

# **Request for Proposal**

**Town of Goffstown, New Hampshire**



## **Fire Department Pumper/Tanker Fire Truck**

**PROPOSALS DUE DATE/TIME: MAY 12, 2011 - NOT LATER THAN 2:00 PM  
MANDATORY PRE-PROPOSAL MEETING: APRIL 20, 2011 AT 9:00 AM**

**April 2011**

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**PUBLIC / LEGAL NOTICE:**



**Town of Goffstown, New Hampshire**

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**REQUEST FOR PROPOSALS**

**New Pumper / Tanker Fire Truck**

The Town of Goffstown is currently seeking Proposals for (1) New Pumper/Tanker Fire Truck for the Fire Department. Vehicle specifications can be obtained from the Goffstown Fire Department, 18 Church Street, Goffstown, NH 03045, phone: (603) 497-3619 or from the Town's web site <http://www.goffstown.com>. All submissions are due by MAY 12<sup>TH</sup>, 2011, 2p.m. at the Goffstown Town Hall, 16 Main Street (Town Selectmen's Office), Goffstown, NH 03045. There shall be a mandatory pre-proposal meeting on APRIL 20, 2011 (9 am), at 18 Church Street, Goffstown, NH. The Town reserves the right to reject any or all proposals or any part thereof, to waive any formality, informality, information and/or errors in the proposal, to accept the proposal considered to be in the best interest of the Town.

## GENERAL TERMS AND CONDITIONS

### PREPARATION OF PROPOSALS:

Proposals shall be submitted on the forms provided and must be signed by the Proposer or the Proposer's authorized representative. The person signing the proposal shall initial any corrections to entries made on the proposal forms.

Proposers must quote on all items appearing on the proposal forms unless specific directions in the advertisement, on the proposal form or in the special provisions allowed for partial Proposals. Failure to quote on all items may disqualify the proposal. When proposals on all items are not required, Proposers shall insert the words "no proposal" where appropriate.

Alternative proposals will be considered, unless otherwise stated, only if the alternate is:

1. Described completely, including, but not limited to, sample(s), if requested, and specifications sufficient so that a comparison to the request can be made; and
2. Submitted as part of the base proposal response, i.e. it shall not be a separate document which could be construed as a second proposal.

Unless otherwise stated in the Request for Proposal (RFP), the Proposer agrees that the proposal shall be deemed open for acceptance for Sixty (60) calendar days subsequent to submittal to the Town of Goffstown.

Any questions or inquiries must be submitted in writing, and must be received by the Fire Chief (**Fax: 603-497-5704 or e-mail: robrien@goffstownnh.gov**) no later than seven (7) calendar days before the Request for Proposals due date to be considered. Any changes to the Request for Proposals will be provided to all Proposers of record.

The Proposer shall not divulge, discuss or compare this proposal with other Proposers and shall not collude with any other Proposer or parties to a proposal whatever. (Note: No premiums, rebates or gratuities permitted either with, prior to, or after any delivery materials is allowed. Any such violation will result in the cancellation and/or return of materials, as applicable, and the removal from Proposal List).

The name of manufacturer, trade name, or model number mentioned in this Request for Proposal is for the purpose of designating a minimum standard of quality and type. Such references are not intended to be restrictive, although specified color, type of material and specified measurements may be mandatory. Proposals will be considered for any brand which meets or exceeds the quality of the specifications listed. On all such proposals, the Proposer shall specify the product they are proposing and shall supply sufficient data to enable a comparison to be made with the particular brand or manufacturer specified. Failure to submit the above may be sufficient grounds for rejection of the proposal. When samples are required, they must be submitted free of cost and will be returned unless otherwise specified.

Vehicles shown for demonstration purposes shall be delivered and displayed free of charge and shall be removed by the vendor at no cost to the Town. Said demonstration units shall not be offered to the Town as new apparatus unless mutually agreed to.

The vendor may be required to supply proof of compliance with proposal specifications. When requested, the vendor must immediately supply the Town with certified test results or certificates of compliance. Where none are available, the Town may require independent laboratory testing.

All costs for such testing, certified test results or certificates of compliance shall be the responsibility of the vendor.

*Unless otherwise stated, all prices are F.O.B.: Destination. No charge for packing or drayage will be allowed. C.O.Ds will not be accepted.*

**SUBMISSION OF PROPOSALS:**

Proposals must be submitted as directed in the Request for Proposals, and on the forms provided unless otherwise specified. Proposals shall include a copy of RFP with all sections completed fully to include forms and written compliance (or non-compliance) with all sections of the specification. Proposals must be typewritten or printed in ink. Proposals must be mailed or delivered in person. Proposals that are faxed or e-mailed will not be accepted. Proposals shall be submitted/delivered to:

**Town of Goffstown – Town Hall  
Attn: New FD Pumper / Tanker Proposal  
16 Main Street  
Goffstown, New Hampshire 03045**

**WITHDRAWAL OF PROPOSALS:**

Proposals may be withdrawn prior to the opening date and time upon written, faxed, e-mailed or telegraphic request of the Proposer to the Purchasing Agent. Negligence on the part of the Proposer in preparing this proposal shall not constitute a right to withdraw a proposal subsequent to the proposal opening. Proposals may not be withdrawn for a period of sixty (60) days after the date of opening indicated herein or as modified by addenda.

**RECEIPT AND OPENING OF PROPOSALS:**

Proposals shall be submitted prior to the time fixed in the Request for Proposals. Proposals received after the time so indicated shall be returned unopened.

**PROPOSAL RESULTS:**

All proposals received shall be considered confidential and not available for public review until after a vendor has been selected. All proposals shall be subject to negotiations prior to the award of a contract.

***NO TELEPHONE REQUESTS FOR RESULTS WILL BE ACCEPTED OR GIVEN.***

**TIE PROPOSALS:**

When identical Proposals are received, with respect to price, delivery, financial resources, experience, ability to perform and quality, award may be made by a toss of coin.

**LIMITATIONS:**

This Request for Proposal (RFP) does not commit the Town to award a contract, to pay any costs incurred in the preparation of a response to this request, or to procure or contract for services or supplies. The Town reserves the right to accept or reject any or all proposals received as a result of this request, or to cancel in part or in its entirety this RFP, if it is in the best interest of the Town to do so.

**TRADE IN:**

The purchaser requires all bidders to offer a value for a 1989 Tanker Truck AND a 1992 E-One Engine. The purchaser urges bidders to inspect the vehicles during the mandatory pre-proposal meeting. The purchaser makes no representations as to the condition of the vehicle. Bidders will make their offer on an "as is" basis. The purchaser reserves the right to reject bids for the trade-in vehicles entirely. Therefore, bidders are required to offer two separate prices, one for the new vehicle, and one for the used (trade-in) vehicles (see ATTACHMENT C).

**PROPOSAL EVALUATION:**

The Fire Chief and/or his designee(s) will review and screen all proposals. Proposals will be evaluated with respect to the following:

- Vendor qualifications and experience constructing New Pumper/Tanker Fire Truck.
- Safety of Fire Department staff and public while operating in or around the proposed vehicle.
- Quality of materials and workmanship.
- The vendor's ability to meet the desired specification, as submitted.
- The vendor's ability to deliver the vehicle in a desired period of time.
- Completeness, technical competence and clarity of the proposal.
- References related to similar projects.
- The stated Proposal matches to the quality, thoroughness of the work product proposed.
- The vendor's ability to provide prompt quality repair services.

It will be the responsibility of the Fire Chief and/or his designee(s) to rank the candidates in order of qualification on the basis of the evaluation of the written responses to the Request for Proposal. Following the initial ranking based on qualifications, the price proposals of all vendors will be considered. The Fire Chief and/or his designee(s) will then perform a final ranking to recommend the top Proposal to the Town's Board of Selectmen for award. Price is not the determining factor in the selection process, but it may impact final ranking.

**AWARD OF CONTRACT:**

Any contract entered into by the Town shall be in response to the proposal and subsequent discussions. It is the policy of the Town that contracts be awarded, among other considerations, only to responsive and responsible Proposers. In order to qualify as responsive and responsible, a prospective vendor must meet the following standards as they relate to this request:

- Have adequate financial resources for performance or have the ability to obtain such resources as required during performance;
- Have the necessary experience, organization, technical and professional qualifications, skills and facilities;
- Be able to comply with the proposed or required time of completion or performance schedule;
- Have a demonstrated satisfactory record of performance.
- Adhere to the specifications of this proposal and provide all documentation required of this proposal. The contract will be awarded to a responsive and responsible Proposer based on the qualifications and experience of the Proposer, the quality of the equipment/product/service to be provided, the Proposer's ability to provide ongoing technical support, the Proposer's timeframe for providing the equipment/product/service and the Proposer's fee/price proposal.

The Proposer selected will be the most qualified and not necessarily the Proposer with the lowest price. The Town of Goffstown reserves the right to waive any formality, informality, information and/or errors in the proposals submitted and the right to reject any or all proposals at its discretion and to accept the proposal which will be in the best interest of the Town; or to purchase on the open market if it is considered in the best interest of the Town to do so. In case of error in the extension of prices, the unit prices proposed shall govern and the unit prices in writing shall take precedence over the unit prices in figures. Also, in the event of a discrepancy between the total of the items and the lump sum total stated, the total of the items shall govern.

**MODIFICATIONS AFTER AWARD:**

The Town reserves the right to incorporate minor modifications, which may be required by it. The Vendor will incorporate these changes at no additional cost, but may protest such action and not be bound by any such request of it can prove that the timing or extent of the modifications implies a major effort on its part.

**PERFORMANCE BOND**

A 100% Performance Bond shall be supplied within thirty (30) days of bid award. The signatures of both Town and bidder on the contract shall construe awarding of the bid. The prime apparatus builder shall provide the performance bond. Any bonds supplied by the dealer or representative shall not be acceptable.

**PENALTY CLAUSE**

There will be a \$200.00 per day late fee assessed for each calendar day the completed unit is not in the customer's Fire Station, after the determined award date to a

manufacturer. It is the customer's requirement to have the unit within **250 calendar days** of contract signing. **NO EXCEPTION**

**CANCELLATION OF AWARD:**

The Town reserves the right to cancel the award without liability to the Proposer at any time before a contract has been fully executed by all parties and is approved by the Town.

**CONTRACT:**

Any Contract between the Town and the Vendor shall consist of (1) the Request for Proposal (RFP) and any amendments thereto and (2) the Vendor's proposal in response to the RFP. In the event of a conflict in language between documents (1) and (2) referenced above, the provisions and requirements set forth and referenced in the RFP shall govern. However, the Town reserves the right to clarify any contractual relationship in writing with the concurrence of the Vendor, and such written clarification shall govern in case of conflict with the applicable requirements contained in the RFP and the Vendor's proposal. In all other matters, not affected by written clarification, if any, the RFP shall govern. The submitter is cautioned that this proposal shall be subject to acceptance without further clarification.

**EXECUTION OF AGREEMENT:**

The successful Proposer shall sign (execute) the necessary agreements for entering into the contract and return such signed agreements to the Town, along with the fully executed surety bonds, within ten (10) calendar days from the date mailed or otherwise delivered to the successful proposer.

**APPROVAL OF AGREEMENT:**

Upon receipt of the agreement that has been fully executed by the successful Proposer, the owner shall complete the execution of the agreement in accordance with local laws or ordinances and return the fully executed agreement to the Vendor. Delivery of the fully executed agreement, along with a Notice to Proceed and a Town purchase order, to the Vendor shall constitute the Town's approval to be bound by the successful Proposer's proposal and the terms and conditions of the agreement.

**FAILURE TO EXECUTE AGREEMENT:**

Failure of the successful Proposer to execute the agreement within ten (10) calendar days from the date mailed or otherwise delivered to the successful Proposer shall be just cause for cancellation of the award.

**DISQUALIFICATION:**

Awards will not be made to any person, firm or company in default of a contract with the Town, the State of New Hampshire or the Federal Government.

**INSURANCE:**

The successful proposer shall procure and maintain insurance, in the amounts and coverage detailed by the proposal documents, acceptable to the Town, at the proposer's sole expense, with reputable and financially responsible insurance companies, insuring

against any and all public liability, including injuries or death to persons and damage to property, arising out of or related to the goods or proposer's performance hereunder and shall furnish to the Town certificates of such insurance and renewals thereof signed by the issuing company or agent upon the Town's request. Such certificates shall name the Town of Goffstown as an additional insured. Such policies shall provide for cancellation only subsequent to 30 days prior written notice to the Town. The Town's examination of, or failure to request or demand, any evidence of insurance hereunder, shall not constitute a waiver of any requirement and the existence of any insurance shall not limit the proposer's obligation under any provision hereof. Except to the extent of comparable insurance acceptable to or express waiver by the Town, the proposer shall, or shall cause any carrier engaged by the proposer, to insure all shipments of goods for full value.

If the agreement with the proposer involves the performance of work by the proposer's employees at property owned or leased by the Town, the proposer shall furnish such additional insurance as the Town may request in respect thereof, but in any event and without such request, workers' compensation insurance and unemployment compensation insurance as required by laws of the State of New Hampshire and public and automotive liability and property damage insurance. In no event shall such employees of the proposer be deemed to be the employees of, or under the direction or control of the Town for any purpose whatsoever.

**WORKER'S COMPENSATION:**

All proposers and subvendors at every tier under the proposer will conform with the requirements of NH RSA 281 Title XXIII, Section 281-A:2 with close attention to sections VI(a), VI(c) and VII(a) as well as Section 281-A:4.

**DISAGREEMENTS AND DISPUTES:**

All disagreements and disputes, if any, arising under the terms of any agreement, either by law, in equity, or by arbitration, shall be resolved pursuant to the laws and procedures of the State of New Hampshire, in which state any agreement shall be deemed to have been executed. No action at law, or equity, or by arbitration shall be commenced to resolve any disagreements or disputes under the terms of any agreement, in any jurisdiction whatsoever other than the State of New Hampshire and Hillsborough County.

**TERMINATION OF CONTRACT FOR CAUSE:**

If, through any cause, the Vendor shall fail to furnish in a timely and proper manner its obligations under any Contract, or if the Vendor shall violate any of the covenants, agreements or stipulations of any Contract, the Town shall thereupon have the right to terminate any Contract by giving written notice to the Vendor of such termination. In such event, all finished or unfinished work, services, plans, data programs and reports prepared by the Vendor under this Contract shall become the Town's property and the Vendor shall be entitled to receive just and equitable compensation for any satisfactory work completed.

Notwithstanding the above, the Vendor shall not be relieved of liability to the Town for damages sustained by the Town by virtue of any breach of any contract, and the Town

may withhold any payments until such time as the exact amount of damages due the Town is determined.

**TERMINATION FOR THE CONVENIENCE OF THE TOWN:**

The Town may terminate any contract at any time by giving written notice to the Vendor of such termination and specifying the effective date thereof, at least fifteen (15) days before the effective date of such termination. In that event, all finished or unfinished work, services, documents and materials shall become the Town's property. If any Contract is terminated by the Town as provided herein, the Vendor will be paid an amount which bears the same ratio to the total compensation as the services covered by any contract, less payments of compensation previously made.

**OWNERSHIP OF REPORTS:**

All data, materials, plans, reports and documentation prepared pursuant to any contract between the Town of Goffstown and the successful proposer shall belong exclusively to the Town.

**ASSIGNMENT PROVISION:**

The successful proposer hereby agrees that it will assign to the Town of Goffstown all cause of action that it may acquire under the anti-trust laws of New Hampshire and the United States as the result of conspiracies, combination of contracts in restraint of trade which affect the price of goods or services obtained by the Town under this contract if so requested by the Town of Goffstown.

**DELIVERY:**

Deliveries are to be made only to the location indicated on the order and in accordance with accepted commercial practices, without extra charge for packing or containers. Deliveries, which do not conform to the specifications or are not in good condition upon receipt, shall be replaced promptly. Deliveries shall be accepted weekdays between the hours of 8:30 AM and 3:30 PM unless otherwise stated. Delivery arrangements must be made with the Fire Chief prior to delivery.

**PAYMENT:**

Unless otherwise stated, payment will be made within thirty (30) days of the completion of delivery of all items or service, in acceptable condition, to the Town and receipt of invoice, whichever is later. If there are any special discounts available for prepayments; full disclosure of the discount(s) shall be presented with the vendor's proposal as an option.

**TAX EXEMPTION:**

The Town is exempt from all sales and Federal excise taxes. Our exemption number is 02-6000326. Vendors shall invoice less these taxes.

**FUNDING OUT:**

The Town of Goffstown's obligations to pay any amount due under a contract are contingent upon availability and continuation of funds for the purpose. The Town may

terminate the contract, for non-appropriation of funds, and all payment obligations of the Town cease on the date of termination.

**ASSIGNMENT OR SUB-CONTRACTING:**

None of the work or services covered by the contract shall be assigned in full or in part, or subcontracted without the prior approval of the Town.

**EXCLUSIVITY:**

This contract will be for the goods/services described above; however, this agreement should not be considered exclusive. As deemed necessary, the Town reserves the right to obtain these goods/services from any other vendor.

**PRICING:**

Unless otherwise specified all prices listed are firm for the term of the contract. All prices should include all labor, material and transportation costs. No fuel surcharges shall be allowed at any time.

**AUDIT:**

For a period of at least three (3) years after completion of any contract, it is the responsibility of the vendor to make available at the vendor's place of business, upon demand, all price lists, documents, financial records and other records pertaining to purchases made and /or work performed under contract for the purposes of audit by the Town of Goffstown.

**INSPECTION & EVALUATION:**

The Town of Goffstown reserves the right to inspect the vendor's facilities during operating hours to determine that the level of inventory is adequate for the Town's needs. The conditions and operations of the facility may be taken into consideration in making the award of this contract.

**GUARANTEES & WARRANTY:**

All parts and labor related to agreements must be guaranteed and include a warranty. If any work is unable to be guaranteed, the vendor must inform the Town, in writing, prior to the delivery of an item or any work being performed. Non-guaranteed work must be offered at a discount rate from the proposal prices. **Inspection, testing and final determination of non-warranty work shall be performed at no cost to the Town.**

**FORCE MAJEURE:**

Neither party shall be liable for any inability to perform its' obligations under any subsequent agreement due to war, riot, insurrection, civil commotion, fire, flood, earthquake, storm or other act of God.

