LEGAL NOTICE / PUBLIC NOTICE
GRAYSLAKE FIRE PROTECTION DISTRICT
NOTICE OF INVITATION TO BID

The Grayslake Fire Protection District, Lake County, Illinois, hereby invites sealed bids from qualified fire apparatus manufacturers for the purchase of the following:

Pumper Fire Apparatus

Sealed bids shall be submitted in an envelope clearly marked:
"Pumper Proposal – Do Not Open."

Bids will be received at the Grayslake Fire Protection District Headquarters, **160 Hawley Street, Grayslake, Illinois**, until **10:00 a.m. (local time) on March 3, 2026**.

Bids will be publicly opened and read aloud at **11:00 a.m. on March 3, 2026**, at the same location.

Bid specifications and contract documents are available for public inspection at the Grayslake Fire Protection District Headquarters. Bid packets may be obtained from the District at **160 Hawley Street, Grayslake, IL 60030**, or online at **www.grayslakefire.com**.

All bids must be submitted in accordance with the bid documents. Each bidder is responsible for ensuring that their proposal complies with all applicable federal, state, and local laws and regulations.

The Grayslake Fire Protection District reserves the right to reject any or all bids, to waive informalities or technicalities, to determine the lowest responsible and responsive bidder, to determine whether proposed equipment meets, exceeds, or is equal to the specifications, and to cancel this invitation to bid at any time prior to award. Award of the contract, if any, shall be made by the Fire District Board of Trustees of the Grayslake Fire Protection District.

BIDDER'S CERTIFICATION OF ELIGIBILITY

In Compliance with 720 ILCS 5/33E-11:

_____, a(n) _____
Print name of Bidder Individual, Partnership, Corporation

As part of his bid on the above-referenced Contract, the Bidder hereby certifies that the Bidder is not barred from bidding on the above-referenced contract as a result of a violation of either Section 33E-3 Bid-rigging or 33E-4 Bid-stating of Article 33E of the Illinois Criminal Code, 720 ILCS 5/33E-1, *et. seq.*, as amended.

_____
Date

Bidder

By: _____

Its: _____ Title

STATE OF ILLINOIS)
) SS
COUNTY OF _____)

I, the undersigned, a notary public in and for the State and County aforesaid, hereby certify that

_____ appeared before me this day in person and, being first duly sworn on oath, acknowledged that he/she executed the foregoing certification as his/her free act and deed.

Dated:_____

Notary Public: _____

BID PAGE

Manufacturer Bidder Name:_____

Cost of unit build & delivery to Grayslake Fire Station 1:_____

Projected delivery window:_____

The GRAYSLAKE FIRE PROTECTION DISTRICT is not subject to federal excise tax or Illinois retailer's occupation tax.

Please include a separate list of non-compliant items with explanations. (Use line numbers as reference)

Invitation To Submit Competitive Bids
For
Pumper(s) And Equipment

DATE: February 3, 2026

The Grayslake Fire Protection District is soliciting competitive, sealed bids from qualified vendors for the purchase of **one (1) Fire Pumper Apparatus** for the Grayslake Fire Department, located at 160 Hawley Street, Grayslake, Illinois 60030.

The Grayslake Fire Protection District reserves the right to reject any and all bids, to waive any informalities or irregularities, and to accept the bid that is determined to be in the best interest of and most advantageous to the Grayslake Fire Department.

The attached specifications define a heavy-duty, commercial fire apparatus designed and constructed for emergency response operations and capable of operating under adverse driving and environmental conditions. The apparatus shall be new, unused, and shall meet or exceed the most current edition of **NFPA 1901 – Standard for Automotive Fire Apparatus**, as adopted at the time of bid, along with all applicable **Federal Motor Vehicle Safety Standards (FMVSS)** and State of Illinois requirements.

All components, systems, and equipment furnished shall be in full compliance with NFPA 1901, including but not limited to requirements for structural integrity, braking systems, lighting and warning systems, pump performance, water tank capacity, hose storage, electrical systems, and safety features. The apparatus shall be designed to meet all applicable OSHA and NIOSH safety considerations as they relate to fire apparatus operations.

The use of brand names, trade names, or catalog numbers within the specifications is intended solely to establish the minimum level of quality, performance, and functionality required. To ensure open and competitive bidding, whenever a specific brand name or catalog number is referenced, it shall be interpreted to include “or approved equal.” Vendors proposing alternate products or equipment must request approval in writing from the District no later than **five (5) business days** prior to the bid opening. Bids proposing non-approved alternates shall be deemed non-responsive and will be rejected. The District shall be the sole and final authority in determining whether a proposed substitute meets or exceeds the specified requirements, and such determination shall be final and not subject to appeal.

This invitation to bid is open to all qualified manufacturers and vendors who are regularly and actively engaged in the design, manufacture, and delivery of **NFPA 1901-compliant fire apparatus**, including pumpers and related firefighting equipment.

This invitation is issued by:
The Grayslake Fire Protection District
160 Hawley St
Grayslake, IL 60030
Email: dctorkilsen@grayslakefire.com

Contact Person:

David Torkilsen
Deputy Chief

INTRODUCTION

Sealed bids for the furnishing of a triple combination pumper will be received at the Grayslake Fire Protection District Headquarters Station at 160 Hawley Street, Grayslake, IL 60030, on or before March 3, 2026, at 10:00 am CST.

Bid opening will be on Wednesday, March 3, 2026, at 11:00 am, located at 160 Hawley Street, Grayslake, IL 60030.

The Grayslake Fire Protection District (GFPD) reserves the right to reject any and all bids, also to accept the bid which they deem to be in their best interest, and will not necessarily be bound to accept the low bid. No used apparatus will be considered; if a demonstration apparatus is bid as an option, it shall be identified as such. The GFPD will consider the quality and workmanship of the proposed apparatus. Delivery time, operating characteristics, service availability, and design/manufacturing experience shall also be considered. Particular attention shall be given to any and all items affecting the cost to operate and maintain the apparatus. All bids shall be evaluated on the basis of compliance with these specifications and apparatus performance. The GFPD reserves the right to reject any bids not in compliance with these specifications and the decision of the GFPD shall be conclusive and final.

Any exceptions and all exceptions shall be explained on a separate sheet, attached to the specification sheets, and enclosed with your bid. The listed exceptions must be fully explained and the alternate method of construction being proposed with references to the corresponding headings. Proposals taking total exception to these specifications will not be considered.

A copy of these specifications must be submitted with the bid and become part of the final contract.

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.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of 20 years. Furthermore, in order to insure fair, ethical, and legal competition, neither the original equipment manufacturer (O.E.M.) nor parent company of the O.E.M. shall have ever been fined or convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

If a bidder represents more than one fire apparatus company or brands of apparatus, they must only bid one brand of apparatus that meets specification.

Each bidder shall furnish satisfactory evidence of their ability to construct the apparatus specified.

Any apparatus manufacturer or their parent company that has had a performance bond called in the last 10 years shall not be eligible to bid.

Each bid shall be accompanied by a set of manufacturer's set of 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 departments advertised specifications. A letter only, even though written on company letterhead, shall not be sufficient. **An exception 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 photo copies 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.

THE GRAYSLAKE FIRE PROTECTION DISTRICT HAS THE RIGHT TO REJECT ANY BIDS WHICH DOES NOT MEET THESE SPECIFICATIONS AND IS THE SOLE DECIDER TO DEEM WHICH BID IS IN THE BEST INTEREST OF THE GRAYSLAKE FIRE PROTECTION DISTRICT.

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.

Images and illustrative material in this specification are as accurate as known at the time of publication, but are subject to change without notice. Images and illustrative material is for reference only, and may include optional equipment and accessories and may not include all standard equipment.

FINANCE

The bidder’s proposal shall state the total price of the apparatus, any available pre-payment discounts, and any financing available, including lease-purchase options through the manufacturer for periods of three, five and ten years. The purchaser is not obligated to use these financing options.

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. Therefore exceptions to the specifications may not be accepted.

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

If a product brand name is specified and is commercially available to all bidders, an exception to such items is not acceptable and such bid may be rejected.

Exceptions shall be allowed if they are equal to or superior to that specified and provided they are 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).

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.

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.

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 ten (10) fire departments/municipalities in the midwest region that have bought a second time from the representing dealer. **An exception to this requirement shall not be acceptable.**

DELIVERY

The bidder shall provide information on estimated delivery time in calendar days. Apparatus, to insure 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.

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 concrete highway without exceeding the maximum governed rpm of the engine.

C) 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.

D) 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 INSURE 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, well versed in all aspects of service for all major components of the apparatus. The service center must be within fifty (50) miles of the Fire Department.

SERVICE AND WARRANTY SUPPORT (MANUFACTURER)

To provide an additional layer of service support, the successful manufacturer must also own a least two separate service facilities, one located in the northern portion of the US to service both Canada and the northern US states and one in the south to service the southern states.

The manufacturer shall stock an adequate supply of inventory dedicated to service and replacement parts to ensure quick response and minimize down time. Furthermore, the manufacturer shall house the inventory in a dedicated facility, with a dedicated shipping area

that ensures service parts are given priority. The bidder shall provide detailed documentation of service and replacement part resources.

Parts identification shall be provided to both the dealer and the Fire Department through an on line web based application for the specific truck reflected in this specification. Access will be granted using the specific VIN number of the vehicle. The online web application will provide the ability to view complete bills of materials, digital photographs, parts drawings, assembly drawings, and access to all current operation, maintenance and service publications.

The manufacturer must also maintain a 24 hour/ 7 day a week, toll free emergency hot line.

The manufacturer shall employ a staff of adequate size 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 an 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. To ensure this will occur, the bidder shall carry the following minimum insurance.

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$5,000,000

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:

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

Coverage shall be written on a Commercial Automobile liability form.

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:$25,000,000

Each Occurrence: $25,000,000

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

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 its bid. The certificate shall show the purchaser as certificate holder.

	Bidder Complies	
	Yes	No

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 or multiplex) 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 2024 STANDARDS

This unit shall comply with the NFPA standards effective January 1, 2024, 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

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.

GENERATOR TEST

If the unit has a generator, the generator shall be tested, approved, and certified at the manufacturer's expense. The test results shall be provided to the Fire Department at the time of delivery.

BREATHING AIR TEST

If the unit has breathing air, an air sample shall be drawn from the air system to certify that the air quality meets the requirements of NFPA 1989, *Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection.*

VEHICLE INSPECTION PROGRAM CERTIFICATION

To assure the vehicle is built to current NFPA 1900 standards, the apparatus, in its entirety, shall be third-party, independent, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition. 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.

BID BOND

All bidders shall provide a bid bond as security for the bid in the form of a 10 percent 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.

Proposals received from bidders who do not manufacture the chassis shall provide a warranty that shall be issued jointly and severally by, and signed by, both the bidder and the chassis manufacturer.

If the successful bidder does not manufacture the chassis, the bidder shall supply a warranty bond, in addition to their performance bond, along with their signed contract. This warranty bond shall guarantee all terms and conditions of the Basic One (1) Year Limited Warranty and

	Bidder Complies	
	Yes	No
names both the bidder and chassis manufacturer as co-principals. This warranty bond shall be issued for the contract amount and shall remain in force for a term which is consistent with the term of the Basic One (1) Year Limited Warranty. 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 NOT REQUESTED** A performance bond shall not be included. If requested at a later date, one shall be provided to you for an additional cost and the following shall apply: 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 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 Bumper to Bumper warranty period included within this proposal. Owner agrees that the penal amount of this bond shall be simultaneously amended to 25 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 three (3) years from the date of such satisfactory acceptance and delivery, or the actual Bumper to Bumper warranty period, whichever is shorter. Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates shall be made available, and a final firm delivery date shall be provided as soon as possible. If the Producer Price Index of Components for Manufacturing [www.bls.gov Series ID: WPUID6112] ("PPI") has increased at a compounded annual growth rate of 5.0% or more between the month the truck manufacturer accepts the order ("Order Month") and a month 14 months prior to the then predicted Ready For Pickup date ("Evaluation Month"), then pricing may be updated in an amount equal to the increase in PPI over 5.0% for each year or fractional year between the Order Month and the Evaluation Month.		

	Bidder Complies	
	Yes	No

The seller shall document any such updated price for the customer's approval before proceeding and provide an option to cancel the order.

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.

CHASSIS

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

WHEELBASE

The wheelbase of the vehicle shall be no greater than 215".

GVW RATING

The gross vehicle weight rating shall be a minimum of 43,500.

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 have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle.

Each rail shall have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb over the rear axle.

The frame rails shall be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.

FRAME REINFORCEMENT

In addition, a mainframe internal liner shall be provided. The liner shall be an internal "C" design that steps to an internal "L" design over the rear axle. It shall be heat-treated steel

	Bidder Complies	
	Yes	No

measuring 12.50" x 3.00" x 0.25" through the front portion of the liner, stepping to 9.38" x 3.00" x 0.25" through the rear portion of the liner. Each liner shall have a section modulus of 13.58 cubic inches, yield strength of 110,000 psi, and rbm of 1,494,042 in-lb. Total rbm at wheelbase center shall be 4,391,869 in-lb.

The frame liner shall be mounted inside of the chassis frame rail and extend the full length of the frame.

FRONT NON DRIVE AXLE

The front axle shall be of the independent suspension design with a ground rating of 19,500 lb.

The axle shall have a turning angle of up to 45 degrees.

FRONT SUSPENSION

A front independent suspension shall be provided with a minimum ground rating of 19,500 lb.

FRONT SHOCK ABSORBERS

Heavy-duty telescoping shock absorbers shall be provided on the front suspension.

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 22.50" x 9.00" steel disc type wheels with a ten (10) stud, 11.25" bolt circle.

REAR AXLE

The rear axle shall have a capacity of 27,000 lb.

TOP SPEED OF VEHICLE

A rear axle ratio shall be furnished to allow the vehicle to reach a top speed of 68 mph / 109 kph.

REAR SUSPENSION

The rear suspension shall be semi-elliptical, 3.00" wide x 52.50" long, with a ground rating of 27,000 lb. The spring hangers shall be castings.

The two (2) top leaves shall wrap the forward spring hanger pin, and the rear of the spring shall be a slipper style end that shall ride in a rear slipper hanger.

A steel encased rubber bushing shall be used in the spring eye. The steel encased rubber bushing shall be maintenance free and require no lubrication.

	Bidder Complies	
	Yes	No

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

REAR TIRES
Rear tires shall be four (4) 12R22.50 radials, load range H, highway tread, rated for 27,120 lb maximum axle load and 75 mph maximum speed.

The tires shall be mounted on 22.50" x 8.25" steel disc type wheels with a ten (10) stud, 11.25" bolt circle.

