

**Department of Public Affairs
Department of Fire and Rescue Services
Reading, PA**

SPECIFICATIONS

Bids will be received for a municipal purchase of (2) 1500 GPM Fire pumper apparatus. Bid is per vehicle specification below. Bid is per vehicle specification below. Bids are due no later than 3:00 p.m., prevailing time, on October 18, 2021. All bids must be uploaded to the Penn Bid website (www.pennbid.procureware.com).

GENERAL REQUIREMENTS

1. All components, parts, and equipment shall be balanced to provide maximum performance.
2. Unless otherwise specified, each unit shall include all specific accessories, parts, and equipment plus the options made available for the indicated model by the vehicle manufacturer and shall conform to the best quality standards that are known to that particular industry. Vehicle will be delivered with Manufacturer Specification Sheet.
3. Each unit shall be complete with accessories, equipment, parts, and options as listed and each shall be properly installed and operative.
4. Each unit shall be cleaned, lubricated, and serviced, ready for immediate use.
5. Each unit shall be protected to -34 degrees Fahrenheit below zero with permanent type anti-freeze coolant
6. The unit shall conform to all the requirements of the Pennsylvania Motor Vehicle Code and shall display the latest applicable Pennsylvania Official Inspection Sticker. In any and all instances where specified items may effect vehicular safety in a negative manner, even though not in conflict with State and Federal law, bidder shall notify the City Purchasing Coordinator in writing before submission of the bid and in time for modification/s or withdrawal of specifications.
7. Each unit shall include the proper form to apply for Pennsylvania title and license.
8. Each unit shall include all manufacturers' Service Coupons and/ or Certifications, along with Service and Warranty Policy and Verification Vouchers.
9. The successful bidder shall comply with the manufacturer's recommended pre-delivery service.
10. One shop repair service manual and complete parts catalogue to be included
11. The unit must be manufactured in the United States of America.
12. Earliest date of delivery to be considered. As soon as possible is not acceptable.

One (1) Intent of Bid Proposal Specifications

INTENT OF BID PROPOSAL SPECIFICATIONS

It is the intent of this bid proposal to provide specifications covering the design, manufacture and delivery of a complete fire apparatus, equipped as specified herein, to the purchaser; with the intent to obtain the best results and the most

acceptable apparatus for emergency service use in the community of the purchaser. These specifications cover the general requirements as to the type of construction and performance to which the apparatus shall conform, together with certain details as to finish, equipment and appliances that will be provided by the apparatus manufacturer. Minor details of construction and materials, where not otherwise specified, are left to the discretion of the contractor, who shall be solely responsible for the design, engineering and construction of all features.

One (1) Compliance with NFPA 1901

COMPLIANCE WITH NFPA 1901

The National Fire Protection Association Standard "NFPA 1901 - Standard for Automotive Fire Apparatus - Current Edition" (hereinafter referred to as NFPA 1901) in effect at the time of the purchase shall be used as a reference and its requirements shall be met by the apparatus manufacturer. The apparatus shall be constructed in accordance with federal and state laws at the time of bid. Any federal, state or NFPA amended changes that shall affect the cost of producing said apparatus shall be charged to the purchaser. Mandatory minor apparatus equipment as stated in the applicable paragraphs (5.8, 6.7, 7.7, 8.8, 9.8, 10.5, 11.9 and respective subparagraphs) of the NFPA standard shall not be provided unless specifically stated and listed in purchaser's written specifications.

Any and all references to "NFPA 1901" within this document shall refer to the current edition of NFPA 1901 in effect at the time of the purchase.

One (1) Purchaser's NFPA 1901 Responsibilities

PURCHASER'S NFPA 1901 RESPONSIBILITIES

In accordance with NFPA 1901, current edition, it shall be the responsibility of the purchaser to specify the following details of the apparatus:

- Its required performance, including where operations at or above elevations of 2000 ft. or on grades greater than 6 percent are required.
- The maximum number of firefighters to ride within the apparatus.
- Specific electrical loads that are to be part of the minimum continuous electrical load defined in 13.3.3 of NFPA 2003.
- Any hose, ground ladders, or equipment to be carried by the apparatus that exceed the minimum requirements of the NFPA 1901 standard in effect at the time of the bid. Equipment weight and location on the apparatus are the responsibility of the purchaser as a prerequisite of defining the loaded vehicle's vertical center of gravity for rollover stability calculations, when required.

One (1) Errors and Omissions

ERRORS AND OMISSIONS

Any error or omission in the specifications shall be reported immediately to the purchaser for correction, prior to bidding.

Any exemptions taken from the proposed specifications should be noted on an addendum/separate page separate of the specification pages. Failure to do so will result in rejection of the bid from the manufacturer in violation.

*****Any bidders taking total exceptions shall be disqualified from bid process.

EQUIVALENT BIDS: When brand or trade names, or items of a specific design are used

In the bid invitation, it is for the quality, style and features. Bids on equivalent items of

Substantially the same quality, style and features are invited. However, to receive Consideration, such equivalent bids must be accompanied by sufficient descriptive Literature and/or specifications to clearly identify the units and provide for competitive Evaluation.

One (1) Single Source Manufacturer - Custom Chassis

SINGLE SOURCE MANUFACTURER

Because of the intricacies of modern fire apparatus design, bids will only be considered from single source apparatus manufacturers. A single source manufacturer is defined as a manufacturer who designs, engineers and manufactures the entire apparatus in the factory of the bidder. The use of commonly incorporated components such as the diesel engine, the transmission, the pump, lighting fixtures, etc. is acceptable. However, calling the cab/chassis/drivetrain a "component" shall not be acceptable. Single source warranty and service and its distributors, sales representatives and service network shall be provided to insure parts availability and undivided warranty responsibility. There shall be no exceptions to these conditions.

One (1) Completion Date (385 days)

COMPLETION DATE

Barring any significant delays due to strikes, war or international conflict, failures to obtain materials, or other causes beyond dealer control not preventing, the apparatus and equipment detailed in the attached specification shall be delivered in a provided delivery date after receiving the complete order and signed approval drawing. The proposal must state, in writing, that the bidder will accept a penalty clause of \$250.00 per day penalty if the apparatus(s) is not accepted and delivered in the date provided in the proposal and contract. It shall be understood and agreed that changes requested after the pre-construction conference and the resulting signed change orders and approval drawings, if approved, after the order has been released to Engineering, shall constitute a valid cause for production delay and without penalty to the contractor. NO EXCEPTIONS

One (1) Proposal Drawings - Bid Reply

PROPOSAL DRAWINGS

Full size, blueprint type drawings of the apparatus being proposed shall be included with the bid package. The drawings shall be drawn to scale on a CAD system to ensure an accurate and professional drawing. The drawing shall show five (5) views of the vehicle (front, rear, both sides and top). The drawing also shows the wheelbase and overall dimensions of the apparatus, proposed compartment sizes and features, position and the location of all emergency warning equipment, work lights, seating and other major items that are to be provided on the apparatus.

One (1) Break Down of Discount

Break down of discount revealed in bid: Bidder shall specify any discounts to overall price depending on money paid within 90 days of contract signing. The City wants to know what the cost would be if we are requesting to put 90-95% money down at time of purchase.

One (1) Bid Bond - 10%

BID BONDS

Each bidder shall supply with their bid proposal a bid bond in the amount of 10% of the proposed contract amount. Bid Bonds by salesmen or agents of the manufacturer are not acceptable. Bids must remain firm for a period of 60 days. All required insurance coverage shall be underwritten by insurers legally allowed to conduct business in all states of the U.S. and shall have a policy holders rating of "A" or better in the latest evaluation by A. M. Best Co.

Proposals received from bidders who do not build the chassis shall provide a warranty that is issued jointly and severally by, and signed by, both the bidder and manufacturer of the chassis. Bidders who build their own chassis shall provide a warranty issued in their name only.

If the successful bidder does not manufacturer the chassis, the bidder shall supply a separate warranty bond which guarantees all terms and conditions of the warranty and names, as co-principals, both the bidder and the chassis manufacturer. 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 warranty quoted in the bid.

No exception to these requirements shall be allowed if the bid is to be considered compliant.

One (1) Performance Bond - 100%

PERFORMANCE BOND

The successful bidder shall furnish a 100% Performance Bond within 10 days after receipt of purchase order or signed contract. The bond is to be furnished by the company who will build the apparatus proposed. Bonds by salesmen or agents of the manufacturer are not acceptable. All required insurance coverage shall be underwritten by insurers legally allowed to conduct business in all states of the U.S. and shall have a policy holders rating of "A" or better in the latest evaluation by A. M. Best Co.

No exception to these requirements shall be allowed if the bid is to be considered compliant.

One (1) Approval Drawings

APPROVAL DRAWINGS

Following the completion of the pre-construction conference, three (3) sets of engineering, blueprint type drawings, specifically for this apparatus, shall be provided by the manufacturer and shall be approved by the Fire Department before construction begins. Both the Fire Department and the manufacturer's representative shall have a copy of this drawing. It shall become part of the total contract. These drawings shall be drawn to scale on a CAD system to assure an accurate and professional drawing. The drawing shall show five (5) views of the vehicle (front, rear, both sides and top). The drawings shall show the wheelbase and overall dimensions of the apparatus, final compartment sizes and features, booster tank position, the location of all emergency warning equipment, work and scene lights, and all changes, if any, mutually agreed to during the pre-construction conference.

One (1) Change Orders

CHANGE ORDERS

To ensure the proper engineering and construction of the purchaser's custom fire apparatus in a timely manner, the contractor shall consider the order final and complete after any changes made during the pre-construction conference are mutually approved. Change orders requested after the pre-construction conference are discouraged. It shall be understood and agreed that any changes, if approved, after the order has been released to Engineering, shall constitute a valid cause for production delay and without penalty to the contractor.

PRE-CONSTRUCTION CONFERENCE

Four (4) One (1) "Pre-Construction" conference trip for up to four (4) representatives of the purchaser shall be included in the bid. The conference shall be held at a company facility or an authorized representative's facility during normal business hours, Monday - Friday. All cost of transportation, meals and lodging shall be included. A distributor or sales representative shall accompany the purchaser on the trip. The conference shall be held prior to the commencement of any work being done on the apparatus. Factory sales and engineering personnel shall participate in the conference as needed to ensure that the apparatus fulfills all the requirements of the accepted bid. Authorized representatives from both the purchaser and manufacturer shall approve and sign any changes made during these meetings prior to the commencement of any work being done on the apparatus.

Travel arrangements to a facility over 150 miles shall be made by air.

One (1) Digital Pictures IPO In-Process Inspection

DIGITAL PICTURES

Digital pictures shall be taken of the apparatus in place of an "In-Process" inspection. On a given day determined by the manufacturer, pictures shall be taken of the apparatus. Depending upon the type of apparatus, the pictures may include any or all of the following: cab interior and exterior, pump operators stand and body.

One (1) Final Inspection

FINAL INSPECTION TRIP

One (1) "Final" inspection trip for up to four (4) representatives of the purchaser shall be included in the bid. The inspection shall take place at a company facility or an authorized representative's facility during normal business hours, Monday - Friday. The cost of transportation, meals and lodging shall be included. A distributor or sales representative shall accompany the purchaser on the inspection trip.

One (1) Pre-Delivery Road Trip and Final Factory Checklist

PRE-DELIVERY ROAD TRIP AND FINAL FACTORY CHECKLIST

Prior to delivery, the completed apparatus shall be thoroughly inspected by the factory. This inspection shall include road testing by the factory of no less than 100 miles. During the factory inspections and road testing, a checklist shall be utilized by factory personnel to document the inspection and road test results. The checklist shall include:

- Documentation of the make, model and serial numbers of all major components such as the engine, transmission, pump, axles, etc.
- Complete, comprehensive operational check of all chassis/drive train components and fluid levels.
- A comprehensive review of the entire exterior and interior of the apparatus for fit and finish, checked against the customer's pre-construction meeting approval specifications, and any ensuing change orders.
- A thorough test of all driving systems under actual highway and city driving conditions, for no less than 100 miles.

One (1) Final Delivery

DELIVERY

The fire apparatus shall be delivered over the road and under its own power to insure proper break-in of all driving components while still under warranty. Rail or truck freight shipment of the apparatus is not acceptable.

One (1) FAMILIARIZATION

An experienced and qualified distributor or sales representative shall familiarize Fire Department personnel (as designated by the authority in charge) in the proper operation, care and maintenance of the apparatus delivered.

The representative must be a qualified, trained agent of the local authorized distributor or sales representative, or a direct employee of the manufacturer of the apparatus.

A factory field service technician shall provide instruction to the Fire Department regarding the apparatus. The familiarization period shall consist of up to four (4) daytime sessions over a period of four (4) days over during the normal work week (Monday - Friday). The number, length and time of the sessions may vary due to the nature of the apparatus and availability of attendees and must be approved by the factory in advance. Evening sessions may be arranged in advance with the Manufacturers Fire Apparatus Service Department under special circumstances. Due to scheduling, advance notice must be received in writing at least three (3) weeks prior to shipment or date of instruction and will be considered on a first come, first serve basis. The balance of any time remaining in a session may be devoted to minor adjustments or corrections to the apparatus for items which may have developed while in transit from the factory.

Two (2) Thread Allowance

THREAD ALLOWANCE

A \$5,000.00 allowance per truck must be a part of the actual final bid proposal price.

Allowance will be for the discretion of the Fire Department to purchase any

RFD specific 3.218 X 6 special threads not specified. Any of the funds not utilized

Shall be returned to the Fire Department.

Two (2) Equipment / Mounting

EQUIPMENT / MOUNTING

A \$15,000.00 allowance per truck must be part of the actual final bid proposal price. The

Allowance will be used for the discretion of the Fire Department for tool mounting,

Additional shelving not specified. It will also cover any additional tools or

Equipment that is found to be in need. The successful bidder will provide an

Itemized quote for any of the above costs prior to any work being performed.

Any funds not utilized shall be returned to the Fire department.

One (1) Ability to provide service.

ABILITY TO PROVIDE SERVICE

Minimum requirements

If the manufacturer is the bidder, they must have an authorized warranty service outlet for the apparatus and pump being bid. A copy of a certified letter or certificate from the manufacture showing who the authorized service center and their location, must be provided in the bid package. The service center must be authorized by the manufacturer and cannot be a local shop loosely contracted to provide manufacture service.

If the manufacture is the bidder, they must have a factory parts center available at the authorized service center.

Factory Authorized Service for the chassis, apparatus and pump being provided must be available in the purchaser's fire station.

Bidder or representative shall maintain a fixed service base within 125 miles of the purchaser's fire station. This facility must provide heated, protected, indoor storage for the apparatus while service is being performed.

Bidder or representative must, in addition, have at least two mobile service vans with service and maintenance supplies and tools to perform normal maintenance and repairs in the purchaser's fire station.

The bidder or representative shall employ on a full-time basis a minimum of three mechanics who are factory trained in the service and repair of the chassis, apparatus and the fire pump and if applicable, aerial device being bid. A list of employees must be provided and showing each certified training.

Bidder or representative shall through own facilities or through closely controlled sublet facilities be capable of providing all warranty maintenance and service required on the apparatus being bid within a 125-mile radius of the fire station of the purchaser.