**NOTIFICATION:**

Notification of the parties shall be considered to have been constructively received when it is mailed via the United State Postal Service or delivered in hand to the parties as stated in the contract.

**SEVERABILITY:**

If any of the GENERAL TERMS AND CONDITIONS is held to be invalid or unenforceable, it will be construed to have the broadest interpretation which would make it valid and enforceable under such holding. Invalidity or the inability to enforce a term or condition will not affect any of the other GENERAL TERMS AND CONDITIONS.

**NON-RECRUITMENT OF PERSONNEL**

During the term of the Agreement and for twenty-four (24) months thereafter, the Town and the successful vendor party agree not to solicit or hire current or former employees without the other's prior written consent.

**DISADVANTAGED BUSINESS ENTERPRISES**

The Town hereby notifies all Vendors that it will affirmatively insure that in any contract entered into pursuant to this Request for Proposals, disadvantaged business enterprises will be afforded full opportunity to submit proposals in response to this request and will not be discriminated against on the grounds of race, color, national origin, religion, sex, age or disability in consideration for an award.

**NON-DISCRIMINATION**

Contracts for work resulting from this Request for Proposals shall obligate the Vendor not to discriminate in employment practices on the grounds of race, color, national origin, religion, sex, age or disability. Statements as to nondiscriminatory practices may be requested from the successful Vendor(s).

**DEFINITIONS:**

Proposal shall also mean quotation, bid, offer, qualification/experience statement, and services. Proposers shall also mean vendors, offerors, proposers, contractors or any person or firm responding to a Request for Proposals.

**GOVERNING LAW:**

The Laws of the State of New Hampshire shall govern all contracts entered into by the Town of Goffstown. Any disputes shall be resolved within the venue of the State of New Hampshire and Hillsborough County.

***FAILURE TO ACKNOWLEDGE THIS PROPOSAL MAY RESULT IN WITHDRAWAL FROM THE PROPOSAL LIST FOR THIS COMMODITY OR SERVICE.***

***FAILURE TO COMPLY WITH THESE REQUIREMENTS COULD RESULT IN THE CANCELLATION OF AN ORDER OR CONTRACT.***

# **FIRE DEPARTMENT PUMPER / TANKER** **SPECIFICATION**

## **INTENT OF SPECIFICATIONS**

It is the intent of these specifications to cover the furnishing and delivery to the purchaser of a complete (new) Pumper/Tanker vehicle equipped as hereinafter specified. With a view to obtaining the best results and the most acceptable apparatus, these specifications cover minimum requirements as to the type of construction, finish, and tests to which the apparatus must conform, together with certain details as to equipment and appliances to be furnished. Minor details of construction and materials, where not otherwise specified, are left to the discretion of the contractor, who shall be solely responsible for the design and construction. This Pumper/Tanker shall be constructed to NFPA 1901 (2009 ed.), with agreed upon exceptions.

## **DELIVERY**

The apparatus shall be delivered under its own power to assure adequate break-in while under warranty. It shall first be transported to the local service facility, where final inspection and preparation will be performed, including mounting of related equipment. The apparatus will then be delivered to the identified location.

## **PRE & FINAL CONSTRUCTION INSPECTION OF PUMPER/TANKER APPARATUS**

The factory authorized Distributor shall be required, during manufacturing, to have pre – and final construction inspection conferences at the site of the apparatus manufacturing facility with three (3) individuals for the pre-construction and two (2) individuals for the final inspection from the Goffstown Fire Department.

The factory's authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 400 miles shall be by commercial air travel.

## **FINAL INSPECTION CONFERENCE**

The factory authorized Distributor shall be required to have a final completion inspection conference at the site of the vendor's (authorized distributor) facility with two (2) individuals from the Goffstown Fire Department to inspect the apparatus after construction.

The factory's authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 400 miles shall be by commercial air travel.

## **POST-DELIVERY TRAINING**

On a mutually agreeable date(s) after delivery, a qualified delivery engineer shall familiarize those persons designated by the Fire Chief with the basic operation of the apparatus and its components. Training must be delivered by a qualified instructor familiar with all components of the vehicle. A pumps operations course shall be taught by a certified instructor Limited programs or "drop-off" type deliveries are unacceptable.

## **TRAINING**

A qualified training engineer shall be provided by the bidder. The training engineer shall instruct the Goffstown Fire Department personnel in the operation and maintenance of the chassis and pump operation for a period of not less than two (2) days. The training shall incorporate modern training techniques. An “as built” Power Point® presentation shall be included as part of the instruction. A copy shall be left with the fire department to use for future instruction.

## **SAFETY VIDEO**

Documentation provided at the time of delivery shall also include an apparatus safety video, in DVD format. This video shall address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus. Safety procedures for the following shall be included: vehicle pre-trip inspections, chassis operation, pump operation, and maintenance.

## **CONSTRUCTION TIME**

The proposer shall indicate, as part of his/her proposal, the number of calendar days required to build and deliver the apparatus to the Town of Goffstown after contract signing and receipt of order.

## **WARRANTY**

Each proposer shall submit a copy of their standard Warranty(s) in compliance with State and Federal regulations. It shall provide coverage for a minimum of a one (1) year period. Warranty forms must be submitted with the proposal package. Altered forms will not be accepted. **All warranties shall commence upon inspection and acceptance by the Town.**

## **EXCEPTIONS**

Substitutions, deviations, clarifications, or exceptions to the technical specifications must be listed on the **SPECIFICATIONS EXCEPTION FORM** (additional pages may be added as needed), and must be accompanied by adequate supportive data to allow the Fire Chief to determine acceptability. Proposals that are found to have deviations without listing them will be rejected. Components identified by brand names are available to all prospective proposers and exceptions shall not be allowed on these items.

## **PUMP CERTIFICATION**

The apparatus will be tested and certified by a third party testing company as detailed in the NFPA Standard for Pumper Fire Apparatus.

## **GENERATOR TEST**

The generator shall be tested, approved, and certified by Underwriters Laboratories at the manufacturer's expense. The test results shall be provided to the Fire Department at the time of delivery.

**QUALITY AND WORKMANSHIP**

The design of the apparatus shall embody the latest approved automotive engineering practices. The workmanship shall be of the highest quality in its respective field. Special consideration shall be given to the following points: Accessibility of the various units that require periodic maintenance; ease of operation (including both pumping and driving); and symmetrical proportions. Construction shall be rugged and ample safety factors shall be provided to carry the loads specified and to meet both on and off road requirements and speed conditions as set forth under "Performance Tests and Requirements". Welding shall not be employed in the assembly of the apparatus in a manner that shall prevent the ready removal of 2000 requirements for structural welding of sheet metal. Flux core arc welding to use alloy rods, type 7000, American Welding Society standards A5.20-E70T1. Employees classified as welders are tested and certified to meet American Welding Society codes upon hire and every three (3) years thereafter. All steel welding shall follow American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding shall follow American Welding Society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding shall follow American Welding Society B2.1-2000 requirements for structural welding of sheet metal. Employees classified as welders are tested and certified to meet American Welding Society codes upon hire and every three (3) years thereafter.

**REQUIRED DRAWINGS**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
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Vendors submitting proposals shall also include the following detailed drawings:

- Vehicle Exterior
- Compartment Detail and Dimensions
- Cab Detail (Interior / Exterior)
- Vehicle Dimensions (to include approach / departure angles)
- Hose Bed Detail
- Ladder Compartment Detail
- Pump Detail

**OVERALL APPARATUS HEIGHT**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
---

The overall apparatus height shall not exceed 10 feet, 3 inches.

**OVERALL APPARATUS LENGTH**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
---

The overall apparatus length shall not exceed 36 feet.

**OVERALL APPARATUS WIDTH**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
---

The overall apparatus width shall not exceed 114 inches (includes exterior mirrors).

**MAXIMUM APPARATUS WHEELBASE**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
---

The wheelbase of the vehicle shall not exceed 214.50 inches.

## 1. CHASSIS

### CHASSIS FRAME

COMPLY:  YES  NO

Chassis provided shall be a new, tilt-type custom fire apparatus. The chassis shall be designed and manufactured for heavy-duty service, with adequate strength, capacity for the intended load to be sustained, and the type of service required. The chassis shall be the manufacturer's heavy-duty line tilt cab.

The frame rails shall be powder coated in order to insure superior paint adhesion. Frame cutouts for the engine shall be made with a plasma torch in order to minimize the heat-affected zone caused by the cut.

All frame-mounted components shall be secured with grade eight bolts with hardened washers and distorted thread locknuts. Flanged head bolts with nylon locking nuts, or huck bolts shall not be acceptable.

The apparatus manufacturer shall provide a lifetime warranty (stated in years) to the original purchaser against cracking of the frame rails.

### FRAME

COMPLY:  YES  NO

The chassis frame shall be built with at least two (2) steel channels bolted to a minimum of five (5) cross members or more, depending on other options of the apparatus. The pump housing shall not count or be used as a cross member.

### CHASSIS FRAME PAINT

COMPLY:  YES  NO

The frame and running gear shall be painted job color (RED). The running gear shall consist of the axles, drivelines, air tanks, steering gear, frame mounted brackets, drag link, and fuel tank.

The air system piping and electrical harnesses shall not be installed in the frame until after the frame has been painted. This shall insure complete coverage of paint behind those areas; as well as to insure the air piping and wiring harnesses are not painted.

### FRONT BUMPER EXTENSION

COMPLY:  YES  NO

Front frame, extension rails, shall be bolted to the main frame through reinforcement plates that are backed by the front engine mounting cross member. The finished apparatus must be able to be lifted at the front bumper without structural damage to the extension rails for towing the vehicle.

The front bumper shall have a structural steel backing plate reinforcement channel. This channel follows the contour of the bumper and wraps around from the front to side of the bumper. The bumper shall be bolted to the channel and in turn, the channel shall be bolted to the frame extension rails.

The front bumper shall extend sixteen (16") inches ahead of the front face of the cab.

The front bumper shall include a tray that has the capability to hold 100' of 1 3/4" hose and nozzle, 2" piped outlet from the fire pump, and a 6" pump suction intake/connector in or on the right side of the front bumper. The cover for the hose compartment shall be made of heavy-duty aluminum tread plate to match the front bumper.

Black rubber grating shall be provided at the bottom of the tray. Drain holes are also to be provided.

**FRONT BUMPER**

**COMPLY:**       YES    NO

A 12" inch high, 10-gauge polished stainless steel, two-rib bumper shall be provided. The bumper shall be the full width of the cab and wrap around with an 8-inch radius.

**AIR HORNS**

**COMPLY:**       YES    NO

There shall be two-(2) Hadley air horns made from spun brass material and chrome plated. The air horns shall be mounted, one-(1) each side, outboard the frame rails. The sounding unit shall be die cast and easily separated for service. The horns shall be mounted behind the cutouts in the front bumper. The bumper must be extended to permit air horn clearance from chassis obstructions.

Two (2) Linemaster #632 floor mounted foot switches shall be provided, one (1) for the officer and one (1) for the driver to control the air horns.

**ELECTRONIC SIREN**

**COMPLY:**       YES    NO

One (1) Whelen # 295SLSA1 electronic siren shall be provided featuring: bottom mount control head in cab, "Si-Test" self diagnostic feature, six (2) function siren, radio repeat and public address.

The electronic siren and speaker shall meet the NFPA required SAE certification to ensure compatibility between the siren and speaker.

One (1) Whelen, model # SA315P (100 watt) polished aluminum siren speaker shall be provided, recessed in the front bumper and wired to the electronic siren.

**FEDERAL 2QB SIREN**

**COMPLY:**       YES    NO

Shall be mounted on the top left side of the front bumper, and will be mounted so as to not cause damage should the cab be tilted.

Two (2) Linemaster #632 floor mounted foot switches shall be provided, one (1) for the officer and one (1) for the driver to control the Federal Q2B.

A siren brake switch to be installed in a location easily accessible to both the driver and the officer.

**TOW HOOKS**

**COMPLY:**      YES    NO

Two-(2) chrome tow hooks capable of supporting the weight of towing the apparatus shall be mounted to the front bumper, connecting to the frame extension with grade 8 bolts. The Tow hooks shall be mounted in such a way that if they are used to tow the apparatus, damaged will not be caused to the vehicle.

**TOW EYES**

**COMPLY:**      YES    NO

Two (2) rear painted tow eyes shall be located at the rear of the apparatus and shall be mounted directly to the chassis frame rails.

**TURNING RADIUS REPORT**

**COMPLY:**      YES    NO

Supplied with the bid, shall be a turning radius analysis of the vehicle being proposed. This analysis shall provide the inside turning radius, the outside turning radius, the curb to curb turning radius and the wall to wall turning radius. The MAXIMUM calculated turning radius shall be **36 ft.**

**FRONT NON DRIVE AXLE**

**COMPLY:**      YES    NO

The front axle shall be of the independent suspension design and rated to accommodate the weight of the vehicle. Camber at load shall be zero degrees for optimum tire life. Toe links that are adjustable for alignment of the wheel to the center of the chassis shall be provided. The wheel ends must have little to no bump steer when the chassis encounters a hole or obstacle. The steering linkage shall provide proper steering angles for the inside and outside wheel, based on the vehicle wheelbase.

The axle shall have a third party certified turning angle of **45 degrees**. Aluminum wheels shall not infringe on this cramp angle.

**SHOCK ABSORBERS**

**COMPLY:**      YES    NO

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

**FRONT SUSPENSION**

**COMPLY:**      YES    NO

The independent suspension system shall be designed to provide maximum ride comfort. The design shall allow the vehicle to travel at highway speeds over improved road surfaces and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment. Each front wheel end shall also have energy absorbing jounce bumpers to prevent bottoming of the suspension. The suspension design shall be such that there is at least 10.00" of total wheel travel and a minimum of 3.75" before suspension bottoms. The torsion bar anchor lock system allows for simple lean adjustments, without the use of shims. One can adjust for a lean within 15 minutes per side. Anchor adjustment design is such that it allows for ride height adjustment on each side. Front independent suspension shall be provided with a minimum ground rating of 22,800 lb

**BRAKES**

**COMPLY:**     YES     NO

The service brake system shall be full air type. The front brakes shall be disc type. The front brakes shall be Knorr/Bendix disc type with a 17.00" ventilated rotor for improved stopping distance. The brake system shall be certified, third party inspected, for improved stopping distance. The rear brakes shall be the largest cam operated with automatic slack adjusters available for the wheel used.

**BRAKE SYSTEM**

**COMPLY:**     YES     NO

The brake system shall include:

- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi.
- Include a Bendix AD-9 air dryer with integral 12-volt heated moisture ejector. The air dryer shall have a desiccant cartridge and incorporate an integral turbo cutoff valve. The turbo cutoff allows the air dryer to purge water and contaminates without any loss of turbo boost or engine horsepower.
- MGM spring set parking brake system.
- Parking brake operated by a Bendix-Westinghouse PP-1 control valve.
- A parking "brake on" indicator light on the instrument panel.
- Bendix-Westinghouse SR-1 valve, in conjunction with a double check valve system, including an automatic spring brake application at 60 psi.

**BRAKE LINES**

**COMPLY:**     YES     NO

Color-coded nylon brake lines shall be provided. The lines shall be wrapped in a heat protective loom where necessary in the chassis.

**REAR TANDEM AXLE**

**COMPLY:**     YES     NO

The rear axle shall meet or exceed a Meritor (Rockwell) axel in a tandem axle assembly with single reduction gearing and have a minimum rated capacity of 48,000 lbs GAWR. The rear axles shall be equipped with "Oil Bath" wheel end seals. An inter-axle differential, which divides torque evenly between axles, shall be provided with an indicator light mounted on the cab instrument panel.

**REAR SUSPENSION TANDEM AXLE**

**COMPLY:**     YES     NO

The rear tandem suspension shall be a Raydan AirLink or equivalent.

Dual height control valves, one-(1) each side, maintain even balanced loads.

The walking beams combined with air springs result in high roll stability.

**VEHICLE TOP SPEED**

**COMPLY:**       YES    NO

The vehicle shall be programmed for a top speed of 60 MPH at governed engine speed.

**12 VOLT ACCESSORY CIRCUIT**

**COMPLY:**       YES    NO

A dedicated 12 volt power and ground circuit shall be provided in the cab dash or console as required. The circuit shall be for future installation of radios or accessories.

**ELECTRONIC STABILITY CONTROL**

**COMPLY:**       YES    NO

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

The system shall monitor and update the lateral acceleration of the vehicle and compare it to a critical threshold where a side roll event may occur. If the critical threshold is met, the vehicle control system shall automatically reduce engine RPM, engage the engine retarder (if equipped), and selectively apply brakes to the individual wheel ends of the front and rear axles to reduce the possibility of a side roll event.

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

**ANTI-LOCK BRAKE SYSTEM**

**COMPLY:**       YES    NO

The vehicle shall be equipped with an anti-lock braking system. The ABS shall provide a six (6) channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology shall control the anti-lock braking system. Each wheel shall be monitored by the system. When any wheel begins to lockup, a signal shall be sent to the control unit. This control unit shall then reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system shall eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

**AUTOMATIC TRACTION CONTROL**

**COMPLY:**       YES    NO

An anti-slip feature shall be included with the ABS. The Automatic Traction Control shall be used for traction in poor road and weather conditions. The Automatic Traction Control shall act as an electronic differential lock that shall not allow a driving wheel to spin, thereby supplying traction at all times. The ABS electronic control unit (ECU) shall work with the engine ECU, sharing information concerning wheel slip. Engine ECU shall use information to control engine speed, allowing only as much throttle application as required for the available traction, regardless of how much the driver is asking for. A

"mud/snow" switch shall be provided on the instrument panel. Activation of the switch shall allow additional tire slip to let the truck climb out and get on top of deep snow or mud.

**ELECTRONIC STABILITY CONTROL SYSTEM, ANTI-LOCK BRAKE SYSTEM & AUTOMATIC TRACTION CONTROL WARRANTY**

**COMPLY:**       YES     NO

The system shall come with a **three (3) year parts and labor** warranty provided by the manufacturer.

**TIRES**

**COMPLY:**       YES     NO

Front tires shall be Michelin radials 425/65R22.50, 20 ply "all position" XZY-3 tread. The tires shall be mounted on Alcoa Polished Aluminum rim for 425 tires with a rating of 22,000#. With a ten (10) stud, 11.25" bolt circle.

