruded aluminum with a nominal material thickness of 0.093". The exterior door skins shall be constructed from 0.090" aluminum.

The cab doors shall be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The locks shall be capable of activating when the doors are open or closed. The doors shall remain locked if locks are activated when the doors are opened, then closed.

A full length, heavy duty, stainless-steel, piano-type hinge with a 0.38" pin and 11-gauge leaf shall be provided on all cab doors. There shall be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.

A chrome grab handle shall be provided on the inside of each cab door for ease of entry.

BIDDER COMPLIES	
YES	NO

A red webbed grab handle shall be installed on the crew cab door stop strap. The grab handles shall be securely mounted.

DOOR PANELS

The inner cab door panels shall be constructed out of brushed stainless-steel.

MANUAL CAB DOOR WINDOWS

All cab entry doors shall contain a conventional roll down window.

CAB STEPS

The forward cab and crew cab access steps shall be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps shall be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps shall be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps shall be a minimum 25.00" wide, and the crew cab steps shall be 21.65" wide with a 10.00" minimum depth. The inside cab steps shall not exceed 16.50" in height.

The vertical surfaces of the step well shall be aluminum treadplate.

CAB EXTERIOR HANDRAILS

A 1.25" diameter slip-resistant, knurled aluminum handrail shall be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress.

STEP LIGHTS

There shall be six (6) white LED step lights installed for cab and crew cab access steps.

- One (1) light for the driver's access steps.
- Two (2) lights for the driver's side crew cab access steps.
- Two (2) lights for the passenger's side crew cab access steps.
- One (1) light for the passenger's side access step.

The lights shall be activated when the battery switch is on and the adjacent door is opened.

FENDER CROWNS

Stainless-steel fender crowns shall be installed at the cab wheel openings.

CAB INTERIOR

The cab interior shall be constructed of primarily metal (painted aluminum) to withstand the severe duty cycles of the fire service.

The officer side dash shall be a flat faced design to provide easy maintenance and shall be constructed out of painted aluminum.

The instrument cluster shall be surrounded with a high impact ABS plastic contoured to the same shape of the instrument cluster.

The engine tunnel shall be padded and covered, on the top and sides, with an impermeable surface resistant to oil, grease, and mildew, and can be easily wiped clean.

For durability and ease of maintenance, the cab interior side walls shall be painted aluminum. The rear wall shall be painted aluminum.

BIDDER COMPLIES YES	NO

Headliner shall be installed in both forward and rear cab sections. Headliner material shall be vinyl. A sound barrier shall be part of its composition. Material shall be installed on aluminum sheet and securely fastened to interior cab ceiling.

Forward portion of cab headliner shall permit easy access for service of electrical wiring or other maintenance needs.

All wiring shall be placed in metal raceways. Routing through holes in tubing shall not be accepted due to chaffing that installation shall cause.

CAB INTERIOR UPHOLSTERY

The cab interior upholstery shall be 36 oz light gray vinyl.

CAB INTERIOR PAINT

The cab interior metal surfaces, excluding the rear heater panels, shall be painted fire smoke gray, vinyl texture paint.

The rear heater panels shall be painted black, vinyl textured paint.

CAB FLOOR

The cab and crew cab flooring shall be constructed with bright aluminum treadplate.

CAB DEFROSTER

To provide maximum defrost and heating performance, a 43,500 BTU heater-defroster unit with 350 CFM of air flow shall be provided inside the cab. The defroster unit shall be strategically located under the center forward portion of the vacuum formed instrument panel. For easy access, a removable vacuum formed cover shall be installed over the defroster unit. The defroster shall include an integral aluminum frame air filter, high performance dual scroll blowers, and ducts designed to provide maximum defrosting capabilities for the 1-piece windshield. The defroster ventilation shall be built into the design of the cab dash instrument panel and shall be easily removable for maintenance. The defroster shall be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system shall meet or exceed SAE J382 requirements.

CAB/CREW CAB HEATER

Two (2) 44,180 BTU auxiliary heaters with 276 CFM (each unit) of air flow shall be provided inside the crew cab, one (1) in each outboard rear-facing seat riser. The heaters shall include high performance dual scroll blowers, one (1) for each unit. Outlets for the heaters shall be located below each rear facing seat riser and below the fronts of the driver and passenger seats, for efficient airflow. An extruded aluminum plenum shall be incorporated in the cab structure that shall transfer heat to the forward cab seating positions.

The heater/defroster and crew cab heaters shall be controlled by a single integral electronic control panel. The heater control panel shall allow the driver to control heat flow to the front and rear simultaneously. The control panel shall include variable adjustment for temperature and fan control and be conveniently located on the dash in

BIDDER COMPLIES YES	NO

clear view of the driver. The control panel shall include highly visible, progressive LED indicators for both fan speed and temperature.

AIR CONDITIONING

A high performance, customized air conditioning system shall be furnished inside the cab and crew cab.

The air conditioning system shall be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit within 30 minutes at 50 percent relative humidity. The cooling performance test shall be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.

Mounting the condenser below the cab or body would reduce the performance of the system and shall not be acceptable.

The air conditioner refrigerant shall be R-134A and shall be installed by a certified technician.

The air conditioner shall be controlled by a single electronic control panel. For ease of operation, the control panel shall include variable adjustment for temperature and fan control and be conveniently located on the dash in clear view of the driver.

DRAIN TUBES

Two (2) condensate drain tubes shall be provided for the air conditioning evaporator. The drip pan shall have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan. No pumps shall be provided.

WINDOW DEFROST FANS

Two (2) window defrost fans shall be mounted on the ceiling of the cab, one (1) on each side of the cab.

SUN VISORS

Two (2) smoked polycarbonate sun visors provided. The sun visors shall be located above the windshield with one (1) mounted on each side of the cab.

There shall be no retention bracket provided to help secure each sun visor in the stowed position.

GRAB HANDLES

A black rubber covered grab handle shall be mounted on the door post of the driver and officer's side cab door to assist in entering the cab. The grab handles shall be securely mounted to the post area between the door and windshield.

ENGINE COMPARTMENT LIGHTS

There shall be one (1) Whelen, Model 3SC0CDCR, 12 volt DC, 3.00" white LED light(s) with Whelen, Model 3FLANGEC, chrome flange kit(s) installed under the cab to be used as engine compartment illumination.

These light(s) shall be activated automatically when the cab is raised.

ACCESS TO ENGINE DIPSTICKS

For access to the engine oil and transmission fluid dipsticks, there shall be a door on the engine tunnel, inside the crew cab.

BIDDER COMPLIES YES	NO

The engine oil dipstick shall allow for checking only. The transmission dipstick shall allow for both checking and filling.

The door shall have a rubber seal for thermal and acoustic insulation. One (1) flush latch shall be provided on the access door.

CAB SAFETY SYSTEM

The cab shall be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and shall include the following:

- A supplemental restraint system (SRS) sensor shall be installed on a structural cab member behind the instrument panel. The SRS sensor shall perform real time diagnostics of all critical subsystems and shall record sensory inputs immediately before and during a side roll or frontal impact event.
- A slave SRS sensor shall be installed in the cab to provide capacity for eight (8) crew cab seating positions.
- A fault-indicating light shall be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system.
- A driver side front air bag shall be mounted in the steering wheel and shall be designed to protect the head and upper torso of the occupant, when used in combination with the 3-point seat belt.
- A passenger side knee bolster air bag shall be mounted in the modesty panel below the dash panel and shall be designed to protect the legs of the occupant, when used in combination with the 3-point seat belt.
- Air curtains shall be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.
- Suspension seats shall be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event.
- Seat belts shall be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event.
-

FRONTAL IMPACT PROTECTION

The SRS system shall provide protection during a frontal or oblique impact event. The system shall activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis shall have been subjected, via third party test facility, to a crash impact during frontal and oblique impact testing. Testing included all major chassis and cab components such as mounting straps for fuel and air tanks, suspension mounts, front suspension components, rear suspensions components, frame rail cross members, engine and transmission and their mounts, pump house and mounts, frame extensions and body mounts. The testing provided configuration specific information used to optimize the timing for firing the safety restraint system. The sensor shall activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected (no exception).

The SRS system shall deploy the following components in the event of a frontal or oblique impact:

- Driver side front air bag
- Passenger side knee bolster air bag
- Air curtains mounted in the outboard bolster of outboard seat backs

BIDDER COMPLIES	
YES	NO

- Suspension seats shall be retracted to the lowest travel position
- Seat belts shall be pre-tensioned to firmly hold the occupant in place

SIDE ROLL PROTECTION

The SRS system shall provide protection during a fast or slow 90-degree roll to the side, in which the vehicle comes to rest on its side. The system shall analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints.

The SRS system shall deploy the following components in the event of a side roll:

- Air curtains mounted in the outboard bolster of outboard seat backs
- Suspension seats shall be retracted to the lowest travel position
- Seat belts shall be pre-tensioned to firmly hold the occupant in place

SEATING CAPACITY

The seating capacity in the cab shall be six (6).

DRIVER SEAT

A seat shall be provided in the cab for the driver. The seat design shall be a cam action type, with air suspension. For increased convenience, the seat shall include a manual control to adjust the horizontal position (6.00" travel). The manual horizontal control shall be a towel-bar style located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat shall have an adjustable reclining back. The seat back shall be a high back style with side bolster pads for maximum support. For optimal comfort, the seat shall be provided with 17.00" deep foam cushions.

The seat shall include the following features incorporated into the side roll protection system:

- Side air curtain shall be mounted integral to the outboard bolster of the seat back. The air curtain shall be covered by a decorative panel when in the stowed position.
- A suspension seat safety system shall be included. When activated in the event of a side roll, this system shall pretension the seat belt and retract the seat to its lowest travel position.

The seat shall be furnished with a 3-point, shoulder type seat belt.

OFFICER SEAT

A seat shall be provided in the cab for the passenger. The seat shall be a fixed type, with no suspension. For optimal comfort, the seat shall be provided with 17.00" deep foam cushions.

The seat back shall be an SCBA back style with 5 degree fixed recline angle. The SCBA cavity shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat shall include the following features incorporated into the side roll protection system:

- Side air curtain shall be mounted integral to the outboard bolster of the seat back. The air curtain shall be covered by a decorative panel when in the stowed position.

BIDDER COMPLIES	
YES	NO

- A seat safety system shall be included. When activated, this system shall pretension the seat belt.

The seat shall be furnished with a 3-point, shoulder type seat belt.

RADIO COMPARTMENT

A radio compartment shall be provided under the officer's seat.

The inside compartment dimensions shall be 16.00" wide x 7.50" high x 15.00" deep, with the back of the compartment angled up to match the cab structure.

A drop-down door with a chrome plated lift and turn latch shall be provided for access. The compartment shall be constructed of smooth aluminum and painted to match the cab interior.

REAR FACING LEFT SIDE CABINET

A rear facing cabinet shall be provided in the crew cab at the left side outboard position.

The cabinet shall be 23.00" wide x 40.25" high x 26.75" deep with one (1) Amdor rollup door with white finish, non-locking. The door shall be a radius track style. That is, it shall travel over the top and down the back of the cabinet. Front top corners of the cabinet shall be radiused. This shall allow access through the front and top section of the cabinet. A shield shall be installed to keep items in this cabinet from falling into the door tracking area and jamming the door. The frame to frame opening shall be 17.00" wide x 39.75" high. The minimum clear door opening of the cabinet shall be 14.25" wide x 37.25" high.

The cabinet shall also provide access from outside the cab with one (1) double pan door painted to match the cab exterior with a non-locking D-ring latch. A rubber bumper shall be provided as a door stop. The door shall be located on the side of the cab over the wheel well. The clear door opening shall be 17.25" wide x 33.75" high.

The cabinet shall include two (2) infinitely adjustable shelves with a 0.75" up-turned lip painted to match the cab interior.

The cabinet shall include no louvers.

The exterior access shall be provided with a polished stainless-steel scuff plate on the lower door frame.

The cabinet shall be constructed of smooth aluminum and painted to match the cab interior.

CABINET LIGHT

There shall be LED lighting installed in the cabinet. The lights shall be controlled by an automatic door switch.

REAR FACING RIGHT SIDE CABINET

A rear facing cabinet shall be provided in the crew cab at the right-side outboard position.

The cabinet shall be 22.00" wide x 40.25" high x 26.75" deep with one (1) Amdor rollup door with white finish, non-locking, radius track style. That is, it shall travel over the top

BIDDER COMPLIES	
YES	NO

and down the back of the compartment. Front top corners of the compartment shall be radiused. This shall allow access through the front and top section of the compartment. A shield shall be installed to keep items in this cabinet from falling into the door tracking area and jamming the door. The frame to frame opening shall be 16.00" wide x 39.75" high. The minimum clear door opening of the cabinet shall be 17.25" wide x 33.25" high. The cabinet shall include two (2) infinitely adjustable shelves with a 0.75" up-turned lip painted to match the cab interior.

The cabinet shall include no louvers.

The cabinet shall also provide access from outside the cab with one (1) double pan door painted to match the cab exterior with a non-locking D-ring latch. A rubber bumper shall be provided as a door stop. The exterior clear door opening shall be 17.25" wide x 33.75" high.

The exterior access shall be provided with a polished stainless-steel scuff plate on the lower door frame.

The cabinet shall be constructed of smooth aluminum and painted to match the cab interior.

CABINET LIGHT

There shall be LED strip lighting provided. The lights shall be controlled by an automatic door switch.

FORWARD FACING CENTER SEATS

There shall be two (2) forward facing seats provided at the center position in the crew cab. The seats shall be provided with 15.00" deep foam cushions designed with EVC (elastomeric vibration control).. .

The seat backs shall be an SCBA style with 90 degree back. The SCBA cavity shall be adjustable from front to rear in 1.00" increments to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat shall include the following features incorporated into the side roll protection system:

- A seat safety system shall be included. When activated, this system shall pretension the seat belt.

The seats shall be furnished with a 3-point, shoulder type seat belt.

FORWARD FACING OUTBOARD SEATS

There shall be two (2) forward facing, foldup seats provided at the driver side and passenger side outboard positions in the crew cab. The seat backs shall be a high back style with 9 degree fixed recline angle. For optimal comfort, the seat shall be a minimum of 15.00" from the front of the cushion to the face of the seat back and designed with EVC (elastomeric vibration control).

The seats shall include the following features incorporated into the side roll protection system:

BIDDER COMPLIES	
YES	NO

- Side air curtains shall be mounted integral to the outboard bolster of the seat back. The air curtain shall be covered by a decorative panel when in the stowed position.
- A seat safety system shall be included. When activated, this system shall pretension the seat belt around the occupant to firmly hold them in place in the event of a side roll.

The seat shall be furnished with a 3-point, shoulder type seat belt.

STORAGE COMPARTMENT

Provided under the forward-facing crew cab seats shall be a transverse compartment. The compartment shall be open top to bottom with no dividers. The compartment shall be 13.00" wide x 9.00" high x full width (transverse) of the crew cab.

