Specifications and Instructions to Bidders for a New Brush Truck

JVFC NEW APPARATUS COMMITTEE

SEPTEMBER 30, 2015

The Jacksonville Volunteer Fire Company (JVFC) in Phoenix, Maryland has received a FEMA grant for the purchase of a NFPA 1906 compliant brush truck. Sealed bids are requested from reputable companies who construct fire apparatus vehicles. Specifications are available at the Jacksonville Volunteer Fire Company and www.jvfc.com.

The following document contains specifications developed by the new apparatus committee of the Jacksonville Volunteer Fire Company. JVFC will be accepting sealed bids for the brush truck described in these specifications until Friday October 30, 2015 at 4:00PM.

Bids are to be delivered in a sealed envelope clearly marked “JVFC BRUSH TRUCK BID” and must be delivered to the following address:

Jacksonville Volunteer Fire Company
Attention Chief Andrew Laird
P.O. Box 471
Phoenix, MD 21131

A contract will not be awarded until we have satisfied ourselves that the successful bidder is familiar with this class of equipment, meets the previously described criteria, and has the necessary capital, facilities and tools to manufacture the same.

Results may not be immediately available and award of the contract will not take place until the bids have been inspected and compared and approved by the committee.

Information which is incomplete, evasive, or of general nature shall be considered as grounds for rejection of the bid.
INSTRUCTIONS

Submit only one (1) bid that meets or exceeds the minimum specifications herewith. No substitutes, stock units, or alternates will be permissible unless such units are requested later in the specifications. If this is done, then the bidder will be automatically disqualified.

Each bidder shall supply drawings of the vehicle as proposed. Views shall include left side, right side, top, front, rear, and full pump panel detail.

It shall be the responsibility of the bidder to assure that their proposal arrives at the proper location by time and date indicated. Late proposals, telegrams, facsimile, or telephone bids will not be considered. Bids will not be considered from firms, individuals and or same owners of separate companies submitting more than one bid.

The Jacksonville Volunteer Fire Company new apparatus committee will review and request any clarifications in writing. In the event that there are any questions concerning these specifications, the bidder is directed to contact the following in writing:

Chief Andrew Laird
Jacksonville Volunteer Fire Company
P.O. Box 471
Phoenix, MD 21131
chief@jvfc.com
PROPOSAL SHEET

The undersigned offers and agrees, if this proposal is accepted, to furnish and deliver the item or items upon which prices are quoted, at the price set opposite each item, delivery to be affected as ordered. Bid prices should not include tax. We shall certify tax exemption required.

1) One (1) Brush Truck Apparatus per specification.

2) Manufacturer(s) chassis/body:______________________________________
   A) Chassis price: _______________________________________________
   B) Body price:__________________________________________________
   C) Travel/hotel costs:____________________________________________

3) Total price $______________ (in words) _____________________________________________dollars.

4) Guaranteed delivery _______ calendar days from award of contract. Apparatus must be delivered no later than 7/15/2016 or it will be subject to a $100 per day late fee penalty.

5) Price firm for: _______ days. (Must be good through 12/31/2015)

6) Bid Bond included ________________

7) Performance Bond included ________________

8) Do you have a Ford drop ship code? ________________________________

9) Are you a Ford authorized up-fitter? ________________________________

Certification is made that the materials offered above are in compliance with all specifications, and conditions in this document. All bids must be signed. Failure to do so shall cause the bid to be rejected.

Company Name:________________________________________

Address:______________________________________________

______________________________________________

Signature:_____________________________________________

Name:________________________________ Title: ______________________ Date:___________________

Telephone:____________________ Fax:_______________________
BIDDING INFORMATION

Contractors must construct the entire unit, less the chassis, within their own premises. Bodies manufactured by other body companies will not be acceptable and be cause for rejection of bid. The contractor must have a facility that will house the apparatus in an enclosed building during the construction of the unit. All bids shall include all necessary labor, equipment and material for the fire apparatus and other equipment as outlined in the following specifications.

It is the intent of these specifications to describe a brush truck in sufficient detail to enable to secure bids on comparable equipment. The equipment shall be new, unused, the manufacturers latest production and that which is furnished to fire department in general. Materials shall be free from defects and suitable for the services intended.

The general construction of the apparatus shall give due consideration to the nature and distribution of the load to be sustained and the general character of the service to which the apparatus is to be subjected when placed in service. The general design and construction shall be of the latest modern type, remaining fully modular for the ability of body transfer to another chassis, without cutting or welding. All work performed by the contractor shall be guaranteed by the successful bidder to be fabricated and assembled in a first class workman like manner, and of good quality material.

Only manufacturers, owned, operated including all holding and subsidiaries located within the continental United States with an accomplished background in constructing fire apparatus shall be considered. Satisfactory evidence of their ability to construct fire apparatus and the apparatus specified shall be stated. The location of the factory where the apparatus is manufactured shall be identified. The manufacturer shall also state the number of years they have been building similar vehicles and shall provide color photographs of same.

This is an engineer, design, construct and deliver type specification and is not the intention of this agency to write out vendors or manufacturers of similar or equal equipment of the types specified. It should be noted however, that this specification is written around specific needs of this department. With this intent to standardize certain components, therefore in numerous places we have named specific brands of components. This has been done to establish a certain standard of quality. Other brands will be accepted providing the vendor note in the bid that the particular brand meets or exceeds the quality of the actual brand that the specifications call for.

Each bidder must submit a detailed proposal, which accurately specifies the construction method to be used in the apparatus. The purchaser will utilize this proposal to compare the unit proposed with their specifications. To facilitate comparison, all bid proposal specifications shall be submitted in the same sequence as the advertised specification. Any Bidder who fails to submit a set of construction specifications, or photocopies and submits another’s specifications as their own construction details will not be considered.