Rear tires shall be eight (8) Michelin radials 315/80R22.50, 20 ply "all position" XDN-2 tread. The tires shall be mounted on 10-bolt, hub-piloted type Alcoa Polished aluminum, 9.00" X 22.5". The outside wheels shall be polished on the outside surface.

**TIRE PRESSURE MANAGEMENT**

**COMPLY:**       YES     NO

There shall be a tire alert pressure management system provided that shall monitor each tire's pressure. A chrome plated brass sensor shall be provided on the valve stem of each tire for a total of ten (10) tires. The sensor shall calibrate to the tire pressure when installed on the valve stem for pressures between 20 and 120 psi. The sensor shall activate an integral battery operated LED when the pressure of that tire drops 8 psi. Removing the cap from the sensor shall indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED shall immediately start blinking.

**WHEEL CHOCKS**

**COMPLY:**       YES     NO

There shall be two (2) set(s) of folding Ziamatic SAC-44-E, aluminum alloy, Quick-Choc wheel blocks with easy-grip handle provided.

**WHEEL CHOCK BRACKETS**

**COMPLY:**       YES     NO

There shall be two (2) set(s) of Ziamatic SQCH-44-H horizontal mounting wheel chock brackets provided for the SAC-44-E folding wheel chocks. Location to be determined at pre-construction conference.

**WHEEL WELL LINERS**

**COMPLY:**       YES     NO

The front cab wheel wells shall be equipped with fully removable, bolt-in, aluminum inner wheel well liners. The liners shall extend full depth into the truck frame. The completely washable wheel well liners shall be designed to protect the cab substructure, inner panels, and other miscellaneous installed components from road salts, debris, dirt

accumulation and corrosion. Fender liners which are fixed partially removable or one piece liner/fenderette shall not be considered.

**FENDERETTES**

**COMPLY:**     YES    NO

All wheel well openings shall be trimmed with replaceable, bolt-in, polished stainless steel fenderettes. The fenderettes shall be secured to the cab with stainless steel threaded fasteners along the internal perimeter of the wheel well. Rubber welting shall be installed between the fenderettes and the cab side panel.

**MUD FLAPS**

**COMPLY:**     YES    NO

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

**SPARE TIRE-FRONT**

**COMPLY:**     YES    NO

A Michelin 425/65R22.50, 20 ply spare tire to match the vehicle's front tires shall be provided, mounted on a painted (RED) steel disc wheel.

**SPARE TIRE-REAR**

**COMPLY:**     YES    NO

A Michelin 315/80R22.50, 20 ply spare tire to match the vehicle's rear tires shall be provided, mounted on a painted (RED) steel disc wheel.

**ENGINE COOLING SYSTEM**

**COMPLY:**     YES    NO

The engine cooling system shall have the capacity to cool the engine according to the engine manufacturer requirements.

**COOLANT LINES**

**COMPLY:**     YES    NO

Silicone hoses shall be used for all engine/heater coolant lines installed by the chassis manufacturer.

Hose clamps shall be stainless steel "constant torque type" to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

**RADIATOR**

**COMPLY:**     YES    NO

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

For maximum cooling performance, the radiator core shall be made of copper fins having a serpentine design, soldered to brass tubes. The tubes shall be welded to brass headers for increased strength, longer road life and solder-bloom corrosion protection. The radiator core shall have a minimum frontal area of 1396 square inches. Steel supply and return tanks shall be bolted to the core headers and steel side channels to complete the radiator assembly. The radiator shall be compatible with commercial antifreeze solutions.

The radiator shall be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly shall be isolated from the chassis frame rails with rubber isolators.

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

A drain port shall be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.

A heavy-duty fan shall draw in fresh, cool air through the radiator. Shields or baffles shall be provided to prevent recirculation of hot air to the inlet side of the radiator.

**PLATE**

**COMPLY:**      YES    NO

The chassis shall be designed with a removable heavy-duty radiator skid plate to protect the radiator from debris or obstructions under the chassis. The skid plate shall be constructed from steel, which shall enclose the lower section of the radiator and cooling system components mounted on the lower section of the radiator. The skid plate shall be designed so the angle of approach is not affected.

**COOLING SYSTEM FAN**

**COMPLY:**      YES    NO

The engine cooling system shall incorporate a thermostatically controlled, 2-speed fan clutch. When the fan clutch is disengaged, the fan blade rotates-contact free and non-wearing at low RPM'S, driven by a permanent magnet system facilitating improved vehicle performance, cab heating in cold climates, and fuel economy, while eliminating the potential dangers associated with a fan going from non-rotating to rotating as found with other style fan clutches.

The fan shall automatically lock up when the vehicle is placed in pumping mode.

A fan and shroud shall be installed on the engine. Recirculation shields shall be installed to ensure that air, which has passed through the radiator, is not draw through it again.

**CHARGE AIR COOLER**

**COMPLY:**      YES    NO

The charge air cooler shall be constructed of aluminum with cast, aluminum side tanks. The cooler shall have a frontal core area of not less than 888 square inches.

The exterior fins shall be louvered serpentine design constructed of aluminum and have a density no greater than seven-(7) fins per inch. The internal fins shall be designed to create air turbulence in order to increase heat transfer efficiency.

The charge air cooler shall be mounted directly ahead of the radiator and to the radiator headers. Rubber isolators shall be used at the mounting points to reduce transmission of vibrations.

The piping between the charge air cooler and engine shall use four-(4) ply silicone woven Nomex hoses with stainless steel bands. The bands are used to maintain the shape of the hose during changing turbo boost pressures. The hoses shall be attached with stainless steel constant tension hose clamps.

**AIR INTAKE/OUTLET**

**COMPLY:**      YES    NO

There shall be a front air intake with a minimum of 945 square inches of open area for maximum air flow to the charge air cooler and the radiator.

Two (2) air inlets/outlets with a minimum of 43.5 square inches per inlet shall be provided horizontally above the wheel well opening, one on each side of the cab. The design shall permit proper ducting of air through the engine compartment and cooling system. The left side inlet, used for the air intake to the air cleaner, shall be equipped with an ember separator for separating water and burning embers from the air intake system. This system shall be such that particles larger than .039 inches (1 mm) in diameter cannot reach the air filter element.

The air intake and outlets shall be covered with polished stainless steel louvers, secured with polished cast aluminum housings.

**FUEL TANK**

**COMPLY:**      YES    NO

A minimum 65-gallon fuel tank shall be provided and mounted at rear of chassis. The tank shall be constructed of 12-gauge, hot rolled steel. It shall be equipped with swash partitions and a vent.

A .75" drain plug shall be provided in a low point of the tank for drainage.

A .50" diameter vent shall be provided running from top of tank to just below fuel fill inlet.

The tank shall meet all FHWA 393.67 requirements including a fill capacity of 95% of tank volume.

**FUEL POCKET**

**COMPLY:**      YES    NO

A fuel fill shall be provided in the left side rear wheel well area. A heavy duty stainless steel spring loaded hinged fill door shall be provided.

A label indicating "DIESEL FUEL ONLY" shall be provided adjacent to the fuel fill.

**FUEL SHUT-OFF**

**COMPLY:**      YES    NO

A shutoff valve shall be installed in the fuel line, on both sides of the fuel filters.

**FUEL/WATER SEPERATOR WITH LIGHT & ALARM**

**COMPLY:**      YES    NO

A Racor B32002 filter shall be installed in place of the standard filter. The filter will have a instrument panel light and alarm that indicates when water is present in the fuel-water separator filter

**CUMMINS ISL ENGINE**

**COMPLY:**      YES    NO

The vehicle shall be equipped with a minimum Cummins ISL 450 turbocharged diesel engine. Standard features include an electronic governor, electronically controlled unit injectors, Farr air cleaner, a 12-volt 42 MT Delco starter and a Cummins 18.7 CFM compressor. The oil filter shall be a full flow and bypass design.

**ENGINE SPECIFICATIONS:**

The chassis shall be powered by an electronically controlled engine as described below:

Power: 450 hp at 2100 rpm (minimum)

Torque: 1250 lb-ft at 1400 rpm (minimum)

Governed Speed: 2200 rpm

Emissions Level: EPA 2010

Fuel: Diesel

Cylinders: Six (6)

Displacement: 543 cubic inches (8.9L)

Starter: Delco 39MT

Fuel Filters: Spin-on style primary filter with water separator & water-in-fuel sensor.  
Secondary spin-on style filter.

Coolant Filter: Spin-on style with shut off valves on the supply and return line

**ENGINE WARRANTY**

**COMPLY:**      YES    NO

There shall be a (minimum) five-(5) year warranty provided by the engine manufacturer.

**ENGINE BRAKE**

**COMPLY:**      YES    NO

A Jacobs Engine C-Brake is to 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. 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.

A pump shift, interlock circuit shall be provided to prevent the engine brake from activating during pumping operation. The engine brake shall interface with the WABCO ABS brake controller to prevent engine brake operation during adverse braking conditions.

**AIR COMPRESSOR, BRAKE SYSTEM**

**COMPLY:**     YES     NO

The air compressor shall be a Cummins/Wabco with 18.7 cubic feet per minute output.

**ENGINE COOLANT FILTER**

**COMPLY:**     YES     NO

A pre-charged spin-on water filter, with corrosion inhibitors shall be installed in the cooling system. Shut off valves before and after the filter shall also be installed.

**AUXILIARY ENGINE COOLER**

**COMPLY:**     YES     NO

The cooling system shall have a tube and bundle engine cooler mounted in the upper radiator water pipe. Water from the fire pump shall be circulated through 1/2" tubing to the cooler. A valve on the pump panel shall control the cooling circuit.

**TRANSMISSION**

**COMPLY:**     YES     NO

An Allison World Transmission Generation IV, Model 3000 EVS electronically controlled, automatic transmission shall be provided. Transmission specifications shall be as follows:

Transmission installation shall be in accordance with the transmission manufacturer's specification. The transmission shall be readily and easily removable for repairs or replacement.

An illuminated, touch-pad type shift control shall be mounted in the cab, convenient to the driver. Shift control shall be approved by the transmission manufacturer.

**TRANSMISSION MODE**

**COMPLY:**     YES     NO

The transmission, upon startup, shall select four (4) speed operation. By pressing the "mode" switch on the shift pad (mode on) provides five (5) speed overdrive.

**TRANSMISSION OIL LEVEL SENSOR**

**COMPLY:**     YES     NO

The transmission shall be equipped with the oil level sensor (OLS); this sensor shall allow the operator to obtain an indication of the fluid level from the shift selector. The sensor display shall provide the following checks, correct fluid level, low fluid level and high fluid level.

**PARK TO NEUTRAL**

**COMPLY:**     YES     NO

The transmission, upon application of the parking brake, shall automatically shift into neutral.

**TRANSMISSION COOLER**

**COMPLY:**     YES     NO

A transmission oil cooler shall be provided in the lower tank of the radiator.

**TRANSMISSION FLUID**

**COMPLY:**     YES     NO

The transmission shall be provided with TranSynd, or TES 295 (generic synthetic fluid) equivalent heavy duty synthetic transmission fluid.

**DRIVE LINES**

**COMPLY:**     YES     NO

Drive lines shall be Dana (Spicer) 1710 heavy duty series or equal, with "glide coat" splines on all slip shafts. The chassis manufacturer shall utilize an electronic type balancing machine to statically and dynamically balance all drive shafts. The chassis manufacturer shall be able to provide proof of compliance with all drive shaft manufacturer's standards and specifications.

The drive lines shall be equipped with two (2) guard loop(s) to prevent the drive shaft(s) from dropping in the event of a universal joint failure.

**EXHAUST SYSTEM**

**COMPLY:**     YES     NO

The exhaust system shall be installed in accordance with the engine manufacturer's requirements and meet all Cummins system requirements and State noise level requirements. Exhaust system components shall be securely mounted and easily removable.

The muffler shall be sized to be compatible with the engine exhaust discharge.

Exhaust tubing shall be a minimum of 16 gauge material. Any flexible exhaust tubing shall be HDT stainless steel type. To minimize heat build-up, exhaust tubing within the engine compartment shall be wrapped with an insulating material. Exhaust shall be wrapped from the turbocharger to the entrance of the muffler. Material shall be held in place with worm gear type clamps.

The exhaust tailpipe extending from the muffler to the side of the vehicle shall be constructed from 16-gauge aluminized steel tubing. The exhaust discharge shall be on the right side of the apparatus forward of the rear axle and be long enough to be compatible with fire station exhaust removal systems.

**ALTERNATOR**

**COMPLY:**     YES     NO

The alternator shall be a minimum of 340 amps at normal RPMs, engine driven via a poly groove power belt and tensioned by a threaded rod. The alternator shall meet all current applicable NFPA 1901 Edition requirements for performance.

**DIAGNOSTICS****COMPLY:**     YES    NO

Diagnostic ports shall be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches shall allow engine and ABS systems to provide blink codes should a problem exist.

The diagnostic system shall include the following:

- Engine diagnostic port
- Transmission and ABS diagnostic port
- Roll sensor diagnostic port (if applicable)

Additional diagnostic locations under the officers side of the dash.

- Engine diagnostic switch (blink codes)
- ABS diagnostic switch (blink codes)

**ADVANCED DIAGNOSTICS****COMPLY:**     YES    NO

An advanced, diagnostic software program shall be provided. The software shall provide troubleshooting tools to service technicians equipped with a computer.

The service and maintenance software shall be easy to understand and use, have the ability to view system input/output (I/O) information, and include a connection from a computer to the vehicle.

**VOLTAGE MONITORING SYSTEM****COMPLY:**     YES    NO

A voltage monitoring system shall be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system shall provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm shall activate if the system falls below 11.8 volts DC for more than two (2) minutes.

**INDICATOR AND LIGHT ALARM PROVE OUT SYSTEM****COMPLY:**     YES    NO

A system shall be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

**SEAT BELT MONITORING SYSTEM****COMPLY:**     YES    NO

A seat belt monitoring system (SBMS) shall be provided. The SBMS shall be capable of monitoring up to ten (10) sensors indicating the status of each seating position in the cab with green and red LED indicators as follows:

- Seat Occupied Buckled Green
- Seat Occupied Unbuckled Red
- No Occupant Buckled Red

- No Occupant Unbuckled Not Illuminated

The SBMS shall include an audible alarm that shall be activated when a red illumination condition exists and the parking brake is released, or a red illumination condition exists and the transmission is not in park.

### **SEQUENCER**

**COMPLY:**     YES     NO

A sequencer shall be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation shall allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator.

Emergency light sequencing shall operate in conjunction with the emergency master light switch. When the emergency master switch is activated, the emergency lights shall be activated one by one at half second intervals. Sequenced emergency light switch indicators shall flash while waiting for activation.

When the emergency master switch is deactivated, the sequencer shall deactivate the warning light loads in the reverse order.

Cab climate control system shall be included on the load manager system (Kussmaul Mark I).

### **HOSE AND HARNESS ROUTING**

**COMPLY:**     YES     NO

Any wiring harness or hydraulic /air hoses that must pass to the outside of the frame shall not run over or under the frame flanges. Hydraulic and airlines shall pass through the frame using bulkhead fittings. All battery cables shall also utilize bulkhead fittings. Wiring harnesses shall pass through the frame within a protective rubber boot. For ease of maintenance, the hydraulic air hoses and electrical wiring harness shall be ran separately down each side of the frame rails. The hydraulic and air hoses run down the right side of the frame rails, and the electrical harnesses run down the left side of the frame rails.

### **ELECTRICAL HARNESS REQUIREMENT**

**COMPLY:**     YES     NO

To ensure dependability, all 12-volt wiring harnesses installed by the apparatus manufacturer shall conform to the following specifications:

- SAE J 1128 - Low tension primary cable
- SAE J 1292 - Automobile, truck, truck-tractor, trailer and motor coach wiring
- SAE J 163 - Low tension wiring and cable terminals and splice clips
- SAE J 2202 - Heavy duty wiring systems for on-highway trucks
- NFPA 1901 - Standard for automotive fire apparatus
- FMVSS 302 - Flammability of interior materials for passenger cars, multipurpose passenger vehicles, trucks and buses
- SAE J 1939 - Serial communications protocol

- SAE J 2030 - Heavy-duty electrical connector performance standard
- SAE J 2223 - Connections for on board vehicle electrical wiring harnesses
- NEC - National Electrical Code
- SAE J 561 - Electrical terminals - Eyelet and spade type
- SAE J 928 - Electrical terminals - Pin and receptacle type A

For increased reliability and harness integrity, harnesses shall be routed throughout the cab and chassis in a manner which allows the harnessing to be laid into its mounting location. Routing of harnessing which requires pulling of wires through tubes shall not be allowed.

Wiring shall be run in loom or conduit where exposed, and have grommets or other edge protection where wires pass through metal. Wire colors shall be integral to each wire insulator and run the entire length of each wire. Harnessing containing multiple wires and uses a single wire color for all wires shall not be allowed. Function and number codes shall be continuously imprinted on all wiring harness conductors at 3.00" intervals. All wiring installed between the cab and into doors shall be protected by a wire conduit to protect the wiring. Exterior exposed wire connectors shall be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Electrical wiring and equipment shall be installed utilizing the following guidelines:

- All holes made in the roof shall be caulked with silicon. Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof.
- Any electrical component that is installed in an exposed area shall be mounted in a manner that shall not allow moisture to accumulate in it. Exposed area shall be defined as any location outside of the cab or body.
- For low cost of ownership, electrical components designed to be removed for maintenance shall be quickly accessible. For ease of use, a coil of wire shall be provided behind the appliance to allow them to be pulled away from the mounting area for inspection and service work.
- Corrosion preventative compound shall be applied to non-waterproof electrical connectors located outside of the cab or body. All non-waterproof connections shall re-quire this compound in the plug to prevent corrosion and for easy separation of the plug.
- Any lights containing non-waterproof 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 protective coating applied completely over the metal portion of the terminal.
- Rubber coated metal clamps shall be used to support wire harnessing and battery cables routed along the chassis frame rails.
- Heat shields shall be used to protect harnessing in areas where high temperatures exist. Harnessing passing near the engine exhaust shall be protected by a heat shield.

