INVITATION FOR BIDS
Firefighting Apparatus (Fire Engine)

Issue Date: September 27, 2012
Title: Firefighting Apparatus (Fire Engine)
Commodity Code(s): 07200, 07230, 06534
Issuing Entity: County of Powhatan, Virginia
Fire & EMS Department
Period of contract: From date of award through satisfactory delivery

Sealed bids will be received until 3:00pm, on October 26, 2012 for furnishing the goods/services described herein.

All inquiries for information should be directed to: Philip Warner
Fire & EMS Chief
Phone: (804) 598-5646
Email: pwarner@powhatanva.gov

Sealed bids shall be mailed, delivered by courier, or hand delivered to:
County of Powhatan
Fire & EMS Department
Attention: Fire Engine Bid Package
3864 Old Buckingham Road, Suite B
Powhatan, VA 23139

Absolutely no bids will be accepted past this time, and the Fire & EMS Department does not assume responsibility for packages lost or delivered late via the postal service, courier, or other means of shipping.

In compliance with this invitation for bids and to all the condition imposed therein, the undersign officers and agrees to furnish the goods/services at the price(s) indicated in Section II, Pricing.

Name and address of firm:
_____________________________________________ Date: ________________________________________
_____________________________________________ By: _____________________________________________
_____________________________________________ ( Signature in Ink)
__________________________Zip Code:___________ Name:  ________________________________________
FEI/FIN NO.__________________________________ (Please Print)
Fax Number: (___) ____________________________ Title:  _________________________________________
E-mail Address: _______________________________ Telephone Number: (___) _________________________

PRE-BID CONFERENCE: An optional pre-bid conference/teleconference will be held for this IFB on October 12, 2012, at 10:00AM in the Powhatan County Fire & EMS Conference Room. Those persons interested in attending should RSVP to preams@powhatanva.gov beforehand.
Please note that this document provides bidders the opportunity to bid on the fire engine (Section I, Page 4 of this document), and/or the loose equipment (Section IV, Page 66 of this document) to equip said fire engine. Bidders are not required to bid on both the fire engine and the loose equipment; they may choose either or both. The proposals will be reviewed independently of one another, and the two items may be awarded to separate bidders.

This public body does not discriminate against faith-based organizations in accordance with the Code of Virginia, § 2.2-4343.1 or against a bidder or offeror because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment.
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SECTION I – FIRE ENGINE SPECIFICATIONS

GENERAL REQUIREMENTS

GENERAL
Bids are requested for one (1) custom-cab fire engine apparatus, equipped with a full-tilt cab with seating for six (6). Vehicle shall also have a 1500 gallon-per-minute pump. The apparatus shall meet the requirements of the National Fire Protection Association standard 1901 (current edition) for a fire engine in all respects. The price must remain valid for a period of 45 days from the date of bid opening.

INTENT
It is the intent of this specification to describe the essential minimum requirements for the construction and performance of the apparatus & associated equipment. Items not described in this specification for construction or performance, or in the NPFA standard 1901 (current edition), may be accepted as the standard of the bidder who shall be solely responsible for the design, construction, and performance of apparatus and equipment. Unit shall comply with all federal, state, and Department of Transportation regulations, standards, and laws relating to commercial vehicles as well as fire apparatus.

BID SUBMISSION AND ADDITIONAL INFORMATION
Submit bids using forms furnished in this IFB and fill in all blank spaces in this bid addressed to:
  County of Powhatan
  Fire & EMS Administration
  Attn: Fire Engine Bid Package
  3864 Old Buckingham Road, Suite B
  Powhatan, VA 23139

Bidders shall include the following with their bid submission:
- Completed and Signed IFB
- Vendors Data Sheet
- Proof of Insurance
- Workman’s Compensation Certificate of Coverage
- Dun & Bradstreet Report

VENDORS DATA SHEET
The manufacturer must be satisfactory to the purchaser, for the standpoint of reliability, experience, and demonstrated the ability to manufacture equipment, comparable in size and type, as specified, for the past ten (10) years. A list of fire departments, which have purchased the same type of apparatus from the bidder in the last five (5) years, must be supplied along with the name and telephone number of a contact person.

FINANCIAL VIABILITY AND STABILITY
The purchaser wishes to ensure the financial stability and long-term viability of the manufacturer of the vehicle. This is not only to ensure the delivery of the specified vehicle, but also the ability to service and provide parts during the life of the vehicle. Therefore, the bidder shall submit a Dun & Bradstreet credit report, outlining their current financial position.

BIDDERS REQUEST FOR INFORMATION & CLARIFICATION
Questions pertaining to the specifications of this IFB will be accepted from any and all bidders but must be in writing and directed to the Fire & EMS Chief identified on the cover page. Unauthorized contact with other Powhatan county staff may result in disqualification of the bidder. All questions need to be received a minimum of five (5) business days in advance of the bid acceptance date. It is the responsibility of the bidder to ensure they have received all addendums. Addendums can be found on the eVA solicitation page or on the Powhatan County webpage under “Bids and Solicitations.”

There will be an optional pre-bid meeting on October 12, 2012.

PRE-BUILD CONFERENCE
A pre-build conference will be conducted. This meeting will be held at the manufacturer’s build facility and will address engineering issues related to the construction of the vehicle. A minimum of three (3) sets of drawings shall be provided by the contractor showing vehicle sides, rear, and top views, and identifying compartments location and size and equipment. The drawings are required to ensure that the planned general design, location of equipment, and the details of construction meet the specifications provided. The manufacturer shall issue a report summarizing the meeting within two (2) weeks after the meeting.

MANDATORY & OPTIONAL WORK
All items listed in the specifications are to be considered mandatory, except work and equipment listed in the Options section. Any person bidding on this project must agree to price and perform all work, and furnish all equipment listed in both the mandatory and optional sections of this specification. It is understood that the purchaser may select or delete items listed as options as necessary when evaluating the bid.

TESTS REQUIRED
The road & pump tests required are those specified in NFPA standard 1901 and the Options section of this specification. The bidder, prior to the final factory inspection, shall conduct all tests.

Certificates of satisfactory completion shall be available for examination by the inspecting team.

All data required by NFPA standard 1901 shall be provided at or before delivery.

FAILURE TO MEET TESTS
In the event that the apparatus fails to meet the test requirements of these specifications on the first trial, second trials may be made at the option of the bidder within 30 days of the date of the first trial. Such trials shall be final and conclusive and failure to comply with their requirements shall be cause for rejection. Failure to comply with changes to conform to any clause of the specifications, within 30 days after notice is given to the bidder of such changes, shall also be cause for rejection of the apparatus.

DELIVERY
The apparatus shall be delivered by the bidder under its own power, with all equipment specified, within one-hundred-eighty (180) to three-hundred (300) calendar days from the date of contract award. Delivery shall take place at the Huguenot Volunteer Fire Department, located at 1959 Urbine Road in Powhatan County, Virginia 23139. Rail or truck freight is not acceptable.

Bidder must submit a firm delivery time (number of calendar days from date of order to date of delivery) of said apparatus with their bid. Quoting the number of days after receipt of all components or receipt of chassis is unacceptable.
A deduction of $100.00 per calendar day in liquidated damages may be made for each day over the above quoted delivery date.

**ACCEPTANCE**

Acceptance of the delivered apparatus and equipment will be made at the successful completion of all required tests and receipt of all specified equipment. Equipment items not delivered at time of tests or construction not in conformance with contractor’s proposal will be cause for the accepting authority to withhold payment in an equal amount to the value for those items found unsatisfactory or not delivered.

A pump test as outlined in NFPA 1911 will be performed at the time of delivery. The apparatus must pass all requirements of this chapter to be considered acceptable.

A road test equal to the requirements of NFPA 1901 will be performed, while the apparatus is equipped with all major firefighting accessories including ground ladders, full water tank, personnel, etc. The apparatus must pass all requirements of this chapter to be considered acceptable.

In the event the apparatus fails to meet any of the test requirements on the first trials, second trials may be made at the option of the bidder within thirty (30) days of the date of the first trials.

Such trials shall be final and conclusive and failure to comply with these requirements a second time shall be cause for rejection.

Permission to keep or store the apparatus in any building owned or occupied by the purchaser during the above-specified period, with the permission of the builder, shall not constitute acceptance. Insurance covering loss, theft, or liability shall remain the responsibility of the bidder until formal acceptance is completed by issuing notice to the bidder.

**SOLE-RESPONSIBILITY**

The bidder shall assume complete responsibility for the vehicle, and warranty claims shall not be split between manufacturers (ie: body and cab). The bidder shall coordinate warranty claims on behalf of the purchaser, and work with the local vendor to assure that ALL warranty claims are handled locally (when appropriate) and in a timely fashion.

**BODY CONSTRUCTION MATERIAL**

The body shall be constructed of 3/16” aluminum.

**CAB CONSTRUCTION MATERIAL**

The cab shall be custom made for the fire service, constructed of aluminum. No alterations or additions to commercial cabs or chassis shall be permitted.

A full description including material grade and thickness for the cab MUST be included with the bid.

**PAYMENT TERMS**

Terms of payment shall be 100% payment upon delivery, successful testing, and acceptance of the vehicle. Acceptance will only be completed after any non-compliant items discovered during testing and the final inspection have been corrected to meet the purchaser’s specifications and/or requirements to the purchaser’s satisfaction.
If bidder offers options for price reductions based on chassis pre-payments, or other similar options, the bidder shall outline this in his response.

EXPERIENCE
Each bidder shall complete the attached “Vendor Data Sheet” listing three government entities they have provided a similar fire apparatus for and the contact information so such persons may be reached.

Bidders shall furnish satisfactory evidence with their bid of their ability to design, engineer, and construct the apparatus specified and shall state the location of the factory producing the apparatus.

Bidders shall also substantiate that they, or an identified subcontractor, are in a position to render prompt and proper service as well as the ability to furnish replacement parts for the apparatus.

The manufacturer must be satisfactory to the purchaser, from the standpoint of reliability, experience, and demonstrated the ability to manufacturer equipment, comparable in size and type, as specified, for the past ten (10) years. A list of fire departments, which have purchased a similar type of apparatus from the bidder in the last five (5) years, must be supplied along with the name and telephone number of a contact person.

UNDERSTANDING OF REQUIREMENTS
It is the responsibility of each bidder to inquire about and clarify any requirements of this solicitation that are not understood. The County will not be bound by oral explanations as to the meaning of specifications or language contained in this solicitation. Therefore, all inquiries deemed to be substantive in nature must be in writing and submitted to the Fire & EMS Chief, Phil Warner. Bidders must ensure that written inquiries reach the Fire & EMS Chief at least five (5) days prior to the time set for receipt of bids. A copy of all queries and the respective responses will be provided in the form of an addendum to all bidders who have indicated an interest in responding to this solicitation. Your signature on your Bid certifies that you fully understand all facets of this solicitation.

USE OF BRAND NAMES
Unless otherwise provided in this solicitation, the name of a certain brand, make or manufacturer does not restrict bidders to the specific brand, make or manufacturer named, but conveys the general style, type, character, and quality of the article desired. Any article which the public body, in its sole discretion, determines to be the equivalent of that specified, considering quality, workmanship, economy of operation, and suitability for the purpose intended, shall be accepted. The bidder is responsible to clearly and specifically identify the product being offered and to provide sufficient descriptive literature, catalog cuts and technical detail to enable the County to determine if the product offered meets the requirements of the solicitation. This is required even if offering the exact brand, make or manufacturer specified. Normally in competitive sealed bidding only the information furnished with the bid will be considered in the evaluation. Failure to furnish adequate data for evaluation purposes may result in declaring a bid nonresponsive. Unless the bidder clearly indicates in its (bid/proposal) that the product offered is an equivalent product, such (bid/proposal) will be considered to offer the brand name product referenced in the solicitation.

AWARD
The County reserves the right to make multiple awards as a result of this solicitation. The award(s) will be made to the lowest responsive and responsible bidder(s) meeting the requirements of the solicitation. The County reserves the right to conduct any tests it may deem advisable and to make all evaluations. The County also reserves the right to reject any or all bids, in whole or in part, to waive informalities and to delete items prior to making the award, whenever it is deemed in the sole opinion of the procuring public...
body to be in its best interest. The right is reserved to make a separate award of each item, a group of items or all items, and to make an award either in whole or in part, whichever is deemed in the best interest of the Commonwealth. The award or awards will be made to the lowest responsive, responsible bidder or bidders, as applicable.

EVALUATIONS & EXCEPTIONS
Any exception or variation in construction, performance, test, or items of equipment between the purchaser’s specifications and bidder’s proposal shall be detailed and submitted on a separate sheet(s) along with bidder’s proposal in bid sequence, citing page and paragraph number. Bidder must explain in detail, with full supporting data, how the proposed deviation meets or exceeds the specifications.

FAILURE TO COMPLY WITH THIS SECTION OR BIDS THAT INDICATE THAT THE BIDDERS PROPOSAL SUPERSEDES THE PURCHASERS SPECIFICATIONS WILL AUTOMATICALLY BE DISQUALIFIED.

The purchaser reserves the right to determine which (if any) deviations and/or exceptions are acceptable.

A complete and accurate set of contractor’s specifications of the proposed apparatus must be submitted with the bid for the purpose of comparison.

The purchaser’s specifications shall, in all cases, govern the construction of the apparatus, unless a properly documented exception or deviation is approved in writing by the purchaser.

All exceptions shall be stated no matter how minor. Any exceptions not taken shall be assumed by the purchaser to be included in the proposal, regardless of the cost to the bidder.

PROPOSAL DRAWINGS
A set of line drawings (blueprints) of the proposed apparatus shall be included with the bidder’s proposal. These drawings shall show overall apparatus dimensions, and views of both sides, front, and rear of the apparatus. Generic or “similar to” drawings shall not be acceptable.

These drawings will not be used as the acceptance drawings.

COMPLIANCE TO SPECIFICATIONS
The finished apparatus will be inspected upon delivery for compliance with specifications and previously authorized exceptions. **Deviations will not be tolerated and may be cause for rejection of apparatus unless the deviations were originally listed in the bidder’s proposal and accepted by the purchaser, in writing.**

Liquidated damages in the amount of $100.00 per calendar day may be claimed for each day after the delivery date, beginning seven days after delivery, and deducted from final payment until the apparatus is formally accepted by the purchaser. If, after 30 days from the delivery date, the apparatus is not brought up to compliance, the bidder may be considered in default of the contract and procedures to enforce the provisions of the performance bond may be undertaken.

MANUFACTURER’S RELIABILITY
The manufacturer must be satisfactory to the purchaser, for the standpoint of reliability, experience, and demonstrated the ability to manufacturer equipment, comparable in size and type, as specified, for the past ten (10) years. A list of fire departments, who have purchased the same type of apparatus from the bidder in the last five (5) years, must be supplied along with the name and telephone number of a contact person.
SPECIFICATION BID REQUIREMENTS
Bidders shall also indicate in the right hand column if their bid does NOT comply on each item (PARAGRAPH) specified and explanation of such non-compliance provided. Exceptions may be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate page(s).

Proposals taking total exception to specifications shall be cause for immediate rejection.

Also, bidders shall submit a detailed proposal. A letter only, even though written on company letterhead, shall not be sufficient. Bid proposals shall be submitted in the same approximate sequence as specifications for ease of evaluation comparison and checking of compliance. An exception to these requirements shall not be permitted.

THE RIGHT TO REJECT BIDS/PROPOSALS
The purchaser reserves the right to reject any and all bids and/or proposals received, and accept any bid which, in its judgment, best serves the interests of the County.

BID BOND
A bid bond in the amount of ten percent (10%) of the bid shall be furnished with the bidder’s proposal. The bond will ensure that the bidder will submit a Performance Bond within 15 days of the notice of award of contract. In case of failure to comply within the stated time, the bid bond will be forfeited as liquidated damages because of the default.

The bid bond of all other bidders will be returned after bids are opened, and evaluated, and a bid(s) awarded.

PERFORMANCE BOND
A performance bond in the amount of one hundred percent (100%) of the bid shall be furnished by the successful bidder within 15 (fifteen) days after receiving the official notice of the award of contract. Failure of the contractor to complete delivery according to the contract and specifications will be cause to begin action for forfeiture of performance bond. The bond shall also guarantee compliance and performance with the warranty provisions of the specifications.

FINANCIAL STABILITY
The purchaser wishes to ensure the financial stability and longevity of the manufacturer of the vehicle. This is not only to ensure the delivery of the specified vehicle, but also the ability to procure service and parts during the life of the vehicle. Therefore, the bidder shall submit a Dun & Bradstreet credit report, and information explaining the bidder’s status, financial stability, future viability, and sustainability, if such information is not already included in the Dun & Bradstreet credit report.

PRODUCT LIABILITY
The successful bidder shall supply a certificate of product liability insurance and defend any and all suits and assume liability for the use of patented devices or articles forming a part of the apparatus furnished under the contract. The successful bidder shall indemnify, defend, and hold harmless the purchaser, its officers, agents, employees, and volunteers for and against any claims arising from any and all injuries to persons, personal or real property related to the fire apparatus or equipment provided, arising from and related to any and all claims of product liability.

SERVICE FACILITY
The bidder must maintain, or have a contract with, a service center within one hundred fifty (150) road miles of the offices of the Powhatan Fire & EMS, located at 3864 Old Buckingham Road in Powhatan County, Virginia 23139. Adequate indoor heated facilities and one mobile service unit shall be available to perform repairs in an agency normally engaged in the repair of fire apparatus, including power train, chassis, pump, and accessories.