Bidder shall pick up from the fire station and return the apparatus from the service center if the apparatus warranty cannot be completed in the station for the duration of the warranty period at their labor expense. **NO EXCEPTIONS.**

Bidder or representative shall respond to all "out of service" service calls within 24 hours of notification by the purchaser.

Bidder must provide details of manufacture technical support available.

Bidder must provide a list of available manufacturing training programs for the fire department and the city employees.

Bidder must produce a list of seven customers that have used the factory authorized service center for warranty work.

All NFPA required documentation and certifications shall be supplied with the apparatus at the time of delivery.

QUESTIONS/ADDENDUM REGARDING SPECIFICATIONS OR BID PROCESS

To ensure fair consideration for all bidders, the City prohibits communication to or with any department or division manager or employee during the bid process with the exception of those questions relative to interpretation of specifications of the bid process. Such questions shall be submitted to the Purchasing Coordinator in writing via the Penn Bid website (www.pennbid.procureware.com) by 2:00 PM, prevailing time, October 11, 2021.

READING FIRE DEPARTMENT SPECIFICATION FOR (2) CLASS-A ENGINES

Detailed Specifications:

1- One (1) complete detailed copy of the manufacturer's proposal including specifications, drawings, documentation and certifications shall be submitted in electronic format with their bid proposal for all vehicles contracted under this specification.

2- All proposals submitted shall include detailed engineering drawings with a minimum size of 11" x 17" with the following views: left & right side views of cab, chassis and body, top view, front view of cab and front bumper details and rear view of body including the hose bed.

3- The drawing shall indicate the principle dimensions as a minimum including: overall length, overall height, wheelbase, front bumper to face of cab, center of front wheel to rear of cab, front of body to rear of body and center of rear wheel to rear of back step, width of the apparatus body and all principle compartment dimensions.

4- The drawing shall indicate dimensions including the height from the ground to the bottom of the rear hose bed as well as the height from the ground to the bottom of the crosslay hose beds, actual angle of approach and angle of departure.

5- The drawings will become a part of the final contract with the successful vendor and shall be revised after the engineering conference for written approval by the Reading Department prior to construction.

6-Each bidder shall supply with their proposal drawings of the left and right side pump panels showing all intakes, discharges and components for evaluation by RFD. The pump panel drawing must be approved and signed off by the RFD prior to construction of the apparatus at the preconstruction conference. The final version of the pump panel instrumentation drawing must match the layout and design of each apparatus and will be confirmed by RFD personnel at the final inspection.

7- Each proposal shall include a turning radius report which shall show the wall to wall, curb to curb and bumper to bumper turning radius of the proposed vehicle.

8- Each proposal shall include an electrical system draw analysis for the completed apparatus as proposed.

9- Each proposal shall provide a detailed weight analysis indicating the estimated front and rear axle weights for the loaded vehicle including four (4) personnel the specified hose load and 2,000 pounds of tools and equipment.

10- All technical information required to be submitted in accordance with this section must be submitted with the original proposal and cannot be deleted and supplied at a later date.

11- In addition to providing their own technical specification all manufacturer's shall indicate by the letter "X" whether their specifications are in compliance (COMPLY or Y) or not (EXCEPTION or N). Failure to complete by the letter "X" on the RFD specifications shall be interpreted as non-compliance and the manufacturer has taken exception. Any exception shall be clearly noted and explained with full detail in the manufacturer's proposal on a separate piece of paper noting the section number for reference. If there is any discrepancy between the RFD and the manufacturer's submittal the RFD will take precedence.

12- Any section of the RFD specifications where the bidder has indicated compliance shall require the bidder to supply the requested component as specified. Should a discrepancy arise between the RFD specifications and the bidder's proposal where the bidder fails to indicate an exception with a detailed explanation, the RFD specifications shall prevail.

Bidders are encouraged to clarify their proposal with respect to each section of the technical specification and note each area where an exception is being taken by the bidder. Failure to note exceptions and provide an explanation for the alternative component or design may render the response unacceptable and shall not be considered for award.

Overall Height Restriction

The apparatus and any portion of equipment mounted on the apparatus shall have overall height restriction (unloaded condition) of 9' 6"

The height of the apparatus shall be measured with no water/foam in the water/foam tank, no equipment, no ground ladders and no hoses. – **NO EXCEPTIONS**

Overall Length Restriction

The completed unit shall have an overall length restriction of 30' 6" – **NO EXCEPTIONS**

Wheel Base

The vehicle wheel base may not exceed 178" – **NO EXCEPTIONS**

NFPA Compliance

The Manufacture supplied components of the apparatus shall be compliant with NFPA 1901, 2016 edition. Any equipment not requested in the specification of RFD, which are in any chapters of the NFPA 1901 & 2016 Edition, will be provided by the RFD.

Equipment Capacity

Equipment allowance on the apparatus shall be 2000 lbs. This allowance is in addition to the weight of the hoses and ground ladders listed in the shop order as applicable – Bidding manufacture must provide the actual weight of the requested hose bed load in writing - **NO EXCEPTIONS.**

Chassis Requirements

Bumper

A heavy duty, minimum of a 10" high steel channel type front bumper shall be provided. The front corners of the bumper shall be angled to reduce swing clearance. The outer wings of the bumper shall be supported back to the chassis frame rails with additional structural steel supports. The bumper shall be painted job color.

Bumper Extension

The bumper extension shall have a maximum extension of 20" from the face of the cab

Bumper Gravel Shield

The extended front bumper gravel shield shall be a minimum of 3/16" aluminum treadplate material. The shield shall fully cover the top flange of the heavy-duty front bumper.

Driver Side Bumper Tray

A hose tray constructed of 1/8" aluminum shall be recessed into the front bumper extension. The tray shall be located on the driver side of the bumper outboard of the frame rail and be approximately 14" deep. The trays must hold a minimum of 100' of 1.75" DJ hose packed in a flat load.

Center Bumper Tray

A hose tray constructed of 1/8" aluminum shall be recessed into the front bumper extension. The tray shall be located in the center of the bumper and be approximately 14" deep.

Bumper Tray Securing Strap

Two (2) heavy-duty Velcro straps shall be provided in each tray for the driver's side, and center front bumper trays. The straps shall be attached with footman loops.

Bumper Tray Flooring Material

Fiberglass or aluminum slate material shall be provided in the driver side and center bumper tray providing superior drainage and ventilation. Dry-Deck or Turtle title is un-acceptable.

* Optional Pricing

Provide an optional price and along with a full description to have both the center and driver's trays raised 2" above the gravel shield with rounded/rolled tops. The trays bottoms shall be even with the bottom of the front bumper increasing the angle of approach. Bidder will advise to increase of the angle of approach if selected.

Lighted Bumper Guides

One (1) pair of lighted bumper guides shall be provided. The guides shall be installed one (1) each side of front bumper extension.

Chassis Frame

The frame shall consist of two (2) C-channel frame rails with heavy-duty cross-members. Each manufacture shall provide a full description of the included warranty for the frame and assembly:

- The frame rails shall be hot-dip galvanized and powder coated or equivalent for improved corrosion resistance – A warranty must be included with 20 or greater years for corrosion - **NO EXCEPTIONS**
- If larger rails are provided, the maximum height of each frame rail shall not exceed the 10-1/4" dimension by more than 1/2" in order to ensure the lowest possible body height for ease of access as well as the lowest possible vehicle center of gravity for maximum stability.
- There shall be a minimum of six (6) cross-members -**NO EXCEPTIONS**
- The front chassis frame extensions, rear subframe (If equipped), crossmembers and battery brackets shall be hot-dip galvanized or equivalent for improved corrosion resistance – A warranty must be included with 20 or greater years for corrosion, for increased corrosion resistance – **NO EXCEPTIONS**
- All frame fasteners shall be high-strength Grade 8 - **NO EXCEPTIONS**
- The frame cross-members and frame mounted components (suspensions, axles, air tanks, battery boxes, fuel tank, etc.) shall be painted black.
- The apparatus manufacturer shall supply a full lifetime frame warranty including cross-members against defects in materials or workmanship- **NO EXCEPTIONS**.
- The custom chassis frame shall have a WHEEL ALIGNMENT. The alignment shall conform to the manufacturer's internal specifications. The wheel alignment documentation shall be made available at delivery upon request - **NO EXCEPTIONS**
- The custom chassis frame assembly shall be assembled using GEOMET 720 coated fasteners for corrosion resistance - **NO EXCEPTIONS**

Front Tow Eyes

Two (2) 3/4" thick heavy-duty steel tow eyes shall be securely attached to the chassis frame rails at the front of the apparatus. They shall be mounted down below the bumper / cab.

Rear Tow Eyes

Two (2) heavy duty tow eyes shall be mounted below the body at the rear of the vehicle. The tow eyes shall be painted chassis black.

Front -Axle

The vehicle shall utilize a minimum rated capacity of 20,000 lb. front axle. The axle shall be of I-beam construction and utilize grease-lubricated wheel bearings. The vehicle shall have a minimum of a cramp angle of 45 degrees left and right, including the front suction applications.

- The front axle hubs shall be made for use with 10-hole hub-piloted wheels.
- The front springs shall be parabolic tapered.
- The vehicle shall be equipped with integral power steering gear.
- Front shock absorbers shall be provided for the front axle.
- The front axle shall have oil seals with sight glass to check the lubricant level of the axle spindles.

Rear Axle

The vehicle shall be equipped with a single rear axle with single-reduction hypoid gearing and a manufacturer's rated capacity of 24,000 lbs. It shall be equipped with oil-lubricated wheel bearings oil seals.

- The rear axle hubs shall be made for use with 10-hole hub-piloted wheels.
- The rear gear ratio shall be 6.14

Rear Suspension

The rear suspension shall be a pair of linear-rate leaf springs with auxiliary "helper" leaf springs and bronze bushings.

- The suspension shall be rated for the maximum axle capacity.
- There shall be rear shock absorbers provided.

A detailed weight analysis listed the axle GAWR shall be provided verifying the unit can be built with at least a 4 to 5 percent margin on each axle.

Driver Controlled Differential

A driver controlled main differential lock shall be supplied. Operated from within the cab. An indicator shall be provided visible to the driver to show when the lock is engaged.

On-Spot Tire Chains

The chassis shall be provided with the On-Spot automatic tire chain system.

Additional Snow Chains

Two sets of additional manual snow chains with spreaders shall be provided.

Front & Rear Wheels

The front and rear wheels shall be steel hub-piloted disc sized appropriately for the tires.

Front Tires

The front tires shall be two (2) Michelin 385/65R22.5 tubeless radial tires with X MULTIWAY HD XZE highway tread or noted equivalent.

Rear Tires

The rear tires shall be Michelin 11R22.5 tubeless type radial tires with XDN2 all-weather tread with the proper rating capacity or noted equivalent.

Tire Pressure Indicators

The apparatus shall be provided with LED tire pressure indicating valve stem caps.

BRAKE SYSTEMS

Front Brakes

The front axle shall be equipped with 17-inch disc brakes.

Rear Brakes

The rear axle shall be equipped with 17-inch disc brakes.

The brake manufacturer's standard warranty information must be provided.

Brake System

- The vehicle shall be equipped with air-operated brakes and an anti-lock braking system (ABS).
- A dual-treadle brake valve shall correctly proportion the braking power between the front and rear systems. The air system shall be provided with a rapid pressure build-up feature, designed to meet current NFPA 1901 requirements.
- A pressure-protection valve shall be installed to prevent use of the air horns or other air-operated devices should the air system pressure drop below 85 psi.
- Two (2) air pressure needle gauges, one (1) each for front and rear air pressure, with a warning light and buzzer shall be installed at the driver's instrument panel.
- The braking system shall be provided with a minimum of three (3) air tank reservoirs. One (1) reservoir shall serve as the wet tank and a minimum of one (1) tank shall be supplied for each of the front and rear axles.
- Stainless steel mounting straps shall be provided for each air tank – **NO EXCEPTIONS**
- Spring-actuated emergency/parking brakes shall be installed on the rear axle.
- A valve, in conjunction with a double check valve system, shall provide automatic emergency brake application when the air brake system pressure falls below 40 psi in order to safely bring the vehicle to a stop in case of an accidental loss of braking system air pressure.

- An ABS shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to both front and rear axles. All electrical connections shall be environmentally-sealed for protection against water, weather, and vibration.
- The system shall also be configured to work in conjunction with all auxiliary engine, exhaust, or driveline brakes to prevent wheel lock-up.
- To improve maintenance troubleshooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started, and a dash-mounted light shall go out once the vehicle is moving above 4 MPH.
- An Anti-Locking Braking System (ABS) warranty shall be provided.

Park Brake Release

One (1) parking brake control valve shall be supplied on the lower dash panel within easy reach of the driver.

Emergency Release for Spring Brake

An isolated and protected air reservoir shall be installed that shall provide a protected air supply for the emergency spring brake release system. A complete loss of pressure in the dual air brake system shall not affect the isolated system. The system shall be provided with a separate dash mounted air gauge and hand valve.

Emergency Brake Activation

An emergency parking brake activation valve shall be supplied on the dash panel within easy reach of the officer. A guard shall be provided over the valve. The guard shall be constructed of 14 gauge brushed stainless steel.

Automatic Traction Control

To further improve vehicle drive characteristics, the unit shall be fitted with automatic traction control (ATC).

An Automatic Traction Control (ATC) warranty shall be provided.

Air Dryer

The chassis air system shall be equipped with an air dryer to remove moisture from the air in order to help prevent the air lines from freezing in cold weather and prolong the life of the braking system components.

Air Inlet

A 1/4" brass quick-release air inlet with a male connection shall be provided. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging air directly into the wet tank of the air brake system. It shall be located driver door jamb.

Air Lines

Air brake lines shall be constructed of color coded wire braided air lines with compression fittings. Remote air drains shall be located with easy access drain controls within the center of the body.

Air Horns

Dual Grover air horns shall be provided, connected to the chassis air system. The horns shall be mounted through the front bumper and shown on the print. The front bumper shall have two (2) holes punched to accommodate the horns. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure.

Air Horn Foot Switch

A Linemaster 632-S foot switch shall be installed to operate the air horns. It shall be located officer's side.

Air Horn/DOT Horn Button Switch

A two (2) position rocker switch shall be installed in the cab accessible to the driver and properly labeled to enable operator to activate the OEM traffic horn or air horn from the steering wheel horn button.

Engine/Transmission Package

Engine

The vehicle shall utilize a Cummins L9 450 HP engine - **NO EXCEPTIONS**

Transmission

The vehicle shall utilize an Allison EVS3000P, electronic, 5-speed automatic transmission.

- The transmission shall be re-programmed so that when "D" is selected, the transmission will shift from 1st through 4th gear and pressing "MODE" will allow the transmission to shift up to 5th gear. Downshift pre-select will remain as standard (4th gear).
- A push-button transmission shift module, Allison model 29538373, shall be located to the right side of the steering column within easy reach of the driver.
- The transmission fluid shall be TranSynd, or equivalent synthetic.
- The transmission shall be programmed to comply with NFPA 1901 and automatically shift to neutral upon application of the parking brake.
- The transmission shall include the Allison 2nd gear Pre-Select feature. This option will direct the transmission to down shift to second gear when the throttle is released, and the Jacobs engine brake is engaged.

Vehicle Speed

The maximum speed shall be limited to 59.9 MPH due to the rear gear ratio of 6.14 An engine scan providing the gear ratio information shall be provided.