- Cab and crew cab harnessing shall not be routed through enclosed metal tubing. Dedicated wire routing channels shall be used to protect harnessing therefore improving the overall integrity of the vehicle electrical system. The design of the cab shall allow for easy routing of additional wiring and easy access to existing wiring.
- All standard wiring entering or exiting the cab shall be routed through sealed bulkhead connectors to protect against water intrusion into the cab.

**BATTERY CABLE INSTALLATION**

**COMPLY:**     YES     NO

All 12-volt battery cables and battery cable harnessing installed by the apparatus manufacturer shall conform to the following requirements:

- SAE J 1127 - Battery Cable
- SAE J 561 - Electrical terminals, eyelets and spade type
- SAE J 562 - Nonmetallic loom
- SAE J 836 A - Automotive metallurgical joining
- SAE J 1292 - Automotive truck, truck-tractor, trailer and motor coach wiring
- NFPA 1901 - Standard for automotive fire apparatus

Battery cables and battery cable harnessing shall be installed utilizing the following guidelines:

- Splices shall not be allowed on battery cables or battery cable harnesses.
- For ease of identification and simplified use, battery cables shall be color coded. All positive battery cables shall be marked red in color. All negative battery cables shall be black in color.
- For ease of identification, all positive battery cable isolated studs throughout the cab and chassis shall be red in color.
- For increased reliability and reduced maintenance, all electrical buss bars located on the exterior of the apparatus shall be coated to prevent corrosion.

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.

**BATTERY SYSTEM**

**COMPLY:**     YES     NO

A minimum of six (6) Group 31 maintenance free batteries shall be provided. Each battery shall be rated at 750 CCA at 0° F. Reserve capacity shall be 180 minutes. Wiring for the batteries shall be 4/0 welding type dual path starting cables for SAEJ541.

**BATTERY STORAGE**

**COMPLY:**     YES     NO

Batteries shall be securely mounted in fixed trays located on each side of the chassis frame. Complete access shall be provided when the cab is fully tilted. Batteries shall be mounted on non-corrosive matting material. Each tray will have 2 drain holes in them. Plastic covers will be attached to the trays to cover and insulate the top of the batteries.

**BATTERY DISCONNECT SWITCH**

**COMPLY:**     YES     NO

The chassis batteries shall be wired in parallel to a single 12 volt electrical system, controlled through a heavy duty, Cole Hearse brand rotary type, master disconnect switch. The master disconnect switch shall be located within easy access of the driver upon entering or exiting the cab. All electrical circuits shall be disconnected when the switch is in the "OFF" position.

**BATTERY JUMPER STUDS**

**COMPLY:**     YES     NO

A set of Cole Hersee battery jumper studs, model #46210-02 (red) and #46210-03 (black) shall be provided to allow the battery system to be jump started or charged from an external source. The studs shall be located on the driver's side of the chassis and shall be equipped with rubber protector caps.

**120 VOLT SHORELINE CONNECTION – AUTO EJECT**

**COMPLY:**     YES     NO

One (1) Kussmaul "Super" Auto Eject model 091-55-20-120, automatic, 120 volt, 20 amp shoreline disconnect shall be provided for the on board, 110 volt battery charging systems.

The disconnect shall be equipped with a NEMA 5-20 P male receptacle, which shall automatically eject the shoreline when the vehicle starter is energized. A label shall be provided indicating voltage and amperage ratings. A LED bar graph display shall be located near the shoreline connection to monitor the battery status. The shoreline receptacle shall be located in the area directly adjacent to the driver's side cab door, above the side air grille: color = yellow.

**ELECTRICAL WIRING DIAGRAMS**

**COMPLY:**     YES     NO

Electrical wiring diagrams, prepared for the model of chassis and body, shall be provided. An electronic version shall also be provided.

**AIR COMPRESSOR SYSTEM**

**COMPLY:**     YES     NO

A Kussmaul 091-9HP air compressor shall maintain the air pressure in the chassis air brake system while the vehicle is not in use. The air compressor shall have a rated input at 120 volts AC @ 3.5 amps and an output of 1.4 CFM with a 125 psi max output.

**APPARATUS CAB**

**COMPLY:**     YES     NO

The cab shall be an engine forward extended four-door - tilt cab constructed entirely of aluminum. The cab shall be an "Open Interior" roll cage design requiring no inner walls or vertical interior supports.

The cab roof shall be raised 10 inches for additional headroom in order that all crew members derive the benefit of additional headroom. The raised portion shall start midway

over or behind the driver and officer seats. The cab shall be capable of seating six firefighters.

All storage areas inside the cab shall fully comply with NFPA 1901 restraint requirements.

The crew cab shall be of the totally enclosed design, with access doors constructed in the same manner as the driver and passenger doors.

The cab shall be a full tilt cab style. The engine shall be easily accessible and capable of being removed with the cab tilted. The cab shall be capable of tilting 45 degrees and 90 degrees with crane assist.

The cab shall have rubber mounting and shall be tilted by a hydraulic pump connected to two (2) cab lift cylinders. The cab shall then be locked down by a two (2)-point automatic locking mechanism that actuates after the cab has been lowered. The crew cab entrance shall be a one (1) step design to the cab floor, for easy access. A minimum 20.00", slip resistant, handrail shall be provided adjacent to all door openings to assist entrance into the cab.

A chrome handrail shall be provided on the inside each front cab door, for ease of entry. All cab and crew cab entry doors shall contain a conventional roll down window.

Chrome plated pull-handle type door handle shall be provided on the exterior of the cab doors.

All interior cab door handles shall also have flush paddle handles.

The door hinge shall be a stainless steel piano type with a .25" pin.

There shall be double automotive type rubber seals around the perimeter of the door framing and door edges to ensure a weather tight fit.

Full height polished stainless steel scuff plates shall be installed on the inside of all cab doors.

Cab door panels shall be removable without disconnecting door and window mechanisms.

Bright aluminum tread plate shall be overlaid on the outside rear wall of the crew cab except for areas that are not typically visible when the cab is lowered.

All cab glass shall be tinted.

Economical windshield replacement glass shall be readily available from local auto glass suppliers.

**CAB LIFT**

**COMPLY:**     YES     NO

A hydraulic cab lift system shall be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves.

The hydraulic pump shall have a manual override for backup in the event of electrical failure. Lift controls shall be on a panel located on the pump panel or front area of the body in a convenient location.

In addition to the panel controls, a 15' remote control shall be provided for raising and lowering the cab. The remote control shall be stored in the cab. The receptacle for the remote control shall be located next to the master controls on the panel.

Cab shall be locked down by a two (2)-point automatic spring loaded hook mechanism that actuates after the cab has been lowered

The hydraulic cylinders shall be equipped with a velocity fuse that protects the cab from accidentally descending when the control is located in the tilt position.

A redundant mechanical stay arm shall automatically be engaged once the cab has been fully raised. Before lowering the cab, this device must be disengaged using the stay arm control located near the cab raise/lower switch.

**INTERLOCK, CAB LIFT TO PARKING BRAKE**

**COMPLY:**     YES     NO

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

**CRASH TEST**

**COMPLY:**     YES     NO

The fire apparatus manufacturer shall provide a cab crash test certification with this proposal.

The certification states that the cab must meet or exceed the requirements below:

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

**ROLLOVER PROTECTION SIDE AIRBAGS**

**COMPLY:**     YES     NO

Vehicle shall be equipped with side airbags.

**FRONT IMPACT AIRBAGs**

**COMPLY:**     YES     NO

The driver’s and officer’s positions are the only positions needing the front impact airbags.

**CAB MATERIALS**

**COMPLY:**       YES     NO

The cab shall be constructed entirely of aluminum alloy extrusions and aluminum sheets. The corner posts, door slam posts, roof rails and doorframes shall be made of custom extrusions designed specifically for this cab with slots for inserting the skin. The rear wall and roof shall be reinforced with a grid of rectangular extrusions, which are welded to the overall cab extrusion framework. The front corner caps shall consist of castings designed specifically for this cab with relief areas cast in place for attachment of roof skin and intersecting structural extrusions. Overlapping formed corner caps are not acceptable.

Cab Dimensions:

- Overall width skin to skin: 98 inches - maximum
- Overall vehicle width: 114 inches - maximum (w/Velvac style mirrors)
- Overall length: 136 inches - minimum

**CAB MIRRORS HEATED / REMOTE**

**COMPLY:**       YES     NO

Two side-mounted rear view mirrors shall be installed with a 14.5" X 7" mirror head and a separate 6"x 8" parabolic mirror. The mirrors shall be heated and remotely adjustable by the driver. The mirrors shall be aerodynamically designed to reduce wind buffeting and resultant vibration. The housings shall be polished stainless steel or chrome.

The mirrors support tubes shall be 7/8" stainless steel, and includes breakaway mounting brackets.

**DRIVER'S SEAT**

**COMPLY:**       YES     NO

The driver's seat shall be a high-back air suspension seat. The seat shall have 4-way adjustability by the driver in accordance with SAE J1517. The seat shall be equipped with an integrated 3-point seat belt with an automatic retractor. The belt shall be RED in color to meet current NFPA requirements.

**OFFICER'S SEAT**

**COMPLY:**       YES     NO

The officer's seat shall be a SCBA non-suspension seat. Seat back shall include a spring-loaded flip-up headrest. A removable padded cover shall be supplied over the SCBA cavity. All SCBA seats shall have the Hands-Free II SmartDock system. The seat shall be equipped with an integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly. The belt shall be RED in color to meet current NFPA requirements.

The bottle to be used is a Scott 30 Minute Carbon fiber cylinder.

**DRIVER'S SIDE FORWARD FACING CREW SEAT**

**COMPLY:**      YES     NO

One-(1) Flip-up style outboard, forward facing, the seat shall be installed behind the driver. The seat shall flip-up cushion style seat. The seat shall be equipped with 3-point seat belt with automatic retractor. The belt shall be RED in color to meet current NFPA requirements.

**OFFICER'S SIDE FORWARD FACING CREW SEAT**

**COMPLY:**      YES     NO

One-(1) Flip-up style outboard, forward facing, the seat shall be installed behind the officer. The seat shall flip-up cushion style seat. The seat shall be equipped with 3-point seat belt with automatic retractor. The belt shall be RED in color to meet current NFPA requirements.

**INBOARD FORWARD FACING CREW SEATS**

**COMPLY:**      YES     NO

Two-(2) SCBA inboard forward facing seats shall be installed in the crew area. Seat back shall include a spring-loaded flip-up headrest. A removable padded cover shall be supplied over the SCBA cavity. All SCBA seats shall have the Hands-Free II SmartDock system. The seat shall be equipped with an integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly. The belt shall be RED in color to meet current NFPA requirements.

The bottle to be used is a Scott 30 Minute Carbon fiber bottle.

**CAB COMPARTMENTS**

**COMPLY:**      YES     NO

There shall be two (2) rear facing equipment compartments inside the cab. Each compartment shall have necessary LED rope-style lighting, shelving, and 12V electrical outlets wired into the power connection of the vehicle. Each compartment shall have a non-locking Gortite roll-up door. Each compartment shall be place in a position so not to impede the forward view of the center inboard seats.

**DOUBLE WALL CAB FACE**

**COMPLY:**      YES     NO

The cab front shall be of double wall construction resulting in a sealed firewall, which provides for increased structural integrity, crew safety, and reduced road noise in the passenger area.

The outer wall is used for mounting forward lighting, grill and windshield wipers.

The inner portion shall be treated with a heavy black undercoating material for corrosion prevention.

**SEALED ENGINE TUNNEL**

**COMPLY:**     YES     NO

The engine tunnel shall be a structural part of the passenger cab, constructed from welded 3/16” aluminum plate and reinforced with aluminum extrusions.

The rear of the engine tunnel shall be no less than 47” inches from the rear wall of the cab, allowing maximum legroom for forward facing passenger.

After welding, the seams shall be completely sealed with silicone caulking.

The interior of the engine tunnel shall be insulated with 1” thick foil backed insulating foam, attached with stud and button method. A cross-section analysis of the insulation shall reveal a 1/8” thick barrier material for additional noise and heat insulation.

**ACCESS PANEL FOR FLUID CHECKS**

**COMPLY:**     YES     NO

A stainless steel access panel shall be provided in the engine tunnel to provide access to the engine fluids dipsticks; oil, transmission fluid & power steering. This panel shall also be sealed and shielded when properly in place.

**CAB CORROSION PROTECTION**

**COMPLY:**     YES     NO

A corrosion preventative material shall be applied during cab construction. A ten-(10) year warranty against corrosion perforation shall be provided for the cab.

**WINDSHIELD**

**COMPLY:**     YES     NO

It shall be a two (2) piece design with tinted automotive safety glass, with a wrap around design. A .030-inch thick vinyl layer shall separate the laminated glass. All other cab glass shall be tinted and tempered.

**INTERMITTENT WINDSHIELD WIPERS**

**COMPLY:**     YES     NO

Two electric "Pantograph" style windshield wipers shall be installed on the front face of the cab. The motors shall operate through a 72-degree sweep and include 24-inch blades to give superior wiper coverage. A washer reservoir of not less that 70 ounces shall be mounted a latched door recessed in the officer's step.

A switch located on the turn signal control arm shall operate the intermittent wipers.

**EXTERIOR GRAB HANDLES**

**COMPLY:**     YES     NO

Stainless steel handrails with a knurled, slip-resistant finish shall be positioned behind each cab door. Grab rails shall be minimum 24” in length. Molded rubber gasket shall be mounted between the grab handles and the cab in order to prevent corrosion due to dissimilar metals being in contract.

**WINDSHIED DEFROSTER UNIT**

**COMPLY:**       YES    NO

The defroster ventilation shall be built into the design of the cab dash instrument panel and shall be easily removable for maintenance. The defroster shall have a three (3) speed blower, and temperature controls accessible to the driver and officer. The defroster ducts shall be designed to provide maximum defrosting capabilities for the front cab windows. Consideration for integrated heated/defrost windshields will be made.

**CLIMATE CONTROL SYSTEM**

**COMPLY:**       YES    NO

A climate-control system shall be provided for total cab environmental comfort. This system shall provide heat, cooling and defrost capabilities to various areas in the cab. The system shall consist of evaporator unit(s), mounted in the center overhead of the cab. Unit(s) shall provide defrost, air conditioning and heat for the optimum coverage of the entire cab and shall provide heating and cooling for the occupant’s feet.

CAB DEFROSTER

There shall be a 41,000 BTU/hr defroster in the cab located under the engine tunnel.

The defroster ventilation shall be built into the design of the cab dash instrument panel and shall be easily removable for maintenance.

The defroster shall have a three (3)-speed blower and temperature controls accessible to the driver and officer.

The defroster ducts shall be designed to provide maximum defrosting capabilities for the front cab windows.

CAB/CREW CAB HEATER

Two (2) auxiliary heaters with 32,000 BTU/hr each shall be provided in the cab. The heaters shall have a three (3)-speed blower and temperature controls accessible to the driver and officer. There shall also be louvers located below the rear facing seat riser and below the driver and officer positions for airflow.

The heaters shall be mounted, one (1) within each rear facing seat riser.

AIR CONDITIONING

A high-performance, customized air conditioning system shall be furnished inside the cab and crew cab. A 19.10 cubic inch compressor shall be installed on the engine.

The air conditioning system shall be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. The cooling performance test shall be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of four (4) hours.

A roof-mounted condenser that meets and exceeds the performance specification shall be installed on the cab roof. Mounting the condenser below the cab or body would reduce the performance of the system and shall not be acceptable.

An evaporator unit that meets and exceeds the performance specification shall be installed in the cab, located in the center of the cab ceiling over the engine tunnel. The evaporator shall include two (2) high performance cores and plenums with multiple outlets, one (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.

The evaporator unit shall be provided with adjustable air outlets strategically located to direct air flow to the driver, officer and crew cab area.

All hose used shall be class 1 type to reduce moisture ingress into the air conditioning system.

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

The air conditioner shall be controlled by a single electronic control panel. For ease of operation, the control panel shall include variable adjustment for temperature and fan control and be conveniently located on the dash in clear view of the driver. The control panel shall include robust knobs for both fan speed and temperature adjustment.

**BRUSH GUARD/COVER, AIR CONDITIONING CONDENSER**

**COMPLY:**       YES     NO

A brush guard/cover shall be provided over the air conditioning condenser, on the cab roof. The brush guard shall protect the air conditioning condenser from tree limbs, etc. The guard shall also allow a fire fighter or maintenance personnel to step over the condenser without damaging the fiberglass housing.

The brush guard/cover shall be constructed of aluminum tread plate. The guard shall have several 1.00" x 2.00" knockouts to allow for adequate airflow around condenser.

**CAB INTERIOR**

**COMPLY:**       YES     NO

Cab floors shall be covered with a black pebble grain rubber matting with barrier type insulation. Edges of the insulation shall be trimmed with aluminum extruded angle for a pleasing appearance.

An insulated covering shall be fitted over the engine tunnel. This covering shall insulate the cab from engine heat and noise (to meet or exceed NFPA standards).

**CAB INTERIOR LIGHTING**

**COMPLY:**       YES     NO

Auxiliary lights shall be provided in the cab and consisting of:

- Two (2) Weldon LCD style, red/clear dome light located, one (1) on the officer side and one (1) on the driver side, controlled by the following:
  - Clear forward light controlled by the door switch and the lens switch.
- Red rearward light controlled by the lens switch.
- One (1) Adjustable Map Light: Officer's side control.

**CREW CAB INTERIOR LIGHTING**

**COMPLY:**     YES     NO

Auxiliary lights shall be provided in the crew cab and consist of:

- Two (2) Weldon LCD style, Red/Clear dome lights located one (1) each side, controlled by the following:
  - Clear forward light controlled by the door switch and the lens switch.
- Red rearward light controlled by the lens switch.

**DO-NOT-MOVE-APPARATUS LIGHT**

**COMPLY:**     YES     NO

A flashing red indicator light, located in the driving compartment, shall be illuminated automatically per the current NFPA requirements. The light shall be labeled "Do Not Move Apparatus If Light Is On."

The same circuit that activates the Do Not Move Apparatus indicator shall activate a pulsing alarm when the parking brake is released.

**OPEN DOOR INDICATOR LIGHT**

**COMPLY:**     YES     NO

Two (2) red indicator lights shall be provided and located in clear view of the driver, warning of an open passenger or equipment compartment door.