DEVIATIONS/EXCEPTIONS

These specifications are based on design and performance criteria, which have been developed by us as a result of extensive research and careful analysis. Subsequently these specifications reflect the only type of fire apparatus that is acceptable at this time. Therefore major exceptions to the specifications will not be accepted.
Deviations from specifications, no matter how slight, shall be clearly explained on a separate cover sheet entitled "EXCEPTIONS TO SPECIFICATIONS". Exceptions and variations (any and all) to these specifications must be set forth on separate sheets, indicating or referencing the page number(s) to the purchaser’s specifications. These exceptions must be submitted with bid. Bids deemed as taking total exception to these published specifications shall result in immediate rejection of the bid. Proposals that are found to have deviations from the specifications without listing them on an “EXCEPTIONS TO THE SPECIFICATIONS" sheet will be rejected.

**PROTOTYPE APPARATUS**

No prototype apparatus will be considered, and all design, operational, and material features must fully comply with the State, and Federal Motor Vehicle Safety Standards.

**DISCRETION**

Each bid shall be in strict compliance with the purchaser’s specifications and shall be accompanied by a detailed description of the work to be performed. Minor details of construction regarding design and material, where not otherwise specified, are to be left to the discretion of the bidder and will be their sole responsibility. The detailed specification section of the specifications shall be adhered to completely. Then it is to be certified by an officer of the manufacturing company and not a sales representative.

**PAYMENT**

Payment terms must be included with the proposal. The purchaser reserves the right to negotiate with the successful vendor regarding, prepayment, payment terms and/or financing as well as delivery terms so long as it meets requirements set by FEMA.

*All proposals are to reflect a 100% performance bonded chassis payment upon receipt of chassis with remainder to be paid on acceptance (not delivery). Failure to submit in this manner shall result in immediate rejection of the proposal.*

**REQUIRED INSURANCE**

All bidders responding to these specifications shall submit the proper Certificate of Insurance. The certificate shall certify that the manufacturer of the vehicle bid has, in force, Product Liability Insurance of a minimum of five million dollars ($5,000,000).

If the bidder’s proposal is accepted by the purchasing party, the bidder shall defend against any and all suits, assume all liability for the use of any patented process, advice, or article forming a part of any apparatus of any appliance furnished under contract.

**ROAD & PUMP TESTING**

A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise.
The successful bidder shall also conduct a two (2) hour pump test on the completed unit and supply proper
documentation upon delivery of unit.

Copies of all testing records shall be forwarded to the fire department prior to the acceptance of the
apparatus. The apparatus must pass all tests in order to be considered acceptable.

**FINAL INSPECTION & TRAINING**

A final inspection of the completed apparatus by two members of the committee will be conducted. Travel
costs including one hotel night and airfare if applicable are to be included in the bid price. In addition, a
qualified representative of the manufacturer shall instruct these personnel in the proper operation, care
and maintenance of the equipment after final inspection.

**APPROVAL DRAWINGS**

There shall be a complete set of drawings that are designed from the specifications and/or any change
orders signed by the purchaser before construction begins. These drawings shall indicate the chassis make
and model, location of lights, siren, horns, compartments and all major components of the unit. The signed
drawings will become part of the contract documents.

**SERVICE LOCATIONS**

To ensure full dealer support for the service after the sale, the selling dealer must be capable of providing
factory service when required. The successful bidder shall maintain an established service center and parts
depot capable of satisfying the warranty service and parts requirements of the vehicle being purchased.

The bidder must state the location of its authorized service center. This service center must have a staff of
factory trained mechanics, well versed in all aspects of service for all major components of the apparatus.
The service center must be within a reasonable distance of the purchaser. The successful bidder will
assume all costs of any services not within reasonable distance as determined by the Chief.

The successful bidder must also maintain a separate facility at the manufacturing site, in order to satisfy
the need for possible major emergency service or repair / collision work.

**NFPA 1906 COMPLIANCE**

**WARRANTY**

The successful bidder shall warrant the apparatus to be free from defects in material and workmanship for a period of one (1) year from the date of delivery to the original retail purchaser. Component parts, if found to be defective, shall be repaired or replaced without cost to purchaser.

This warranty shall be exclusive of the fire pump, and other trade accessories, which are normally warranted by their respective manufacturers.

In addition to the one year base warranty, the following extended warranties with no pro-ration shall be furnished at minimum:

- A twenty (20) year structural warranty
- A ten (10) year paint warranty
- A five (5) year electrical warranty
- A ten (10) year stainless steel plumbing warranty
- A ten (10) year tank warranty

The bidder shall include a certified copy of warranty with the bid proposal.
EVALUATION OF PROPOSAL

Proposals received shall be evaluated by the committee to include but not be limited to the following criteria:

1) Completeness of the proposal (i.e., the degree to which it responds to all requirements of these specifications.)

2) Vendors demonstrated specifications and capabilities including ability to perform warranty work.

3) Design and engineering reliability factors of major structural components, including ease of maintenance of major components.

4) Qualifications and capabilities of the manufacturer to produce a described apparatus.

5) Past history and recommendations of past customers

6) Price

JVFC reserves the right to waive any informality in the proposals received when such waiver is in its best interest; and to except any item in the proposal at its discretion. The competency and responsibility of vendors will be considered in making the award. JVFC does not obligate itself to accept the lowest, or any proposals.

JVFC reserves the right to reject any or all bids, and also the right to reject the bid or bidder who, in judgment of the buying authority is not in a position to perform the duties within the contract. The competency and responsibility of the bidder will be considered in making the award. These specifications, together with any other documents required herein, shall be included in the final contract. Each bidder shall also submit a copy of his proposed contract form.
CHASSIS

The apparatus shall be built on a 2016 Ford F-550 XL Regular Chassis Cab configured as follows:

MODEL

- 165" Wheelbase
- 6.7L OHV Diesel V8 Engine
- 6-Speed Automatic Transmission with Overdrive
- 4x4 with Dual Rear Wheels
- 4.88 Limited-Slip Axle Ratio

PAINT

The apparatus chassis shall be painted Oxford White from the manufacturer.