The bidder shall submit the location & description of the service center.

The purchaser reserves the right to visit the facility for the purpose of evaluation and to reject any bidder who, in purchaser’s sole discretion and opinion, does not fully comply with the provisions of this section.

REPLACEMENT PARTS
The vendor or manufacturer bidding on these specifications must make available routine repair parts in not more than forty-eight (48) hours from the time and date the request is issued either verbally or in writing.

The purchaser reserves the right to reject bids of vendors who can not produce satisfactory evidence that they can furnish promptly, spare parts needed for service or repair of the equipment herein specified.

DELIVERY TERMS
The apparatus shall be delivered by the bidder under its own power, with all equipment specified, within one-hundred-eighty (180) to three-hundred (300) calendar days from the date of contract signing. Delivery shall take place at the Huguenot Volunteer Fire Department, located at 1959 Urbine Road in Powhatan County, Virginia 23139. Rail or truck freight is not acceptable.

Bidder must submit a firm delivery time (number of calendar days from date of order to date of delivery) of said apparatus with their bid. Quoting the number of days after receipt of all components or receipt of chassis is unacceptable.

A deduction of $100.00 per calendar day in liquidated damages may be made for each day over the delivery date quoted pursuant to this section.

PRE-DELIVERY SERVICE
After transportation from the factory and immediately prior to delivery, the apparatus shall receive a pre-delivery service consisting of: front end alignment, engine oil & filter change, chassis lubrication, adjustment of engine to manufacturer’s specifications, complete inspection including all electrical and mechanical devices for proper operation, correction of leaks or obvious problems and complete cleaning, detailing, and a Virginia state inspection. Documentation of these services shall be provided at time of delivery.

FACTORY TRIPS
The successful bidder shall include two trips to the build facility. Each trip shall be for three (3) representatives of the purchaser. Any build facility that is more than two hundred (200) air miles from the office of Powhatan Fire & EMS shall be traveled to via commercial air.

The first trip shall be for the purpose of an engineering meeting where three (3) representatives of the purchaser shall make final plans, clarifications, and approvals for the specified apparatus.

The second trip shall be a final inspection.

Trips shall be for a minimum of two (2) days in duration, and shall include all commercial transportation, meals, and lodging and be conducted during normal business hours, Monday through Friday.
The apparatus must be in finished condition and ready for shipment when the final inspection is scheduled.

A road performance test and pump test demonstration shall be performed during the final inspection. Certificates of third party testing of the pump must also be available for inspection.

In addition, the purchaser reserves the right to visit the manufacturer’s facility at any time, at no cost to the bidder, to monitor the construction of the apparatus. Advanced notice of these visits will be made prior to arrival.

County selected staff to perform the inspection trip shall be in accordance with the Commonwealth of Virginia’s standards and guidelines found at: http://www.doa.virginia.gov/Admin_Services/CAPP/CAPP_Topics/20335_Meals_Lodging_102010.pdf.

The cost of such inspection trips shall be deducted from the amount of the invoice the contractor submits to Powhatan for payment upon Powhatan’s approval and acceptance of the vehicle.

APPROVAL DRAWINGS
Drawings for approval and line drawings (blueprints) with all details thereon must be furnished after the pre-construction conference and before construction of the apparatus begin. These engineering drawings must be drawn to scale and representative of the bid unit after the pre-construction conference clarifications are incorporated. Views of both sides, as well and the front, back, and top must be shown.

The purchaser will endeavor to make every effort to correct the approval drawing before it is returned. However, if a variation or omission between the approval drawing and the written specification is discovered, the written specifications shall prevail.

GENERAL WARRANTY STATEMENT
All warranties shall commence from the date of the County of Powhatan’s on-site formal acceptance of the apparatus. The bidder shall assume complete responsibility for the vehicle, and warranty claims shall not be split between manufacturers (ie: body and cab). The bidder shall coordinate warranty claims, and work with the local vendor to assure that ALL warranty claims are handled locally (when appropriate) and in a timely fashion.

The bidder guarantees and warrants that all articles of equipment, including all parts thereof, comply in all respects, or are fully equal to the standards and specifications called for in the Invitation for Bids.

WARRANTY TERMS
Where a specific length of time is called for in the following sections, these shall be considered minimum time periods.

APPARATUS WARRANTY
The bidder shall warrant the apparatus and effective materials and workmanship for a period of no less than one year from the date that the apparatus is placed in service. The bidder’s warranty shall conform to those specified here, and accompany the bid proposal.

The frame rails shall be warranted from cracks and failure for the life of the vehicle.
The successful bidder also agrees to assist the purchaser in the coordination of warranty claims of the major components, such as the engine, transmission, pump, tank, etc.

The specifications shall prevail in any variation between the manufacturer’s offered warranty and those required in the specifications, unless an exception has been granted.

**CAB WARRANTY**
The cab structure shall be warranted for a period of ten (10) years or one hundred thousand (100,000) miles which ever may occur first. Warranty conditions may apply and shall be listed in the detailed warranty document that shall be provided with the bid proposal or at time of delivery.

**BODY & SUBFRAME WARRANTY**
The body and subframe shall have a minimum twenty (20) year warranty.

**COMPONENT WARRANTY**
The tires, batteries, and electrical devices subject to deterioration from normal wear & tear shall be covered by their respective manufacturer’s warranty or guarantee. Where the component manufacturer does not provide a warranty equal in time to the one (1) year specified, the additional warranty will be the responsibility of the bidder.

A complete list of warranties, their beginning dates, and durations shall be supplied at the time of delivery.

**ENGINE WARRANTY**
A manufacturer’s five (5) year parts and labor warranty shall cover the engine.

**TRANSMISSION WARRANTY**
The automatic transmission shall be covered by the manufacturer’s five (5) year parts & labor warranty.

**AXLE WARRANTY**
The front and rear axles shall be covered by the manufacturer’s three (3) year warranty.

**PUMP WARRANTY**
The pump shall be covered by the manufacturer’s five (5) year parts & labor warranty.

**WATER & FOAM TANK WARRANTY**
The water & foam tank shall be covered by a lifetime warranty.

**WARRANTY – PAINT AND CORROSION**
The cab and body exterior paint finish shall be warranted against blistering, peeling, bubbling, lack of adhesion, or any other manufacturing or material defect for a period of seven (7) years.

The cab and body shall also be warranted against corrosion & perforation for a period of ten (10) years.

A copy of the manufacturer’s warranty shall be included with the bid.

**TRAINING**
After delivery, and prior to being placed in service, an appointment will be made to have a factory representative present to familiarize those persons, designated by the Chief of the Department, with the basic
operation of the apparatus and its components, including the Compressed Air Foam System (CAFS). The CAFS training shall be instructed by CAFS trainer from the manufacturer of the CAFS system, and the training shall last up to 16 hours.

The training program will be held based on the availability of the volunteer fire service members of the station. The Chief of the Department or his designee will work with the bidder to finalize a date, time, and location for this training.

INFORMATION REQUIRED
The manufacturer shall supply, at time of delivery, two complete operation and maintenance manuals covering the complete apparatus as delivered. One shall be on CD/DVD and the other in hard copy.

A permanent plate shall be mounted in the driver’s compartment which specifies the quantity and type of fluids required: engine oil, engine coolant, transmission, pump transmission lubrication, pump primer, and drive axle. Also included shall be the manufacturer’s serial number. This label shall be mounted on an area where it can be easily seen and read (not mounted behind driver’s seat, etc).

CHASSIS & VEHICLE COMPONENTS

CHASSIS AND CAB
The cab shall be a custom tilt-cab type, manufactured specifically for the fire service. Modifications to a commercial cab are unacceptable. Cab shall have four side doors.

The cab shall be of the Medium Four Door style.

The cab width shall be at least 94” to 96”, shall have an overall length of approximately 130” and measure approximately 54” from the centerline of the front axle to the rear of the cab.

A flat floor between the rear doors shall be provided, for ease of movement and safety.

The interior height in the non-raised-roof area of the cab shall be not less than 57” and the raised roof portion shall be not less than 65”. Measurements shall be made on the finished interior.

The measurement of the interior floor, from the rear of the engine tunnel to the rear wall of the cab shall be approximately 50”. Measurement shall be made on the finished interior.

FRAME
The frame shall be constructed from channel frame rails, fabricated cross members and shall be bolted together using Grade-8 hardware.

Frame rails shall be formed in a “C” channel, and shall have minimum measurements of 10.25”H x 3.5”D upper and lower flanges x 0.38 thick.

The rails shall have a RBM of at least 1,800,000 pounds, and have a section modulus of at least 16 cubic inches.
A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The head bolts shall be flanged type with distorted threads, held in place by flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates.

APPARATUS DIMENSIONS
Apparatus size and maneuverability is of concern to the purchaser. The following dimensions shall be applied:

- Overall length: 32’0” to 34’0”.
- Overall height: 9’3” to 10’3”.
- Wheelbase: 180” to 190”.

DOORS
Four side entry doors shall be provided.

Cab doors shall have a hidden stainless steel piano hinge on the forward edge of the door, with a strap on the inside of the door to keep the door from opening past 90 degrees. Hinge rod shall measure a minimum 0.38”.

The cab doors shall be full-height (no barrier doors). The crew area doors shall be as tall as the raised roof section.

The doors shall have weather stripping to eliminate the elements and wind from entering the cab.

Doors shall be able to be locked with a key from the exterior.

Doors shall have an interior grab handle large enough to grasp with a gloved hand.

Entire interior door surface shall be covered with brushed aluminum – no plastic shall be included. Located at the bottom of the door shall be at least 96” square inches of 3M Diamond Grade reflective chevron material. Chevrons on the doors shall match the chevrons on the rear of the vehicle, relative to the side of the vehicle they’re on.

CAB DOOR HARDWARE
The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of aluminum with a chrome plated finish. The interior exit door handles shall be flush paddle type, which are incorporated into the upper door panel.

All cab entry doors shall include locks which are keyed alike. The door locks shall be designed to prevent accidental lockout. The exterior pull handles shall include a scuff plate behind the handle constructed of polished stainless steel to help protect the cab finish.

DOOR LOCKS
Each cab entry door shall include a manually operated door lock. The each door lock shall be actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door or by using a key from the exterior.

RAISED ROOF
The cab shall have an approximate 10” raised roof section, which shall include the driver’s and officer’s positions.

Raised roof shall include same structural integrity measures as the rest of the cab roof area.

**CAB GLASS**
All side glass in the cab shall meet FMVSS and SAE standards.

All four cab doors shall be equipped with electric operated windows.

The door switches shall be flush mounted, heavy duty automotive style switches.

Mounting location of the controls shall be determined at engineering conference, with attention being given to keeping the switches away from the driver’s knees. A bank of switches for all windows shall be provided for the driver.

All windows must retract into the door cavity fully.

No windows shall be provided on the rear cab wall.

One side cab window shall be provided, located between the front and rear officer’s side door.

**CAB COMPARTMENT**
A compartment shall be provided between the front and rear cab doors on the driver’s side. Compartment shall have a locking, hinged interior door.

The exact dimensions of the compartment will be determined at engineering, however, bidder should anticipate the compartment to be as wide as possible, as deep as possible, and a height to be determined.

Compartment shall be finished with a durable, non-glare surface.

**CAB FLOORING**
The floor of the apparatus shall be covered in a heavy rubber flooring material.

**CAB SIDE DRIP RAIL**
There shall be a drip rail along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.

**CAB SAFETY**
The cab must meet industry standards for safety, including crash testing and loading bearing tests. These tests shall include International crash test ECE-R29, SAE J242 (COE Frontal Strength Evaluation Dynamic Load Testing), and SAE J2422 (Cab Roof Strength Quasi-Static Roof Load Test).

The cab & chassis shall be supplied with anti-lock brakes, electronic stability control, and roll-over protection to include side air bags.

Seatbelt monitoring shall be included, indicating any occupied seats in which the occupants aren’t seat belted in when the parking brake is released. Indicator/display shall be within easy view of the driver and/or officer.
DATA RECORDING SYSTEM
The chassis shall have a Vehicle Data Recorder system installed. The system shall be designed to meet NFPA 1901. The following information shall be recorded:

- Vehicle Speed
- Acceleration
- Deceleration
- Engine Speed
- Engine Throttle Position
- ABS Event
- Seat Occupied Status
- Seat Belt Status
- Master Optical Warning Device Switch Position
- Time
- Date

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system.

SIDE ROLL PROTECTION
The vehicle shall include the RollTek™ rollover occupant protection system which shall secure occupants, increase the survivable space within the cab, and protect against head/neck injuries in the event of a roll over accident.

The system shall function using a microprocessor-controlled, solid-state sensing device which, when the system detects a side roll shall provide instantaneous occupant protection (less than 0.3 seconds from trigger to total deployment) by automatically initiating the following sequence:

1. The seat belt shall tighten around the occupant on all seats excluding theatre flip-up style seating.
2. The air suspension on each seat shall be reduced to its lowest position, tightens belt around occupant and locking the seat in this position thereby providing more survivable space and minimizing head contact with the interior roof (available when air suspension seats are specified).
3. An inflatable curtain shall deploy which includes an air filled bag across the driver's and passenger's side windows which shall protect and cushion the head and neck of the occupant thereby reducing movement and the chance of head contact with the side of the vehicle. The inflatable curtain shall be applicable on all seats adjacent to the cab side excluding theatre flip-up style seating.

System Components Shall Include:
- Integrated Roll Sensor IRS - detects an imminent rollover, activates protective devices and records crash events.
- Integrated Belt Pretension IBP device (not available with air suspension seats) - tightens the seat belt around occupant, securing occupant in seat and positions occupant for contact with integrated head cushion.
- Seat Pull-down System S4S (air suspension seats only) - locks seat to lowest position, increases survivable space, tightens belt around occupant, secures occupant in seat and positions occupant for contact with integrated head cushion.
- Inflatable Head Cushion IHC - protects head/neck and shields occupant from dangerous surfaces. Remains inflated for 8-10 seconds. This device shall affect the driver, officer and adjacent seats to cab side excluding theatre flip-up style seating.

WINDSHIELD
The windshield, measuring at least 2900 square inches, must comply with FMVSS and SAE standards. The windshield shall be of the two-piece wrap-around design.
The windshield must be of a contoured design on the outer edges for maximum visibility. The windshields must be of a standard size, readily available for replacement, and shall be the same on both sides of the vehicle.

**WINDSHIELD WIPERS**

Windshield wipers shall comply with FMVSS and SAE standards.

Wipers shall have a high, low, and intermittent setting, all controlled from a stalk on the steering wheel column. Wipers shall work together, and not be independent.

Wipers shall have an automatic “return to park” feature.

Wipers shall “return to park” with the application of the parking brake.

Wiper system shall include an integral washer fluid reservoir, which is located in an area that allows it to be easily inspected and filled without raising the cab. Bidder shall include details in bid package.

**GRAB HANDLES**

Grab rails, measuring approximately 24” tall each, shall be located aft of each cab door. Manufacturer may install their standard length grab rail in lieu of the 24” handle; however, exception shall be taken.

A grab rail shall be provided on the inside of the “A” posts to assist the driver and officer with cab entry and exit.

Grab rails shall be mounted with a dielectric barrier between dissimilar metals.

**MIRRORS**

Polished aluminum “West Coast” style mirrors shall be mounted on the driver’s and officer’s door. The mirror assembly shall include both a flat mirror and convex mirror.

Both the upper and lower mirrors shall be heated and remote-controlled. A switch for each mirror shall be installed in a location that is convenient to the driver.

**TOW HOOKS & EYES**

Two painted heavy-duty front tow hooks shall be securely attached to the front chassis frame rails.

Rear tow eyes attached to the frame shall be provided. Tow eyes cannot be recessed in a compartment.

**FRONT BUMPER & ACCESSORIES**

The apparatus shall be equipped with a one-piece bumper constructed of polished stainless steel.

Bumper shall be mounted to frame rail extensions measuring approximately 20” long.

The space between the cab face and the front bumper, on top of the frame rails, shall be covered with polished diamond plate.

A hose tray shall be provided, towards the driver’s side, capable of holding two sections of 1 ¾” double jacketed fire hose in a doughnut fashion. Hose shall be pre-connected to a 2.5” diameter polished chrome chicksan swivel, and shall have a smooth bore nozzle attached.
A hose tray shall be provided, between the frame rails, to store a 20’ section of 5” single jacket LDH hose. Drain holes shall be provided as well.

A Federal Q2B mechanical siren shall be provided and installed in a location decided at the engineering conference, and as dictated by other bumper options.

An electronic siren speaker shall be provided within the front bumper, covered by a polished cover.

Two Hadley air horns shall be provided, located in a location decided at the engineering conference, and as dictated by other bumper options.

None of the above bumper options shall interfere with tilting the cab.

**HEADLIGHTS**
Four square headlights shall be mounted on the face of the cab. High-beam lights shall be activated by activation of the turn signal stalk on the steering column.

Headlights shall turn off upon application of the parking brake.

**MUTIPLEXED CAB AND CHASSIS**
The cab, chassis, and body shall utilize a multiplexed wiring system. The multiplexed system shall include the cab, body, and other features that are standard for the bidder when constructing their cab and chassis.

