

Town of Pomfret, Vermont



REQUEST FOR EMERGENCY VEHICLE PROPOSALS Pumper, Commercial Chassis Fire Apparatus

Proposals due by: **12:00pm, January 15, 2015**

Mail or deliver responses to:

Town of Pomfret
Attn: Town Clerk
5218 Pomfret Road
North Pomfret, VT 05053

Include: One (1) original, plus four (4) copies and a USB drive of all documents in electronic format (Microsoft and Adobe)

Introduction

The Town of Pomfret, Vermont (“Town”) seeks proposals from qualified builders, per the specifications included within this RFP, for a new and unused Commercial Pumper. Demonstration units that have been field run and with mileage are not to be considered. It is the intent of these specifications to clearly describe the furnishing and delivery to the Purchaser, a complete apparatus equipped as specified herein. Terms shall be cash on delivery and acceptance. No option pricing is requested.

The primary objective of these specifications is to obtain the most acceptable apparatus for service in the Pomfret Fire Department. These specifications cover specific requirements as to the type of construction and tests the apparatus must conform to, together with certain details as to finish, material preferences, equipment and appliances with which the successful bidder must conform.

Proposal Schedule

The following schedule details the activities of this solicitation.

Activity	Date
RFP Issue & Publication	11/27/15
Bidder questions due	12/07/15
Pre-bid teleconference	12/14/15 at 5pm
Proposals Due (no later than 12 PM)	01/15/15

Consideration of Bids and Pre-Bid Clarifications

The Town specifications have been drafted to encourage qualified bidders to present competitive proposals for the specified fire apparatus. The apparatus must meet all requirements of the Town without options for major components in the specifications. Specific options for separate pricing shall be separate from the main pumper bid. The Town reserves the right to award the apparatus and equipment separately.

If any bidder requires additional clarification or would like to discuss any particular section of the specifications – the Town encourages all bidders to submit questions in writing within five business (5) days of bid publication. Questions should be sent via email to: Phil Dechert, Pomfret Select Board, Phil.Dechert@pomfretvt.us and Chief Kevin Rice, Pomfret-Teago Fire Department, kricevt@gmail.com. Questions submitted, and the responses, will be published and distributed to all interested bidders.

The Town will hold a voluntary pre-bid conference from 7 to 9pm on the specified date above. The conference is designed to promote openness and competitiveness amongst bidders. The dial-in number for the call: *to be announced*.

Instructions to Bidders

Bid Format

Bids will be addressed and submitted in accordance with the instructions provided. The words "Fire Apparatus Proposal", the date, and bid opening time shall be stated on the front of the sealed bid envelope #1; the bidder's specifications (original and four (4) copies) shall be in envelope #1 and the bidder's price proposal shall be in a separate sealed envelope #2. No options shall be accepted for this bid.

PLEASE NOTE: a **USB drive** is required to be provided by the bidder with all bid documents stored in an electronic format of PDF, WORD, EXCEL and other Microsoft or Adobe readable formats.

It shall be the responsibility of the bidder to assure that their proposal arrives at the location and time indicated. Late proposals, telegrams, facsimile, emailed bids or telephone bids will be rejected as non-compliant.

The design of the apparatus must embody the latest approved automotive design practices. The workmanship must be of the highest quality in its respective field. Special consideration shall be given to service access to areas needing periodic maintenance, ease of operation, and symmetrical proportions. Construction must be heavy-duty and ample safety factors must be provided to carry loads as specified. The construction method employed will be in such a manner as to allow ready removal of any component for service or repair.

The apparatus shall conform to the National Fire Protection Association Standard for Automotive Fire Apparatus, **2016 edition of #1901**. Only the specified firefighting support equipment listed in these specifications shall be provided. The apparatus shall further conform to all Federal Motor Vehicle Safety Standards. **NO EXCEPTION.**

Each bidder shall furnish satisfactory evidence of their ability to design, engineer, and construct the apparatus specified and shall state the location of the factory producing the apparatus. They shall also substantiate they are in a position to render prompt and proper service and to furnish replacement parts for the apparatus. **PLEASE NOTE:** the bidder shall have a service center facility within a 3 hour drive of the fire department. The bidder must submit information on the service center, service trucks for in-fire station service.

Each bid must be accompanied by a set of detailed contractor's specifications consisting of a detailed description of the apparatus as well as an Engineered Drawing of the proposed vehicle. Engineering Approval Drawings shall be prepared for the exact vehicle at time of the Pre-Build Meeting).

All bid proposal specifications must be in the same basic sequence as this advertised specification for ease of comparison.

These specifications shall include size, location, type, and model of all component parts being furnished. Detailed information shall be provided on the materials used to construct all facets of the apparatus body. Any bidder who fails to submit detailed construction specifications, or who photo copies and submits these specifications as their own construction details will be considered non-responsive and doing so shall render their proposal ineligible for award. **NO EXCEPTION.**

All bidders are required to detail the payment terms for apparatus on the bidder's proposal page. No required pre-payments or progress payments are to be proposed. NO EXCEPTION

Bid Bond

A bid security in the form of a Bid Bond, cashier's check, or certified check made payable to the Purchaser in the amount of ten percent (10%) of the total bid shall be required. This shall serve as a guarantee which may be forfeited and retained by the Purchaser in lieu of its other legal remedies if a successful bidder's proposal is accepted by the Purchaser and the bidder shall fail to execute and return to the Purchaser the required contract and bonds within ten (10) days after delivery. If a Bid Bond is provided, it shall be issued by a bonding company licensed to bond in this State. No Exceptions.

Certificate of Insurance

Each bidder shall furnish, with their proposal, a Certificate of Product Liability Insurance for a minimum of three (3) million dollars. Failure to provide this documentation shall render the proposal non-responsive and the bid shall be rejected. This certificate shall be from the prime builder only. Certificates submitted from various sub-contractors in order to total the three (3) million dollar minimum will not be acceptable as meeting the requirements of this section.

The Certificate must be made out to the Purchaser and must be original. Submission of a non-original Certificate, or a Certificate provided that is not made out to the Purchaser will not meet the requirements of this section. NO EXCEPTIONS.

Delivery

The apparatus shall be delivered to the fire department within no more than 6 months after receipt of the chassis delivery to the fire apparatus manufacturer's plant. Delivery shall be directly to the fire department. The bidder shall state the time required for delivery of the completed unit on the proposal page and shall not exceed the maximum delivery period noted above. Chassis delivery period shall be stated separately.

The completed unit shall be delivered to the purchaser by a fully qualified EVT and trained by the apparatus manufacturer or an employee of the manufacture. Instructions on the vehicle shall comply with NFPA standards for a minimum of one (1) full day. Instructions provided to Fire Department personnel on operation, care and maintenance of apparatus at the purchaser's location.

Exceptions

The following apparatus specifications are considered minimum, and design and construction standards against which the apparatus will be inspected. It is the intent to receive proposals on equipment/apparatus meeting the attached detailed specifications.

If the bidder cannot meet any specific specification requirement a detailed "List of Exceptions" listing the areas of non-compliance must be submitted with the bidder's proposal (see blank table of exceptions provided at the end of the specification). The reference must include page number, paragraph, and the exact nature of the exception. Failure to follow this format, provided for the convenience of the Purchaser, will render the vendor's proposal non-responsive and ineligible for award of contract.