Aluminum tubing shall be used for the storage of three (3) pike poles and shall be located in the transverse portion of this storage compartment. If the head of a pike pole can come in contact with a painted surface, a stainless-steel scuff plate shall be provided.

The lower portion shall be 13.00" wide x 24.50" high x 15.00" deep on both sides. The compartment shall extend from the bottom of the cab to top of the seat riser.

A 4.00" long x 7.50" diameter tube shall be recessed below the compartment floor. The tube shall be angled approximately 10 degrees for ease of removing an extinguisher from the compartment.

There shall be Double Pan Doors, painted to match the exterior with a non-locking D-Ring latch

A rubber bumper shall be used as a door stop. The clear door opening of each compartment door shall be 9.25" wide x 32.00" high.

The compartment interior shall be painted spatter gray

SEAT UPHOLSTERY

All seat upholstery shall be 36-ounce leather grain 36 oz dark silver-gray vinyl resistant to oil, grease and mildew and easily cleaned by wiping. The cab shall have four (6) seating positions.

AIR BOTTLE HOLDERS

All SCBA type seats in the cab shall have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket shall include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp shall constrain the SCBA bottle in the seat and shall exceed the NFPA standard of 9G. Bracket designs with manual restraints (belts, straps, buckles) that could be inadvertently left unlocked and allow the SCBA to move freely within the cab during an accident, shall not be acceptable.

There shall be a quantity of three (3) SCBA brackets in the SCBA seats previously described. A fourth SCBA bracket will be provided by the manufacturer with the loose equipment for mounting in a cabinet by the purchaser after delivery.

BIDDER COMPLIES YES	NO

SEAT BELTS

All cab seating positions shall have red seat belts. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length shall meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.

The 3-point shoulder type seat belts shall include height adjustment. This adjustment shall optimize the belts effectiveness and comfort for the seated firefighter. The 3-point shoulder type seat belts shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.

The 3-point shoulder type belts shall also include a D-loop assembly to the shoulder belt system. This feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.

To ensure safe operation, the seats shall be equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not buckled.

CAB DOME LIGHTS

There shall be four (4) dual LED dome lights with black bezels provided. Two (2) lights shall be mounted above the inside shoulder of the driver and officer and two (2) lights shall be installed and located, one (1) on each side of the crew cab.

The color of the LEDs shall be red and white.
The red LEDs shall be controlled by the door switches and the lens switch.

The white LEDs shall be controlled by the lens switch.

Each white LED dome light shall provide a minimum of 10.1 foot-candles (fc) covering an entire 20.00" x 20.00" square seating position when mounted 40.00" above the seat.

PORTABLE HAND LIGHTS, PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 5.9.4 requires two portable hand lights mounted in brackets fastened to the apparatus.

The hand lights are not on the apparatus as manufactured. The fire department shall provide and mount these hand lights.

CAB INSTRUMENTATION

The cab instrument panel shall be a molded ABS panel and include gauges, an LCD display, telltale indicator lamps, control switches, alarms, and a diagnostic panel. The function of the instrument panel controls and switches shall be identified by a label adjacent to each item. Actuation of the headlight switch shall illuminate the labels in low light conditions. Telltale indicator lamps shall not be illuminated unless necessary. The cab instruments and controls shall be conveniently located within the forward cab section, forward of the driver. The gauge assembly and switch panels are designed to be removable for ease of service and low cost of ownership.

GAUGES

The gauge panel shall include the following ten (10) black faced gauges with black bezels to monitor vehicle performance:

BIDDER COMPLIES YES	NO

- Voltmeter gauge (volts):
    - Low volts (11.8 VDC)
        - Amber caution indicator on the information center with intermittent alarm
        - Amber caution light on gauge assembly
    - High volts (15.5 VDC)
        - Amber caution indicator on the information center with intermittent alarm
        - Amber caution light on gauge assembly
    - Very low volts (11.3 VDC)
        - Red warning indicator on the information center with a steady alarm
        - Amber caution light on gauge assembly
    - Very high volts (16.0 VDC)
        - Red warning indicator on the information center with a steady alarm
        - Amber caution light on gauge assembly
- Engine Tachometer (RPM)
- Speedometer MPH (Major Scale), KM/H (Minor Scale)
- Fuel level gauge (Empty - Full in fractions):
    - Low fuel (1/8 full)
        - Amber caution indicator on the information center with intermittent alarm
        - Amber caution light on gauge assembly
    - Very low fuel (1/32 full)
        - Red caution indicator on the information center with steady alarm
        - Amber caution light on gauge assembly
- Engine Oil pressure Gauge (PSI):
    - Low oil pressure to activate engine warning lights and alarms
        - Red caution indicator on the information center with steady alarm
        - Amber caution light on gauge assembly
- Front Air Pressure Gauges (PSI):
    - Low air pressure to activate warning lights and alarm
        - Red warning indicator on the information center with a steady alarm
        - Amber caution light on gauge assembly
- Rear Air Pressure Gauges (PSI):
    - Low air pressure to activate warning lights and alarm
        - Red warning indicator on the information center with a steady alarm
        - Amber caution light on gauge assembly
- Transmission Oil Temperature Gauge (Fahrenheit):
    - High transmission oil temperature activates warning lights and alarm
        - Amber caution indicator on the information center with intermittent alarm
        - Amber caution light on gauge assembly
- Engine Coolant Temperature Gauge (Fahrenheit):
    - High engine temperature activates an engine warning light and alarms
        - Amber caution indicator on the information center with intermittent alarm
        - Amber caution light on gauge assembly
- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions):
    - Low fluid (1/8 full)
        - Amber indicator light in gauge dial

All gauges shall perform prove out at initial power-up to ensure proper performance.

BIDDER COMPLIES	
YES	NO

INDICATOR LAMPS

To promote safety, the following telltale indicator lamps shall be located on the instrument panel in clear view of the driver. The indicator lamps shall be "dead-front" design that is only visible when active.

The colored indicator lights shall have descriptive text or symbols.

The following amber telltale lamps shall be present:

- Low coolant
- Trac cntl (traction control) (where applicable
- Check engine
- Check trans (check transmission
- Aux brake overheat (Auxiliary brake overheat
- Air rest (air restriction)
- Caution (triangle symbol)
- Water in fuel
- DPF (engine diesel particulate filter regeneration)
- Trailer ABS (where applicable)
- Wait to start (where applicable)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- Side roll fault (where applicable)
- Front air bag fault (where applicable)

The following red telltale lamps shall be present:

- Warning (stop sign symbol)
- Seat belt
- Parking brake
- Stop engine
- Rack down

The following green telltale lamps shall be provided:

- Left turn
- Right turn
- Battery on

The following blue telltale lamp shall be provided:

- High beam

ALARMS

Audible steady tone warning alarm: A steady audible tone alarm shall be provided whenever a warning message is present.

INDICATOR LAMP AND ALARM PROVE-OUT

A system shall be provided which automatically tests telltale indicator lights and alarms located on the cab instrument panel. Telltale indicators and alarms shall perform prove-out at initial power-up to ensure proper performance.

BIDDER COMPLIES	
YES	NO

CONTROL SWITCHES

For ease of use, the following controls shall be provided immediately adjacent to the cab instrument panel within easy reach of the driver. All switches shall have backlit labels for low light applications.

Headlight/Parking light switch: A three (3)-position maintained rocker switch shall be provided. The first switch position shall deactivate all parking and headlights. The second switch position shall activate the parking lights. The third switch shall activate the headlights.

Panel back lighting intensity control switch: A three (3)-position momentary rocker switch shall be provided. Pressing the top half of the switch, "Panel Up" increases the panel back lighting intensity and pressing the bottom half of the switch, "Panel Down" decreases the panel back lighting intensity. Pressing the half or bottom half of the switch several times shall allow back lighting intensity to be gradually varied from minimum to maximum intensity level for ease of use.

Ignition switch: A three (3)-position maintained/momentary rocker switch shall be provided. The first switch position shall turn off and deactivate vehicle ignition. The second switch position shall activate vehicle ignition and shall perform prove-out on the telltale indicators and alarms for 3 to 5 seconds after the switch is turned on. A green indicator lamp is activated with vehicle ignition. The third momentary position shall temporarily silence all active cab alarms. An alarm "chirp" may continue as long as alarm condition exists. Switching ignition to off position shall terminate the alarm silence feature and reset function of cab alarm system.

Engine start switch: A two (2)-position momentary rocker switch shall be provided. The first switch position is the default switch position. The second switch position shall activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

Hazard switch shall be provided on the instrument panel or on the steering column.

Heater, defroster, and air conditioning control panel: A control panel with membrane switches shall be provided to control heater/defroster temperature and heater, defroster, and air conditioning fan speeds.

Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls shall be provided. The windshield wiper control shall have high, low, and intermittent modes.

Parking brake control: An air actuated push/pull park brake control valve shall be provided.

Chassis horn control: Activation of the chassis horn control shall be provided through the center of the steering wheel.

High idle engagement switch: A maintained rocker switch with integral indicator lamp shall be provided. The switch shall activate and deactivate the high idle function. The "OK To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch shall indicate when the high idle function is engaged.

BIDDER COMPLIES YES	NO

"OK to Engage High Idle" indicator lamp: A green indicator light shall be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

Emergency switching shall be controlled by multiple individual warning light switches for various groups or areas of emergency warning lights. An Emergency Master switch provided on the instrument panel that enables or disables all individual warning light switches is included.

CUSTOM SWITCH PANELS

The design of cab instrumentation shall allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There shall be positions for up to four (4) switch panels in the lower instrument console and up to six (6) switch panels in the overhead visor console. All switches have backlit labels for low light conditions.

DIAGNOSTIC PANEL

A diagnostic panel shall be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership.

Diagnostic switches shall allow ABS systems to provide blink codes should a problem exist.

The diagnostic panel shall include the following:

- ENGINE/TRANSMISSION/ABS J1939 Diagnostic Port
- ABS Diagnostic Switch and Indicator - The switch and amber indicator shall allow access to diagnostic mode and display of standard ABS system fault blink codes that may be generated by the ABS system
- DPF REGEN (Diesel Particulate Filter Regeneration Switch) (where applicable) shall be provided to request regeneration of the engine emission system. An amber indicator shall be provided on top of the switch that shall illuminate in a "CHECK ENGINE" condition
- REGEN INHIBIT (Diesel Particulate Filter Regeneration Inhibit Switch) (where applicable) shall be provided that shall request that regeneration be temporarily prevented. A green indicator shall be provided on top of the Regen Inhibit switch that shall illuminate when the Regen Inhibit feature is active. Regen Inhibit shall be disabled upon cycling of the ignition switch to the off state.

AIR RESTRICTION INDICATOR

A high air restriction warning indicator light (Electronic) shall be provided.

"DO NOT MOVE APPARATUS" INDICATOR

A flashing red indicator light, located in the driving compartment, shall be illuminated automatically per the current NFPA requirements. The light shall be labeled "Do Not Move Apparatus If Light Is On."
The same circuit that activates the Do Not Move Apparatus indicator shall activate a pulsing alarm when the parking brake is released.

BIDDER COMPLIES YES	NO

SWITCH PANELS

The built-in switch panels shall be located in the lower console or overhead console of the cab.

The switches shall be rocker-type and include an integral indicator light. For quick, visual indication the switch shall be illuminated whenever the switch is active. A label indicating the use of each switch shall be placed below the switches. The label shall allow light to pass through the letters for improved visibility in low light conditions. Switches and light source are integral to the switch panel assembly.

WIPER CONTROL

Wiper control shall consist of a two (2)-speed windshield wiper control with intermittent feature and windshield washer controls.

SPARE CIRCUIT

There shall be two (2) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires shall have the following features:

- The positive wire shall be connected directly to the battery power
- The negative wire shall be connected to ground
- Wires shall be protected to 15 amps at 12 volts DC
- Power and ground shall terminate officer side dash area
- Termination shall be with 15-amp, power point plug with rubber cover
- Wires shall be sized to 125 percent of the protection

The circuit(s) may be load managed when the parking brake is set.

SPARE CIRCUIT

There shall be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires shall have the following features:

- The positive wire shall be connected directly to the battery power
- The negative wire shall be connected to ground.
- Wires shall be protected to 20 amps at 12 volts DC.
- Power and ground shall terminate Engine Tunnel as directed at the final inspection.
- Termination shall be with a 10-place bus bar with screws and removable cover.
- Wires shall be sized to 125% of the protection.

This circuit(s) may be load managed when the parking brake is set.

SPARE CIRCUIT

There shall be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires shall have the following features:

- The positive wire shall be connected directly to the battery power
- The negative wire shall be connected to ground
- Wires shall be protected to 20 amps at 12 volts DC
- Power and ground shall terminate behind officer seat
- Termination shall be with a 10-place bus bar with screws and removable cover

BIDDER COMPLIES	
YES	NO

- Wires shall be sized to 125% of the protection

This circuit(s) may be load managed when the parking brake is set.

SPARE CIRCUIT

There shall be two (2) pair of wires, including a positive and a negative, installed on the apparatus.
The above wires shall have the following features:

- The positive wire shall be connected directly to the battery power.
- The negative wire shall be connected to ground.
- Wires shall be protected to 2.0 amps at 12 volts DC.
- Power and ground shall terminate Officers side instrument panel as directed.
- Termination shall be a dual USB charger socket.
- Wires shall be sized to 125% of the protection.

This circuit(s) may be load managed when the parking brake is applied.

INFORMATION CENTER

There shall be a LCD display integral to the cab gauge panel provided that shall display the following information:

- Total distance
- Trip distance
- Total hours
- Trip hours
- PTO "A" hours
- PTO "B" hours

VEHICLE DATA RECORDER

There shall be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be provided or will be available to download on-line.

The vehicle data recorder shall be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position
- Seat Belt Buckled Status - Yes/No by Position
- Master Optical Warning Device Switch - On/Off
- Time - 24 Hour Time
- Date - Year/Month/Day

BIDDER COMPLIES YES	NO

INTERCOM SYSTEM

There shall be Firecom™ digital, single radio interface, intercom located TBD in the cab. The front panel shall have master volume, and squelch controls with illuminated indicators, allowing for independent level setting of radio and auxiliary audio devices.

There shall be one (1) radio listen only / transmit control with select, monitor, receive, and transmit indicators. There shall be one (1) auxiliary audio input with select and receive indicators.
There shall be one (1) wireless base station for up to five (1-5) headset users provided. Wired headset jacks shall be provided for the driver, officer, and two (2) crew positions located at both forward facing seats.

The wireless base station shall have a 100' to 1100' range, line of sight. Objects between the transmitter and receiver affect range.
The following Firecom components shall be provided:

- One (1) 5100D Intercom
- One (1) WB505R wireless base station (1-5 wireless positions)
- Four (4) HM-10 Interior headset jacks
- All necessary power and station cabling

RADIO/INTERCOM INTERFACE CABLE

The apparatus manufacturer shall supply and install one (1) radio interface cable before delivery of the vehicle.