EQUIPMENT GROUPS

- Power Equipment Group
- Extra Heavy Service Suspension Package
- Low Deflection Package
- Payload Plus Upgrade Package

OPTIONS

- Exterior Backup Alarm
- Center High-Mounted Stop Lamp
- Manual Telescoping Trailer Tow Mirrors
- 19.5" Argent Painted Steel Wheels with 225/70Rx19.5G BSW A/S (6) Tires
- Steel Interior
- Vinyl 40/20/40 Split-Bench Seats
- Transmission Power Take-Off Provision (for possible use in the future)
- Electronic Shift-On-the-Fly (ESOF) - 4X4
- AM/FM Stereo w/Digital Clock & 2 Speakers
- Fire/Rescue Prep Package which includes Dual Alternators and Operator Commanded Regeneration

DELIVERY

Following up-fitting, vehicle will undergo a Pre-Delivery Inspection (PDI) at a Ford dealer as required.
WHEELS, TIRES, AND SUSPENSION UPGRADES

SUPER SINGLE WHEEL CONVERSION

The apparatus will be delivered with special wheels to allow single rear wheels and new front wheels. The wheel offsets will be adjusted for aligning the front and rear truck width to within 1/8”. The wheels will have 9.75” inch section width and will be 19.5” diameter with matching hub and stud location. They will be powder coated satin black color.

TIRES

An Interco Irok or equivalent aggressive tread mud tire sized 36X13.50-19.5 that allows for the proper overall weight of the apparatus will be installed on the special rims. These tires will be load range H with a maximum load of 6,400 pounds each. Brass valve stems will be required. The entire rim and tire will be balanced. Inflation pressure will be 110 psi.

We believe that the Ford factory low deflection package and fender flares will be appropriate for this wheel/tire assembly. However, builder will provide spacer blocks, larger shocks, fender flares, and/or steering stops as required.

Reprogramming of the chassis computer is to be performed to ensure speedometer, odometer, TCM, ABS and transmission shift points perform properly with the upgraded tires and wheels.

A spare tire (no rim) will be delivered with the vehicle.

Factory wheels and tires shall be returned to the purchaser.

TIRE PRESSURE MONITORING

Each tire installed on the apparatus shall be equipped with a tire pressure monitoring device. The device shall consist of a valve stem cap with red and green color bands to indicate tire pressure conditions. If the cap is ALL GREEN, the tire is properly inflated. If the cap is HALF GREEN/ HALF RED, the tire is approximately 10% under inflated. If the cap is ALL RED, the tire is approximately 20% or more under inflated.

HEAVY DUTY SWAY BARS

With an increased GVWR and ground clearance the chassis is outfitted with a substantially larger front and rear sway bar to compensate for the larger load to further limit any chassis and body roll.
TAGS & LABELS

WARNINGS

The following warnings, tags and labels shall be located in the cab:

- Overall Height, Length and GVW (at time of manufacture)
- Cab Seating Capacity and “Occupants Must be Seated and Belted When Apparatus is in Motion”
- "Do Not Move Apparatus When Light Is On” for open door indication

MANUFACTURERS COMPLETED VEHICLE INFORMATION LABEL

- Manufacturers Information
- Date of Manufacture
- Gross Vehicle Weight (GVW) and Gross Axle Weights (GAW) Front and Rear
- Tire Size Front and Rear
- Apparatus Body Paint Number
- Fluid Capacities

FUEL TYPE PLATE

A permanently engraved plate shall be installed on or near the fuel fill to designate the chassis fuel type.

RIDING ON STEP WARNING LABEL

There shall be a label located at all exterior stepping surfaces, stating "Warning: Death or serious injury may result from riding on any stepping surface when the vehicle is in motion.

HELMET WARNING LABEL

A label shall be provided in the cab made visible to everyone in the cab warning that “Helmets are not to be worn in cab and safely secured”.

INTERIOR MODIFICATIONS

CAB CONSOLE

One (1) console shall be installed in the cab. The 20 section of the 40-20-40 cab seating shall be removed to allow installation of the console. The console shall provide mounting locations for the following options in descending order on the console from front to back:

- One map light
- One light/siren control head
- Foam/water tank level
- Two cup holders
- Space for future radio control head
- Two map box slots
- Flashlight and portable radio chargers (see below)

FLASHLIGHTS & PORTABLE RADIO CHARGERS

Two (2) Streamlight Survivor Low Profile rechargeable right angle 145 lumens LED flashlights with chargers shall be installed in the chassis cab.

A Motorola Impress NNTN7624 vehicle charger for an existing APX7000 portable radio shall also be installed in the chassis cab.

Location of these chargers to be either on or near the top the rear portion of the console.

HELMET STORAGE

The helmet for each riding positions shall be stored in a specified body compartment outside the cab.
**EXTERIOR CHASSIS MODIFICATIONS**

**CUSTOM FRONT BUMPER**

The factory front bumper shall be removed and a BuckStop Classic II F550 Wide Bumper or equivalent custom front bumper/grill guard shall be installed. Color is to be flat black.

Factory front bumper shall be returned to the purchaser.

**FOG LIGHTS**

Two (2) 6” round fog lights shall be installed in the custom front bumper. These lights will be controlled by an up-fitter switch located in the cab console.

**FRONT TOW HOOKS**

OEM tow hooks shall be removed from the chassis before the bumper is installed and reinstalled on the custom front bumper

**FRONT WINCH**

A 16,500lb rated line pull (single straight line) winch shall be installed behind the front bumper. It shall have a 12’ remote control lead, 3-stage planetary gear train w/ 156:1 gear ratio, 90’ of 7/16” diameter synthetic rope, and 4-way fairlead roller guide.

**CAB STEP BARS**

One (1) set of stainless steel cab length step bars shall be installed on the chassis cab. The step bars shall be constructed of 3” diameter tubing with UV resistant step pads recess mounted. Color to be black.

**MUD FLAPS**

There shall be a set of black mud flaps installed in the front wheel wells.

**FRONT BUMPER SKID PLATE**

A .250” aluminum skid plate will be installed from the bumper area extending below the bumper extension and chassis radiator area.