*The bidder shall outline his proposal the specifics of his multiplexed wiring system, including successful installation of the bidder’s proposed system in at least ten (10) other like cab & chassis designs.*

**FRONT AXLE**
The vehicle shall utilize a Meritor MFS-18 front axle with a capacity of 18,000 pounds.

Turning (cramp) angle shall be a minimum 45 degrees, but sharper as axle, tires, and wheels allow. Turning angle to be stated in bid.

Premium oil seals shall be provided on the front axle. The oil level can be checked via clear windows on the front axle hubs.

The front axle shall be equipped with s-cam disc brakes with automatic slack adjusters. Bidder shall detail the brake system in his bid.

**FRONT SUSPENSION**
The front suspension shall include four (4), 54.00 inch long and 4.00 inch wide taper leaf springs with a military double wrapped front eye. Both spring eyes shall have a case hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 18,000 pounds.

**FRONT SHOCK ABSORBERS**
Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the front suspension system.
**STEERING SYSTEM**
The apparatus shall be equipped with a TRW model TAS-85 power steering unit with an assist cylinder, which is rated to steer the front axle capacity.

The system will operate mechanically should the hydraulic systems fail.

An 18.0” diameter steering wheel shall be provided, with tilt and telescope features. Steering wheel shall have a horn-ring center button.

**REAR AXLE**
The vehicle shall be equipped with a single rear axle with a capacity commensurate with the rear axle loading of the vehicle. Axle description and capacity to be stated in the bid.

Differential gearing to allow a top speed of approximately 67+/– miles per hour.

Premium oil seals shall be provided on the rear axle.

The rear axle shall be equipped with “S” cam disc brakes and automatic slack adjustors.

**REAR SUSPENSION**
The rear suspension shall be semi-elliptical leaf type with a variable rate with a rating commensurate with the rear axle loading of the vehicle. Grease fittings shall be provided in easily accessible locations.

The rating shall be designed to match or exceed the rear axle.

Bidder shall describe rear suspension design in bid package.

**FRONT BRAKES**
The front brakes shall be Meritor EX225 Disc Plus disc brakes with 17" vented rotors.

**REAR BRAKES**
The rear brakes shall be Meritor EX225 Disc Plus disc brakes with 17” inch vented rotors.

**PARKING BRAKE**
Upon application of the push-pull valve in the cab, the rear brakes will engage via a mechanical spring. In addition to the mechanical rear brake engagement, the front service brakes will also engage via air pressure, providing additional braking capability.

**PARK BRAKE CONTROL**
A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color and within easy reach of the driver.

**ANTI-LOCK BRAKE SYSTEM**
The vehicle shall be equipped with an anti-lock brake system. The ABS shall provide a four-channel anti-lock braking control on both the front and rear wheels.

**ENGINE**
Vehicle shall be equipped with a **medium-block** motor as described below:
Rated Power: Approximately 450 BHP
Rated Torque: Approximately 1250 lb/ft @ 1300 RPM
Governed Speed: Approximately 2200 RPM

DIESEL EXHAUST FLUID TANK
Should the engine be equipped with a diesel exhaust fluid tank, the bidder shall include a section describing the tank location, fill location, dash-mounted fluid level indicator, and other specifics of the system’s components.

ENGINE CERTIFICATION
The fire apparatus manufacturer shall provide at the time of apparatus delivery, a letter from the engine manufacturer stating that they approve of the engine installation in the bidder’s chassis.

ENGINE AIR INTAKE
The air intake with ember separator shall be furnished on the forward portion of the engine. The separator shall be easily accessible by tilting the cab.

EXHAUST SYSTEM
The exhaust system shall be stainless steel from the turbo to the diesel particulate filter (if so equipped) and shall be minimum 5.0” in diameter. The exhaust system shall include filtration and cleaning systems to meet current EPA standards.

The exhaust system shall terminate on the officer’s side of the body, ahead of the rear wheels. A polished chrome tip shall be provided for a pleasing appearance.

A heat deflector shield shall be provided where the exhaust is routed underneath compartmentation, and where body parts might reasonably come in contact with the hot exhaust.

ENGINE BRAKE
A Jacobs Vehicle Systems brake (“Jake Brake”) shall be installed with the controls located on the instrument panel within easy reach of the driver.

The driver shall be able to turn the engine brake system on/off and have a high, medium, and low setting. An indicator light shall illuminate when the switch is in the “on” position.

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

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

ENGINE HIGH IDLE
A switch shall be provided on the cab instrument panel that will allow the vehicle to automatically high idle to approximately 1000RPM.

The high idle shall only be operational when the parking brake is set and the transmission is in neutral. A light shall be located adjacent to the switch to illuminate when the high idle is engaged.

FUEL FILTER
A filtering system shall be provided. The fuel filtering system shall be remote mounted on the chassis.
AIR COMPRESSOR, BRAKE SYSTEM
The air compressor shall have a minimum 15.6 cubic feet per minute (CFM) output.

BATTERY SYSTEM
Six (6) 12 volt batteries that include the following features shall be provided:

- 900 CCA (cold cranking amps)
- High cycle
- Maintenance free
- Group 31
- Rating of 6000 CCA at 0 degrees Fahrenheit
- 1110 minutes of reserve capacity
- Threaded posts

BATTERY STARTING SYSTEM
A single starting system shall be provided.

An ignition switch and starter button shall be located on the instrument panel.

MASTER BATTERY SWITCH
A master battery switch, to active the battery system, shall be provided in the cab within easy reach of the driver. The switch should be mounted in a location easily accessible while standing at the open driver’s door.

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

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

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

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

JUMPER STUDS
One (1) set of battery jumper studs with plastic color-coded covers shall be installed on the front side of battery box on the driver's side. This shall allow enough room for easy jumper cable access.

BATTERY CHARGER
An IOTA, model DSL 75 or approved equal battery charger with IQ4 controller shall be provided.

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

A Kussmaul remote indicator #091-94-12 or approved equal shall be included.

BATTERY CHARGER LOCATION
Battery charger shall be mounted behind driver’s seat.

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

**KUSSMAUL SUPER-AUTO EJECT FOR SHORE LINE**

One (1) shoreline receptacle shall be provided to operate the dedicated 120-volt circuits on the vehicle without the use of a generator.

The shore line receptacle shall be provided with a NEMA 5-20, 120 volt, 20 amp straight blade Kussmaul super auto eject plug with a yellow weatherproof cover. The cover shall be spring loaded.

The shoreline shall be connected to a battery conditioner.

The shoreline receptacle shall be located on the driver’s side cab, immediately aft of the driver’s door. Receptacle and cover shall closely match the paint of the area in which they are mounted.

**ALTERNATOR**

A C.E. Niehoff, or approved equal, alternator shall be provided. It shall be rated commensurate with the amp draw report as required elsewhere in this document. It shall have a high volume air cooling fan and fan guard. It shall also have a custom three (3)-set point voltage regulator, manufactured by C. E. Niehoff. The alternator shall be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

Alternator output shall be commensurate with the amp draw report provided by the bidder.

**COOLANT LINES**

Silicone hoses shall be used for all engine/heater coolant lines installed by the chassis manufacturer. All clamps shall be of the constant torque type.

**RADIATOR**

The radiator and complete cooling system shall meet the NFPA cooling system standards and the engine manufacturer’s guidelines at maximum load conditions.

**ENGINE COMPARTMENT LIGHT**

A light shall be installed under the engine hood, of which the switch is an integral part. Light shall have a weep hole in its lens to prevent moisture retention.

**GRILL**

A chrome grill, provided on the cab face, shall be installed to allow for maximum radiator airflow.

**FUEL TANK**

A fuel tank with a minimum capacity of 55 gallons shall be provided at the rear of the chassis. The tank shall be constructed of aluminum and shall be equipped with swash partitions and a vent. Stainless steel straps to hold the tank in position shall be provided. A dielectric barrier shall be provided between dissimilar metals.

A drain plug shall be provided in the lowest portion of the tank for drainage.
A panel shall be installed in either the driver’s side rearmost compartment or wheelwell to allow for access to the fuel tank.

A fill inlet shall be provided on the driver’s side body, near the wheel well, and covered with a polished, spring-loaded, hinged door with a “Diesel Fuel Only” label.

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

The tank shall meet FHWA requirements, including a fill capacity of 95% of tank volume.

Fuel lines shall be provided as necessary during construction of the vehicle.

**FUEL TANK CAPACITY LABEL**
A label inside the hinged fuel filler door shall be provided, stating “DIESEL FUEL ONLY” and the capacity of the tank.

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

The shafts shall be dynamically balanced before installation.

The splined slip joint provided in each driveshaft shall be coated with Glidecoat.

**TRANSMISSION DRIVELINE DROP GUARDS**
Each of the transmission drivelines shall have a U-shaped safety guard to protect air and electrical lines in the event of driveline failure.

**TRANSMISSION**
An Allison transmission, model EVS 3000, automatic transmission shall be provided.

The transmission shall be equipped with two (2) PTO openings on the converter housing.

The transmission shall be programmed for the specified engine, and “soft shifting” or similar transmission may be required.

**TRANSMISSION SHIFTER**
A five (5) speed push-button shifter shall be provided to the right of the driver’s seat on the console. The “mode” button shall not be operative.

The shifter shall be backlit for nighttime operations.

**TRANSMISSION COOLER**
A transmission oil cooler shall be provided, using engine coolant to control the transmission oil temperature.

The cooler shall have a five (5) year warranty.

**WHEELS**
All wheels shall be Alcoa Dura-Bright and shall be provided with stainless steel hub and lug-nut covers. The front axle hub covers shall have an open port to inspect the hub.
The front wheels shall be 22.5” hub piloted, 10 stud, with a 11.25” bolt circle.

The rear wheels shall be 22.5” hub piloted, 10 stud, with a 11.25” bolt circle.

TIRES, FRONT AND REAR
Front tires shall be Michelin 365-70-R22.5.

Rear tires shall be Michelin with an all-terrain tread of adequate size and rating for proposed weight ratings.

AUTOMATIC TIRE CHAINS
Automatic tire chains shall be installed at the rear wheels. The chains shall be positioned by an air operated device and shall be activated by the rear wheels which shall spin the chain assembly under the moving tire to provide traction in snow and ice.

A protected switch to active the chains shall be located within easy reach of the driver. A “Maximum Speed” label shall be applied to the dash.

MUDFLAPS
Rubber, spray-suppressant mud flaps shall be provided behind both the front and rear tires.

BACKUP ALARM
A solid state electronic audible backup alarm that automatically engages when the vehicle is placed into reverse shall be provided. The alarm shall meet all NFPA and OSHA requirements.

WHEEL CHOCKS & HOLDERS
Two NFPA complaint wheel chocks and chock holders shall be furnished, mounted in a location determined at the engineering conference.

FENDER CROWNS
Polished stainless steel fender crowns shall be installed along the curvature of the wheel well. A dielectric barrier shall be installed as needed between dissimilar metals.

AIR OUTLET/INLET
A ¼” male air fitting shall be provided on the pump panel. Fitting shall be plumbed to the chassis air reservoir tank, as to keep the chassis air full when the vehicle is parked in the station and plugged into a compressor.

The valve shall be two-way, allowing the fitting to also be used to fill items from the pump panel.

ELECTRONIC SIREN AMPLIFIER
A Whelen 295SL100 siren amplifier shall be installed on the ceiling, between the driver and officer, towards the windshield, on a swivel. Swivel shall allow driver or officer to manipulate the siren.

Siren shall be wired to only activate when the Emergency Master switch is on.

Siren shall be wired to 100W speaker mounted as low and far forward as possible.
**SIREN SPEAKER**
A 100W chrome plated speaker shall be recessed in the front bumper. Exact location to be determined based on other bumper options installed.

**AIR HORNS**
Hadley (or equivalent) air horns shall be provided, recessed within the front bumper. Location to be determined based on other bumper accessories.

Air horns shall be sounded via a clamshell-style foot pedal at the officer’s side left foot and driver’s left foot.

No hanging lanyard shall be provided.

**MECHANICAL SIREN**
A Federal Signal Q2B siren shall be located at the front bumper. Exact location to be determined based on other bumper options installed.

Siren shall be controlled via two foot switches in the cab. One foot switch shall be installed on the driver’s side, near the left foot area, and the other shall be on the officer’s side, also near the left foot area.

Mechanical siren shall only operate when the Emergency Master is on.

A siren brake shall be located on both the driver’s and officer’s side of the vehicle.

**UPPER ZONE WARNING LIGHTS – ZONE A**
A 72” Whelen model FN72QLED shall be mounted to the cab roof. This lightbar shall have red lenses except over clear LED portions and Opticom emitter.

In addition to the standard NFPA lighting, bar shall have two additional red LED modules installed, one inboard of each angled LED module.

Bar shall have an Opticom emitter recessed into the center portion. Emitter shall be low-priority. Programming information will be provided to the builder of the vehicle.

Clear LED’s and the Opticom shall turn off when the parking brake is applied.

Lightbar shall be switched on the emergency light panel.

**ROOF MOUNTED AUXILIARY LIGHT BARS**
A pair of Whelen model FNMINI, 24”, cab roof warning light bars shall be mounted, one (1) at each side on the cab roof facing to each side of the vehicle.

Each light bar shall be equipped with two (2) red corner LED’s modules, one (1) side facing clear LED module and one (1) side facing red LED module.

All the lenses shall be red, except over clear LED, which shall have a clear lens.
The clear flashing LED modules will be on the same control switch as the clear LED modules located in the primary light bar.

The lights specified above shall be provided in addition to the NFPA required Optical Warning Light Package. Additionally, wiring for the lights specified shall be run through the Load Management System to ensure that the electrical system is not overloaded by the additional amperage draw requirements.

REAR VISION CAMERA
A Safety Vision, Model: SV-620 (or equal) backup camera system shall be provided. There shall be one (1) camera located at the rear of the truck as close to the center as possible for viewing the area behind the truck.

The camera shall be activated whenever the ignition switch is active. The camera images shall be displayed on the apparatus Safety Vision 6.8" LCD color monitor whenever the apparatus transmission is placed into reverse. The color monitor shall be mounted in a location to be determined at the engineering conference. NOTE: Should the bidder’s multiplex system include a screen(s), the screen(s) may be used in lieu of the aforementioned 6.8” screen.

Components shall include:
- One (1) SV-620 color camera kit.
- One (1) video cable from the camera to the display
- One (1) Safety Vision 6.8" LCD color monitor and mounting bracket
- All necessary automated control hardware and wiring

The rear camera shall be recessed in a treadplate enclosure on the rear of the apparatus.

SEATING PROVISIONS
The cab shall have seating for six (6). Seating arrangements shall be as follows:
- **DRIVER:** An air-ride seat shall be provided with a pneumatic height adjustment, and mechanical fore-and-aft adjustment. A “scissor-style” seat shall not be acceptable.
- **OFFICER:** A non-air-ride seat shall be provided with provisions for an SCBA. This seat shall be mounted as far back as possible so as to allow maximum visibility for the driver and legroom for the officer.
- **CREW AREA:** Seating for four personnel shall be provided. There shall be three forward facing seats on the rear wall. The remaining seat shall be rear-facing behind the officer. All seats shall have provisions for SCBA.

All seats shall have an “All Belts To Seat” style seatbelt system with bright red seatbelts. The female receiver for the seatbelts shall be on a flexible, semi-rigid stalk to allow it to be easily grasped and handled by a firefighter in structural turnout gear.

Seats shall be covered in black Durawear material.

Seats shall be manufactured by the H.O. Bostrom company, FireFighter Series. The SCBA seats shall have the HO Bostrom SecureAll SCBA holders.

The forward-facing crew area seats shall be equipped with theatre-style folding cushions.
A storage area shall be provided under the driver’s seat and officer’s seat with a latching door. Dimensions of storage area shall be provided by bidder.

**SCBA BRACKETS**
Located within each seat (excluding driver’s) shall be positive-locking SCBA holder with provisions for MSA 2216psi (low pressure) packs.

**INTERIOR CAB LIGHTING**
Six (6) LED split red/white interior lights shall be installed in the cab ceiling, one above each seating position. Opening the cab doors shall activate the RED lens.

**CAB INTERCOM SYSTEM**
A six (6) position David Clark, model U3800, intercom system with radio interface at two positions shall be provided.
- Driver position shall have radio interface capability
- Officer position shall have radio interface capability
- Four crew cab seats shall have intercom only

Mounting location shall be completed at final inspection.

**RADIO INTERFACE CABLE**
The body builder shall supply and install the required radio interface cable before delivery of the vehicle. The radio equipment to be used by the customer shall be Motorola CDM1250.

**RADIO SYSTEM REMOTE PUSH-TO-TALK BUTTONS**
Located on the driver’s and officer’s side of the dash shall be a separate push-to-talk button (PTT) that allows the David Clark interface boxes to be mounted in out-of-the-way locations while still allowing these seating positions to key the radio.

**MAP BOX**
A durable metal map box shall be included. Map box shall be capable of holding three (3) three-inch (3”) three-ring binders. Box shall be finished with a non-glare finish.

Exact design and location to be determined at engineering conference.

**CLIMATE CONTROL SYSTEM (HEATING AND AIR CONDITIONING)**
Vehicle shall be equipped with a climate control system for the driver/officer area and one for the crew area. Climate control system shall be able to supply no less than 30,000 BTU for cooling and 40,000 BTU for heating. A ceiling-mounted system is preferred.

Any ceiling mounted units shall have sufficient drainage provisions to prevent leakage into the cab area.