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

TIRE PRESSURE MANAGEMENT
There shall be a LED tire alert pressure management system provided, that shall monitor each tire's pressure. A sensor shall be provided on the valve stem of each tire for a total of six (6) tires.

The sensor shall calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor shall activate an integral battery operated LED when the pressure of that tire drops 5 to 8 psi.

Removing the cap from the sensor shall indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED shall immediately start to flash.

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

WHEEL CHOCKS
There shall be one (1) pair of folding aluminum alloy wheel blocks, with easy-grip handle provided.

Wheel Chock Brackets
There shall be one (1) pair of horizontal mounting wheel chock brackets provided for the folding 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 left side rear tire.

ELECTRONIC STABILITY CONTROL
A vehicle control system shall be provided as an integral part of the ABS brake system from Meritor Wabco.

The system shall monitor and update the lateral acceleration of the vehicle and compare it to a critical threshold where a side roll event may occur. If the critical threshold is met, the vehicle control system shall automatically reduce engine RPM, engage the engine retarder (if

	Bidder Complies	
	Yes	No

equipped), and selectively apply brakes to the individual wheel ends of the front and rear axles to reduce the possibility of a side roll event.

The system shall monitor directional stability through a lateral accelerometer, steer angle sensor and yaw rate sensor. If spinout or drift out is detected, the vehicle control system shall selectively apply brakes to the individual wheel ends of the front and rear axles to bring the vehicle back to its intended direction.

ANTI-LOCK BRAKE SYSTEM

The vehicle shall be equipped with a Wabco 4S4M, anti-lock braking system. The ABS shall provide a four (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 braking system. Each wheel shall be monitored by the system. When any wheel begins to lockup, a signal shall 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.

AUTOMATIC TRACTION CONTROL

An anti-slip feature shall be included with the ABS. The Automatic Traction Control shall be used for traction in poor road and weather conditions. The Automatic Traction Control shall act as an electronic differential lock that shall not allow a driving wheel to spin, thereby supplying traction at all times. The ABS electronic control unit (ECU) shall work with the engine ECU, sharing information concerning wheel slip. Engine ECU shall use information to control engine speed, allowing only as much throttle application as required for the available traction, regardless of how much the driver is asking for. An "off road traction" switch shall be provided on the instrument panel. Activation of the switch shall allow additional tire slip to let the truck climb out and get on top of deep snow or mud.

BRAKES

The service brake system shall be full air type. The front brakes shall be 17.00" disc type.

The rear brakes shall be 16.50" x 7.00" cam operated with automatic slack adjusters. Dust shields shall be provided.

AIR COMPRESSOR, BRAKE SYSTEM

The air compressor shall be a Wabco single piston compressor with a 26.8 CI displacement.

BRAKE SYSTEM

The brake system shall include:

- Brake treadle valve
- Heated automatic moisture ejector on air dryer
- Total air system minimum capacity of 4,272 cubic inches

	Bidder Complies	
	Yes	No

- 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 shall be primed and painted to meet a minimum 750 hour salt spray test.

The air tanks shall be painted black #98.

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 spin-on coalescing filter cartridge and 100 watt heater.

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:

Power:	510 hp at 1600rpm
Torque:	1850 lb-ft at 1000rpm
Governed Speed:	1900 rpm
Emissions Certification:	EPA 2027
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	13.7L

	Bidder Complies	
	Yes	No

Starter:	DP60
Fuel Filters:	Dual cartridge style with check valve, water separator, and water in fuel sensor

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

The compression release brake option is a fully integrated MX engine braking system. It utilizes the turbocharger and back pressure valve, but adds in a hydraulically operated compression brake to increase overall retarding power.

To maximize the effectiveness of the compression brake the MX engine brake system works in conjunction with the turbocharger and back pressure valve.

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

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

The engine air intake shall be located above the engine cooling package. It shall draw fresh air from the front of the apparatus through the radiator grille.

The ember separator is designed to prevent road dirt and recirculating hot air from entering the engine.

The ember separator shall be easily accessible by tilting the cab.

	Bidder Complies	
	Yes	No

EXHAUST SYSTEM

The exhaust system shall be stainless steel from the turbo to the engine's aftertreatment device. The exhaust system shall include an aftertreatment device to meet current EPA standards. An insulation wrap shall be provided on all exhaust pipe between the turbo and the aftertreatment device to minimize the transfer of heat to the cab.

The exhaust shall terminate horizontally ahead of the right side rear wheels and will extend 2.00" past the body rub rail. The exhaust pipes shall be aluminized steel.

There shall be an aluminized steel exhaust diffuser with a standard straight tip on the end 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.

RADIATOR

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

For maximum corrosion resistance and cooling performance, the entire radiator core shall be constructed using long life aluminum alloy. The radiator core shall consist of aluminum fins, having a serpentine design, brazed to aluminum tubes. No solder joints or leaded material of any kind shall be acceptable in the core assembly.

The radiator core shall have a minimum front area of 1060 square inches.

Supply tank shall be made of heavy duty glass-reinforced nylon and the return tank shall be made of aluminum. Both tanks shall be crimped onto the core assembly using header tabs and a compression gasket to complete the radiator core assembly. There shall be a full steel frame around the inserts to enhance cooling system durability and reliability.

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.

The radiator shall include a de-aeration/expansion tank. For visual coolant level inspection, the radiator shall have a built-in sight glass. The radiator shall be equipped with a 15 psi pressure relief cap.

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.

	Bidder Complies	
	Yes	No

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 aluminum fuel tank shall be provided and mounted at the rear of the chassis. It shall be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank shall be mounted with stainless steel straps (no exception). It shall be unpainted (vendor finish)

A 0.75" drain plug shall be provided in a low point of the tank for drainage.

A fill inlet shall be provided and marked "Ultra Low Sulfur - Diesel Fuel Only." The fill inlet shall be located near the air bottle storage behind a common door on the left hand side of the vehicle.

A 0.50" diameter vent shall be provided running from top of tank to just below fuel fill inlet.

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 7.3 gallon diesel exhaust fluid (DEF) tank shall be provided and mounted under the cab on the driver's side.

A fill inlet shall be provided on the driver's side of the cab. The lift up door shall be spring loaded and be painted.

TRANSMISSION

An electronic, torque converting, automatic transmission shall be provided.

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 left side and top of converter housing (positions 8 o'clock and 1 o'clock).

A transmission temperature gauge with an amber light and buzzer shall be installed on the cab instrument panel.

	Bidder Complies	
	Yes	No

TRANSMISSION SHIFTER
A six (6)-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	3.51 to 1.00
2nd	1.91 to 1.00
3rd	1.43 to 1.00
4th	1.00 to 1.00
5th	0.75 to 1.00
6th	0.64 to 1.00
R	4.80 to 1.00

TRANSMISSION PROGRAMMING
The transmission shall be programmed to automatically shift the transmission to neutral when the parking brake is set to simplify operation and increase operational safety (no exception).

TRANSMISSION COOLER
A plate and fin transmission oil cooler shall be provided using engine coolant to control the transmission oil temperature.

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

The shafts shall be dynamically balanced before installation.

A splined slip joint shall be provided in each driveshaft where the driveline design requires it.

STEERING
Dual steering gears, with integral heavy-duty power steering, shall be provided. For reduced system temperatures, the power steering shall incorporate an air to oil cooler and a hydraulic pump with integral pressure and flow control. All power steering lines shall have wire braded lines with crimped fittings.

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, and a 4-spoke design.

LOGO AND CUSTOMER DESIGNATION ON DASH
The dash panel shall have an emblem containing the fire apparatus manufacturer's logo and customer name. The emblem shall have three (3) rows of text for the customer's department

	Bidder Complies	
	Yes	No

name. There shall be a maximum of eight (8) characters in the first row, 11 characters in the second row and 11 characters in the third row.

The first row of text shall be: Grayslake

The second row of text shall be: Fire

The third row of text shall be: Protection Dist.

AUTOMATIC CHASSIS LUBRICATION

An automatic lubrication system shall be provided. The system shall supply grease while the vehicle parking brake is off and shall be paused while the parking brake is on. The system shall include an electronic control unit that allows for adjustable timing intervals and monitors the system for faults and low-level indications.

The lubrication system reservoir shall be mounted in the pumphouse on the apparatus unless otherwise necessitated by the vehicle configuration.

All serviceable grease points on the front and rear axles of the chassis shall be connected to the lubrication system:

- King pins, tie rods, and drag links on vehicles equipped with a straight front axle
- S-cams and slack adjusters on vehicles equipped with cam brakes
- Spring pins and spring shackles on vehicles equipped with leaf springs that have serviceable grease points

BUMPER

A one (1)-piece bumper manufactured from 0.25" formed steel with a 0.38" bend radius shall be provided. The bumper shall be a minimum of 10.00" high with a 1.50" top and bottom flange, and shall extend 19.00" from the face of the cab. The bumper shall be 95.28" wide with 45 degree corners and side plates.

To provide adequate support strength, the bumper shall be mounted directly to the front of the C channel frame. The frame shall be a bolted modular extension frame constructed of 50,000 psi tensile steel.

The bumper shall be metal finished and painted to match the lower job color of the apparatus.

Gravel Pan

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

CENTER HOSE TRAY

A hose tray, constructed of aluminum, shall be placed in the center of the bumper extension.

	Bidder Complies	
	Yes	No
The tray shall have a capacity of 50' of 5.00" double jacket cotton-polyester hose. Black rubber grating shall be provided at the bottom of the tray. Drain holes are also 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 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. The arm shall be located on the driver side of the tray. **TOW EYES** Two (2) painted steel tow eyes shall be installed under the bumper and attached to the front frame members. The tow eyes 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 eyes shall not be used for lifting of the apparatus. The inner and outer edges of the tow eyes shall have a .25" radius. The tow eyes shall be painted black. **FRONT BUMPER COATING** Protective black abrasive resistant coating shall be provided on the outside exterior of the top front bumper flange. It shall not be sprayed on the underside of the flange. The lining shall be properly installed by an authorized dealer. **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). 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		

	Bidder Complies	
	Yes	No
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 minimum 0.090" front skin thickness, 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 0.375" thick cross-floor support providing a total thickness of 0.50" 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 96.00" wide (outside door skin to outside door skin) to maintain maximum maneuverability (no exception). The centerline of front axle to the rear of the cab shall be 70.00" long. The forward cab section shall have an overall height (from the cab roof to the ground) of approximately 99.00". The crew cab section shall have a 10.00" raised roof, with an overall cab height of approximately 109.00". The overall height listed shall be calculated based on a truck configuration with the lowest suspension weight rating, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension shall increase the overall height listed. The floor to ceiling height inside the crew cab shall be 63.50" in the forward facing outboard positions and 54.50" in the forward facing center position. The crew cab floor shall measure 46.00" from the rear wall to the back side of the rear facing seat risers. The medium block engine tunnel, at the rearward highest point (knee level), shall measure 61.50" to the rear wall. The big block engine tunnel shall measure between 45.00" and 51.50" to the rear wall. 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. A 3-point cab mount system with rubber isolators shall improve ride quality by isolating chassis vibrations from the cab.		

	Bidder Complies	
	Yes	No

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.

CAB PUMP ENCLOSURE
The rear of the cab shall be made to house the fire pump below the forward facing crew cab seats. The cab side panels shall be notched to accommodate the pump panel.

FENDER LINERS
Full circular inner fender liners in the wheel wells shall be provided.

PANORAMIC WINDSHIELD
A one (1)-piece safety glass windshield shall be provided with over 2,775 square inches of clear viewing area. 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. The outer light layer shall provide superior chip resistance. The middle safety laminate layer shall prevent the windshield glass pieces from detaching in the event of breakage. The inner light shall provide yet another chip resistant layer. The cab windshield shall be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern shall be applied on the outside perimeter of the windshield for a finished automotive appearance.

WINDSHIELD WIPERS
Three (3) electric windshield wipers with washer shall be provided that meet FMVSS and SAE requirements.

The washer reservoir shall be able to be filled without raising the cab.

ENGINE TUNNEL
Engine hood side walls shall be constructed of 0.375" aluminum. The top shall be constructed of 0.125" aluminum and shall be tapered at the top to allow for more driver and passenger elbow room.

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 edition of applicable NFPA standards.

The engine tunnel shall be no higher than 17.00" off the crew cab floor (no exception).

INTERIOR CAB INSULATION
The cab shall include 1.00" insulation in the ceiling, 1.50" insulation in the side walls, a minimum of 1.00" insulation in the crew cab floor, and 2.00" insulation in the rear wall to maximize acoustic absorption and thermal insulation.

	Bidder Complies	
	Yes	No

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.

Hydraulic pump shall have a manual override for backup in the event of 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 43 degrees 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 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 located in the tilt position.

For increased safety, a redundant mechanical stay arm shall be provided that must be manually put in place on the left 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.

MIRRORS

A 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.

	Bidder Complies	
	Yes	No

FRONT CROSS VIEW MIRROR

An 8.00" diameter convex mirror shall be provided over the officer's side front corner of the cab. The mirror shall provide the driver with a view of the front bumper and the area several feet in front of the truck.

The mirror housing, tubing, clamps, and hardware shall be constructed of corrosion resistant stainless steel.

DOORS

To enhance entry and egress to the cab, the forward cab door openings 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.

A customized, vertical, pull-down type door handle shall be provided on the exterior of each cab door. The finish of the door handle shall be chrome/black. The exterior handle shall be designed specifically for the fire service to prevent accidental activation, and shall provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands.

Each door shall also be provided with an interior flush, open style paddle handle that shall be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles shall provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.

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.

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

The bottom cab step at each cab door location shall be located below the cab doors and shall be exposed to the exterior of the cab.

	Bidder Complies	
	Yes	No

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
A dual step shall be provided below each cab and crew cab door. The steps shall be designed with a grip pattern punched into bright aluminum treadplate material providing support, slip resistance, and drainage. The 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 21.50" wide with a 7.00" minimum depth. The step design raises the middle step higher and closer to the cab floor, resulting in a 12.50" distance from the step to cab floor in the cab and a 10.25" distance from the step to cab floor in the crew cab. Stepping distances from the ground to first step shall be approximately 14.00" and from first step to middle step shall be approximately 12.00".

The vertical surface of the upper step well shall be aluminum treadplate.

The first step shall be lit by a 12 volt DC LED light provided on the step.

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 with chrome housing installed for cab and crew cab access steps.

- One (1) light for the left side cab access steps.
- Two (2) lights for the left side crew cab access steps.
- Two (2) lights for the right side crew cab access steps.
- One (1) light for the right side cab access step.

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.

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.

	Bidder Complies	
	Yes	No

CAB DASH

The driver side dash, switch panel located to the right of the driver, and center console shall be an easily removable high impact resistant polymer cover.