The Purchaser reserves the right to reject any or all bid proposals and purchase the equipment it deems most suitable to its needs. The Purchaser does not, in any way, obligate itself to accept the lowest or any bid. Any bidder taking “total exception” to the complete specification or a major element will result in immediate rejection of the proposal.

Quality Compliance

The manufacturer shall operate a Quality Management System which shall be described in each bidder’s proposal. The manufacturer’s certificate of quality shall affirm the basis for a quality system that controls design, manufacture, installation, and service. In addition, all apparatus assembly processes shall be documented for traceability and reference.

Proposal Price

Each bidder's proposal must include all items required in the Town of Pomfret specifications. Any bidder who offers uncalled for “option prices” for an item included in these specifications, which does specifically require option pricing will have their proposal rejected without further cause.

Reference List

Each bid shall be accompanied by a list of at least ten (10) similarly constructed apparatus presently in service which were delivered in the last 3 years. Each reference must be apparatus built of the same construction style as these specifications call for. This list shall include customers’ names, telephone, Email addresses, and the date the apparatus was placed in service.

Evaluation of All Bids

Each bid proposal received shall be evaluated by the purchaser to include the following criteria:

- a. Completeness of the proposal package. (The degree to which it responds to all requirements of these specifications.)
- b. Bidders written detailed specifications, and compliance to inspection.
- c. Design and engineering of major structural components. (Including ease of maintenance of major components.)
- d. Qualifications and capabilities of the manufacturer to produce a described apparatus.
- e. Compliance to submission of all bid and pre-construction final engineering drawings
- f. Service and warranty data submitted.
- g. Reasonableness of cost
- h. Local service, maintenance, and warranty services

Service Requirements

Each bidder shall supply, with their proposal, detailed information on the bidder's ability to perform routine and emergency service on the apparatus after delivery. Detailed information shall be provided on service facilities, personnel, service vehicles, and the type and nature of repair work the bidder is able to provide. The bidder's location shall be no more than three (3) hours driving time from the fire department to the nearest fully staffed repair facility operated by the bidder. The service center must be owned by the apparatus body builder or its dealer, sub-contracting of service shall not be acceptable.

It is the intent of the Purchaser to assure that parts and service are readily available for the equipment specified. Service capabilities will be one of the criteria for award of this contract. Each bidder shall submit with their proposal the hourly cost and cost of travel mileage for performing service, warranty, and maintenance on the vehicle, at the Pomfret Fire Station (each bidder shall outline on-road service rates in their bid including travel time charges – no exceptions to this requirement).

NFPA Compliance and Testing Standards

NFPA Compliance: The supplied components of the apparatus shall be compliant with NFPA #1901, 2016 edition.

The apparatus shall comply with the Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest possible ways of dealing with these situations.

Apparatus Weight, Vehicle Stability, and Electrical Analysis

The bidder must submit full "in-service" weight analysis with the bid proposal. No Exceptions.

The height of the fully loaded is vehicle center of gravity will not exceed the chassis manufacturer maximum. The front to rear weight distribution of the fully loaded vehicle will be within the limits set by the chassis manufacturer. The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped shall not exceed 7%.

The finished apparatus shall be tilt-table tested to 26.5 degrees as required by NFPA #1901. No Exceptions to this requirement.

A full 12 volt electrical load analysis of stationary and response modes of the apparatus shall be submitted with the bid.

The apparatus will meet the performance requirements at elevations of 2000 feet above sea level. The apparatus will meet the performance requirements while stationary on any grade of up to and including 6% in any direction. From a standing start the vehicle will attain a true speed of 35 mph, within 25 seconds on a level road. The apparatus will obtain a minimum speed of 60 mph on a level road. The apparatus will be able to maintain a speed of at least 20 mph, on any grade up to and including 6%.

The apparatus will be pump tested and inspected by Underwriters Laboratories Incorporated or equal company with ISO certification in accordance with the NFPA #1901 standards. No exceptions.

The apparatus shall be equipped with an auxiliary braking system, the apparatus manufacturer will road test the system to confirm that the system is functioning as intended by the auxiliary braking system manufacturer.

The service brakes will bring the fully laden apparatus to a complete stop from an initial speed of 20 mph in a distance not exceeding 35 feet by actual measurement, on a substantially hard, level surface road that is free of loose material, oil, or grease.

Failure of Meeting Testing Requirements

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

Warranties

The following warranties will be provided:

1. Chassis: maximum provided by manufacturer
2. Engine: 5 years
3. Transmission: 5 years (Allison)
4. Fire Pump - Five Year
5. Water and Foam Tank - Lifetime Note: this warranty shall include cost of transportation if necessary, removal of hose bed and partitions, and all labor and materials for repairs.
6. Apparatus Body Structural Warranty: The apparatus manufacturer shall provide a comprehensive 10 year structural warranty. This warranty shall cover all structural components of the body manufactured by the apparatus manufacturer against defects in materials or workmanship for 10 years. Excluded from this warranty are all hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the proposal.
7. Stainless Steel Plumbing and Ball Valve Warranty: The apparatus manufacturer shall provide a 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, including Akron valves. A copy of the warranty document shall be provided with the proposal.
8. Body Paint and Corrosion Warranty: The apparatus manufacturer shall provide a 10-year limited paint and corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner.

9. Apparatus parts warranty: The apparatus manufacturer shall provide a 1-year warranty. All components manufactured by the apparatus manufacturer shall be covered against defects in materials or workmanship for a 2-year period. All components covered by separate suppliers such as engine, transmission, 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. **Bidders shall denote the cost of a 2 year of parts warranty in their proposal.**
10. Apparatus labor warranty: one (1) year fire apparatus labor warranty shall be provided to replace any defective parts (not including chassis). The labor warranty shall be applicable at the Pomfret Fire Department or when apparatus is returned to the manufacturer's authorized service or warranty center with expenses of transportation paid by the bidder. **Bidders shall denote the cost of a 2 year of labor warranty in their proposal.**
11. A detailed list of all warranties and their provisions shall be listed in the bidder's specifications.

Trade Names, Exceptions, and "or Equal" Vendors

It is the intent of these specifications to describe equipment and vendors that are available to all manufacturers of fire apparatus. If the bidder denotes any name or supplier that is not available, then the bidder should notify the Town within 5 days of the bid publication and request a written clarification.

Manuals

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

- a) Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, installed components, and auxiliary systems.
- b) Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems.
- c) Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.
- d) Instructions regarding the frequency and procedure for recommended maintenance.
- e) Maintenance instructions for the repair and replacement of installed components.
- f) Parts listing with descriptions and illustrations for identification.
- g) Warranty forms descriptions and coverage for all major and minor components.
- h) Individual component manufacturer instruction and parts manuals.
- i) Warranty instructions and format to be used in compliance to warranty obligations.
- j) Electrical wiring diagrams of each body circuit. An "AS BUILT" wiring diagram for the pump module and body module shall be provided on delivery.
- k) Necessary normal routine service forms, publications, component of body portion of apparatus.
- l) Technical publications on familiarization and instructions for the complete fire apparatus and its components.