Specifics of the bidder’s system shall be included with his bid, including how his system’s drain system works.

**CAB INSULATION**
The cab walls shall be insulated with 2” insulation where possible and the roof with 1” insulation to aid in cooling.
DASHBOARD DESIGN, CONSTRUCTION, AND LAYOUT
A dashboard consisting of required automotive gauges, warning lights, audible warning indicators, and other normally-installed (industry standard) indicators shall be provided by the manufacturer. Gauges shall be backlit, and lights shall be only lit when indicating a problem.

Bidders submission shall outline their dash design details, including location of HVAC controls, emergency lights, running lights, and other driver-specific items.

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

CAB ENGINE TUNNEL CONSTRUCTION
The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade aluminum alloy plate. The tunnel shall be symmetrical and a maximum of 47.00 inches wide X 30.00 inches high and have no “blisters” or other protrusions. Hip room provided by the shape of the engine tunnel may be a factor in proposal evaluations.

ENGINE TUNNEL TRIM
The cab engine tunnel shall be covered with a multi-layer mat consisting of closed cell foam with a non-slip vinyl surface with a pebble grain finish. The mat shall be held in place by pressure sensitive adhesive. The engine tunnel mat shall be trimmed with anodized aluminum trim for an aesthetically pleasing appearance. The use of padded vinyl upholstery material shall not meet this requirement.

PUMP SHIFT CONTROL
The pneumatic shift shall use a Waterous built cylinder with a double action piston to shift from ROAD to PUMP and back. The in-cab operating valve uses a spring loaded locking collar to prevent unintentional movement.

The pneumatic shift manual override is used by placing the shift control valve in the center position and shifting the transmission with a manual control. Manual control shall be located on the pump panel.

The pump shift control shall be indirectly lit per NFPA standards.

Bidder shall indicate pump shift control location in his bid.

CAB TILT ASSEMBLY
The cab tilt mechanism shall be custom designed for ease of maintenance and shall consist of two (2) hydraulic cylinders rated to lift the weight of the cab without causing twisting or flexing of the cab assembly.

Hydraulic cylinders shall be detachable to allow removal of the engine for major service.

A mechanical cylinder stay bar and release shall be provided to insure a positive lock in the tilted position.
The two (2) rear outboard cab latches shall be of the hydraulic pressure release, automatic re-latching type, and provide an automatic positive lock when the cab is lowered

A "CAB NOT LATCHED" indicator shall be provided in the cab dash-warning cluster.

The bidder shall indicate the location and style of his cab-raising mechanism controls.

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

**FLUID CHECK**
Routine checks of the engine fluids shall be provided though an access port in the cab, or within the grill. Cab shall not have to be tilted in order to check the fluids.

**ANTENNAS**
Two NMO antenna mounts shall be provided on the cab roof.

One mount shall be provided with a VHF quarter-wave chrome antenna. The second mount shall have a 800MHz quarter-wave antenna installed.

The coax for each mount shall be labeled and terminate in the dash, with enough extra length to allow for easy mounting of radio(s).

A temporary label shall be provided noting the location of the coax under the dash to ease the installation of the radios.

Silicone shall be applied where any holes are made in the exterior of the body for the mounting of antennas.

**SUN VISORS**
Smoked Lexan sun visors shall be provided for both the driver and officer. The visors shall flip down when needed, but otherwise rest flat without obscuring the view through the windshield.

Visors shall be as wide as possible based on other interior cab options.

**HELMET HOLDERS**
There shall be provided six (6) Zico Model UHH-1 helmet holders. Holders shall be shipped loose with the vehicle.

**12 VOLT CAB WIRING**
A “Power Distribution Center” (PDC) shall be furnished to provide 12-volt power and chassis negative ground to the apparatus body, pump module and accessories and to provide a central point of interface with the chassis electrical system. The PDC shall be recessed in the front bulkhead area on the driver’s or officer’s side of the body, protected by and accessible through a easily removable “flush” metal bulkhead panel

The PDC cabinet shall be fully enclosed with a full size removable cover, and shall contain engineered electrical components hard-wired to bottom mounted waterproof pin/socket bulkhead connectors.
All of the 12-volt switches, relays, terminals, connectors, and wiring shall have a direct current rating of 125% of maximum current for which the device is protected.

Master wiring harnesses shall be provided, running from the PDC to the chassis, cab pump module and left and right sides of the apparatus body. The master harnesses shall consist of individual color coded and legend imprinted multi-stranded copper SAE-J 1128 compliant automotive power and ground wires bundled inside a braided vinyl loom, each equipped with a screw-couple multi-pin receptacle mated to its respective bulkhead connector. Spare wires shall be provided within the master harnesses, thus allowing future installations of 12-volt electrical devices, using this OEM harness. Individual master harness wires shall be encapsulated in "braided" vinyl loom, so as to bundle the wires in the smallest possible diameter harness. Split-side vinyl conduit shall only be used for auxiliary branch looms. All power wiring is to be identified, "imprinted" with function (spare wires with numbers only), every 3-inches. Ground wires shall be color coded.

With the exception of wiring required for electrical devices underneath the apparatus, there will be no wiring routed underneath the body and the area under the body shall not be used as a location for multi-pin connectors and/or other electrical junction blocks/boxes.

A minimum 2-0 multi-stranded copper insulated battery cable shall run from specified battery switch to chassis frame mounted threaded copper stud terminal block, providing power to high amperage items such as: the primer motor and optionally specified reel rewind motors.

All holes made in the chassis cab roof top, for lights and antennas, shall be caulked with silicone. Large fender washers, liberally caulked, shall be used underside of the cab roof(s).

Any electrical component that is installed in an exposed area (any location outside of the cab or body) shall be mounted in a manner that shall not allow moisture to accumulate within it.

Mounting surfaces and fasteners are not to be used for grounding. Additionally, a coil of wire shall be provided behind the appliance to allow them to be pulled away from mounting area for inspection/troubleshooting, bulb/lens replacement, and fixture replacement.

Corrosion preventative compound shall be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections shall include this compound in the plug to prevent corrosion and for easy separation (of the plug).

All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area. All electrical terminals in exposed areas shall have silicon applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, shall be furnished. Rear identification "marker" lights shall be recessed mounted for lens protection. Light fixtures mounted on the rear body corners, and wiring located inboard the corners shall be protected from damage by the previously described full height removable metal bulkheads inside the rearmost side compartments.

An operational test shall be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order. The results of the tests shall be recorded and provided to the purchaser at time of delivery.

As built wiring diagrams for the specific apparatus produced, including any revisions, additions and changes
made at final inspection shall be provided in the 3-ring Delivery Manual. Additionally, a printed wiring diagram shall be permanently adhered to the inside surface of the removable PDC enclosure access panel.

Where fixture wiring passes through metal body panel, the pass-thru hole to be equipped with a rubber grommet. Where light fixtures are to be installed on a painted panel, all light fixture mounting holes, grommet holes, and fastener holes shall be machined/cut-out prior to prime and finish painting. Where any holes are cut or drilled after finish painting, same holes shall receive paint finishes prior to insertion of fasteners and threaded inserts.

HOT WIRING
12V DC power shall be provided to the following points:
- Dashboard, officer’s side, two power points for “cigarette lighter” portable chargers (ignition hot)
- Within interior storage compartment, two power points for portable chargers (battery hot)
- To dashboard, for power of two (2) two-way mobile radios
- To dashboard, for power of one (1) two-way portable radio
- To dashboard, for power of one (1) Streamlight Survivor
- To engine tunnel for power of one (1) thermal imaging camera charger
- To engine tunnel for power of three (3) portable two-way radio chargers
- To engine tunnel for power of four (4) Streamlight Survivor lights
- To D1 compartment for power of two (2) Streamlight Vulcan lights

Wiring shall be run through grommets, and protected by wire loom where necessary. All wiring shall be color coded, and shall be labeled throughout the length of the wire to specific the function of that particular wire.

AMP DRAW REPORT
The bidder shall provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus shall provide the following:
1) Documentation of the electrical system performance tests.

2) A written load analysis, which shall include the following:
   A) The nameplate rating of the alternator.

   B) The alternator rating under the conditions specified per NFPA 1901.

   C) The minimum continuous load of each component that is specified per NFPA 1901.

   D) Additional loads that, when added to the minimum continuous load, determine the total connected load.

   E) Each individual intermittent load.

All of the above listed items shall be provided by the bidder per the applicable NFPA 1901 (Current Edition) standard.

HINGED LICENSE PLATE BRACKET
A hinged license plate bracket shall be provided under the front bumper.
PERIMETER LIGHTS
Where perimeter lights are required, bidder shall use Whelen LED lamps.

FDNY HOOK MOUNTS – BACK OF CAB
Mounted to the rear of the rear of the cab, one each side, shall be holders for 6’ New York Hooks. The tip of the hook shall sit in a metal “cup” and the shaft shall be secured with a quick-release plastic strap.

Hooks shall be included with delivery of the vehicle.

LOCKING KEY BOX
A MasterLock model 5401-D locking key box shall be provided, and affixed to a location in the cab to be determined at the engineering conference.

BODY, COMPARTMENTS, AND HOSE STORAGE

BODY INFORMATION, GENERAL
The body shall be located immediately to the rear of the specified pump module, completely separate from the pump module and supported by/mounted to the specified sub-frame. The body shall consist of compartments both sides of the body, located ahead of, over, and aft of the rear axle.

The compartments are defined in the following manner:
- D1 – Drivers side, ahead of the rear axle
- D2 – Driver’s side, over the wheel
- D3 – Driver’s side, rear most
- Rear – Accessed from the rear of the vehicle
- P1 – Passenger side – ahead of the rear axle
- P2 – Passenger side – over the wheel
- P3 – Passenger side – aft of the rear axle

The body shall have a flat rear face with no beavertails. The D3 and P3 compartments shall extend to the back of the vehicle.

BODY MATERIAL
The body and hose compartments shall be fabricated of 3/16” thick (0.190”) 5052-H2 aluminum. Body shall be painted job color.

BODY CONSTRUCTION
The apparatus body will be 98” wide (side to side) and consist of formed, bolted, or extruded construction.

The apparatus body subframe shall be completely independent of the assembled apparatus body module, bolted to and easily removable from the body module. The apparatus body subframe shall be constructed of aluminum or stainless steel. Cold rolled and/or carbon steel subframes will not meet the intent of this requirement. Overall
subframe design will provide a structural under body “platform” onto which the compartmented apparatus body is bolted. The subframe vertical profile will allow for maximum interior depth of all compartments. Rubber cushion vibration and torsion isolators will be provided. Isolators will allow unlimited twisting-moment of the chassis frame rails, independent of the body subframe.

The bidder shall detail their body construction, underbody support system, assembly methods, and all other relevant information in his bid.

COMPARTMENTATION
The bidder shall provide sufficient compartment space and carrying capacity (GVWR) to store all equipment of this specification.

All compartments shall have a tubular support system that extends from the chassis frame rails. Support system shall be designed to transfer the weight directly to the frame rails.

The driver’s side compartments shall be full depth, full height. The compartments shall have the approximate following sizes:

D1: 44”W x 26”D x 56”H
D2: 60”W x 26”D x 23”H
D3: 44”W x 26”D x 56”H

The rear step compartment shall be isolated from the D3 and P3 compartments. This compartment shall measure approximately 36”W x 26”D x 42”H.

The officer’s side compartments shall be full height, split depth. The compartments shall have the approximate following sizes:

P1: 44”W x 26”D x 26”H (lower) and 44”W x 13”D x 30”H (upper)
P2: 60”W x 26”D x 30”H (lower) and 60”W x 13”D x 30”H (upper)
P3: 44”W x 26”D x 26”H (lower) and 44”W x 13”D x 30”H (upper)

These compartment dimensions are approximate. The purchaser understands that the bidder’s standard manufacturing processes may result in slightly larger or smaller compartments.

A description and measurements of the compartment configuration of the apparatus being proposed must be provided with the bid.

All compartments must be weather resistant, ventilated, lighted, and have provisions for drainage.

All compartments must be ventilated to the atmosphere. Compartment-to-compartment ventilation is not acceptable. Ventilation shall be via louvers that are installed so as to minimize the chance of water and dust entering the compartment.

Lighting shall be Amdor Luma-Bar (or equal) LED strip lighting. Each compartment shall be lighted from top to bottom. The LED light strips shall be located in just inside each compartment door near the open door area. Exact location to be determined at the engineering conference. Velcro™ mounting of the lights will not acceptable.

Compartments shall be of the sweep-out design with the floor of the compartment higher than the door edge.
Automatic door switches shall be installed to illuminate the compartment and to signal the driver of an unsecured door.

Vehicle shall feature highest-grade Amdor (or equal) roll-up compartment doors for the six side compartment doors. Doors and door frames shall be painted job color. Doors shall be wired to the “caution - door open” light in the cab.

The door rollers shall not protrude into the clear compartment opening. Doors shall roll into an enclosure above the ceiling of the compartment. The roof of said compartment, or side sheet of the body next to the door drums, shall be removable for door maintenance. The bottom of the enclosure shall have drains plumbed to an area below the vehicle to capture and direct water from each drum when rolled up.

The rear compartment doors shall be hinged, split 50/50, with a standard D-ring positive-locking latch on the right-side door. The exterior of the doors shall be smooth aluminum to match the rest of the rear body. Door shall be wired to the “caution – door open” light in the cab.

COMPARTMENT SHELVING
All shelving shall be builder-supplied and constructed of 5052-H32 smooth aluminum with a one-inch lip, mounted to Uni-Strut (or equal) channel.

All non-fixed shelving shall be On-Scene Solutions cargo shelves.

Shelving & dividers shall be provided in the following compartments:

- **D1:** One fixed horizontal shelf. One fixed vertical divider above the horizontal shelf. One fixed vertical divider below the horizontal shelf. One vertical pull-out tool board to the left of the top vertical divider. One adjustable shelf to the right of the top vertical divider. Three vertical hose dividers to be provided and installed at final inspection.
- **D2:** One slide/tilt tray, 250# capacity, adjustable height
- **D3:** One 500# floor-mounted, slide-out tray. One fixed height horizontal shelf. One fixed vertical divider above the fixed shelf. Two vertical pull-out tool boards to the left of the vertical divider. Two adjustable height shelves to the right of the vertical divider. A cargo-style net shall be provided from the horizontal fixed shelf to the floor to secure cribbing in place. Method of attaching net shall be determined at engineering conference.
- **Rear:** One 500# floor mounted, slide-out tray; One 250# slide-out tray, adjustable height
- **P1:** Two adjustable shelves in the upper portion. One floor mounted 250# slide-out tray.
- **P2:** One swing-out tool board which will lock in both open and closed positions. Board should be heavy duty with heavy duty hardware and locks.
- **P3:** One adjustable height shelf in the upper portion. One 250# floor mounted roll-out tray.

COMPARTMENT ORGANIZATION – PAC-TRAC
Mounted in the following locations shall be Pac-Trac mounting surfaces:

- **D1:** One either side of the vertical pull-out tool board.
- **P2:** On both sides of the tool board and the rear wall.
An allowance will be provided to furnish the appropriate number of holders for adapters, fittings, reducers, nozzles, and other accessories as the purchaser plans to carry. Purchaser will provide a list at request.

**REEL - HYDRAULIC**
Provided in the rear compartment (R1) shall be one Hannay hydraulic reel for 100’ of TNT extrication hose. It should be mounted as high and rearward as possible, and each reel shall have a roller fairlead on the door-side of the compartment. Exact mounting to be determined at engineering conference.

**SCBA CYLINDER & FIRE EXTINGUISHER STORAGE**
Ahead of the driver’s side and officer’s side rear wheel wells shall be storage for a pressurized water extinguisher on the driver’s side and a dry chemical extinguisher on the officer’s side. Storage shall be an integral part of the body. Simple PVC tubes installed in a hollow cavity shall not be acceptable. A body-color hinged door with a flush quarter-turn latch shall be installed, with a dielectric barrier as needed for dissimilar metals.

Near the driver’s side rear wheel well shall be a fuel fill neck.

Behind the driver’s side and officer’s side rear wheel wells shall be storage for six SCBA cylinders, three per side. A body-color hinged door with a flush quarter-turn latch shall be installed, with a dielectric barrier as needed for dissimilar metals.

*Should this section force the bidder to have to increase his D2 and P2 compartment length in order to comply, he may choose to instead increase the height of the D2 and P2 compartments, to approximately 38”H, with the bottom 8” of the D2 compartment being used to store a row of SCBA cylinders.*

Purchaser will evaluate each bidder’s solution to this section.

**PORTABLE WINCH MOUNTING LOCATIONS**
Underneath the body on both sides, under the rear bumper, and under the front bumper of the vehicle shall be a receiver & power point for a Class III winch. Specifics to be determined at engineering conference.

**HARD-SUCTION HOSE STORAGE**
Two hard-suction hoses shall be stored through the body, one each side, in-board of the drum for the roll-up doors.

A compartment to hold the hard sleeves shall extend from the rear to the front of the apparatus, extending through the top inside area of each of the side storage compartments.

A flush-mounted door, with handle, shall be provided on the rear of the apparatus for each hard suction hose storage area.

**RUB RAILS**
Bottom edge of the side compartment shall be trimmed with a bright aluminum extended rub rail.

Trim shall be approximately 2” high with 1” flanges turned outwards for rigidity.

The rub rails shall not be an integral part of the body construction, which allows replacement in the event of damage.
A 2” white reflective stripe shall be installed within all rub rails.