Jacobs Engine Brake

One (1) Jacobs engine brake shall be installed to assist in slowing and controlling the vehicle as required by NFPA 1901 for vehicles with gross vehicle weight ratings (GVWR) of 36,000 lbs. or greater. An on-off control switch and a high-medium-low selector switch shall be mounted in the cab accessible to the driver.

Exhaust Heat Shield

A heat shield shall be provided on the exhaust to provide protection to the compartment floor.

Exhaust End Modification

The end of the exhaust tail pipe shall be modified to accommodate a Plymovent in-house exhaust extraction system. The exhaust outlet shall be vented for use with 2013 and newer EPA engines.

Engine Cooling Package

Radiator

The cooling system shall include an aluminum tube-and-fin radiator with a minimum of 1,408 total square inches of frontal area to ensure adequate cooling under all operating conditions. There shall be a drain valve in the bottom tank to allow the radiator to be serviced. A sight glass shall be included for quick fluid level assessment. The radiator shall be installed at the prescribed angle in order to achieve the maximum operational effectiveness. This shall be accomplished according to established work instructions and properly calibrated angle measurement equipment.

Silicone Hoses

All radiator and heater hoses shall be silicone. Pressure compensating band clamps shall be used to eliminate hose pinching on all hoses 3/4" diameter and larger. All radiator hoses shall be routed, loomed, and secured so as to provide maximum protection from chafing, crushing, or contact with other moving parts.

Coolant

The cooling system shall be filled with a 50/50 mixture of water and antifreeze/coolant conditioner to provide freezing protection to minus 40 (- 40) degrees F for operation in severe winter temperatures.

Coolant Recovery

There shall be a coolant overflow recovery system provided.

Charge Air Cooler System

The system shall include a charge air cooler to ensure adequate cooling of the turbocharged air for proper engine operation and maximum performance.

Charge Air Cooler Hoses

Charge air cooler hoses shall be made from high-temperature, wire-reinforced silicone to withstand the extremely high temperatures and pressures of the turbocharged air.

Fan/Shroud

The fan shall be 30" in diameter with eleven (11) blades for maximum airflow and dynamic balance. The shroud shall be specifically formed with curved surfaces which improves air flow and cooling.

Transmission Cooler

The cooling system shall include a liquid-to-liquid transmission cooler capable of cooling the heat generated from the transmission.

Fuel System

One (1) 65-gallon fuel tank shall be provided.

- A fuel pump shall be provided and sized by the engine manufacturer as part of the engine.

- All fuel lines shall be rubber.
- Straps for the fuel tank shall be made of stainless steel material.
- An auxiliary 12-volt fuel pump shall be included in the fuel system.
- A fuel filter shall be installed in addition to the primary fuel filter. The unit shall completely prepare fuel by removing water, thermostatically control the warming of fuel as required and effectively filter the fuel in all weather conditions.
- A shut-off valves (2) shall be supplied to prevent drain back of fuel into the main supply line during filter changes. The valve(s) shall be located:
 - a) One (1) inlet side of fuel/water separator
 - b) One (1) at fuel tank

Alternator

A minimum of a 320-350 SAE (J56) NFPA 1901 rated alternator with internal rectifier, regulator and AC taps shall be installed in accordance with the engine manufacturer`s recommendations.

- The manufacture must provide a full amp report of the apparatus in the proposal package showing adequate sized alternator–
NO EXCEPTIONS

Battery System

The manufacturer shall supply a minimum of six (6) heavy duty Group 31 12-volt maintenance-free batteries at a 1000 CCA rating. **NO EXCEPTIONS.**

- Each battery shall be installed and positioned so as to allow easy replacement of any single battery.
- Each battery shall be equipped with carrying handles to facilitate ease of removal and replacement.
- There shall be two (2) steel frame mounted battery boxes, one (1) on the left frame rail and one (1) on the right frame rail.
- Each battery box shall be secured to the frame rail with Grade 8 hardware.
- Each battery box shall hold (2) batteries or more.
- Preferred batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for extended operation.
- The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections.
- The battery stud terminals shall each be treated with concentrated industrial soft-seal after cable installation to promote corrosion prevention.
- The positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification.
- Batteries shall be placed on non-corrosive rubber matting and secured with hold-down brackets to prevent movement, vibration, and road shock. The hold-down bracket J-hooks shall be cut to fit and shall have all sharp edges removed.
- The batteries shall be placed in plastic trays to provide preliminary containment should there be leakage of hazardous battery fluids.
- There shall be two (2) plastic trays, each containing (2) batteries. Each battery tray shall be equipped with a rubber vent hose to facilitate drainage. The rubber vent hose shall be routed to drain beneath the battery box.
- The batteries shall be positioned in well-ventilated areas.
- One (1) positive and one (1) negative jumper stud shall be provided.
- Batteries shall have a warranty of twelve (12) months that shall commence upon the date of delivery of the apparatus.

All above requirements will include any addition added batteries.

Engine Fan Clutch

The engine shall be equipped with a thermostatically controlled engine cooling fan. The fan shall be belt driven and utilize a clutch to engage when the engine reaches a specified temperature, and / or the water pump is engaged.

Drivelines

Drivelines shall have a heavy-duty metal tube and shall be equipped with Spicer 1710HD universal joints to allow full-transmitted torque to the rear axle. Drive shafts shall be axially straight, concentric with axis and dynamically balanced. All drivelines shall have drop guards.

DEF Tank

A diesel exhaust fluid (DEF) tank with a minimum of five (5) gallon capacity shall be provided.

- A sender shall be provided in the DEF tank connected to a level gauge on the cab dash.
- The tank shall be located left side below rear of cab.
- Access door shall be hinged stainless steel.

Power Steering Cooler

A heat exchanger (cooler) shall be installed to maintain desired power steering fluid temperature.

Cab Requirements

Cab Medium Four Door w/Barrier Style Doors, Flat Cab Roof

The cab shall be constructed with all stainless-steel material or a minimum of 3/16" aluminum sheeting along with aluminum extrusions and an internal roll gage design. Either cab material being used must be a fully welded cab design. Either designed material or construction design must be capable of exceeding the NFPA roof load test by 50% after receiving the frontal impact test. A full specified description of the material and construction must be included in the proposal. The City of Reading's firefighter safety will take priority over any manufactures bidding below their normal top of the line cab and chassis for the specified 450 hp engine. - **NO EXCEPTIONS**

The cab width will not exceed 96" wide. **NO EXCEPTIONS**

Rubber Fenderettes

A rubber fenderettes shall be provided in place of the standard fenderettes.

Windshield

The cab windshield shall be of a two-piece replaceable design for lowered cost of repair.

Cab Grille

The front cooling air intake grille shall be constructed of stainless steel mesh and supported by a polished stainless-steel frame.

Cab Mounts and Cab Tilt System

The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements.

The cab shall be tilted through a 42-45 degree arc to allow for easy maintenance of the engine, transmission and engine components. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab.

Cab Interior

The interior of the cab shall be of the open design with an ergonomically-designed driver area that provides ready access to all controls as well as a clear view of critical instrumentation.

- The engine cover between the driver and the officer shall be a low-rise contoured design to provide sufficient seating and elbow room for the driver and the officer. The engine cover shall blend in smoothly with the interior dash and flooring of the cab. An all-aluminum sub frame shall be provided for the engine cover for strength. The overall height of the engine enclosure shall not exceed 23" from the floor at each side and 27" in the center section. The engine cover shall not exceed 41" in width at its widest point. **(if bidder exceed these measurements, it must be noted in the exception page - NO EXCEPTIONS)**
- There shall be easy access for checking transmission fluid, power steering fluid, and engine oil without raising the cab. The engine cover insulation shall meet or exceed DOT standard MVSS 302-1 and V-0 (UI subject 94 Test).
- All cab floors shall be covered with a black rubber floor mat that provides an aggressive slip-resistant surface in accordance with current NFPA 1901.
- A minimum of 57" of floor-to-ceiling height shall be provided in the front seating area of the cab and a minimum of 55" floor-to-ceiling height shall be provided in the rear seating area. **(if bidder is less than these measurements, it must be noted in the exception page - NO EXCEPTIONS)**
- Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab.
- All exposed interior metal surfaces shall be pretreated using a corrosion prevention system.
- The interior of the cab shall be insulated to ensure the sound (dba) level for the cab interior is within the limits stated in the current edition of NFPA 1901.
- The vehicle shall use a seven-position tilt and telescopic steering column to accommodate various size operators. An 18" padded steering wheel with a center horn button shall be provided.
- Storage areas, with hinged access doors, shall be provided below the driver and officer seats.
- The front cab steps shall be a minimum of 8" deep x 24" wide. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards.
- The rear cab steps shall be a minimum 12" deep x 21" wide. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards.
- The rear steps shall incorporate intermediate steps for easy access to the cab.
- The step surfaces shall be aluminum diamond plate with a multi-directional, aggressive gripping surface incorporated into the aluminum diamond plate in accordance with current NFPA 1901.

- A black grip handle shall be provided on the interior of each front door below the door window to ensure proper hand holds while entering and exiting the cab.
- An additional black grip handle shall be provided on the left and right side windshield post for additional handholds.

Cab Doors

The cab door material shall be the same material used as the cab skin and sub frame.

- There shall be reflective signs on each cab door in compliance with all NFPA requirements.
- Stainless steel paddle-style door latches shall be provided on the interiors of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening as required by NFPA 1901.
- The front door windows shall provide a minimum viewing area of 530 sq. in. each.
- The rear door windows shall provide a minimum viewing area of 500 sq. in. each.
- All windows shall have at least 75% light transmittance automotive safety tint.

Auxiliary Lower Cab Steps

An auxiliary step below the cab door shall be provided. The step shall be constructed of aluminum tread brite. The step surface shall be provided with an aggressive skid-resistant surface and have an open back. The step shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. Gripping surfaces shall be provided.

- The step shall be located driver's front door, officer's front door, driver side rear door, officer side rear door.
- Steps under front cab doors shall not interfere with approach angle.
- " Floating" steps are acceptable.
- The lights shall be EON LED with clear lenses.
- The wiring connections shall be made with a weather resistant plug in style connector.
- The lights shall be switched from the cab dash with the work light switch.
- The lights shall also be activated automatically when the exit doors are opened.

Cab Instruments and Controls

Two (2) pantograph-style windshield wipers with two (2) separate electric motors shall be provided for positive operation. Air-operated windshield wipers are not acceptable because of their tendency to accumulate moisture, which can lead to corrosion or to freezing in cold weather. **(NO EXCEPTIONS)** The wipers shall be a wet-arm type with a minimum of one (1) gallon washer fluid reservoir, an intermittent-wipe function, and an integral wash circuit.

Cab controls shall be located on the cab instrument panel in the dashboard on the driver's side where they are clearly visible and easily reachable. Emergency warning light switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided:

- Master battery switch/ignition switch (rocker with integral indicator)
- Starter switch/engine stop switch (rocker)
- Heater and defroster controls with illumination
- Marker light/headlight control switch with dimmer switch
- Self-canceling turn signal control with indicators
- Windshield wiper switch with intermittent control and washer control
- Master warning light switch
- Transmission oil temperature gauge
- Air filter restriction indicator
- Pump shift control with green "pump in gear" and "o.k. to pump" indicator lights • Parking brake controls with red indicator light on dash
- Automatic transmission shift console
- Electric horn button at center of steering wheel
- Cab ajar warning light on the message center enunciator

Controls and switches shall be identified as to their function by backlit wording adjacent to each switch, or indirect panel lighting adjacent to the controls.

Fast Idle System

A fast-idle system shall be provided and controlled by the cab-mounted switch. The system shall increase engine idle speed to a preset RPM for increased alternator output.

Electrical System

The cab and chassis system shall have a centrally located electrical distribution area. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An automatic thermal-reset master circuit breaker compatible with the alternator size shall be provided. Automatic-reset circuit breakers shall be used for directional lights, cab heater, battery power, ignition, and other circuits. An access cover shall be provided for maintenance access to the electrical distribution area.

- A 6 place, constantly hot, and 6 place ignition switched fuse panel and ground for customer-installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference.
- All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color-coded and functionally-labeled every 3" on the outer surface of the insulation for ease of identification and maintenance. The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather-resistant. All harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion.
- A Vehicle Data Computer (VDC) shall be supplied within the electrical system to process and distribute engine and transmission Electronic Control Module (ECM) information to chassis system gauges, the message center, and related pump panel gauges. Communication between the VDC and chassis system gauges shall be through a 4-wire multiplexed communication system to ensure accurate engine and transmission data is provided at the cab dash and pump. The VDC shall be protected against corrosion, excessive heat, vibration, and physical damage.
- Two (2) dual rectangular chrome plated headlight bezels shall be installed on the front of the cab. The low beam headlights shall activate with the release of the parking brake to provide daytime running lights (DRL) for additional vehicle conspicuity and safety. The headlight switch shall automatically override the DRL for normal low beam/high beam operation.

Cab Crashworthiness Requirement

The apparatus cab shall exceed relevant NFPA 1901 load and impact tests by 50% required for compliance certification with the following:

- Side Impact Dynamic Pre-Load per SAE J2422 (Section 5).
- Testing shall meet and/or exceed defined test using 13,000 ft-lbs of force as a requirement. The cab shall be subject to a side impact representing the force seen in a roll-over. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame.
- Cab testing shall be completed using 13,776 ft.-lbs. of force **exceeding** testing requirements.
- Quasi-static Roof Strength (proof loads) per SAE J2422 (Section 6) / ECE R29, Annex 3, paragraph 5.
- Testing shall meet and/or exceed defined test using 22,046 lbs. of mass as a requirement. Testing shall be completed using platen(s) distributed uniformly over all bearing members of the cab roof structure.
- Cab testing shall be completed using 23,561 lbs. of mass **exceeding** testing requirements. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and doors shall remain closed.
- Additional cab testing shall be conducted using 117,336 lbs. of mass **exceeding** testing requirements. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and the doors shall remain closed.
- Frontal Impact per SAE J2420.
- Testing shall meet and/or exceed defined test using 32,549 ft.-lbs. of force as a requirement. The cab shall be subject to a frontal impact as defined by the standard. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame.
- Cab testing shall be completed using 34,844 ft.-lbs. of force **exceeding** testing requirements.
- Additional cab testing shall be conducted using 65,891 ft.-lbs. of force **exceeding** testing requirements by **over two (2) times**. Proof of this test is to be part of the proposal package.
- The cab shall meet all requirements to the above cab crash worthiness; **NO EXCEPTIONS**.
- A copy of a certificate or letter verifying compliance to the above performance by an independent, licensed, professional engineer shall be provided upon request.
- For any or all of the above tests, the cab manufacturer shall provide either photographs or video footage of the procedure upon request.

Seat Mounting Strength

The cab seat mounting surfaces shall be third party tested and in compliance with FMVSS 571.207.

Seat Belt Anchor Strength

The cab seat belt mounting points shall be third party tested and in compliance with FMVSS 571.210.

ISO Compliance

The manufacturer shall ensure that the construction of the apparatus cab shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus cab that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.

Cab Door Map Pockets

A mechanically fastened stainless steel map pocket shall be mounted on the front cab doors, centered on the kick plates. The map pockets shall be constructed of 14 gauge (.070) stainless steel.