One (1) light shall indicate status of doors on the driver's side of the vehicle and the other light shall indicate the status of the passenger side and rear compartment doors.

**STEP LIGHTS**

**COMPLY:**     YES     NO

8 LED, step lights shall be provided. The lights shall be installed at each cab and crew cab door, two (2) per step, in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep. The lights shall be activated when the adjacent door is opened.

**REAR WORK LIGHTS**

**COMPLY:**     YES     NO

Two (2) 50 watt scene lights shall be installed at the rear of the body to the outside of rear compartment. The lights shall have a prismatic inner lens to redirect light downward 15 degrees.

The lights shall be provided with a flange.

The lights shall be controlled by a control from the driver side switch panel.

**SUN VISORS**

**COMPLY:**      YES    NO

The cab shall be equipped with a minimum of two (2) sun visors. The visors shall be installed on the overhead panel and provide approximately 90 per cent coverage across the width of the cab. The visors shall be approximately 30 inches wide and nine (9) inches tall.

**GLOVE BOX**

**COMPLY:**      YES    NO

The glove box shall be an integral part of the welded aluminum dashboard assembly and located on the officer side of the cab. The storage area of the glove box shall bolt in place for easy service access. The door shall be drop down style and constructed from brushed stainless steel with a recessed latch. The area above the glove box shall be flat for a work surface or optional MDT mounting.

**STORAGE COMPARTMENTS**

**COMPLY:**      YES    NO

There shall be a compartment provided under the Officer’s seat with a latched access door. The compartment shall be a minimum 14.50” deep X 14.50” across X 9.00” high. This compartment shall be able to be locked.

**INNER DOOR PANELS**

**COMPLY:**      YES    NO

The cab door interior panels shall be covered with a one piece, stainless steel panel, full height. The panel shall be 16 gauge stainless steel with a polished finish and shall be designed to allow easy access to the inner door.

**DOOR WARNING-CHEVRON**

**COMPLY:**      YES    NO

Four (4) Chevron reflective coverings shall be installed on the lowest portion of the inner door panels, one (1) on each door. These chevrons shall cover at least 96 in<sup>2</sup>. The chevron striping shall be red/yellow to match the rear of the apparatus.

**DOOR WARNING-LIGHTS**

**COMPLY:**      YES    NO

Four (4) Whelen 500 Series LED lights shall be provided and mounted on the inner door panels. The lights would be activated each time the individual door is opened.

The lights shall be provided with a flange.

**CAB STEPS**

**COMPLY:**      YES    NO

All cab steps shall be of a stationary, fixed design that use no moving parts and requires no periodic maintenance other than cleaning.

There shall be an open-grip, bright finish step at each cab door opening. The area under the step shall be enclosed to prevent road dirt from entering the cab. There shall be provisions made at the front of the step for easily flushing out any dirt accumulation.

**STEP HEIGHTS**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
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The distance from level ground to the first cab step shall be no more than 24” with Independent Front Suspension, without using swing-down style or under-cab “stirrup” auxiliary steps.

**INSTRUMENTATION**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
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For easy viewing, gauges shall be black faced with white lettering and adjustable intensity, amber LED backlighting. In order to reduce replacement and maintenance costs, the gauges provided shall be separate from one another and not in a cluster or arrangement. The gauges shall meet SAE J-1939 protocol to eliminate redundant sending units. Gauges must be fully sealed to 6 psi. Gauges shall have an operating temperature range of -40F to 185F. The gauge crystal shall be polycarbonate, anti-fog, and anti-scratch coated. The panels shall be divided into groups of instruments that make identification sensible and easy to view.

The following panels shall be included:

- Two driver side gauge panels
- One driver side warning light panel
- Driver side pump shift panel
- Driver side park brake panel
- Driver side diagnostic panel
- Driver side ignition panel
- Center mounted, minimum twenty (20) position switch and siren panel
- Officer side information panel

The following instruments shall be included:

- Dial Type speedometer with digital odometer and trip odometer that is active when pumping
- Dial Type tachometer with digital hour meter and trip hour meter along with a digital, four-line diagnostic display
- Dial Type engine oil pressure gauge with warning light and alarm
- Dial Type water temperature with warning light and alarm
- Dial Type transmission temperature with warning light and alarm
- Dial Type front air pressure gauges with warning light and alarm
- Dial Type rear air pressure gauge with warning light
- Dial Type voltmeter
- Dial Type fuel level gauge with low fuel indicator level
- Air cleaner restriction light
- High beam indicator
- Parking brake indicator
- Turn signal indicators
- Diagnostic indicators for airbag, engine, transmission, and ABS

The ignition panel shall include the ignition switch, engine start, instrument lamp dimmer switch, transmission pushbutton shift pad and front air conditioning and/or heating switches and remote heated mirror controls (if applicable).

An anti-lock braking system (ABS) test switch and park brake control valve shall be located to the right of the steering column.

**SERVICE ACCESS**

**COMPLY:**       YES     NO

The driver's instrumentation area shall be made of textured black non-glare panels affixed to the aluminum dash. There shall be two (2) gauge panels, secured with a bottom hinge and two (2) top-mounted quarter-turn fasteners. Access to the gauge clusters shall be accomplished simply by releasing the two latches and pulling the panel outward. Other gauge access designs are not acceptable.

The chassis electrical panel shall be located in the center of the aluminum dash, between the switch panel and the windshield. There shall be a lift up cover with two (2) recessed lift-and-turn latches for quick access to the panel. The underside of the panel shall have a pre-printed diagram that clearly depicts the function of each circuit breaker and relay. The vehicle load manager shall be located in this panel. The opening to the electrical shall measure approximately 19" wide near the switch panel and 37" wide toward the windshield.

Electronic diagnostic connections for the engine, transmission, and ABS brakes shall be located in the lower-left panel on the cab dash.

**VEHICLE DATA RECORDER**

**COMPLY:**       YES     NO

A vehicle data recorder (VDR) shall be provided. The VDR shall be capable of reading and storing vehicle information. The VDR shall be capable of operating in a voltage range from 8VDC to 16VDC. The VDR shall not interfere with, suspend, or delay any communications that may exist on the CAN data link during the power up, initialization, runtime, or power down sequence. The VDR shall continue operation upon termination of power or at voltages below 8VDC for a minimum of 10ms.

The vehicle data recorder shall be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event- On/Off
- Seat Occupied Status - Yes/No by Position (6 Seating Capacity-minimum)
- Seat Belt Buckled Status - Yes/No by Position (6 Seating Capacity-minimum)
- Master Optical Warning Device Switch - On/Off
- Time - 24 Hour Time

- Date - Year/Month/Day

**HELMET HOLDERS**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
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There shall be six (6) Talon helmet holder bracket(s) provided in the cab. The brackets shall provide quick access and secure storage of the helmet(s). The bracket location(s) shall be determined at time of final inspection.

**STEERING COLUMN**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
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The steering column shall be a Douglas Autotec (or similar) tilt and telescope. A lever mounted on the side of the column shall control the tilt and telescope features. A Signal-Stat (self-canceling) turn signal switch shall be mounted to the column. The steering shaft from the column to the meter box shall have a rubber boot to cover the shaft slip and a second rubber boot to seal the passage hole in the floor.

The steering wheel shall be 18 inches in diameter.

The Signal-Stat turn signal switch shall include the following functions:

- Left and right turn signals
- High beam dimmer control
- Hazard warning switch
- Two speed with intermittent windshield wiper control
- Windshield washer control

**CAB ROOF OVERLAY**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
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A bright finish aluminum tread plate overlay shall be placed on the cab roof, starting at a point rearward of the light bar location and extending back to the end of the cab roof. This tread plate overlay shall be sealed with caulking around the edges to prevent moisture from entering the area between the cab roof and the overlay.

**CAB ROOF DRIP RAIL**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
---

For enhanced protection from inclement weather, a drip rail shall be furnished on the sides of the cab. The drip rail shall be constructed of bright polished extruded aluminum, and be fastened to the sides of the cab roof edge. The drip rail shall extend the full length of the cab roof.

**TWO TONE CAB PAINT FINISH**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
---

All cab exterior components including doors and glass, shall be removed. The complete cab exterior shall be thoroughly sanded, solvent cleaned and finished with high luster polyurethane paint before mounting of body to assure full coverage of paint to all surfaces.

The custom cab shall be a two-tone finish painted color. The paint color shall be furnished by the fire department. The break in the color shall be at the top of the chassis window drip rail, unless otherwise specified by the department.

- Top Color: WHITE - PPG (or equivalent), To match Goffstown FD apparatus
- Bottom Color: RED - PPG (or equivalent), To match Goffstown FD apparatus

**ANTENNA INSTALLATION**

**COMPLY:**      YES     NO

Three (3) antenna mounting base(s) with minimum 17' of coaxial cable shall be provided and installed on the lower cab roof, behind the light bar. The attached antenna wire(s) shall be run to the right side cab dash area. Mounting of the antennas will be behind the forward light bar and run right to left with at least 24" between them.

**REAR CAMERA SYSTEM**

**COMPLY:**      YES     NO

A Zone Defense rear vision camera system shall be provided to allow the driver to visually see the rear of the apparatus while in the cab. The system shall include 7" (minimum) flat panel LCD color monitor mounted adjacent to the driver.

The rear vision cameras shall be wired to automatically activate when the chassis transmission is placed in reverse.

**AUTOMATIC CHASSIS LUBRICATION**

**COMPLY:**      YES     NO

An automatic lubrication system shall be provided. The lubrication shall be supplied while the vehicle ignition switch is active to allow a uniform application of grease to the locations listed. The electronic control unit that forms part of the system shall activate the pump after an adjustable interval time. The unit shall control and monitor pump operation and report any faults via an indicator light on the driver's dashboard of the cab. The lubrication system reservoir shall be located in a compartment designated at the pre-construction conference. The system shall lubricate components of the following (at minimum):

- Independent suspension control arm pivot points
- Steering Miter Box
- Cab Hinge Pins
- Rear Axle Slack Adjusters
- Rear Axle Brake Cam Screws
- Rear Suspension Spring Pins
- Rear Suspension Shackle Pins
- Walking Beam Pins (Tandem axle).

**2. EXTERIOR LIGHTING**

Exterior lighting shall meet or exceed Federal Department of Transportation, Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements in effect at time of proposal.

**DOT CAB MARKER LIGHTS AND REFLECTORS**

**COMPLY:**      YES    NO

Five (5) DOT approved Whelen (or equal) Light Emitting Diode (LED) cab marker lamps shall mounted on the top front edge of the cab roof.

Whelen amber LED marker lights/auxiliary turn signals with integral reflectors shall be provided on the side of the cab above the front wheel well, one (1) each side.

Whelen red LED marker lights with integral reflectors shall be provided at the lower side rear, one (1) each side.

Whelen LED side marker and turn lights shall be provided on the apparatus lower side, forward of rear axle, one (1) each side.

Whelen LED clearance lights shall be provided on the apparatus rear upper, one (1) each side at the outermost practical location.

Truck-Lite #98034Y yellow reflectors (or similar) shall be provided on the apparatus body lower side, as far forward and low as practical, one (1) each side if the apparatus is 30' long or longer.

Truck-Lite #98034R red reflectors (or similar) shall be provided on the apparatus rear, one (1) each side at the outermost practical location.

**RUBBER MOUNTED FLEXIBLE REAR BODY MARKER LIGHTS**

**COMPLY:**      YES    NO

Two (2) rubber, angled LED marker lights shall be mounted on the rear most corner of the body, one (1) each side. The lights shall be mounted in a molded flexible rubber shaft that extends away from the body approximately 6". The lights shall be equipped with an amber lens facing forward and a red lens facing to the rear of the vehicle. The lights shall be wired to the parking light circuit.

**TAIL, STOP, TURN AND BACK-UP LIGHTS**

**COMPLY:**      YES    NO

Three (3) pairs of wrap around LED lights shall be provided. Each group shall include a stop-tail light, a directional light and a backup light.

The lights shall be mounted on the face of the rear body compartments.

Four (4) red reflectors shall be provided.

A license plate bracket shall be mounted on the driver's side above the warning lights. A step lamp shall illuminate the license plate.

**SIDE TURN LIGHTS**

**COMPLY:**      YES    NO

There shall be one (1) pair of amber LED turn signal, marker lights furnished, one (1) each side, horizontally in the rear fender panel.

A stainless steel trim shall be included with this installation.

**LED STEP AND BODY LIGHTS**

**COMPLY:**     YES     NO

Whelen LED step and body lights will be provided and controlled with marker light actuation. Step lights will be located to properly illuminate all body and chassis access steps and walkway areas.

**WATER LEVEL GAUGE, CAB SIDES**

**COMPLY:**     YES     NO

There shall be two (2) additional water level indicator, LED module, installed high up on the crew cab extension, one (1) each side. (Whelen PSTANK LED).

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

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

This module shall be activated when the pump is in gear.

**HOSEBED LIGHTS**

**COMPLY:**     YES     NO

A minimum of two (2) lights shall be mounted one (1) each side of the hose bed. Each light shall illuminate the hosebed area.

**SCENE LIGHT – ABOVE WINDSHIELD**

**COMPLY:**     YES     NO

One (1) Whelen Pioneer Super-LED series brow-mount scene lights shall be provided, center of the cab, directly above the windshield. The scene light shall be controlled by a rocker switch in the master warning light switch console. All scene lights shall be wired through the load management system.

**SCENE LIGHTS – SIDE OF CAB**

**COMPLY:**     YES     NO

Two (2) Whelen Pioneer Super-LED series semi-recessed angled scene lights shall be provided, one on each side of the rear body panel. The scene lights shall be controlled by a rocker switch in the master warning light switch console. All scene lights shall be wired through the load management system.

**GROUND LIGHTS – CAB**

**COMPLY:**     YES     NO

One (1) White Light LED ground flood light shall be provided under each side cab door entrance step, four (4) total. The ground lights shall turn on automatically with each

respective door jamb switch and also by a master ground light switch in the warning light switch console.

Each light shall illuminate an area at a minimum 30" outward from the edge of the vehicle.

**PUMP ENCLOSURE WORK LIGHTS-LED TYPE**

**COMPLY:**       YES     NO

Work lights shall be provided on both sides inside the pump enclosure providing a minimum of 40 candlepower illumination. LED rope-style lighting is preferred.

**ENGINE COMPARTMENT WORK LIGHTS – LED TYPE**

**COMPLY:**       YES     NO

Work lights shall be provided on both sides inside the engine enclosure that will provide a minimum of 40 candlepower illumination. LED rope-style lighting is preferred.

**3. WARNING LIGHTS & DEVICES**

**NFPA LIGHTING PACKAGE**

**COMPLY:**       YES     NO

The following warning light package shall include all of the minimum warning light and actuation requirements for the current revision of the NFPA 1901 Fire Apparatus Standard. The lighting as specified shall meet the requirements for both "Clearing Right of Way" and "Blocking Right of Way" as noted.

**LIGHT PACKAGE ACTUATION CONTROLS**

**COMPLY:**       YES     NO

The entire warning light package shall be actuated with a single warning light switch located on the cab switch panel. The wiring for the warning light package shall engage all of the lights required for "Clearing Right of Way" mode when the vehicle parking brake is not engaged. An automatic control system shall be provided to switch the warning lights to the "Blocking Right of Way" mode when the vehicle parking brake is engaged.

**WARNING LIGHTS - LIGHTBAR**

A Whelen Freedom model FN\*\*QLED lightbar shall be mounted on the cab roof.

- The length of the lightbar shall be 82.00"
  - The lightbar shall include the following:
    - Six (6) red flashing forward facing LED modules.
    - Two (2) clear flashing forward facing LED modules.
    - Two (2) red flashing front corner LED modules.
    - One (1) red flashing driver side facing LED module.
    - One (1) red flashing officer side facing LED module.

- One (1) Opticom™, traffic light controller with National standard. (Centered)
- All lenses shall be clear
- Two (2) switches located in the cab on the switch panel shall control this light bar.
- One (1) switch for the warning lights.
- One (1) switch for the traffic light controller.

To meet NFPA requirements the clear warning lights and the traffic light controller shall be turned off when the parking brake is set.

#### WARNING LIGHTS (Cab Face)

One (1) pair of Whelen M6\* flashing Super LED lights (or similar) shall be provided on the front of the cab above the headlights.

The color of these lights shall be red Super LED/red lens and shall be provided with a matching flange kit.

There shall be headlight flashers installed to deactivate when the parking brake is set.

These lights are provided to meet or exceed NFPA required front zone lower optical light output and optical power output.

Switches located on the instrument panel shall activate these lights.

#### SIDE ZONE WARNING LIGHTING

Whelen M6\* Series, flashing Super LED warning lights shall be located in the following positions:

- Two (2) lights, one (1) each side on the bumper extension.
- The color of these lights shall be red Super LED/red lens each side.
- Two (2) lights, one (1) each side above the rear wheels.
- Two (2) lights, one (1) each side above the front wheels.
- The color of these lights shall be red Super LED/red lens each side.
- The above lights shall be required to meet or exceed the lower level optical warning and optical power requirements of NFPA.
- These lights shall be controlled by lighted switches on the cab instrument panel.
- These lights shall be installed with a flange.

#### REAR ZONE LOWER WARNING LIGHTING

Two (2) Whelen M6\* Series flashing "Super" LED warning lights shall be located at the rear of the apparatus, required to meet or exceed the lower level optical warning and optical power requirements of NFPA.

- The color of these lights shall be red Super LED/red lens.
- Switches in the cab on the switch panel shall control these lights.

### REAR ZONE UPPER WARNING LIGHTING

Two (2) Whelen L31\* Series flashing "Super" LED warning lights shall be located at the rear of the apparatus, required to meet or exceed the lower level optical warning and optical power requirements of NFPA.

- The color of these lights shall be red Super LED/red lens.
- Switches in the cab on the switch panel shall control these lights.

### SCENE LIGHTS (Top Sides/Rear)

Four (4) Whelen Pioneer Series (PFP2) LED light heads shall be provided at the rear of the truck, located two (2) each side. These lights shall be activated by a lighted switch on the instrument panel.

### SCENE LIGHTS (Crew Cab/Rear)

Three (3) Whelen Pioneer Series (PFP1) LED light heads shall be provided at the cab extension of the truck, located two (2) each side, and one (1) located on the rear of the vehicle – centered below the hosebed. These lights shall be activated by a lighted switch on the instrument panel.