**BODY FENDER CROWNS**  
Stainless steel fender crowns shall be provided around the rear wheel openings.

A dielectric barrier shall be provided between the crown and body, which shall seal the seam and prevent moisture from entering.

**STEPS**  
NFPA-compliant folding steps shall be provided at the following locations:  
- Drivers side rear body to access the hose bed.  
- Driver’s side pump panel to access the dunnage area  
- Officer’s side pump panel to access the dunnage area.

**HOSE BED**  
A hose bed area is to be provided in the body. The hose bed shall be as low as possible while providing space for the following amount of hose:  
- 1200’ of 5” single jacket hose  
- 600’ of 3” double jacket hose  
- 400’ of 2.5” double jacket hose

Flooring of the hose bed shall be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats shall be a minimum of ½” x 4” with spacing between slats for aeration.

Provisions shall be made to allow the hose to play out from the rear of the apparatus without snagging.

Two adjustable hose bed dividers shall be provided, constructed of .25” brushed aluminum. The dividers shall be adjustable by sliding in tracks located at the front and rear of the hose bed. They shall be held in place with bolts at each end.

**HOSE BED COVER**  
The hose bed shall have a heavy-duty vinyl hosed cover.

Cover shall cover the entire hose bed, including a flap that extends down over the rear to prevent accidental discharge of hose from the bed.

Flap shall have at least two short bungees to hold it in place, which shall be installed in a manner to allow a firefighter with a gloved hand to easily remove the bungees from the hook.

**HOSEBED LIGHTS**  
Two (2) Whelen 700-series Super Linear LED scene lights shall be provided within a reinforced diamond plate fixture at the front of the hose bed.

Lights shall have no exposed wiring and shall be installed in a fashion to light the bed while repacking hose.

Lights shall be switched from the rear face of the apparatus. Switch shall be protected in such a manner to reduce the chance of damage.
BACKBOARD STORAGE COMPARTMENT
A storage compartment for backboards shall be located on the officer’s side of the hose bed. This compartment shall be connected to the side sheet.

The compartment shall be constructed of unpainted smooth aluminum and shall be tapered at the rear to avoid having hose snap on it. A “half-moon” cut out shall be provided at the front to assist in removing the backboard. A hook-and-loop fastener shall be supplied to secure the backboard in the compartment.

The size of the backboard is 3”H x 20”W x 73”D.

PRE-CONNECTED HOSE BED (CROSSLAYS)
Three preconnected hose troughs shall be located between the cab and body, as an integral part of the pump module.

From front to rear, the crosslays shall be:
- 200’ 1¾” double jacket, double stacked, smoothbore nozzle
- 200’ 1¾” double jacket, double stacked, smoothbore nozzle
- 300’ 1¼” double jacket, double stacked, smoothbore nozzle

The bottom of the crosslays shall be no more than 68” from the ground.

LADDER STORAGE – “THROUGH THE COMPARTMENT”
Ladders shall be stored behind the shallow portion of the officer’s side compartments, in a sleeve that stows the ladders on beam. Ladders will slide out of the rear of the body.

Provisions will be made to store the following ladders:
- 28’ 2-fly extension ladder
- 14’ roof ladder
- 12’ folding (attic) ladder.

A flush door shall be provided on the rear, with a quarter turn handle. Door shall be switched to the “do not move apparatus” light in the cab.

PIKE POLE STORAGE
Located at the rear of the apparatus shall be an enclosed compartment for the storage of one (1) 6’ pike pole, one (1) 8’ pike pole.

Compartment shall have a flush door with a quarter-turn latch.

STORAGE AREA – OVER PUMP ENCLOSURE
A storage area over the pump house and/or compartments D1 & P1 shall be provided. The storage area shall be large enough to house the hydraulic generator. This storage area shall be built in a fashion to house the needed equipment while having as little negative impact on the body length; hosebed height, width, and length; and wheelbase as possible.
REAR STEP, LOWER
A rear step shall be constructed of aluminum and spaced .50” from the body, and be supported by a steel tubular support assembly.

The rear step shall measure 16”D x 98”W, and shall have beveled corners at the rear.

REAR STEP, INTERMEDIATE
Located approximately 8”-10” below the hosebed shall be a step, measuring approximately 10”D x 38”W. Step shall be reinforced.

NFPA COMPLIANT WALKING SURFACES
All running boards and other areas designed for walking, stepping, or standing shall be current NFPA standards for slip resistance.

BODY LIGHTS
In accordance with FMVSS standards, vehicle shall have stop, tail, turn, and reverse lights on the rear of the apparatus.

A total of eight Whelen 500-series lights shall be provided on the back of the apparatus, four each side. These shall be filled in the following manner:
- Top: LED stop/tail light
- Below: LED “populated arrow” style turn signal
- Below: Halogen reverse lights
- Bottom: Red lower zone C linear LED warning lights.

Lights shall be enclosed in a polished Whelen CAST4 bezel.

There shall be two red LED marker lights mounted on the upper corners of the rear of the apparatus. There shall be a three-light red LED light cluster recessed and centered in the rear bumper. Lights shall be in compliance with FMVSS standards.

Two Whelen model M9LZC scene lights with downward internal optics shall be mounted on the rear of the apparatus, below the upper 900 series warning lights. Lights shall be wired to a switch mounted on the rear of the apparatus and switches on the driver’s and officer’s side of the cab. Light shall also be wired to turn on when the vehicle is placed into reverse.

Side marker lights shall be in compliance with FMVSS standards, and shall be LED.

REAR CORNER MARKER LIGHTS
Mounted on the driver’s and officer’s side of the vehicle, as far rearward as possible, shall be two Britax rubber marker lights on an extended arm.

UPPER ZONE WARNING LIGHTS – ZONE C
Two Whelen model M9RS lights shall be installed near the uppermost corners of the rear body.

All light heads shall be installed with a chrome bezel.
These lights shall be synchronized to flash in an X pattern with the lower zone C warning lights.

**LOWER ZONE WARNING LIGHTS – ZONE A**
Two Whelen M6RS lights shall be housed in a chrome bezel above the headlights. Light shall be red with red lenses.

Inboard of the Whelen lights shall be two PowerArc M90HL-[W] lights. Lights shall be clear with clear lenses. These white lights shall be wired to turn off with the parking brake application.

Lights shall be red with red lenses.

**LOWER ZONE WARNING LIGHTS – ZONE B & ZONE D**
A minimum of three (per side) Whelen M6RS lights shall be installed. Lights shall be mounted in accordance with NPFA regulations (as related to spacing between lights).

Manufacturer shall attempt to mount each side light the same distance from the ground, creating a pleasing linear appearance.

No warning light shall be mounted below the rub rails of the apparatus.

No light shall be mounted on the pump panels.

Lights shall be red with red lenses.

All light heads shall be installed with a chrome bezel.

**UPPER ZONE WARNING LIGHTS - ZONES B & D**
On each side of the body, located above the compartment doors, shall be located two Whelen model M6RS warning lights.

Lights shall be synchronized with the other warning lights on the vehicle.

Lights shall be installed with a chrome bezel.

Lights shall be red with red lens.

**LOWER ZONE WARNING LIGHTS – ZONE C**
Two Whelen M6RS lights shall be installed below the FMVSS lights on the rear of the apparatus, one each side.

Lights shall be red with red lenses.

**FLASH PATTERNS**
None of the warning lights shall use any of the Whelen “split-flash” patterns. The lightheads will be synchronized through a central flasher, and the flash sequence shall be determined at the engineering conference.

**TRAFFIC DIRECTING LIGHT**
Mounting location of the control head shall be determined at the engineering meeting.

Light shall be wired to only operate when the parking brake is set.

A protective step shield shall be provided to protect the light from hose playing out from the hosebed.

**COMPARTMENT INTERIOR**
Interior of compartments will have a smooth metal finish, aiding in reflecting the light emitted from the compartment lights.

**WHEEL WELL PAINT COLOR**
The cab and body wheel well liners shall be painted black.

**PAINT AND FINISH**
All exposed metal surfaces not chrome plated, polished stainless steel, or bright aluminum tread plate shall be thoroughly cleaned and prepared for painting.

All irregularities in painted surfaces shall be rubbed down and all seams shall be caulked before the application of the final coat.

All removable items such as brackets, hinges, trim; etc shall be removed and painted separately to insure finished paint behind all items.

Aluminum and/or steel surfaces are to be primed with a primer that is compatible with the finish coat.

The finished paint shall be two-tone with a paint break line near the bottom of the window line. The upper portion shall be white (Sikkens #20), and the bottom portion shall be yellow (Sikkens #172). A ½” blue Scotchlite reflective band shall be applied at the paint break.

**REFLECTIVE STRIPE**
A 6” wide white Scotchlite reflective stripe shall be applied. A second 2” blue stripe shall be applied as well.

The stripe shall have a “jog” so as to mimic the purchaser’s other apparatus. Exact location and layout to be determined at pre-build conference.

Reflective striping in a chevron pattern shall be applied to the front bumper. Exact design to be determined at pre-build conference.

A chevron striping design shall be applied to the rear of the apparatus. Colors shall be red and lime-yellow, and shall slope downward at a 45-degree from the centerline of the vehicle. Each stripe shall be 12” in height. All rear vertical rear surfaces shall have chevrons applied, including the rear hinged compartment doors.

3M Diamond-Grade material shall be used.

**LETTERING**
An allowance for up to eighty (80) 3” gold leaf letters with black right-drop shadow on the cab shall be included. Lettering shall be provided by RJ Marx Company, and shall feature a protective Mylar film. Design and specifics to be discussed at engineering conference.
An allowance for up to 40 4” gold reflective letters with black right-drop shadow shall be included.

An allowance for up to twenty (20) 10” gold reflective letters with black right-drop shadow shall be included.

An allowance for design and application of the department’s patch, 12” in height, shall be included. Design shall be a reflective, full-color design.

Lettering fonts, designs, and other specifics will be discussed at the engineering conference.

**REAR DOOR LETTERING**
The rear compartment door shall have a 18” reflective E2 displayed, located 12” above the rear step. Color shall be white with a ¾” black outline.

**FIRE PUMP & ASSOCIATED EQUIPMENT**

**PUMP HOUSE**
The pump house will be located between the cab and the body, and shall be built as a single integral unit. It shall be separate unit from the cab and body, allowing these three units to flex independently of one another.

Bidder shall detail their pump house design and method of securing to the frame rails within the proposal.

**WATEROUS FIRE PUMP**
Apparatus shall be equipped with a Waterous CSU 1500 GPM pump. Pump shall have the following minimum ratings:

- 1500 GPM at 150 PSI
- 1500 GPM at 165 PSI
- 1050 GPM at 200 PSI
- 750 GPM at 250 PSI

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

**COMPRESSED AIR FOAM SYSTEM**
A Waterous 140 CFM CAF system shall be provided to provide compressed air foam the specified discharges. It shall be capable of providing foam solution or compressed air foam from any of the specified CAFS discharges simultaneously.

CAFS shall be plumbed to selected discharges as indicated in the section below.

CAFS shall be wired to the pump interlock. When the cab pump switch is engaged, the fire pump and CAFS shall automatically turn on without further input from the driver/pump operator.

The compressor shall be pump-mounted in an effort to save space.
FOAM/WATER PROPORTIONING
A Waterous Advantous 6 foam proportioning system shall be installed.

FOAM / CAFS CAPABLE PIPING
The discharge piping shall be equipped with a properly sized flowmeter sensor, based on the systems capabilities.

The CAFS and foam system shall be plumbed to the following discharge/s through the discharge piping or manifold system:

- Front Bumper Discharge
- 200’ 1¼” crosslay #1
- 200’ 1 ¾” crosslay #2
- 300’ 1¾” crosslay
- Driver’s side rear discharge

MANUAL PUMP ENGAGEMENT
Located on the pump control panel shall be a means in which to engage the pump manually, in the event that the in-cab pneumatic switch does not operate properly.

An engraved tag shall be affixed next to the manual pump engagement control outlining the steps for manually engaging the pump.

The bidder shall detail his manual engagement in his bid.

LIGHT SHIELD
Located above both the driver’s side and officer’s side intake/discharge panels shall be a polished light shield.

Recessed within each light shield shall be five (5) LED white lights. The center light on each side shall illuminate when the pump is engaged. Remaining lights shall be switched from a switch located on the pump panel.

RUNNING BOARDS & HOSE TROUGHS
Located at the officer’s side and driver’s side pump panels shall be running boards.

Within each running board will be a “floating” hose trough capable of holding one 25’ section of 5” single jacket LDH. The trough shall have a lip around the top to hold it in the running board, and beveled edges on the leading and trailing edges to allow the trough to ride over any objects it comes in contact with.

AUXILIARY COOLING SYSTEM
A supplementary heat exchange cooling system shall be provided to allow the use of water from the discharge side of the pump for cooling the engine water.

PLUMBING
All plumbing shall be stainless steel.
Flexible plumbing shall be used when and where appropriate in order reduce friction loss. The manufacturer shall use as few elbows as possible.

**MAIN SUCTION INLETS**
Two (2) 6” NST suction inlets shall be provided, one at the driver’s side pump panel, and one on the officer’s side pump panel.

A removable Zinc strainer shall be provided at each inlet.

**PUMP SUCTION ENDS**
The two main suction inlets shall be furnished with a short suction end, with only the threads protruding through the side pump panel, reducing the distance that appliances may extend from the pump panel(s).

The officer’s side pump inlet shall be supplied with the Task Force Tips ball intake, model AB3ST-NX. Valve shall be equipped with a Task Force Tips model A01ST 5” Storz blind cap.

The driver’s side pump panel shall be equipped with a butterfly fly valve with a wheeled control valve. Valve shall terminate in 6” NST threads with a 6” NST chrome plated pressure vented cap.

**REAR SUCTION**
A 6” rear suction shall be provided at the rear of the apparatus, on the officer’s side. The suction shall terminate in NST threads with a polished blind-cap on the threads.

Rear suction shall be controlled from the driver’s side pump control panel via a wheeled control valve in accordance with NFPA 1901.

Rear suction shall be plumbed below a notch in the water tank, and shall not protrude through the passenger side compartments.

**AUXILIARY SIDE SUCTIONS**
Two (2) 2.5” auxiliary suctions shall be provided, one on the driver’s side intake/discharge panel, and one on the officer’s side intake/discharge panel. Each shall have a removable strainer, 2.5” chrome plated NST swivel, chrome plated plug, and a retaining chain.

A 2.5” stainless steel ball valve with a ¼ turn swing control handle shall be provided at each auxiliary intake.

All intake valves shall be recess mounted behind the side pump panels.

**SUCTION CONSTRUCTION, GENERAL**
Suction manifolds, where not part of and integral with the pump manufacturer’s pump intake castings, shall be fabricated of tubular stainless steel, schedule 10 or schedule 40 wall thickness.

All auxiliary side threaded taps and/or Victaulic risers shall be “coped” to conform to radius of larger size waterway.

Heavy wall threaded stainless steel pipe and pipe fittings shall be used, wherever possible, upstream of the specified 2½” suction valves.
All suction manifolds and fittings, suction valves, tubing, and flex hose assemblies shall be pressure tested after installation.

**INTAKE RELIEF VALVE**

A Waterous intake relief valve shall be installed on the suction side of the pump and pre-set to 125psi. Valve shall have a working range of 75-250psi.

Outlet shall terminate below the frame rails with a 2.5” NST adapter and an “Intake Relief Outlet – Do Not Cap” tag affixed.

A control mechanism to adjust the pressure shall be located behind the officer’s side pump panel.

**TANK-TO-PUMP**

One (1) 4” tank to pump line shall be piped from the water tank into the rear of the pump suction manifold.

A check valve shall be provided to prevent accidental pressurization of the water tank through the pump connection.

Connection from the valve to the tank shall be made by using a non-collapsible flexible rubber hose.

A 4” full flow, flat ball valve shall be provided between the pump suction manifold and the water tank.

The valve shall have “reverse linkage,” whereas the valve will be OPEN when IN and CLOSED when OUT. A separate tag noting this shall be supplied next to the valve control.

**TANK FILL**

One (1) 1.5” gated tank fill line shall be provided with the control on the driver’s side pump panel. Tank fill line shall have a deflector shield installed.

A 1.5” full flow valve shall be provided.

Plumbing shall consist of 1.5” high pressure plumbing for tank connection and to allow for flexing between components.

A push/pull valve shall be provided on the driver side pump panel with an identification tag.

**AUTOMATIC TANK FILL**

A Waterous automatic tank fill shall be supplied on the officer’s side pump panel. The device shall sense when the tank is at 30% capacity, and open the tank fill until it’s 90% full, and shall then turn off.

An on/off switch, with indicator light, shall be installed on the pump control panel.

The details of the location and operation of the automatic tank fill shall be decided through the bidder’s proposal and the engineering meeting.

**DISCHARGE OUTLETS (Driver's Side)**

There shall be one (1) discharge outlet with a 2.50” valve on the driver’s side of the apparatus, terminating with a male 2.50” National Standard hose thread adapter.
DISCHARGE OUTLETS (Officer’s Side)
There shall be two (2) discharge outlets with a 2.50" valve on the officer’s side of the apparatus, terminating with a male 2.50" National Standard hose thread adapter.

DISCHARGE OUTLET, 3.00"
There shall be a 3.00" discharge outlet with a 3.00" valve installed on the officer’s side of the apparatus, terminating with male a 3.00" National Standard hose thread adapter. This discharge outlet shall be actuated with a hand wheel control at the pump operator's control panel.