The dimensions of the map pocket shall be approximately 10" high x 14" wide x 3" deep.

Interior Cab Door Locks

Each cab door shall have a manual operated door lock actuated from the interior of each respective door. Exterior of each cab door shall be provided with a barrel style keyed lock below the cab door handle.

Exterior Cab Door Locks

The cab shall have keyed door locks provided on exterior doors to secure the apparatus.

Power Cab Door Front Windows

Driver and Officer door windows. Includes electric roll-down actuation. Each door to have individual control at door position and the driver door is to have master control for all power window locations.

Manual Cab Door Rear Windows

The rear cab door windows shall be manually operated to raise and lower.

Cab Door Panels

The inner door panels shall be made from a minimum of 14 gauge brushed finish stainless steel for increased durability.

Exterior Cab Door Latches

All exterior cab door latches shall be paddle style.

Cab Door Reflective Material

Reflective Red/Lemon Yellow material striping shall be supplied on each of the cab doors. The reflective material shall be at least 96 square inches to meet NFPA 1901 requirements.

Stainless Steel Window Bars

Stainless steel bars shall be installed across the rear cab door windows.

Rear Door Glass Tint

The rear cab windows shall be equipped with dark tint glass.

Cab Door Area Lighting

There shall be four (4) clear TecNiq model T440 4" circular LED lights provided to illuminate the cab step well area.

Cab Compartment Door Trim

A anodize aluminum or DA finished stainless steel trim shall be located at the bottom edge of the cab exterior compartment openings.

MIRRORS

Cab Mirrors

Two West Coast (2) Velvac model 2010 heated, remote controlled, stainless steel mirrors shall be installed - **NO EXCEPTION (to assist in keeping the OAW of the apparatus at a minimum)**

10in Convex Mirror

Stainless steel 8" to 10" 3-Arm Convex mirror. (3) piece adjustable telescoping arm assembly Mirror shall be mounted horizontally above the officer's position.

Front Mud Flaps

Black mud flaps shall be installed on the rear of the cab front wheel wells.

Cab Roof Sign Plate

There shall be a sign plate of smooth aluminum plate mounted to the roof of the cab for unit identification graphics painted white.

Knurled Cab Door Handrails

Cab door assist handrails shall consist of four (4) 18" long handrails mounted directly behind the driver and officer door openings one each side of the cab and the rear cab doors on the driver and officer side. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2" from the mounting surface to allow a positive grip with a gloved hand.

Rear Cab Wall Construction

The rear cab wall shall be constructed or covered with the use of 3/16" aluminum diamond plate.

Air Conditioning

An overhead air-conditioner / heater system with a single radiator mounted or roof mounted condenser shall be supplied.

- The unit shall be mounted to the cab interior headliner in a mid-cab position, away from all seating positions. The unit shall provide ten (10) comfort discharge louvers, four (4) to the back area of the cab and six (6) to the front. These louvers will be used for AC and heat air delivery. Two (2) additional large front louvers shall be damper controlled to provide defogging and defrosting capabilities to the front windshield as necessary.
- The unit shall consist of a high output evaporator coil and heater core with one (1) high output dual blower for front air delivery, and two (2) high performance single wheel blowers for rear air delivery.

- The control panel shall actuate the air-distribution system with air cylinders, which are to be separated from the brake system by an 85-90 psi pressure protection valve. A three-speed blower switch shall control air speed.
- The condenser shall be radiator mounted or roof mounted and have a minimum capacity of 65,000 BTU's and shall include a receiver drier.
- Performance Data must be provided.
- The system shall be capable of cooling the interior of the cab from 100 degrees ambient to 75 degrees or less with 50% relative humidity in 30 minutes or less.
- Heating and air conditioning controls shall be located in the center dash area.

SEATS

Cab Seats

All cab seats shall be Bostrom brand with the Durawear seat cover material in Gray.

Driver Seat

One (1) H. O. Bostrom EX6 Sierra seat with high back styling shall be supplied for the driver's position.

Officer Seat

One (1) H. O. Bostrom 400 Series fixed seat with high back SCBA storage for the officer's position shall be supplied.

Rear Wall SCBA Fold down Seats

Two (2) fold down seat with Bostrom Res-Q-Back seat back with SCBA storage. Location on the rear wall to be driver's side inboard, officer's side inboard.

SCBA Bracket SmartDock

IMMI SmartDock Gen2 SCBA storage bracket shall be provided. The SmartDock is a strap-free docking station that offers single-motion SCBA insertion and hands-free release when the firefighter stands up to exit the seat. SmartDock has undergone extensive testing to ensure that it meets or exceeds industry standards. When evaluated to the NFPA 1901 Standard for Automotive Fire Apparatus, SmartDock met requirements for retaining both the cylinder and the pack in dynamic testing.

- Location: officer's seat, inboard driver's side rear wall, inboard officer's side rear wall.
- All seats shall be provided with IMMI ready reach seat belts and rigid female extended stalks.

MEDICAL CABINETS

Medical Storage Cabinets

There shall be Two (2) medical storage cabinet provided, one each, over the driver's side and officer's side wheel well of the cab.

- There shall be two (2) adjustable shelves provided in the medical storage cabinet.
- The medical storage cabinet shall be accessible externally of the cab by a locking double pan door and internally by a heavy-duty black nylon cargo netting.

- The exterior door shall be constructed using a box pan configuration.
- A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.
- A polished stainless-steel Hansen D-ring style twist-lock door handle with a #459 latch shall be provided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.
- An anodized aluminum or DA finished stainless steel drip rail shall be mounted over the compartment opening to assist in directing water run-off away from the compartment.
- The medical storage cabinet(s) shall have a Zolatone gray finish. The finish shall be applied to the interior, exterior, shelves (if equipped) and trays (if equipped) of the cabinet.

Medical Cabinet Light

One (1) Amdor Luma-Bar LED compartment light strip shall be mounted in each of the medical cabinets.

- The light shall be wired to the compartment light rocker switch in the cab.

Interior Cab Rear Storage Cabinet

A storage cabinet shall be provided in the cab at the rear of the engine cover. The cabinet shall be constructed of welded 1/8" smooth aluminum plate and be approximately 34" wide x 26" high x 14" deep with one (1) adjustable shelf. The cabinet interior shall be accessed through a rear facing opening with a sweep out floor. The cabinet opening shall have a black cargo net style cover to comply with NFPA 1901 requirements.

Rear Facing Interior Wheel Well Storage

Recessed storage areas shall be provided in the rear face of the cab wheel well risers. Each area shall provide 900 cubic inches of storage space.

Cab Interior Color

Cab instrument panel, overhead console, trim panels, headliner, and door panels shall be gray.

Sun Visors

Padded sun visors shall be provided for the driver and officer

Air Horn Lanyard

There shall be a "Y" style lanyard mounted in the center of the cab

Engine Cover

The engine cover shall blend in smoothly with the interior dash and flooring of the cab. The upper left and right sides shall have a sloped transition surface running front to rear providing increased space for the driver and officer. Bidder must provide a full description.

Rear Engine Cover

The rear engine cover shall be provided with a reduced profile for increased legroom on the forward-facing rear inboard seats or greater cabinet storage room.

Cup Holders

Two (2) cup holders shall be provided on the cab engine cover.

Severe Duty Overhead Console

A severe duty forward overhead console, air conditioning plenum and rear facing blower cover shall be provided. Each overhead console section shall be constructed of aluminum smooth plate painted to match the cab interior. The unit shall be as flush as possible to the ceiling as to not impede the view of the driver/ officer.

Severe Duty Driver Dash

The driver side upper dash shall be provided constructed of smooth aluminum painted to match the cab interior. The upper gauge package shall be provided with an ABS housing only.

Cab Dash - Low Profile Severe Duty

The center and officer side dash shall be constructed from .125" smooth aluminum plate painted to match the cab interior. The center and officer side dash panel shall be lowered to provide increased visibility. A hinged access panel shall be provided on top of the center dash to provide easy access to components within.

The lower kick panels below the dash to be constructed from .125 aluminum plate painted to match the cab interior. The panels shall be removable to allow for servicing components that may be located behind the panels.

Cab Filtration System

HEPA filtration system shall be installed into cab and be used for scrubbing the interior air. Unit shall be all inclusive and use a minimal amount of bracketry for mounting and aesthetics. Filters to be accessible for easy replacement. - **NO EXCEPTIONS**

Cab Dome Lights

Four (4) ceiling mounted dome light assemblies shall be provided.

Each light shall consist of a three-position assembly mounted rocker switch, LED (light emitting diode) 4" grommet mount white dome light, LED (light emitting diode) 4" grommet mount red dome light, and a plastic housing.

The white light activates with appropriate cab door and light assembly mounted rocker switch (**rocker switched operation is NO EXCEPTION**), the red light activates with assembly mounted rocker switch only.

Two (2) lights shall be located in both the front and rear of the cab.

English Dominant Gauge Cluster

The cab operational instruments shall be located in the dashboard on the driver side of the cab and shall be clearly visible. The gauges in this panel shall be English dominant and shall be the following:

- Speedometer/Odometer
- Tachometer with integral hour meter
- Engine oil pressure gauge with warning light and buzzer

- Engine water temperature gauge with warning light and buzzer
- Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)
- Fuel gauge
- Voltmeter
- Transmission oil temperature gauge

This panel shall be backlit for increased visibility during day and night time operations.

Cab Tilt Interlock

An interlock shall be provided to prevent tilting the cab unless the front intake is positioned to prevent interference.

Antenna Base

There shall be three (3) Tessco P/N 90942 universal antenna bases mounted on the cab roof with a weatherproof connector. The antenna base shall be NMO Motorola Style (equivalent to a MATM style) with RG58U coax cable. The antenna shall be located driver side forward with coaxial cable terminating at the center of the dash board, officer side forward with coaxial cable terminating at the center of the dash board, officer side rearward with coaxial cable terminating at the center of the dash board.

Windshield Fans

Two (2) adjustable windshield defogger fans with individual switches shall be mounted in the cab centered below the overhead console. The fans shall be 12-volt and shall each be rated at 250 cfm.

Two (2) adjustable fans located in the rear facing mounted up high. The fans shall be 12-volt and shall each be rated at 250 cfm.

Battery Charger Location

The battery charger shall be located at the rear of the driver seat or in the driver's side medical cabinet mounted on the ceiling

Battery Charger

A 20-amp battery charger with remote mounted LED display shall be installed.

Auto-Eject Battery Charger Receptacle

The battery charger receptacle shall be a Kussmaul 20-amp NEMA 5-20 Super Auto-Eject #091-55-20-120 with a cover or noted equivalent. The Super Auto-Eject receptacle shall be completely sealed and have an automatic power line disconnect.

The receptacle shall be located gravel shield driver's side and the cover color shall be Yellow.

Cab USB Charging Port

Four (4) dual USB charging ports for cell phones, chargers, etc. shall be installed in the rear cab driver side and officer side and the driver side dash, officer side dash. The receptacles shall be wired battery hot.

12 Volt Outlet

Four (4) plug-in type receptacles for hand held spotlights, cell phones, chargers, etc. shall be installed in the rear cab driver side and officer side and the front driver side dash, officer side dash. The receptacle shall be wired battery hot.

12 Volt DC Power Distribution Module

There shall be a 12 place 12-volt DC power distribution module installed as specified.

The module will have six (6) circuits wired directly to the battery and have six (6) circuits wired through the master battery switch with 12 positions for grounds. Connection to the power module circuit will be through a .250 female spade connector. Each buss will be protected with a 50-amp circuit breaker for overload protection. The module will accept ATC blade type fuses or 22X series circuit breakers.

- The module shall be located behind officer's seat.

DPF Regeneration Override

A momentary override switch shall be provided for the Diesel Particulate Filter (DPF) regeneration. The switch will inhibit the regeneration process until the switch is reset or the engine is shut down and restarted. The switch shall be located within reach of the driver.

Cab Turn Signals

There shall be a pair of Whelan C-Series model 6CT LED turn signals with populated arrow pattern and amber lens mounted above headlight bezel and wired with weatherproof connectors.

Headlights

The front of the cab shall have four (4) headlights. The headlights shall be mounted on the front of the cab in the lower position. The headlights shall be day time operational.

LED Cab Headlights

JW Speaker LED headlight model 8800 Evolution 2 heated headlights shall be provided. LED lights or equivalent shall be provided in the low and high beam position of the head lamp assembly - **NO EXCEPTION on the requirement of the heat element if selecting equivalent.**

Alternating Headlights

The chassis high beam headlights shall alternately flash and shall be controlled by a switch inside the cab.

WARNING LIGHTS

*The vehicle warning will be the Whelan brand or equivalent, models, size and quantity of LED lights needs to be fully adhered to - **NO EXCEPTIONS***

A warning light intensity dimmer shall be installed on the control panel for use when in park.

Forward Front Light Bar

A Whelan Freedom IV Series 72" LED light bar model F4X7 with ten (10) LED modules shall be provided; two (2) front corner mounted LED modules, six (6) forward facing LED modules and two (2) side facing LED modules (with front vista windows) or two (2) rear corner LED modules (without front vista windows).

- No rear facing LEDs.
- The light bars shall have clear lenses.
- The white LEDs (if equipped) shall be switched off in blocking right of way mode.
- The light bar shall be installed centered on the front cab roof.
- The front light bar shall be provided with the following color LED modules: Red/White with clear lenses
- One (1) pair of Whelan 1.5" tall (model MKEZ7) mounts shall be provided on the front light bar.

Opticom Traffic Emitter

A GTT (Global Traffic Technology) model 795H LED Opticom shall be provided centered in the forward facing Whelan Freedom IV light bar.

- A switch shall be provided accessible to the driver to activate the emitter. The emitter switch shall be wired through master warning switch and/or the application of the park brake.

Lower Level Warning Light Package

Eight (8) Whelan C-Series Super LED model C6L light heads and two (2) Whelan ION-T Series Super LED model TLI light heads shall be provided. The lights shall be Red with clear lens.

All warning devices shall be surface mounted in compliance with NFPA standards.

Additional Headlight Bezel Warning Lights

Two (2) Whelan C-Series model C6L Super LED light heads shall be provided. The lights shall be driver blue, officer red with clear lenses. The rectangular lights shall include chrome flanges where applicable.

- Location: (1) each side in front quad inboard of NFPA warning light.

Upper Rear Warning Lights

Whelan model B6LED beacons shall be supplied on polished aluminum mounts.

- Each unit shall consist of a red LED upper beacon with clear dome and a 700 series driver and officer amber with clear lenses Super LED with clear lens.

- The lights shall be located each side on rear stanchions to meet Zone C upper requirements.

Hazard (Door Ajar) Light

There shall be a 2" red LED hazard light installed as specified.

- The light shall be located center overhead.

Door Ajar Alarm

An audible alarm shall be provided through the V-Mux display in the cab wired into the door ajar or indicator.

Directional Traffic Warning Light

One (1) Whelen TAL65 LED 36" long Traffic Advisor with amber lenses shall be provided.

- The directional bar shall include a TACTLD1 control head. The control head shall include a remote flash control and end lamp enable/disable feature.
- The light shall be installed at the rear of the body on the specified swing-arm, to direct traffic around the vehicle.
- The directional light bar control head shall be located in the center overhead.