Pre-construction and final inspection requirements:

The successful bidder shall make all necessary arrangements for one (1) pre-construction meeting at the fire department location. At the pre-construction conference, the successful bidder shall review, in detail with the purchaser the specifications of the unit as it is to be built.

Specific component locations shall be determined and all pertinent information shall be noted for future reference. Details gathered at the pre-construction conference shall be utilized in formulating the approval drawings and final build specification. The successful bidder shall make all arrangements for the pre-construction conference at the purchaser’s fire department location.

One (1) final factory inspection trip for a minimum of two (2) members of the Purchaser at the facility where that apparatus is being constructed. Inspection trip to be paid by the bidder. The inspection trip shall be completed prior to delivery of the apparatus. The purpose of this trip is for monitoring the construction and inspecting the complete apparatus for compliance to the specifications.

The apparatus shall be ready for delivery and must be able to be road tested and pump tested during this inspection trip. The inspection trip shall be completed prior to delivery of the apparatus.

Compliance to Instructions to Bidders

I have read the above Specification Instructions in its entirety and fully understand all the requirements requested by the Town of Pomfret, Vermont.

Signature _____ Date _____

(Note: only the signature of the Apparatus Manufacturer is required on the bidder’s proposal.)

Compliance to Individual Pages of Town Specifications

Each page of the Town specifications must be fully complied with OR the bidder must indicate an exception, and then list the exception and page number on the form provided at the end of these specifications.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () YES () NO

INDEX TO SPECIFICATIONS & SEQUENCE OF BID PROPOSALS

<u>SECTION</u>	<u>DESCRIPTION</u>
1.	Chassis Specifications
2.	Chassis Modifications
3.	Body Specifications
4.	Equipment Mounting
5.	Hose Bed Specifications
6.	Fire Pump Specifications
7.	Water and Foam Tank Specifications
8.	12 Volt Electrical Specifications
9.	Painting and Lettering Specifications
10.	Equipment Specifications

SECTION 1

CHASSIS SPECIFICATIONS

One (1) new 2016 cab and chassis equal to Navistar 7400 Series SFA 4 x 4, All-Wheel-Drive, including transfer case location and modifications to accommodate for the specified fire pump

Wheelbase: refer to body and pump panel design and requirements, shortest possible wheelbase is desired. This should be denoted on all drawings. Note: vehicle must have low center of gravity and must pass tilt table test.

Engine: International N9, 330 HP or equal.

Exhaust Brake: the apparatus shall be equipped with an exhaust retarder

Transmission: Allison EVS 3000 Series Automatic, Fire department application and lock-up system

GVRW: minimum of 48,000 lbs.

Front Axle: minimum of 18,000# rating, power steering, front shocks, spring suspension to GVWR rating

Rear Axle: minimum of 30,000# rating with Driver's Controlled Manual Differential Lock, maximum speed of 60 MPH, spring suspension to GVWR rating.

Cab: Four (4) Door Crew Cab with Seating for 5 Firefighters to include the Navistar Premium Interior, AM-FM-Weather Band Radio, HVAC Cab System, chrome front bumper,

Tires: Six (6) Michelin Tires XZU-32, 315/80R22.5, all weather tread. All wheels shall be polished aluminum.

Brake system: ABS system, air dryer, and automatic moisture ejectors, minimum of 13.2 air compressor

Frame Liner: double channel frame liner shall be provided to meet GVWR requirement

Air Horns: Grover 24" chrome or stainless steel dual hood mounted air horns with driver and officer foot switches

Tow Hooks: two (2) forward frame mounted tow hooks.

Fuel Tank Size and Location: 50 gallons and located to the right hand side of cab, heated fuel water separator system installed

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () YES () NO

Battery and Location: Three (3) 12 volt maintenance free batteries with a combined rating of 2200CCA. The batteries shall be located under left hand side of cab.

Alternator: 270 amp

Driver's Seat: individual bucket style seat with mechanical suspension and three (3) point safety harness

Passenger Seat: Bostrum Tanker or Seats 911 SCBA (without brackets) individual bucket style with mechanical suspension seats and three (3) point safety harness

Passenger Seats: three (3) Bostrum Tanker or Seats 911 SCBA (without brackets) individual bucket style with mechanical suspension seats and three (3) point safety harness

Cab Mirrors: two (2) heated extended style mirrors with convex

The International cab shall be painted by the chassis supplier. The cab paint color shall match FLNA3225 or equal Red (Sikkens published). Paint shall be warranted by the cab/chassis manufacturer.

Reviewed by Bidder: _____ (Signature) Exceptions: YES NO

SECTION 2

CHASSIS MODIFICATION SPECIFICATIONS

The following items shall be installed on the commercial chassis in preparation for fire apparatus:

- A. Exhaust Extension - The chassis exhaust pipe shall be extended to the front of the right rear wheels.
- B. Fast Idle System - A fast idle system shall be provided and controlled by a cab or pump panel mounted switch. The system shall increase engine idle speed to a preset RPM for increased alternator output.
- C. Master Light Switch - The master light switch shall consist of one (1) illuminated rocker switch wired through a solenoid to accessory switches to allow pre-selected switches to be turned on or off at one time.
- D. Auxiliary Engine Cooler - As required for pumping applications, an engine cooler shall be installed. The engine cooler shall be required to lower engine water temperature during prolonged pumping operations and shall be controlled at the pump operator's position.
- E. Rear Tow Eyes: Two (2) heavy duty tow eyes made of 3/4" (0.75") thick steel having 2-1/2" diameter holes shall be mounted below the body at the rear of the vehicle to allow towing (not lifting) of the apparatus without damage. The tow eyes will be welded to the lower end of a 5" steel channel that is bolted at the end of the chassis frame rails. The tow eyes shall be painted chassis black.
- F. Tire Pressure Indicators: The apparatus shall be provided with Real Wheels or equal AirGuard LED tire pressure indicating valve stem caps. When the tire is under inflated by 5-10 PSI, the LED indicator on the cap shall flash red. The indicator housings shall be shock resistant and constructed from polished stainless steel. The indicators shall be easily re-calibrated by simply removing and re-installing them.
- G. Air Inlet: A 1/4" male plug air hose inlet shall be connected to the air reservoir tank. A 1/4" inline check valve will be installed in the line. Air hose connection will provide the capability of filling the air brake system with air from an outside source. Location: driver's door step area.
- H. Logo Package: The apparatus shall have manufacturer logos provided on the cab and body as applicable.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () **YES** () **NO**