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

The officer side dash shall be a flat top design with an upper beveled edge to provide easy maintenance and shall be constructed out of aluminum and painted to match the cab interior.

MOUNTING PLATE ON ENGINE TUNNEL

Equipment installation provisions shall be installed on the engine tunnel.

A 0.25" 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 1.00" to allow for wire routing below the plate.

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

CAB INTERIOR

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

The engine tunnel shall be padded and covered, on the top and sides, with dark silver gray 36 ounce leather grain vinyl resistant to oil, grease, and mildew.

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

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 dark silver gray vinyl.

CAB INTERIOR PAINT

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

	Bidder Complies	
	Yes	No

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

CAB FLOOR

A small blister shall be provided at the rear of the engine tunnel for chassis components.

The cab and crew cab floor areas shall be covered with floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.

The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a 0.25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.

DEFROST/AIR CONDITIONING SYSTEM

A ceiling mounted combination heater, defroster and air conditioning system shall be installed in the cab above the engine tunnel area.

Cab Defroster

A 54,000 BTU heater-defroster unit with 690 SCFM of air flow shall be provided inside the cab. The heater-defrost shall be installed in the forward portion of the cab ceiling. Air outlets shall be strategically located in the cab header extrusion per the following:

- One (1) adjustable outlet directed towards the left side cab window.
- One (1) adjustable outlet directed towards the right side cab window.
- Six (6) fixed outlets directed at the windshield.

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 Auxiliary Heater

There shall be one (1) 31,000 BTU auxiliary heater with 560 SCFM of air flow provided in each outboard rear facing seat riser with a dual scroll blower. An aluminum plenum incorporated into the cab structure to be used to transfer heat to the forward positions.

Air Conditioning

A condenser shall be a 59,644 BTU output that meets and exceeds the performance specification shall be mounted on the radiator. Mounting the condenser below the cab or body would reduce the performance of the system and shall not be acceptable.

The air conditioning system shall be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. 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.

	Bidder Complies	
	Yes	No

The evaporator unit shall be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator shall include one (1) high performance heating core, one (1) high performance cooling core with (1) plenum directed to the front and one (1) plenum directed to the rear of the cab. The rear plenum shall be covered with a formed plastic cover.

The evaporator unit shall have a 52,000 BTU at 690 SCFM rating that meets and exceeds the performance specifications.

Adjustable air outlets shall be strategically located on the forward plenum cover per the following:

- Four (4) outlets directed towards the seating position on the left side of the cab.
- Four (4) outlets directed towards the seating position on the right side of the cab.

Adjustable air outlets shall be strategically located on the rear plenum cover per the following:

- Minimum of five (5) outlets directed towards crew cab area.

A high efficiency particulate air (HEPA) filter shall be included for the system. Access to the filter cover shall be secured with four (4) screws.

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

Climate Control

An automotive style controller shall be provided to control the heat and air conditioning system within the cab. The controller shall have three (3) functional knobs for fan speed, temperature, and air flow distribution (front to rear) control.

The system shall control the temperature of the cab and crew cab automatically by pushing the center of the fan speed control knob. Rotate the center temperature control knob to set the cab and crew cab temperature.

The AC system shall be manually activated by pushing the center of the temperature control knob. Pushing the center of the air flow distribution knob shall engage the AC for max defrost, setting the fan speeds to 100 percent and directing all air flow to the overhead forward position.

The system controller shall be located within panel position #12.

Gravity 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.

SUN VISORS

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

	Bidder Complies	
	Yes	No

There shall be a black plastic thumb latch 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) 12 volt DC, 3.00" white LED light(s) with 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 or when the dip stick door is opened.

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. The door shall be on the rear wall of the engine tunnel, on the vertical surface.

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 lift and turn 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.

	Bidder Complies	
	Yes	No

- 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 event:

- Driver side front air bag
- Passenger side knee bolster air bag
- 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

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 of the vehicle (including tiller cab and belted seat positions in the rescue body) shall be four (4).

	Bidder Complies	
	Yes	No

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 designed with EVC (elastomeric vibration control).

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 designed with EVC (elastomeric vibration control).

The seat back shall be an SCBA back style with 95 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.
- 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 14.00" 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 one (1) lift and turn latch shall be provided for access.

	Bidder Complies	
	Yes	No
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 39.00" high x 26.75" deep. The interior door shall be web netting. The netting is to be made with 1.00" wide nylon material with 2.00" openings permanently fastened on the right side with spring clip and hook fasteners on the left side to secure it. The clear door opening shall be 20.50" wide x 36.00" high. The cabinet shall include one (1) infinitely adjustable shelf with a 0.75" up-turned lippainted to match the cab interior. The cabinet shall include no louvers. 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 a rocker switch on the front of the cabinet. **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 39.00" high x 26.75" deep. The interior door shall be web netting. The netting is to be made with 1.00" wide nylon material with 2.00" openings permanently fastened on the left side with spring clip and hook fasteners on the right side to secure it. The interior clear door opening shall be 19.50" wide x 36.00" high. The cabinet shall include one (1) infinitely adjustable shelf with a 0.75" up-turned lippainted to match the cab interior. The cabinet shall include no louvers. 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 lighting shall be controlled by a rocker switch on the front of the cabinet. **FORWARD FACING CENTER SEATS** There shall be two (2) forward facing seats provided at the center position in the crew cab. For optimal comfort, the seats shall be provided with 15.00" deep foam cushions designed with EVC (elastomeric vibration control).		

	Bidder Complies	
	Yes	No

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.

REAR FACING CENTER CABINET

A rear facing cabinet shall be provided on the top rear of the engine tunnel.

The cabinet shall be 43.00" wide x 10.00" high x 20.00" deep with one (1) drop down door, painted to match the cab interior with two (2) non-locking paddle slam latches. The back of the cabinet shall taper to match the angle of the tunnel. The back corners of the cabinet shall be notched around the gravity drains if required. A vinyl chain shall be provided so that the door does not hit the engine tunnel. The clear door opening of the cabinet shall be 40.50" wide x 7.50" high.

The cabinet shall include no adjustable shelves or trayspainted to match the cab interior.

The cabinet shall include no louvers.

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 lighting shall be controlled by an automatic door switch.

SEAT UPHOLSTERY

All seat upholstery shall be leather grain 36 oz dark silver gray vinyl resistant to oil, grease and mildew. The cab and tiller cab (if applicable) shall have four (4) 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.

	Bidder Complies	
	Yes	No

There shall be a quantity of three (3) SCBA brackets.

SEAT BELTS

All cab and tiller cab (if applicable) 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 applicable NFPA 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.

Any flip up seats shall include a 3-point shoulder type belts only.

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.

HELMET STORAGE PROVIDED BY FIRE DEPARTMENT

NFPA 1900, 2024 edition, section 11.1.8.4.1 and CAN/ULC 515:2024 edition, section 5.2, requires a location for helmet storage be provided.

There is no helmet storage on the apparatus as manufactured. The fire department shall provide a location for storage of helmets.

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 LED's shall be red and white.

The white LED's shall be controlled by the door switches and the lens switch.

The color LED's shall be controlled by the lens switch.

All dome lights on the apparatus shall be illuminated per the current edition of applicable NFPA standards per seating position.

PORTABLE HAND LIGHTS PROVIDED BY FIRE DEPARTMENT

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

	Bidder Complies	
	Yes	No

CAB INSTRUMENTATION

The cab instrument panel shall include gauges, 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:

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

	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)
- Air rest (air restriction)
- DPF (engine diesel particulate filter regeneration)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- Regen inhibit (engine emissions regeneration inhibit) (where applicable)
- Side roll fault (where applicable)
- Front air bag fault (where applicable)
- Aux brake overheat (auxiliary brake overheat) (where applicable)
- The following red telltale lamps shall be present:
- Ladder rack down
- Parking brake
- Stop engine
- The following green telltale lamps shall be present:
- Left turn
- Right turn
- Battery on
- Ignition
- Aux brake (auxiliary brake engaged) (where applicable)
- The following blue telltale lamps shall be present:
- High beam

Alarms

Audible steady tone warning alarm: A steady audible tone alarm shall be provided whenever a warning condition is active.

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 for 3 to 5 seconds when the ignition switch is moved to the on position with the battery switch on.

	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, defrost, and air conditioning control panel. Turn signal arm: A self-canceling turn signal with high beam headlight controls. Windshield wiper control shall have high, low, and intermittent modes. Parking brake control: An air actuated push/pull park brake control. 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.

An additional "Emergency Master" button shall be provided on the lower left hand corner of the gauge panel to allow convenient control of the "Emergency Master" system from inside the driver's door when standing on the ground.

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 provided and accessible while standing on the ground. The panel shall be 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.

	Bidder Complies	
	Yes	No

"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.

SWITCH PANELS

The built-in switch panels shall be located in the lower console or overhead console of the cab. Switches shall be rocker type with an indicator light, of which is an integral part of the switch.

WIPER CONTROL

Wiper control shall consist of a two (2)-speed windshield wiper control with intermittent feature and windshield washer controls. The control shall be located on the left side of the center instrument panel.

CAB USB

There shall be four (4) USB terminations with a combination USB type A & C, wired to switched battery power, provided per the following:

- One (1) within reach of the driver
- One (1) within reach of the passenger
- Two (2) on the rear of the engine tunnel, one (1) each side.

This circuit may be load managed.

SPARE CIRCUIT

There shall be one (1) 3/8" insulated threaded stud(s) connected to the single point ground located in the frame by a 1 gauge cable.

This stud shall be located in center rear facing cabinet with 24" whip.

SPARE CIRCUIT

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

The 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 capable of carrying 15 amps.
- Power and ground shall terminate officer side dash area.
- Termination shall be with 15 amp, power point plug with rubber cover.
- Wires shall be protected to meet the NFPA Automotive Fire Apparatus standard.

	Bidder Complies	
	Yes	No
Battery direct loads cannot be Load Managed **SPARE CIRCUIT** There shall be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The 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 capable of carrying 20 amps. • Power and ground shall terminate in center rear facing cabinet with 24" whip. • Termination shall be with 3/8" studs and plastic covers. • Wires shall be protected to meet the NFPA Automotive Fire Apparatus standard. Battery direct loads cannot be Load Managed. **SPARE CIRCUIT** There shall be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The wires shall have the following features: • The positive wire shall be connected directly to the ignition switched power • The negative wire shall be connected to ground • Wires shall be capable of carrying 20 amps • Power and ground shall terminate in center rear facing cabinet with 24" whipv • Termination shall be with 3/8" studs and plastic covers • Wires shall be protected to meet the NFPA Automotive Fire Apparatus standard. The circuit(s) may be load managed when the parking brake is set. **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		

	Bidder Complies	
	Yes	No

COLLISION MITIGATION

There shall be a Responder-to-Vehicle (R2V) collision avoidance system provided on the apparatus. The cellular transponder module shall be installed behind the cab windshield, as high and near to the center as practical, to allow clear visibility to the sky. The module dimensions are 5.40" long x 2.70" wide x 1.30" high, and operating temperature range is -40 degrees Celsius to 85 degrees Celsius.

The transponder shall be connected to the vehicle's emergency master circuit and battery direct power and ground.

While responding with emergency lights on, the transponder sends alert messages via cellular network to motorists in the vicinity of the responding truck that are equipped with the WAZE app.

While on scene with emergency lights on, the transponder sends road hazard alerts to motorists in the vicinity of the truck that are equipped with the WAZE app.

The Responder-to-Vehicle (R2V) collision avoidance system shall include the transponder and a 5 year cellular plan subscription.

Activation of the Alert system requires a representative of the customer to accept the End User License Agreement (EULA) via an on-line portal.

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 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
- Internal clock syncs the time and date when a laptop is connected

	Bidder Complies	
	Yes	No

Seat Belt Monitoring System
A seat belt monitoring system (SBMS) shall be provided. The SBMS shall be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:

- Seat Occupied & Buckled = Green LED indicator illuminated
- Seat Occupied & Unbuckled = Red LED indicator with audible alarm
- No Occupant & Buckled = Red LED indicator with audible alarm
- No Occupant & Unbuckled = No indicator and no alarm
- FAULT = Blue LED indicator illuminated

The SBMS shall include an audible alarm that shall warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.

RADIO ANTENNA MOUNT
There shall be one (1) standard 1.125", 18 thread antenna-mounting base(s) installed lower roof line center between the other two antennas on the cab roof with high efficiency, low loss, coaxial cable(s) routed to ran to the radio compartment below the officer seat . A weatherproof cap shall be installed on the mount.

RADIO ANTENNA MOUNT
There shall be two (2) standard 1.125", 18 thread antenna-mounting base(s) installed one (1) on the left side and one (1) 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.

VEHICLE CAMERA SYSTEM
There shall be a color vehicle camera system provided with the following:

- One (1) Analog High Definition (AHD) black camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse.

The camera image shall be displayed on a 7.00" High Definition (HD) display located in view of the driver on the dash. The display shall include manual camera activation capability and audio from the active camera.

Camera Switcher
A camera switcher is not required.

RECESS REAR CAMERA
A rear camera recess shall be provided in the center at the rear.

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

	Bidder Complies	
	Yes	No

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 monitor system shall be provided to indicate the status of each battery system connected to the vehicle's electrical load. The monitor system shall provide visual and audio warning when the system voltage is below optimum levels.

Power and Ground Studs

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

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

The electrical system proposed shall include means to control undesired electromagnetic and radio frequency emissions. State of the art electrical system design and components shall be used to ensure radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions are suppressed at their source.

The apparatus proposed shall have the ability to operate in the electromagnetic environment typically found in fire ground operations. The contractor shall be able to demonstrate the EMI and RFI testing has been done on similar apparatus and certifies that the vehicle proposed meets SAE J551 requirements.

	Bidder Complies	
	Yes	No

EMI/RFI susceptibility shall be controlled by applying immune circuit designs, shielding, twisted pair wiring and filtering. 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 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 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.

	Bidder Complies	
	Yes	No

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 four (4) 12 volt batteries that include the following features shall be provided:

- 950 CCA, cold cranking amps
- 190 amp reserve capacity
- High cycle
- Group 31
- Rating of 3800 CCA at 0 degrees Fahrenheit
- 760 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.

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

BATTERY COMPARTMENTS

Batteries shall be placed on non-corrosive mats and be stored in well ventilated compartments located under the cab and bolted directly to the chassis frame. The battery boxes shall have reinforced sides. The battery compartments shall be constructed of 0.188" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The battery hold-downs shall be of a non-corrosive material. All bolts and nuts shall be stainless steel.

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

	Bidder Complies	
	Yes	No

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 on the battery compartments.

BATTERY CHARGER

There shall be an 75 amp battery charger with controller provided.

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

The battery charger shall be located in the cab behind the driver seat.