Electronic Siren

A Federal PA4000 solid state electronic siren with attached noise-canceling microphone shall be installed. The unit shall be capable of driving a single high power speaker up to 200 watts to achieve a sound output level that meets Class "A" requirements.

- The siren head shall be recessed mounted in the cab.

Siren Speaker

Two (2) 100-watt speakers shall be flush mounted as far forward and as low as possible on the front of the vehicle

- The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA 1901 requirements.
- The speaker shall be located one each side front bumper inboard of frame.

Mechanical Siren

A chrome plated, and pedestal mounted Federal Q2B-P coaster siren shall be installed on top of the front bumper extension or within the front bumper. An electric siren brake switch shall be located in the cab accessible to the driver.

Foot Switch

A Linemaster 632-S floor mounted foot switch shall be installed to operate the Q2B siren. It shall be located driver's side, officer's side.

DOT LIGHTING

License Plate Light

One (1) Truck-Lite model 15905 white LED license plate light mounted in a Truck-Lite model 15732 chrome plated plastic license plate housing shall be mounted at the rear of the body.

Marker Lights

One (1) pair of Britax LED amber/red marker rubber housed lights shall be provided. The lights shall be located on the rear body corners mounted in the down angle position. The red lenses shall illuminate to the rear of the apparatus and the amber shall illuminate to the front of the apparatus. The lights shall be wired to the marker light circuit.

Tail Lights

Three (3) Whelen C6 series LED (Light Emitting Diode) lights shall be installed in a chrome ABS housing in a vertical position, each side at the rear of the body and wired with weatherproof connectors.

Light functions shall be as follows:

- LED red running light with red brake light in upper position.
- LED populated amber arrow pattern turn signal in middle position.
- LED clear back-up light in lower position.

A one-piece chrome ABS trim housing shall be mounted around the three (3) individual lights in a vertical position.

License Plate Bracket

There shall be bracket fabricated from aluminum diamond plate, secured to rear of the body to accommodate a license plate.

Additional Turn Signals

A pair of Weldon model 9186-8580-29 bubble style LED amber auxiliary turn signals with stainless steel bezels shall be installed.

- (1) Location: (1) each side in body wheel well offset rearward. Each side over front wheel well

LED Marker Lights

LED clearance/marker lights shall be installed as specified below.

Upper Cab:

- Five (5) amber LED clearance lights on the cab roof.

Lower Cab:

- One (1) amber LED side turn/marker each side of the cab ahead of the front door hinge.

Upper Body:

- One (1) red Truck-Lite LED upper clearance light each side, rear of body, visible to the sides and rear of the vehicle.

Lower Body:

- Three (3) red Truck-Lite LED clearance lights centered at rear, recessed in the rear tailboard area.
- One (1) red Truck-Lite LED clearance light each side at the trailing edge of the body as far rearward as practical.

Back-Up Alarm

An electronic back-up alarm shall be supplied. The 97 dB alarm shall be wired into the chassis back-up lights to signal when the vehicle is in reverse gear.

Body Requirements

Stainless Steel Pumper Body Design and Construction with a Maximum Body Width of 96"- NO EXCEPTIONS

The compartment floors, ceilings, front panels, vertical side sheets, rear walls, door openings, wheel wells, compartment panels, dividing walls, and reinforcements shall be constructed of stainless steel material. The interior of the compartments shall be provided with a machine sanded DA finish or painted. The exterior of the body shall be prepared for job color paint finish - **NO EXCEPTIONS**

The body shall be a free-standing module supported only by the top of the frame rails using a stainless-steel structure assembly - **NO EXCEPTIONS** There shall be an insulator used to isolate the structural assembly from the frame rails. A body substructure using carbon steel, outrigger arms or any other mounting method is not acceptable. This design is required to eliminate shift and stress on the body module and component panels.

The water tank shall be mounted on a stainless-steel tubular structure at the base of the tank, and stainless-steel channels spanning the width of the hose bed across the top of the tank. Hold downs shall allow for chassis flex front and rear on the tank, without transmitting stress into the water tank. Isolating materials of hard rubber strips shall be installed at all contact points between the base of the tank and the tank mounting structure.

Each compartment door opening shall have at least a double break-formed door jamb for recessed door seal inboard of the exterior of the body. The break-formed door jamb is required for superior strength and body construction integrity. Doors that seal only at the exterior surface of the body or utilize only a single break-formed door jamb are not acceptable.

The compartment floor construction shall permit easy cleaning with a true sweep-out design.

There shall be a minimum of two (2) 3/8" drain holes in the compartment floors.

Compartments

The compartment square footage must be provided in actual usable sq. ft. for each compartment listed in the written specifications. That measurement is not to include the area behind the roll-up doors and the side door frames. The drawing must show the clear door opening and the compartment square footage will be based of those measurements – **NO EXCEPTIONS**

Driver Side Compartments

- Compartment L1, ahead of the rear wheels single full height compartment with full depth in the lower section and a minimum of 12" deep in the upper section.
- Compartment L2, above the rear wheels, shall be a minimum of 12" deep.
- Compartment L3, behind the rear wheels, shall be full height compartment with full depth in the lower section and a minimum of 12" deep in the upper section.
- The rear walls of each compartment shall be provided with a bright stainless-steel louvered vent or punched out louvered vents.
- An externally mounted compartment top shall be provided and constructed of 1/8" polished aluminum treadplate.

Officer Side Compartments

All compartment sizes must be specified and clearly shown on the engineered drawing. The usable compartment square footage must be provided in actual usable sq. ft. for each compartment. That measurement is not to include the area behind the roll-up doors and the side door frames. The drawing must show the clear door opening and the compartment square footage will be based of those measurements.

- Compartment R1, ahead of the rear wheels shall be full depth.
- Compartment R2, behind the rear wheels, shall be full depth.
- Each interior compartment seam shall be sealed with a silver silicone caulk. The rear walls of each compartment shall be provided with a bright stainless-steel louvered vent.
- An externally mounted compartment top shall be provided and constructed of 1/8" polished aluminum treadplate.

Right Side Ground Ladder Storage

Ladder storage brackets shall be provided above the right-side compartments on the outside of the hose bed. Chrome plated spring-loaded ladder clamps shall be provided, and the Stainless steel Unistruts allow for ladder height adjustment.

Ladder Brackets and Hold Downs

The ladder brackets/rack to store one (1) 2-section extension and one (1) roof ladder.

Ladder Brand

Ladder shall be Duo-Safety and supplied.

- A Duo-Safety 585-A, 10' folding attic ladder shall be provided.
- A Duo-Safety 775-A, 14' roof ladder shall be provided. Folding steel roof hooks shall be attached to one end of the ladder with steel spikes on the other.
- A Duo-Safety 900-A, 24' 2-section extension ladder shall be provided.

Equipment Storage

Pike poles and attic ladder shall be vertically mounted behind the ground ladders on the adjustable ladder tracks on the outside of the hose bed on the officer side.

- Two (2) aluminum storage tubes shall be provided for pike poles with retaining pins.
- An aluminum storage trough shall be provided for a folding attic ladder. Storage Tube Retaining Pin

High Rise Hose Pack Storage

There shall be provision to store high rise hose packs on the officer side compartment top. Hose packs shall be stored end to end along the compartment top within an open low lip tray lined with Dri-Deck and Velcro straps for securing the hose.

Angled Tailboard Corners

The corners of the rear tailboard shall be angled inward for increased clearance around the rear of the apparatus. The angle shall be at the greatest possible angle that the manufacture can offer.

Angled Beavertails

The rear of the body shall have angled beavertails to help assist for increased clearance around the rear of the apparatus with the angled tailboards.

Rear Panel Area

The entire rear panel of the body shall be covered using smooth aluminum panels for application of the Chevron graphics.

A minimum of a 12" deep rear tailboard of 3/16" aluminum treadplate shall be provided.

Vertical grab rails shall be provided one each side on the vertical angled off rear beavertails of the body, and a horizontal grab rail shall be provided below the hose bed.

Rear Panel Compartment

Compartment B1, located centered ahead of the rear tailboard, shall be a minimum of 46" wide x 35" high x 26" deep. Solid wall dividers shall be provided on both sides of the rear compartment. This compartment shall be of stainless steel.

DOORS

Roll Up Compartment Doors

A ROM brand roll up door with satin finish shall be provided on all hose body compartments. Locations: L1, L2, L3, R1, R2, B1.

The door opening shall be reduced by 2" in width and approximately 8-9" in height depending on door height.

Permanent Shelf

There shall be a permanent mounted aluminum shelf provided for a compartment as specified. The shelf shall be at the offset within the compartment.

The shelf shall be constructed of 3/16" (.187") smooth aluminum plate. The shelf shall have a minimum 2" front lip for added strength and reinforcement and to accommodate optional plastic interlocking compartment tile systems.

The shelf shall be capable of holding 100 lbs.

Locate: L1, L3 between the compartment break.

Adjustable Shelf

There shall be an aluminum adjustable shelf provided for a compartment as specified.

The shelf shall be constructed of 3/16" (.187") smooth aluminum plate. A shelf under 16" deep shall have a minimum 2" front and rear lips to accommodate optional plastic interlocking compartment tile systems and shall be capable of holding 100 lbs. For additional strength and reinforcement of the shelf a return break shall be provided on the outward lip on a shelf 16" deep or greater and shall be capable of holding 250 lbs.

The shelf shall be sized, width and depth, to match the size and location in the compartment.

Located: L2

Adjustable Tracks

Tracks shall be provided as shown for use with adjustable shelves and/or trays in deep non-transverse compartments. The tracks shall be vertically mounted and attached to the side and/or rear walls of the compartments.

Located: L1, L2, L3 R3, B1

DRI –Deck

All body compartment floors and shelves shall be lined with Dri-Deck or an equivalent material.

Rear Hose Bed Cover

A cover constructed of heavy duty black nylon cargo netting shall be installed vertically at the rear apparatus hose bed. The cover shall be attached with quick release buckles at the top that are connected with a single pull cord.

Hold Open

Hold open device(s) shall be provided for aluminum crosslay (single or bi-fold) cover.

Knurled Hand Rails

All body and pump module exterior hand rails shall have knurled bright anodized aluminum tubes. The hand rail extrusions shall be machine extruded with integral ribbed surfaces and knurled grip surfaces to assure a good grip for personnel safety.

Compartment Front Folding Steps

Lighted LED folding step(s) shall be located officer side front compartment face, driver side front compartment face. The folding step(s) shall meet current NFPA in step height and surface area.

One (1) hand rail shall be installed in compliance with current NFPA. The handrail shall have the knurled finish same as the rest of the apparatus.

Rear Body Hose Bed Folding Steps

Dual lighted LED folding steps shall be positioned to the driver side rear of the body. The steps shall be NFPA compliant for access to the hose bed storage area and in step height and surface area. The steps shall be staggered stepped as applicable with tailboard depth, not applicable with recessed step mounting.

One (1) hand rail shall be installed in compliance with current NFPA. The hand rail shall have the same knurled finish same as the rest of the apparatus.

Intermitted Rear Step

A minimum of 8" deep x 46" wide non-skid aluminum treadplate step with mitered corners shall be installed above the rear panel compartment for ease of access to the upper body area.

Mud Flaps

Black mud flaps shall be provided for the body wheel wells.

Low Hose Bed Body Construction

The specified water tank shall have an L-shaped design at the front of the body in order to provide the lowest possible hose bed floor height. A full width stainless steel bulkhead panel shall be installed rearward of the raised portion of the water tank. A non-skid aluminum treadplate cover shall be provided over the raised section of the water tank. This area shall also contain the water tank related fill towers.

- The selected hose bed dividers shall be located to the rear of the full width bulkhead and attached to Unistrut channels for easy side to side adjusting.
- The upper hose body shall be constructed of stainless steel material as the compartments and shall use welded construction.
- Hose bed flooring shall be slated aluminum or fiberglass grating installed full length and full width of the hose bed for superior drainage and hose ventilation.
- The bottom of the hose bed shall be no more than 66 inches from the ground.

Hose Bed Capacity

The hose bed shall have the capacity to store the following hose from the driver side to the officer side.

- Hose Load #1 – 1100' of 4" DJ Hose
- Hose Load #2 – 800' of 2.5" DJ Hose
- Hose Load #3 – 150' of 2.5" DJ Hose
- Hose Load #4 – 150' of 1.75" DJ Hose
- Hose Load #5 - 150' of 1.75" DJ Hose
- Hose Load #6 – 400' of 1.75" DJ Hose

Adjustable Hose Bed Divider

- There shall be a total of five (5) hose bed dividers provided the full fore-aft length of the hose bed with a minimum of (3) pieces of uni-strut for additional support.
- The hose bed divider shall be constructed of smooth aluminum plate. The divider shall be natural finish aluminum, not painted, for long-lasting appearance and shall be sanded and de-burred to prevent damage to the hose.
- The divider shall be adjustable from side to side in the hose bed to accommodate varying hose loads.
- There shall be a hand hole cut-out(s)

Hose Bed Cover and Flap

- A PVC vinyl coated polyester shall be installed over the apparatus hose bed.
- The PVC vinyl hosebed cover shall be fully removable.
- The rear flap shall be a separate piece of cargo material fastened at the top corners with quick release buckles connecting to a single (one 1) strap in the center and secure at the bottom with bungee cords.

- The bidder shall also supply a strap mount across side to side at the front area of the hose bed approximately two feet from the bulk head wall.

Hose Bed Swing-out Lighting Bracket

A swing-out bracket shall be provided above the rear of the hose bed for installation of rear lighting accessories. The assembly shall be painted job color.

Poly Rub Rails

Rub rail assemblies shall be provided and shall be constructed of black U.H.M.W. plastic. The U.H.M.W. black plastic rub dimensions must be a minimum of 2" thick and the dimensions must be stated in the written specifications and must be bolted to the lower perimeter exterior edge of the apparatus body, below each compartment door. They shall be spaced away from the body to protect the lift bar latch and door hardware.

***Optional Pricing**

Provide an optional price to provide stainless steel with DA finish boxed tubular rubrails

Body Fender Panels

The construction of the wheel well assemblies shall be an integral part of the overall body design. Rear fender panels shall be formed of stainless steel and shall be finish painted job color. A full description of the material being used is required.

- Bolt on rubber fenderettes shall be installed at the outer panels.
- Bolt-on 16-gauge stainless steel wheel well liners shall be installed, unpainted.
- Black rubber mud flaps shall be installed behind the rear wheels and securely fastened to the wheel well liners with stainless steel hardware.

SCBA BOTTLE STORAGE

Wheel Well SCBA Bottle Storage

There shall be four (4) compartments suitable for storage of spare SCBA cylinders or fire extinguishers (2-1/2-gallon H2O or narrow body 20 lb. dry chemical), located two on the left side and two on the right-side rear fender panels. One lap style brushed stainless steel or painted gasketed access door with positive trigger latch mechanism shall be installed per compartment.

SCBA Strap

Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment.

Fuel Fill

A recessed fuel fill shall be provided at the driver side rear wheel well area. It shall be hinged stainless steel.

PUMP MODULE

Lower Pump Module

A lower pump enclosure module shall be installed. The substructure shall be constructed entirely of stainless steel using a break-formed design for the components. The stainless-steel break-formed cross members shall support the substructure and the exterior panels independently from the cab and rear body of the apparatus. The cross members shall be isolated from the frame rails using an insulator.