The radio equipment to be used by the customer shall be:

- Kenwood Viking VM7000

OVER-THE-HEAD, RADIO TRANSMIT HEADSET

There shall be four (4)) over-the-head, radio transmit headset(s) provided, driver's seat and officer seat, and two forward facing rear seats

Each Firecom, Model FH-51 headset shall feature:

- Coiled cord with rugged angled plug
- Noise cancelling electric microphone
- Flex boom rotates for left or right dress
- Adjustable volume control
- ComLeather ear seals with 24dB noise reduction
- Radio Push-to-Transmit button. Mic is always live for intercom communication

WIRELESS, OVER THE HEAD, RADIO TRANSMIT HEADSET ONLY

There shall be one (1) Firecom™, Model FHW-505, wireless over the head style, radio transmit headset(s) provided. A heavy-duty, coiled 12 volt charging pigtail with plug shall be provided Pump Panel Position.

Each headset shall feature:

- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 dB noise reduction
- Radio Push-to-Transmit button (Left or Right Side)
- Rechargeable battery operates for 24 hours on a full charge

BIDDER COMPLIES YES	NO

- IP-65 when worn

KNOX-BOX®

There shall be one (1) Knox-Box(s) sent to the apparatus manufacturers preferred installer and installed at TBD. Specific shipping requirements shall be followed.

A "technician's key" shall be provided by the customer for each Knox Box. The box cannot be installed without a compatible technician's key.

BRACKET ONLY INSTALLATION

There shall be one (1) customer supplied Thermal Imaging camera charging bracket(s) sent to the apparatus manufacturers preferred installer to be installed TBD.
Specific shipping requirements shall be followed.

RADIO ANTENNA MOUNT

There shall be two (2) standard 1.125", 18 thread antenna-mounting base(s) installed on the right side on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the instrument panel area. A weatherproof cap shall be installed on the mount.

ELECTRICAL POWER CONTROL SYSTEM

A compartment shall be provided in or under the cab to house the vehicle's electrical power and signal circuit protection and control components. The power and signal protection and control compartment shall contain circuit protection devices and power control devices. Power and signal protection and control components shall be protected against corrosion, excessive heat, excessive vibration, physical damage and water spray.

Serviceable components shall be readily accessible.

Circuit protection devices, which conform to SAE standard, shall be utilized to protect each circuit. All circuit protection devices shall be sized to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers shall be Type-I automatic reset (continuously resetting) and conform to SAE J553 or J258. When required, automotive type fuses conforming to SAE J554, J1284, J1888 or J2077 shall be utilized to protect electronic equipment.

Power control relays and solenoids shall have a direct current (dc) rating of 125 percent of the maximum current for which the circuit is protected.
Visual status indicators shall be supplied to identify control safety interlocks and vehicle status. In addition to visual status indicators, audible alarms designed to provide early warning of problems before they become critical shall be used.

VOLTAGE MONITOR SYSTEM

A voltage monitoring system shall be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system shall provide visual and audible warning when the system voltage is below or above optimum levels.
The alarm shall activate if the system falls below 11.8 volts DC for more than two (2) minutes.

POWER AND GROUND STUDS

Spare circuits shall be provided in the primary distribution center for two-way radio equipment.

BIDDER COMPLIES YES	NO

The spare circuits shall consist of the following:

- One (1) 12-volt DC, 30-amp battery direct spare
- One (1) 12-volt DC ground and un-fused switched battery stud located in or adjacent to the power distribution center

EMI/RFI PROTECTION

To prevent erroneous signals from crosstalk contamination and interference, the electrical system shall meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system shall be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.
The apparatus shall have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system shall meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10Khz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, shall provide EMC testing reports from testing conducted on an entire apparatus and shall certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10Khz-1GHz to 100 Volts/Meter requirements. Component and partial (incomplete) vehicle testing is not adequate as overall vehicle design can impact test results and thus is not acceptable by itself.

EMI/RFI susceptibility shall be controlled by applying appropriate circuit designs and shielding. The electrical system shall be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing shall be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

ELECTRICAL

All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. All wiring shall be high temperature crosslink type. Wiring shall be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers shall be provided which conform to SAE Standards. Wiring shall be color, function and number coded. Function and number codes shall be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors shall be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment shall be installed utilizing the following guidelines:

1. All holes made in the roof shall be caulked with silicon, rope caulk is not acceptable. Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof.
2. Any electrical component that is installed in an exposed area shall be mounted in a manner that shall not allow moisture to accumulate in it. Exposed area shall be defined as any location outside of the cab or body.
3. Electrical components designed to be removed for maintenance shall not be fastened with nuts and bolts. Metal screws shall be used in mounting these

BIDDER COMPLIES YES	NO

devices. Also a coil of wire shall be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.

4. Corrosion preventative compound shall be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections shall require this compound in the plug to prevent corrosion and for easy separation (of the plug).
5. All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.
6. **All electrical terminals in exposed areas shall have silicon (1890) applied completely over the metal portion of the terminal.**

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, shall be furnished. Rear identification lights shall be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads shall be protected from damage by installing a false bulkhead inside the rear compartments.
An operational test shall be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests shall be recorded and provided to the purchaser at time of delivery.

BATTERY SYSTEM

There shall be six (6) 12-volt Exide®, Model 31S950X3W, batteries that include the following features shall be provided:

- 950 CCA, cold cranking amps
- 190-amp reserve capacity
- High cycle
- Group 31
- Rating of 5700 CCA at 0 degrees Fahrenheit
- -190 minutes of reserve capacity
- Threaded stainless-steel studs

Each battery case shall be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover shall be manifold vented with a central venting location to allow a 45-degree tilt capacity.

The inside of each battery shall consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.

BATTERY SYSTEM

There shall be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.

MASTER BATTERY SWITCH

There shall be a master battery switch provided within the cab within easy reach of the driver to activate the battery system. This shall be reachable when driver is on the ground.

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

BIDDER COMPLIES YES	NO

BATTERY COMPARTMENTS

Batteries shall be placed on non-corrosive mats and be stored in well ventilated compartments located under the cab.

Heavy-duty battery cables shall be used to provide maximum power to the electrical system. Cables shall be color coded.

Battery terminal connections shall be coated with anti-corrosion compound. Battery solenoid terminal connections shall be encapsulated with semi-permanent rubberized compound.

JUMPER STUDS

One (1) set of battery jumper studs with plastic color-coded covers shall be included and must be accessible without tilting the cab. They will be located either inside the driver's door or in a sealed compartment to protect them from the road elements.

BATTERY CHARGER

There shall be an IOTA™, Model DSL 75, battery charger with IQ4, controller provided.

The battery charger shall be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.

There shall be a Kussmaul™, Model #091-94-12, remote indicator included.

The battery charger shall be located in the left body compartment mounted on the left wall as high as possible.

The battery charger indicator shall be located on the driver's seat riser.

AUTO EJECT FOR SHORELINE

There shall be one (1) Kussmaul™, Model 091-55-20-120, 20-amp 120-volt AC shoreline inlet(s) provided to operate the dedicated 120-volt AC circuits on the apparatus.

The shoreline inlet(s) shall include red weatherproof flip up cover(s).

There shall be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.

The shoreline(s) shall be connected to the battery charger.

There shall be a mating connector body supplied with the loose equipment.

There shall be a label installed near the inlet(s) that state the following:

- Line Voltage
- Current Ratting (amps)
- Phase
- Frequency

The shoreline receptacle shall be located on the driver side of cab, above wheel.

ALTERNATOR

An alternator shall be provided. **It shall have a rated output current of 350 amp as measured by SAE method J56.** The alternator shall feature an integral, self-diagnostic

BIDDER COMPLIES YES	NO

regulator and rectifier. The alternator shall be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

ELECTRONIC LOAD MANAGER

An electronic load management (ELM) system shall be provided that monitors the vehicles 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and by doing so, ensures the integrity of the electrical system.

The ELM shall monitor the vehicle's voltage while at the scene (parking brake applied). It shall sequentially shut down individual electrical loads when the system voltage drops below a preset value.

Two (2) separate electrical loads shall be controlled by the load manager. The ELM shall sequentially re-energize electrical loads as the system voltage recovers.

HEADLIGHTS

There shall be four (4) 4" x 6" rectangular LED lights with heated lens mounted in the front quad style, chrome housing on each side of the cab grille:

- the outside light on each side shall contain a low beam module
- the inside light on each side shall contain a high beam module
- the headlight to include chrome bezels

The low beam lights shall be activated when the headlight switch is on.
The high beam and low beam lights shall be activated when the headlight switch and the high beam switch is activated.

DIRECTIONAL LIGHTS

There shall be two (2) Whelen, Model M6T, amber LED arrow lights. The directional lights shall be housed in the same chrome common bezel as the front warning light and shall be located above the headlights. The lens color(s) to be clear.

INTERMEDIATE LIGHT

There shall be two (2) amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light shall double as a turn signal and marker light.

CAB CLEARANCE/MARKER/ID LIGHTS

There shall be five (5) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:

- Three (3) amber LED identification lights shall be installed in the center of the cab above the windshield.
- Two (2) amber LED clearance lights shall be installed, one (1) on each outboard side of the cab above the windshield.

FRONT CAB SIDE DIRECTIONAL/MARKER LIGHTS

There shall be two (2) amber LED lights installed front of the cab door, one (1) on each side of the cab.
The lights shall activate as marker lights with the headlight switch and directional lights with the corresponding directional circuit.

BIDDER COMPLIES YES	NO

REAR CLEARANCE/MARKER/ID LIGHTING

There shall be a three (3) LED light bar used as identification lights located at the rear of the apparatus per the following:

- As close as practical to the vertical centerline
- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height

There shall be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the rear
- All at the same height

There shall be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:

- To indicate the overall length of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the side
- All at the same height

There shall be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

There shall be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.
Per FMVSS 108 and CMVSS 108 requirements.

REAR FMVSS LIGHTING

The rear stop/tail and directional LED lighting shall consist of the following:

- Two (2) Whelen®, Model M6BTT, red LED stop/taillights
- Two (2) Whelen, Model M6T, amber LED arrow turn lights

The lights shall be provided with color lenses.

The lights shall be mounted in a polished combination housing.

There shall be two (2) LED backup lights provided in the taillight housing.

LICENSE PLATE BRACKET

There shall be one (1) license plate bracket mounted on the rear of the body.

BIDDER COMPLIES YES	NO

A white LED light shall illuminate the license plate. A polished stainless-steel light shield shall be provided over the light that shall direct illumination downward, preventing white light to the rear.

LIGHTING BEZEL

There shall be two (2) four (4) place chromed ABS housings provided for the rear stop/tail, directional, back up, scene lights or warning lights.

BACK-UP ALARM

A solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided. The device shall sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.

CAB PERIMETER SCENE LIGHTS

There shall be four (4) Truck-Lite, Model 6060C, white LED lights with grommets provided, one (1) for each cab and crew cab door.

These lights shall be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.

PUMP HOUSE PERIMETER LIGHTS

There shall be two (2) Truck-Lite, Model 6060C, white LED lights with grommets provided under the pump panel running boards, one (1) each side.

The lights shall be controlled by the same means as the body perimeter lights.

BODY PERIMETER SCENE LIGHTS

There shall be two (2) Truck-Lite, Model 6060C, white LED lights with grommets provided under at the rear step area of the body, one (1) each side shining to the rear.

The perimeter scene lights shall be activated when the parking brake is applied.

STEP LIGHTS

There shall be four (4) white LED, step lights shall be provided. One (1) step light provided on each side, on the front compartment face and two (2) step lights at the rear to illuminate the tailboard.
In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.

These step lights shall be actuated when the ignition switch is on and the parking brake is set.

All other steps on the apparatus shall be illuminated per the current edition of NFPA 1901.

12 VOLT LIGHTING

There shall be two (2) Whelen® Model PCH2, 12 volt DC light(s) with a combination of flood and spot optics provided on the front visor, one (1) on the driver's side and one (1) on the passenger's side mounted with a 15 degree outward bracket

BIDDER COMPLIES YES	NO

The housing(s) painted parts of this light assembly to be black. The light(s) shall be controlled by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel.

These light(s) may be load managed when the parking brake is applied.

12 VOLT DC SCENE LIGHTS

There shall be one (1) Whelen® Model PCPSM2 12 volt DC powered lights with white LEDs and a combination of flood and spot optics installed on the apparatus located, Left Side, of cab, over the front wheels.

The light(s) shall include black housing(s) with a chrome cover.

The lights shall be activated by a switch at the driver's side switch panel, by a switch at the driver's side pump panel and by a switch at the passenger's side switch panel.

The light(s) may be load managed when the parking brake is applied.

12-VOLT DC SCENE LIGHTS

There shall be one (1) Whelen® Model PCPSM212 volt DC powered lights with white LEDs and a combination of flood and spot optics installed on the apparatus located, Right Side, of the cab over the front wheels.

The lights shall be activated by a switch at the driver's side switch panel, by a switch at the driver's side pump panel and by a switch at the passenger's side switch panel.

The light(s) may be load managed when the parking brake is applied.

12-VOLT LIGHTING

There shall be one (1) Whelen® Model PCPSM2*, 12-volt DC surface mount light(s) installed on the body of the apparatus located, Right Side of Body, over the rear wheels.

The light(s) shall include black housing(s) with a chrome cover.
The light(s) shall be controlled by a switch at the driver's side switch panel, by a switch at the driver's side pump panel and by a switch at the passenger's side switch panel.

The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There shall be one (1) Whelen® Model PCPSM2*, 12-volt DC surface mount light(s) installed on the body of the apparatus located, Left Side of Body, over the rear wheels.

The light(s) shall include black housing(s) with a chrome cover.

The light(s) shall be controlled by a switch at the driver's side switch panel, by a switch at the driver's side pump panel and by a switch at the passenger's side switch panel.

The light(s) may be load managed when the parking brake is applied.

HOSE BED LIGHTS

There shall be Amdor LumaBar H2O, Model AY-9750-20, 20.00" white 12-volt DC LED light strips provided to illuminate the hose bed area.

- One (1) LED light strip shall be installed on the driver's side hose bed cover 30.00" from the front of the hose bed, as close to the hinge as practical.

BIDDER COMPLIES YES	NO

- One (1) LED light strip shall be installed on the passenger's side hose bed cover 30.00" from the rear of the hose bed, as close to the hinge as practical.

The lights shall be activated with the parking brake.

REAR SCENE LIGHTS

There shall be two (2) Whelen® Model M9LZC, LED scene lights with chrome trim installed at the rear of the apparatus. These lights shall be installed between 30.00" and 102.00" above the ground.

The lights shall be controlled by a switch at the driver's side switch panel and by a cup switch at the passenger's side rear bulkhead.