REMOTE CONTROL PANEL - BATTERY CHARGER

There shall be a universal charger display panel included. It shall be wired directly to the chassis batteries.

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

AUTO EJECT FOR SHORELINE

There shall be one (1) 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.

	Bidder Complies	
	Yes	No

ALTERNATOR

An alternator shall be provided that has a rated output current of 320 amps, as measured by SAE method J56. The alternator shall feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). 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 MANAGEMENT

An electronic load management (ELM) system shall be provided that monitors the vehicles 12-volt electrical system, and automatically reduces 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 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 headlights 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.

FRONT DIRECTIONALS

The front directional's shall be 4.31" high x 6.75" wide x 1.37" deep directional lights with amber LEDs. The lens color(s) to be the same as the LEDs. The directional's shall be housed in the same common bezel as the front warning light and shall be located above the headlights. The housing to be polished and the trim shall be chrome.

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 two (2) lights with amber LEDs, amber lenses, and rubber grommet provided to indicate the presence and overall length of the vehicle in the following locations:

	Bidder Complies	
	Yes	No

- Two (2) lights installed as front side clearance lights shall be installed, one (1) on each side above the cab doors.

The lights shall be wired to the running lights of the vehicle.

All other forward facing clearance lights will be included with the visor scene light.

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.

REAR CLEARANCE/MARKER/ID LIGHTING

There shall be three (3) LED lights 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 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

	Bidder Complies	
	Yes	No
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** There shall be two (2) wrap around tri-cluster LED modules provided on the face of the rear body compartments. Each tri-cluster shall include the following: • One (1) LED stop/tail light • One (1) LED directional light • One (1) LED backup light **LICENSE PLATE BRACKET** There shall be one (1) license plate bracket located below the tailboard on a removable bolt-on bracket located driver side. An incandescent step light shall illuminate the license plate. **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. **MARKER LIGHTS** There shall be one (1) pair of amber and red, LED marker lights with rubber arm, located each side of the body as far rearward as possible . The amber lens shall face the front and the red lens shall face the rear of the truck and be the most rearward marker light. These lights shall be activated with the running lights of the vehicle. **CAB PERIMETER SCENE LIGHTS** There shall be four (4) white LED strip lights provided, one (1) for each cab door that shall meet NFPA ground lighting requirements. 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.		

	Bidder Complies	
	Yes	No

PUMP HOUSE PERIMETER LIGHTS

There shall be two (2) 20.00" LED weatherproof strip lights with brackets provided under the pump panel running boards, one (1) each side.

If the combination of options in the vehicle does not permit clearance for a 20.00" light, a 12.00" version of the light shall be installed.

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

BODY PERIMETER SCENE LIGHTS

There shall be two (2) 350 lumens, 20.00" long, white LED's, 12 volt DC lights provided 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) LED step lights provided at the rear to illuminate the tailboard/step area.

These step lights shall be actuated with the perimeter scene lights.

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

12 VOLT LIGHTING

There shall be a 2.56" high x 75.00" long x 3.31" deep 28,158 raw lumens 12 volt DC light provided on the front cab roof as far forward as practical. The light shall include white scene LEDs, two (2) amber LEDs as clearance lights and three (3) amber LEDs as identification lights.

The painted parts of the light housing and brackets to be black.

The clearance and identification LEDs shall be activated with the headlight switch.

The scene LEDs shall be activated when the battery switch is on and by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel.

The white LEDs may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There shall be one (1) 20,000 lumens 12 volt DC LED surface mount scene light(s) with black housings located on the cab, on the driver side of the cab centered high above the front wheels.

The lights shall be controlled by a switch at the driver's side switch panel and by a switch at the left side pump panel.

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

	Bidder Complies	
	Yes	No
12 VOLT LIGHTING There shall be one (1) 20,000 lumens 12 volt DC LED surface mount scene light(s) with black housings located on the cab, on the passenger side of the cab centered high above the front wheels. The lights shall be controlled by a switch at the driver's side switch panel and by a switch at the left side pump panel. The light(s) may be load managed when the parking brake is applied. **12 VOLT LIGHTING** There shall one (1) 21,067 effective lumens 2.56" high x 72.69" long x 2.45" deep 12 volt DC light(s) with white LEDs and with a combination of spot, and flood optics installed on the apparatus located, centered over RS2. The painted parts of the light housing and brackets to be black. The light(s) shall be controlled by the same control that has been selected for the passenger's side scene light(s). The light(s) may be load managed when the parking brake is applied. **12 VOLT LIGHTING** There shall be two (2) 10,444 lumens 12 volt DC surface mount light(s) installed on the body of the apparatus located, rear body up high one each side . The light(s) shall include black housing(s) with a black cover. 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. The light(s) may be load managed when the parking brake is applied. **12 VOLT LIGHTING** There shall one (1) 21,067 effective lumens 2.56" high x 72.69" long x 2.45" deep 12 volt DC light(s) with white LEDs and with a combination of spot, and flood optics installed on the apparatus located, centered over LS2. The painted parts of the light housing and brackets to be black. The light(s) shall be controlled by the same control that has been selected for the driver's side scene light(s). The light(s) may be load managed when the parking brake is applied.		

	Bidder Complies	
	Yes	No

HOSE BED LIGHTS

There shall be white 12 volt DC LED light strips with stainless steel protective cover, provided to light the hose bed area. Hose Bed lights shall meet the photometric levels listed in the current edition of applicable NFPA standards for Hose Bed lighting requirements.

- Light strip(s) shall be installed along the upper edge of the left side of the hose bed.
- Light strip(s) shall be installed along the upper edge of the right side of the hose bed.

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

WALKING SURFACE LIGHT

There shall be 4.00" 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 capacity of 750 gallons and be constructed of UV stabilized ultra high impact polypropylene plastic by a manufacturer with a minimum of 20 years experience building tanks, is ISO 9001:2000 certified in all its manufacturing facilities, and has over 50,000 tanks in service.

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

Tank shall be baffled in accordance with the current edition of applicable NFPA standards.

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

Longitudinal partitions shall be constructed of .38" polypropylene plastic and shall extend from the bottom of the tank through the top cover to allow for positive welding.

Transverse partitions shall extend from 4.00" off the bottom of the tank to the underside of the top cover.

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.

	Bidder Complies	
	Yes	No
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 bar channel 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. 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 0.50" polypropylene and shall be a minimum of 8.00" wide x 14.00" long. Fill tower shall be furnished with a 0.25" 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. **WATER TANK RESTRAINT** A heavy-duty water tank restraint shall be provided. **BODY HEIGHT** The height of the body shall be 92.00" from the bottom of the body to the top of the body. **HOSE BED** The hose bed shall be fabricated of .125"-5052 aluminum with a nominal 38,000 psi tensile strength. 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. A cross divider shall be provided at the point the tank transitions from the lower section to the upper section. The divider shall run from the top of the side sheet down below the hose bed grating.		

	Bidder Complies	
	Yes	No
The hose bed shall be directly above the rear compartment door. The dimension from the ground shall be approximately 67.00" depending on the suspension and equipment load. The hose bed shall be at a minimum 85.00" long. The hose bed walls shall be unpainted. Hose bed shall accommodate 850' of 5" / 450' of 2.5" with 150' of 1 3/4" on top / 300' of 3". **HOSE BED DIVIDER** Two (2) 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. **HOSE BED HOSE RESTRAINT** A red hosebed cover shall be furnished on the top of the hosebed with awning rail (aluminum retainer) fasteners at the front and StayPut shock cord loop with orange pull tab fasteners on the sides. The vinyl hosebed cover shall be connected to the rear flap hose restraint. A vinyl flap shall be connected to the restraint at the top of the hose bed. At the bottom of the flap, StayPut shock cord loop with pull tab shall be provided. The bottom of the flap shall be chain weighted. **RUNNING BOARDS** A running board shall be provided on each side of the front body to allow access to the backboard/crosslay storage area. The running boards shall be designed with a grip pattern punched into .125" bright aluminum treadplate material providing support, slip resistance, and drainage. The runningboard shall have a flip out section design that allows easier access to the full width equipment area above. The flip out section shall be tied to the "do not move truck indicator" with a sensor when it is flipped out. There shall be a latch provided that secures the flip out section when not in use. **TAILBOARD** The tailboard shall 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 12.00" deep and full width of the body.		

	Bidder Complies	
	Yes	No

The exterior side shall be flanged down and in for increased rigidity of tailboard structure.

REAR WALL, BODY MATERIAL, PUC

The rear wall shall be smooth and the same material as the body.

The rear wall body material shall be painted. Unpainted aluminum overlays shall be provided to allow for chevron application and to provide continuously smooth rear wall panels.

The outboard edges of the rear wall shall be trimmed in polished stainless steel.

TOW BAR

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

The apparatus body shall be built of aluminum construction using a minimum of 0.125" thick, 5052-H32 aluminum.

The body panel assembly shall be constructed in a fixture and consist of formed sheet metal for the front and rear bulkheads, door frames, floors, ceilings, and back walls. These parts shall be welded together to ensure greatest longevity with no visible welds in compartment interior.

Welded construction shall consist of 1.00" x 0.38" engineered plug weld holes that control the size, location, and the amount of weld required. The bodies shall be assembled and welded from engineered prints that call out the size, location, and type of weld required.

In structural areas the sheet metal components shall have flanges for welding. No butt joints shall be allowed. Gussets and support posts shall be provided for additional strength where needed.

The fender panel shall be an integral part of the complete welded body assembly. All light and compartment holes are pre punched prior to construction to provide accuracy and rounded corners to prevent stress risers in the material.

Circular fender liners shall be provided. For prevention of paint chips and ease of suspension maintenance the fender liners shall be formed from brush finished 304L stainless steel, be unpainted, and removable for suspension maintenance (no exception).

	Bidder Complies	
	Yes	No

Side compartment flooring shall be of the sweep out design with the floor minimum of 1.00" higher than the compartment door lip.

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

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

The aluminum treadplate covers shall not make up the ceiling of the compartment (no exception).

All screws and bolts, which are not Grade 8, shall be stainless steel and where they 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 body support system shall begin with the chassis frame rails which is the strongest component of the chassis and is designed for sustaining maximum loads. The support system shall include lateral frame rail extensions that are formed from 0.375" 80k high strength steel and bolted to the chassis frame rails with .625" diameter Grade 8 bolts.

The vertical and horizontal members of the frame rail extensions are to be reinforced with welded gussets and extend to the outside edge of the body. The lateral frame extensions shall be electro-coated for superior corrosion resistance.

The floating substructure shall be separated from the lateral frame extensions with neoprene elastomer isolators. These isolators shall reduce the natural flex stress of the chassis from being transmitted to the body, and absorb road shock and vibration.

The 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. Two (2) 3.50" diameter isolators are provided at the front of the body near the centerline of the vehicle above the chassis frame. A minimum of eight (8) - 2.55" diameter isolators shall be provided, two (2) under each front compartment and two (2) under each rear side compartment. A minimum of four (4) 3.50" diameter isolators shall be provided under the rear compartment.

A design with body compartments simply hanging/sitting on the chassis in an unsupported (cantilever) fashion shall not be acceptable.

	Bidder Complies	
	Yes	No

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. Documentation of the material meeting the standard shall be provided at time of delivery.

LOUVERS

All body compartments shall have a minimum of one (1) set of automotive style, dust resistant louvers pressed into a wall. The louvers shall incorporate a one (1)-way rubber valve that provides airflow out of the compartment and prevents water and dirt from gaining access to the compartment. Compartments over the wheel shall not have louvers.

TESTING OF BODY DESIGN

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

The 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 on 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 the actual testing techniques shall be made available upon request.

FEA shall have been performed on all substructure components.

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 61.75" wide x 53.63" high x 26.00" deep. The clear door opening shall be a minimum of 59.25" wide x 53.63" high.

A rollup door compartment over the rear wheels shall be provided. The interior dimensions of this compartment shall be 60.00" wide x 22.88" high x 26.00" deep. The clear door opening shall be a minimum of 57.25" wide x 22.88" high.

	Bidder Complies	
	Yes	No
A full height, rollup door compartment behind the rear wheels shall be provided. The interior dimensions of this compartment shall be 51.75" wide x 54.63" high x 26.00" deep. The clear door opening shall be a minimum of 49.25" wide x 54.63" high. The roll up door spool shall be installed in a recess above the compartment ceiling. All compartments shall include a drip pan below the roll of the door. The drip pan shall be installed level with the compartment ceiling. The interior height of the compartments shall be measured from the compartment floor to the ceiling. The depth of the compartments shall be measured from the back wall to the inside of the door frame. Closing of the doors shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand. **RIGHT SIDE COMPARTMENTATION** A full height, jump off compartment with a roll-up door ahead of the rear wheels shall be provided, as convenient large storage compartment for often used items for the crew. The interior dimensions of this compartment shall be 62.00" wide x 54.50" high x 25.88" deep. The area behind the roll up door spool shall be notched for exterior storage or larger capacity water tank tee. The depth of the compartment shall be calculated with the compartment door closed. The compartment interior shall be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment shall be 59.00" wide x 54.50 high. Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand. A roll-up door compartment over the rear wheels shall be provided. The interior dimensions of this compartment shall be 60.00" wide x 23.00" high x 25.88" deep. The area behind the roll up door spool shall be notched for exterior storage or larger capacity water tank tee. The depth of the compartment shall be calculated with the compartment door closed. The clear door opening of this compartment shall be 57.00" wide x 23.00" high. Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand. A full height, roll-up door compartment behind the rear wheels shall be provided. The interior dimensions of this compartment shall be 52.00" wide x 54.50" high x 25.88" deep. The area behind the roll up door spool shall be notched for exterior storage or larger capacity water tank tee. The depth of the compartment shall be calculated with the compartment door closed. The compartment interior shall be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment shall be 49.00" wide x 54.50" 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. All compartments shall include a drip pan below the roll of the door. **SIDE COMPARTMENT ROLLUP DOOR(S)** There shall be six (6) compartment doors installed on the side compartments. The doors shall be double faced aluminum construction and painted one (1) color to match the lower portion of the body. Lath sections shall be an interlocking rib design and shall be individually replaceable without complete disassembly of door. Between each slat at the pivoting joint shall be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals shall allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals shall be provided to resist ingress of dirt and weather and be made of Santoprene. All hinges, barrel clips and end pieces shall be nylon 66. All nylon components shall withstand temperatures from 300 to -40 degrees Fahrenheit. Hardened plastic shall not be acceptable. A polished stainless steel lift bar to be provided for each roll-up door. Lift bar shall be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge shall be supplied over lift bar for additional area to aid in closing the door. Doors shall be constructed from an aluminum box section. The exterior surface of each slat shall be flat. The interior surfaces shall be concave to provide strength and prevent loose equipment from jamming the door from inside. To conserve space in the compartments, the spring roller assembly shall not exceed 3.00" in diameter. A garage style roll door shall not be 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 37.00" wide x 36.50" high x 25.88" deep in the lower 27.00" of the compartment and 15.00" deep in the remaining upper portion. The clear door opening shall be a minimum of 33.88" wide x 26.63" high. The interior height of the compartment shall be measured from the floor to the ceiling. The depth of the compartment shall be measured from the back wall to the inside of the door frame.		