- I. Cab Door Reflective Material: Reflective Red/Lemon Yellow material striping shall be supplied on each of the cab doors. The stripes shall be angled from the lower outer corner to the upper inside corner, forming an "A" shape when viewed from the rear. The reflective material shall be at least 96 square inches to meet NFPA 1901 requirements.
- J. Label ``Diesel Fuel Only``: Located above each fuel filler housing shall be a metallic label that designates" Diesel Fuel Only" requirements. It shall be black with white or equivalent contrasting letters a minimum of 1/2" high.
- K. Seating Capacity Tag: A tag that is in view of the driver stating seating capacity of five (5) personnel shall be provided.
- L. Battery Charger Receptacle: A 20 amp battery charger receptacle shall be installed in the specified location. The receptacle shall be located driver's door step area. The cover color shall be Yellow.
- M. Battery Charger: Kussmaul 20 amp battery charger with a 5 amp Battery Saver with remote mounted LED display shall be installed. A fully automatic charging system shall be installed on the apparatus. The system shall have a 120 volt, 60 hertz, 7 amp AC input with an output of 20 amps 12 volts DC. The battery charging system shall be connected directly to the shoreline to ensure the batteries remain fully charged while the vehicle is in the fire station or firehouse. The system shall include a remote charging status indicator panel. The panel shall consist of two (2) LED lights to provide a visual signal if battery voltage is good or drops below 11.5 volts. The microprocessor shall be continuously powered from the battery to provide the charge status.
- N. Vehicle Data Recorder:
 A vehicle data recorder system shall be provided to comply with NFPA 1901, 2016 edition. The following data shall be monitored:
 - Vehicle speed MPH
 - Acceleration (from speedometer) MPH/Sec.
 - Deceleration (from speedometer) MPH/Sec.
 - Engine speed RPM
 - Engine throttle position % of full throttle
 - ABS Event On/Off
 - Seat occupied status Occupied Yes/No by position
 - Seat belt status Buckled Yes/No by position
 - Master Optical Warning Device Switch On/Off
 - Time 24 hour time
 - Date Year/Month/Day

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () YES () NO

O. Aluminum tread plate step enclosures for the cab steps, custom built, and enclosure over the fuel tank assembly. Steps shall comply with NFPA standards.

P. 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.
- The audible warning shall activate when the vehicle's park brake is released and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.
- The visual warning shall consist of a graphical display that will continuously indicate the validity of each seat position.
- The system shall include a display panel with LED back-lit ISO indicators for each seating position, seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness.
- The display panel shall be located outboard on driver's side overhead console.

Reviewed by Bidder: _____ (Signature) Exceptions: () YES () NO

SECTION 3

BODY SPECIFICATIONS

General Body Construction: The fire apparatus body and sub-structure shall be entirely constructed of aluminum or Type #304 stainless steel. The aluminum extrusion framework shall be constructed of Type #6061-T6 and #6063-T5 aluminum alloy extrusions or stainless steel framework shall be constructed of Type #304 tubing, channel, and angle. The aluminum sheet metal shall be a minimum of 0.188" and 0.125" Type #3003 or #5052 aluminum. Stainless steel sheet metal Type #304 shall be a minimum of 14 gauge.

The frame sills shall be shaped to prevent contact with the chassis frame rails by UHMW plastic, rubber or fiber-reinforced rubber strips to prevent wear and galvanic corrosion caused when dissimilar metals come in contact. The body shall be spring-mounted to the chassis frame to provide flexing of the chassis frame rails – bidder to describe in proposal

Body Wheel Well: The body wheel well frame shall be constructed from aluminum extrusion or stainless steel framing with a bolted and removable 0.125" aluminum treadplate. The wheel well trim fenderette shall be constructed from formed aluminum extrusion or removable stainless steel. The wheel well liners shall be constructed of composite, aluminum, or stainless steel material. The liners shall be bolt-on and shall provide a maintenance-free and damage-resistant surface.

Rub Rails: The pump area module and body shall have rub rails mounted along the side of the body. The rub rail shall be C-channel in design and constructed of 0.188" anodized aluminum extrusion. The rub rail shall extend beyond the body width to protect compartment doors and the body side. The rub rail depth shall allow marker and/or warning lights to be recessed inside for protection.

Wheel Well SCBA Storage: The body wheel well area shall store up to four (4) fire department supplied 45 minute SCBA bottles, two (2) on the officer side and two (2) on the driver side. The bottles shall be secured in each storage area by a vertical hinged door which shall be secured in the closed position by a Southco push button latch. The doors shall be same material as body with brushed finish. Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon webbing formed in a loop. The straps shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () **YES** () **NO**

BODY SPECIFICATIONS

Driver Side Compartments:

1. There shall be one (1) #L-1 lower compartment located ahead of the rear wheels. This compartment shall be approximately 60” wide x 30” to 34” high x 26” to 28” deep.
2. There shall be one (1) #L-2 compartment located behind the rear wheel. This compartment shall be approximately 42” wide x 30” high x 26” deep..
3. There shall be an upper left side folding tank compartment #B-4 located over the two (2) lower compartments and the wheel well. The compartment shall be approximately 34” high x 12” deep x full length of the body. Three doors on the left side of the vehicle, and door at the left rear. The upper compartment shall be designed to accommodate the storage of a FD supplied portable 2000 gallon FOL-DA-TANK water tank. An access door shall be provided at the rear of the side assembly for loading and unloading of the portable tank. The flooring of the upper compartment shall be smooth sheet metal with a Nylatron type overlay.
4. Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.
5. An externally-mounted compartment top shall be provided and constructed of a 0.125” NFPA embossed non-skid aluminum treadplate or labeled as a “non-walking surface”.

Officer Side Compartments:

1. There shall be one (1) #R-1 compartment located ahead of the rear wheels. This compartment shall be approximately 60” wide x 30” high x 26” deep.
2. There shall be one (1) #R-2 compartment located behind the rear wheel. The compartment shall be approximately 42” wide x 30” high x 26” deep.
3. Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.
4. An externally-mounted compartment top shall be provided and constructed of a .125” NFPA embossed non-skid aluminum treadplate or labeled as a “non-walking surface”.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () **YES** () **NO**

Rear Body Compartments:

1. There shall be two (2) lower compartments #B-1 and #B-2 located one (1) each side. Each compartment shall be approximately 21” wide x 30” high x 24” deep.
2. A center panel shall be provided for a mounting area for a Jet/Newton Dump. The rear panels of body shall be constructed of .125” aluminum treadplate.
3. The upper center #B-3 compartment shall be approximately 38” wide, 24” high, and 17” deep. This compartment width shall allow for rear discharges as specified, without piping thru the compartment.
4. The upper left side compartments L-3, 4, 5 for the folding tank shall have an aluminum tread plate door at left rear for access and removal of the tank. (three lift up doors on left side.)
5. The compartment seams shall be sealed using a permanent pliable silicone caulk. Machined louvers shall be provided for adequate ventilation.

Compartment Doors: the compartment doors shall be constructed using a box pan configuration. The outer door pan shall be constructed from .188” aluminum plate or 14 gauge stainless steel. The inner door pan shall be constructed from .125” smooth aluminum plate or 14 gauges stainless steel. The compartment door shall have a closed-cell gasket meeting installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone. 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 inside latch shall be provided on the door. The 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.

The compartment door shall be securely attached to the apparatus body with a full-length stainless steel .250” rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with stainless steel bolts and nuts into the doorframe. Vertically hinged doors shall have gas shock-style hold-open devices installed. An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

- a) Single doors shall be installed for: #B1, #B2
- b) Double doors shall be installed for: #L1, #L2, #R1, #R2, #B3
- c) Lift up doors shall be installed for: #L3, L4, L5

Reviewed by Bidder: _____ (Signature) Exceptions: () YES () NO

Rear Step: A rear step shall be provided at the rear of the apparatus body. The rear step shall 12” in depth and in accordance with NFPA in both step height and stepping surface. The maximum rear step height to the rear step shall not exceed 24”.