An indicator shall be provided to show when the valve is in the closed position.

DISCHARGE OUTLET (Front)
There shall be one 2.50" gated discharge outlet, with swivel, piped to the front bumper extension. Plumbing shall consist of 2.50" piping and flexible hose according to the design requirements of the chassis. A 2.50" full flow ball valve controlled at the pump operator's panel shall be used in the outlet plumbing. Automatic drains shall be provided at all low points of piping.

DISCHARGE OUTLET (Rear)
There shall be one (1) 2.50” discharge outlet piped to the rear of the apparatus, officer’s side.

Plumbing shall consist of 2.50" piping along with a 2.50" full flow ball valve with the control from the pump operator's panel.

DISCHARGE OUTLET (Hosebed)
There shall be one (1) 2.50” discharge outlet piped to the front of the hosebed of the apparatus, driver’s side.

Plumbing shall consist of 2.50" piping along with a 2.50" full flow ball valve with the control from the pump operator's panel.

DISCHARGE CAPS
Chrome plated, rocker lug, caps with chains shall be furnished for all discharge outlets.

OUTLET BLEEDER VALVE
A .75" bleeder valve shall be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.

Bleeders shall be located at the bottom of the pump panel. They shall be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders shall be routed below the chassis frame rails.

ELBOW, DRIVERS SIDE OUTLET
The 2.50" discharge outlet, located on the driver’s side pump panel, shall be furnished with a 2.50"(F) NST × 2.50"(M) NST hose thread, chrome plated, 30 degree elbow. A polished cap with retention chain shall be included.

ELBOWS, OFFICER’S SIDE OUTLETS
The 2.50" discharge outlets, located on the right side pump panel, shall be furnished with a 2.50"(F) NST × 2.50"(M) NST hose thread, chrome plated, 30 degree elbow. A polished cap with retention chain shall be
ELBOW, REAR DISCHARGE
The 2.50" discharge outlet, located on the officer’s side rear, shall be furnished with a 2.50"(F) NST x 2.50"(M) NST hose thread, chrome plated, 30 degree elbow. A polished cap with retention chain shall be included.

ELBOW, 4.00" OUTLET
The 4.00" outlet shall be furnished with a 4.00"(F) National Standard hose thread x 5.00" Storz elbow adapter with Storz cap. A cap retention chain or cable shall be included.

REDUCERS
Four (4) 2.5"F x 1.5"M reducers, polished chrome with rocker lugs, shall be shipped loose with the vehicle.

DISCHARGE OUTLET CONTROLS
The discharge outlets shall incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism shall indicate the position of the valve or an indicator shall be provided to show when the valve is closed.

A quarter-turn of the valve operating mechanism shall lock the valve into place.

DELUGE RISER
A 3.00" deluge riser shall be installed above the pump in such a manner that a monitor can be mounted and used effectively.

The riser shall be gated and controlled at the pump operator's panel with a hand wheel and have an individual gauge.

TELESCOPING PIPING
The deluge riser piping shall include a Task Force Tips Extend-A-Gun extension.

A position sensor shall be provided on the telescoping piping that shall activate the "Do Not Move Vehicle" light inside the cab when the monitor is in the raised position.

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

The deluge gun package shall consist a TFT Crossfire package:
- Model #XFC-52, with a SAFE-TAK base (2-2.5” NST) Crossfire monitor top
- Halo Ring Master stream automatic nozzle (flow range of 150-1250 gpm)
- Stack tips
- 10” stream straightener
- Model #XFF-APL flange mount and base mounting bracket.

Location of the deluge riser is to be in the over-the-pump storage area and such that operation of the monitor is not to interfere with lights or any other part of the truck. When the monitor is in the stowed position, its height shall not exceed the height of the highest object on the vehicle.
CORROSION PROTECTION
The pump, plumbing and water tank shall be protected from corrosion by the installation of a sacrificial anode(s).

PUMP PANEL

PUMP GAUGE & CONTROL
The pump operator's gauges and control panel shall be located on the driver side of the apparatus.

The pump enclosure side panels shall be completely removable and designed for easy access and servicing.

PUMP PANEL MATERIAL
The driver side operator's panel, gauge panel, and other associated panels shall be formed from stainless steel.

HINGED GAUGE PANEL
A full width hinged gauge access panel shall be provided at the operator's position.

Chrome plated positive locks shall be provided along with chain holders to prevent the front of the gauge panel from coming in contact with other panels when open.

COLOR CODED IDENTIFICATION TAGS
Color coded identification tags shall be provided for all gauges, controls, connections, switches, inlets and outlets.

PUMP OPERATOR’S PANEL
Particular attention is to be given to functional arrangement of all controls. The pump operator's panel shall accommodate the following:

- Hinged gauge panel
- Water tank fill valve
- Auxiliary suction valve control
- All discharge valve controls
- Auxiliary engine cooler controls
- Water tank suction control valve
- Pump primer valve
- Engine throttle control
- Master compound vacuum gauge
- Master pressure gauge
- Individual discharge gauges
- Pump shift engaged indicator light
- Water tank water level indicator
- Engine tachometer

- Engine oil pressure gauge with audible alarm
- Engine water temperature gauge with audible alarm
- Low voltage light and audible alarm
- Pump panel light switch
- Speed counter (UL)
- Pump performance plate (UL)
- Pump serial number plate
- Master pump drain valve
- Individual drains
- Voltmeter
- Air inlet/outlet at lower left hand panel

PUMP CONTROL PANELS (Side Control)
All pump controls and gauges shall be located at the driver's side of the apparatus and properly marked.
The pump panels shall as narrow as possible while allowing for all specified options.

The gauge and control panels shall be two (2) separate panels for ease of maintenance.

The side gauge panel shall be hinged at the left side with a full-length stainless steel hinge. The fasteners used to hold the panel in the closed position positive locking. Vinyl covered cable or chains are to be used to hold the gauge panel in the open position.

Polished stainless steel trim collars shall be installed around all inlets and outlets.

Identification tags for the discharge controls shall be located directly above the control handle and recessed within the same casting as the guide.

All line pressure gauges shall be mounted in individual chrome plated castings with the identification tag recessed in the casting below the gauge. All remaining identification tags shall be mounted on the pump panel in chrome plated bezels. Mounting of the castings and identification bezels shall be done with a threaded peg cast on the backside of the bezel or screws.

**PRESSURE GAUGES**

Ten (10) individual line pressure gauges for the 1.50 inch and larger discharges shall be furnished. They shall be dry type with a suspended movement to resist shock and vibration as manufactured by Ashcroft or equal. Gauge body and bezel to be stainless steel construction. Gauge size to be a minimum of 3.50 inches in diameter and shall have white faces with black lettering. Gauges are to have a pressure range of 0 to 400 psi.

**MASTER GAUGES**

The pump vacuum and pressure gauges shall be dry type with a suspended movement to resist shock and vibration as manufactured by Ashcroft or equal. Gauge body and bezel to be stainless steel construction. They shall be a minimum of 6.00 inch diameter and shall have white faces with black lettering. Gauges are to have a pressure range of -30 to 400 psi. The master pressure gauge and master compound gauge shall be grouped together on the gauge panel for ease of observation of the pump and engine operating conditions.

**PRIMERS**

A Trident Emergency Products compressed air powered 3-barrel air primer shall be provided on the main pump suction, with a momentary push-button located on the driver’s pump panel.

**PRESSURE GOVERNOR**

A Fire Research model InControl TGA400 pressure governor shall be installed, and shall be wired to enter “pressure” mode when the pump is engaged.

**PUMP TEST PORTS**

The pump panel shall be equipped with Vacuum & Pressure test plugs to allow for test equipment to monitor pump pressure and vacuum levels. Chrome plugs and labels shall be provided for the test ports.

**WATER TANK LEVEL GAUGE**

A Fire Research, model #WLA200-A00, “TANKVISION” gauge that shows the actual volume of water in the tank shall be provided on the pump operator's panel.

A Fire Research model #WLA290, remote relay module shall be provided to provide outputs for large indicator lights on the side of the vehicle.
LARGER WATER LEVEL GAUGE, EACH SIDE OF CAB
A total of three (3) Whelen model PSTANK gauges shall be provided on the vehicle. PSTANK lights shall be wired to the master tank water level gauge on the pump panel.

Lights shall be located in the following locations:
- Aft of the side crew entry door on the driver’s side of the cab
- Aft of the side crew entry door on the officer’s side of the cab
- On the rear of the vehicle at a location to be determined at engineering conference.

Lights shall only be operable when the pump is engaged.

FOAM TANK LEVEL GAUGE - FOAM TANK
A Fire Research, model #WLA260-A00, "TANKVISION" gauge that shows the actual volume of foam in the tank shall be provided on the pump operator's panel.

REMOTE FOAM PICKUP
A foam pick-up tube shall be provided, allowing personnel to draft from a foam pail on the ground into the pump for firefighting or foam tank refill. Bidder to provide details of his proposed system.

WATER & FOAM TANK

WATER & FOAM TANK
The tank shall be constructed of ½” polypropylene sheet or molded fiberglass with a capacity of 725-750 gallons of water. Tank shall be fully baffled in accordance with NFPA standards.

The tank shall have one integral 40-gallon foam cell.

The tank shall have combination vent and manual fill towers for the water and each foam section. A hinged cover shall be provided.

The serial number, model number, and tank capacity shall be etched in the hinged door of the fill tower.

TANK OVERFLOW
The tank overflow shall prevent the tank from being damaged while filling, and shall dump access water behind the rear axle.

TANK CONNECTIONS
There shall be four tank connections provided, one for water tank-to-pump, one for water tank refill, one for Foam A to pump, and one for Foam A refill. Anti-swirl plates shall be provided.

TANK MOUNTING
The tank shall be mounted on hard rubber cushions to isolate the tank from road shock and vibration. The tank shall be completely removable without disturbing or dismounting the apparatus body structure.
AUXILIARY SYSTEMS

AUXILIARY LIGHTING
A FRC Spectra 20,000 lumen LED spot/flood light shall be mounted in a cab-specific contour mount centered above the windshield.

A FRC Spectra 15,000 lumen LED spot/flood light shall be centered on the driver’s and officer’s side body above the compartments, as high as possible. Light shall be recess mounted with a chrome flange.

A Whelen PFP1 shall be mounted on the side of the cab, one each side, between the front and rear doors, above the stationary window. Light shall be recess-mounted with a chrome flange.

A FRC Spectra 15,000 lumen LED spot/flood light shall be provided on the rear of the apparatus on the driver’s side, as high as possible relative to the other specified options.

AUXILIARY LIGHTING CONTROLS
The auxiliary lighting controls shall be hard-wired to the following locations, each hard-wired to its respective position
- Driver’s side switch panel
- Officer’s side switch panel
- Pump panel

The lighting controls shall be duplicated for both the officer and driver, and shall be backlit.

The controls shall operate the following lights, and shall be labeled accordingly:
- Front brow light
- Driver’s side floods
- Officer’s side floods
- Rear flood

LINE VOLTAGE ELECTRICAL SYSTEM
A line voltage electrical system consisting of a generator, circuit breaker panel, receptacles and quartz lights shall be provided and installed as directed.

GENERATOR
The generator shall be one (1) Harrison MAS Hydraulic Driven Generator rated at 6,000 watts, 33/66 amps, 120/240 VAC, 60Hz, 1-phase.

The installation shall be designed for continuous operation without overheating and undue stress on components.

The generator shall utilize the main chassis transmission to power the generator. The generator shall be driven by an engine transmission power take-off unit (PTO), through a hydraulic pump and motor.
The generator shall be operable any time that the truck engine is running and is above minimum RPM. An electrical control, with indicator light, shall be provided inside the cab to activate the generator.

The generator output screen shall be mounted on the driver’s side pump panel, so as not to occupy valuable compartment space.

**GENERATOR LOCATION**
The generator shall be stored in the storage area above the pump. The flooring in this area shall be reinforced or constructed in such a manner to support the additional weight of the generator.

**CIRCUIT BREAKER PANEL**
The circuit breaker panel shall be located on the front bulkhead of the driver’s side forward most compartment, mounted as high as possible.

Panel shall be marked with appropriate labels for individual breakers, and shall also show the operating parameters of the generator.

**RECEPTACLES**
The vehicle shall have both 12V and 120V electrical outlets installed.

- **12V**
  - Two “power points” (cigarette lighter plugs) shall be located on the cab dashboard, near the officer.
  - A power strip shall be located in the cabinet in the back of the cab, on the rear of the engine tunnel.
  - A power strip shall be located in the cab, within the cabinet behind the driver’s seat.

- **120V, 15A twist-lock receptacles shall be located:**
  - Rear of body, below the tripod light, in a location allowing the tripod light to be powered while affixed to vehicle.
  - In the rear (R1) compartment, on the right bulk head.

**ELECTRIC CORD REWIND REELS**
A Hannay electric cord reel with 200’ of 10/3 yellow electrical cord shall be installed in area over the pump house, and shall exit the officer’s side of the vehicle through a roller fairlead.

Cord shall terminate into a 15A twist-lock plug.

A powder-coated (yellow) Akron Brass four-outlet junction box shall be provided. It shall be provided with four 15 amp NEMA twist-lock connectors. An Akron Brass model EJB-VMT-TP mounting bracket shall also be supplied. Mounting location to be determined at final inspection.

**NFPA-REQUIRED LOOSE EQUIPMENT**
The following loose equipment shall be supplied with the vehicle:
  - All items required by NFPA, to include wheel chocks, extinguishers, ladders, and other equipment.
An AED is NOT required.

OPTIONS
The following items shall be individually priced for possible inclusion on the apparatus.

ADVANCED PAYMENT OPTION
The bidder shall indicate any pricing incentives for pre-payment of chassis within 90 days of contract signing. Pricing shall be for no more than 25% of the bidder’s proposal price.

Pricing options shall be indicated on the purchasers included paperwork.

TNT EXTRICATION TOOLS
A complete set of TNT extrication tools and accessories shall be provided, consisting of the following:

- Spreaders, model S-100-28
- Cutters, model SLC-28
- Ram, model R-20
- Ram, model R-40
- Pump, model ET-4.0
- Hoses, 30’ twin line, color blue, quantity 2

Tools, hoses, and pump shall be equipped with Nexus quick-couplers.

HOSEBED COVER – DIAMOND PLATE
A diamond plate hosebed cover shall be provided. Cover will be hinged on both the driver’s side and officer’s side, and shall consist of two overlapping, independent halves.

Proper support shall be provided below the cover to ensure that the cover can withstand a persons weight without damage or warping.

Each cover shall have one (1) LED grommet light recessed underneath, to aid in providing light when repacking hose.

Each cover shall be held in the “open” position via gas struts. Struts shall be installed so as to not impede hose from being deployed from the apparatus. Struts shall also aid in the opening of the covers.

REEL - AIR
Provided in the P1 compartment shall be a CMW air reel, with 140’ of 300psi working air line. This line shall be plumbed to the CAFS compressor, and will be used to operate air-powered accessories. A roller fairlead shall be provided.

LIGHT TOWER
A Will-Burt Night Scan NS3.0P-3000 Profiler light tower with three Fire Research Corporation 1000W Optimum flood lights shall be provided.

The light shall be mounted so it is no higher than the highest point on the body.
Light tower tethered remote control shall be located in the D1 compartment, specific located to be determined at engineering meeting.

**ROTO‐RAY WARNING LIGHT**
One Roto-Ray warning light shall be mounted on the front of the cab. The light shall have two red halogen bulb, and one white halogen bulb. Where available, the light shall be mounted centered in the grill, otherwise, it shall be mounted centered above the grill.

Light shall cease to burn when the parking brake is applied.

**AM/FM RADIO**
An AM/FM radio with weather band shall be provided on the officer’s side cab, wired to four 5.25” speakers. Speakers shall be located two in the forward portion of the cab, two in the rear portion of the cab.

**SIDE VIEW VIDEO CAMERA**
A Safety Vision, Model: SV-620 (or equal) camera system shall be provided. There shall be one (1) camera located above the officer’s side pump panel as close to the top as possible for viewing the area on the officer’s side of the vehicle.

The camera shall be activated whenever the pump is engaged. The camera images shall be displayed on the apparatus Safety Vision 6.8” LCD color monitor whenever the apparatus transmission is placed into reverse. The color monitor shall be mounted in a on the pump control panel.

Components shall include:
- One (1) SV-620 color camera kit.
- One (1) video cable from the camera to the display
- One (1) Safety Vision 6.8” LCD color monitor and mounting bracket
- All necessary automated control hardware and wiring

**ADDITIONAL CAMERA SCREEN**
Provide an additional screen on the pump control panel (for a total of two) for the pump operator to view the rear vision camera.