The pump module shall be as wide front to back to meet all NFPA requirements for pump plumbing clearance, plus flex joints.

The pump enclosure shall be 76" wide side to side, plus running boards.

The pump enclosure shall be a free-standing module supported only by the top of the frame rails in a minimum of four places and secured with angle brackets bolted to both the pump enclosure support cross rails and the side of the chassis frame rails.

For side control units a maximum size brushed stainless steel vertically hinged pump service access door shall be installed on the right side of the pump enclosure and held closed with lift-and-turn style latches. A gas tube hold open arm shall be installed on the door.

All side panels, instrument panels, and bezels shall be cut and de-burred to eliminate sharp edges. For best uniform appearance, all brushed finish on the stainless-steel trim pieces shall run in the same horizontal direction.

Running Boards

Two (2) 3/16" non-skid aluminum treadplate running boards shall be bolted to the pump enclosure substructure. Running boards shall be a minimum of 12" deep.

***Optional Pricing**

Provide optional pricing for stainless steel floating running board trays for driver and officer side. Price option should show each individually.

Upper Pump Module

The upper pump enclosure area shall be built of stainless steel with brushed stainless-steel outer trim to blend with the lower module trim pieces.

Crosslay Preconnects

Two (2) preconnected crosslay compartments shall be provided at the front of the upper pump module. The crosslay dividers shall be adjustable 1/4" thick smooth aluminum with DA finish.

Crosslay floors shall be approximately 66" above level ground. Measurement must be shown on the engineering drawing.
NO EXCEPTIONS

The flooring shall be removable sections of maintenance free slatted slated aluminum or fiberglass material/grating. The side panels shall include provisions to allow the plumbing to terminate below each of the hose beds - **NO EXCEPTIONS on the locating of the plumbing locations**

Each of the crosslays shall accommodate up to 200' of 1.75" double jacket preconnected hose in a single stack.

Crosslay Cover

A crosslay cover shall be provided for the crosslay storage area of the pump module. The crosslay cover shall be provided in compliance with NFPA 1901.

- The crosslay cover shall be constructed from a minimum of 3/16" aluminum treadplate. The cover shall include a full-length stainless-steel piano-type hinge.
- The crosslay cover shall include applicable grab handle(s) and two (2) butterfly style latches to secure the cover in the closed position.
- The crosslay cover shall be hinged along the forward edge of the crosslay area.
- Heavy duty black nylon cargo netting shall be installed over the side openings. The covers shall be secured in place to comply with the latest edition of NFPA 1901.

Dunnage Storage Area

The remaining area above the enclosure shall be used for top open miscellaneous equipment storage. The floor in this area shall be non-skid aluminum treadplate.

PUMP PANELS

Side Mount Pump Panels

Removable brushed stainless-steel pump panels shall be installed on the left and right side of the pump enclosure. All items on these panels shall be functionally arranged. These panels shall have large cut-outs with stainless steel trim collars for ease of service of side mounted suction and discharge valves without requiring disassembly of the lower side panels for routine maintenance.

Hinged Gauge Panel

They shall be brushed stainless steel gauge panel.

- Gauge panel(s) shall be custom sized to accommodate special valve control linkages on the lower controls panel or as required for this application. All manual hand wheel and T-handle controllers shall be in a horizontal line next to one another - **NO EXCEPTION on location of controllers with the exception of the front bumper discharge if needed. RFD will evaluate an engineering position of the controller that will not fit with-in the scope of the specifications.**
- All line gauges shall be functionally arranged and located directly in-line with valve actuator controls in a vertical/horizontal plane and shall be directly corresponding. **NO EXCEPTION** This shall eliminate confusion when operating any discharge valve and monitoring discharge valve pressures. All items shall be installed in accordance with NFPA 1901 standards.
- Brushed stainless steel hooded light shields shall be installed above the left and right-side pump connection panels. Clear lens lights shall be installed under the hoods.
- Other items as required by the specifications shall be functionally arranged on the panels. Individual drain valve controls and master drain controls shall be located at the lower area of the side pump panels.

Special Color Pump Panel Tags.

The pump panel tags shall be color coded per customer specifications TBD later and to be in accordance with NFPA 1901 compliance.

Special Label Pump Panel Tags

The pump panel tags shall be provided with special labeling as per customers specifications TBD later.

Flex Joint

The area between the pump modules and body shall include a rubber flex joint.

Air Horn Switch

A heavy duty weatherproof push-button switch shall be installed at the pump operator's panel to operate the air horns.

The switch shall be labeled "Evacuation Alert".

WATER TANK

500 Gallon Tank

A minimum of 500 gallon (U.S.) "L" shaped booster tank shall be supplied.

- The booster tank shall be constructed of polypropylene material. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal.
- The tank shall have a combination vent and manual fill tower with a hinged lid.
- The capacity of the tank shall be engraved on the top of the fill tower lid.
- The sump shall have a minimum 3" N.P.T. threaded outlet for a drain plug per NFPA.
- All partitions and spacing shall comply with NFPA 1901
- Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with an I.D. of 3" or larger that is designed to run through the tank.
- The booster tank shall undergo extensive testing prior to installation in the truck. All water tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale.
- Each tank shall be weighed empty and full to provide precise fluid capacity. Each tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.
- A tag shall be installed on the apparatus in a convenient location and contain pertinent information including a QR code readable by commercially available smart phones. The information contained on the tag shall include the capacity of the water and foam (s), the maximum fill and pressure rates, the serial number of the tank, the date of manufacture, the tank manufacturer, and contact information. The QR code will allow the user to connect with the tank manufacturer for additional information and assistance.

- The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.
- Tank capacity is 500 US gallon

Fill Tower Location

Fill tower(s) shall be located offset to officer side of water tank.

TANK PLUMBING

Tank Fill 2" Akron Valve

One (1) 2" pump-to-tank fill line having a 2" manually operated full flow valve. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times. The fill line shall be controlled using a chrome handle with an integral tag.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Tank to Pump

One (1) manually operated 3" Akron valve shall be installed between the pump suction and the booster tank. Includes flex hose with stainless steel hose clamps for connection to the 4" tank sump outlet. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

FOAM TANK

30 Gallon Foam Tank

A 30- gallon (U.S.) foam cell for Class A foam shall be supplied. The foam cell shall be integral to the water tank or separate of the water tank.

- The tank shall be constructed of polypropylene material.

- The foam tank shall have a manual fill tower. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter
- Foam fill tower shall be constructed of a Green colored material indicating type of foam utilized. The capacity of the tank shall be engraved on the top of the fill tower lid.
- A pressure vacuum vent shall be provided in the lid of the fill tower. The foam fill tower shall be removable to facilitate the cleaning of the foam tank.
- The foam tank shall undergo extensive testing prior to installation in the truck. All foam tanks shall be tested and certified as to capacity. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.
- The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.

Foam Tank Drain

Foam tank drain plumbed to side panel with valve and 3/4" male garden hose connection. To allow filling of remote foam unit and pails from tank.

PUMPS

Fire Pump System

The pump shall be a midship-mounted Hale QMAX 1500 GPM single stage centrifugal pump.

Discharge Manifold

The pump system shall utilize a stainless-steel discharge manifold system. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel.

Pump Shift

The pump shift shall be pneumatically-controlled using a power shifting cylinder.

Test Ports

Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump.

Gearbox Cooler

A gearbox cooler shall be provided to maintain safe operating temperatures during prolonged pumping operations for pump rating 1500 GPM and over.

PUMP CERTIFICATION

Pump Certification

The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. The pump shall be tested at the manufacturer's facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in current NFPA 1901.

The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.

A piping hydrostatic test shall be performed as outlined in current NFPA 1901.

The pump shall deliver the percentage of rated capacities at pressures indicated below:

- 100% of rated capacity at 150 psi net pump pressure
- 100% of rated capacity at 165 psi net pump pressure
- 70% of rated capacity at 200 psi net pump pressure
- 50% of rated capacity at 250 psi net pump pressure

A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-load governed speed of the engine.

A Certificate of Inspection certifying performance of the pump and all related components shall be provided at time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer's Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer.

Zinc Anodes [QTY: 2]

Two (2) Zinc Anodes will be installed in the pump. The zinc anodes help prevent damage caused by galvanic corrosion within the fire pump. The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One anode will be located on the suction side and one will be located on the discharge side of the pump.

Steamers, Flush+1

The pump's two 6" steamer intake(s) shall be mounted approximately 1" from the pump panel to back of cap when installed.

Inlet MIV Valve

A Hale Master Intake Valve (MIV) shall be provided on both the driver and officer's side intakes.

- The inlet valve shall be operated by a manual handwheel control located on the side panel. The gear actuator on the valve will cycle from full closed to full open in not less than 3 seconds.
- An indicator light panel shall be located at the pump operator's position to show valve open, closed, or traversing from open to closed.

- A built-in adjustable pressure relief valve shall be provided. The pressure relief valve shall be factory set to 125 psi. The pressure relief valve shall provide overpressure protection for the suction hose even when the intake valve is closed.
- A 3/4" air bleeder valve shall be provided and controlled at the pump operator's position.
- A 1/4" water bleeder shall be supplied and controlled at the pump operator's position.

Pump Seal Packing

The pump shaft shall have only one (1) packing gland located on the inlet side of the pump. It shall be of split design for ease of repacking.

- The packing shall be easily adjusted by hand with rod or screw driver with no special tools or wrenches required.

Master Drain Valve

A manual master drain valve shall be installed on the pump panel.

- The manual master drain valve shall have twelve (12) individual-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.
- The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.

Bleeder Drain Valve

The bleeder/drain valves shall be 3/4" ball brass drain valves with chrome-plated lift lever handles and ergonomic grips. Each lift handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve. The color labels shall also include valve open and close verbiage.

***Optional Pricing**

Change the 3/4" bleeder valves to be 1/4" turn valves and recess all drain valves on the pump panel, if the option of the floating tray(s) is selected. Each side has to be priced separately, but if only one side selected to recess an option floating tray and recessed valves, all valves will be 1/4" turn.

Trident Primer

A Trident air operated priming system shall be installed.

Air Flow Requirements

The primer shall require a minimum of 15.6 cubic foot per minute air compressor and shall be capable of meeting drafting requirements at high idle engine speed. The air supply shall be from a chassis supplied "protected" air storage tank with a pressure protection valve. The air supply line shall have a pressure protection valve set between 70 to 80 PSIG.

Primer Control

The primer control shall have a manually operated, panel mounted "push to prime" air valve. The valve shall direct air pressure from the air brake storage tank to the primer body. To prevent freezing, no water shall flow to and from the panel control.

Warranty

The primer shall be covered by a five (5) year parts warranty.

Valves

All intake, discharge and relief valves shall be the Akron brand – NO EXCEPTIONS

INTAKES

Front Intake with Valve 5" with Relief Valve

A 5" stainless steel pipe shall extend from the right intake side of the pump to the front of the apparatus. The intake shall be controlled by a 5" butterfly valve and shall be air operated and controlled from the operator's panel.

- A valve(s) shall be provided to allow water to be drained.
- An adjustable pressure relief valve shall be provided.
- The pressure relief valve shall be factory set to 125 psi.
- A 1/4" air bleeder valve shall be provided and controlled at the pump operator's position.

Front Intake Swivel 6 Painted Job Color

A heavy-duty 6" 90-degree swivel cast brass elbow painted job color:

- The ability to rotate 180 degrees.
- A rugged twist-lock mechanism to hold the elbow in place at the desired position.
- A double-ball race with bronze balls.
- A 5.0" NPT free swivel female inlet.
- A 6.0" NHT male outlet with strainer.
- The elbow/swivel shall be mounted so that it extends above the extended front bumper.
- **Optional pricing for a recessed front intake center mounted**

Left Intake 2.5" Akron Valve

One (1) 2-1/2" suction inlet with a manually operated 2-1/2" Akron valve shall be provided on the left side pump panel.

- The valve shall be an Akron 8800HD series
- The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel.
- The valve shall come equipped with a brass inlet strainer, 2-1/2" NST female chrome inlet swivel.
- Shall be equipped with a chrome plated rockerlug plug with a retainer device.

- The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.
- All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.
- A 3/4" bleeder valve assembly will be installed on the left side pump panel.

Intake Relief Valve

The pump shall be equipped with an Akron style 59 cast brass, variable-pressure-setting relief valve on the pump suction side.

Combination Left Rear Intake/Discharge

Optional pricing for separate rear intake and discharge.

A minimum of 4" stainless steel pipe shall be used

Intake Side of the 4/5" plumbing

- A quarter turn valve shall be provided to allow water to be drained from the intake.
- An intake relief valve shall be installed external of the butterfly valve in the pump area.
- A 9323 Valve Controller from Akron Brass provided for the intake side.

Discharge side of the 4/5" plumbing

- A Minimum of a 4" Right Rear Discharge with 4" Akron Electric valve "T" into the rear intake plumbing. Where the rear intake can be utilized as an Intake or Discharge.
- A 4" panel discharge with an Akron electric actuated 8800HD series valve shall be provided.
- An Akron Brass Style 9333 Valve Controller shall be used for the discharge.

Rear Intake/discharge Adaptor

- There shall be a 4/5" NPT X Swivel FT 3.5" X 3.218 X 6 threads per each fitting with a cap with a theater chain.
- There shall be a 30- degree elbow with a FT Swivel 3.218 X 6 threads per inch to 3.218 X 6 threads per inch MT with a cap and chain.
- There shall be a 3.5" X 3.5" double male at 3.218 X 6 threads per inch
- All electric valves should be provided with easily accessible manual overrides

Discharge Plumbing

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Discharge 2.5" Front Bumper Akron Manual

One (1) 2-1/2" preconnect outlet with a manually operated Akron valve shall be supplied to the extended front bumper. Located above the bumper area located on top of the gravel shield.

- The valve shall be an Akron 8800HD series
- An air blow-out valve shall be installed between the chassis air reservoir and the front jump line. The control shall be installed on the pump operator's panel.
- The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.
- All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Polished Stainless-Steel Swivel Elbow

There shall be a polished stainless-steel swivel elbow provided for the front bumper discharge located on top of the bumper driver's side outboard.

Left Pump Panel 2.5" Discharge Akron Valve

Two (2) 2-1/2" discharge outlet with a manually operated Akron valve shall be provided at the left-hand side pump panel.

- The valve shall be an Akron 8800HD series
- Location: left side discharge #1, left side discharge #2.

Right Front 2.5" Hose Bed Akron Valve

One (1) 2-1/2" preconnect outlet with a manually operated Akron valve shall be supplied to the lower right of the apparatus hose bed.

- The valve shall be an Akron 8800HD series

Right Rear 1.5" Discharge Akron Valve

Two (2) 1.5" discharge outlets with a manually-operated Akron valve shall supplied to the right rear of the apparatus by a 2" stainless steel pipe. The discharge shall terminate with a chrome 1.5" male NST adapter.

- The valve shall be an Akron 8800HD series
- Location: right rear discharge #1, right rear discharge #2 (inboard or below).

Right Side 4" Hand wheel Discharge

One (1) 4" diameter discharge outlet with a hand wheel controlled Akron valve shall be provided at the side pump panel.