WALKING SURFACE LIGHT

There shall be 4" round black 12-volt DC LED floodlight(s) with bolt mount provided to illuminate the entire designated walking surface on top of the body.

The light(s) shall be activated when the body step lights are on.

WATER TANK

Booster tank shall have a minimum capacity of 1000 gallons and be constructed of polypropylene plastic.

Tank joints and seams shall be nitrogen welded inside and out.

Tank shall be baffled in accordance with NFPA Bulletin 1901 requirements.

Baffles shall have vent openings at both the top and bottom to permit movement of air and water between compartments.

All partitions shall interlock and shall be welded to the tank bottom and sides.

Tank top shall be constructed of .50" polypropylene. It shall be recessed .38" and shall be welded to the tank sides and the longitudinal partitions.
Tank top shall be sufficiently supported to keep it rigid during fast filling conditions.

Construction shall include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two (2) of the dowels shall be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes.

A sump that will be sized dependent on the tank to pump plumbing shall be provided at the bottom of the water tank.

Sump shall include a drain plug and the tank outlet.

Tank shall be installed in a fabricated cradle assembly constructed of structural steel.

Sufficient crossmembers shall be provided to properly support bottom of tank. Crossmembers shall be constructed of steel flat bar or rectangular tubing.

Tank shall "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, shall be placed on all horizontal surfaces that the tank rests on.

BIDDER COMPLIES YES	NO

Stops or other provision shall be provided to prevent an empty tank from bouncing excessively while moving vehicle.

Mounting system shall be approved by the tank manufacturer.

Fill tower shall be constructed of .50" polypropylene and shall be a minimum of 8.00" wide x 14.00" long.

Fill tower shall be furnished with a .25" thick polypropylene screen and a hinged cover.

An overflow pipe, constructed of 4.00" schedule 40 polypropylene, shall be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.

HOSE BED

The hose bed shall be fabricated of .125"-5052 aluminum with a nominal 38,000 psi tensile strength.

Upper and rear edges of side panels shall have a double break for rigidity, a split tube finish shall not be acceptable.

The upper inside area of the beavertails shall be covered with brushed stainless-steel to prevent damage to painted surface when hose is removed.

Flooring of the hose bed shall be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats shall be a minimum of 0.50" x 4.50" with spacing between slats for hose ventilation.

Hose bed shall accommodate

- 250' lay of 1.75" Hose
- 250' lay of 1.75 Hose
- 200' of 2.5" hose
- 2000' of 4" hose

NOTE: 1.75″ and 2.5″ hose shall be double jacketed. 4″ hose will be rubber hose

HOSE BED DIVIDER

Four (4) adjustable hosebed dividers shall be furnished for separating hose.
Each divider shall be constructed of a .125" brushed aluminum sheet fitted and fastened into a slotted, 1.50" diameter radiused extrusion along the top, bottom, and rear edge.

Divider shall be fully adjustable by sliding in tracks, located at the front and rear of the hose bed.

Divider shall be held in place by tightening bolts, at each end.

Acorn nuts shall be installed on all bolts in the hose bed which have exposed threads.

There shall be a 2″ x 6″ handhold cut into the top 1/3 of each hose bed divider. Hose bed dividers shall be 6″ shorter than (recessed 6″) from the rear surface of the hose bed.

HOSE BED COVER

A two (2) section hose bed cover, constructed of .125" bright aluminum treadplate shall be furnished.

BIDDER COMPLIES	
YES	NO

The cover shall be hinged with full-length stainless-steel piano hinge. The sides shall be slanted down to shed water.

The cover shall be reinforced so that it can support the weight of a man walking on the cover. The cover shall not be supported by the hose bed dividers.

If access to water tank fill tower is blocked by the hose bed cover, then a hinged door shall be provided in it so that tank may be filled without raising cover doors.

Chrome grab handles and gas filled cylinders shall be provided to assist in opening and closing the cover. A handrail is to be provided at the rear, in the center of the support, to assist in opening the cover.

A black vinyl flap shall be installed on the rear of the bright aluminum treadplate hose bed cover, with a chain weight

HOSE TROUGHS

A compartment for storage of two (2) hard suction hose shall be provided in the hose bed, Left Side, the size of the hose to be carried is: 6"diameter by 10' long.

The compartment shall be constructed of smooth aluminum and shall be completely enclosed. Two (2) unpainted stainless-steel troughs shall be provided inside the compartment, one above the other.

A hinged aluminum treadplate door shall be provided at the rear of the compartment.

RUNNING BOARDS

Running boards shall be fabricated of .125" bright aluminum treadplate.

Each running board shall be supported by a welded 2.00" square tubing and channel assembly, which shall be bolted to the pump compartment substructure.

Running boards shall be 12.75" deep and spaced .50" away from the pump panel.

A splash guard shall be provided above the running board treadplate.

TAILBOARD

The tailboard shall also be constructed of .125" bright aluminum treadplate and spaced .50" from the body, as well as supported by a structural steel assembly.

The tailboard area shall be 14” minimum deep.
The exterior side shall be flanged down and in for increased rigidity of tailboard structure.

REAR WALL, SMOOTH ALUMINUM/BODY MATERIAL

The rear facing surfaces of the center rear wall shall be smooth aluminum.

The bulkheads, the surface to the rear of the side body compartments, shall be smooth and the same material as the body.

Any inboard facing surfaces below the height of the hosebed shall be aluminum diamondplate .

BIDDER COMPLIES YES	NO

TOW BAR

A tow bar shall be installed under the tailboard at the center of the truck.

Tow bar shall be fabricated of 1.00" CRS bar rolled into a 3.00" radius.

Tow bar assembly shall be constructed of .38" structural angle. When force is applied to the bar, it shall be transmitted to the frame rail.

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

Tow bar design shall have been fully tested and evaluated using strain gauge testing and finite element analysis techniques.

COMPARTMENTATION

Body and compartments shall be fabricated of .125", 5052-H32 aluminum.

Side compartments shall be an integral assembly with the rear fenders.

Circular fender liners shall be provided for prevention of rust pockets and ease of maintenance.

Side compartment flooring shall be of the sweep out design with the floor higher than the compartment door lip.

The side compartment door opening shall be framed by flanging the edges in 1.75" and bending out again .75" to form an angle.

Drip protection shall be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate or polished stainless-steel.

The top of the compartment shall be covered with bright aluminum treadplate rolled over the edges on the front, rear and outward side. These covers shall have the corners welded.

Side compartment covers shall be separate from the compartment tops.

Front facing compartment walls shall be covered with bright aluminum treadplate.

All screws and bolts which protrude into a compartment shall have acorn nuts on the ends to prevent injury.

UNDERBODY SUPPORT SYSTEM

Due to the severe loading requirements of this pumper a method of body and compartment support suitable for the intended load shall be provided.

The backbone of the support system shall be the chassis frame rails which is the strongest component of the chassis and is designed for sustaining maximum loads. The support system shall include .375" thick steel vertical angle supports bolted to the chassis frame rails with .625" diameter bolts.

Attached to the bottom of the steel vertical angles shall be horizontal angles, with gussets welded to the vertical members, which extend to the outside edge of the body.

BIDDER COMPLIES YES	NO

A steel frame shall be mounted on the top of these supports to create a floating substructure which shall result in a 500 lb. equipment support rating per lower compartment.

The floating substructure shall be separated from the horizontal members with neoprene elastomer isolators. These isolators shall reduce the natural flex stress of the chassis from being transmitted to the body.

Isolators shall have a broad load range, proven viability in vehicular applications, be of a fail-safe design and allow for all necessary movement in three (3) transitional and rotational modes.

The neoprene isolators shall be installed in a modified V three (3)-point mounting pattern to reduce the natural flex of the chassis being transmitted to the body.

A design with body compartments hanging on the chassis in an unsupported fashion shall not be acceptable.

AGGRESSIVE WALKING SURFACE

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

LOUVERS

Louvers shall be stamped into compartment walls to provide the proper airflow inside the body compartments and to prevent water from dripping into the compartment. Where these louvers are provided, they shall be formed into the metal and not added to the compartment as a separate plate.

TESTING OF BODY DESIGN

Body structural analysis has been fully tested. Proven engineering and test techniques such as finite element analysis, stress coating and strain gauging shall be performed with special attention given to fatigue, life and structural integrity of the cab, body and substructure.

Body shall be tested while loaded to its greatest in-service weight.

The criteria used during the testing procedure shall include:

- Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb.
- Making a 90-degree turn, while driving at 20 mph to simulate aggressive driving conditions.
- Driving the vehicle at 35 mph on a washboard road.
- Driving the vehicle at 55 mph on a smooth road.
- Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement.

Evidence of actual testing techniques shall be made available upon request.

LEFT SIDE COMPARTMENTATION

The left side compartmentation shall consist of three rollup door compartments.
A full height, rollup door compartment ahead of the rear wheels shall be provided. The interior dimensions of this compartment shall be 44.00" wide x 66.63" high x 25.88" deep

BIDDER COMPLIES	
YES	NO

in the lower 25.00" of the compartment and 12.00" deep in the remaining upper portion. The clear door opening shall be a minimum of 38.25" wide x 56.88" high.

A rollup door compartment over the rear wheels shall be provided. The interior dimensions of this compartment shall be 66.50" wide x 32.88" high x 12.00" deep. The clear door opening shall be a minimum of 58.25" wide x 23.13" high.

A full height, rollup door compartment behind the rear wheels shall be provided. The interior dimensions of this compartment shall be 47.75" wide x 67.63" high x 25.88" deep in the lower 26.00" of height and 12.00" deep in the remaining upper section of the compartment. The clear door opening shall be a minimum of 44.75" wide x 57.88" high.

The interior height of the compartments shall be measured from the compartment floor to the ceiling.
The spool of the rollup door at the top of the compartment takes up some usable space. The depth of the compartments shall be measured from the back wall to the inside of the door frame.

Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.

RIGHT SIDE COMPARTMENTATION

The right-side compartmentation shall consist of three rollup door compartments.

A full height, rollup door compartment ahead of the rear wheels shall be provided. The interior dimensions of this compartment shall be 44.00" wide x 66.63" high x 25.88" deep in the lower 25.00" of the compartment and 12.00" deep in the remaining upper portion. The clear door opening shall be a minimum of 38.25" wide x 56.88" high.

A rollup door compartment over the rear wheels shall be provided. The interior dimensions of this compartment shall be 66.50" wide x 32.88" high x 12.00" deep. The clear door opening shall be a minimum of 58.25" wide x 23.13" high.

A full height, rollup door compartment behind the rear wheels shall be provided. The interior dimensions of this compartment shall be 47.75" wide x 67.63" high x 25.88" deep in the lower 26.00" of height and 12.00" deep in the remaining upper section of the compartment. The clear door opening shall be a minimum of 44.75" wide x 57.88" high.

The interior height of the compartments shall be measured from the compartment floor to the ceiling.

The spool of the rollup door at the top of the compartment takes up some usable space. The depth of the compartments shall be measured from the back wall to the inside of the door frame.

Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.

SIDE COMPARTMENT ROLLUP DOOR(S)

There shall be six (6) Amdor roll up compartment doors installed on the side compartments, double faced, aluminum construction, and satin aluminum.

BIDDER COMPLIES	
YES	NO

Door(s) shall be constructed using 1.00" extruded double wall aluminum slats which will feature a flat smooth interior surface to provide maximum protection against equipment hang-up. The slats shall be connected with a structural driven ball and socket hinge designed to provide maximum curtain diaphragm strength. Mounting and adjusting the curtain shall be done with a clip system that connects the curtain to the balancer drum allowing for easy tension adjustment without tools. The slats shall be mounted in reusable slat shoes with positive snap-lock securement.

Each slat will incorporate weather tight recessed dual durometer seals. One (1) fin will be designed to locate the seal within the extrusion. The second will serve as a wiping seal which will also allow for compression to prevent water ingression.

The doors shall be mounted in a one (1)-piece aluminum side frame with recessed side seals to minimize seal damage during equipment deployment. All seals including side frames, top gutters and bottom panel are to be manufactured utilizing non-marring materials.

Bottom panel flange of rollup door will be equipped with two (2) cut-outs to allow for easier access with gloved hands.

A polished stainless-steel lift bar to be provided for each roll-up door. The lift bar shall be located at the bottom of door with striker latches installed at the base of the side frames. Side frame mounted door strikers will include support beneath the stainless-steel lift bar to prevent door curtain bounce, improve bottom seal life expectancy and to avoid false door ajar signals.

All injection molded rollup door wear components will be constructed of Type 6 nylon.

Each rollup door shall have a 3.00-inch diameter balancer/tensioner drum to assist in lifting the door. A garage door style shall not acceptable.

The header for the rollup door assembly shall not exceed 4.00".

A heavy-duty magnetic switch shall be used for control of open compartment door warning lights.

REAR COMPARTMENTATION

A roll-up door compartment above the rear tailboard shall be provided**.**

The interior dimensions of this compartment shall be 40.00" wide x 54.13" high x 25.88" deep. The spool of the rollup door at the top of the compartment takes up some usable space. The depth of the compartment shall be calculated with the compartment door closed.

A louvered, removable access panel shall be furnished on the back wall of the compartment.

The rear compartment shall be open into the rear side compartments.

The clear door opening of this compartment shall be a minimum of 33.25" wide x 44.38" high.

BIDDER COMPLIES YES	NO

Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.

ROLLUP REAR COMPARTMENT DOOR

The rear compartment shall have an Amdor rollup door.

The door shall be double faced, aluminum construction and satin aluminum.

The door shall be constructed using 1.00" extruded double wall aluminum slats which shall feature a flat smooth interior surface to provide maximum protection against equipment hang-up. The slats shall be connected with a structural driven ball and socket hinge designed to provide maximum curtain diaphragm strength. Mounting and adjusting the curtain shall be done with a clip system that connects the curtain to the balancer drum allowing for easy tension adjustment without tools. The slats shall be mounted in reusable slat shoes with positive snap-lock securement.

Each slat shall incorporate weather tight recessed dual durometer seals. One (1) fin shall be designed to locate the seal within the extrusion. The second shall serve as a wiping seal which shall also allow for compression to prevent water ingression.

The door shall be mounted in a one (1)-piece aluminum side frame with recessed side seals to minimize seal damage during equipment deployment. All seals including side frames, top gutters and bottom panel are to be manufactured utilizing non-marring materials.

Bottom panel flange of rollup door shall be equipped with two (2) cut-outs to allow for easier access with gloved hands.

A polished stainless-steel lift bar to be provided for each roll-up door. The lift bar shall be located at the bottom of door with striker latches installed at the base of the side frames. Side frame mounted door strikers shall include support beneath the stainless-steel lift bar to prevent door curtain bounce, improve bottom seal life expectancy and to avoid false door ajar signals.

All injection molded roll-up door wear components shall be constructed of Type 6 nylon. The door shall have a 3.00-inch diameter balancer/tensioner drum to assist in lifting the door (garage door style) shall not acceptable.