### WARNING LIGHT SYSTEM CERTIFICATION

The warning light system(s) specified above shall not exceed a combined total amperage draw of 45 AMPS with all lights activated in either the "Clearing Right of Way" or the "Blocking Right of Way" mode.

The warning light system(s) shall be certified by the light system manufacturer(s), to meet all of the requirements in the current revision of the NFPA 1901 Fire Apparatus Standard as noted in the General Requirements section of these specifications. The NFPA required "Certificate of Compliance" shall be provided with the completed apparatus.

### TRAFFIC ADVISOR WARNING LIGHT

One (1) Whelen LED Split "Traffic Advisor", model TAL65, rear directional light be installed on the vertical rear surface of the body. The directional light be activated by a control module. The control module is to be conveniently located near the driver's position. The rear directional light be wired through the load management system of the unit.

### ELECTRIC HORN

A single electric horn activated by the steering wheel horn button shall be furnished. The air horn shall also be able activated on the steering wheel.

### BACK-UP ALARM

A solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided. The device shall sound at a minimum 60 pulses per minute and automatically adjust its volume to maintain a minimum five (5) dBA above surrounding environmental noise levels.

#### **4. FIRE PUMP / TANK & CONNECTIONS**

##### **FIRE PUMP**

**COMPLY:**       YES     NO

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

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

Pump shall be the Cass A type.

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

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

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

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

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

The impeller shall be high strength vacuum cast bronze alloy accurately machine balanced and splined to a ten (10) spline stainless steel pump shaft for precision fit, exceptional durability, and efficiency. Double replaceable reverse flow labyrinth type bronze wear ring design shall help to minimize end thrust. The impeller shall be a twisted vane design to create higher lift. No keyed shafts shall be acceptable.

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

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

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

For ease of service, the pump housing, intake wye, impeller, mechanical seal, and gear case shall be accessible from above the chassis frame by tilting the cab. The intake wyes shall be removable without having to remove the main intake casting. Removal of the main inlet wyes shall provide access to the impeller, mechanical seal, and wear ring.

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

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

### GEARBOX

Pump gearcase shall be a pressure-lubricated gear case to cool, lubricate, and filter the oil. The gearcase shall include an auxiliary PTO opening. The gear case shall be constructed of lightweight aluminum, and impregnated with resin in accordance to MIL Spec MIL-I-17563. A dipstick, accessible by tilting the cab, shall be provided for easy fluid level checks. A filter screen shall be provided for long life.

The gearcase shall consist of two (2) gears to drive the pump impeller and one (1) for the auxiliary PTO.

The auxiliary PTO opening shall provide for the addition of PTO driven accessories.

The pump shall be driven through the rear engine power take-off and clutch. The rear engine power take-off drive shall be live at all times to allow for pump and roll applications. Rear engine power take-off's allow for high horsepower and torque ratings needed for large pump applications, and is a proven drive system throughout the rugged construction industry.

### PRIMING PUMP(S)

The priming pump(s) shall be a Trident Emergency Products compressed air powered, high efficiency, multi-stage, venturi based AirPrime™ System. All wetted metallic parts of the priming system are to be of brass and stainless steel construction. A single panel mounted control will activate the priming pump and open the priming valve to the pump. The priming system shall have a five year warranty.

The pump shall be capable of producing a minimum 24 Hg vacuum at 2000 feet above sea level.

The priming pump shall not require lubrication.

The priming pump shall be operated by a single push control unit mounted on the pump operator panel. The control valve shall be of all bronze construction.

An additional primer control valve shall be furnished to prime the front suction line plumbing. The Trident Emergency products RPV (remote priming valve) shall activate using the same air that powers the AirPrime™ system when the coinciding panel valve is depressed. Priming the remote suction line evacuates air from that line and minimizes cavitation during remote suction operations. The

valve control is to be co-located next to the main priming valve control on the pump operator's panel.

### PUMP MOUNTS

Pump shall be mounted to the chassis frame rails directly below the crew cab, to minimize wheelbase and facilitate service, using rubber isolators in a modified V pattern that include two (2) central mounted isolators located between the frame rails, and one (1) on each side outside the frame rails. The mounting shall allow chassis frame rails to flex independently without damage to the fire pump. Each isolator shall be 2.55" in total outside diameter and shall be rated at 490 lb. The pump shall be completely accessible by tilting the cab with no piping located directly above the pump.

### PUMP OPERATOR'S PANEL

Particular attention is to be given to functional arrangement of all controls. The pump operator's panel shall be enclosed in a compartment and accommodate the following:

Pump controls and gauges shall be located midship at the left (driver's) side of the apparatus and properly identified.

The main pump operator's control panel shall be completely enclosed and located in the forward section of the body compartment, to protect against road debris and weather elements. The pump operator's panels shall be no more than 31.00" wide, and made in four (4) sections with the center section easily removable with simple hand tools. For the safety of the pump operator, there shall be no discharge outlets or pump inlets located on the main pump operators panel.

Layout of the pump control panel shall be ergonomically efficient and systematically organized. The upper section shall contain the master gauges. This section shall be angled down for easy visibility. The center section shall contain the pump controls aligned in two horizontal rows. The pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable) shall be located on or adjacent to the center panel, on the side walls for easy operation and visibility. The lower section shall contain the outlet drains.

Manual controls shall be easy moving 8" long lever style controls that operate in a vertical, up and down swing motion. These handles shall have a 2.25" diameter knob and be able to lock in place to prevent valve creep under any pressure. Bright finish bezels shall encompass the opening, be securely mounted to the pump operator's panel, and shall incorporate the discharge gauge bezel. Bezels shall be bolted to the panel for easy removal and gauge service. The driver's side discharges shall be controlled directly at the valve. There shall be no push-pull style control handles.

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

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

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

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

A recessed cargo area shall be provided at the front of the body, ahead of the water tank above the plumbing.

#### PUMP PANEL CONFIGURATION

The pump panel configuration shall be arranged and installed in an organized manner that shall provide user-friendly operation.

#### PUMP AND GAUGE PANEL

The pump operators panel and gauge panels shall be constructed of stainless steel with a brushed finish. The pump panels on the driver and passenger's side shall be constructed of stainless steel with a brushed finish.

#### PUMP AND PLUMBING ACCESS

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

Access to the pump shall be provided by raising the cab. The pump shall be positioned such that all maintenance and overhaul work can be performed above the frame and under the tilted cab. The service and overhaul work on the pump shall not require the removal of operator panels or pump panels.

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

#### GAUGES, VACUUM and PRESSURE

The pump vacuum and pressure gauges shall be silicone filled.

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

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

The pump pressure and vacuum gauges shall be installed adjacent to each other at the pump operator's control panel.

Test port connections shall be provided at the pump operator's panel. One shall be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They shall have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They shall be marked with a label.

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

### PRESSURE GAUGES

The individual "line" pressure gauges for the discharges shall be interlube filled.

They shall be a minimum of 2.00" in diameter and shall have white faces with black lettering.

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

Gauges shall have a pressure range of 30"-0-400#.

The individual pressure gauge shall be installed as close to the outlet control as practical.

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

### WATER LEVEL GAUGE

An electronic water level gauge shall be provided on the operator's panel that registers water level by means of five colored LED lights. The lights shall be durable, ultra-bright five LED design viewable through 180 degrees. The water level indicators shall be as follows:

- 100% = Green
- 75% = Yellow
- 50% = Yellow
- 25% = Yellow
- Refill = Red

The light shall flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights shall flash sequentially when the water tank is empty.

The level measurement shall be based on the sensing of head pressure of the fluid in the tank.

The display shall be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design shall provide complete protection from water and environmental elements. An industrial pressure transducer shall be mounted to the outside of the tank. The field calibratable display measures head pressure to accurately show the tank level.

Proposers shall indicate proposed style gauges and indicators.

### PUMP MANUALS

Two (2) pump manuals from the pump manufacturer shall be furnished in compact disc format with the apparatus. Manuals shall cover pump operation, maintenance, overhaul, and parts.

### PLUMBING

All inlet and outlet plumbing, 3.00" and smaller, shall be plumbed with either stainless steel pipe or synthetic rubber hose reinforced with high-tensile polyester braid. Small diameter secondary plumbing such as drain lines shall be stainless steel, brass or hose.

Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping shall be equipped with victaulic or rubber couplings.

Plumbing manifold bodies shall be ductile cast iron or stainless steel.

All lines shall drain through a master drain valve or shall be equipped with individual drain valves. All individual drain lines for discharges shall be extended with a hose to drain below the chassis frame.

All water carrying gauge lines shall be of flexible polypropylene tubing.

### MAIN PUMP INLETS

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

The main pump inlets shall have National Standard Threads with a long handle chrome cap.

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

### SHORT SUCTION TUBE

The suction tubes on the midship pump shall have "short" suction tubes to allow for installation of adapters without excessive overhang.

## VALVES

All discharges shall use in-line ball valves.

Valves shall have a ten (10) year warranty.

### INLET (Driver's side)

On the left side pump panel shall be one (1) 2.50" auxiliary suction, terminating in 2.50" National Standard Hose Thread. The auxiliary suction shall be provided with a strainer, chrome swivel and plug.

The location of the valve for the one (1) inlet shall be recessed behind the pump panel.

### ANODE, INLET

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

### INLET CONTROL

Control for the side auxiliary inlet(s) shall be located at the inlet valve.

### INLET (Front)

A 6.00" inlet front inlet with die cast zinc screens shall be provided using 5.00" welded black iron pipe and a 5.00" butterfly valve. Only radiused elbows shall be used in the piping, no mitered joints.

Drains shall be furnished in all the low points of piping and have .75" valves with push pull controls.

The front suction shall be located inside a hose tray or on the passenger side of the bumper extension.

A bleeder valve shall be located at the threaded connection.

The front suction shall be electrically operated valve with an electric control at the pump operator's panel. The control shall be momentary to allow the valve to be gated for ease of operation. Indicator lights shall be provided to show if the valve is open or closed.

### INTAKE RELIEF VALVE

An intake relief valve, preset at 125 psig, shall be installed on the inlet side of the valve.

Relief valve shall have a working range of 75 psig to 250 psig.

Outlet shall terminate below the frame rails.

The front inlet shall have National Standard hose threads with a long handle chrome plated cap.

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

The piping for the front suction shall terminate with a chrome plated National Standard hose thread adapter, within the front hose tray.

#### INLET BLEEDER VALVE

A .75" bleeder valve shall be provided for each side gated inlet. The valves shall be located behind the panel with a swing style handle control extended to the outside of the panel. The handles shall be chrome plated and provide a visual indication of valve position. The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders shall be routed below the chassis frame rails.

#### TANK TO PUMP

The booster tank shall be connected to the intake side of the pump with heavy duty 4.00" piping and a quarter turn 3.00" full flow line valve with the control located at the operator's panel. A rubber coupling shall be included in this line to prevent damage from vibration or chassis flexing.

A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.

#### TANK REFILL

A 2.00" combination tank refill and pump re-circulation line shall be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.

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

There shall be two (2) discharges with a 2.50" valves on the left side of the apparatus, terminating with a male 2.50" National Standard hose thread adapter. Discharges shall be located below the cab, and shall be no higher than the top of the chassis frame rail. Discharges shall not be located on the pump operator's panel. Lever controls shall be provided at the valve.

#### DISCHARGE OUTLETS (Passenger Side)

There shall be one (1) discharge with a 2.50" valve on the right side of the apparatus, terminating with a male 2.50" National Standard hose thread adapter. The discharge shall be located below the crew cab, and shall be no higher than the top of the chassis frame rail. The discharge shall be electrically controlled at the pump operator's panel.

#### DISCHARGE OUTLET, 4.00"

There shall be a 4.00" discharge outlet with a 4.00" valve body installed on the passenger side of the apparatus, below the cab, and shall be no higher than the top of the chassis frame rail, terminating with a male 4.00" National Standard hose

thread. This discharge outlet shall be electrically controlled at the pump operator's control panel.

#### DISCHARGE OUTLET (Front)

There shall be one (1) 1.50" gated discharge outlet/s, with a swivel, piped to the driver's side on top of the front bumper extension.

Plumbing shall consist of 2.00" piping and flexible hose according to the design requirements of the chassis. A fabricated weldment made of black iron pipe shall be used in the plumbing where appropriate. A 2.00" 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) discharge piped to the rear of the hose bed, on driver's side, installed so proper clearance is provided for spanner wrenches or adapters. 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 shall terminate with 2.50" NST thread. Discharge piping shall be schedule 10 304L welded or formed stainless steel and routed through the water tank.

#### DISCHARGE CAPS

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

#### OUTLET BLEEDERS

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.

The valves shall be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles shall be chrome plated and provide a visual indication of valve position. The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders shall be located at the bottom of the pump panel. They shall be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders shall be routed below the chassis frame rails.

#### ELBOWS, REAR OUTLETS

The 2.50" discharge outlets, located at the rear of the apparatus, shall be furnished with a 2.50"(F) National Standard hose thread x 2.50"(M) National Standard hose thread, chrome plated, 45 degree elbow.

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

#### 4.00" CAP, LARGE DIAMETER OUTLET

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

#### 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.

The passenger side discharges shall be controlled by a controller with the manual override located on the passenger side pump panel. In addition to valve position, each controller shall include a pressure display.

The controller unit shall have solid state electronics to provide easy, two (2) button open and close valve position capability with valve position indicator lights, and current limiting valve motor stopping capability. The unit shall be in water resistant brass housing and shall come with all required installation cables and harnesses.

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

#### DELUGE RISER

A 3.00" deluge riser shall be installed above the pump in such a manner that a monitor can be mounted and used effectively. 3.00" piping shall be installed securely so no movement develops when the line is charged. A 2.50" gated valve shall be installed and controlled at the pump operator's panel. The deluge outlet shall flow a minimum 1000 GPM.

The deluge riser shall have male National Pipe Threads for mounting the monitor.

#### CROSSLAY HOSE BEDS

Two (2) crosslays with 1.50" outlets shall be provided. Each bed to be capable of carrying 200 feet of 1.75" double jacketed hose and shall be plumbed with 2.00" welded or formed stainless steel pipe and gated with a 2.00" quarter turn ball valve. Threaded pipe shall not be acceptable. Crosslays shall be mounted as low as possible for simple, safe reloading and deployment.

Outlets to be equipped with a 1.50" National Standard hose thread 90-degree swivel located in the hose bed so that hose may be removed from either side of apparatus.

The crosslay controls shall be at the pump operator's panel.

A removable tray shall be provided for the crosslay hose bed. The crosslay tray shall be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes shall be in the floor and additional hand holes shall be provided in the

sides for easy removal and installation from the compartment. The floor of the trays shall be perforated to allow for drainage and hose drying. Trays shall be held in place by a mechanical spring loaded stainless steel latch that automatically deploys upon loading the trays to hold the trays in place during transit.

CROSSLAY HOSE BED, 2.50"

One (1) crosslay with a 2.50" outlet shall be provided. The bed to be capable of carrying 200' of 2.5" hose and shall be plumbed with 2.50" i.d. schedule 10 304L welded or formed stainless steel pipe and gated with a 2.50" quarter turn ball valve. Threaded pipe shall not be acceptable.

The outlet to be equipped with a 2.50" National Standard hose thread 90 degree swivel located above the hose bed so that hose may be removed from either side of apparatus.

The crosslay shall be mounted above the lower 1.5" crosslays. The crosslay controls shall be at the pump operator's panel.

A removable tray shall be provided for the crosslay hose bed. The crosslay tray shall be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes shall be in the floor and additional hand holes shall be provided in the sides for easy removal and installation from the compartment. The floor of the trays shall be perforated to allow for drainage and hose drying. Tray shall be held in place by a mechanical spring loaded stainless steel latch that automatically deploys upon loading the tray to hold the trays in place during transit.

CROSSLAY/DEADLAY HOSE RESTRAINT

A black 1.00" nylon webbing design with 2.00" box pattern shall be provided across each end of two (2) crosslay/deadlay(s) to secure the hose during travel. The webbing shall be permanently attached at the front of the crosslay/deadlay bed. Two (2) vertical metal bars the height of the crosslay/deadlay bed shall hook onto footman loops at the top of the bed and 1.00" web straps shall loop through footman loops located at the bottom of the crosslay/deadlay bed. The straps shall attach to the bottom of the bar with a 1.00" cam buckle fastener.

**FOAM SYSTEM**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
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A foam proportioning system shall be provided that is an on demand, automatic proportioning, single point, direct injection system suitable for all types of Class A and B foam concentrates, including the high viscosity (6000 cps), alcohol resistant Class B foams. Operation shall be based on direct measurement of water flow, and remain consistent within the specified flows and pressures. The system shall automatically proportion foam solution at rates from .1 percent to 3.0 percent regardless of variations in water pressure and flow, up to the maximum rated capacity of the foam concentrate pump.

The design of the system shall allow operation from draft, hydrant, or relay operation.

## SYSTEM CAPACITY

The system shall have the ability to deliver the following minimum foam solution flow rates at accuracies that meet or exceed NFPA requirements at a pump rating of 150 psi.

100 gpm @ 3 percent

300 gpm @ 1 percent

600 gpm @ 0.5 percent

Class A foam setting in .1 percent increments from .1 percent to 1 percent. Typical settings of 1 percent, .5 percent and 3 percent (maximum capacity shall be limited to the plumbing and water pump capacity).

## CONTROL SYSTEM

The system shall be equipped with a digital electronic control display located on the pump operator's panel. Push button controls shall be integrated into the panel to turn the system on/off, control the foam percentage, and to set the operation modes.

The percent of injection shall have a preset. This preset can be changed at the fire department as desired. The percent of injection shall be able to be easily changed at the scene to adjust to changing demands.

Three (3) .50 tall LEDs shall display the foam percentage in numeric characters. Three (3) indicator LEDs shall also be included, one (1) green, one (1) red, and one (1) yellow. The LEDs shall indicate various system operation or error states.

The indications shall be:

Solid Green – System On

Solid Red – Valve Position Error

Solid Yellow – Priming System

Flashing Green – Injecting Foam

Flashing Red – Low Tank Level

Flashing Yellow – Refilling Tank

The control display shall house a microprocessor, which receives input from the systems water flow meter while also monitoring the position of the foam concentrate pump. The microprocessor shall compare the values of the water flow versus the position/rate of the foam pump, to ensure the proportion rate is accurate. One (1) check valve shall be installed in the plumbing to prevent foam from contaminating the water pump.