The rear step shall be formed from .188” aluminum treadplate and shall be reinforced with Type #6063-T5 aluminum extrusion or stainless steel framing. The tailboard shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The rear step shall be bolted on to the body from the underside assuring a clear surface and shall be easily removable for replacement in the case of damage. The angle of departure shall not be less than 13 degrees.

Rear of Body Design: the body shall be provided squared off at the rear. The rear panels shall be a combination of .125” aluminum tread plate and smooth panels for installation of 50% of rear surface area to be NFPA type Chevron Scotchlite material.

Rear Access Handrails: Handrails shall be provided at the rear of the body to assist ground personnel accessing the tailboard step and hosebed area. Each handrail shall be constructed of Hansen lighted 1.25” OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, and shall be mounted between chrome stanchions.

The handrails shall be located: two (2) handrails, one (1) on each side, 48” high handrail mounted vertical on the trailing edge of the body and 72” wide handrail mounted horizontal below the rear hosebed opening.

Two (2) upper hose bed hand rail shall be installed mounted between stanchions.

Four (2) 12” railings, one each side of pump panel for access to crosslays or climbing to top of vehicle.

Folding Steps: dual lighted LED folding steps shall be installed. The steps shall be NFPA compliant for access to the hose bed storage area and upper body areas. The steps shall be staggered stepped as. Each step shall have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18” below the step. The folding step shall sustain a minimum static load of 500 lbs. The folding step shall also meet NFPA slip resistance qualifications. The following steps shall be installed:

- a) Four left side front of side compartments
- b) Three rear of body installed for hose bed access

Rear Mud Flaps: The rear tires shall have a set of black mud flaps mounted behind the rear chassis wheels.

Reviewed by Bidder: _____ (Signature) Exceptions: () YES () NO

SECTION 4

EQUIPMENT MOUNTING SPECIFICATIONS

Adjustable Tracks: shall be provided in all lower side compartments for use with adjustable shelves and/or trays in compartments. The tracks shall be vertically mounted and attached to the side and/or rear walls of the compartments.

Adjustable Shelving: shall be constructed of .188" smooth aluminum plate. The shelves shall have a minimum 2" front and rear lips to accommodate plastic interlocking compartment tile systems. For additional strength and reinforcement of the shelf a return break shall be provided on the outward lip. The adjustable shelf shall be capable of holding 250 lbs. The shelves shall be sized, width and depth, to match the size and location in the compartment. There shall be an aluminum adjustable shelf provided for compartments: #L1 and #R1.

Slide Master Roll-out Trays: shall be constructed of .188" smooth aluminum plate with a sanded finish and welded corners for increased strength and rigidity. The trays shall be sized in width and depth as applicable. For greater tray accessibility, the drawer slides shall slide out 100% percent extension. The trays shall utilize a gas spring to secure the tray in the open or closed position. The trays shall have a minimum capacity of 600 lbs. There shall be a floor mounted roll-out trays provided in compartment: #L1, #L2, and #R2.

Floor, shelf, and roll-out tray tiles: all surfaces shall be covered with black Turtle Tile interlocking plastic tiles.

Reviewed by Bidder: _____ (Signature) Exceptions: () YES () NO

SECTION 5

HOSE BODY SPECIFICATIONS

The area above the booster tank shall have a hose storage area provided. The hosebed shall be constructed entirely from maintenance-free extruded aluminum or composite or plastic slats that shall be assembled into a one-piece grid system.

The hosebed shall include an open area for the fill towers. The hosebed design shall incorporate adjustable tracks in the forward area rearward of the fill towers and the rearward area of the hosebed for the installation of an adjustable dividers.

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

- a) 200 feet of Double Jacket 1.75" Attack Hose
- b) 200 feet of Double Jacket 1.75" Attack Hose
- c) 1500 feet of 4" LDH Supply Hose
- d) 200 feet of Double Jacket 2.5" Attack Hose

There shall be a hose bed divider provided the full fore-aft length of the hose bed.

Three (3) hose bed dividers shall be constructed of .250" smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divider shall have a 3" radius corner to protect personnel. The divider shall be natural finish aluminum for long-lasting appearance and shall be sanded and de-burred to prevent damage to the hose. The dividers shall be adjustable from side to side in the hose bed to accommodate varying hose loads for a quantity of four (4) separate hose lays.

There shall be a hand-hole cut-outs on the trailing edge of each hose bed divider. The cut-out(s) is specifically sized for use in adjusting of the hose bed divider.

Hose Bed Covers: (main hosebed and crosslay hosebed) shall be constructed of black 18 oz. PVC vinyl coated polyester and installed over the apparatus hose bed. The base fabric shall be 1000 x 1300 denier polyester with a fabric count of 20 x 20 square inch. The front edge of the cover shall be mechanically attached to the body. The sides of the cover shall be held in place with heavy duty Velcro strips running the length of the hose bed. The rear of the cover shall have an integral flap that extends down to cover the rear of the hose bed. This flap shall be secured in place with heavy duty nylon straps to comply with the latest edition of NFPA 1901.

The cross lay cover shall be held in place across the top of the body by chrome snaps. The sides of the cover shall have integral flaps that extend down to cover the sides of the crosslay. The side flaps shall be secured in place to comply with the latest edition of NFPA 1901.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () **YES** () **NO**

SECTION 6

FIRE PUMP INSTALLATION SPECIFICATIONS

The pump shall be a midship mounted and shall be rated at 1250 GPM: Hale Q-Flo or approved equal single stage centrifugal pump. The pump shall be mounted on the chassis frame rails. A mechanical seal shall be provided on the inboard side of the pump. The pump system shall utilize a cast iron discharge manifold system that allows a direct flow of water to discharge valves.

The mechanical seal shall be provided and shall be spring-loaded, maintenance-free, and self-adjusting.

The electrically-driven oil-less priming pump shall be a positive displacement vane type or Trident two barrel Air-Prime automatic system. One (1) priming control, located at the pump operator's position. The priming system shall be electronically interlocked to the "Park Brake" circuit to allow priming of the pump before the pump is placed in gear.

The pump shift shall be electro pneumatically-controlled using a power shifting cylinder. The power shift control valve shall be mounted in the cab and be labeled "PUMP SHIFT". The apparatus transmission shift control shall be furnished with a positive lever, preventing accidental shifting of the chassis transmission. A green indicator light shall be located in the cab and be labeled "PUMP ENGAGED". The light shall not activate until the pump shift has completed its full travel into pump engagement position. A second green indicator light shall be located in the cab and be labeled "OK TO PUMP". This light shall be energized when both the pump shift has been completed and the chassis automatic transmission has obtained converter lock-up (4th gear lock-up).

The pump, when dry, shall be capable of taking suction and discharging water in accordance with NFPA 1901. The pump shall be tested at the manufacturer's facility by only Underwriters Laboratories, 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 NFPA #1901.

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

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () YES () NO

All control valves 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.

The apparatus pump panel shall be equipped with quarter turn push-pull T-handle shall be chrome-plated zinc with recessed labels for color-coding and verbiage. An anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation.

The bleeder/drain valves shall be ¾” ball brass drain valves with chrome-plated lift lever handles and ergonomic grips.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** **YES** **NO**

Fire Pump Intakes:

- a) The fire pump 6" steamer intakes shall be mounted approximately 1" from the pump panel to back of cap when installed. Location: driver's side and officer's side.