	Bidder Complies	
	Yes	No

A drip pan shall be installed below the roll of the door. A guard shall be installed behind the roll of the door.

A 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 transverse opening shall be a minimum of 22.00" wide x 27.50" high.

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 a rollup door. The door shall be double faced aluminum construction and an anodized satin finish.

Lath sections shall be an interlocking rib design and shall be individually replaceable without complete disassembly of door.

Between each slat at the pivoting joint shall be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals shall allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals shall be provided to resist ingress of dirt and weather and be made of Santoprene.

All hinges, barrel clips and end pieces shall be nylon 66. All nylon components shall withstand temperatures from 300 to -40 degrees Fahrenheit. Hardened plastic shall not be acceptable.

A polished stainless steel lift bar to be provided for each roll-up door. Lift bar shall be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge shall be supplied over lift bar for additional area to aid in closing the door.

Door shall be constructed from an aluminum box section. The exterior surface of each slat shall be flat. The interior surface shall be concave to provide strength and prevent loose equipment from jamming the door from inside.

To conserve space in the compartments, the spring roller assembly shall not exceed 3.00" in diameter. A garage style roll door shall not be 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.

ROLL UP DOOR HANDHOLD CUT-OUT

There shall be nine (9) compartment doors located B1, LS1, LS2, LS3, RS1, RS2, RS3, left side crosslay module door and right side crosslay module door that have handhold cut-outs in the

	Bidder Complies	
	Yes	No
bottom door flange for easier access to the lift bar. Doors 30.00" or wider shall have two (2) cut-outs. Doors less than 30.00" but greater than 18" in width shall have one (1) cut-out. **COMPARTMENT LIGHTING** There shall be seven (7) compartment(s) with two (2) 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). Any remaining compartments without light strips shall have a 6.00" diameter light. Each light shall have a number 1076 one filament, two wire bulb. Opening the compartment door shall automatically turn the compartment lighting on. **HATCH COMPARTMENTS** Hatch compartments 189.00" long x 14.00" wide up to the cargo area cross-divider and 21.00" wide for the remaining length shall be provided above the left side body and right side body compartments. The hatch compartments shall have a 22.00" maximum depth and shall be accessed through lift-up top opening hatch doors. Compartment(s) shall extend the full length of the side body compartmentation except for a 20.00" recessed step area at the rear of the compartment on the access side. Sides of the compartment(s) shall be constructed of the same material as the body and painted job color on the outside panels. A chrome and black vinyl molding shall be provided to cover the seam between the top of the body panel and the bottom of the hatch compartment. The vertical outboard seam at the center of the compartment shall have a painted smooth weld. Top of the compartment(s) shall be constructed of bright aluminum treadplate. Three (3) lift-up, bright aluminum treadplate doors shall be provided on the top of the hatch compartments, each with a slam style latch with lever handle to hold the doors in the closed position. Double pan doors shall have lipped edges with a rubber seal for weather resistance. Doors shall be hinged on the outboard side. The door over the 14.00" wide section of hatch compartment shall utilize a chain to keep the door within manageable reach when open. The door over the 21.00" wide section of hatch compartment shall be held open with pneumatic stay arms. Compartment shall have a 3/4" drain that extends to below the body. Black rubber matting shall be provided to help prevent stored equipment in pooled water.		

	Bidder Complies	
	Yes	No

Handrails shall be provided at the step area to the rear of the hatch compartment. One (1) curved handrail shall be mounted on the outboard side of the step area at the rear and curve over the top. One (1) straight handrail shall be mounted vertically along the inboard side of the step area.

HATCH COMPARTMENT LIGHTING

There shall be LED strip lights mounted full length on the interior, hinged side of each compartment.

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

MOUNTING TRACKS

There shall be recessed tracks installed vertically to support the adjustable shelf(s).

Tracks shall not protrude into any compartment in order to provide the greatest compartment space and widest shelves possible.

The tracks shall be provided in each compartment except for the one that contains the pump operator's panel.

ADJUSTABLE SHELVES

There shall be nine (9) 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 in RS1 centered between the floor and the ceiling, in RS3 centered between the floor and the ceiling, in RS3 in the upper third, in RS1 in the upper third, in LS1 centered between the floor and ceiling, in LS2 centered between the floor and ceiling, in LS3 centered between the floor and ceiling, in LS3 in the upper third and in LS1 in the upper third.

SLIDE-OUT FLOOR MOUNTED TRAY

There shall be two (2) 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 250 lb each provided. The pair of slides shall have a safety factor rating of 2.

	Bidder Complies	
	Yes	No

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 and LS1.

TOOL BOX

There shall be one (1) Respond Ready heavy duty drawer system(s) with four (4) drawers installed as far forward as possible in LS3.

The drawer system shall consist of one (1) flat top shelf, side panels with 1/2 inch risers, heavy duty 500lb. slides, and single handle latching hardware. The drawer system shall be constructed of anodized aluminum.

The drawers shall be configured in a drawer system measuring 24.70" H x 28.00" W x 24.70" D exterior dimensions.

Drawers shall consist of four (4) 5.00 inch drawers.

Each drawer shall contain four (4) dividers.

SWING OUT TOOLBOARD

A swing out aluminum toolboard shall be provided.

It shall be a minimum of .188" thick aluminum.

Pac Trac tool mount material shall be provided on both sides of the toolboard.

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 front 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 have a D-ring handle to secure it in the stowed position.

The board shall be mounted on adjustable tracks from front to back within the compartment.

	Bidder Complies	
	Yes	No

There shall be One (1) toolboard(s) provided and installed rs2.

EQUIPMENT MOUNTING SYSTEM

An equipment mounting system shall be installed on the back wall of one (1) compartment(s), rs2.

RUB RAIL

Bottom edge of the side compartments shall be trimmed with a bright aluminum extruded rub rail.

Trim shall be 3.12" high with 1.50" 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.

Rub rails shall be attached with bolts and spaced from the body with isolators that shall help to absorb any moderate impact without damaging the body.

BODY FENDER CROWNS

Polished stainless steel fender crowns shall be provided around the rear wheel openings.

A fender liner constructed of unpainted brushed stainless shall be provided to avoid paint chipping. The liners shall be removable to aid in the maintenance of rear suspension components.

A dielectric barrier shall be provided between the fender crown fasteners (screws) 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.

HARD SUCTION HOSE

Hose is not on the apparatus as manufactured. The fire department shall provide suction or supply hose.

There shall be Two (2) lengths of 10' long x 6.00" diameter hose provided and equipped with long handle couplings provided on the ends.

HOSE TROUGHS

Two (2) stainless steel hard suction hose troughs shall be provided.

The troughs shall be installed in the hatch compartment located on the right.

The troughs shall be installed side by side with a smooth aluminum lift-up door at the rear. The door shall have a Southco C2 black powder coated raised trigger latch.

	Bidder Complies	
	Yes	No

A floor shall be provided above the hard suction hose inside the hatch compartment to allow storage of additional equipment in the compartment.

HANDRAILS

Handrails shall be provided at the at the front bulkhead and rear of cab for access to the walkway. Additional handrails shall be provided for access to the top of the body.

The handrails shall be 1.25" diameter knurled aluminum to provide a positive gripping surface.

Chrome plated offset 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.

Two (2) vertical handrails shall be located at the rear, one (1) on each side of the rear compartment.

EXTINGUISHER/AIR BOTTLE/ STORAGE (TRIANGULAR)

A total of one (1) extinguisher/air bottle/storage compartments shall be provided on the right side forward of the rear wheels. The triangular shaped compartment shall be sized to fit a 8.00" diameter extinguisher in the lower area and a 8.00" diameter extinguisher in the upper area. The compartment shall be approximately 25.50" deep. A partition shall be provided to separate the compartment. Also inside the compartment, black Dura-Surf friction reducing material shall be provided. The compartment shall be furnished with a drain hole. A polished stainless steel, triangular shaped door with a Southco raised trigger C2 chrome lever latch shall be provided to contain the air bottles. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.

AIR BOTTLE COMPARTMENT STRAP

A strap shall be provided in the air bottle compartment(s) to help contain the bottles when the vehicle is parked on an incline. The strap shall wrap around the neck and attach to the wall of the compartment.

AIR BOTTLE STORAGE (TRIPLE)

A quantity of two (2) air bottle compartments designed to hold (3) air bottles up to 7.25" in diameter x 26.00" deep shall be provided on the left side forward of the rear wheels. A polished stainless steel door with a Southco raised trigger C2 chrome lever latch 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, black Dura-Surf friction reducing material shall be provided.

	Bidder Complies	
	Yes	No

Air Bottle Compartment Strap
A strap shall be provided in the air bottle compartment(s) to help contain the air bottles when the vehicle is parked on an incline. The strap shall wrap around the neck and attach to the wall of the compartment.

AIR BOTTLE STORAGE (DOUBLE)
A quantity of one (1) air bottle compartment, 15.25" wide x 7.75" tall x 26.00" deep, shall be provided on the left side rearward of the rear wheels. The triangular door to cover the double air bottle opening and the fuel tank access. A polished stainless steel door with a Southco raised trigger C2 chrome lever latch 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, black Dura-Surf friction reducing material shall be provided.

AIR BOTTLE COMPARTMENT STRAP
A strap shall be provided in the air bottle compartment to help contain the air bottle when the vehicle is parked on an incline. The strap shall wrap around the neck and attach to the wall of the compartment.

EXTENSION LADDER
There shall be a 24' two-section aluminum extension ladder provided.

ROOF LADDER
There shall be a 14' aluminum roof ladder provided.

LADDER STORAGE
The ladders shall be stored inside the upper section of the right side compartments. This ladder rack shall reduce the depth of the upper section in the side compartments.

A partition shall be installed inside the compartment on the side of the rack to allow for equipment storage and to conceal the ladders.

The ladders shall be banked in separate storage troughs.

The ladder storage assembly shall be fabricated of stainless steel track channels to aid in loading and removal of ladders.

Rear of the ladder storage area shall have a vertically hinged smooth aluminum door with a D-handle latch to contain the ladders. The door shall be hinged on the outboard edge.

FOLDING LADDER
One (1) 10.00' aluminum folding ladder shall be installed.

	Bidder Complies	
	Yes	No

FOLDING LADDER/LONG TOOL COMPARTMENT
A compartment shall be provided, recessed in the upper, inside part of body compartment on the left side. The compartment shall be equipped with a stainless steel trough for the folding ladder and storage for long handle tools.

A door constructed of smooth aluminum and hinged along the outboard edge shall be provided at the rear with a Southco C2 chrome flush latch.

PIKE POLE PROVIDED BY FIRE DEPARTMENT
The pike poles are not on the apparatus as manufactured. The fire department shall provide and mount the pike poles.

There shall be one (1) pike pole(s) provided. The pike pole(s) shall be a Fire Hooks Unlimited 10' New York roof hook.

PIKE POLE STORAGE
A aluminum tube with a 1.38" notch, to accommodate a New York style pike pole for an 8' or longer pike pole shall be provided in the upper body compartment on the right side. Two (2) pike poles shall require a tube provided in this location.

6' PIKE POLE PROVIDED BY FIRE DEPARTMENT
The pike pole is not on the apparatus as manufactured. The fire department shall provide and mount the pike poles.

There shall be two (2) 6' pike pole(s) provided. The pike pole(s) shall be a Fire Hooks Unlimited 6 foot and 8 foot roof hook.

PIKE POLE STORAGE
A aluminum tube for a 6' pike pole with 1.38" notch, to accommodate a New York style pike pole shall be provided in the upper body compartment on the left side. Two (2) pike poles shall require a tube provided in this location.

LONG ITEM STORAGE COMPARTMENT
One (1) compartment shall be provided, recessed in the upper, inside part of body compartment on the right side for storage of long handle tools. The door shall be made of smooth aluminum and have a lift and turn latch.

STEP PACKAGE
A pair of folding steps shall be provided recessed on the front of the pump module at each side for access to the top of the truck. The four (4) steps shall be bright finished, non-skid with a black tread coating on the stepping surface. The step shall incorporate an LED light to illuminate the stepping surface. The step can be used as a hand hold with two openings wide enough for a gloved hand. Additionally a step surface shall be provided at the outboard edges of the pump panel to continue access past the panel to the top of the truck.

	Bidder Complies	
	Yes	No

LADDER, TOP ACCESS

A wide easy climbing access ladder, constructed of aluminum rungs and extruded aluminum rails, shall be provided on the opposite side of the ladder storage at the rear of the apparatus. The inside climbing area of the ladder shall be 13.75" wide.

The lower section of the ladder shall be retractable into the upper section to eliminate interference with the rear FMVSS lights. When lowered the bottom rung shall be lower than the body, approximately 16.00" to 20.00" from the ground to allow a lower first step height.

The ladder shall be slanted when in use for easy access, and fold against the body for storage to reduce the overall length. Corrosion resistant, stainless steel spring-loaded locks shall hold the ladder in place.

There shall be a "do not move truck" indicator activated in the cab if the ladder is not in the stowed position when the parking brake is disengaged.

PUMP CONTROL PANEL TOP MOUNT

A top mount pump operators panel area shall be provided midship at the front of the body above the crosslay module. Layout of the pump control panel shall be ergonomically efficient and systematically organized with the gauges and controls properly identified. A lower panel section located near the operators platform shall contain the outlet drains for easy access to these controls from the platform or the ground.

The left and right side discharges shall be electrically controlled valves. There shall be no push-pull style control handles (no exception).

Identification tags for the discharge controls shall be recessed within the same bezel. The discharge identification tags shall be color coded, with each discharge having its own unique color.

All remaining identification tags shall be mounted on the pump panel in chrome plated bezels.

All discharge outlets shall be color coded and labeled to correspond with the discharge identification tag.

The pump panels for the midship discharge and intake ports shall be located ahead of the body compartments with no side discharge or intake higher than the frame rail. The pump panels shall be easily removable with simple hand tools.

PUMP OPERATORS WALKWAY

A 19.00" wide walkway shall be provided for the top mount pump operator's panel. The walkway shall be constructed of bright aluminum treadplate and properly reinforced. There shall be four (4) white LEDs lights provided to illuminate the walkway. The lights shall come on with the perimeter lights. When standing on the walkway, the pump operator shall be facing rearward

	Bidder Complies	
	Yes	No

with an extended field of vision over all points of the apparatus while moving the operator off the street.