The header for the rollup door assembly shall not exceed 4.00".

A heavy-duty magnetic switch shall be used for control of open compartment door warning lights.

DOOR GUARD

There shall be seven (7) compartment doors that shall include a guard/drip pan designed to protect the rollup door from damage when in the retracted position and contain any water spray. The guard shall be fabricated from stainless-steel and installed left side rearward compartment, left side over the wheel compartment, left side forward compartment, right side rearward compartment, right side over the wheel compartment, right side forward compartment and rear compartment.

BIDDER COMPLIES YES	NO

COMPARTMENT LIGHTING

There shall be seven (7) compartment(s) with two (2) Amdor, white 12-volt DC LED compartment light strips. The dual light strips shall be centered vertically along each side of the door framing. There shall be two (2) light strips per compartment. The dual light strips shall be in all body compartment(s).

Opening the compartment door shall automatically turn the compartment lighting on.

MOUNTING TRACKS

There shall be seven (7) sets of tracks for mounting shelf(s) in LS1, LS2, LS3, RS1, RS2, RS3 and B1. These tracks shall be installed vertically to support the adjustable shelf(s) and shall be full height of the compartment. The tracks shall be painted to match the compartment interior.

ADJUSTABLE SHELVES

There shall be seven (7) shelves with a capacity of 500 lb provided.

The shelf construction shall consist of .188" aluminum painted spatter gray with 2.00" sides.

Each shelf shall be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves shall be held in place by .12" thick stamped plated brackets and bolts.

The location(s) shall be determined at a later date.

SLIDE-OUT FLOOR MOUNTED TRAY

There shall be four (4) floor mounted slide-out tray(s) provided.

Each tray shall have 2.00" high sides and a minimum capacity rating of 500 lb in the extended position.

Each tray shall be constructed of aluminum painted spatter gray

There shall be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides shall have a safety factor rating of 2.

To ensure years of dependable service, the slides shall be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides shall require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40-hour vibration (shaker) test under full load. The vibration drive file shall have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance shall be provided upon request.

Automatic locks shall be provided for both the "in" and "out" positions. The trip mechanism for the locks shall be located at the front of the tray for ease of use with a gloved hand.

The location(s) shall be RS1, LS1, RS3 and LS3.

BIDDER COMPLIES YES	NO

Additionally:
There shall be one (1) floor mounted slide-out tray(s) provided.

The tray shall have 2.00" high sides and a minimum capacity rating of 750 lb in the extended position.

Each tray shall be constructed of aluminum painted spatter gray

There shall be two undermount-roller bearing type slides rated at 375lb each provided. The pair of slides shall have a safety factor rating of 2.

The location(s) shall be B1

SWING OUT TOOLBOARD
A swing out aluminum tool-board shall be provided.

It shall be a minimum of .188" thick with .281" diameter holes in a pegboard pattern with 1.00" centers between holes.

A 1.00" x 1.00" aluminum tube frame shall be welded to the edge of the pegboard.

The board shall be mounted on a pivoting device at the back of the compartment on the top and bottom to allow easy movement in and out of the compartment. The maximum tool load shall be 400 pounds.

The board shall have positive lock in the stowed and extended position.

The board shall be mounted on adjustable tracks from front to back within the compartment.
There shall be One (1) tool-board(s) provided. The tool-board(s) shall be spatter gray painted and installed RS2.

RUB RAIL
Bottom edge of the side and rear of the body compartments shall be trimmed with a bright aluminum extruded rub rail.

Trim shall be 2.12" high with 1.38" flanges turned outward for rigidity.

The rub rails shall not be an integral part of the body construction, which allows replacement in the event of damage.

BODY FENDER CROWNS
Polished stainless-steel fender crowns shall be provided around the rear wheel openings with a dielectric barrier shall be provided between the fender crown and the fender sheet metal to prevent corrosion.

The fender crowns shall be held in place with stainless-steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion. Rubber welting shall be provided between the body and crown.

BIDDER COMPLIES YES	NO

BODY FENDER LINER

A painted fender liner shall be provided. The liners shall be removable to aid in the maintenance of rear suspension components. Liners shall be made of the same material as the cab. Composite material will not be accepted.

HARD SUCTION HOSE

Two (2) lengths of Harrington 6.00" clear corrugated PVC hard suction hose, 10' in length, shall be provided. The hose shall be equipped with NH long handle female coupling and NH rocker lug male coupling on the other end. Couplings shall be hard coated aluminum.

HANDRAILS

The handrails shall be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface.

Chrome plated end stanchions shall support the handrail. Plastic gaskets shall be used between end stanchions and any painted surfaces.

Drain holes shall be provided in the bottom of all vertically mounted handrails.

Handrails shall be provided to meet NFPA 1901 section 15.8 requirements. The handrails shall be installed as noted on the sales drawing.

HANDRAILS

One (1) vertical handrail, not less than 29.00" long, shall be located on each rear beavertail.

- One (1) full width horizontal handrail shall be provided below the hose bed at the rear of the apparatus.

AIR BOTTLE STORAGE (TRIPLE)

A quantity of Two (2) air bottle storage compartments, designed to hold (3) air bottles up to 7.25" in diameter x 26.00" deep shall be provided. The location of the compartments shall be:

- Right side, in Front of the rear wheels
- Drivers Sides front of the rear wheels

A polished stainless-steel door with a D-Handle shall be provided to contain the air bottle. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, rubber matting shall be provided.

TRIANGULAR EXTINGUISHER STORAGE

An extinguisher storage compartment shall be provided, right-side behind the rear wheels, the triangular shaped compartment shall be sized to two (2) extinguishers. One (1) extinguisher shall have a cone and this extinguisher shall be located in the upper area, the other extinguisher shall be in the lower area. The compartment shall be approximately 25.50" deep. Partitions shall be provided to separate the bottles, including the cone from the bottle. **There shall be a notch provided in the cone partition** to allow for the hose attached to the cone. Inside the compartment, rubber matting shall be provided. The compartment shall be furnished with a drain hole. A polished stainless-steel, triangular shaped door with a D-Handle shall be provided to contain the air

BIDDER COMPLIES YES	NO

bottles. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.

EXTENSION LADDER
There shall be a 28', two (2)-section, aluminum, Duo-Safety, Series 1200-A extension ladder provided.

ROOF LADDER
There shall be one (1) 16' aluminum Duo-Safety Series 875-A roof ladder(s) provided.

LADDER STORAGE
The ladders shall be stored between the water tank and the right-side compartments.

The ladder storage area shall be enclosed as practical by means of sheet metal to protect the ladders from road dirt. The ladders that extend into the pump house shall also be enclosed. A black rubber boot shall be provided to enclose the ladders in the gap between the pump house and the body.

Each ladder shall be stored vertically in a separate stainless-steel storage trough. Each stainless-steel trough shall be lined with Dura-Surf nylon slides.

An aluminum enclosure shall be provided at the rear of the body to properly contain the ladders. This enclosure shall extend to the rear of the side body compartments.

The enclosure shall also include a vertically hinged smooth aluminum door with a D-handle latch to access the ladders.

FOLDING LADDER
One (1) 10.00' aluminum, Series 585-A, Duo-Safety folding ladder shall be installed in a U-shaped trough inside the ladder storage compartment.

PIKE POLE STORAGE
Aluminum tubing shall be used for the storage of two (2) pike poles and shall be located in ladder storage compartment. If the head of a pike pole can come in contact with a painted surface, a stainless-steel scuff plate shall be provided.

FOLDING STEPS FRONT OF BODY
Illuminated Folding steps shall be provided full height on the left side and right-side body compartments to provide access to the cargo bed. The quantity to be installed must be noted on the sales drawing.
The steps shall be bright finished, non-skid.

The steps can be used as a hand hold with two openings wide enough for a gloved hand.

REAR FOLDING STEPS
Illuminated bright finished, non-skid folding steps shall be provided at the rear. The steps can be used as a hand hold with two openings wide enough for a gloved hand.

MIDSHIP FIRE PUMP
Midship fire pump shall be a Hale QMAX-175, 1750 gpm single (1) stage midship mounted centrifugal type.

Pump shall be the class "A" type.

BIDDER COMPLIES	
YES	NO

Pump shall deliver the percentage of rated discharges at the pressures indicated below:
- 100% of rated capacity at 150 psi net pump pressure.
- 100% of rated capacity at 165 psi net pump pressure.
- 70% of rated capacity at 200 psi net pump pressure.
- 50% of rated capacity at 250 psi net pump pressure.

Entire pump and both suction and discharge passages shall be hydrostatically tested to a pressure of 500 psi.

Pump shall be fully tested at the pump manufacturer's factory to the performance requirements as outlined by the current NFPA 1901 standards and shall be free from objectionable pulsation and vibration.

Pump body and related parts shall be of fine grain, alloy cast iron with a minimum tensile strength of 30,000 psi (2041.2 bar). All moving parts in contact with water shall be of high-quality bronze or stainless-steel. Pumps utilizing castings made of lower tensile strength cast iron shall not be acceptable.

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 pump piping or the mounting of the pump in the chassis.

Pump shall have one (1) double suction impeller. The pump body shall have two (2) opposed discharge volute cutwaters to eliminate radial unbalance.

Pump impellers shall be hard, fine grain bronze of the mixed flow design; accurately machined, hand-ground and individually balanced. The vanes of the impeller intake eyes shall be hand-ground and polished to a sharp edge. They shall be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.

Impeller clearance rings shall be bronze and easily renewable without replacing impeller or pump volute body. They shall be of the wrap-around double labyrinth design for maximum efficiency.

Pump shaft shall be electric furnace heat-treated; corrosion resistant stainless-steel. It shall be super-finished under packing with galvanic corrosion (zinc separators in packing) protection for longer shaft life. Pump shaft shall be sealed with double oil seal to keep road dirt and water out of drive unit.

Pump shaft shall be rigidly supported by three (3) bearings for minimum deflection. A high lead bronze sleeve bearing shall be located immediately adjacent to the impeller (on the side opposite of the drive unit). This sleeve bearing shall be automatically oil lubricated and pressure balanced to exclude foreign material. The remaining bearings shall be heavy-duty, deep groove ball bearings in the gearbox and shall be splash lubricated.

MECHANICAL SEAL ON PUMP

Only one (1) mechanical seal shall be used on the suction (inboard) side of the pump. The mechanical seal shall be 2.00" in diameter and shall be spring loaded, maintenance-free, and self-adjusting.

BIDDER COMPLIES YES	NO

The mechanical seal construction shall be a carbon sealing ring, stainless-steel coil spring, Viton® rubber boot, and a tungsten carbide seat with a Teflon backup seal.

ZINC ANODES

The zinc anodes help prevent damage caused by galvanic corrosion within the fire pump. The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One anode will be located on the suction side and one will be located on the discharge side of the pump.

THERMAL RELIEF VALVE

A Hale TRVL-120 thermal relief valve shall be provided.

The valve shall help protect the pump by automatically monitoring pump water temperature. The relief valve shall automatically dump a controlled amount of water to the ground when the pump water exceeds the pre-set temperature of the relief valve.

A pump panel mounted indicator shall be installed at the pump operator`s panel.

PUMP TRANSMISSION

The drive unit shall be cast and completely manufactured and tested at the pump manufacturer's factory. The pump drive unit shall be of sufficient size to withstand up to 16,000 foot/pound of torque from the engine in both road and pump operating conditions. The drive unit shall be designed with ample lubrication reserve to maintain the proper operating temperature.

The gearbox drive shafts shall be of heat-treated chrome nickel steel and at least 2.75 inches in diameter, on both the input and output drive shafts. They shall be designed to withstand the full torque of the engine in both road and pump operating conditions. All gears, both drive and pump, shall be of the highest quality, electric furnace, chrome nickel steel. Bores shall be ground to size and teeth integrated, crown-shaved 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 provided to eliminate all possible end thrust.

The pump ratio shall be selected by the apparatus manufacturer to provide the maximum performance with the engine and transmission selected. Three (3) green warning lights shall be provided to indicate to the operator(s) when the pump has completed the shift from Road to Pump position. Two (2) lights shall be located in the truck driving compartment and one (1) light on pump operator's panel, adjacent to the throttle control.

PUMPING MODE

An interlock system shall be provided to ensure that the pump drive system components are properly engaged so that the apparatus can be safely operated. The interlock system shall be designed to allow stationary pumping only.

AIR PUMP SHIFT

Pump shift engagement shall be made by a two (2) position sliding collar, actuated pneumatically (by air pressure), with a three (3) position air control switch located in the cab.

BIDDER COMPLIES YES	NO

Two (2) indicator lights shall be provided adjacent to the pump shift inside the cab. One (1) green light shall indicate the pump shift has been completed and be labeled "pump engaged". The second green light shall indicate when the pump has been engaged and the chassis transmission is in pump gear. This indicator light shall be labeled "OK to pump".

The pump shift shall be interlocked to prevent the pump from being shifted out of gear when the chassis transmission is in gear to meet NFPA requirements.

The pump shift control in the cab shall be illuminated to meet NFPA requirements.

TRANSMISSION LOCK-UP

The direct gear transmission lock-up for the fire pump operation shall engage automatically when the pump shift control in the cab is activated.

AUXILIARY COOLING SYSTEM

A supplementary heat exchange cooling system shall be provided to allow the use of water from the discharge side of the pump for cooling the engine water. Heat exchanger shall be cylindrical type and shall be a separate unit. It shall be installed in the pump or engine compartment with the control located on the pump operator's control panel. Exchanger shall be plumbed to the master drain valve.

INTAKE RELIEF VALVE - PUMP

There shall be One (1) Elkhart Style 40 relief valve(s) installed on the suction side of the pump preset at 125 psig.

The relief valve(s) shall have a working range of 75 psi to 250 psi.

The outlet shall terminate below the frame rails with a 2.50" National Standard hose thread adapter and shall have a "do not cap" warning tag.

The relief valve pressure control shall be located behind an access door at the right-side pump panel.

PRESSURE CONTROLLER

A pressure governor shall be provided.

A pressure transducer shall be installed in the water discharge manifold on the pump.

The display panel shall be located at the pump operator's panel.

PRIMING PUMP

The priming pump shall be a Trident Emergency Products compressed air powered, high efficiency, multistage venturi based AirPrime System, conforming to standards outlined in the current edition of NFPA 1901.

All wetted metallic parts of the priming system are to be of brass and stainless-steel construction.
One (1) priming control shall open the priming valve and start the pump primer.

PUMP MANUALS

There shall be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals shall be provided by the pump manufacturer

BIDDER COMPLIES YES	NO

in the form of two (2) electronic copies. Each manual shall cover pump operation, maintenance, and parts.

PLUMBING, STAINLESS-STEELAND HOSE

All inlet and outlet lines shall be plumbed with either stainless-steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hoses shall be equipped with brass or stainless-steel couplings. All stainless-steel hard plumbing shall be a minimum of a schedule 10 wall thickness.

Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping shall be equipped with victaulic or rubber couplings.

Plumbing manifold bodies shall be ductile cast iron or stainless-steel.

All piping lines are to be drained through a master drain valve or shall be equipped with individual drain valves. All drain lines shall be extended with a hose to drain below the chassis frame.

All water carrying gauge lines shall be of flexible polypropylene tubing.

All piping, hose and fittings shall have a minimum of a 500 PSI hydrodynamic pressure rating.

FOAM SYSTEM PLUMBING

All piping that is in contact with the foam concentrate or foam/water solution shall be stainless-steel.

The fittings shall be stainless-steel or brass. Cast iron pump manifolds will be allowed.

MAIN PUMP INLETS

A 6.00" pump manifold inlet shall be provided on each side of the vehicle. The suction inlets shall include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.

MAIN PUMP INLET CAP

The main pump inlets shall have National Standard Threads with a long handle chrome cap.

The cap shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).

VALVES

All ball valves shall be Akron® Brass in-line valves. The Akron valves shall be the 8000 series heavy-duty style with a stainless-steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.

Valves shall have a **ten (10) year** warranty.

LEFT SIDE INLET

There shall be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.

The auxiliary inlet shall be provided with a strainer, chrome swivel and plug.

BIDDER COMPLIES YES	NO

The location of the valve for the one (1) inlet shall be recessed behind the pump panel.

INLET CONTROL

The side auxiliary inlet(s) shall incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism shall indicate the position of the valve.

INLET BLEEDER VALVE

A 0.75" bleeder valve shall be provided for each side gated inlet. The valves shall be located behind the panel with a swing style handle control extended to the outside of the panel. The handles shall be chrome plated and provide a visual indication of valve position. The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders shall be routed below the chassis frame rails.

WATER TANK FILL- 2.5”

One (1) 2.5” (63.5 mm) water tank fill connection shall be provided and mounted in the officer’s side pump panel. The connection shall include an inlet strainer, 2.5” (63.5 mm) FNST chrome inlet swivel and a chrome plug with cable. A 2.5” (63.5 mm) stainless-steel pipe and/or high-pressure flexible hose will connect to the water tank.

All fabricated piping shall be a minimum of Schedule 10 stainless-steel for superior corrosion resistance and decreased friction loss. One 2.5" check valve shall be installed between the fill connection port and the tank to prevent water from flowing out of the tank after filling and disconnecting the hose.

TANK TO PUMP

The booster tank shall be connected to the intake side of the pump with stainless-steel piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel. Tank to pump line shall run straight (no elbows) from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling shall be included in this line to prevent damage from vibration or chassis flexing.

A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.

TANK REFILL

A 1.50" combination tank refill and pump re-circulation line shall be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.

LEFT SIDE DISCHARGE OUTLETS

There shall be two (2) discharge outlets with a 2.50" valve on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.

RIGHT SIDE DISCHARGE OUTLETS

There shall be one (1) discharge outlet with a 3 " valve on the right side of the apparatus, terminating with a 3" (M) National Standard hose thread adapter.

LARGE DIAMETER DISCHARGE OUTLET

There shall be a 4.00" discharge outlet with a 4.00" Akron valve installed on the right side of the apparatus, terminating with a 4.00" (M) National Standard hose thread adapter.

BIDDER COMPLIES	
YES	NO

This discharge outlet shall be actuated with a handwheel control at the pump operator's control panel.
An indicator shall be provided to show when the valve is in the closed position.

FRONT DISCHARGE OUTLET

There shall be one (1) 1.50" discharge outlet piped to the front of the apparatus and located on the top of the front bumper, on the left side of the bumper hose tray

Plumbing shall consist of 2.00" piping and flexible hose with a 2.00" ball valve with control at the pump operator's panel. A fabricated weldment made of stainless-steel pipe shall be used in the plumbing where appropriate. The piping shall terminate with a 1.50" NPSH thread with 90-degree swivel.
There shall be automatic drains provided at all low points of the piping. For freeze protection this line must be equipped to use truck air to blow residual water from the line.

REAR DISCHARGE PRECONNECT

There shall be two (2)-1.50" discharges piped to the front of the hose bed in hose positions 1 & 2, (From the left), installed so proper clearance shall be provided for spanner wrenches or adapters. Plumbing shall consist of 2.00" piping along with a 2.00" full flow ball valve with the control from the pump operator's panel. The piping shall terminate so as the outlet is directed toward the rear of the apparatus and with a 1.50" NPSH

REAR DISCHARGE PRECONNECT

There shall be one (1)-2.50" discharge piped to the front of the hose bed, in hose position 3 (from the left), installed so proper clearance shall be provided for spanner wrenches or adapters. Plumbing shall consist of 2.50" piping along with a 2.50" full flow ball valve with the control from the pump operator's panel. The piping shall terminate so as the outlet is directed toward the rear of the apparatus and with a 2.50" NH.

DISCHARGECAPS/ INLET PLUGS

Chrome plated, rocker lug, caps with chain shall be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets.

Chrome plated, rocker lug, plugs with chain shall be furnished for all auxiliary inlets 1.00" thru 3.00" in size.

The caps and plugs shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).

OUTLET BLEEDER VALVE

A 0.75" bleeder valve shall be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable if needed in conjunction with at least one manual bleeder valve.

The valves shall be located behind the panel with control extended to the outside of the side pump panel. The controls shall be chrome plated and provide a visual indication of valve position. Bleeders shall be located at the bottom of the pump panel. They shall be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders shall be routed below the chassis frame rails.

BIDDER COMPLIES	
YES	NO

LEFT SIDE OUTLET ELBOWS

The 2.50" discharge outlets located on the left side pump panel shall be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45-degree elbow.

The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).

RIGHT SIDE OUTLET ELBOWS

The 3" discharge outlets located on the right-side pump panel shall be furnished with a 3" National Standard hose thread x 4.00" Storz elbow adapter with Storz cap.
The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).

LARGE DIAMETER OUTLET ELBOWS

The 4.00" outlet shall be furnished with a 4.00" (F) National Standard hose thread x 4.00" Storz elbow adapter with Storz cap.

DISCHARGE OUTLET CONTROLS

The discharge outlets shall incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism shall indicate the position of the valve.

If a handwheel control valve is used, the control shall be a minimum of a 3.9" diameter stainless-steel handwheel with a dial position indicator built into the center of the handwheel.

DELUGE RISER

A 3.00" deluge riser shall be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping shall be installed securely so no movement develops when the line is charged. The riser shall be gated and controlled at the pump operator's panel.

MONITOR

An Akron Model 3431 Apollo Hi-Riser monitor shall be properly installed on the deluge riser.
Included shall be a fixed mounting base.

The monitor shall be painted as provided by monitor manufacturer.

NOZZLE, DELUGE

Akron model #2499 Quad Stacked pyrolite deluge tips shall be provided.

The tip sizes shall be 1.375", 1.50", 1.75", and 2.00".

This shall include an Akron 3488 pyrolite stream shaper.

The deluge riser shall have male National Pipe Threads for mounting the monitor.

CROSSLAY HOSE BEDS

Two (2) crosslays with 1.50" outlets shall be provided. Each bed to be capable of carrying 200' of 1.75" double jacketed hose, single stacked, and shall be plumbed with 2.00" i.d. pipe and gated with a 2.00" quarter turn ball valve.

BIDDER COMPLIES YES	NO

Outlets to be equipped with a 1.50" NPSH 90-degree swivel located in the hose bed so that hose may be removed from either side of apparatus.

The crosslay controls shall be at the pump operator's panel.

The design should allow for the use of a spanner wrench on the outlets

The center crosslay dividers shall be fabricated of 0.25" aluminum and shall provide adjustment from side to side. The divider shall be unpainted with a brushed finish. They shall terminate 6" from the outboard sides of the hose bed.

Vertical scuff plates constructed of stainless-steel shall be provided at the front and rear ends of the bed on each side of vehicle.

Crosslay bed flooring shall consist of removable perforated brushed aluminum.

2.50" CROSSLAY HOSE BED

One (1) crosslay with 2.50" outlets shall be provided. This bed to be capable of carrying 200' of 2.50" double jacketed, single stack hose and shall be plumbed with 2.50" i.d. pipe and gated with a 2.50" quarter turn ball valve.

Outlet to be equipped with a 2.50" National Standard hose thread 90-degree swivel located in the hose bed so that hose may be removed from either side of apparatus.

The crosslay control shall be at the pump operator's panel.

The design should allow for the use of a spanner wrench on the outlets. The center crosslay dividers shall be fabricated of 0.25" aluminum and shall provide adjustment from side to side. The divider shall be unpainted with a brushed finish. The remainder of the crosslay bed shall be painted job color. They shall terminate 6" from the outboard sides of the hose bed.

Stainless-steel vertical scuff plates shall be provided at hose bed ends (each side of vehicle). Bottom of hose bed ends (each side) shall also be equipped with a stainless-steel scuff plate.

Crosslay bed flooring shall consist of removable perforated brushed aluminum.

CROSSLAY COVER

An aluminum treadplate cover shall cover the crosslays. It shall have a full-length piano hinge on the front (cab side) of the cover. It shall be held closed by a Butterfly latch. The rear of the cab shall be protected from being impacted and damaged when the cover is open. The cover shall be capable of being held open and not contact or damage the rear of the cab

CROSSLAY/DEADLAY HOSE RESTRAINT

Elastic netting shall be provided across the top and ends of two (2) crosslay/deadlay opening(s) to secure the hose during travel. The netting shall be permanently attached at the top center of the crosslay cover and removable on the bottom.

BIDDER COMPLIES YES	NO

BOOSTER HOSE REEL

A Hannay electric rewind booster hose reel shall be installed over the pump in a recessed open compartment on the right side of the apparatus. Reel to be fabricated of aluminum and have highly polished end discs.

A polished stainless-steel roller and guide assembly shall be mounted on both sides of the apparatus.
Discharge control shall be provided at the pump operator's panel. Plumbing to the reel shall consist of 1.50" Aeroquip hose and a 1.50" valve.

Reel motor shall be protected from overload with a circuit breaker rated to match the motor.

An electric rewind control switch shall be installed on the reel side pump panel.

Booster hose, 1.00" diameter and 200 feet, with chrome plated Barway, or equal couplings shall be provided.

Working pressure of the booster hose shall be a minimum of 800 psi.

Capacity of the hose reel shall be 200 feet of 1.00" booster hose.

The booster reel shall be equipped so truck air can be used to purge the plumbing and hose of all water after us. The air blowout valve shall be located on the pump panel.

HOSE REEL NOZZLE

A Task Force, model B-BGH 10-125 gpm, booster hose nozzle shall be provided.

FOAM PROPORTIONER

A foam proportioning system shall be provided that is an on demand, automatic proportioning, single point, direct injection system suitable for all types of Class A and B foam concentrates, including the high viscosity (6000 cps), alcohol resistant Class B foams. Operation shall be based on direct measurement of water flow and remain consistent within the specified flows and pressures. The system shall automatically proportion foam solution at rates from .1 percent to 3.0 percent regardless of variations in water pressure and flow, up to the maximum rated capacity of the foam concentrate pump.
The design of the system shall allow operation from draft, hydrant, or relay operation.

SYSTEM CAPACITY

The system shall have the ability to deliver the following minimum foam solution flow rates at accuracies that meet or exceed NFPA requirements at a pump rating of 150 psi:

100 gpm @ 3 percent
300 gpm @ 1 percent
600 gpm @ 0.5 percent

Class A foam setting in .1 percent increments from .1 percent to 1 percent. Typical settings of 1 percent, .5 percent and .3 percent (maximum capacity shall be limited to the plumbing and water pump capacity).

The system must be capable of running AB Combo foam concentrates and maintain the manufacturer’s warranty on all foam system components.

BIDDER COMPLIES YES	NO

CONTROL SYSTEM

The system shall be equipped with a digital electronic control display located on the pump operator's panel. Push button controls shall be integrated into the panel to turn the system on/off, control the foam percentage, and to set the operation modes.

The percent of injection shall have a preset. This preset can be changed at the fire department as desired. The percent of injection shall be able to be easily changed at the scene to adjust to changing demands.

FOAM CONCENTRATE PUMP

The foam concentrate pump shall be of positive displacement, self-priming; linear actuated design,

A relief system shall be provided which is designed to protect the drive system components and prevent over pressuring the foam concentrate pump

The foam concentrate pump shall have minimum capacity for 3 gpm with all types of foam concentrates with a viscosity at or below 6000 cps including protein, fluoroprotein, AFFF, FFFP, or AR-AFFF. The system shall deliver only the amount of foam concentrate flow required, without recirculating foam back to the storage tank. Recirculating foam concentrate back to the storage tank can cause agitation and premature foaming of the concentrate, which can result in system failure. The foam concentrate pump shall be self-priming and have the ability to draw foam concentrate from external supplies such as drums or pails.

EXTERNAL FOAM CONCENTRATE CONNECTION

An external foam pick-up shall be provided to enable use of a foam agent that is not stored on the vehicle. The external foam pick-up shall be designed to allow continued operation after the on-board foam tank is empty, or the use of foam different than the foam in the foam tank.

PANEL MOUNTED EXTERNAL PICK-UP CONNECTION / VALVE

A bronze three (3)-way valve shall be provided. The unit shall be mounted to the pump panel. The valve unit shall function as the foam system tank to pump valve and external suction valve. The external foam pick-up shall be one (1) .75" male connection GHT (garden hose thread) with a cap.

PICK-UP HOSE

A .75" flexible hose with an end for insertion into foam containers shall be provided. The hose shall be supplied with a .75" female swivel GHT (garden hose thread) swivel connector and be long enough to reach from the connection point to ground level the hose shall be shipped loose.

DISCHARGES

The foam system shall be plumbed to the front bumper discharge, rear pre-connects 1 & 2, front crosslay, center crosslay and rear crosslay.

SINGLE FOAM TANK REFILL

The foam system's proportioning pump shall be used to fill the foam tank. This shall allow use of the auxiliary foam pick-up to pump the foam from pails or a drum on the ground into the foam tank. A foam shut-off switch shall be installed in the fill dome of

BIDDER COMPLIES	
YES	NO

the tank to shut the system down when the tank is full. The foam fill controls shall be accessible in close proximity to the pick-up tube location so one individual can both run the fill pump and manage the fill tube position in the pail or drum.

FOAM TANK

The foam tank shall be an integral portion of the polypropylene water tank. The cell shall have a capacity of 30 gallons of foam with the intended use of Class A foam. The foam cell shall not reduce the capacity of the water tank. The foam cell shall have a screen in the fill dome and a breather in the lid. The lid shall be clearly marked “FOAM ONLY”

FOAM TANK DRAIN

The foam tank drain shall be a 1.00" quarter turn drain valve located inside the pump/plumbing compartment.