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.

- i. 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, and shall be equipped with a chrome plated rocker lug plug with a retainer device.
 - ii. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.
 - iii. All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.
 - iv. A 3/4" bleeder valve assembly will be installed on the left side pump panel.
- b) 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. 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.

Intake Relief Valve: The pump shall be equipped with a Trident AirMax cast brass, pump panel controlled air operated variable-pressure-setting relief valve on the pump suction side. It shall be designed to operate at a maximum inlet pressure of 300 PSI. The relief valve shall be set at any desired pressure in order to limit intake pressures in the pumping system. When the relief valve opens, the overflow water shall be directed through a plumbed outlet to discharge below the body in an area visible to the pump operator. The overflow outlet shall terminate with a male 2-1/2" NST threaded fitting at the right side of the apparatus, allow the overflow water to be directed away from the vehicle with a short hose (supplied by the fire department) during freezing weather or under other conditions where an accumulation of water around the apparatus might be hazardous.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () **YES** () **NO**

Fire Pump Discharges:

- a) 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
- b) Two (2) single crosslay discharges shall be provided at the front area of the pump module. Each crosslay shall include one (1) 2” brass swivel with a 1-1/2” hose connection to permit the use of hose from either side of the apparatus.
- c) One (1) single crosslay discharge shall be provided at the front area of the pump module. The crosslay shall have one (1) 2-1/2” mechanical swivel hose connection to permit the use of the hose from either side of the apparatus. The crosslay hose bed shall consist of a 2-1/2” heavy-duty hose coming from the pump discharge manifold to the 2-1/2” swivel.
- d) Two (2) 2-1/2” discharge outlets with a manually operated Akron valves shall be provided at the left hand side pump panel. Equipped with a 2.5” cap and 30 degree elbow.
- e) One (1) 2-1/2” discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel. Equipped with a 2.5” cap and 30 degree elbow.
- f) One (1) 2-1/2” discharge outlet with a manually operated Akron valve shall be supplied to the right rear of the apparatus by a 2-1/2” stainless steel pipe. Equipped with a 2.5” cap and 30 degree elbow.
- g) One (1) 3” discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel. The discharge shall be equipped with a device that shall not allow the valve to open or close in less than three (3) seconds. The valve shall terminate in a 3” male NST thread and equipped with a 30 degree 3” female x 4” Storz connection with blind cap.
- h) 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. Deck gun piping shall be positioned centered in deck gun channel or centered and offset forward in dunnage area (as applicable to upper module area design). This location shall allow for optimal operation of a deck gun monitor once installed.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () YES () NO

Foam System

A FoamPro #2001, 12 volt DC powered variable-speed electronic direct-injection foam-concentrate proportioning system with a foam concentrate pump shall be integrated into the apparatus to provide foam proportioning. The pump shall be capable of handling Class A foam concentrate only and be operated by a full-function panel mounted digital display. The foam system performance shall be tested and certified in compliance with NFPA #1901. The specified foam system shall be plumbed to 1.5" first crosslay, 1.5" second crosslay, first 2.5" crosslay.

Pump Module

An extruded aluminum extrusions or stainless steel tubing/angle pump module shall be provided and located forward of the apparatus body. The pump module design and mounting shall be separate from the body to allow the pump module and body to move independently of each other in order to reduce stress from frame twisting and vibration. The exterior surface of the pump module framework shall have a sanded and unpainted finish. The pump module shall be attached to the chassis using four (4) isolation mounts and a steel mounting frame.

The pump module shall include a running board on each side. The running boards shall be in accordance with NFPA in both step height and stepping surface. The running boards shall be formed from .188" NFPA compliant aluminum treadplate and/or each running board shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. The surface shall extend vertically from the diamond plate sheet. Each running board shall be bolted on to the pump module and be easily removable for replacement in the case of damage.

The driver and officer side pump panels shall be constructed of 14 gauge brushed stainless steel. Each panel shall have the ability to be removed from the module for easier access and for maintenance in the pump area.

The driver side stainless steel single gauge panel shall be positioned where it can be opened downward for access to gauges and other interior pump module mounted items. The gauge panel shall include latches to secure the panel in the closed position. Two (2) cable tethers shall be provided to hold the panel in the open position.

The officer side pump module shall have a three (3) piece panel, one (1) above the discharge outlets, one (1) encompassing the discharges and intakes and one (1) low for bleeder valves. The upper two (2) pump panel sections shall have a vertical stainless steel piano type hinge with 1/4" pins along the forward edge of the pump module. The panels shall have Southco push button style latches to secure the panels in the closed position. The upper panel shall have one (1) pneumatic shock to hold the panel in the open position.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () YES () NO

Three (3) crosslay hose beds shall be provided above the front of the pump module. The two (2) forward crosslay areas shall each have a capacity for up to 200' of 2" double-jacket fire hose. The rearward crosslay area shall have a capacity for 150 to 200' of 2.5" double-jacket fire hose. The crosslay floor and side walls shall be constructed of smooth aluminum plate. The floor shall be slotted to prevent the accumulation of water and allow for ventilation of wet hose. Two (2) .250" smooth aluminum plate fixed dividers with a sanded finish shall be provided to separate the three (3) hose storage areas.

Color coded pump panel labels shall be supplied to be in accordance with NFPA 1901 compliance.

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

A storage pan shall be provided in the upper pump module area. The pan shall be constructed of .188" aluminum treadplate and be removable to service items in the pump module below. Holes shall be provided in the corners of the pan to facilitate drainage of water.

Fire Pump and Plumbing Area Heaters: two (2) 25,000 BTU heaters shall be installed in the lower pump compartment area. The heaters shall be connected to the chassis engine coolant system and shall include 12 volt blowers. The heaters shall be controlled at the pump operator's panel.

Two (2) removable slide-in heat enclosure panels shall be installed under the pump module; these units shall be easily removable for summer or winter operations.

One (1) mike compartment (CPI or stainless steel door) – size to be determined at pre-bid meeting. One (1) stainless steel grill assembly and enclosure for a FD supplied radio speaker head.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () YES () NO

Pump Panel Design and Layout

The fire department desires the pump panel on the new apparatus to have the same “basic design and layout” as their present pumper. The fire department will submit photos of the existing pump panel and the successful bidder must provide actual pump drawings (24” x 36” in size) so that the fire department can compare and approve the pump panel prior to construction of the apparatus.