**ADDITIONAL AIR RESERVOIRS**
Supply two additional air reservoirs, completely independent of the chassis air system, supplied by a dedicated compressor. One shall be 1000ci and the other 2000ci. Air line plumbing size and location will be discussed with the successful bidder.
SECTION II - BID PRICING

THE FOLLOWING BID IS SUBMITTED FOR A CUSTOM-CAB FIRE ENGINE FOR THE COUNTY OF POWHATAN, VIRGINIA

Bidder: ________________________________
Representing: ________________________________
Address: ________________________________
Telephone: ________________________________
Fax: ________________________________
E-mail: ________________________________

SIGNATURE: ________________________________

Apparatus as specified $______________________
Price in written words: ________________________________

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SECTION III - GENERAL TERMS AND CONDITIONS

LAWS AND REGULATIONS

a) The Contractor shall comply with all laws, ordinances, rules, regulations and lawful orders of Powhatan County and the Commonwealth of Virginia bearing on the performance of the Work and shall give all notices required thereby. The Contractor shall assure that all Subcontractors and tradesmen who perform Work on the project are properly licensed by the Department of Professional and Occupational Regulation as required by Title 54.1, Chapter 11, Articles 1 and 3 and by applicable regulations.

b) This Contract and all other contracts and subcontracts are subject to the provisions of Articles 3 and 5, Chapter 4, Title 40.1, Code of Virginia, relating to labor unions and the "right to work." The Contractor and its Subcontractors, whether residents or nonresidents of the Commonwealth, who perform any Work related to the Project shall comply with all of the said provisions.

c) IMMIGRATION REFORM AND CONTROL ACT OF 1986: By signing this Contract, the Contractor certifies that it does not and will not during the performance of this Contract violate the provisions of the Federal Immigration Reform and Control Act of 1986, which prohibits employment of illegal aliens.

d) The provisions of all rules and regulations governing safety, as adopted by the Safety Codes Commission of the Commonwealth of Virginia, and as issued by the Department of Labor and Industry under Title 40.1 of the Code of Virginia shall apply to all Work under this Contract. Inspectors from the Department of Labor and Industry shall be granted access to the Work for inspection without first obtaining a search or administrative warrant.

e) All rules, regulations, and terms associated with building Permits issued by Powhatan County are hereby incorporated in full into this contract.

f) CONTROLLING LAW; VENUE: This contract is made, entered into, and shall be performed in the County of Powhatan, Virginia, and shall be governed by the applicable laws of the Commonwealth of Virginia. Any dispute arising out of the contract resulting from the IFB, its interpretations, or its performance shall be litigated only in the Powhatan County General District Court or the Circuit Court of the County of Powhatan, Virginia.

CONTRACTUAL DISPUTES (§2.2-4363, Code of Virginia)

a) Contractual claims, whether for money or for other relief, shall be submitted, in writing, no later than sixty (60) days after final payment; however, written notice of the Contractor's intention to file such claim must be given at the time of the occurrence or beginning of the Work upon which the claim is based. The filing of a timely notice is a prerequisite to recovery under this Section. Although the Contractor may be required to submit certain classes of claims prior to final payment, and the Contractor is not prevented from filing claims during the pendency of the Work, the County shall not be obligated to render a final written decision on any claim until after final payment. All claims shall be submitted along with all practically available supporting evidence and documentation.

b) No written decision denying a claim or addressing issues related to the claim, if rendered prior to final payment, shall be considered a denial pursuant to this Section unless the written decision makes express reference to this Section and is signed by the County Administrator or her designee. The Contractor may not institute legal action prior to receipt of the County's final written decision on the claim unless the County fails to render such a decision within ninety (90) days of submission of the claim or within ninety (90) days of final payment, whichever is later.
c) The decision of the County Administrator or designee shall be final and conclusive unless the Contractor within six (6) months of the date of the final decision on a claim, initiates legal action as provided in §2.2-4364 of the Code of Virginia. Failure of the County to render a decision within 90 days shall not result in the Contractor being awarded the relief claimed nor shall it result in any other relief or penalty. The sole result of the County's failure to render a decision within 90 days shall be the Contractor's right to immediately institute legal action. No administrative appeals procedure pursuant to §2.2-4365 of the Code of Virginia has been established for contractual claims under this Contract. Pursuant to § 2.2-4366, Alternative Dispute Resolution, of the Code of Virginia, the County may enter into an agreement with the Contractor to submit disputes arising from the performance of this Contract to arbitration and utilize mediation and other alternative dispute resolution procedures. However, such procedures entered into by the County, or any department, institution, division, commission, board or bureau thereof, shall be non-binding and subject to § 2.2-514, as applicable.

SUBCONTRACTS

a) The bidder shall, notify the County in writing of the names of all Subcontractors proposed for the principal parts of the Work. Where the specifications establish qualifications or criteria for Subcontractors, manufacturers, or individuals performing Work on the Project, the Contractor shall be responsible for ascertaining that those proposed meet the criteria or qualifications. The Contractor shall not employ any Subcontractor that the Owner may, within a reasonable time, object to as unsuitable.

b) The Owner may select a particular Subcontractor for a certain part of the Work and designate on the Invitation for Bids that the Subcontractor shall be used for the part of the Work indicated and that the Subcontractor has agreed to perform the Work for the subcontract amount stipulated on the bid form. The Contractor shall include the stipulated amount plus his Contractor markups in the bid. In such case, the Contractor shall be responsible for that Subcontractor and its work and the Subcontractor shall be responsible to the Contractor for its work just as if the Contractor had selected the Subcontractor.

c) The Contractor shall be fully responsible to the County for all acts and omissions of his agents and employees and all succeeding tiers of Subcontractors and Suppliers performing or furnishing any of the Work. Nothing in the Contract Documents shall create any contractual relationship between the County and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of the County or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization, except as may otherwise be required by law.

d) The Contractor shall be fully responsible for his invitees at the Site and for those of his Subcontractors, Suppliers, and their employees, including any acts or omissions of such invitees.

e) The Contractor agrees that he alone is responsible for all dealings with his Subcontractors and Suppliers, and their subcontractors, employees and invitees, including, but not limited to, the Subcontractors' or Suppliers' claims, demands, actions, disputes and similar matters unless specifically provided otherwise by the Contract or by statute.

f) No portion of the work shall be subcontracted without prior written consent of the County. In the event that the contractor desires to subcontract some part of the work specified herein, the contractor shall furnish the County the names, qualifications and experience of their proposed subcontractors. The contractor shall, however, remain fully liable and responsible for the work to be done by its subcontractor(s) and shall assure compliance with all requirements of the contract.
INSPECTION

a) All material and workmanship shall be subject to inspection, examination and testing by the County, authorized inspectors and authorized independent testing entities at any and all times during manufacture and/or construction. The County shall have authority to reject defective material and workmanship and require its correction. Rejected workmanship shall be satisfactorily corrected and rejected material shall be satisfactorily replaced with proper material without charge therefor, and the Contractor shall promptly segregate and remove the rejected material from the Site. If the Contractor fails to proceed at once with replacement of rejected material and/or the correction of defective workmanship, the County may, by contract or otherwise, replace such material and/or correct such workmanship and charge the cost to the Contractor, or may terminate the right of the Contractor to proceed, the Contractor and surety being liable for any damage to the same extent as provided in this IFB.

b) The Contractor shall notify the County, in writing, of the date when the Work or designated portion thereof, will be, in his opinion, substantially complete and ready for inspection and testing to determine if it has reached Substantial Completion.

c) The inspection shall include a demonstration by the Contractor that all equipment, systems and operable components of the project function properly and in accordance with the Contract Documents. The Contractor shall furnish access for the inspection and testing as provided in these General Conditions. The inspection and testing shall determine whether Substantial Completion has been accomplished and shall result in a written list of unfinished Work and Defective Work, commonly referred to as a "punch list", which must be finished and corrected to obtain Final Completion.

d) After completion of the inspection and delivery of the apparatus, the County shall notify the Contractor, in writing, of the date the County accepts the Work, or the specified portion thereof, as substantially complete or the County shall notify the Contractor of the deficiencies to be corrected or completed before such Work will be accepted as substantially complete.

e) The Contractor shall notify the County, in writing, of the date when the Work has reached or will reach Final Completion and will be ready for final inspection, testing, and a date of delivery. The notice shall be given at least two (2) days in advance of said date and shall be forwarded through the Contract Officer. The County may inspect and perform any necessary testing at the time of delivery. When the Work is finally and totally complete to the satisfaction of the County, including the elimination of all defects, the Work shall be finally accepted by the County and payment shall be authorized and made upon receipt of a valid invoice.

AUDIT

a) The contractor shall retain all books, records, and other documents relative to this contract for five (5) years after final payment, or until audited by the County of Powhatan, whichever is sooner. The County, its authorized agents, and/or auditors shall have full access to and the right to examine any of said materials during said period.

PROTECTION OF PERSONS AND PROPERTY

a) The Contractor expressly undertakes, both directly and through his Subcontractors, every reasonable precaution at all times for the protection of all persons and property which may come on the Contractor’s Site or be affected by the Contractor's Work.
b) The Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Any violation of these requirements or duties or any potential safety hazard that is brought to the attention of the Contractor by County, or any other persons shall be immediately abated.

**CONTRACTOR’S AND SUBCONTRACTOR’S INSURANCE**

a) Bidders must show that he has obtained all the insurance required hereunder from an insurer authorized to do business in Virginia and such insurance has been approved by the County; nor shall the Contractor allow any Subcontractor to commence Work on his subcontract until the same types of insurance in an appropriate amount have been obtained by the Subcontractor and approved by the Contractor. Approval of insurance by the Owner shall not relieve or decrease the liability of the Contractor hereunder.

b) The Contractor shall take out, and shall maintain in force at all times during the performance of the Work, Workers' Compensation and Employers' Liability Insurance for all of his employees engaged in the Work in an amount not less than the minimum required by §2.2-4332 and §65.2-100 et seq. of the Code of Virginia. In case any of the Work is sublet, the Contractor shall require each Subcontractor similarly to provide Workers' Compensation and Employers' Liability Insurance for all of the latter's employees to be engaged in the Work. Prior to award of the Contract, the Contractor shall submit on the form provided by the Owner, Certificate of Coverage verifying Workers' Compensation coverage. The Contractor shall likewise obtain a Certificate of Coverage for Workers' Compensation coverage from each subcontractor prior to awarding the subcontract and shall provide a copy to the Owner.

c) During the performance of the Work under this Contract, the Contractor shall maintain commercial general liability insurance to include Premises / Operations Liability, Products and Completed Operations Coverage, Independent Contractor's Liability, Owner's and Contractor's Protective Liability, and Personal Injury Liability, which shall insure him against claims of personal injury, including death, as well as against claims for property damage, which may arise from operations under this Contract, whether such operations be by himself or by any Subcontractor, or by anyone directly or indirectly employed by either of them. The amounts of general liability insurance shall be not less than $1,000,000 per occurrence and $2,000,000 aggregate combined limit. The County of Powhatan, its officers, employees and agents, shall be named as an additional insured with respect to the Work being procured.

d) During the performance of the Work under this Contract, the Contractor shall maintain automobile liability insurance which shall insure him against claims of personal injury, including death, as well as against claims for property damage, which may arise from operations under this Contract, whether such operations be by himself or by any Subcontractor, or by anyone directly or indirectly employed by either of them. The amounts of automobile insurance shall be not less than $1,000,000 combined limit for bodily injury and property damage per occurrence.

**NONDISCRIMINATION**

a) §2.2-4311 of the Code of Virginia shall be applicable. It provides as follows:

1. During the performance of this Contract, the Contractor agrees as follows:

a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the contractor. The Contractor
agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the contractor, will state that such Contractor is an equal opportunity employer.

c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

2. The Contractor will include the provisions of the foregoing paragraphs a, b and c in every subcontract or purchase order of over $10,000, so that the provisions will be binding upon each subcontractor or vendor.”

b) Where applicable, the Virginians with Disabilities Act and the Federal Americans with Disabilities Act shall apply to the Contractor and all Subcontractors.

c) Powhatan County does not discriminate against faith-based organizations as that term is defined in Virginia code Section 2.2-4343.1.

PROHIBITION OF ALCOHOL AND OTHER DRUGS

a) §2.2-4312 of the Code of Virginia shall be applicable. It provides as follows: “During the performance of this contract, the contractor agrees to (i) provide a drug-free workplace for the contractor’s employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over $10,000, so that the provisions will be binding upon each subcontractor or vendor. For the purposes of this section, "drug-free workplace" means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.”

b) The Contractor shall also establish, maintain and enforce policies which prohibit the following acts by all Contractor, Subcontractor and Supplier personnel at the Site:

a. the manufacture, distribution, dispensation, possession, or use of alcohol, marijuana or other drugs, except possession and medically prescribed use of prescription drugs; and

b. the impairment of judgment or physical abilities due to the use of alcohol, marijuana or other drugs, including impairment from prescription drugs.

INSPECTION OF MANUFACTURER’S FACILITY JOB SITE

a) The bidder’s signature on this solicitation constitutes acknowledgement that the bidder authorizes the County to perform any on-site inspections or tests the County in its sole discretion deems appropriate either during the evaluation of bids or during any contract that results from this IFB.

STANDARDS FOR MATERIALS INSTALLATION & WORKMANSHIP

a) Unless otherwise specifically provided in the Contract, all equipment, material, and accessories incorporated in the Work are to be new and in first class condition.

b) All workmanship shall be of the highest quality found in the automotive industry in every respect. All items of Work shall be done by craftsmen or tradesmen skilled in the particular task or activity to
which they are assigned. In the acceptance or rejection of Work, no allowance will be made for lack of skill on the part of workmen. Poor or inferior workmanship (as determined by the County or other inspecting authorities) shall be removed and replaced at Contractor's expense such that the Work conforms to the highest quality standards of the trades concerned, or otherwise corrected to the satisfaction of the County, or other inspecting authority, as applicable.

(c) Under the various sections of the plans or specifications, where reference is made to specific codes or standards governing the installation of specified items, installation shall in all cases be in strict accordance with the referenced codes and standards. Where no reference is made to specific codes or standards, installation shall conform to the generally recognized applicable standards for first-class installation of the specific item to be installed. Contractors are expected to be proficient and skilled in their respective trades and knowledgeable of the Codes and Standards of the National Fire Protection Association (NFPA), National Electric Code (NEC), Occupational Safety and Health Act (OSHA) and other codes and standards applicable to installations and associated work by his trade.

PAYMENTS BY CONTRACTOR (§2.2-4354, Code of Virginia)

The Contractor shall:

(a) Within seven (7) days after receipt of amounts paid to the Contractor by the Owner for Work performed by the Subcontractor or Supplier under this Contract,
   i. Pay the Subcontractor or Supplier for the proportionate share of the total payment received from the Owner attributable to the Work performed by the Subcontractor or the materials furnished by the Supplier under this Contract; or
   ii. Notify the Subcontractor or Supplier, in writing, of his intention to withhold all or a part of the Subcontractor or Supplier's payment with the reason for nonpayment;

(b) Pay interest to the Subcontractor or Supplier on all amounts owed by the Contractor that remain unpaid after seven (7) days following receipt by the Contractor of payment from the Owner for Work performed by the Subcontractor or materials furnished by the Supplier under this contract, except for amounts withheld as allowed under subsection (1) (b) of this Section.

(c) Include in each of his subcontracts a provision requiring each Subcontractor to include in each of its subcontracts a provision requiring each subcontractor to include or otherwise be subject to the same payment and interest requirements with respect to each lower tier subcontractor. Each Subcontractor shall include with its invoice to, or request for payment from, the Contractor, a certification that that Subcontractor has paid each of its suppliers and lower tier subcontractors their proportionate share of previous payments received from the Contractor attributable to the Work performed or the materials furnished by it under this Contract.

(d) The Contractor's obligation to pay interest to the Subcontractor or Supplier pursuant to subsection (b) of this Section is not an obligation of the County. A modification to this Contract shall not be made for the purpose of providing reimbursement for such interest charge. A Contractor's cost reimbursement claim shall not include any amount for reimbursement of such interest charge.

CHANGES IN THE WORK

(a) The County may at any time, by a Contract Modification without notice to the sureties, make changes in the Work which are within the general scope of the Contract, except that no change will be made which will increase the total Contract Price to an amount more than twenty percent (20%) in excess of the original Contract Price without notice to sureties. At the time of contract signature, the Contractor and the County shall advise each other in writing of their designees authorized to accept and/or approve changes to the Contract and Price therein and of any limits to each designee's
authority. The Contractor agrees and understands that the authority of the County is limited by Virginia Code §2.2-4309.

b) The Contractor shall review any County requested or directed change and shall respond in writing within five (5) calendar days after receipt of the proposed change, stating the effect of the proposed change upon his Work, including any increase or decrease in the Contract time and Price. The Contractor shall furnish to the County an itemized breakdown of the quantities and prices used in computing the proposed change in Contract Price.

c) Allowable costs for changes in the Work shall not include the following:

   i. Costs due to the negligence of the Contractor, any Subcontractor, Supplier, their employees or other persons for whom the Contractor is responsible, including, but not limited to, costs for the correction of Defective Work, for improper disposal of material, for equipment wrongly supplied, for delay in performing the Work, or for delay in obtaining materials or equipment.

d) If the Contractor claims that any instructions given to him by the County, by drawings or otherwise, involve extra Work which increases the scope of the Contract, then, except in emergencies endangering life or property, he shall give the County written notice thereof. Said notice shall be given promptly enough to avoid delaying the Work and in no instance later than two (2) days after the receipt of such instructions. Should it not be immediately clear to the Contractor that the change involves extra Work outside the scope of the Contract, written notice shall be sufficient if given as soon as possible after such realization, but in no event later than five (5) days after the start of such Work. If the Owner agrees, a Contract Modification shall be issued as provided in these General Conditions.