PUMP COMPARTMENT

The pump compartment shall be separate from the hose body and compartments so that each may flex independently of the other. It shall be a fabricated assembly of steel tubing, angles and channels which supports both the fire pump and the side running boards.
The pump compartment shall be mounted on the chassis frame rails with rubber biscuits in a four-point pattern to allow for chassis frame twist.

PUMP MOUNTING

Pump shall be mounted to a substructure which shall be mounted to the chassis frame rail using rubber isolators. The mounting shall allow chassis frame rails to flex independently without damage to the fire pump.

LEFT SIDE PUMP CONTROL PANELS

All pump controls and gauges shall be located at the left side of the apparatus and properly identified.
Layout of the pump control panel shall be ergonomically efficient and systematically organized.
The pump operator's control panel shall be removable in two (2) main sections for ease of maintenance:

The upper section shall contain sub panels for the mounting of the pump pressure control device, engine monitoring gauges, electrical switches, and foam controls. Sub panels shall be removable from the face of the pump panel for ease of maintenance. Below the sub panels shall be located all valve controls and line pressure gauges.

The lower section of the panel shall contain all inlets, outlets, and drains.

All push/pull valve controls shall have 1/4 turn locking control rods with polished chrome plated zinc tee handles. Guides for the push/pull control rods shall be chrome plated zinc castings securely mounted to the pump panel. Push/pull valve controls shall be capable of locking in any position. The control rods shall pull straight out of the panel and shall be equipped with universal joints to eliminate binding.

IDENTIFICATION TAGS

The identification tag for each valve control shall be recessed in the face of the tee handle.

BIDDER COMPLIES	
YES	NO

All discharge outlets shall have color coded identification tags, with each discharge having its own unique color. Color coding shall include the labeling of the outlet and the drain for each corresponding discharge.

All line pressure gauges shall be mounted directly above the corresponding discharge control tee handles and recessed within the same chrome plated casting as the rod guide for quick identification.

The gauge and rod guide casting shall be removable from the face of the pump panel for ease of maintenance. The casting shall be color coded to correspond with the discharge identification tag.

All remaining identification tags shall be mounted on the pump panel in chrome plated bezels.

The pump panel on the right side shall be removable with lift and turn type fasteners.

Trim rings shall be installed around all inlets and outlets.

The trim rings for the side discharge outlets shall be color coded and labeled to correspond with the discharge identification tag.

PUMP PANEL CONFIGURATION

The pump panel configuration shall be arranged and installed in an organized manner that shall provide user-friendly operation.

PUMP AND GAUGE PANEL

The pump and gauge panels shall be constructed of aluminum with a painted black finish. A polished aluminum trim molding shall be provided around each panel.

The right-side pump panel shall be removable and fastened with swell type fasteners.

PUMP COMPARTMENT LIGHT

There shall be one (1) 3.00" white 12-volt DC LED light(s) with flange(s) installed in the pump compartment.

There shall be a switch accessible through a door on the pump panel included with this installation.

Engine monitoring graduated LED indicators shall be incorporated with the pressure controller.
Master Pump Drain Control should also be provided at the pump panel.

OK TO PUMP INDICATOR LIGHT

There shall be a green indicator light installed on the pump operators' panel that is activated when the pump is in Ok to Pump mode.

ALUMINUM HEAT ENCLOSURE

A heat enclosure shall be installed, trapping hot air radiated from the engine exhaust system, which shall warm the fire pump. The enclosure shall consist of an aluminum understructure, with easily removable aluminum panels. Also, a covering above the plumbing shall be provided, so warm air cannot escape freely.

BIDDER COMPLIES	
YES	NO

VACUUM AND PRESSURE GAUGES

The pump vacuum and pressure gauges shall be liquid filled.

The gauges shall be a minimum of 4.50" in diameter and shall have white faces with black lettering, with a pressure range of 30.00"-0-400#.

The pump pressure and vacuum gauges shall be installed adjacent to each other at the pump operator's control panel.

Test port connections shall be provided at the pump operator's panel. One (1) shall be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They shall have 0.25 in. standard pipe thread connections and polished stainless-steel plugs. They shall be marked with a label.

PRESSURE GAUGES

The individual "line" pressure gauges for the discharges shall be interlube filled.

They shall be a minimum of 2.00" in diameter and shall have white faces with black lettering.

Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

Gauges shall have a pressure range of 30"-0-400#.

The individual pressure gauge shall be installed as close to the outlet control as practical.

This gauge shall include a 10-year warranty against leakage, pointer defect, and defective bourdon tube.

WATER LEVEL GAUGE

There shall be an electronic water level gauge provided on the operator's panel that registers water level by means of five (5) colored LED lights. The lights shall be durable, ultra-bright five (5) LED design viewable through 180 degrees. The water level indicators shall be as follows:

- 100 percent = Green
- 75 percent = Yellow
- 50 percent = Yellow
- 25 percent = Yellow
- Refill = Red

The light shall flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights shall flash sequentially when the water tank is empty.
The level measurement shall be based on the sensing of head pressure of the fluid in the tank.

The display shall be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design shall provide complete protection from water and environmental elements. An industrial pressure transducer shall be mounted to the

BIDDER COMPLIES	
YES	NO

outside of the tank. The field calibratable display measures head pressure to accurately show the tank level.

There shall be Whalen PStank LED water level indicators located on the side of the cab, upper rear and visible from the side of the apparatus to display water level in the same intervals and manner as indicated above.

FOAM LEVEL GAUGE

An electronic foam level gauge shall be provided on the operator's panel that registers foam level by means of five (5) colored LED lights. The lights shall be durable, ultra-bright five (5) LED design viewable through 180 degrees. The foam level indicators shall be as follows:

- 100 percent = Green
- 75 percent = Yellow
- 50 percent = Yellow
- 25 percent = Yellow
- Refill = Red

The light shall flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights shall flash sequentially when the foam tank is empty.

The level measurement shall be based on the sensing of head pressure of the fluid in the tank.

The display shall be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design shall provide complete protection from foam and environmental elements. An industrial pressure transducer shall be mounted to the outside of the tank. The display shall be able to be calibrated in the field and shall measure head pressure to accurately show the tank level.

LIGHT SHIELD

There shall be a polished, 16-gauge stainless-steel light shield installed over the pump operator's panel.

- There shall be 12-volt DC white LED lights installed under the stainless-steel light shield to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights shall be activated by the pump panel light switch. Additional lights shall be included every 18.00" depending on the size of the pump house.
- One (1) pump panel light shall come on when the pump is in ok to pump mode.

There shall be a light activated above the pump panel light switch when the parking brake is set. This is to afford the operator some illumination when first approaching the control panel.

AIR HORN SYSTEM

There shall be two (2) Grover air horns recessed in the front bumper. The horn system shall be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve shall be installed in-line to prevent loss of air in the air brake system.

BIDDER COMPLIES YES	NO

AIR HORN CONTROL

The air horns shall be actuated by a chrome foot switch located on the officer's and by the horn button in the steering wheel. The driver shall have the option to control the air horns or the chassis horns from the horn button by means of a selector switch located on the instrument panel.

ELECTRONIC SIREN

A Whelen®, Model 295SLSA1, electronic siren with noise canceling microphone shall be provided.

This siren to be active when the battery switch is on and that emergency master switch is on.
Electronic siren head shall be within reach of the driver as well as the officer.

The electronic siren shall be controlled on the siren head only. No horn button or foot switches shall be required.

SPEAKER

There shall be one (1) Whelen®, Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets and polished stainless-steel grille provided. The speaker shall be connected to the siren amplifier.

The speaker(s) shall be recessed in the center of the front bumper.

AUXILIARY MECHANICAL SIREN

A Federal Q2B® siren shall be furnished. A siren brake button shall be installed on the switch panel accessible to driver as well as the switch panel accessible to the officer.

The control solenoid shall be powered up after the emergency master switch is activated.

The mechanical siren shall be mounted on the bumper deck plate. It shall be mounted on the left side.

The siren mounting shall include a reinforcement plate.

The mechanical siren shall be actuated by two (2) foot switches, one (1) located on the officer's side and one (1) on the driver's side.

FRONT ZONE UPPER WARNING LIGHTS

There shall be one (1) 72.00" Whelen Freedom IV LED lightbar mounted on the cab roof.

The lightbar shall include the following:

- One (1) red flashing LED module in the driver's side end position.
- One (1) red flashing LED module in the driver's side front corner position.
- One (1) red flashing LED module in the driver's side first front position.
- One (1) red flashing LED module in the driver's side second front position.
- One (1) white flashing LED module in the driver's side third front position.
- One (1) red flashing LED module in the driver's side fourth front position.
- One (1) red flashing LED module in the driver's side fifth front position.
- One Opti Comm universal strobe traffic light emitter.
- One (1) red flashing LED module in the passenger's side fifth front position.
- One (1) red flashing LED module in the passenger's side fourth front position.
- One (1) white flashing LED module in the passenger's side third front position.

BIDDER COMPLIES	
YES	NO

- One (1) red flashing LED module in the passenger's side second front position.
- One (1) red flashing LED module in the passenger's side first front position.
- One (1) red flashing LED module in the passenger's side front corner position.
- One (1) red flashing LED module in the passenger's side end position.

There shall be clear lenses included on the lightbar.

The following switches may be installed in the cab on the switch panel to control the lightbar:

- a switch to control the flashing LED modules.
- the traffic light controller shall be activated by a cab switch with emergency master control,
- and there shall be no momentary switch to activate the traffic light controller.

The two (2) white flashing LED modules and the traffic light controller shall be disabled when the parking brake is applied.

The eight (8) red flashing LED modules in the front positions may be load managed when the parking brake is applied.

LIGHTS, FRONT ZONE LOWER

Two (2) Whelen model M6*C LED flashing warning lights shall be installed on the cab face above the headlights, in a common bezel with the directional lights.

The driver's side front warning light to be red.

The passenger's side front warning light to be red.

Both lights shall include a clear lens.

There shall be a switch located in the cab on the switch panel to control the lights.

HEADLIGHT FLASHER

The high beam headlights shall flash alternately between the left and right side.

There shall be a switch installed in the cab on the switch panel to control the high beam flash. This switch shall be live when the battery switch and the emergency master switches are on.

The flashing shall automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.

SIDE ZONE LOWER LIGHTING

There shall be six (6) Whelen®, Model M6V2C, flashing LED warning lights with chrome trim installed per the following:

- Two (2) lights, one (1) each side on the bumper extension. The side front lights to be red.
- Two (2) lights, one (1) each side of cab rearward of crew cab doors. The side middle lights to be red.
- Two (2) lights, one (1) each side located between the tandems. The side rear lights to be red.
- The lights shall include clear lenses.

BIDDER COMPLIES YES	NO

There shall be a switch in the cab on the switch panel to control the lights.

REAR ZONE LOWER LIGHTING

There shall be two (2) Whelen®, Model M6*C, LED flashing warning lights located at the rear of the apparatus.

- The driver's side rear light to be red
- The passenger's side rear light to be red

Both lights shall include a lens that is clear.

There shall be a switch located in the cab on the switch panel to control the lights.

REAR WARNING LIGHTS

There shall be two (2) Whelen®, Model M6**, 4.31" high x 6.75" wide x 1.37" deep flashing LED warning light(s) with chrome trim provided at the rear of the apparatus, One (1) each side of the top of the rear body.

The light(s) to include red flashing LEDs. The warning light lens color(s) to be clear.

These light(s) shall be controlled with the rear upper warning switch.

The light(s) may be load managed when the parking brake is applied.

REAR/SIDE ZONE UPPER WARNING LIGHTS

There shall be two (2) Whelen®, Model L31H*FN, LED warning beacons provided at the rear of the truck, located one (1) each side. There shall be a switch located in the cab on the switch panel to control the beacons.

The driver’s side light shall be blue LEDs with clear domes

The passenger side light shall be red LEDs with clear domes.

The rear warning lights shall be mounted on top of the compartmentation with all wiring totally enclosed. The rear deck lights shall be mounted on the beavertails as high as possible.

TRAFFIC DIRECTING LIGHT

There shall be one (1) Whelen®, Model TAL65, 36.00" long x 2.87" high x 2.25" deep, amber LED traffic directing light installed at the rear of the apparatus.

The Whelen, Model TACTL5, control head shall be included with this installation.

The controller shall be energized when the battery switch is on.

The auxiliary flash not activated.

This traffic directing light shall be mounted over the hosebed, between the body side sheets, recessed within the cross tube, at the rear of the apparatus.

The traffic directing light control head shall be located in the driver side overhead switch panel in the right panel position.

120-VOLT RECEPTACLES

There shall be two (2), 15/20-amp 120-volt AC three (3) wire straight blade duplex receptacle(s) with interior stainless-steel wall plate(s), installed One (1) in each rear facing

BIDDER COMPLIES YES	NO

EMS cabinet, Mounted up high on the rear wall towards the center of the truck. The NEMA configuration for the receptacle(s) shall be 5-20R.

The receptacle(s) shall be powered from the shoreline inlet.

There shall be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Ratting (amps)
- Phase
- Frequency
- Power Source

120-VOLT RECEPTACLES

There shall be two (2), 15/20-amp 120-volt AC three (3) wire straight blade duplex receptacle(s) with interior stainless-steel wall plate(s), installed One (1) in each, external on the EMS cabinets, Mounted on the inward facing cabinet wall, just higher than the engine tunnel equipment mounting plate.. The NEMA configuration for the receptacle(s) shall be 5-20R.

The receptacle(s) shall be powered from the shoreline inlet.

There shall be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Ratting (amps)
- Phase
- Frequency
- Power Source

HYDRAULIC REEL MOUNTING PROVISION

Mounting provisions shall be provided for future installation of two hydraulic reels located near the top portion of compartment B1. The mounting provisions shall consist of mounting brackets, appropriate wiring for the electric rewind motors, and switches to control the rewind motors. The switches shall be installed at the location of the reel at a height not to exceed 72.00" above the operator's standing position. The switch shall be guarded to prevent accidental operation.

The make and model of the hydraulic reel shall be Amkus.AMKER100

EQUIPMENT MOUNTING ALLOWANCE

The bid shall include an allowance of $12,000 for equipment mounting or contingency.

LOOSE EQUIPMENT

The following equipment shall be furnished with the completed unit:

- One SCBA Bracket, of same make and model as those included in the SCBA seats, to be mounted in a compartment after delivery.

NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT

The following loose equipment as outlined in NFPA 1901, 2016 edition, shall be provided by the fire department.