The pump operator's panel shall be accessible with a swing down step assembly from each side of the walkway. The swing-down step assembly shall be easily deployed, providing an ergonomic staggered step design with handrails for a safe and easy egress to and from the pump operator's platform. The step assembly shall stow in a bright aluminum treadplate stepwell. Lights shall also be provided to illuminate the step surfaces.

Transverse storage shall be provided below the walkway surface accessed through doors at each end of the walkway. The aluminum treadplate lift-up doors with Southco C2 chrome flush latch shall be provided on the vertical surface at each end of the walkway.

For added safety, there shall be no hose lays or hose connections above or below the access step assemblies to the top mount pump operators platform (no exception).

PUMP

Pump shall be a low profile, 1500 gpm single stage midship mounted centrifugal type, mounted below the cab. The pump shall have a 15 percent reserve capacity to allow for extended time between pump rebuild. To ensure efficient pump/vehicle design the capacity to weight ratio shall not be less than 1.5:1.

The pump casing shall consist of three (3) discharge outlets, one (1) to each side in line with the impeller and one (1) to the rear. The pump casing shall incorporate two (2) water strippers to maintain radial balance.

Pump shall be the Class A type.

Pump shall be certified to deliver the percentage of rated discharge from draft at pressure indicated below:

- 100 percent of rated capacity at 150 psi net pump pressure
- 70 percent of rated capacity at 200 psi net pump pressure
- 50 percent of rated capacity at 250 psi net pump pressure

The pump shall have the capacity to deliver the percentage of rated discharge from a pressurized source as indicated below:

- 135 percent of rated capacity at 100 psi net pump pressure from a 5 psi source

Pump body shall be fine-grained gray iron. Pump shall incorporate a heater/cooling jacket integral to the pump housing.

The impeller shall be high strength vacuum cast bronze alloy accurately machine balanced and splined to a ten 10) spline stainless steel pump shaft for precision fit, exceptional durability, and efficiency. Double replaceable reverse flow labyrinth type bronze wear ring design shall help to

	Bidder Complies	
	Yes	No

minimize end thrust. The impeller shall be a twisted vane design to create higher lift. No keyed shafts shall be acceptable.

The pump shall include o-ring gaskets throughout the pump.

Deep groove radial type oversize ball bearings shall be provided. The bearings shall be protected at the openings from road dirt and water with an oil seal and water slinger.

The pump shall have a flat, patterned area on the top of the pump intake wye to allow standing for plumbing maintenance. The main inlet manifold shall be 6.00" in diameter and shall have a low profile design to facilitate low crosslays and high flows.

For ease of service, the pump housing, intake wye, impeller, mechanical seal, and gear case shall be accessible from above the chassis frame by tilting the cab. Removal of the main inlet wyes shall provide access to the impeller, mechanical seal, and wear ring (no exception).

The tank to pump line and the primary discharge line shall be the only piping required to be removed for overhaul.

For ease of service and overhaul there shall be no piping or manifolding located directly over the pump (no exception).

PUMP MOUNTING

Pump shall be mounted to the chassis frame rails directly below the crew cab, to minimize wheelbase and facilitate service, using rubber isolators in a modified V pattern that include one (1) central mounted isolators located between the frame rails and one (1) on each side outside the frame rails. The mounting shall allow chassis frame rails to flex independently without damage to the fire pump. Each isolator shall be 2.55" in total outside diameter and shall be rated at 490 lb. The pump shall be completely accessible by tilting the cab with no piping located directly above the pump.

MECHANICAL SEALS

Silicon carbide mechanical seals shall be provided. The seals shall be spring loaded and self-adjusting. The seals shall have a minimum thermal conductivity of 126 W/m*K to run cooler. Seals shall have a minimum hardness of 2800 kg/mm2 to be more resistant to wear, and have thermal expansion characteristics of no more than 4.0 X106mm/mm*K to be more resistant to thermal shock.

PUMP GEAR CASE

The integrated pump transmission gear case shall use a pressure-lubricated system to cool, lubricate, and filter the oil. The gear case shall be constructed of lightweight aluminum, and impregnated with resin in accordance to MIL Spec MIL-I-17563. A sight glass, accessible by tilting the cab, shall be provided for easy fluid level checks.

The gear case shall consist of three (3) gears to drive the pump.

	Bidder Complies	
	Yes	No

CLUTCH

There shall be a heavy-duty hydraulic clutch mounted directly to the integrated pump transmission to engage and disengage the pump without gear clash. The clutch shall be a multiple disc design for maximum torque. The clutch shall be fully self-adjusting to provide automatic wear compensation, and consistent torque throughout the life of the clutch. Positive engagement and disengagement shall be provided through a high efficient and dependable hydraulic system to assure superior performance.

LOW PRESSURE/HIGH TEMPERATURE LIGHTS

Lights shall be provided to indicate when a high temperature or low pressure situation occurs. Lights shall be provided next to the master gauges at the pump panel as well as on the control panel in the cab. A pair of lights shall be provided in each location. One light shall be provided to indicate high temperature. The second light shall be provided to indicate a low pressure. All lights shall be labelled accordingly.

PUMPING MODE

Pump shall provide for both pump and roll mode and stationary pumping mode.

Stationary pumping mode shall be accomplished by stopping the vehicle, setting the parking brake and engaging the water pump switch on the cab switch panel. The transmission shall shift to "Neutral" range automatically when the parking brake is set. The "OK to Stationary Pump" indicator shall also illuminate when the parking brake is set.

If the vehicle is equipped with a suitable Husky foam system or Hercules CAFS system, these systems shall be engaged from the cab switch panel as well.

pump and roll mode shall be accomplished by the use of the main pump and shall not require the use of a secondary pump. pump and roll mode shall use the same operation sequence as stationary pumping mode with a few additional steps. After the vehicle is setup for stationary pumping, the operator shall leave the cab and setup the pump panel to discharge at the desired outlet(s). Upon returning to the cab, the operator shall disengage the parking brake. An "OK to pump and roll" indicator shall illuminate on the cab switch panel. First gear on the transmission gear selector shall be selected by the operator for pump and roll operations. The operator as needed shall apply the foot throttle. pump and roll mode shall be maintained unless the transmission shifts out of first gear.

Stopping either stationary pumping mode or pump and roll mode shall be accomplished by pressing the "Water Pump" switch down to disengage the pump.

A pump pressure gauge shall be supplied in the cab within view of the driver.

PUMP SHIFT

Pump shall be engaged in not more than two steps, by simply setting the parking brake, which shall automatically put the transmission into neutral, and activating a rocker switch in the cab. Switches in the cab shall also allow for water, foam, or CAFS if equipped, and activate the

	Bidder Complies	
	Yes	No
appropriate system to preset parameters. The engagement shall provide simple two-step operation, enhance reliability, and completely eliminate gear clash. The shift shall include the indicator lights as mandated by NFPA. A direct override switch shall be located to the right of the pump operators position. The switch shall automatically disengage when the door is closed. As the parking brake is applied, the pump panel throttle shall be activated and deactivate the chassis foot throttle for stationary operation. **TRANSMISSION LOCK UP** Transmission lock up is not required as transmission shall automatically shift to neutral as soon as the parking brake is set. **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. A water-to-coolant heat exchanger shall be used. **INTAKE RELIEF VALVE - PUMP** One (1) relief valve(s) shall be installed on the suction side of the pump preset at 125 psig. The relief valve 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 the right side pump panel with a stainless steel access door. **PRESSURE CONTROLLER** A electronic pressure controller shall be provided. A pressure transducer shall be installed in the discharge side of the water pump. The transducer continuously monitors pump pressure sending a signal to the electronic pressure controller. The pressure controller can be used in two (2) modes of operation, RPM mode and pressure modes. The controller shall be programmed to turn on/default to No Mode/Default Press Setting mode. In the RPM mode, the controller can be activated after vehicle parking brake has been set. When in this mode, the controller shall maintain the set engine speed, regardless of engine load (within engine operation capabilities). In the pressure mode, the controller can be activated after vehicle parking brake has been set. When in this mode, the controller shall automatically maintain the discharge pressure set by the operator (within the discharge capabilities of the pump and water supply) regardless of flow.		

	Bidder Complies	
	Yes	No
A 2.00" diameter throttle control knob with no mechanical stops, a serrated grip, and a red idle push button in the center shall be a integrated/part of the pressure controller. The throttle control knob shall be programmed for Clockwise rotation to increase engine speed. Individual LED indicators for ok to pump, throttle ready, pressure mode and rpm mode shall be located on the pressure controller for easy viewing. A pump cavitation protection feature shall also be provided which shall return the engine to idle should the pump cavitate. Cavitation is sensed by the combination of pump pressure below 30 psi and engine speed above 2000 rpm for more than five (5) seconds. Other safety features include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle. The pressure controller LCD screen shall be 4.20" in size with a minimum brightness of 750 nits. The LCD screen and LED intensity shall automatically adjust for day and nighttime operation. The LCD screen intensity can also be manually adjusted if needed. The following information shall be provided/displayed on the LCD screen: • Engine RPM • Check engine and stop engine warning indicators • Engine oil pressure • Engine coolant temperature • Water pump transmission temperature • Fuel Level • Water tank level • Battery voltage • Operating mode (RPM or pressure) • Pressure or RPM setting On screen messaging show diagnostic and warning messages as they occur. It shall show apparatus information, stored data, and program options when selected by the operator. It shall monitor inputs outputs and support audible and visual warning alarms for the following conditions: • High battery voltage • Low battery voltage/engine off • Low battery voltage/engine running • High water pump temperature • Low fuel • Low engine oil pressure • High engine coolant temperature • Water tank out of water (visual alarm only)		

	Bidder Complies	
	Yes	No

- No engine response (visual alarm only)

The pressure controller shall store the accumulated operating hours for the pump and engine. These items are to be displayed within the pressure controller menu.

The pressure controller shall include a USB port on the back of the controller for easy software upgrades if needed.

PRIMING PUMP

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

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. The control shall have a three position switch for automatic, off or test. In the sentry mode (automatic) the primer shall sense when the pump losses discharge pressure and start the pump primer. The primer shall automatically stop once the pump has pressure.

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

PLUMBING, STAINLESS STEEL AND 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 hose's 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.

	Bidder Complies	
	Yes	No

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

Main pump inlets shall not be located on the main operator's panel and shall maintain a low connection height by terminating below the top of the chassis frame rail.

SHORT SUCTION TUBE(S)
The suction tube(s) on the water pump shall have short suction tube(s) installed to allow for installation of adapters, elbows or intake valves without excessive overhang.

MAIN PUMP INLET CAP
Fire Department shall provide one (1) cap for the main pump inlet.

The contractor shall provide one (1) cap for the main pump inlet. The cap shall have threads and be chrome plated. This cap shall automatically relieve stored pressure in the line when disconnected (no exception).

VALVES
All discharges shall use in-line ball valves.

Inlet valve location shall be behind the pump panel.

INLET CONTROL
The auxiliary inlet(s) shall incorporate a quarter-turn ball valve with the control located at the pump operator's panel. There shall be one (1) inlet that shall be located passenger's side.

There shall be a/an electric valve controller(s) provided on the pump operators panel. The electric control(s) must be of a true position feedback design, requiring no clutches in the motor or current limiting. The unit(s) must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate the valve actuator. The controller(s) shall provide position indication on a full color, backlit LCD display. The controller(s) shall have manual adjustment of the brightness as well as an auto dimming option.

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.

RIGHT SIDE INLET
There shall be one (1) auxiliary inlet with a 2.50" valve at the right 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

ANODE, INLET
A pair of sacrificial zinc anodes shall be provided in the water pump inlets to protect the pump from corrosion.

FRONT INLET
A 6.00" inlet front inlet that terminates on top of the right side bumper extension shall be provided.

The plumbing shall consist of 5.00" black iron pipe and a 5.00" Bray butterfly valve. Only radius elbows shall be used in the piping, no mitered joints.

Drains shall be furnished in all the low points of piping and have .75" valves with T swing handle.

Bleeder valves shall be located near the threaded connection and the valve control.

Die cast zinc screens shall be provided at the front inlet connection.

FRONT INLET CONTROL
The front inlet shall be gated with the control located at the pump operator's panel. The valve operating mechanism shall indicate the position of the valve or an indicator shall be provided to show when the valve is closed.

There shall be an electric valve controller provided. The control shall be momentary to allow the valve to be gated for ease of operation. Indicator lights shall be provided to show if the valve is open or closed.

FRONT INLET INTAKE RELIEF VALVE
An intake pressure relief valve shall be provided on the inlet side of the valve preset at 125 psig.

The pressure relief valve shall be adjustable from 75 to 250 psi.

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

FRONT INLET ELBOW
The front inlet shall have a 6.00" inlet elbow with swivel, terminating with Male National Standard Hose Thread.

The swivel shall be Chrome.

A quarter-turn style of bleeder shall be provided on the front inlet elbow.

FRONT INLET CAP PROVIDED BY FIRE DEPARTMENT
NFPA 1900, 2024 edition, section 13.6.8 requires intakes to be provided with caps, plugs, or closures capable of withstanding a hydrostatic gauge pressure of 500 psi (3400 kPa).

	Bidder Complies	
	Yes	No

The front inlet cap is not on the apparatus as manufactured. The fire department shall provide a cap for the front inlet.

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 "T" 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.

TANK TO PUMP

The booster tank shall be connected to the intake side of the pump with heavy duty 4.00" piping and a quarter turn 3.00" full flow line valve with the control located at the operator's panel. 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.

DISCHARGE OUTLET CONTROLS

The left and right side discharges shall incorporate a quarter-turn ball valve and shall be controlled by electric valve controllers provided on the pump operators panel. The electric controls must be of a true position feedback design, requiring no clutches in the motor or current limiting with a manual override located on the pump panel. The units must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate the valve actuator. The controllers shall provide position indication on a full color, backlit LCD display. They shall have manual adjustment of the brightness as well as an auto dimming option.

In addition to the valve controls, the electric valve controllers shall include a pressure display.

All other outlets shall have manual swing handles that operate in a vertical up and down motion. These handles shall be able to lock in place to prevent valve creep under pressure.

LEFT SIDE DISCHARGE OUTLETS

There shall be one (1) discharge with a 2.50" valve on the left side of the apparatus, terminating with a 2.50" MNST threads. The discharge shall be located below the crew cab and shall be no higher than the top of the chassis frame rail.