**TRANSFER CASE SKID PLATE**

A removable heavy .250” aluminum skid plate assembly shall be installed to protect the oil pan and transfer case.
BODY

BODY CORROSION PROTECTION

The body and all of its components shall be comprehensively protected against corrosion and oxidation by contact between dissimilar metals. In an effort to provide the up most protection the use of gaskets, specially formulated compound and other corrosion resistant barriers shall be utilized wherever it is deemed necessary. The specially formulated compound shall be applied to all fasteners, accent plates and mounted accessories installed on the body in a fashion that will create a barrier between metals, seal out moisture and prevent paint blistering from electrolysis. Nylon washers shall be used as spacers on fasteners to prevent contact with painted surfaces where applicable.

PLATFORM BODY

There shall be a custom flatbed platform fabricated and installed on the vehicle chassis rails. Size to be approximately 90” wide by 112” long. Side rails shall be installed so that the legs are facing out to provide recessed mounting for reflectors, fuel fill, ICC lights and emergency warning lights and devices. The flat bed shall be mounted to the chassis frame rails using rated springs, U-Bolts and hardware designed to handle vibration and torsional forces. There shall be hard reinforced rubber installed between the sills and the chassis frame rails.

The top surface of the flat bed shall be prepped and coated with black Line-X truck bed liner or equivalent.

REAR APRON

The rear apron shall be constructed of .190 5052 H32 bent formed steel, with tapered corners, mounted to the flat bed.

REAR STEPS

Two (2) folding steps with 3/16” aluminum reinforcement shall be mounted on each side of the apron.

REAR WINCH

A 16,500lb rated line pull (single straight line) winch shall be installed behind the flat bed rear apron. It shall have a 12’ remote control lead, 3-stage planetary gear train w/ 156:1 gear ratio, 90’ of 7/16” diameter synthetic rope, and 4-way fairlead roller guide.

REAR TOW EYES

Under the rear tail board there shall be structural steel reinforcement attached to frame rails of chassis to support tow eye assemblies. Mounted at rear center of apparatus it must be capable of withstanding the requirements of towing (not lifting) the apparatus without damage.

GRAB HANDLES

Two (2) 12” knurled grab handle w/ chrome stanchions shall be located on the rear of the apparatus for access to the apparatus bed, one (1) left side and one (1) right side.
MUD FLAPS

There shall be a set of black mud flaps installed in the rear wheel wells.

FUEL/DEF FILL

The factory fuel and urea fill shall be located on the left side of the apparatus bed/body. The urea fill (Blue) shall be forward of the rear axle and the fuel fill (Green) shall be rearward of the rear axle.

SPANNER AND HYDRANT WRENCH SET WITH MOUNTING BRACKET

One (1) lightweight spanner wrench holder shall be installed. The bracket shall hold one (1) hydrant wrench and two (2) universal spanners. It shall be mounted on the rear vertical exterior panel of the left side compartment in the vicinity of the pump discharges.

HARD SUCTION STORAGE

One (1) storage compartment shall be provided center of the apparatus under the bed deck (front to rear) for storage of three lightweight suction hoses sized appropriate to the pump. The compartment shall measure approximately 6 ¾” High x 24” Wide x 100” Deep. The storage compartment shall have a rear access door, bottom hinged with two thumb latches (left and right) and finish to match the rear apron.
COMPARTMENTATION

The platform shall have a combination of storage compartments attached to the deck. All compartments shall be constructed of 1/8” thick polished aluminum tread plate.

Each compartment box shall have a continuous hinge door, a latch which will allow easy opening of the compartment door with gloved hands, and a closed cell neoprene rubber gasket installed around the perimeter of the door to carry off water.

The bottom of each compartment will be lined with Turtle Tile, or an equivalent black 3/4” thick industrial grade matting with an open grid design to allow for maximum drainage and traction. Matting is to be made from recycled PVC and resistant to fungus, mold, grease, solvents, and most common chemicals.

DRIVER SIDE COMPARTMENTS

L1U - One (1) compartment shall measure 32” wide x 32” high x 20” deep and shall be mounted forward of the rear axle on the left side. A horizontal shelf shall be installed ten (10) inches from the top of the compartment. The forward portion of the flat bed shall be notched to allow the top of the compartment to be approximately 9 inches above the top deck surface of the flat bed. This compartment shall have one side hinged tread plate single panel door. This compartment shall have a D-Ring style single point door latch located on the side of the door towards the front of the body. One vent louver shall be provided on the inboard panel of the compartment for ventilation.

L1 - One (1) compartment shall measure 72” wide x 18” high x 16” deep and shall be mounted on the left side rearward the hose reel above the L2 and L3 compartments. This compartment shall have a cover with two (2) rubber “T” handle latches and one (1) chrome handle will be installed over the hose tray. The cover will be hinged on the outboard side with two (2) rubber stops. Two vent louvers shall be provided on the inboard panel of the compartment for ventilation. A rear access door shall also be provided for rear deployment of long handle tools. The rear door shall have a vertical hinge with single point D-Ring latch.

L2 - One (1) compartment shall measure 36” wide x 18” high x 20” deep and shall be mounted on the left side rearward the hose reel. This compartment shall have one bottom-hinged single panel door with stainless steel D-Ring single point locking door latch. Two cables/chains shall be provided to hold the door in an open position 90 degrees from the face of the compartment. One vent louver shall be provided on the inboard panel of the compartment for ventilation.

L3 - One (1) compartment shall measure 36” wide x 18” high x 20” deep and shall be mounted on the left side rearward the L2 compartment. This compartment shall have one top hinged single panel door with stainless steel D-Ring single point locking door latch. Two cables/chains shall be provided to hold the door in an open position 90 degrees from the face of the compartment. One vent louver shall be provided on the inboard panel of the compartment for ventilation.
PASSENGER SIDE COMPARTMENTS

R1U - One (1) compartment shall measure 32” wide x 32” high x 20” deep and shall be mounted forward of the rear axle on the right side. A horizontal shelf shall be installed ten (10) inches from the top of the compartment. The forward portion of the flat bed shall be notched to allow the top of the compartment to be approximately 9 inches above the top deck surface of the flat bed. This compartment shall have one side hinged tread plate single panel door. This compartment shall have a D-Ring style single point door latch located on the side of the door towards the front of the body. One vent louver shall be provided on the inboard panel of the compartment for ventilation.