- The valve shall be an Akron 8840HD series
- The Trident hand wheel valve control shall have the following features:
- The valve controls and indicators shall be located at the pump operator's panel.
- Location: right side discharge #1.

- The discharge threads shall be MT 3.5" X 3.218 X 6 treads per each
- There shall be a 30- degree elbow with a FT Swivel 3.218 X 6 threads per inch to 3.218 X 6 threads per inch MT, with a cap and chain

Right Panel 2.5" Discharge Akron Valve

One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be provided at the right-side pump panel.

- The valve shall be an Akron 8800HD series
- Location: right side discharge #2.

1.5" Single Crosslay Akron Valve

Two (2) single crosslay discharge shall be provided at the front area of the body. The crosslay shall include one (1) 1-1/2" hose connection to permit the use of hose from one side of the apparatus.

- The crosslay hose bed shall consist of a 2" heavy-duty hose coming from the pump discharge manifold to the hose connection. The hose shall be connected to a manually operated 2" Akron valve. The valve shall be an Akron 8800HD series.
- Location: 1.5" first crosslay driver side, 1.5" second crosslay on officer side.

Deck Gun 3" Discharge Akron Valve

One (1) 3" deck gun discharge outlet with a manually operated Akron valve and 3" stainless steel pipe shall be provided above the pump compartment.

- The valve shall be an Akron 8800HD series
- The valve shall be equipped with a device that limits the opening and closing speeds to comply with the current edition of NFPA 1901.
- The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

Extend-A-Gun

A minimum of an 18" Extend-A-Gun piping shall be supplied for the deck gun discharge to allow for raising and lowering the deck gun monitor.

- The Extend-A-Gun shall include a raised monitor sensor connected to the door ajar light.

Monitor Akron

Akron Apollo 3423 portable/deck monitor on ground base. To include stacked tips, discharge pipe 2499 dual 2.5" NH inlet tubes and direct truck mount base, 800/1250 GPM. 2.5" NH outlet.

Trident Hand Wheel Control

Nine (9) 4" Trident Tru-Flo hand wheel valve controls shall be located on specify discharge outlet. This Hand-Wheel and Dial Indicator utilizes magnets to maintain the dial face in a stationary and readable orientation as the Hand-Wheel is rotated to fully open or closed valve positions.

Location of additional hand wheel control are the:

- (1) Right side 4" discharge that is already specified
- (1) Front bumper
- (1) Right front 2.5" hosebed
- (2) Right rear 2" discharges
- (1) 2.5" right panel discharge
- (2) 2" crosslays
- (1) 3" deck gun

Optional pricing for pull levers vs hand wheel controls.

Push/Pull Controller for the Booster Reel Discharge

The apparatus pump panel shall be equipped with side mount valve controls. The ergonomically designed ¼ turn push-pull T-handle shall be chrome-plated zinc with recessed labels for color-coding and verbiage for the booster reel only.

Discharge/Intake Bezel

Intake and/or discharge swing handle bezels shall be installed. These bezel assemblies will be used to identify intake and/or discharge ports with color and verbiage.

Booster Hose Reel

A Hannay booster electric reel shall be provided and located Dunnage pan offset to officer side.

- The booster reel shall be constructed utilizing an all-aluminum welded base.
- All electrical switch connections shall be coated to protect against moisture.
- The booster reel shall have a capacity for up to 200` of 1" booster hose.
- Plumbing to the reel shall be a 1-1/2" flexible line with the discharge control located at the operator's control panel.
- All fabricated piping shall be constructed of a minimum of Schedule 10 stainless steel pipe to reduce corrosion of the lines.
- A 1" pistol grip Akron Assault combination fog and straight stream booster nozzle constructed of lightweight pyrolite with dual handle stops shall be supplied.
- Two (2) 100` section of 1" synthetic rubber booster hose shall be supplied. Couplings shall have a bright finish.
- A 1/4" valve shall be installed between the chassis air system and the hose reel. This valve shall be mounted at the pump operator area. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag There shall be a check valve in the air line to prevent water from entering the chassis air system.
- Two (2) heavy-duty rubber covered electric reel rewind button shall be installed to assist with rewinding the deployed hose.
 - a) Location: driver side pump panel, officer side pump panel.
- Two (2) booster reel roller assembly shall be provided on the Driver and officer's side.

- b) The roller assembly shall include chrome guides with nylon bushings and shall be mounted on the side next to the booster reel allowing easy deployment on both the driver and officer's side.
- There shall be Two (2) pistol grip mounts located one each side mounted on the pump panels.

PRESSURE GOVERNORS

FRC TGA400 Governor

Fire Research IN Control series TGA400-A00 pressure governor and monitoring display kit shall be installed.

4" Master Pressure Gauges w/Bezel or Greater

The master intake and master discharge gauges shall be 4" or greater in size pressure gauges in addition to the pressure governor gauges.

The master gauges shall be installed on the pump panel no more than 6 inches apart. The gauge on the left shall be the master pump intake gauge and display a range from 30" vac to 400 psi with black graphics on a white background. The gauge on the right shall be the master pump discharge gauge and display a range from 0 to 400 psi with black graphics on a white background.

WATER TANK LEVEL LED GAUGE

One (1) water tank level gauge shall be located at the pump operator's panel to provide a high-visibility display of the water tank level.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.

FOAM TANK LEVEL LED GAUGE

One (1) foam tank level gauge shall be located at the pump operator's panel to provide a high-visibility display of the foam tank level.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.

Discharge Gauges

The valve discharge gauges shall be 2 ½" (63mm) diameter pressure gauges. Each gauge shall have a rugged corrosion free stainless-steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40F to +160F. Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

A polished chrome-plated stainless-steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauges shall display a range from 0 to 400 psi with black graphics on a white background.

ELECTRICAL SYSTEMS

Multiplex Electrical System

Electrical System

The apparatus shall incorporate a V-MUX multiplex 12-volt electrical system. The system shall have the capability of delivering multiple signals via a CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA 1901 standards.

The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.

The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The over-current protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.

Multiplex System

For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:

- The network system must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this application.
- Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.
- All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.
- Each module that controls a device shall hold its own configuration program.
- Each module should be able to function as a standalone module. No "add-on" module will be acceptable to achieve this form of operation.
- Load shedding power management (8 levels).
- Switch input capability for chassis functions.
- Responsible for lighting device activation.
- Self-contained diagnostic indicators.
- Wire harness needed to interface electrical devices with multiplex modules.
- The grounds from each device should return to main ground trunk in each sub harness by the use of ultrasonic splices.

Wiring

All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines. No exceptions.

- NFPA 1901-Standard for Automotive Fire Apparatus
- SAE J1127 and J1127
- IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies. (Class 3 – High Performance Electronic Products)
- All wiring harness securement shall be provided with stainless steel hard clamps with a minimum of plastic wire ties used in these areas.

Wiring Protection

The overall covering of the conductors shall be loom or braid.

Wiring Connectors

All connectors shall be Deutsch series unless a different series of connector is needed to mate to a supplier's component. The connectors and terminals shall be assembled per the connector/terminal manufacturer's specification. Crimble/Solderless terminals shall be acceptable. Heat shrink style shall be utilized unless used within the confines of the cab.

NFPA Required Testing of Electrical System

The apparatus shall be electrical tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with delivery documentation per requirements of NFPA 1901. The following minimum testing shall be completed by the apparatus manufacturer:

1. Reserve capacity test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test fail.

2. Alternator performance test at idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

3. Alternator performance test at full load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded by excessive battery discharge, as detected by the system required in NFPA 1901 Standard, or a system voltage of less than 11.7 volts DC for a 12-volt nominal system, for more than 120 seconds, shall be considered a test failure.

4. Low voltage alarm test:

Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts DC for a 12-volt nominal system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

NFPA Required Documentation

The following documentation shall be provided on delivery of the apparatus:

- A. Documentation of the electrical system performance tests required above.
- B. A written load analysis, including:
 - a. The nameplate rating of the alternator.
 - b. The alternator rating under the conditions.
 - c. Each specified component load.
 - d. Individual intermittent loads.

Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1901.

Occupant Detection System

There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.

Multiplex Display

The V-MUX multiplex electrical system shall include a Vista color display.

The display shall be located driver's side engine cover.

Electrical Connection Protection

A corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body.

Smart Truck Technology

The apparatus shall be equipped with a smart truck technology system designed specifically for first responder apparatus. The system shall interconnect major apparatus CAN networks including but not limited to the chassis J1939/OBD2 data, vehicle multiplex system, water pump pressure governor, electric valves and electric actuated deck gun. The system shall securely report real-time vehicle information from these systems via cellular data to a globally supported cloud computing service for storage and real time access via web dashboards. The dashboards shall be accessible by the department's computers, tablets and smartphones.

The smart truck technology installed on the apparatus shall provide real-time notification via text or e-mail when a check engine light is displayed. The notification shall include the fault code and brief explanation for the code to reduce down-time.

The system shall feature a truck down feature on the web-based user interface to allow instant notification of needed apparatus service to both the authorized dealership and OEM via text or e-mail.

The system shall provide remote diagnostics of vehicle subsystems such as VMUX, pressure governors, electric monitors and electric valves.

By use of the web-based user interface, the system shall allow for over the air programming updates to various subsystems should the need arise.

The web-based user interface shall also provide the following:

- Fuel and DEF levels
- GPS tracking
- Data logging for apparatus multiplex system
- Easy access to the NFPA VDR data

The smart truck technology shall also feature seamless integration to the HAAS ALERT Safety Cloud providing Responder to Vehicle (R2V) alerts to motorists using navigation apps such as WAZE.

The system shall be designed with an open architecture to incorporate future growth with new technology partners designed to enhance fireground operations

Hardware

Vehicle Gateway

The vehicle gateway module shall be rugged in construction using a durable cast aluminum enclosure designed for emergency vehicle applications. The module shall have sealed Deutsch connectors providing four (4) CAN network ports, one (1) RS-485 port, one (1) Ethernet RJ45 port, one (1) USB port, embedded cellular modem, Bluetooth and GPS capability. The IoT Core Vehicle Gateway shall be capable of 2 way vehicle telemetry, supporting both remote diagnostics and remote over-the-air software updates.

Antenna

A low profile cellular antenna shall be installed on the cab roof.

Data Plan

A 5 year data plan shall be provided with the initial vehicle purchase. At the end of the 5 year period the department shall be given the option to extend service.

Compartment Light Package

One (1) Amdor Luma-Bar LED compartment light strip shall be mounted in each body compartment. Greater than 4 cu. ft.

Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel.

Ground Lights

The apparatus shall be equipped TecNiq model T440 4" circular LED the wiring connections shall be made with a weather resistant plug in style connector.

- Ground area lights shall be switched from the cab dash with the work light switch.
- One (1) ground light shall be supplied under each side of the front bumper extension if equipped.
- Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened.

Hose Bed Light

Two (2) Federal Signal GHSCENE flush-mounted scene light or flush mounted LED lights with a clear lens shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901.

- The hose bed light shall be switched with work light switch in the cab.
- The hose bed light shall be activated when the chassis is placed in reverse to provide additional lighting, in addition to the back-up lights, when backing the vehicle.

Deck/Scene Light Wired to Back-Up Lights

The rear deck or scene lights shall be activated when the chassis is placed in reverse to provide additional lighting, in addition to the back-up lights, when backing the vehicle.

Deck Lights

Two (2) Whelen PFBP12C floodlights with black housing and chrome rear covers shall be installed at the rear of the apparatus. The rear deck lights shall be switched with the work light switch in the cab.

- Location: (1) each side on stanchions inboard of warning lights.

Crosslay Light

A Whelen LED light model PFBP12C shall be installed at the rear area of the crosslay to provide crosslay lighting per current NFPA 1901.

- The crosslay light shall be switched with work light switch in the cab.

LIGHTS - NON-WARNING

Light Wiring

Forward pump panel light at the pump operator's panel shall be wired to the pump shift to provide pump panel illumination when the pump is placed into gear. Top mount application center light at the pump operator's panel shall be wired to the pump shift to provide pump panel illumination when the pump is placed into gear.

Pump Compartment LED Light

An LED light shall be provided in the pump compartment area for NFPA compliance. The light shall be wired to operate with the work light switch in the cab.

LED Pump Panel Light Package

A minimum of Three (3) LED lights shall be mounted under a light shield directly above each side pump panel.

- The work light switch in the cab shall activate the lights when the park brake is set.

Engine Compartment Light

There shall be lighting provided to illuminate the engine compartment area in compliance with NFPA 1901.

- The light shall be LED

CAMERAS / INTERCOM

Camera Back-Up

There shall be a camera provided and mounted on the rear of the apparatus. The camera shall feature a wide-angle lens.

- When the apparatus is placed in reverse the camera shall automatically be activated and when the transmission is placed in any other gear the screen shall return to the previously displayed screen.
- The camera shall be located at the rear of the truck, up as high as possible. Optimize mounting position using space not allocated by other equipment/options unless otherwise specified.

Intercom System

A David Clark model 3800 intercom system shall be provided with four (4) headset jacks in the cab.

The system shall include:

- One (1) U3800 master station.
- One (1) U3811 Radio interface module/headset station.
- One (1) U3815 Radio interface/headset station.
- One (1) C3408 Jumper cord. 8ft.
- One (1) C38-12 Jumper cord. 12ft.
- One (1) C3820 Power cord. 20ft.
- Four (4) 43200G-01 Headset hangers

David Clark Headset

Two (2) David Clark behind the head dual ear model H3442 headsets shall be provided and shipped loose.

The headset shall feature:

- M-7A noise canceling electret microphone
- Hybrid wire/flex boom assembly, 280° rotating, for perfect microphone placement on left or right side
- Dynamic earphone elements
- Advanced Undercut Gel Ear Seals for superior comfort
- Microphone on/off switch
- 6 ft. extended coil cord
- Adjustable overhead support assembly
- Carbon steel nape-band spring, black finish, rotates for left or right-side mic positioning

- Independently Certified NRR: 23dB

Knox Secure System

A Knox Keysecure system 6 shall be included. Location TBD at the pre-conference.

Back-Up Alarm

An electronic back-up alarm shall be supplied. The 97 dB alarm shall be wired into the chassis back-up lights to signal when the vehicle is in reverse gear.

Lighted Bumper Guides

One (1) pair of Bores Manufacturing model 848211 lighted bumper guides shall be provided. The guides shall be installed one (1) each side of front bumper extension.

12 Volt DC Power Distribution Module

There shall be a 12 place 12-volt DC power distribution module installed as specified.

The module will have six (6) circuits wired directly to the battery and have six (6) circuits wired through the master battery switch with 12 positions for grounds. Connection to the power module circuit will be through a .250 female spade connector. Each buss will be protected with a 50-amp circuit breaker for overload protection. The module will accept ATC blade type fuses or 22X series circuit breakers.

The module shall be located behind officer's seat.

LIGHTS - QUARTZ

LED Flood Light

One (1) FireTech 12V LED bracket mounted mini-brow flood light model FT-MB-27-B 35" long shall be provided. The light shall feature 27 LEDs` producing 9,317 usable lumens. The 135W 12V light shall draw 11.25 amps. A switch shall be provided, accessible to driver, for activation of light.

The light assembly shall be located below directional light on swing-arm bracket at rear of body above hose bed.