	Bidder Complies	
	Yes	No
There shall be an electric valve controller provided on the pump operators panel. The electric control must be of a true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate the valve actuator. The controller shall provide position indication on a full color, backlit LCD display. It shall have manual adjustment of the brightness as well as an auto dimming option. In addition to valve position, the controller shall include a pressure display. **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 DISCHARGE OUTLETS** One (1) discharge outlet with a 2.50" valve shall be provided on the right side of the apparatus, terminating with a 2.50" MNST adapter. The discharge(s) shall be located below the crew cab and shall be no higher than the top of the chassis frame rail. There shall be electric valve controller(s) provided on the pump operators panel. The electric control(s) must be of a true position feedback design, requiring no clutches in the motor or current limiting. The unit(s) must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate the valve actuator. The controller(s) shall provide position indication on a full color, backlit LCD display. They shall have manual adjustment of the brightness as well as an auto dimming option. In addition to valve position, each controller shall include a pressure display. **RIGHT SIDE OUTLET ELBOWS** The 2.50" discharge outlets, located on the right 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). **LARGE DIAMETER DISCHARGE OUTLET** There shall be a 4.00" flat ball valve with 4.00" plumbing terminating with a 4.00" MNST chrome adapter on the right side pump panel. The valve shall be controlled with a(n) Akron 9345 with pressure located at the pump operator's panel.		

	Bidder Complies	
	Yes	No

LARGE DIAMETER OUTLET CAP

The large diameter outlet shall have a National Standard hose thread adapter with a 4.00" rocker lug chrome plated cap and chain.

The cap shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected.

DISCHARGE CAPS/ 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 with some outlets if deemed appropriate with the application.

The valves shall be located behind the panel with a T swing style handle control extended to the outside of the side pump panel.

The handles shall be chrome plated and provide a visual indication of valve position.

The T swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage.

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.

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. 3.00" piping shall be installed securely so no movement develops when the line is charged. A 2.50" gated valve shall be installed and controlled at the pump operator's panel. The deluge outlet shall flow a minimum 1000 GPM.

MONITOR

A 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 .

	Bidder Complies	
	Yes	No

NOZZLE, DELUGE

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 a pyrolite stream shaper.

The deluge riser shall have a 3.00" four (4)-bolt flange for mounting the monitor.

CROSSLAY MODULE

The crosslay module shall be full width of the rear body.

The crosslay module shall be manufactured for installation of roll up doors on each side.

ROLLUP DOOR, CROSSLAY ENDS

The compartment doors shall be rollup style, double faced aluminum construction painted one (1) color to match the lower portion of the body and manufactured by Gortite®.

Lath sections shall be an interlocking rib design and shall be individually replaceable without complete disassembly of door.

Between each slat at the pivoting joint shall be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals shall allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals shall be provided to resist ingress of dirt and weather and be made of Santoprene.

All hinges, barrel clips and end pieces shall be nylon 66. All nylon components shall withstand temperatures from 300 to -40 degrees Fahrenheit. Hardened plastic shall not be acceptable.

A polished stainless steel lift bar to be provided for each roll-up door. Lift bar shall be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge shall be supplied over lift bar for additional area to aid in closing the door.

Doors shall be constructed from an aluminum box section. The exterior surface of each slat shall be flat. The interior surfaces shall be concave to provide strength and prevent loose equipment from jamming the door from inside.

To conserve space in the compartments, the spring roller assembly shall not exceed 3.00" in diameter. A garage style roll door shall not be 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.

The crosslays shall not have a drip pan below the roll of the door.

	Bidder Complies	
	Yes	No

CROSSLAY COMPARTMENT LIGHTING

There shall be two (2) 12 volt DC light strips with white LEDs and mechanical fasteners, provide behind the front door frame on the crosslay compartments per the following:

- One (1) strip light for the left side crosslay compartment door
- One (1) strip light for the right side crosslay compartment door

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

LOWER CROSSLAY

There shall be two (2) lower crosslays provided.

1.50" Crosslay

There shall be two (2) 1.50" crosslays plumbed with 2.00" welded or formed schedule 10 304L stainless steel pipe.

The crosslays shall be low mounted with the bottom of both crosslay trays no more than 11.00" above the frame rails for simple, safe reloading and deployment (no exception).

There shall be a 1.50" National Standard hose thread 90-degree swivel provided in each hose bed, so that the hose may be removed from either side of apparatus. The swivel shall be as far outbound as possible for ease of changing hose.

Each crosslay shall be gated with a 2.00" quarter turn ball valve with the controls located at the pump operator's panel.

Each hose bed shall be capable of carrying 200' of 1.75" double jacket hose.

Crosslay Hose Tray

A removable tray shall be provided for each crosslay hose bed. The crosslay tray shall be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes shall be in the floor and additional hand holes shall be provided in the sides for easy removal and installation from the compartment. The floor of the trays shall be perforated to allow for drainage and hose drying.

Trays shall be held in place by a mechanical spring-loaded stainless-steel latch that automatically deploys upon loading the trays to hold the trays in place during transit.

UPPER CROSSLAY

There shall be one (1) upper crosslay provided.

2.50" Crosslay

There shall be one (1) 2.50" crosslay plumbed with 2.50" welded or formed schedule 10 304L stainless steel pipe.

	Bidder Complies	
	Yes	No

There shall be a 2.50" National Standard hose thread 90-degree swivel provided in each hose bed, so that hose may be removed from either side of apparatus. The swivel shall be as far outbound as possible for ease of changing hose.

Each crosslay shall be gated with a 2.50" quarter turn ball valve with the controls located at the pump operator's panel.

Each hose bed shall be capable of carrying 200' of 2.50" double jacket hose.

Crosslay Hose Trays

A removable tray shall be provided for each crosslay hose bed. The crosslay tray shall be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes shall be in the floor and additional hand holes shall be provided in the sides for easy removal and installation from the compartment. The floor of the trays shall be perforated to allow for drainage and hose drying.

Trays shall be held in place by a mechanical spring-loaded stainless-steel latch that automatically deploys upon loading the trays to hold the trays in place during transit.

PIKE POLE STORAGE

A quantity of two (2) pike poles aluminum tubes shall be provided and located upper crosslay one each side in the upper crosslay module. The pike pole tube(s) shall be notched.

If the head of a pike pole can come in contact with a painted surface, a stainless steel scuffplate shall be provided.

FOAM SYSTEM

A foam system shall not be required on this apparatus.

The following drawing(s) shall be provided for approval by the customer.

PUMP OPERATOR'S PANEL DRAWING

A detailed drawing to scale of the pump operator's panel shall be provided for the customer to review. The drawing shall include all of the gauges, controls, switching, etc.., located on the pump operator's panel. The customer will be allowed to make changes and/or mark-ups to this approval drawing. The fire apparatus manufacturer shall make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved pump operator's panel drawing shall become part of the contract documents.

Due to the way drain(s), bleeder(s), operational/maintenance tag(s) and NFPA required warning tag(s) are placed on pump panel(s), these items will NOT be shown on any pump panel approval drawing(s). These item(s) will be placed on pump panel(s) at the fire apparatus manufacturer discretion.

	Bidder Complies	
	Yes	No

REMAINING PUMP PANEL(S)

Detailed drawing(s) to scale of the remaining pump panel(s) shall be provided for the customer to review. The drawing(s) shall include all of the gauges, controls, switching, etc.., located on the pump panel(s). The customer will be allowed to make changes and/or mark-ups to these approval drawing(s). The fire apparatus manufacturer shall make revisions (If needed) to the drawing(s) per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved pump panel drawing(s) shall become part of the contract documents.

Due to the way drain(s), bleeder(s), operational/maintenance tag(s) and NFPA required warning tag(s) are placed on pump panel(s), these items will NOT be shown on any pump panel approval drawing(s). These item(s) will be placed on pump panel(s) at the fire apparatus manufacturer discretion.

COLOR CODED TAGS

A detailed drawing/chart of the colors used on all of the inlet(s) and outlet(s) shall be provided for the customer to review. The customer will be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer shall make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved drawing/chart of the colors shall become part of the contract documents.

SPECIAL TEXT/VERBIAGE TAGS

A detailed drawing/chart of the text/verbiage used on all of the inlet(s) and outlet(s) shall be provided for the customer to review. The customer will be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer shall make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved drawing/chart of the text/verbiage shall become part of the contract documents.

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 operator's panel and gauge panels shall be brushed stainless steel finish.

The side panels shall be brushed stainless steel finish.

	Bidder Complies	
	Yes	No

PUMP AND PLUMBING ACCESS

Simple access to the plumbing shall be provided through the front of the body area by raising the cab for complete plumbing service and valve maintenance. Access to valves shall not require removal of operator panels or pump panels. Access for rebuilding of the pump shall not require removal of more than the tank to pump line and a single discharge line. This access shall allow for fast, easy valve or pump rebuilding, making for reduced out of service times. Steps shall be provided for access to the top of the pump.

Access to the pump shall be provided by raising the cab. The pump shall be positioned such that all maintenance and overhaul work can be performed above the frame and under the tilted cab. The service and overhaul work on the pump shall not require the removal of operator panels or pump panels. Complete pump casing and gear case removal shall require no more than removal of the intake and discharge manifolds, driveline, coolers and a single discharge line. The pump case and gear case shall be able to be removed by lifting upward without interference from piping and be removable in less than 3 hours.

PUMP COMPARTMENT LIGHT

There shall be one (1) 3.00" white 12 volt DC LED light(s) with flange(s) installed in the plumbing area.

The light(s) shall be activated by a toggle switch located in the pump compartment area.

Engine monitoring graduated LED indicators shall be incorporated with the pressure controller.

THROTTLE READY GREEN INDICATOR LIGHT

There shall be a green indicator light integrated with the pressure governor and/or engine throttle installed on the pump operators panel that is activated when the pump is in throttle ready mode.

AIR HORN BUTTON

An air horn control button shall be provided at the pump operator's control panel. This button shall be red in color and properly labeled and put within easy reach of the operator.

VINYL COLOR CODED GARNISH RING(S)

There shall be ten (10) color coded garnish ring(s) provided around all inlet and outlet plumbing . The color of the ring(s) shall be TBD and shall consist of a vinyl overlay on the stainless steel garnish ring.

VACUUM AND PRESSURE GAUGES

The pump vacuum and pressure gauges shall be liquid filled.

The gauges shall be a minimum of 4.00" in diameter and shall have white faces with black lettering, with a pressure range of 30.00"-0-600#.

	Bidder Complies	
	Yes	No

Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

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 non-corrosive polished stainless steel or brass plugs. They shall be marked with a label.

This gauge shall include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.

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

An electric water level gauge shall be incorporated in the pressure controller that registers water level by means of nine (9) LEDs. They shall be at 1/8 level increments with a tank empty LED. The LEDs shall be a bright type that is readable in sunlight and have a full 180-degree of clear viewing.

To further alert the pump operator, the gauge shall have a warning flash when the tank volume is less than 25 percent. The gauge shall have down chasing LEDs when the tank is almost empty.

The level measurement shall be ascertained by sensing the head pressure of the fluid in the tank or cell.

There shall be a light driver module with this installation to power additional water level gauge(s) included on the apparatus.

	Bidder Complies	
	Yes	No

WATER LEVEL GAUGE

There shall be two (2) additional water level indicator(s), LED module with black trim, installed one (1) each side rearward of crew cab doors.

This light module(s) shall include four (4) colored levels, and function similar to the water level indicator located at the operators panel:

- First green module indicates a full water level
- Second blue module indicates a water level above 3/4 full
- Third amber module indicates a water level above 1/2 full
- Last red module indicates a water level above 1/4 full and empty
    - Above 1/4 this light shall be steady burning
    - At empty this light shall be flashing

The flash rate shall be determined by the main water level tank sensor.

This module shall be activated when the parking brake is applied.

TOP MOUNT PUMP OPERATOR'S/PUMP PANEL LIGHTING

Illumination shall be provided for controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus and the equipment provided on it. Internal and external lights on the apparatus shall be illuminated per the current edition of applicable NFPA standards.

The forward pump panels shall be illuminated by two (2) 6.00" x 2.00" oval white LED lights with grommets. These lights shall be installed on the back of the cab, one (1) on the driver's side and one (1) on the passenger's side. The rearward pump panels shall be illuminated by two (2) white LED strip lights. These lights shall be installed under the crosslay, one (1) on the driver's side and one (1) on the passenger's side.

There shall be two (2) LED lights installed under a shield on the top control pump operator's panel, one each side. A third LED light shall be installed centered over the top control pump operator's panel. One (1) pump panel light shall come on at the pump operator's panel when the pump is shifted into gear from inside the cab. This shall afford the operator some illumination when first approaching the control panel. The remaining light shall be actuated from a switch located on the pump panel.

AIR HORN SYSTEM

Two (2) air horns shall be recessed in the front bumper.

The air horns shall be chrome.

	Bidder Complies	
	Yes	No

The air horn system shall be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve shall be installed to prevent the loss of air in the brake system.

Air Horn Location
The air horns shall be located on each side of the bumper, towards the outside.

Air Horn Control
The air horn(s) shall be activated by the following:

- Right side lanyard. The lanyard to be vinyl covered 0.12" cable.
- Steering wheel horn ring with electric/air horn selector switch

ELECTRONIC SIREN
An electronic siren with shall be provided with noise cancelling microphone.

This siren shall be active when the battery switch is on and that emergency master switch is on.

Electronic siren head shall be recessed in the driver side center switch panel.

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) 100 watt, recess mount speaker provided with stainless steel grille. 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
There shall be a Federal Signal Model Q2B mechanical siren furnished and installed in the front of the apparatus.

The Q2B shall be chrome finish.

The siren shall have a 2-gauge cable connected to a power solenoid that is connected by a 2-gauge cable ran battery direct to the primary chassis batteries and shall be labeled Q2B+ at the battery. The power solenoid shall only be enabled when the emergency master switch is on.

The siren shall have a 2-gauge ground wire connected to the chassis battery stud. The cable shall be labeled Q2B- at the battery.

The mechanical siren shall be mounted on the bumper deck plate. It shall be mounted on the left side A reinforcement plate shall be furnished to support the siren.

MECHANICAL SIREN CONTROL
The mechanical siren shall be activated by the following:

	Bidder Complies	
	Yes	No

- Right side chrome push button switch.
- Left side foot switch.

A momentary red switch shall be included in the left side overhead switch panel to activate the siren brake.

A momentary chrome push button switch shall be included in the right side dash panel to activate the siren brake.

FRONT ZONE UPPER WARNING LIGHTS

There shall be one (1) 81.00" lightbar mounted on the cab roof.