R1 - One (1) hose storage compartment shall measure 72” wide x 18” high x 16” deep and shall be mounted on the right side rearward the hose reel above the R2 and R3 compartments. A cover constructed of 1/8” aluminum treadplate with two (2) rubber “T” handle latches and one (1) chrome handle will be installed over the hose tray. The cover will be hinged on the outboard side with two (2) rubber stops. One (1) black webbing end cover will be installed at the end open of the hose storage compartment. The end cover will be secured at the top and j-hook / shock cord at the bottom of the tray. Two (2) adjustable hose bed dividers will be installed in the hose storage compartment.

R2 - One (1) compartment shall measure 36” wide x 18” high x 20” deep and shall be mounted on the right side rearward the hose reel. This compartment shall have one top hinged single panel door with stainless steel D-Ring single point locking door latch. Two cables/ chains shall be provided to hold the door in an open position 90 degrees from the face of the compartment. One vent louver shall be provided on the inboard panel of the compartment for ventilation.

R3 - One (1) compartment shall measure 36” wide x 18” high x 20” deep and shall be mounted on the left side rearward the R2 compartment. This compartment shall have one top hinged single panel door with stainless steel D-Ring single point locking door latch. Two cables/ chains shall be provided to hold the door in an open position 90 degrees from the face of the compartment. One vent louver shall be provided on the inboard panel of the compartment for ventilation.
PUMP SYSTEM

PUMP

One (1) Hale Model HPX300-B18 or equivalent pump with NFPA compliant auxiliary manual pull start shall be installed to the flatbed. The pump shall be powered by an 18HP air cooled gasoline engine with electric start. The pump shall be supplied with a remote mounted control panel. This panel shall include a throttle lever, primer lever, master switch, starter button, choke control, a 2.5 inch liquid filled discharge gauge and an oil pressure warning light. Pump to have low oil shutdown. Typical pump performance from 5 foot draft at sea level shall be: 150GPM @ 100PSI, 250GPM @ 75PSI, and 380GPM @ 25PSI.

IDENTIFICATION TAGS

Tags shall incorporate bold contrast letters to indicate the following functions:

- Hose Reel Rewind Switch
- Pressure Gauge
- Low Oil Warning Light
- Tank Fill Valve
- Primer
- Light Switch
- Discharge, Return, & Suction Lines
- Extended Oil Drain
- Manufacturer Name and Phone Number

EXHAUST CAP

One engine exhaust pipe and cap shall be provided with the engine.

PUMP ENGINE OIL DRAIN

The fire pump engine shall have an oil drain line installed that shall allow for easy oil draining.

PIPING

All suction and discharge lines shall be stainless steel pipe and fittings, or pressure-rated flexible hose. Where vibration or flexing may occur, pressure rated flexible hose and/or Victaulic couplings shall be used. All water carrying gauge lines shall be flexible polypropylene tubing.

All suction inlets and discharge outlets shall be equipped with National Standard Threads (NST) unless otherwise noted.

VALVES

All suction and discharge valves shall be quarter turn ball commercial valves
REAR GATED SUCTION

One (1) gated suction with valve, sized appropriate to the pump, shall be located at the rear of the skid unit with a polished NST rocker lug female swivel connection, removable strainer, polished plug with retaining chain.

TANK TO PUMP

The tank to pump valve, sized appropriately, shall be installed between the water tank and the pump. Controls for the valve shall be provided on the operators control panel.

DISCHARGES - TANK FILL

One (1) appropriately-sized tank fill valve shall be mounted in the discharge manifold and piped to the tank.

DISCHARGES - BOOSTER REELS

One (1) 1” discharge with 1” valve shall be mounted in the discharge manifold. This discharge shall be piped with pressure rated flexible hoses to the left live booster reel.

One (1) 1” discharge with 1” valve shall be mounted in the discharge manifold. This discharge shall be piped with pressure rated flexible hoses to the right live booster reel.

DISCHARGE – REAR 1 ½”

One (1) 1 ½” discharge with 1 ½” valve shall be mounted in the discharge manifold. This discharge shall be piped to the rear of the apparatus and be equipped with a 1 ½” NST chrome adaptor, chrome cap and retaining chain.

DISCHARGE – REAR 2 1/2”

One (1) 2 ½” discharge with 2 ½” valve shall be mounted in the discharge manifold. This discharge shall be piped to the rear of the apparatus and be equipped with a wye valve from a single (1) 2-1/2” female to two (2) 1-1/2” connections with caps and chains.

PRIMER

The pump shall be supplied with a venturi exhaust primer. Both the exhaust valve and suction line valve shall be controlled from the pump panel for ease of operation.

FOAM EDUCATOR

There shall be an easy to use foam eductor/mixer supplied and installed on the unit. Foam eductor shall be designed with a control knob calibrated to induct foam concentrate ratios of .1%, 5% and 1% into lines flowing 8, 15, 30 and 50 GPM. Foam proportioning shall be controlled by a metering valve. All pump discharges shall flow either water or foam/water, but not a combination of both at the same time.
HOSE REELS

Two (2) aluminum super booster reels with stainless steel discs and chrome sprockets shall be installed, one on the left and right forward corners of the body. The reels shall be designed to hold 125% of the specified hose capacity of 150 feet. The reels shall be mounted deploying the hose off the side of the apparatus. A manual rewind crank handle shall be shipped loose. Both reels shall be “Wet” style reels with water being supplied from discharges at the pump manifold as called out in these specifications. The booster reels shall be equipped with an electric motor for hose rewinding. A push button switch shall be located in proximity of each reel.