### HYDRAULIC DRIVE SYSTEM

The foam concentrate pump shall be powered by an electric over hydraulic drive system. The hydraulic system and motor shall be integrated into one unit.

### FOAM CONCENTRATE PUMP

The foam concentrate pump shall be of positive displacement, self-priming; linear actuated design, driven by the hydraulic system. The pump shall be constructed of brass body; chrome plated stainless steel shaft, with a stainless steel piston. In order to increase longevity of the pump, no aluminum shall be present in its construction.

A relief system shall be provided which is designed to protect the drive system components and prevent over pressuring the foam concentrate pump

The foam concentrate pump shall have minimum capacity for 3 gpm with all types of foam concentrates with a viscosity at or below 6000 cps including protein, fluoroprotein, AFFF, FFFP, or AR-AFFF. The system shall deliver only the amount of foam concentrate flow required, without recirculating foam back to the storage tank. Recirculating foam concentrate back to the storage tank can cause agitation and premature foaming of the concentrate, which can result in system failure. The foam concentrate pump shall be self-priming and have the ability to draw foam concentrate from external supplies such as drums or pails.

### EXTERNAL FOAM CONCENTRATE CONNECTION

An external foam pick-up shall be provided to enable use of a foam agent that is not stored on the vehicle. The external foam pick-up shall be designed to allow continued operation after the on-board foam tank is empty, or the use of foam different than the foam in the foam tank.

### PANEL MOUNTED EXTERNAL PICK-UP CONNECTION / VALVE

A bronze three (3)-way valve shall be provided. The unit shall be mounted to the pump panel. The valve unit shall function as the foam system tank to pump valve and external suction valve. The external foam pick-up shall be one (1) .75" male connection GHT (garden hose thread) with a cap.

### PICK-UP HOSE

A .75" flexible hose with an end for insertion into foam containers shall be provided. The hose shall be supplied with a 3/4" female swivel GHT (garden hose thread) swivel connector. The hose shall be shipped loose.

### DISCHARGES

The foam system shall be plumbed to two (2) crosslays, driver's side rear, and front outlet.

### SYSTEM ELECTRICAL LOAD

The maximum current draw of the electric motor and system shall be no more than 55 amperes at 12 VDC.

REFILL, SINGLE FOAM TANK

The foam system's proportioning pump shall be used to fill the foam tank. This shall allow use of the auxiliary foam pick-up to pump the foam from pails or a drum on the ground into the foam tank. A foam shut-off switch shall be installed in the fill dome of the tank to shut the system down when the tank is full. The fill operation shall be controlled by a mode in the foam system controller. While the proportioner pump is filling the tank, the controller shall display a flashing yellow LED to indicate that the tank is filling. When the tank is full, as determined by the float switch in the tank dome, the pump shall stop and the controller shall shut the yellow LED off. If it attempted to use tank fill and the refill valve and suction valve are in the wrong position(s), then the a red LED shall illuminate to indicate the improper valve position(s). When the valves are positioned properly, then filling shall commence.

FOAM TANK

The foam tank shall be an integral portion of the polypropylene water tank. The cell shall have a capacity of 20 gallons of foam with the intended use of Class A foam. The brand of foam stored in this tank shall be National Gold. The foam cell shall not reduce the capacity of the water tank. The foam cell shall have a screen in the fill dome and a breather in the lid.

FOAM TANK DRAIN

A system of 1.00” foam tank drains shall be provided, integrated into the foam systems strainer and tank to foam pump valve management system. The tank to pump hoses running from the tank(s) to the panel mounted strainer shall 1.00” diameter. The foam system controller shall have a mode that allows for a given foam valve to be opened at will. Flow of foam from the tank valve to the strainer shall be usable as a tank drain mode.

An adaptor shall be supplied, that allows the 1.00” foam intake screen to assembly to be used as a drain outlet. The standard supplied 1.00” foam pick up hose shall be attached to the screen assembly by way of the adapter. The drain mode shall allow the operator to open and close the tank valve as required from the control head, to drain foam and re-fill foam containers through the connected hose, without foam spillage beneath the vehicle.

**HOSE BED**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
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The hose body shall be fabricated of aluminum with a 38,000 psi tensile strength.

Flooring of the hose bed shall be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats shall have spacing between slats for hose ventilation.

Hose bed shall accommodate 400' of 3"; 1,000" of 4.00" LDH; 400' of 2.50".

Two (2) adjustable hosebed dividers shall be furnished for separating hose.

Each divider shall be constructed of brushed aluminum sheet fitted and fastened into a slotted, radiused extrusion along the top, bottom, and rear edge.

Partition shall be fully adjustable by sliding in tracks, located at the front and rear of the hose bed.

Divider shall be held in place by tightening bolts, at each end.

Acorn nuts shall be installed on all bolts in the hose bed which have exposed threads.

#### HOSE BED HOSE RESTRAINT

The hose in the hose bed shall be restrained by a black nylon Velcro strap at the top of the hose bed. At the rear of the hose bed, 2.00" black nylon webbing with a 1.50" x 4.00" box pattern shall attach at the top rear outside corners with 2.00" cam buckle fasteners. The webbing shall have straps connected with 2.00" cam buckle fasteners located at the rear body sheet below the hose bed.

#### HOSE BED COVER

A four (4) section hose bed cover, constructed of .125" bright aluminum tread plate shall be furnished. The covers shall be hinged with full length stainless steel piano hinge. The sides shall be slanted down. A cross support shall be provided between the rear and forward sections.

If access to water or foam tank fill tower is blocked by the hose bed cover, then a hinged door shall be provided in it so that tank may be filled without raising cover doors.

Chrome grab handles and a minimum of eight (8) gas filled cylinders shall be provided to assist in opening and closing the covers. A handrail is to be provided at the rear, in the center of the support, to assist in opening the cover.

#### GAS SHOCK AND CABLE FOR HOSE BED COVER

There shall be a minimum of two (2) gas shocks and safety cables provided for the hose bed cover to provide additional support.

#### HOSEBED END FLAP

A pair of red vinyl flaps shall be installed on the rear, one for each of the aluminum tread plate hose bed covers.

Each vinyl flap shall have three (3) nylon tie down straps, with quick release thumb spring buckles. Stainless steel buckles shall be attached to the flaps. These vinyl end skirts shall be installed directly to the hose bed frame.

Rubber coated hooks and stainless steel footman loops shall secure the end skirts/bed covers to the main body.

**REAR TANK DUMP**

**COMPLY:**      YES    NO

A minimum manual 10” Newton tank pump valve shall be installed to the rear of the apparatus. The valve shall have the ability to dump the contents of the tank. The valve shall have an extendable chute.

**SIDE TANK DUMPS**

**COMPLY:**      YES    NO

There shall be two (2) 8” Bray air actuated dump valves (with extension chute) located on the driver’s and passenger side in the area between the tandem axles. Controls for the side dump valve shall be located inside the cab where the driver has immediate access to the switches. Each opening for the side dumps shall be covered with stainless self-closing café-style doors.

**WATER TANK**

**COMPLY:**      YES    NO

The water tank shall have a minimum capacity of 2000 gallons, constructed from UPF PolyIII. The UPF PolyIII water tank shall be furnished with a lifetime warranty (expressed in years) upon delivery.

**WATER TANK CONSTRUCTION**

**COMPLY:**      YES    NO

The UPF PolyIII water tank shall be constructed from 1/2" thick PT2E polypropylene sheet stock. This material shall be a non corrosive stress relieved thermo-plastic, natural in color, and U.V. stabilized for maximum protection.

The water tank shall be of a specific configuration and are also designed to be completely independent of the body and compartments. All joints and seams shall be nitrogen welded and tested for maximum strength and integrity. The top of the booster tank is fitted with removable lifting eyes designed with a 3 to 1 safety factor to facilitate easy removability. The transverse swash partitions shall be manufactured of 3/8" PT2E polypropylene (natural in color) and extend from approximately 4" off the floor to just under the cover. The longitudinal swash partitions shall be constructed of 3/8" PT2E polypropylene (natural in color) and extend from the floor of the tank through the cover to allow for positive welding and maximum integrity. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are welded to each other as well as to the walls of the tank.

**TANK LID**

**COMPLY:**      YES    NO

The tank cover (lid) shall be constructed of 1/2" thick PT2E polypropylene, natural in color, and U.V. stabilized, to incorporate a multi three-piece design which allows for individual removal and inspection if necessary. The tank cover shall be recessed 3/8" from the top of the tank and shall be welded to both sides and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" polypropylene dowels spaced a maximum of 30" apart. These dowels shall extend through the covers and become welded to the transverse partitions. This shall assist in

keeping the cover rigid under fast filling conditions. A minimum of two lifting dowels shall be drilled and tapped 1/2" of 13" to accommodate the lifting eyes.

**TANK FILL TOWER**

**COMPLY:**     YES    NO

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" PT2 polypropylene and shall be a minimum dimension of 8" x 8" outer perimeter. The tower shall be located in the left front corner of the tank unless otherwise specified by the purchaser in Special Provisions. The tower shall have a 1/4" thick removable polypropylene screen and a PT2 polypropylene hinged type cover.

**OVERFLOW AND VENT PIPE**

**COMPLY:**     YES    NO

The fill tower shall be fitted with an integral 4" I.D. schedule 40 P.V.C. combination overflow/vent pipe running from the fill tower through the tank to a 4" coupling flush mounted into the bottom of the tank to allow water to overflow below the body.

**TANK SUMP AND CONNECTIONS**

**COMPLY:**     YES    NO

There shall be one (1) sump standard per tank. The sump is a minimum of 8" wide, 8" long and 7" deep with a 3/4" bottom and is located in the center front bottom of the tank, unless specified otherwise in special provisions. The sump shall have a minimum of 3" threaded plug located at the bottom for a tank drain. An anti-swirl plate shall be mounted inside the sump approximately 1" off the floor of the sump.

**TANK OUTLETS**

**COMPLY:**     YES    NO

There shall be two (2) standard tank outlets; one for tank-to-pump suction line which shall be a minimum of a 3" coupling and one for a tank fill line which shall be a minimum of a 2" N.P.T. coupling. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank.

**5. BODY CONSTRUCTION**

**APPARATUS BODY CONSTRUCTION**

**COMPLY:**     YES    NO

The apparatus body and sub frame shall be constructed entirely of marine grade aluminum plate and extrusions.

The complete apparatus body structure shall be all welded construction and free of nuts, bolts, and other fasteners. Upon completion of the weldments, the body shall be completely sanded and deburred for the purpose of remove of all sharp edges to prevent injury.

**COMPARTMENTS**

**COMPLY:**     YES    NO

Shall be configured to allow for maximum size. All compartments are to be sprayed with Line-X (or similar), color to be determined.

All Compartment lighting shall be located on the left and right side of the compartments. All Compartment Lighting will be comprised of the AMDOR Luma Bar LED system. The AMDOR Luma Bar system includes the following key features:

- Wide angle 120 degree surface mount LED installed on a printed circuit board for shock and vibration resistance.
- Lighting will be enclosed within a high impact polycarbonate enclosure
- Output will exceed NFPA 1901 Compartment Lighting standard
- Draw not to exceed 130 mA per foot / forward voltage of 20mA per LED
- 21” boards will be connected in series using a high grade Molex connector

**COMPARTMENT FLOORS**

**COMPLY:**      YES    NO

The compartment floors shall be flush with door opening to provide a sweep-out design, also to provide an unobstructed door opening and permit easy cleaning of each compartment.

Compartments designed to set on running boards or with a lip at bottom of door opening, shall not be acceptable.

**LOUVERS**

**COMPLY:**      YES    NO

All body compartments shall have a minimum of one (1) set of louvers stamped into a wall to provide the proper airflow inside the compartment and to prevent water from dripping into the compartment. These louvers shall be formed into the metal and not added to the compartment as a separate plate, they will also be at the upper most section of the compartment as to keep road debris from entering the compartment.

**COMPARTMENT DOORS**

**COMPLY:**      YES    NO

Doors to be roll up style (Gortite) doors. On compartments where the roll up door will take up most of the usable space, a standard style door shall be used. Drip protection shall be provided over all door openings by means of a bright aluminum extrusion or formed bright aluminum tread plate. All screws and bolts which protrude into the compartment shall have acorn nuts at the ends to prevent injury. All roll-up doors shall be painted the designated RED color.

The roll up doors exterior paint finish (if applicable) shall be warranted against blistering, peeling, bubbling, lack of adhesion or any other manufacturing or material defect for a period of **six (6) years**.

The roll up doors shall also be warranted against corrosion perforation for a period of **ten (10) years**.

**ADJUSTABLE SHELVES**

**COMPLY:**      YES    NO

There shall be allowances for four (4) shelves, with a minimum capacity of 500 pounds provided. The shelf construction shall consist of .125" pan-shaped aluminum with 2.00"

sides. Each shelf shall be infinitely adjustable by means of a threaded fastener, which slides in a track. Location of shelves to be determined at pre-construction meeting.

**COMPARTMENT SLIDE-OUT TRAYS**

**COMPLY:**     YES    NO

There shall be allowances for three (3) slide-out trays provided. The capacity rating shall be 500 pounds minimum in the extended position. Interior tray dimensions shall be as wide as possible for the compartment. The tray shall slide out full depth of its length. The construction shall consist of .188" thick aluminum for the tray bottom, and special aluminum extrusions for the tray sides, end, and tracks. Corners shall be welded to form a rigid unit. Tray shall be supported with a minimum of six (6) ball bearing rollers; each rated for a minimum 500 pound load. Automatic locks shall be provided for both the in and out tray positions.

**AIR BOTTLE STORAGE COMPARTMENTS**

**COMPLY:**     YES    NO

A total of seven (7) SCBA air bottle storage compartments (8" high x 8" wide x 24" deep) shall be inserted into the body fender area on a 5 degree pitch. The compartments shall be located with three (3) on the left side and four (4) on the right side of the rear body fender panels. The lower portion of the compartments shall be lined with Line-X (or similar) to absorb shock and help secure the bottle. Each storage compartment shall be equipped with a polished stainless steel door.

**RUB RAIL**

**COMPLY:**     YES    NO

The bottom edge of the side compartments shall be trimmed with a bright stainless steel rub rail. The rub rail shall be 2.00" high and extend 1.00" away from the body, with slanted ends to provide a pleasing appearance.

These rub rails shall not be an integral part of the body construction, which allows replacement in the event of damage.

**FOLDING TANK RACK**

**COMPLY:**     YES    NO

A Zicomatic Quik-Lift Port-A-Tank shall be installed on the Officer's side of the body. The system shall have the capability to hold a 2100 gallon capacity port-a-tank (see Additional Equipment Required). An electric lowering system shall be powered by two (2), 12-volt electric actuators.

The electric controls shall be located in such a manner to allow the operator full view of the area in which the tank shall be lowered.

An aluminum cover, painted to match the body, shall be installed on the lowering device to protect and conceal the tank when in the stored position. This cover shall be installed with a mounting kit to allow for flexing.

The system shall also include hardware to mount and secure one (1) length of hard suction hose on top of the system (ALSO SEE HARD SUCTION HOSE).

RACK INTERLOCK AND NOT STOWED INDICATOR LIGHT

An interlock shall be provided to prevent operation of the rack unless the apparatus parking brake has been activated.

A steady red indicator light shall be located on the cab instrument panel and illuminated when the rack is not in the stowed position. The light shall be labeled "Rack". In addition, the "Do Not Move Apparatus" light located in the cab shall be activated when the rack is not in the stowed position.

LIGHTS, FLASHING, RACK

Flashing LED amber lights facing the front and rear shall be provided on the rack and activated whenever the rack is in the down position.

**HARD SUCTION HOSE**

**COMPLY:**      YES    NO

Two (2) lengths of 6.00" clear corrugated Kocheck hard suction hose, 10' in length, shall be provided. The hose shall be equipped with a long handle female coupling on one (1) end and a rocker lug male coupling on the other end. Couplings shall be hard coated aluminum.

HARD SUCTION HOSE STORAGE

One (1) hard suction hose compartments shall be provided, one (1) below the water tank area. Each compartment shall be fully enclosed with a vertically hinged, stainless steel door and lift-and-turn latch at the rear.

FOLDING LADDER

One (1) aluminum, 10' folding ladder shall be installed in a stainless steel trough inside the hard suction hose storage compartment on the driver side.

PIKE POLES/FOLDING LADDER COMPARTMENT

A compartment shall be provided, recessed below the water tank tee at the rear of body, on the driver's side.

The compartment shall be equipped with two (2) tubes for storage of two (2) straight handled pike poles and (1) stainless steel trough for storage of (1) folding ladder.

A stainless steel door shall be provided at the rear with a lift and turn latch.

**ELECTRIC CABLE REELS**

**COMPLY:**      YES    NO

One (1) Hannay Model #1600, 120 volt, 3-wire, electric rewind cord reel shall be provided and wired to the breaker panel. The reel shall be securely mounted and equipped with a rewind control adjacent to the reel. The reel shall be mounted above the pump area.

The cord reel shall be mounted as directed by the fire department.

The circuit breaker used to protect any device attached to the cord reel shall be sized to the smallest electrical connection used.

**ELECTRIC CABLE**

**COMPLY:**       YES    NO

Two hundred (200) feet of Type SO black 12/3 heavy duty electric cable shall be provided on each of the reels.

**JUNCTION BOX (ES)**

**COMPLY:**       YES    NO

One (1) Circle-D Model #PF51G-5, four (4) outlet junction box(es) with four (4) NEMA L5-20R twist-lock receptacles direct wired on the end of the cable shall be provided.

**CABLE ROLLER ASSEMBLY**

One (1) four (4) roller assembly shall be provided adjacent to each cord reel to provide un-obstructed deployment and rewinding of the cable.

One (1) cable ball stop(s) shall be installed on the cable to keep the cable end from passing through the roller assembly.

One (1) holder(s) constructed from 1/8" aluminum tread plate shall be provided for each cord reel(s) junction box. The location of the holder shall be adjacent to the cord reel roller assembly or as directed by the fire department.