The lightbar shall include the following:

- One (1) red flashing LED module in the left side rear corner position.
- One (1) red flashing LED module in the left side end position.
- One (1) red flashing LED module in the left side front corner position.
- One (1) blue flashing LED module in the left side first front position.
- One (1) red flashing LED module in the left side second front position.
- One (1) white flashing LED module in the left side third front position.
- One (1) red flashing LED module in the left side fourth front position.
- One (1) blue flashing LED module in the left side fifth front position.
- Open in the left side sixth front position.
- One (1) LED traffic light controller set to national standard high priority in the center positions.
- Open in the right side sixth front position.
- One (1) blue flashing LED module in the right side fifth front position.
- One (1) red flashing LED module in the right side fourth front position.
- One (1) white flashing LED module in the right side third front position.
- One (1) red flashing LED module in the right side second front position.
- One (1) blue flashing LED module in the right side first front position.
- One (1) red flashing LED module in the right side front corner position.
- One (1) red flashing LED module in the right side end position.
- One (1) red flashing LED module in the right side rear corner position.

There shall be clear lenses included on the lightbar.

The following switches may be a installed in the cab on the switch panel to control the lightbar:

- A switch to control the flashing LED modules.
- The traffic light controller by a cab switch with emergency master control.
- There shall be no momentary switch to activate the traffic light controller.

	Bidder Complies	
	Yes	No

The white LED modules and the traffic light controller shall be deactivated when the parking brake is applied.

The four (4) red and four (4) blue flashing LED modules in the front positions may be load managed when the parking brake is applied.

LIGHTS, FRONT ZONE LOWER

Two (2) 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 blue.

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), 4.31" high x 6.75" long x 1.37" deep flashing LED warning lights with chrome trim installed per the following:

- Two (2) lights located, one (1) each side on the bumper extension. The driver's side, side front light to include red warning LEDs and the passenger's side, side front light to include red warning LEDs.
- Two (2) lights located, one (1) each side, as close to center above the front wheels as possible. The driver's side, side middle light to include blue warning LEDs and the passenger's side, side middle light to include blue warning LEDs.
- Two (2) lights located, one (1) each side, centered above rear wheels. The driver's side, side rear light to include red warning LEDs and the passenger's side, side rear light to include red warning LEDs.
- The warning light lens color(s) to be clear.

There shall be a switch in the cab on the switch panel to control the lights.

	Bidder Complies	
	Yes	No

ELECTRICAL CONNECTORS FOR WARNING LIGHTS
The lights shall be installed with a weatherproof insulated crimped connectors in order to provide ease of connection/disconnection of the circuit applied to.

SIDE WARNING LIGHTS
There shall be two (2), 4.31" high x 6.75" wide x 1.37" deep flashing LED warning light(s) with chrome trim provided, forward on hatch each, one each .

The light(s) to include blue flashing LEDs.

The warning light lens color(s) to be clear.

There shall be a switch in the cab on the switch panel to control the lights.

White LEDs shall be deactivated when the parking brake is applied.

Amber, blue, green and red LEDs may be load managed when the parking brake is applied.

REAR ZONE LOWER LIGHTING
There shall be two (2) LED warning lights with chrome trim located at the rear lower of the apparatus per the following:

- The left side rear warning light to include blue LEDs
- The right side rear warning light to include red LEDs
- The lens color(s) to be clear

There shall be a switch located in the cab on the switch panel to control the lights.

WARNING LIGHTS (REAR AND SIDE UPPER ZONES)
There shall be four (4), 5.31" high x 6.75" wide x 1.37" deep flashing LED warning lights with chrome trim provided at the rear of the apparatus per the following:

- The side upper rear light on the left side to include red flashing LEDs
- The rear upper light on the left side to include red flashing LEDs
- The rear upper light on the right side to include red flashing LEDs
- The side upper rear light on the right side to include blue flashing LEDs
- The warning light lens color(s) to be clear

There shall be a switch in the cab on the switch panel to control the lights.

TRAFFIC DIRECTING LIGHT
There shall be one (1) 36.00" long x 2.87" high x 2.25" deep, amber LED traffic directing light installed at the rear of the apparatus.

The control head shall be included with this installation.

The controller shall be energized when the battery switch is on.

	Bidder Complies	
	Yes	No

The auxiliary flash to be activated when the emergency master switch is on.

This traffic directing light shall be mounted over the hose bed, between the body side sheets, recessed within the crosstube, at the rear of the apparatus.

The crosstube shall be painted to match upper job color.

The traffic directing light control head shall be located in the driver side overhead switch panel in the right panel position.

120 VOLT RECEPTACLE

There shall be three (3), 15/20 amp 120 volt AC three (3) wire straight blade duplex receptacle(s) with interior stainless steel wall plate(s), installed one in each rear facing outboard ems cabinet centered on the back wall and up high, and one on the angled side of the dog house behind the officer seat. 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

120 VOLT RECEPTACLE

There shall be one (1), 4-place receptacle box(es) with four (4) 15/20 amp 120 volt AC three (3) wire straight blade receptacles with an interior stainless steel wall plate installed RS1 up high and forward on back wall. The NEMA configuration for the receptacles 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

LOOSE EQUIPMENT

The following equipment shall be furnished with the completed unit:

- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit

	Bidder Complies	
	Yes	No

NFPA LOOSE EQUIPMENT

NFPA Required Loose Equipment Provided by Fire Department

The following loose equipment as outlined in NFPA 1900, 2024 edition, table 8.1 and CAN/ULC 515:2024 edition, section 5.2 shall be provided by the fire department:

- One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.
- Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.
- Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.

NFPA Loose Equipment That Should be Considered

The following loose equipment as outlined in NFPA 1900, 2024 edition, appendix table A.8.4 (a) and CAN/ULC 515:2024 edition, section 5.2 should be considered:

- 800 ft (60 m) of 2.50" (65 mm) or larger fire hose.
- 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose.
- One (1) handline nozzle, 200 gpm (750 L/min) minimum.
- Two (2) handline nozzles, 95 gpm (360 L/min) minimum.
- One (1) smooth bore or combination nozzle with shutoff and with 2.50" (65 mm) inlet that flows a minimum of 250 gpm (950 L/min).
- Four (4) SCBA apparatus
- Four (4) SCBA spare cylinders
- One (1) first aid kit.
- Four (4) combination spanner wrenches.
- Two (2) hydrant wrenches.
- One (1) double female 2.50" (65 mm) adapter with national hose (NH) threads.
- One (1) double male 2.50" (65 mm) adapter with national hose (NH) threads.
- One (1) rubber mallet, for use on suction hose connections.
- Two (2) salvage covers each a minimum size of 12 ft × 18 ft (3.7 m × 5.5 m).
- One (1) automatic external defibrillator (AED).

SOFT SUCTION HOSE

There shall be no soft suction hose provided.

	Bidder Complies	
	Yes	No

STRAINER PROVIDED BY FIRE DEPARTMENT
NFPA 1900, 2024 edition, section 8.3 and CAN/ULC S515:2024 edition, section 5.2 requires a suction strainer when suction hose is provided.

The strainer is not on the apparatus as manufactured. The fire department shall provide the suction strainer.

DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT
The extinguisher is not on the apparatus as manufactured. The fire department shall provide and mount the extinguisher.

WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT
The extinguisher is not on the apparatus as manufactured. The fire department shall provide and mount the extinguisher.

FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT
The axe is not on the apparatus as manufactured. The fire department shall provide and mount the axe.

PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT
The axe is not on the apparatus as manufactured. The fire department shall provide and mount the axe.

PAINT PROCESS
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.
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.

	Bidder Complies	
	Yes	No

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 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 manufacturer.

After the cab and body are painted, the color shall be verified 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 painted 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.

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 percent efficiency factor.

	Bidder Complies	
	Yes	No

- 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 percent. Water wash systems shall be 99.97 percent 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 recycled 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.

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.

TWO-TONE CAB PAINT

The cab shall be painted two-tone with the upper section painted #101 black and the lower section painted #90 red. There shall be a standard two-tone cab paint break provided.

There shall be a standard cab shield provided.

BODY PAINT

The body shall be painted to match the lower section of the cab.

PAINT CHASSIS FRAME ASSEMBLY

The chassis frame assembly shall be finished with primer and gloss black paint 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 painted (unless otherwise stated in a secondary option) are:

- Frame rails
- Frame liners
- Cross members
- Axles
- Suspensions
- Steering gear
- Battery boxes
- Bumper extension weldment
- Frame extensions
- Body mounting angles
- Rear Body support substructure (front and rear)
- Pump house substructure

	Bidder Complies	
	Yes	No

- Steel fuel tank
- Castings
- Individual piece parts used in chassis and body assembly

Components treated with epoxy E-coat protection prior to paint:

- Two (2) C-channel frame rails
- Two (2) frame liners

FRONT WHEELS PAINT
All wheel surfaces, inside and outside, shall be provided with paint black #101.

REAR WHEELS PAINT
All wheel surfaces, inside and outside, shall be provided with paint black #101.

AXLE HUB PAINT
All axle hubs shall be painted to match lower job color.

COMPARTMENT INTERIOR PAINT
The interior of all compartments shall be painted with a gray spatter type paint.

REFLECTIVE STRIPES
Three (3) reflective stripes shall be provided across the front of the vehicle and along the sides of the body. The reflective band shall consist of a 1.00" black stripe at the top with a 1.00" gap then a 8.00" white stripe with a 1.00" gap and a 1.00" black stripe on the bottom.

CHEVRON STRIPING ON THE FRONT BUMPER
There shall be alternating chevron striping located on the front bumper.

The colors shall be red and Fluorescent Yellow-Green 983-23 diamond grade.

The size of the striping shall be 6.00".

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 roll up 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.

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.

	Bidder Complies	
	Yes	No

This stripe shall meet the current edition of applicable NFPA standards.

CAB STRIPE
There shall be a printed effect gold leaf stripe provided on both sides of the cab in place of the chrome molding.

LETTERING
The lettering shall be totally encapsulated between two (2) layers of clear vinyl.

LETTERING
Twenty-one (21) to forty (40) printed effect gold leaf lettering, 3.00" high, with outline and shade shall be provided.

LETTERING
There shall be printed effect gold leaf lettering, 12.00" high, with outline and shade provided. There shall be 18 letters provided.

LETTERING
Sixty-one (61) to eighty (80) printed effect gold leaf lettering, 4.00" high, with outline shall be provided.

LETTERING
There shall be reflective lettering, 11.00" high, with outline provided. There shall be four (4) letters provided.

LETTERING
Twenty-one (21) to forty (40) printed effect gold leaf lettering, 2.00" high, with outline and shade shall be provided.

"DIAL 911" REFLECTIVE OVERLAY LETTERING
There shall be two (2) sets of black "overlay" reflective letter/numerals that read "DIAL 911". The lettering shall be placed on the stripe and located LS1 RS1 in white stripe. "DIAL" shall be vertical and as tall as the stripe. The "911" shall be horizontal and as tall as the stripe.

"WAVING AMERICAN FLAG" EMBLEMS
There shall be a pair of color imaged emblems, 10.00" wide, featuring a "Waving American Flag", installed Applied behind the CC door.. The pair shall be mirror images of each other.

EMBLEM
There shall be two (2) pair of emblems showing a "Dept. Patch" installed on the Applied between cab and CC door. The emblem shall be made with reflective material. The size shall be approximately 12.00" high x 12.00" wide.

CAB GRILLE DESIGN
An American flag design shall be painted on the cab grille.

	Bidder Complies	
	Yes	No

CUSTOM CHASSIS RUST PROOF / UNDERCOAT

The rust proof/undercoat option shall provide additional paint to the chassis frame rails and a protective coating that shall help fight corrosion.

Rust proof / Undercoat Process

A coating shall be applied to the custom chassis once the cab, pump and body mounting angles have been installed. The coating texture shall be waxy and pliable after drying so it shall not chip, crack, or peel off during normal vehicle operations.

The rust proofing material shall be the color black, and is a coating of a corrosion inhibitor for long-term protection against corrosion.

The material shall be applied to the following areas:

- Outside of the chassis frame rails (top & side)
- Top of the frame rails
- Top of crossmembers
- Inside of the frame rails - in and around harnesses keeping coating off harnesses as best as possible
- Between the frame and liner - coating shall be applied after frame and liner are assembled using a wand to apply material between as best as possible
- Top of the body mounting angles (including rear platform)
- Top of air tanks
- Top of fuel tank

FIRE APPARATUS PARTS MANUAL

There shall be one (1) custom parts manual(s) in USB flash drive format for the complete fire apparatus provided.

Service Parts Internet Site

The service parts information included in these manuals are also available on the Internet.

CHASSIS SERVICE MANUALS

There shall be one (1) chassis service manuals on USB flash drives containing parts and service information on major components provided with the completed unit.

The manual shall contain the following sections:

- Job number
- Table of contents
- Troubleshooting
- Front Axle/Suspension
- Brakes
- Engine

	Bidder Complies	
	Yes	No

- 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.

CHASSIS OPERATION MANUAL

The chassis operation manual shall be provided on one (1) USB flash drive. The manual shall be in the English language.

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 **three (3) 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 only (does not include crossmembers) 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 THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY

Independent front suspension shall be provided with a **three (3) year** material and workmanship limited warranty. The manufacturer's warranty shall provide that the independent front suspension and steering gears be free from any defect related to material and workmanship on the portion of the apparatus built by the manufacturer that would arise under normal use and

	Bidder Complies	
	Yes	No
service. A copy of the warranty certificate shall be submitted with the bid package (no exception). **SINGLE REAR AXLE FIVE (5) YEAR MATERIAL AND WORKMANSHIP WARRANTY** A 5 year limited 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). **CAMERA SYSTEM WARRANTY** A fifty four (54) month warranty shall be provided for the camera system**.** **COMPARTMENT LIGHT WARRANTY** A ten (10) year material and workmanship limited warranty shall be provided for the 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.		

	Bidder Complies	
	Yes	No
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 mechanical components of the roll-up door shall be warranted against defects in material and workmanship for the lifetime of the vehicle. A **six (6) year** limited warranty shall be provided on painted and satin roll up doors. A copy of the warranty certificate shall be submitted with the bid package. **SEVEN (7) YEAR PARTS, ONE (1) YEAR LABOR** The pump and its components shall be provided with a seven (7) year parts and one (1) year labor limited warranty. The manufacturer's warranty shall provide that the pump and its components shall be free from 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. **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 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). **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).		

	Bidder Complies	
	Yes	No

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 1900, current edition, section 7.14, Vehicle Stability. The certification shall be provided at the 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 delivery.

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:

- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.
- European Occupant Protection Standard ECE Regulation No.29.
- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.

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.

	Bidder Complies	
	Yes	No

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.

PERFORMANCE CERTIFICATIONS

Cab Air Conditioning

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the 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.

Cab Defroster

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 Auxiliary Heater

Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. An auxiliary cab heater 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.

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:

	Bidder Complies	
	Yes	No
○ The nameplate rating of the alternator. ○ The alternator rating under the conditions specified per: ▪ Current edition of applicable NFPA standards. ○ The minimum continuous load of each component that is specified per: ▪ Current edition of applicable NFPA standards. ○ 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 current edition of applicable NFPA standards.		