Instruments and Controls on the Pump Panel

- a) Pressure Governor: The apparatus shall be equipped with a FRC Pump Boss control system. The system shall have a weatherproof color display. The pressure governor will operate as an engine/pump pressure governor/throttle system that is connected directly to the Electronic Control Module (ECM) mounted on the engine. The unit shall operate as a pressure sensor (regulating) governor (PSG). The governor shall display engine RPM, oil pressure, engine temperature and voltage along with providing critical warnings. The warning levels for oil pressure, high engine temperature, low voltage and high voltage shall be independently programmable.
- b) One (1) FRC water tank level gauge shall be located at the pump operator’s panel to provide a high-visibility display of the water tank level. Multiple high-intensity light emitting diodes (LED’s) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility. The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability. 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.
- c) One (1) FRC foam tank level gauge shall be located at the pump operator’s panel to provide a high-visibility display of the water tank level. Multiple high-intensity light emitting diodes (LED’s) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility. The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability. 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.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () YES () NO

- d) Thuemling individual line discharge gauges shall be 2 ½“ 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. A polished chrome-plated stainless steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall display a range from 0 to 400 psi with black graphics on a white background.
- e) Thuemling master intake and master discharge gauges shall be a minimum of 4“ 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.
- f) Trident test port manifold is solid cast brass with chrome plated plugs. 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” vacuum 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. Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump.
- g) A Trident master drain valve shall be installed and operated from the pump operator`s panel. The master pump drain assembly shall consist of a bronze master drain with a rubber disc seal and turning handle. The manual master drain valve shall have six (6) individually-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.
- h) An engine cooler used to lower engine water temperature during prolonged pumping operations and controlled at the pump operator`s panel shall be provided. The engine cooler shall be installed in the engine coolant system in such a manner as to allow cool pump water to circulate around engine water, thus forming a true heat exchanger action. Cooler inlet and outlet shall be continuous, preventing intermixing of engine coolant and pump water.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () YES () NO

SECTION 7

WATER AND FOAM TANK SPECIFICATIONS

A 1500 gallon water 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 booster tank top, sides, and bottom shall be constructed of a minimum 1/2" thick black UV-stabilized copolymer polypropylene. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise.

The tank cover shall be constructed of 1/2" thick polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions.

The tank shall have a combination vent and manual fill tower with a hinged lid. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter. The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 1/4" thick removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.

The booster tank shall have two (2) tank plumbing openings. One (1) for a tank-to-pump suction line with an anti-swirl plate, and one (1) for a tank fill line. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates per the tank fill inlet size.

The sump shall be constructed of a minimum of 1/2" polypropylene. The sump shall have a minimum 3" N.P.T. threaded outlet for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3" above the inside floor.

The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA #1901. The walls shall be welded to the floor of the tank providing maximum strength.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () YES () NO

Inside the fill tower (14" x 14" in size) 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 6" that is designed to run through the tank. This outlet shall direct the draining of overflow water past the rear axle, thus reducing the possibility of freeze-up of these components in cold environments. This drain configuration shall also assure that rear axle tire traction shall not be affected when moving forward.

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.

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.

The water fill tower shall be located offset to officer side of water tank and color coded BLUE. The foam fill tower shall be GREEN in color.

Quick Dump Provision

Special provisions for mounting a 10" square Newton dump valve on the poly water tank shall be provided. The rear tank dump including Newton stainless finish steel assembly with 12 volt electric actuated valve and integral electrical extension chute.

Rear 2.5" Tank Fill Inlet

One (1) 2.5" water tank fill connection shall be provided and mounted on right side rear of the water tank. The connection shall include an inlet strainer, 2.5" female FNST chrome inlet swivel and a chrome plug with cable. A 2.5" check valve shall be installed to prevent back flow of water while disconnecting the hose. A 2.5" stainless steel pipe and/or high pressure flexible hose will connect to the water tank.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () **YES** () **NO**

30 Gallon Foam Tank

A 30 gallon foam cell for Class A foam shall be supplied. The foam cell shall be integral to the water tank. The integral tank top, sides, and bottom shall be constructed of black polypropylene material. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The copolymer polypropylene material shall be used for its high strength and corrosion resistance for a prolonged tank life.

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.

The fill tower shall be located in the forward left area of the water tank. The tower shall have a 1/4" thick removable polypropylene screen. Inside the fill tower, approximately 1.5" down from the top, there shall be an anti-foam fill tube that extends down to the bottom of the tank.

A pressure vacuum vent shall be provided in the lid of the fill tower. 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. The foam tank shall be tested and certified as to capacity. The foam tank drain 1" and valve shall be extended to the side of the vehicle and labelled.

PLEASE NOTE: special warranty conditions relating to foam and water tank repairs.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () YES () NO

SECTION 8

ELECTRICAL SPECIFICATIONS

The apparatus shall incorporate a 12 volt electrical system. 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.

All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines.

- 2016 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)

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:

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.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () YES () NO

Warning Lights

- a) A Federal Signal JLX6001C 60" LED JetSolaris or approved equal light bar shall be installed with clear domes. The light bar shall contain nine (9) SOL 6 red LED Solaris reflectors, and six (6) SOL 3 red LED Solaris reflectors. The light bar shall be installed in the following location: Centered on the front cab roof.
- b) The lower level Federal Signal Quadra Flare or equal LED warning lights shall be set to flash at 75 pulses per minute.
- c) Six (6) Federal Signal QL64XF-R LED light heads and four (4) Federal Signal Model IPX302-4 LED light heads all with red lens shall be provided. The light heads shall be mounted as close to the corner points of the apparatus (as is practical) as follows:
 - Two (2) QL64XF-R or equal light heads on the front of the apparatus facing forward.
 - Two (2) QL64XF-R or equal light heads on the rear of the apparatus facing rearward.
 - Two (2) QL64XF-R or equal light heads one (1) each side of the apparatus centrally located to provide midship warning lighting.
 - Four (4) Model IPX302-4 LED or equal light heads shall be provided, one (1) each side at the forward most point and one (1) each side at the rearward most point (as practical). The side facing lights shall be located at forward most position, centered in rear wheel well, and side facing at rear of body in rubrail if equipped. All warning devices shall be surface mounted in compliance with NFPA standards.
- d) Two (2) Federal Signal Sentry model #SY12FS or equal rotating lights with a polycarbonate base, a single 55 watt halogen lamp, and a twist-on Lexan dome. Each light shall produce 175 flashes per minute. The dome colors to be driver red, officer amber. The lights shall be located rear upper body on aerial style brackets to meet upper Zone C requirements.
- e) There shall be a 2.5" red incandescent hazard light installed as specified. The light shall be located center overhead.

Reviewed by Bidder: _____ (Signature) Exceptions: () YES () NO

Electronic Siren

- a) A Federal PA300 siren model #690010 or equal 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. Operating modes shall include Hi-Lo, yelp, wail, P.A., air horn and radio re-broadcast. The siren shall be mounted in the cab as directed by fire department.
- b) One (1) Federal Signal model ES100 Dynamax or equal 100 watt speaker shall be flush mounted as far forward and as low as possible on the front of the vehicle. A polished model MSFMT with grille shall be provided on the outside of the speaker to prevent road debris from entering the speaker. 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 center front bumper.

DOT Lighting

- a) One (1) Truck-Lite model 15905 or equal 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.
- b) One (1) 7" red LED and one (1) 7" clear incandescent Weldon model 1010 or equal round light shall be installed one each side at the rear of the vehicle. Light functions shall include running lights, brake lights, turn signal lights, and back-up lights.
- c) Trucklite or equal LED clearance lights shall be installed as specified.
 - One (1) red LED clearance light each side, rear of body to the side.
 - Three (3) red LED clearance lights centered at rear, recessed in the rubrail.
 - One (1) red LED clearance light each side at the trailing edge on either side of the apparatus body, recessed in the rubrail.
 - One (1) amber LED clearance / auxiliary turn light each side front of body, recessed in the rubrail.
 - A rectangular shaped marker light with a red colored lens shall be installed at the trailing edge on each side of the apparatus body/module, recessed in the rubrail.