ROLLER GUIDES

There shall be stainless steel roller guides installed below, as well as on either side of each hose reel to aid in the removal of the pre-connected hose.
**BOOSTER AND FOAM TANKS**

**CONSTRUCTION/CAPACITY/INSTALLATION**

The booster tank shall have a capacity of 300 U.S. gallons of water and shall be constructed of UV stabilized black polypropylene material with longitudinal and transverse baffles exceeding NFPA requirements. 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. Tank shell thickness may vary depending on the application and may range from ½ to 1” as required. Internal baffles are generally 3/8” in thickness. It shall be equipped with a 12” x 12” fill tower, a removable poly screen strainer and a hinge pin lid. The fill tower is to be located to the rear of the apparatus. There shall be a 70% transparent plastic liquid sight level on the right side of the rear of the tank. The sight level on the tank shell shall allow the water level inside the tank to be seen without the assistance of electrical instruments.

The tank shall be bolted into place with 3/8” stainless steel bolts and elastomer isolators. A tank overflow hole shall be provided through the bed floor.

**FOAM TANK**

One (1) 10 gallon polypropylene foam cell integral with the booster tank shall be piped to the foam system. The foam cell shall have a fill tower and cover with a vent cap. The tank shall have a valved drain line for the foam cell.

**OUTLETS**

There will be two (2) standard tank outlets: one for the tank-to-pump suction line, which shall be sized to provide adequate water flow to the pump; and, one for tank fill line, which shall be sized according to the NFPA minimum size chart for booster tanks. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates of up to 1000 G.P.M. The addition of rear suction fittings, nurse valve fittings, dump valve fittings, and through-the-tank sleeves to accommodate rear discharge piping must be specified. All auxiliary outlets and inlets must meet all NFPA guidelines in effect at the time of manufacture.

**TANK LEVEL GAUGES**

One (1) dual head electronic Water/Foam gauge shall be installed on the pump operator’s panel as well as in the chassis cab. Gauge shall have individual lighted level gauges for each, water and foam tanks.
12 VOLT WIRING

GENERAL REQUIREMENTS

The following describes the low voltage electrical system on the apparatus including all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The apparatus manufacturer shall conform to the latest Federal DOT standards, current automotive electrical system standards and the applicable requirements of the NFPA.

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

All wiring connections and terminations shall provide positive mechanical and electrical connections and be installed in accordance with the device manufacturer's instructions. When wiring passes through metal panels, electrical connections shall be with mechanical type fasteners and rubber grommets.

Wiring between cab and body shall be split using Deutsche type connectors or enclosed in a terminal junction panel allowing body removal with minimal impact on the apparatus electrical system. Connections shall be crimp-type with heat shrink tubing with insulated shanks to resist moisture and foreign debris such as grease and road grime. Weather resistant connectors shall be provided throughout the system.

Electrical junction or terminal boxes shall be weather resistant and located away from water spray conditions. When required, automatic reset breakers and relays shall be housed in the main body junction panel.

There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless enclosed in an electrical junction box or covered with a removable electrical panel. Wiring shall be secured in place and protected against heat, liquid contaminants and damage.

Low voltage overcurrent protective devices shall be provided for the electrical circuits. The devices shall be accessible and located in required terminal connection locations or weather resistant enclosures. Overcurrent protection devices shall be automatic reset type suitable for electrical equipment 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. Electro-magnetic interference suppression shall be provided in the system as required in applicable SAE standards.

The electrical system shall include the following:

Electrical terminals in weather exposed areas shall have a non-conductive grease or spray applied. All terminal plugs located outside of the cab or body shall be treated with a corrosion preventative compound.
All electrical wiring shall be placed in a protective loom or be harnessed.

Exposed connections shall be protected by heat shrink material and sealed connectors.

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

Electrical components installed in exposed areas shall be mounted in a manner that will not allow moisture to accumulate inside.

A coil of wire must be provided behind an electrical appliance to allow them to be pulled away from mounting area for inspection and service work.

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

Individual rocker switches shall be provided only for warning lights provided exceeding the minimum level of warning lights in either the stationary or moving modes. All electrical equipment switches shall be appropriately identified as to their function and mounted on a switch panel mounted in the cab convenient to the operator.

For easy nighttime operation, an integral indicator light shall be provided to indicate when a circuit is energized.

A single warning light switch shall activate all required warning lights. This switch will allow the vehicle to respond to an emergency "calling for the right of way". When the parking brake is activated, a "blocking the right of way" system shall be automatically activated per NFPA requirements. "Clear" warning lights shall be automatically shed on actuation of parking brake.

12V DC VOLTAGE OUTPUT TESTING & DOCUMENTATION

The low voltage system of the completed apparatus shall be tested and certified by the manufacturer prior to delivery. A copy of the testing and successful completion will be provided to the purchaser with the in the Owner’s Manual. Any failures to these tests will require corrective actions to be taken and re-tested before delivery.

RESERVE CAPACITY TEST

The engine shall be started and run until all engine and engine compartment temperatures are stabilized 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 shut down. The battery system shall then be capable of restarting the engine.

LOW VOLTAGE ALARM

There shall be one (1) low voltage alarm installed on the unit. There shall be an audio and visual indicator installed in the cab.
LOW VOLTAGE ALARM TEST

The engine shall be shut off and the total continuous electrical load shall be activated and continue to be applied until the excessive battery discharge alarm is activated. The battery voltage measured at the battery terminals with the load still applied must be above 11.7 volts or the test shall be considered a failure and corrective actions employed.

ALTERNATOR PERFORMANCE TEST AT IDLE

Minimum continuous electrical load shall be activated while the unit is at idle speed. The engine and engine compartment temperatures are stabilized. 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.

ALTERNATOR PERFORMANCE TEST AT FULL LOAD

The total continuous electrical load shall be activated with the engine running up to the 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 the test. If however, an alarm sounded by excessive battery discharge, as detected by the system, or a voltage of less than 11.7 volts DC for a 12 volt nominal system for more than 120 seconds, it shall be considered a test failure.