Whelen Pioneer 12V LED Flood Light [QTY: One (1) single - One (1) pair]

A Whelen Pioneer Plus series 160-watt 12V flood light model PFH2 dual panel LED light head shall be provided on a cab brow mount. The rectangular extruded light fixture with die cast end caps shall measure 14" wide by 4.25" high by 3" deep and have a white powder coat finish. The light fixture shall have thirty-six (36) white Super-LEDs with molded vacuum metalized reflector that draws 13 amps and produce 17,750 usable lumens. – **NO EXPECTATIONS**

- Location(s): center of front cab brow, driver and officer side over rear cab door

RECEPTACLES

Receptacle

Three (3) 20-amp, 110 volt 3-prong straight blade NEMA 5-20 duplex household receptacles with stainless steel cover plate shall be installed in a non-weather exposed area as specified by the department. The receptacle shall be wired to the inlet receptacle where it will have overcurrent protection from an external source.

- Location: In cab driver side and officer side in the rear just above engine cover and the rear wall of officer side medical compartment up high.

MISC LOOSE EQUIPMENT

Two (2) Zico model SAC-44 folding wheel chocks.
Four (4) Streamlight Vulcan handlights with on board chargers.
Two (2) Sets of Irons (flathead axe / 30" Probar)
Two (2) NY steel roof hooks. Six and Ten foot with chisel ends

Mounting locations to be determined by the RFD.

DOT Required Drive Away Kit

Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.

Tool and Equipment mounting

There shall be a \$15,000.00 allowance PER TRUCK for equipment and tool mounting. This will be performed at the dealer location after initial delivery of the apparatus. Location of equipment will be determined by the RFD.

EXTERIOR PAINT

Pump/Pre-Connect Module(s)

All applicable pump application modules can have a sanded finish which is not painted or painted job color. Bidder must specify.

Paint Wheels

The exterior outer chassis wheels shall be painted Job Color. Corrosion Prevention - all raw material shall be pre-treated with the Weather Jacket Corrosion Prevention system to provide superior corrosion resistance and excellent adhesion of the top coat.

Paint Custom Cab

The apparatus cab shall be painted to customer's specified colors. Color codes will be provided when contract is awarded.

- A paint sample spray out of the base cab / body paint color will be provided for approval prior to painting.
- The stainless steel or aluminum cab exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces.
- Cab doors and any hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on cab, door jambs and door edges.
- Any location where stainless steel or aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control).
- The pre-treatment shall be applied to the stainless steel or aluminum sheet metal or aluminum extrusions in all locations where the stainless steel or aluminum has been penetrated.

- All hardware used in mounting steps, hand rails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.
- After the paint process is complete, the gloss rating of the unit shall be tested with a 20-degree gloss meter.
- Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

Paint Stainless Steel Body

Exterior Body Surfaces painted

- FRP (fiber reinforced) panels can be provided and are preferred.
- The stainless-steel outer side of body panels shall not be covered with aluminum treadplate.
- Also, chassis frame rails, chassis components, fire pump and all piping should be painted job color red.

Polished Surfaces

- The vertical stainless steel Unistrut channels located on the exterior of the hose body side panels shall have a hand polished appearance.
- The reinforcing edges of the hose body side panels and trailing edges of the beavertails (if equipped) shall have a machine sanded DA finish.
- Polished stainless-steel vertical corner trim scuff guards shall be installed on the outer front and rear body corners.

Painting Information

The final finishing of the vehicle shall be performed to the highest standards of the fire apparatus industry.

All removable components and accessories shall be fitted to the body and then removed prior to final finishing, ensuring paint has been applied under all components and accessories.

Care shall be taken during paint preparation to properly fill all surface imperfections. Welded seam areas shall be ground flush and metal finished. Bare metal surfaces shall be etched chemically to ensure proper adhesion. The primer shall be sanded to assure a smooth surface for painting.

The interior of all compartments shall have a machine sanded DA finish or painted.

The interior of the hose bed shall be provided with a machine sanded DA finish that shall not be painted.

Undercoating

Undercoating shall consist of a heavy coating of soft seal film sprayed on the entire underside of the vehicle to repel water and road elements. Shall be applied after customer final inspection.

INTERIOR PAINT

Cab Interior Paint

The interior of the cab shall be painted Zolatone gray. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

LETTERING

Scotchlite Letter

Twenty-Five (25) Scotchlite letters up to 6" tall shall be applied.

The exact size, color and location of the letters shall be as specified by the customer.

Scotchlite Letter

Five (5) Scotchlite letters taller than 12" shall be applied.

The exact size, color and location of the letters shall be as specified by the customer.

Lettering Shade and/or Outline

Thirty (30) provided letters shall be shaded and/or outlined as specified by the customer to provide a contrast.

STRIPING

Cab and Body Stripe

- A single straight Scotchlite White stripe 6" in width shall be installed on the cab and body.
- An additional Scotchlite stripe in Gold 1" in width shall be installed on the cab and body above and below the 6" White strip with a ½" space between the strips.
- The stripe shall be NFPA compliant and the size, color and location shall be as specified by the customer.

Rear Body Scotchlite Striping

Printed chevron style Scotchlite striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Red/Lemon Yellow alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels, doors and inboard/outboard of the beavertails if applicable.

Front Bumper Scotchlite Striping

Chevron style printed Scotchlite striping shall be provided on the front bumper of the apparatus. The stripes shall consist of 6" Red/Lemon Yellow alternating stripes in an "A" pattern.

Designated Standing / Walking Area Indication

1" wide yellow perimeter marking consisting of individual Reflexite diamonds shall be applied to indicate the outside edge of designated standing and walking areas above 48" from the ground in compliance with 2016 NFPA 1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement.

GRAPHICS

Customer Logo

Four (4) customer logos shall be supplied by RFD and installed by the manufacturer. The logo shall be located on reference graphics layout drawing.

SUPPORT, DELIVERY, INSPECTIONS AND MANUALS

Approval Drawings for Construction

A general arrangement drawing depicting the vehicles appearance shall be provided. The drawing shall consist of left side, right side, front, top and rear elevation views.

Vehicles requiring pump controls shall include a general arrangement view of the pump operator's position, scaled the same as the elevation views.

Electronic Manuals

Two (2) copies of all operator, service, and parts manuals **MUST** be supplied at the time of delivery in digital format -**NO EXCEPTIONS!** The electronic manuals shall include the following information:

- Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, aerial (if applicable), installed components, and auxiliary systems.
- Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems.
- Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.
- Instructions regarding the frequency and procedure for recommended maintenance.
- Maintenance instructions for the repair and replacement of installed components.
- Parts listing with descriptions and illustrations for identification.
- Warranty descriptions and coverage.

Temporary Registration

Thirty (30) day temporary registration / tags shall be provided with the apparatus effective on the date of delivery.

Fire Apparatus Safety Guide

Fire Apparatus Safety Guide published by FAMA, latest edition.

WARRANTY / STANDARD & EXTENDED

3 Year Warranty

The apparatus manufacturer shall provide a full 3-year standard warranty. All components manufactured by the apparatus manufacturer shall be covered against defects in materials or workmanship for a 3-year period. All components covered by separate suppliers such as engines, transmissions, tires, and batteries shall maintain the warranty as provided by the component supplier. A copy of the warranty document shall be provided with the proposal - **NO EXCEPTIONS**

Lifetime Frame Warranty

The apparatus manufacturer shall provide a full lifetime frame structural warranty. This warranty shall cover all apparatus manufacturer designed frame, frame members, and cross-members against defects in materials or workmanship for the lifetime of the covered apparatus. A copy of the warranty document shall be provided with the proposal. Frame warranties that do not cover cross-members for the life of the vehicle shall not be acceptable - **NO EXCEPTIONS**

25 Year Frame Rail Corrosion Warranty

The chassis manufacturer shall provide a minimum of a 25-year corrosion warranty on the chassis frame rails. This warranty shall cover the chassis frame rails, including frame rail liners (if equipped), for a period of 25 years after the date on which the vehicle is delivered to the original purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions - **NO EXCEPTIONS**

20 Year Frame Components Corrosion Warranty

The chassis manufacturer shall provide a 20-year corrosion warranty on the galvanized chassis frame components. This warranty shall cover the front frame extensions, chassis crossmembers (from engine rearward), battery tray brackets and rear underbody support (if applicable) for a period of 20 years after the date on which the vehicle is delivered to the original purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions - **NO EXCEPTIONS**

Cab and Body Structural Warranty

The apparatus manufacturer shall provide a minimum 10-year structural warranty. This warranty shall cover all structural components of the cab and/or body manufactured by the apparatus manufacturer against defects in materials or workmanship for 10-years or greater. The bidder must clearly advise the structure warranties of their cab and body. A copy of the warranty(s) document shall be provided with the proposal - **NO EXCEPTIONS**

Stainless Steel Plumbing Warranty

The apparatus manufacturer shall provide a minimum of a full 10-year stainless steel plumbing components warranty. This warranty shall cover defects in materials or workmanship of apparatus manufacturer designed foam/water plumbing system stainless steel components for 10 years. A copy of the warranty document shall be provided with the proposal - **NO EXCEPTIONS**

Paint

The apparatus manufacturer shall provide a minimum of a 10-year non-prorated paint and corrosion perforation warranty for the body. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner - **NO EXCEPTIONS**

The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. A copy of the warranty document shall be provided with the proposal.

Custom Cab/Body Paint and Corrosion Warranty

The apparatus manufacturer shall provide a minimum 10-year limited paint and corrosion perforation warranty for the custom cab/body. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in normal and reasonable manner.

NON-COLLUSION AFFIDAVIT

INSTRUCTIONS FOR NON-COLLUSION AFFIDAVIT

1. This Non-Collusion Affidavit is material to any contract pursuant to this bid. According to the Pennsylvania Antibid-Rigging Act, 73 P.S. 1611 et seq., governmental agencies may require Non-Collusion Affidavits to be submitted together with bids.
2. This Non-Collusion Affidavit must be executed by the member officer, or employee of the bidder who is authorized to legally bind the bidder.
3. Bid rigging and other efforts to restrain competition, and the making of false sworn statements in connection with the submission of bids are unlawful and may be subject to criminal prosecution. The person who signs the Affidavit should examine it carefully before signing and assure himself or herself that each statement is true and accurate, making diligent inquiry, as necessary, of all other persons employed by or associated with the bidder with responsibilities for the preparation, approval or submission of the bid.
4. In the case of a bid submitted by a joint venture, each party to the venture must be identified in the bid documents, and an Affidavit must be submitted separately on behalf of each party.
5. The term “complementary bid” as used in the Affidavit has the meaning commonly associated with that term in the bidding process, and includes the knowing submission of bids higher than the bid of another firm, any intentionally high or noncompetitive bid, and any form of bid submitted for the purpose of giving a false appearance of competition.
6. Failure to file an Affidavit in compliance with these instructions will result in disqualification of the bid.

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____

County of _____

_____, being first duly sworn, deposes and says that:

(1) He/She is _____
(Owner, Partner, Officer, Representative or Agent)

of _____, the Bidder that has submitted the attached Bid or Bids;

(2) He/She is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers; partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication of conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overheld profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of Reading or any person interested in the proposed Contract;

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant; and,

(6) Neither the said Bidder nor any of its officers, partners, owners, agents or parties in interest, have any interest, present or prospective, that can be reasonably construed to result in a conflict of interest between them and the City of Reading, which the Bidder will be required to perform.

I state that _____ (Name of Firm) understands and acknowledges that the above representations are material and important, and will be relied on by the City of Reading in awarding the Contract(s) for which this Bid is submitted. I understand and my firm understands that any misstatement in this Affidavit is and shall be treated as fraudulent concealment from the City of Reading of the true facts relating to the submission of bids for this Contract.

(Name and Company Position)

SWORN TO AND SUBSCRIBED
BEFORE ME THIS _____ DAY
OF _____, 20____

Notary Public

My Commission Expires:

NON DISCRIMINATION STATEMENT

The undersigned hereby certifies that it shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, handicap, familial status, or national origin. The undersigned shall take affirmative action to insure that applicants for employment are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, handicap, familial status, or national origin.

BIDDER

TITLE

**PROVIDER’S CERTIFICATION OF NON-INDEBTEDNESS
TO THE CITY OF READING**

Provider hereby certifies and represents that Provider and Provider’s parent company(ies) and subsidiary(ies) are not currently indebted to the City of Reading (the “City”), and will not at any time during the term of this Contract (including any extensions or renewals thereof) be indebted to the City, for or on account of any delinquent taxes, liens, judgments, fees or other debts for which no written agreement or payment plan satisfactory to the City has been established. In addition to any other rights or remedies available to the City at law or in equity, Provider acknowledges that any breach or failure to conform to this certification may, at the option of the City, result in the withholding of payments otherwise due to Provider and, if such breach or failure is not resolved to the City’s satisfaction within a reasonable time frame specified by the City in writing, may result in the offset of any such indebtedness against said payments and/or the termination of this Contract for default (in which case Provider shall be liable for all excess costs and other damages resulting from the termination).

Name of Provider

By: _____
Authorized Signatory

Title: _____
President or Vice President

Attest: _____

PRICING SHEET

PROPOSAL

FOR

FIRE TRUCK

CITY OF READING, PENNSYLVANIA

Proposal of

(name)

(address)

TO: Mayor Eddie Moran
City of Reading
815 Washington Street
Reading, PA 19601

Dear Mayor Moran:

In conformity with City Plans and specifications, all as prepared by the Fire Department and after an examination of the site of the work, and the Contract Documents.

The undersigned declares that no Member of Council, Director of Department, Division Manager, deputy thereof or clerk therein, or other officer of the City of Reading, is directly or indirectly interested as principal, surety or otherwise in this proposal or has any supervision or overall responsibility for the implementation in administration of the contract.

It is certified that the undersigned is the only person(s) interested in this proposal as principal and that the proposal is made without collusion with any person, firm, or corporation.

It is hereby agreed to execute the contract and furnish surety company bonds, on the forms enclosed in the Contract Documents, in the amount of one hundred percent (100%) of the contract price within ten (10) days of mailing of the contract documents from the City to the Principal, and to begin work within ten (10) days after receipt of Notice to Proceed from the City of Reading.

It is proposed to furnish and deliver all materials, tools, equipment, power, tests and transportation, perform all labor, superintendence, and all means of construction, and do all incidental work, and to execute, construct and finish in an expeditious and workmanlike manner, in accordance with the plans and specifications, to the satisfaction and acceptance of the Fire Chief for the City of Reading for the total base bid amount as herein shown below:

1. Fire Pumper purchase price if the City pays 90% of the costs at bid award and 10% upon delivery.

Total price of Fire Pumper is: \$_____

2. Fire Pumper purchase price if the City pays 50% of the costs at bid award and 50% upon delivery.

Total price of Fire Pumper is: \$_____

3. Fire Pumper's purchase price of the City pays 0% of the costs at bid award and 100% upon delivery.

Total price of Fire Pumper is: \$_____

IN WITNESS WHEREOF, this proposal has been executed this ____ day of _____, 20 __, by the setting hereunto of his or its hand and seal.

FOR INDIVIDUAL:

_____(Seal)

FOR CORPORATION:

(Name of Corporation)

By:

Attest:

(Official Title)

(Secretary)

FOR PARTNERSHIP:

(Name of Partnership)

By:

_____(Seal)

_____(Seal)

Partners