- 4” Large Diameter Hose

BIDDER COMPLIES	
YES	NO

- 1.75" and 2.5" Hose
- All required nozzles
- SCBAs and spare cylinders
- First Aid Kit
- Spanner Wrenches
- Hydrant Wrenches
- Salvage covers
- Adapters
- Traffic vests
- Traffic control cones
- AED
- Suction Strainer
- Dry Chemical and Water Extinguishers
- Axes

PAINT

The exterior custom cab and body painting procedure shall consist of a seven (7) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body shall be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces shall be removed and sanded to a smooth finish. Exterior seams shall be sealed before painting. Exterior surfaces that shall not be painted include; chrome plating, polished stainless-steel, anodized aluminum and bright aluminum treadplate.
2. Chemical Cleaning and Pretreatment - All surfaces shall be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces shall be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces shall be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion. A final pure water rinse shall be applied to all metal surfaces.
3. Surfacer Primer - The Surfacer Primer shall be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.
4. Finish Sanding - The Surfacer Primer shall be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.
5. Sealer Primer - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.
6. Basecoat Paint - Two coats of a high performance, two component high solids polyurethane basecoat shall be applied. The Basecoat shall be applied to a thickness that shall achieve the proper color match. The Basecoat shall be used in

BIDDER COMPLIES YES	NO

conjunction with a urethane clear coat to provide protection from the environment.

7. Clear Coat - Two (2) coats of Clear Coat shall be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors shall be Clear Coated to match the body. Paint warranty for the roll-up doors shall be provided by the roll-up door manufacture.

Each batch of basecoat color shall be checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color shall be verified again to make sure that it matches the color standard. Electronic color measuring equipment shall be used to compare the color sample to the color standard entered into the computer. Color specifications shall be used to determine the color match. A Delta E reading shall be used to determine a good color match within each family color.

All removable items such as brackets, compartment doors, door hinges, and trim shall be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly.

The paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6 A.C.T.standard in critical areas. These requirements must be met in order for the exterior paint finish to be considered acceptable. The manufacture's written paint standards shall be available upon request.

The cab shall be two-tone, with the upper section painted black and lower section of the cab and body painted #90 red

PAINT - ENVIRONMENTAL IMPACT

Contractor shall meet or exceed all current State regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. Controls shall include the following conditions:

- Topcoats and primers shall be chrome and lead free.
- Metal treatment chemicals shall be chrome free. The wastewater generated in the metal treatment process shall be treated on-site to remove any other heavy metals.
- Particulate emission collection from sanding operations shall have a 99.99% efficiency factor.
- Particulate emissions from painting operations shall be collected by a dry filter or water wash process. If the dry filter is used, it shall have an efficiency rating of 98.00%. Water wash systems shall be 99.97% efficient
- Water from water wash booths shall be reused. Solids shall be removed on a continual basis to keep the water clean.
- Paint wastes are disposed of in an environmentally safe manner.
- Empty metal paint containers shall be to recover the metal.
- Solvents used in clean-up operations shall be recycled on-site or sent off-site for distillation and returned for reuse.

BIDDER COMPLIES YES	NO

Additionally, the finished apparatus shall not be manufactured with or contain products that have ozone depleting substances. Contractor shall, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.

GALVANIZED CHASSIS FRAME ASSEMBLY

The chassis frame assembly shall be hot dip galvanized before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components that are included with the chassis frame assembly that shall be hot dip galvanized are:

- Frame rails
- Frame liners
- Cross members
- Front frame extension

All galvanized components are inspected for compliance with ASTM specifications. Battery boxes shall be stainless-steel.

All components that are not galvanized shall be painted primer and gloss paint to match the lower job color.

HOT DIP GALVANIZED WATER TANK CRADLE

The water tank cradle shall be treated through a hot dip galvanizing process. The cradle shall be immersed in molten zinc to provide a coating that shall help protect against the effects of corrosion.
Hardware to assemble galvanized components shall be Dacromet® coated.

HOT DIP GALVANIZED BODY SUBSTRUCTURE

The compartment substructure shall be treated through a hot dip galvanizing process. These components shall be immersed in molten zinc to provide a coating that shall help protect against the effects of corrosion.

Hardware to assemble galvanized components shall be Dacromet® coated.

HOT DIP GALVANIZED PUMP HOUSE AND RUNNING BOARD SUBSTRUCTURE

The pump house and running board substructure shall be treated through a hot dip galvanizing process. These components shall be immersed in molten zinc to provide a coating that shall help protect against the effects of corrosion.

Hardware to assemble galvanized components shall be black coated.

HOT DIP GALVANIZED BUMPER EXTENSION SUBSTRUCTURE

The bumper extension substructure shall be treated through a hot dip galvanizing process. These components shall be immersed in molten zinc to provide a coating that shall help protect against the effects of corrosion.

COMPARTMENT INTERIOR PAINT

The interior of all compartments shall be painted with a gray spatter type paint.

BIDDER COMPLIES YES	NO

REFLECTIVE BAND
A 6.00" white reflective band shall be provided across the front of the vehicle and along the sides of the body.

The reflective band provided on the cab face shall be at the headlight level.

REAR CHEVRON STRIPING
There shall be alternating chevron striping located on the rear-facing vertical surface of the apparatus.

The rear surface, excluding the rear compartment door, shall be covered.

The colors shall be red and fluorescent yellow green diamond grade.

Each stripe shall be 6.00" in width.

This shall meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface shall be covered with chevron striping.

"Z" JOG IN REFLECTIVE STRIPE
There shall be one (1) "Z"-shaped jog(s) provided in the reflective stripe design.

CHEVRON STRIPING ON THE FRONT BUMPER
There shall be alternating chevron striping located on the front bumper.

The colors shall be fluorescent yellow green and red diamond grade.

The size of the striping shall be 6.00".

CAB DOOR REFLECTIVE STRIPE
A 6.00" x 16.00" white reflective stripe shall be provided across the interior of each cab door. The stripe shall be located approximately 1.00" up from the bottom, on the door panel.

This stripe shall meet the NFPA 1901 requirement.

LETTERING
The lettering shall be totally encapsulated between two (2) layers of clear vinyl.

LETTERING
One hundred twenty-one (121) to one hundred forty (140) genuine gold leaf lettering, 4.00" high, with highlight and double shade shall be provided.

UNDERCOATING FUEL TANK
The apparatus fuel tank shall be fully undercoated.

The fuel tank shall be undercoated with an asphalt petroleum-based material, dark in color.

The undercoating material utilized on the tank shall be formulated to resist corrosion and deaden unwanted sound or road noise.

Coating texture shall appear firm, flexible, and resistant to abrasion. Minimum dry film thickness shall be in the range of 8.00 to 12.00 mils.

The material shall be applied to the fuel tank prior to tank installation on the apparatus.

BIDDER COMPLIES YES	NO

UNDERCOATING, CAB & BODY

The apparatus shall be properly treated by an authorized dealer.

The underside of the apparatus shall be undercoated with an asphalt petroleum-based material, dark in color.

The undercoating material utilized on the apparatus shall be formulated to resist corrosion and deaden unwanted sound or road noise.

Coating texture shall appear firm, flexible, and resistant to abrasion. Minimum dry film thickness shall be in the range of 8.00 to 12.00 mils.

The material shall be applied to the following areas:

- Body and cab wheel well fender liners, on the back side only.
- Underside of body and cab sheet metal, and structural components.
- Underside and vertical sides of all sheet metal compartmentation, including support angles.
- Structural support members under running boards, rear platforms, battery boxes, walkways, etc.
- Inside surfaces of the pump heat enclosure, (when installed).

FIRE APPARATUS PARTS MANUAL

One (1) custom parts manuals for the complete fire apparatus shall be provided in hard copy with the completed unit.

One (1) compact disc (CD) shall also be provided that shall include all of the information from the above manual.

CHASSIS SERVICE MANUALS

There shall be two (2) chassis service manuals containing parts and service information on major components provided. There shall be one (1) hard copy and one (1) USB flash drive copy provided with the completed unit.
The manual shall contain the following sections:

- Job number
- Table of contents
- Troubleshooting
- Front Axle/Suspension
- Brakes
- Engine
- Tires
- Wheels
- Cab
- Electrical, DC
- Air Systems
- Plumbing
- Appendix

The manual shall be specifically written for the chassis model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.

BIDDER COMPLIES YES	NO

CHASSIS OPERATION MANUALS
There shall be one (1) hard copy and one (1) USB flash drive provided that shall include all of the same information.

ONE (1) YEAR MATERIAL AND WORKMANSHIP
Each new piece of apparatus shall be provided with a minimum **one (1) year** basic apparatus material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (no exception).

ENGINE WARRANTY
A **five (5) year** limited engine warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.

STEERING GEAR WARRANTY
A **one (1) year** limited steering gear warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.

FIFTY (50) YEAR STRUCTURAL INTEGRITY
The chassis frame shall be provided with a **fifty (50) year** material and workmanship limited warranty. The warranty shall cover the chassis frame as being free from defects in material and workmanship that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (no exception).

FRONT AXLE WARRANTY
A **five (5)-year/100,000-mile** parts and labor warranty shall be provided.

REAR AXLE WARRANTY
A **five (5)-year/100,000-mile** parts and labor warranty shall be provided.

BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY
A **three (3) year** brake system limited warranty shall be provided.

TEN (10) YEAR STRUCTURAL INTEGRITY
The new cab shall be provided with a **ten (10) year** material and workmanship limited warranty. The warranty shall cover such portions of the cab built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (no exception).

TEN (10) YEAR PRO-RATED PAINT AND CORROSION
Each new piece of apparatus shall be provided with a **ten (10) year** pro-rated paint and corrosion limited warranty on the apparatus cab. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (no exception).

BIDDER COMPLIES YES	NO

FIVE (5) YEAR MATERIAL AND WORKMANSHIP

The electronic modules and display(s) shall be provided with a five (5) year material and workmanship limited warranty. The warranty shall cover electronic modules to be free from failures caused by defects in material and workmanship. A copy of the warranty certificate shall be submitted with the bid package (no exception).

COMPARTMENT LIGHT WARRANTY

A ten (10) year material and workmanship limited warranty shall be provided for the Pierce 12-volt DC LED strip lights**.** The warranty shall cover the LED strip lights to be free from defects in material and workmanship that would arise under normal use. A copy of the warranty certificate shall be submitted with the bid package (no exception).

TRANSMISSION WARRANTY

The transmission shall have a **five (5) year/unlimited mileage** warranty covering 100 percent parts and labor. The warranty is to be provided by transmission supplier and not the apparatus builder.

TRANSMISSION COOLER WARRANTY

The transmission cooler shall carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty shall also be in effect for the first three (3) years of the warranty coverage and shall not exceed $10,000 per occurrence. A copy of the warranty certificate shall be submitted with the bid package.

WATER TANK WARRANTY

The poly water tank shall be provided with a lifetime material and workmanship limited warranty.
A copy of the warranty certificate shall be submitted with the bid package (no exception).

TEN (10) YEAR STRUCTURAL INTEGRITY

Each new piece of apparatus shall be provided with a **ten (10) year** material and workmanship limited warranty on the apparatus body. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (no exception).

ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY

A roll-up door limited warranty shall be provided. The roll-up door shall be warranted against manufacturing defects for a period of **ten (10) years**. A **five (5) year** limited warranty shall be provided on painted roll up doors. A copy of the warranty certificate shall be submitted with the bid package.

PUMP WARRANTY

The **five (5) year** limited warranty on parts and **two (2) year** limited warranty on labor shall be provided for the pump. A copy of the warranty certificate shall be submitted with the bid package (no exception).

TEN (10) YEAR PUMP PLUMBING WARRANTY

The stainless-steel plumbing components and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted for a period of **ten (10) years or 100,000 miles**. This covers structural failures caused by defective design or

BIDDER COMPLIES YES	NO

workmanship, or perforation caused by corrosion, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser for a period of ten years from the date of delivery.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

FOAM SYSTEM WARRANTY

A **one (1) year** material and workmanship limited warranty shall be provided on the foam system. A **five (5) year** material and workmanship limited warranty shall be provided on the foam system control head. A copy of the warranty certificate shall be submitted with the bid package (no exception).

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

Each new piece of apparatus shall be provided with a **ten (10) year** pro-rated paint and corrosion limited warranty on the apparatus body. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (no exception).

THREE (3) YEAR MATERIAL AND WORKMANSHIP

The gold leaf lamination shall be provided with a **three (3) year** material and workmanship limited warranty. The warranty shall cover the gold leaf lamination as being free from defects in material and workmanship that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (no exception).

VEHICLE STABILITY CERTIFICATION

The fire apparatus manufacturer shall provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification shall be provided at time of bid.

ENGINE INSTALLATION CERTIFICATION

The fire apparatus manufacturer shall provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification shall be provided at the time of bid.

POWER STEERING CERTIFICATION

The fire apparatus manufacturer shall provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification shall be provided at the time of bid.

CAB INTEGRITY CERTIFICATION

The fire apparatus manufacturer shall provide a cab crash test certification with this proposal. Testing shall meet or exceed the requirements below:

- European Occupant Protection Standard ECE Regulation No.29
- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks
- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks

BIDDER COMPLIES	
YES	NO

There shall be no exception to any portion of the cab integrity certification. Nonconformance shall lead to immediate rejection of bid.

CAB DOOR DURABILITY CERTIFICATION

Robust cab doors help protect occupants. Cab doors shall survive a 200,000-cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder shall certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.

WINDSHIELD WIPER DURABILITY CERTIFICATION

Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers shall survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 *Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles*. The bidder shall certify that the wiper system design has been tested and that the wiper system has met these criteria.

SEAT BELT ANCHOR STRENGTH

Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design shall withstand 3000 lb. of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder shall certify that each anchor design was pull tested to the required force and met the appropriate criteria.

SEAT MOUNTING STRENGTH

Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design shall be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder shall certify, at time of delivery, that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.

CAB DEFROSTER CERTIFICATION

Visibility during inclement weather is essential to safe apparatus performance. The defroster system shall clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure and Performance Requirements - Trucks, Buses, And Multipurpose Vehicles. The bidder shall certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.

CAB HEATER CERTIFICATION

Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. The cab heaters shall warm the cab 77 degrees Fahrenheit from a cold soak, within 30 minutes when tested using the coolant supply methods found in SAE J381.

The bidder shall certify, at time of delivery, that a substantially similar cab has been tested and has met these criteria.

CAB AIR CONDITIONING PERFORMANCE CERTIFICATION

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the

BIDDER COMPLIES	
YES	NO

scene. The cab air conditioning system shall cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 78 degrees Fahrenheit in 30 minutes. The bidder shall certify that a substantially similar cab has been tested and has met these criteria.

AMP DRAW REPORT

The bidder shall provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus shall provide the following:

- Documentation of the electrical system performance tests.
- A written load analysis, which shall include the following:
    - The nameplate rating of the alternator.
    - The alternator rating under the conditions specified per:
        - Applicable NFPA 1901 or 1906 (Current Edition).
    - The minimum continuous load of each component that is specified per:
        - Applicable NFPA 1901 or 1906 (Current Edition).
    - Additional loads that, when added to the minimum continuous load, determine the total connected load.
    - Each individual intermittent load.

All of the above listed items shall be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).