BATTERY DISCONNECT SWITCH

A single "on/off" type battery cut off switch shall be installed to furnish 12-volt DC power to all components added during the conversion. The switch will not have to be turned on for normal chassis functions. The switch shall be located at a convenient location to the driver. The factory engine-to-battery connections will not be affected.

BATTERY LIGHT

A green battery on indicator light shall be provided next to the driver’s area to indicate when the battery switch is in the "ON" position.

DOT / FMFSS LIGHTING

There shall be a total of six (6) 4” and seven (7) 2” round DOT lights installed in the bed rail and rear apron of the apparatus body apron. These lights shall be recess mounted in black rubber grommets.

- Two (2) 4” LED red brake/tail lights
- Two (2) 4” LED amber turn lights
- Two (2) 4” LED clear back up lights
- Three (3) 2” LED red marker lights
- Four (4) 2” LED amber marker lights

One (1) LED license plate light installed on the rear of the apparatus.
COMPARTMENT LIGHTS

The body compartments shall be equipped with low voltage, light emitting diode (LED) strip style lighting. Each light strip shall consist of a multiple LEDs encased in a durable and impact resistant translucent shield to protect the diodes from inadvertent contact or collision which may result in damage. The lights shall be mounted vertically in each compartment where they will not interfere with adjustment or accessibility of any shelving or equipment. The compartment lights shall have an individual doorjamb switch, which will allow the compartment lights to activate when the compartment door is opened or closed. They shall be powered by the battery up-fit disconnect switch. Each light shall be sized accordingly to illuminate the compartment adequately. There shall be one (1) light strip per compartment.

COMPARTMENT OPEN LIGHT

A large red light shall be mounted in the cab visible from the driver's and officer's seat. The light shall be activated automatically when the transmission is taken out of park and any of the apparatus body compartments are in the open position. The “Door Open” circuit shall be wired chassis “HOT”.

ENGINE COMPARTMENT LIGHT

There shall be one (1) light installed in the engine compartment to illuminate the engine area. There shall be a switch located adjacent to or on the light.

GROUND AREA LIGHTING

There shall be six (6) high intensity water resistant, LED lights mounted under the unit to provide proper ground area illumination under the cab doors, forward of the rear axle, and under the rear apron. They shall be wired to parking brake circuit.

BATTERY CONDITIONER

One (1) 12 volt automatic battery charger and conditioner will be provided. The battery conditioner will be wired to the chassis batteries. This system will monitor battery voltage, which will charge when required, and shutoff automatically when not required.

One (1) automatically-ejecting 120V receptacle with a weatherproof cover will be provided and wired to the battery conditioner to provide on-board power from the station electric system. The 20 amp 120 volt recessed male inlet receptacle will be mounted in a location to be determined at pre-construction.

BACK-UP CAMERA & GPS

One (1) Garmin combination backup camera and GPS unit shall be furnished utilizing a camera which provides a wide field of view and picture quality. A sealed camera enclosure shall be utilized along with electronic connections. The color monitor shall be installed in cab as determined at pre-construction, either on the dash or on the console.

One (1) camera shall cover the rear of the apparatus, which will activate during back-up mode and during normal operations if needed.
EMERGENCY WARNING SYSTEMS

All emergency audible and visual equipment is to be manufactured in the USA with a minimum five (5) year warranty. Other than the interior lightbar, all lense colors are to match the lighthead colors and have chrome flanges.

WARNING LIGHTS

Zone A Upper:

One (1) Whelen Inner-Edge or equivalent low profile interior LED two piece lightbar with individual driver and passenger side units shall be installed where the windshield meets the headliner on the interior of the cab. Colors to be red-red-red-red-white-red-red-white-red-red-red-red.

Zone A Lower:

Four (4) Whelen M7 or equivalent warning lights, two with red LEDs and two with white LEDs shall be installed in the chassis front grille. Two (2) each side. Red mounted upper and white mounted lower and set to flash in an X-pattern.

Zone B/D Lower:

Two (2) Whelen M4 or equivalent warning lights with red LEDs shall be installed on the ends of the bumper. Two (2) Whelen M7 or equivalent warning lights, with red LEDs shall be installed on each fender near the mirrors. Four (4) Whelen M7 or equivalent warning lights with red LEDs, clear lenses and chrome flanges, shall be installed in flat bed side rails. Two (2) each side. All side lights to be synced to alternate.

Zone C Upper:

Two (2) Whelen M7 or equivalent warning lights with red LEDs shall be installed on the rear of compartments L3 and R3.

Zone C Lower:

Two (2) Whelen M7 or equivalent warning lights with red LEDs shall be installed in the rear flatbed rail and synced to alternate in an X-pattern with the Zone C Upper lights.

ELECTRONIC SIREN

One (1) Whelen CenCom Sapphire siren/light control will be provided and mounted in the cab. This unit will have the ability to control the scene lights, warning lights, and siren from a single keypad. Labels/functions to be determined at pre-construction.

SIREN SPEAKERS

Two (2) 100 watt siren speakers shall be mounted in the front bumper, one (1) on the left side of the apparatus and one (1) on the right side of the apparatus.
WORK/SCENE LIGHTING

WORK LIGHTS

Four (4) LED strip lights shall be installed on the vehicle to illuminate the individual work areas:

- One (1) at the right side booster reel
- One (1) at the left side booster reel
- Two (2) on the rear at the pump operators area

The work lights shall be controlled by the ground light circuit activating when the vehicle’s transmission is put into park.

FRONT SCENE LIGHTS

There shall be two (2) 3” x 3” LED lights mounted on the front bumper and pointed outward at a 45 degree angle facing towards the front-left and front-right corners.

REAR SCENE LIGHTS

There shall be two (2) 3” x 3” LED adjustable work lights installed on the rear of the apparatus, one (1) each side (left/right) facing backwards.

LEFT SCENE LIGHTS

Three (3) 3” x 3” LED lights will be provided and installed on apparatus, spaced evenly front to back, above the L2/L3 compartments.