DOT lighting shall comply with all State and Federal requirements.

Reviewed by Bidder: _____ (Signature) Exceptions: () YES () NO

Compartment Lights

The compartment lights shall be full length Hansen or On-Scene LED lights mounted in each body compartment. One light installed along each door hinge. Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel. The wiring connection for the compartment lights shall be made with a weather-resistant plug in style connector. A single water and corrosion-resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall allow the light to illuminate if the compartment door is open with warning light in cab to note OPEN compartment doors.

Ground Lights

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA #1901 requirements. The lights shall be LED with clear lenses mounted in a resilient shock-absorbent mount for improved bulb life. 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. Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened.

Additional Lighting Provisions

- a) A Truck-Lite or equal rectangular light shall be installed at the front area of the hose bed to provide illumination per current NFPA #1901. The rectangular rubber housing shall contain a 12 volt, 2700 candlepower halogen floodlight bulb. The hose bed light shall be switched with work light switch in the cab.
- b) A Truck-Lite or equal rectangular light shall be installed at the rear area of the crosslay to provide crosslay lighting per current NFPA 1901. The rectangular rubber housing shall contain a 12 volt, LED bulb. The crosslay light shall be switched with work light switch in the cab.
- c) Two (2) incandescent 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.
- d) Two (2) Truck-Lite or equal round 12 volt LED model #81380 floodlights 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: rear body/beavertail area on the trailing edge up high.

Engine Compartment Light: There shall be incandescent lighting provided in compliance with NFPA to illuminate the engine compartment area.

Reviewed by Bidder: _____ (Signature) Exceptions: () YES () NO

Pump Compartment Light: An incandescent 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.

Pump Panel Lights: Four (4) Weldon LED or equal lights shall be mounted under a light shield directly above each pump panel. The work light switch in the cab shall activate the lights when the park brake is set.

Cab Dome Lights: A large (7") incandescent clear dome light (with red and clear bulbs) with 3-position switch shall be installed above each front cab door and a large (7") clear dome light with 3-position switch shall be installed above each rear cab door.

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.

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () **YES** () **NO**

SECTION 9

PAINTING SPECIFICATIONS

The apparatus body shall be painted Sikkens FLNA3225 Red or equal paint of the same color. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

Cab and Body Scotchlite Striping

A straight Scotchlite industrial grade or Reflex-Lite reflective stripe, 4" minimum in width, shall be applied horizontally around the cab and body to comply with NFPA #1901. The color and location of the stripe to be specified by the purchaser. Location: bottom of stripe flush with bottom of cab and straight back. Color: White.

Rear Body Scotchlite Striping

Chevron style Scotchlite industrial grade or Reflex-Lite reflective striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Yellow and Red alternating stripes in an "A" pattern. The striping shall be located on the rear facing panels and doors for 50% minimum coverage.

Undercoating

Undercoating shall consist of a heavy coating of Ziapart, CRC SP400 or equal soft seal film sprayed on the undercarriage of the entire vehicle including chassis frame rails, cab sheet metal, body sheet metal and to repel water, salt, and road elements. No undercoating of fire pump module and plumbing.

Reviewed by Bidder: _____ (Signature) Exceptions: () YES () NO

SECTION 10

EQUIPMENT SPECIFICATIONS

- a) On-Spot Automatic tire chains shall be installed with cab controls
- b) Two (2) Ziamatic AC-44 aluminum cast wheel chocks and mounting hardware shall be supplied and installed left side, fore and aft of wheels
- c) Four (4) Ziamatic or equal mechanical latching type SCBA brackets shall be installed for crew cab seats.
- d) Two (2) FRC or Akron Scene Star or equal 12 volt, LED 14,000 Lumen scene lights with telescopic poles shall be installed one each side of the pump panels
- e) Wiring to the 120 Volt shore line receptacle shall be supplied for the purpose or charging portable equipment including in-line circuit breaker protection.
- f) Two (2) Streamlite E-Spot LED lite boxes shall be supplied and installed at the direction of the purchaser.
- g) Four (4) Streamlight Survivor LED flashlights shall be supplied and installed at the direction of the purchaser.
- h) Two (2) 6" gear operated TFT or Harrington butterfly valves shall be supplied, 6" female NST x 4" Storz, with caps.
- i) One (1) Elkhart Model B100-A: 2-1/2" female inlet by (2) gated 1-1/2" male NPSH gated wye adapter shall be furnished.
- j) Four (4) chrome 2.5" NST elbows (as noted in the pump section under discharges)
- k) One (1) integrated 4" NST female x 4 inch Storz 30 degree elbow with cap & chain (as noted in the pump section under discharges)
- l) NOTE: Local lettering allowance in the amount of \$800 shall be included in bid price
- m) One (1) hard suction hose storage rack shall be provided on the driver side compartment top. The storage rack shall be constructed of anodized extruded aluminum or equal and shall include two (2) spring-mounted latch handles with stainless steel scuff plates. The scuff plates shall be located on the hose bed side to protect the painted surface.

The storage rack shall be capable of storing one (1) 6" x 10' hard suction hose on left side. Two (2) hard suction hose storage racks shall be provided above the officer side adjustable ladder tracks. The storage rack shall be constructed of anodized extruded aluminum and includes two (2) spring-mounted latch handles. The storage rack shall be capable of storing the specified 6" x 10' hard suction hose.

Reviewed by Bidder: _____ (Signature) Exceptions: () YES () NO

- n) Three (3) AWG/Harrington 6" x 10 foot lengths of PVC type lightweight hard suction hose with lightweight couplings.
- o) Ladder storage shall be provided over the officer side compartment top. There shall be two (2) aluminum adjustable ladder tracks vertically-mounted to the hosebed side. There shall be two (2) cast ladder brackets provided with spring-loaded hold-down handles mounted in the adjustable ladder tracks. Brackets shall be provided to protect the painted body side surface.
- p) The ladder brand shall be Alco-Lite. The length of ladders capable of being stored shall be the following:
 - a. 28' two section PEL Model
 - b. 16' roof ladder with folding hooks
- q) DOT Required Drive Away Kit: Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement
- r) One (1) 2.5# fire extinguisher
- s) One (1) new AED system
- t) Five (5) new NFPA type safety and traffic vests provided for each seat.
- u) One (1) new 50 unit first aid kit with case.
- v) Two (2) new 20lb. ABC fire extinguishers, mounted.
- w) One (1) new 10 foot (+ or -) fiberglass pike pole mounted.
- x) Two (2) new fire axes, 6# flat and pick head, fiberglass, mounted.
- y) Two (2) sets of Akron or equal spanner and hydrant wrenches.
- z) One (1) rubber hard suction hose mallet.
- aa) Two (2) TFT pistol grip type nozzles Model: HMD-VPGI 1.5" capable of flowing 70 - 200 GPM.
- bb) One (1) TFT nozzle Model: H-2 Blitz Play Pipe 2.5".
- cc) Three (3) Trident double female adapters, 6" x 6", 6" x 5", 6" x 4.5" (shipped loose)

Reviewed by Bidder: _____ **(Signature)** **Exceptions:** () **YES** () **NO**

----- **End of Specifications** -----