TERMINATION BY OWNER FOR CONVENIENCE

The County may terminate this Contract, in whole or in part, at any time without cause upon giving the Contractor written notice of such termination. Upon such termination, the Contractor shall immediately cease Work and remove from the Site all of its labor forces and such of its materials as the County elects not to purchase or to assume in the manner hereinafter provided. Upon such termination, the Contractor shall take such steps as the County may require, to assign to the County the Contractor's interest in all Subcontracts and purchase orders designated by County. After all such steps have been taken to the County's satisfaction; the Contractor shall receive as full compensation for termination and assignment the following:

a) All reasonable expenses incurred by the Contractor. Contractor shall itemize and justify all claimed expenses.

b) Reasonable compensation for the actual cost of demobilization incurred by the Contractor as a direct result of such termination. The Contractor shall not be entitled to any compensation or damages for lost profits or for any other type of contractual compensation or damages other than those provided by the preceding sentence. Upon payment of the foregoing, the County shall have no further obligations to Contractor of any nature.

OWNER'S RIGHT TO TERMINATE THE CONTRACT FOR CAUSE

a) Prior to termination of the Contract, the County shall give the Contractor ten (10) calendar days written notice, during which the Contractor may rectify the basis for the notice. If rectified to the sole satisfaction of the County within said ten (10) days, the County may rescind its notice of termination. If not, the termination for cause shall become effective at the end of the ten (10) day notice period. In the alternative, the County may, in writing, postpone the effective date of the termination for cause, at its sole discretion, if it should receive reassurances from the Contractor that the basis for the termination will be remedied in a time and manner which the County finds
acceptable. If at any time after such postponement, the County determines that Contractor has not or is not likely to rectify the causes of termination in an acceptable manner or within the time allowed, then the County may immediately terminate the Contract for cause, without the necessity of further ten (10) day notice, by notifying the Contractor in writing of the termination.

b) If it should be judicially determined that the County improperly terminated this Contract for cause, then the termination shall be deemed to be a termination for the convenience of the County.

c) Termination of the Contract under this Section is without prejudice to any other right or remedy of the County.

EXTENSION OF TIME
If the Contractor expects and requires additional time beyond date required by the County for completion of the Work, the Contractor may request in writing to the Contract Officer a request for an extension and justification thereof. The County, at its sole discretion, may approve or reject any such request at its discretion. Failure to complete the Work on time is justification for an immediate Termination for Cause upon written notice.

STATE CORPORATION COMMISSION IDENTIFICATION NUMBER
Pursuant to §2.2-4311.2 (B) of the Code of Virginia, a bidder or offeror organized or authorized to transact business in the Commonwealth pursuant to Title 13.1 or Title 50 is required to include in its bid or proposal the identification number issued to it by the State Corporation Commission (SCC). Any bidder or offeror that is not required to be authorized to transact business in the Commonwealth as a foreign business entity under Title 13.1 or Title 50 or as otherwise required by law is required to include in its bid or proposal a statement describing why the bidder or offeror is not required to be so authorized.

QUALIFICATIONS OF BIDDERS
The County may make such reasonable investigations as deemed proper and necessary to determine the ability of the bidder to perform the services/furnish the goods and the bidder shall furnish to the County all such information and data for this purpose as may be requested. The County reserves the right to inspect offer’s physical facilities prior to award to satisfy questions regarding the bidder’s capabilities. The County further reserves the right to reject any bid if the evidence submitted by, or investigations of, such bidder fails to satisfy the County that such bidder is properly qualified to carry out the obligations of the contract and to provide the services and/or furnish the goods of this IFB.

LATE PROPOSALS AND MODIFICATION OF BIDS
It is the sole responsibility of the bidder to see that his bid is received by the specified time and date. Bids received by the Procurement Officer after the due date and time will not be accepted and will be returned to the bidder, if possible, unopened. There will be no exceptions. Date of postmark will not be considered. Telephone, facsimile, electronic and verbal bids will not be accepted. Prices or changes shown on the outside of an envelope will not be acceptable.

BID ACCEPTANCE PERIOD
Any bid in response to this solicitation shall be valid for ninety (90) days. At the end of the ninety (90) days the bid may be withdrawn at the written request of the bidder. If the bid is not withdrawn at that time it remains in effect until an award is made or the solicitation is canceled.

IDENTIFICATION OF BID/PROPOSAL ENVELOPE
The signed bid should be returned in an envelope or package, sealed and identified as outlined on Page 1 of this document.
If a bid not contained is mailed, the bidder takes the risk that the envelope, even if marked as described above, may be inadvertently opened and the information compromised which may cause the bid or proposal to be disqualified. Bids may be hand delivered to the designated location in the office issuing the solicitation. No other correspondence or other bids should be placed in the envelope.

WITHDRAWL OF BID AFTER OPENING
To withdraw a bid after bid opening, a bidder must satisfy the substantive requirements of §2.2-4330 of the Code of Virginia. In addition, the following procedures shall apply:

a. The bidder shall give notice in writing of his claim of right to withdraw his bid within two business days after the conclusion of the bid opening procedure and shall submit original work papers with such notice.

b. The mistake may be proved only from the original work papers, documents and materials used in preparation of the bid and delivered as required herein.

CONTRACTOR’S TITLE TO MATERIALS
No materials or supplies for the work shall be purchased by the contractor or by any subcontractor subject to any chattel mortgage or under a conditional sales or other agreement by which an interest is retained by the seller. The contractor warrants that he has clear title to all materials and supplies for which he invoices for payment. The successful bidder or his representative shall at the time of delivery and final acceptance present a completed original and one copy of the Manufacture Statement of Origin (MSO) or a similar document approved and acceptable by the County of Powhatan. The delivery and final acceptance of the vehicle shall not be considered finalized until the completed transferred documents are received by the County along with a clear title to the vehicle which shall become the sole property of Powhatan County.

DELIVERY
It shall be the responsibility of the contractor to make all arrangements for delivery. During transportation and delivery of the apparatus, the fire apparatus is considered F.O.B. and the property of the contractor until such time as the County accepts the apparatus in writing. Purchaser shall be notified 48 hours prior to delivery of any items so that personnel may be available to allow access to the building and verify items received.

EXTRA CHARGES NOT ALLOWED
The bid price shall be for complete construction ready for the County’s use, and shall include all charges; extra charges will not be allowed.

CONTRACTOR’S PERFORMANCE
The Contractor agrees and covenants that its agents and employees shall comply with all County, State and Federal laws, rules and regulations applicable to the business to be conducted under the contract.

TAXES

a) The Contractor shall pay all county, city, state and federal taxes required by law enacted at the time bids are received and resulting from the work or traceable thereto, under whatever name levied. Said taxes shall not be in addition to the contract price between the County and the Contractor, as the taxes shall be an obligation of the Contractor and not of the County, and the County shall be held harmless for same by the Contractor.

b) The County of Powhatan is exempt from the payment of federal excise taxes and the payment of State Sales and Use Tax on all tangible, personal property for its use or consumption. Tax exemption certificates will be furnished upon request.
COLLUSION
By submitting a proposal in response to this Invitation for Bids, the Bidder represents that in the preparation and submission of this proposal, said Bidder did not, either directly or indirectly, enter into any combination or arrangement with any person, Bidder or corporation or enter into any agreement, participate in any collusion, or otherwise take any action in the restraint of free, competitive bidding in violation of the Sherman Act (15 U.S.C. Section 1) or §§ 59.1-9.1 through 59.1-9.17 or §§ 59.1-68.6 through 59.1-68.8 of the Code of Virginia.

INDEMNIFICATION
The successful Bidder agrees to indemnify, defend and hold harmless the County of Powhatan including Powhatan Public County Schools, its officers, agents and employees from any claims, damages, suits, actions, liabilities and costs of any kind or nature, including attorneys’ fees, arising from or caused by the provision of any services, the failure to provide any services or the use of any services or materials furnished (or made available) by the successful Bidder, provided that such liability is not attributable to the County’s sole negligence.

SEVERABILITY
Any written contract resulting from this IFB shall contain a severability clause, which provides that each paragraph and provision of the contract will be severable from the entire agreement and if any provision is declared invalid, the remaining provisions shall nevertheless remain in effect.

APPROPRIATION
The obligation of County to make payments hereunder is subject to availability of annual appropriation of funds for such purpose. Notwithstanding the foregoing, County hereby represents and warrants that sufficient funds have been appropriated to cover payments under this Agreement for the fiscal year. County further agrees promptly to affirmatively seek authorization and approval for funding, including, if necessary, on an emergency basis, to pay when billed for the Services. In the event that County cannot procure or obtain lawfully appropriated and available budget authority for the Services, and notified Contractor in writing of such non-availability of funding, this Agreement may be terminated by County without further liability, except that County shall pay Contractor for all services provided by Contractor and accepted by County up to and including the date of termination.

ASSIGNMENTS
Neither party to the Contract shall assign the Contract in whole or any part without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him hereunder, without the prior written consent of the County. Consent to assignment shall not be unreasonably withheld. No assignment shall relieve any party from its obligations under the Contract.

COOPERATIVE PROCUREMENT
As authorized in section 2.2-4304 of the Code of Virginia, this procurement is being conducted on behalf of and may be used by public bodies, agencies, institutions, and localities of the Commonwealth of Virginia with the consent of the contractor.

METHOD OF PAYMENT
The Contractor will be paid 45 calendar days after acceptance of the fire apparatus following formal acceptance and receipt of a correct invoice.
All invoices must reference the Fire Engine Purchase, and shall be submitted to:
   Penny Reams
   Powhatan Fire & EMS
   3864 Old Buckingham Road, Suite B
   Powhatan, VA 23139
SECTION IV – FIRE ENGINE LOOSE EQUIPMENT BID PRICING

Where product names and model numbers are listed, this is the purchaser’s preferred choice, however, the vendor may elect to substitute an equal product. The purchaser will have sole discretion to determine if the substituted product is equal or not.

Vendors may NOT substitute where the verbiage specifically states “no exceptions”.

Where no make or model number is listed, the vendor shall give details on the manufacturer, model, and construction of their proposed item.

FIRE HOSE – SUPPLY LINE

- 100’ (one hundred foot) lengths of 5” Key, Ponn, or Angus Fire Hose with 5” Storz couplings.
  - Unit Price: ______________  Quantity: 12  Total Price: ______________

- 50’ (fifty foot) length of 5” Key, Ponn, or Angus Fire Hose with 5” Storz couplings
  - Unit Price: ______________  Quantity: 1  Total Price: ______________

- 25’ (twenty-five foot) of 5” Key, Ponn, or Angus Fire Hose with 5” Storz couplings
  - Unit Price: ______________  Quantity: 1  Total Price: ______________

- 50’ (fifty foot) lengths of 3” Key, Ponn, or Angus low-friction-loss style hose, color blue
  - Unit Price: ______________  Quantity: 12  Total Price: ______________

FIRE HOSE – ATTACK LINE

- 50’ (fifty-foot) lengths of 1¾” (inch-and-three-quarter) Key, Ponn, or Angus low-friction-loss hose:
  - Unit Price: ______________  Quantity: 24  Total Price: ______________

- 50’ (fifty foot) sections of 2.5” (two-and-a-half inch) Key, Ponn, or Angus low-friction-loss hose:
  - Unit Price: ______________  Quantity: 6  Total Price: ______________

- 100’ (one hundred foot) lengths of 1” (one inch) collapsible forestry line:
  - Unit Price: ______________  Quantity: 2  Total Price: ______________

NOZZLES

- Task Force Tips VIT series 1-3/8” slug smooth bore with 15/16” tip (without pistol grip)
  - Unit Price: ______________  Quantity: 4  Total Price: ______________

- Task Force Tips model DS1040BCP 1” Bubblecup nozzle (with pistol grip)
  - Unit Price: ______________  Quantity: 1  Total Price: ______________

- Task Force Tips model H-V 1.5” mid-force fog nozzle (without pistol grip)
• Quantity 1: Task Force Tips model H2-V 2.5” fog nozzle (with pistol grip)
  o Unit Price: ______________  Quantity: 1  Total Price: ______________

• ADAPTERS, FITTINGS, REDUCERS, AND MANIFOLDS
  2.5” double male (Kochek #36R2525)*
    o Unit Price: ______________  Quantity: 3  Total Price: ______________
  2.5” double female (Kochek #35R2525)*
    o Unit Price: ______________  Quantity: 3  Total Price: ______________
  2.5” x 1.5” reducer (Kochek #37R2515)*
    o Unit Price: ______________  Quantity: 2  Total Price: ______________
  1.5” x 1” reducer (Kochek #37R151)*
    o Unit Price: ______________  Quantity: 1  Total Price: ______________
  Gated Wye – 2.5” x 1.5” (Kochek #22K15025)
    o Unit Price: ______________  Quantity: 1  Total Price: ______________
  Gated Wye – 2.5” x 2.5” (Kochek #21K25252)
    o Unit Price: ______________  Quantity: 2  Total Price: ______________
  Manifold – 5” Storz X 5” Storz X two 2.5” male (Kochek #35K0525)
    o Unit Price: ______________  Quantity: 1  Total Price: ______________
  2.5”F x 5” Storz (Kochek #S54R525)
    o Unit Price: ______________  Quantity: 2  Total Price: ______________
  2.5”M x 5” Storz (Kochek #S36S525)
    o Unit Price: ______________  Quantity: 2  Total Price: ______________
  5”F x 5” Storz (Kochek #S54R55)
    o Unit Price: ______________  Quantity: 1  Total Price: ______________
  6”F x 5” Storz (Kochek #S54R56)
    o Unit Price: ______________  Quantity: 1  Total Price: ______________
  5” Storz blind cap (Kochek CC5073-Y)
    o Unit Price: ______________  Quantity: 2  Total Price: ______________

RURAL WATER SUPPLY
• 6” Kochek Model BS60 barrel strainer
- 6” Kochek Model JS Power Jet Siphon
  - Unit Price: ______________  Quantity: 1  Total Price: ______________
- 6” Kochek Model LL60 low-level strainer with jet siphon
  - Unit Price: ______________  Quantity: 1  Total Price: ______________
- 6” Kochek Model FBS60 self-leveling floating strainer
  - Unit Price: ______________  Quantity: 1  Total Price: ______________
- 6” Kochek double female (powder coated yellow, paint code KC09)
  - Unit Price: ______________  Quantity: 1  Total Price: ______________
- 6” x 4.5” double female
  - Unit Price: ______________  Quantity: 1  Total Price: ______________

LOOSE EQUIPMENT – WATER SUPPLY
- Quantity 3: 2.5” Spanner Wrench/Hydrant Wrench set (Kochek #K48-3)
  - Unit Price: ______________  Quantity: 1  Total Price: ______________
- Quantity 4: 5” hose spanners (Kochek #KS-3)*
  - Unit Price: ______________  Quantity: 1  Total Price: ______________
- Quantity 2: 5” hose spanner brackets
  - Unit Price: ______________  Quantity: 1  Total Price: ______________
- Quantity 1: LDH hose roller
  - Unit Price: ______________  Quantity: 1  Total Price: ______________
- Quantity 1: Rubber mallet
  - Unit Price: ______________  Quantity: 1  Total Price: ______________

ROPES & ACCESSORIES
- 150’ (One-hundred fifty feet) of ½” (half-inch) kernmantle life line
  - Unit Price: ______________  Quantity: 1  Total Price: ______________
- 150’ (One-hundred fifty feet) of ½” (half inch) utility rope
  - Unit Price: ______________  Quantity: 1  Total Price: ______________
- Rope bag for 150’ of ½” (half inch) kernmantle life line, color: yellow
  - Unit Price: ______________  Quantity: 1  Total Price: ______________
- Rope bag for 150’ of ½” (half inch) utility rope, color: black
FORCIBLE ENTRY

- Flat-Head Axe
  - Unit Price: ____________  Quantity: 1  Total Price: ____________
- Pick-Head Axe
  - Unit Price: ____________  Quantity: 1  Total Price: ____________
- Haligan Bar – Fire Hooks Unlimited 30” Pro-Bar (no exceptions)
  - Unit Price: ____________  Quantity: 2  Total Price: ____________
- 48” Pry-Bar
  - Unit Price: ____________  Quantity: 1  Total Price: ____________
- 36” Bolt Cutter
  - Unit Price: ____________  Quantity: 1  Total Price: ____________
- Quantity 2: 6’ New York Hooks – Fire Hooks Unlimited (no exceptions)
  - Unit Price: ____________  Quantity: 2  Total Price: ____________

ELECTRONIC & BATTERY OPERATED EQUIPMENT

- Fire Research Evolution LED model FCA700-V15 portable lights (tripod mount)
  - Unit Price: ____________  Quantity: 2  Total Price: ____________

MISCELLANEOUS ITEMS

Quantity 6: Viz-Con kit with 6 (six) collapsible 28” road cones with reflective stripe & tote bag
  - Unit Price: ____________  Quantity: 2  Total Price: ____________
Quantity 2: 24” x 10’ floor runners (green)
  - Unit Price: ____________  Quantity: 2  Total Price: ____________

OPTION #1

ISG E380 thermal imaging camera with the following accessories:

- Vehicle charger
- Desktop charger
- Spare battery
- Heavy duty retractable lanyard
• Side-straps
• “Batteries for Life”
  o Unit Price: ______________  Quantity: 1  Total Price: ______________

**OPTION #2**
Blowhard (brand) BH-20 positive pressure fan with optional battery pack.
  o Unit Price: ______________  Quantity: 1  Total Price: ______________

*Items denoted with asterisk shall be powder coated yellow*