RIGHT SCENE LIGHTS

Three (3) 3” x 3” LED lights will be provided and installed on apparatus, spaced evenly front to back, above the R2/R3 compartments.
PAINT / STRIPING

PAINT

The body exterior shall have no mounted components prior to painting to assure full coverage of metal treatments. The body shall be painted to match the color provided by the fire department, “candy apple red”, at a level approximately below the windows.

EXTERIOR REFLECTIVE STRIPING

There shall be a 4" wide, white reflective stripe located no higher than 48" from the ground installed on the apparatus cab and body. The stripe shall cover a minimum of fifty percent (50%) of perimeter of each side of the apparatus and fifty percent (50%) of the perimeter of the rear of the apparatus and twenty-five (25%) of the perimeter of the front of the apparatus. An additional reflective gold stripe shall be applied to the chassis cab at the separation between red and white paint colors. The department shall specify the exact location of the stripes.

CAB DOOR INTERIOR REFLECTIVE STRIPING

The completed apparatus shall be equipped with reflective material on the interior of each cab door in accordance with NFPA requirements.

CAB EXTERIOR REFLECTIVE LETTERING

The cab lettering shall be gold reflective material, shaded in black. A quantity of fifty (50) three inch (3") letters spelling “JACKSONVILLE VOL. FIRE CO.” shall be installed as directed.

ALTERNATING “CHEVRON” STYLE STRIPE

The rear skirt of the apparatus shall be overlaid with alternating red and amber reflective diamond grade 6” stripes. Stripes to be configured to resemble in a “Chevron” style lay out where the stripes come in from the sides at an upward 45 degree angle converging in the center to provide an upward point.
LOOSE EQUIPMENT

WHEEL CHOCKS

One (1) set of wheel chocks shall be supplied. There shall be a quick access holster fabricated and installed on the driver’s side to securely hold the wheel chocks while the vehicle is in motion.

HARD SUCTION HOSE

There shall be three (3) sections of hard suction hose with NST threads provided with the completed unit. The hose shall have long handles and be sized appropriate to the pump.

BARREL STRAINER

There shall be one (1) barrel strainer with NST threads provided, sized to fit the suction hoses.

BOOSTER HOSE

There shall be six (6) sections of 1” x 50’ lightweight thin-walled red booster firefighting hose provided. Three sections shall be mounted on each booster reel. This hose shall have a polyester cover for heat and abrasion resistance along with a special helical interior reinforcement to retain its rigid shape.

NOZZLE

There shall be two (2) Task Force Tips (TFT) nozzles model DS1024P supplied with the unit.

ASSORTED FASTENERS

One (1) bag of assorted stainless steel, and chrome fasteners used in the assembly of the apparatus shall be provided with the delivery of the apparatus.

WIRING SCHEMATICS

A complete set of detailed electrical wiring schematics shall be provided with the completed unit. The schematic shall clearly labeled and describe all electrical circuits for an accurate reference.

OPERATIONS & MAINTENANCE MANUALS

Two copies of a complete operations and maintenance manual including a parts list and warranty, covering the completed apparatus as delivered, including, but not limited to the chassis, pump, wiring diagrams, lubrication charts, and firefighting equipment shall be provided.
SEPARATELY PRICED OPTIONS

We would like to ascertain the feasibility and individual pricing for the following options:

1. **FRONT BUMPER TURRET**

   There shall be a 1.5" gated discharge outlet with front bumper mounted remote controlled turret furnished at the front of the apparatus. The front discharge shall be plumbed with 2" pipe or high pressure flexible hose and terminate with a 1.5 NST adapter. Controls for discharge and a gauge shall be located at the operator’s panel. Turret shall be controlled by a joystick controller with integrated valve control. Joystick controller shall be controlled in a convenient and practical location in the apparatus cab. Turret waterway shall be controlled with a heavy duty 2" water valve and waterproof interface box. Turret shall be equipped with a nozzle with a flow capacity of 10-125 GPM.

2. **LARGER WHEELS & TIRES**

   The front and rear tires will be upgraded to Continental MPT 81 size 335/80R20 22PR, severe service radial all terrain tread. The tire weight rating shall be load range "M", and match the rim rating. Wheels for the front and rear axles will be 20" diameter typically used for military/government off road applications. This upgrade package will include a front/rear 5:38 gear ratio, fender flares, hub spacers, and dealer reprogramming.

   The wheels shall be supplied with a bead lock system to secure the outer bead of the tire to the rim. The mechanical device shall be an inner and outer locking plate that secures the bead to the rim using a series of bolts surrounding the entire rim and allows the tire to run flat.

3. **HEAVY DUTY FRONT AXLE**

   The stock Dana Super 60 front axle will be replaced with a Dana 80 axle rated at 12,000 pounds capacity.

4. **LARGER GASOLINE PUMP**

   One (1) Hale Model HPX450-B35 or equivalent pump with NFPA compliant auxiliary manual pull start shall be installed to the flatbed. The pump shall be powered by a 35hp air cooled gasoline engine with electric start. Typical pump performance from 5 foot draft at sea level shall be 310GPM @ 100PSI, 435GPM @ 75PSI, and 500GPM @ 65PSI.

5. **DIESEL FIRE PUMP TIED TO CHASSIS FUEL PUMP**

   One (1) Hale Model HPX200-BD26 or equivalent pump shall be installed to the flatbed. The pump shall be powered by a 26hp diesel engine. Pump shall derive its fuel from the chassis fuel source. Typical pump performance from 5 foot draft at sea level shall be: 160GPM @ 125PSI, 200GPM @ 100PSI, 270GPM @ 50PSI, and 280GPM @ 10PSI. A fuel line shall be provided to the pump from the chassis fuel tank and a return line shall be plumbed from the pump engine to the fuel tank.

6. **LOW-FREQUENCY SIREN/SPEAKER SYSTEM**

   A Whelen Howler or equivalent low frequency siren and speaker system model shall be provided.