**REQUIRED MANUALS**

**COMPLY:**       YES    NO

There shall be detailed operations and maintenance manuals of the following apparatus components provided (also available in electronic format):

- Pump
- Chassis
- Apparatus systems included

**6. GROUND LADDERS**

**GROUND LADDERS**

**COMPLY:**       YES    NO

The following approved fire service ladders shall be furnished and must meet or exceed the latest NFPA 1931 standards:

- One (1) 24' (minimum), two (2) section, aluminum, Dou-Safety 900A
- One (1) 14', one section, aluminum, Dou-Safety roof
- One (1) 10', folding, aluminum, Dou-Safety 585-A

The ground ladders shall be stored within the tank area and shall be removable from the rear. The storage area shall be constructed to eliminate ladder exposure to rain, road salt and dirt.

The ladders shall rest in full-length stainless steel slides and be arranged so they can be

removed individually.

## 7. PAIN, LETTERING & GRAPHICS

### **PAINT**

<b>COMPLY:</b> <input type="checkbox"/> <b>YES</b> <input type="checkbox"/> <b>NO</b>
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The exterior custom cab and body painting procedure shall consist of a six (6) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body shall be thoroughly cleaned and prepared for painting. Surfaces that shall not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate. Each imperfection on the exterior metal surface shall be removed or filled and then sanded smooth for a smooth appearance. All seams shall be sealed before painting.
2. Chemical Cleaning and Treatment - The metal surfaces shall be properly cleaned using a high pressure and high temperature acid etching system. Surfaces are chemically cleaned to remove all dirt, oil, grease and metal oxides to ensure the subsequent coatings bond well. An ultra pure water final rinse shall be applied to all metal surfaces, excluding undercarriage components, at the conclusion of the metal treatment process.
3. Primer/Surface Coats - A two (2) component urethane primer/surface shall be hand applied to the chemically treated metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface.
4. Hand Sanding - The primer/surface coat shall be lightly sanded to an ultra smooth finish.
5. Sealer Primer Coat - A two (2) component sealer primer coat shall be applied over the sanded primer.
6. Topcoat Paint - Two (2) coats of an automotive grade, two (2) component acrylic urethane paint, shall also be applied.

The exterior colors shall be: RED (PPG) or equivalent on the lower portion of the cab and WHITE (PPG) or equivalent on the upper portion of the cab. Color code to be furnished by the department.

All removable items such as brackets, compartment doors, door hinges, trim, etc. shall be removed and painted separately to insure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly.

The cab shall be two-tone, with the upper section (bottom of the windshield) painted white and lower section of the cab and body painted Paint Color red to match current Goffstown apparatus.

One pint of touch up paint is to be provided at time of delivery of completed apparatus for each color of finish paint (White and Red) used on the apparatus.

**CLEARCOAT PAINT SEALER**

**COMPLY:**       YES    NO

The exterior of the vehicle and doors shall be painted as standard and then sprayed with two (2) coats of clear sealer. The cab and body exterior paint finish shall be warranted for topcoat durability and appearance, which covers gloss, color retention and cracking at 100% for a period of no less than ten (10) years.

**LETTERING AND GRAPHICS**

**COMPLY:**       YES    NO

REFLECTIVE STRIPES

Three (3) reflective stripes shall be provided across the front of the vehicle and along the sides of the body. The reflective band shall consist of a 1.00" gold stripe at the top with a 1.00" gap then a 4.00" white stripe with a 1.00" gap and a 1.00" gold stripe on the bottom.

The reflective band provided on the cab face shall be at the headlight level.

CHEVRON STRIPING, REAR

There shall be alternating chevron striping located on the rear-facing vertical surface of the apparatus.

The colors shall be red and yellow diamond grade.

Each stripe shall be 6.00" in width.

This shall meet the requirements of NFPA 1901, 2009 edition, which states that 50% of the rear surface shall be covered with chevron striping.

REFLECTIVE STRIPE, CAB DOORS

A 6.00" x 16.00" yellow reflective stripe shall be provided across the interior of each cab door. The stripe shall be located approximately 1.00" up from the bottom, on the door panel.

This stripe shall meet the NFPA 1901 requirement.

STRIPE, CAB FACE

There shall be a gold leaf stripe across the face of the cab with an end point on each end, located just below the windshield.

CAB STRIPE

There shall be one (1) gold leaf stripe located just below the window line on each side of the cab.

**GOLD LEAF STRIPE ON THE CAB**

There shall be one (1) gold leaf stripe on each side of the cab, low and over the fender. It shall include black outline with an accent stripe.

**CAB STRIPE**

There shall be one (1) gold leaf stripe located just below the window line on each side of the cab front.

**LETTERING**

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

**LETTERING**

Forty-one (41) to sixty (60) genuine gold leaf lettering, 3.00" high, outlining and shading shall be provided.

**BODY PANEL**

The painted body panel covering the Ziamatic tank lift shall have lettering and gold leaf striping. There shall be twenty (20) genuine gold leaf lettering, 6-10" high, outlining and shading shall be provided. The panel shall also include one (1) gold leaf boarder.

**PAINT, COMPARTMENT INTERIOR**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
---

Interior of the compartments shall be sprayed with a Line-X type coating, color TBD.

**8. EQUIPMENT**

**MISC. EQUIPMENT**

<b>COMPLY:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO
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- 1 - Master Intake Valve – TFT, AP8 NX-NX-PS
- 1 – Husky 2100 gallon porta-tank, steel frame

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# Town of Goffstown, New Hampshire

## Request for Proposals

### ATTACHMENT A

#### BIDDER'S QUALIFICATIONS AND REFERENCES FORM

All questions **must** be answered, and the data given must be clear and comprehensive. Please type or print legibly. If necessary, add additional sheet for starred items. This information will be utilized by the Town of Goffstown for purposes of determining bidder responsiveness and responsibility with regard to the requirements and specifications of the Contract.

1. FIRM NAME: \_\_\_\_\_
2. WHEN ORGANIZED: \_\_\_\_\_
3. INCORPORATED?  YES  NO. DATE AND STATE OF INCORPORATION: \_\_\_\_\_
4. LIST ALL CONTRACTS CURRENTLY ON HAND, SHOWING CONTRACT AMOUNT AND ANTICIPATED DATE OF COMPLETION:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. HAVE YOU EVER FAILED TO COMPLETE A CONTRACT AWARDED TO YOU?  
 YES  NO  
IF YES, WHERE AND WHY?  
\_\_\_\_\_  
\_\_\_\_\_
6. HAVE YOU EVER DEFAULTED ON A CONTRACT?  
 YES  NO  
IF YES, PROVIDE DETAILS.  
\_\_\_\_\_  
\_\_\_\_\_
7. LIST YOUR VEHICLES/EQUIPMENT AVAILABLE FOR THIS CONTRACT:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8. In the spaces following, please provide information regarding contracts completed by your firm similar in nature to the project being bid. A minimum of four (4) contracts should be listed. Publically bid contracts are preferred, but not mandatory.

PROJECT NAME: \_\_\_\_\_  
OWNER: \_\_\_\_\_  
CITY/STATE: \_\_\_\_\_  
DOLLAR AMOUNT: \$ \_\_\_\_\_ DATE COMPLETED: \_\_\_\_\_  
PUBLICLY BID?             YES                       NO  
TYPE OF WORK?: \_\_\_\_\_  
CONTACT PERSON: \_\_\_\_\_ TELEPHONE #: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_  
OWNER: \_\_\_\_\_  
CITY/STATE: \_\_\_\_\_  
DOLLAR AMOUNT: \$ \_\_\_\_\_ DATE COMPLETED: \_\_\_\_\_  
PUBLICLY BID?             YES                       NO  
TYPE OF WORK?: \_\_\_\_\_  
CONTACT PERSON: \_\_\_\_\_ TELEPHONE #: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_  
OWNER: \_\_\_\_\_  
CITY/STATE: \_\_\_\_\_  
DOLLAR AMOUNT: \$ \_\_\_\_\_ DATE COMPLETED: \_\_\_\_\_  
PUBLICLY BID?             YES                       NO  
TYPE OF WORK?: \_\_\_\_\_  
CONTACT PERSON: \_\_\_\_\_ TELEPHONE #: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_  
OWNER: \_\_\_\_\_  
CITY/STATE: \_\_\_\_\_  
DOLLAR AMOUNT: \$ \_\_\_\_\_ DATE COMPLETED: \_\_\_\_\_  
PUBLICLY BID?             YES                       NO  
TYPE OF WORK?: \_\_\_\_\_  
CONTACT PERSON: \_\_\_\_\_ TELEPHONE #: \_\_\_\_\_

9. The undersigned certifies that the information contained herein is complete and accurate and hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Town of Goffstown in verification of the recitals comprising this statement of Bidder's qualifications and experience.

DATE: \_\_\_\_\_

BIDDER/VENDOR: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_



# Town of Goffstown, New Hampshire

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## Request for Proposals

### ATTACHMENT B

Town of Goffstown  
New Pumper / Tanker Fire Truck

**NON - COLLUSION CLAUSE:**

**PLEASE DETACH AND SUBMIT WITH PROPOSAL**

The undersigned certifies under penalties of perjury that this bid is in all respects, bonafide and fair, and made without collusion or fraud with any other person. As used in this section, the word "person" means any natural person, joint venture, partnership, corporation or other business or legal entity.

\_\_\_\_\_  
(Signature of Person Responsible for Bid Submittal)

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Company / Firm)



# Town of Goffstown, New Hampshire

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## Request for Proposal

### ATTACHMENT C

**Town of Goffstown  
New Pumper / Tanker Fire Truck**

**PLEASE DETACH AND SUBMIT WITH PROPOSAL.**

In accordance with the specifications, the undersigned hereby submits the following bid:

Cost to Town (No trade in) \$ \_\_\_\_\_

Optional: Trade-In Value: 1989 Tanker Truck\* \$ \_\_\_\_\_

Optional: Trade-In Value: 1992 Engine\* \$ \_\_\_\_\_

Submitted For (Vendor Name): \_\_\_\_\_ Submitted By: \_\_\_\_\_

Name: \_\_\_\_\_ Name: \_\_\_\_\_

Address: \_\_\_\_\_ Title: \_\_\_\_\_

\_\_\_\_\_ Phone: \_\_\_\_\_

**Options:** Not part of the base bid above.

- (1) Mobile Computer, Mounting and Installation (see specification on ATTACHMENT F)

\$ \_\_\_\_\_

- (1) Hydraulic Driven Generator (see specification on ATTACHMENT G)

\$ \_\_\_\_\_

\*- Trade-in vehicle: "as-in condition", vehicle only, no equipment.

**Please provide the following discounts (if any) for the substitution of the following items:**

- Removing the **FEDERAL 2QB SIREN**, located on page 18.

\$ \_\_\_\_\_

- Substituting the Gold Leaf lettering with simulated vinyl gold leaf lettering (please provide a sample of the lettering, if proposing substitution). Please also provide the warranty for such lettering and graphics and the projected life expectancy.

\$ \_\_\_\_\_

- \*- Trade-in vehicle: “as-in condition”, vehicle only, no equipment.



# Town of Goffstown, New Hampshire

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## Request for Proposals

### ATTACHMENT D

**PLEASE DETACH AND SUBMIT WITH PROPOSAL.**  
**PROPOSAL SHEET**

The undersigned hereby agrees to provide and deliver (1) **NEW PUMPER/TANKER FIRE TRUCK** and related services and equipment in accordance with the terms, conditions and specifications of the **RFP: NEW PUMPER/TANKER FIRE TRUCK**, for the below listed firm description and information:

Apparatus Manufacturer: \_\_\_\_\_

Apparatus Model # or Description: \_\_\_\_\_

Local Distributor: \_\_\_\_\_

Distributor's Fed. Tax ID #: \_\_\_\_\_

Local Service Center Location: \_\_\_\_\_

Equipment and maintenance service will be dispatched from: \_\_\_\_\_

Response time for service shall not exceed \_\_\_\_\_ hours.

Proposed Warranty Length:

Chassis Warranty: \_\_\_\_\_ year(s)

Chassis Frame Rail Warranty: \_\_\_\_\_ year(s)

Engine Warranty: \_\_\_\_\_ year(s)

Transmission Warranty: \_\_\_\_\_ year(s)

Braking System Warranty \_\_\_\_\_ year(s)

Fire Pump Warranty: \_\_\_\_\_ year(s)

Apparatus Body Warranty: \_\_\_\_\_ year(s)

Water Tank Warranty: \_\_\_\_\_ year(s)

Rust Warranty: \_\_\_\_\_ year(s)

Paint Warranty: \_\_\_\_\_ year(s)

**WARRANTIES SHALL NOT COMMENCE UNTIL AFTER DELIVERY, TESTING AND IN-SERVICE TRAINING IS COMPLETED.**

Delivery date, in CALENDAR DAYS, after receipt of award: \_\_\_\_\_

**DELIVERY LOCATION:**

**Goffstown Fire Department  
18 Church Street  
Goffstown, New Hampshire 03045**



# Town of Goffstown, New Hampshire

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## Request for Proposals

### ATTACHMENT E

#### PLEASE DETACH AND SUBMIT WITH PROPOSAL

#### SPECIFICATIONS EXCEPTION FORM

In the interest of fairness and sound business practice, it is mandatory that you state any exceptions taken by you to our specifications. It should not be the responsibility of the Town of Goffstown to ferret out information concerning the materials which you intend to furnish.

If your bid/quotation does not meet all of our specifications you **must** so state in the space provided below (this attachment may be duplicated, as needed):

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Proposals on equipment, vehicles, supplies, service and materials not meeting specifications may be considered by the Town, however, all deviations must be listed above. If your proposal does not meet our specifications, and your exceptions are not listed above, the Town of Goffstown may claim forfeiture on your proposal, if submitted.

Signed: \_\_\_\_\_

**I DO** meet specifications

Signed: \_\_\_\_\_

**I DO NOT** meet specifications as listed in this bid; exceptions are in the space provided.

*Failure to submit this form with your RFP response may result in your Proposal being rejected as unresponsive.*

**Note: This attachment may be duplicated, as needed**



## Town of Goffstown, New Hampshire

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### Request for Proposals

#### ATTACHMENT F

##### Specification for on-board computer system (MDT):

- One (1) Panasonic U-1 mobile computer with integrated Gobi mobile broadband, to be mounted in the cab
- One (1) Panasonic PDRC with keyboard, to be mounted over glove box area
- APPARATUS Install with Computer, Mounts, Antenna, Wiring Harnesses, Electrical Panel, Shut Down Timer, Fuse Blocks, DC Adapter
- Panasonic Manufactured Vehicle Dock Port Replicator -- USB Hub & Ethernet
- Tilt/Swivel with Slide Assembly
- Quick Adjust 12" Upper Tube Assembly
- DS Type Flat Floor Gusseted High Mount. 18.25" Pole.
- 6 Gang ATM Fuse Block
- 120W Auto Adapter for Panasonic Core Duo CF-19/30/51P/74
- Lind Shut Down Timer Vehicle Battery Protection Unit for Vehicles 12V DC, including Surge, Sag and Reverse Polarity
- Panasonic 3 Year Toughbook Protection Plus, Toughbook & Accidental Damage - Years 1-3

Further details available upon request to include installation vendor information.



## Town of Goffstown, New Hampshire

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### Request for Proposals

#### ATTACHMENT G

##### HYDRAULIC DRIVEN GENERATOR

COMPLY:  YES  NO

The generator system shall be an Onan model CMHG 6000 GenSet, PTO/Hydraulic, rated at 6,000 watts, 50/25 amps @120/240 VAC, single phase generator.

The generator shall consist of hydraulic motor, alternator, cooling fan and a heat exchanger in a stainless steel housing. The reservoir shall be a 3-gallon hydraulic tank with an integral filter, gauge, temperature switch, breather, fill port and a site glass to be installed for fluid level. The generator shall be accessible for ease of service.

The Onan limited warranty covers virtually everything except routine maintenance for the first five (5) years or the first 1,000 hours of operation.

The generator output conductors shall be 8 gauge and the output conductors shall be routed through non-metallic conduit 3/4" in diameter.

The digital Onan display shall be by FRC and shall display Hz, voltage, amperage, oil temperature and hours. The meter shall be installed near the breaker panel.

##### GENERATOR PTO

COMPLY:  YES  NO

A hot shift PTO shall be provided on the transmission for the Onan generator. The PTO shall be controlled from the cab. The control shall include a PTO engagement switch and a PTO engaged indicator light.

The generator shall be mounted in a place as to allow for easy maintenance.

Locating the generator greater than 144" from the main breaker panel may require the installation of an additional power disconnecting means.

##### LOAD CENTER

COMPLY:  YES  NO

The generator output line conductors shall be wired from the generator output connections to a Square D, model #QO112L125G breaker panel. The breaker panel shall be equipped with a properly sized main breaker using two (2) of the twelve (12) spaces

which leaves a total of ten (10) available spaces. The generator output conductors shall be sized to 115% of the main breaker rating and shall be installed as indicated in the wiring section. Eight (8) appropriately sized, 120 volt, circuit breakers shall be provided. The breaker panel shall be located in the 1<sup>st</sup> high side compartment on the driver side of the body closest to the pump panel.

**WIRING METHODS**

**COMPLY:**      YES    NO

Wiring/conduit shall not be attached to any chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components or low voltage wiring. All wiring shall be installed at a minimum of 12 inches away from any exhaust piping and a minimum of 6 inches from any fuel lines. All wiring shall be securely clamped within 6 inches of any junction box and at a minimum of every 24 inches of run. All supports shall be of nonmetallic material or corrosion protected metal. All supports shall not cut or abrade conduit or cable and shall be mechanically fastened to the vehicle. All power supply assembly conductors, including neutral and grounding conductors, shall have an equivalent amperage rating and shall be sized to carry not less than 115% of the main breaker rating. All Type SO or Type SEO cable not installed in a compartment shall be installed in wire loom. Where Type SO or Type SEO cable penetrates a metal surface, a rubber or plastic grommet or bushing shall be provided. The installation of all 120/240 wiring shall meet the current NFPA-1901 Standards.

**WIRING IDENTIFICATION**

**COMPLY:**      YES    NO

All line voltage conductors located inside the main breaker panel box shall be individually and permanently identified. When prewiring for future power wiring installations, the non-terminated ends shall be labeled showing functions and wire size.

**CIRCUIT BREAKER/RECEPTACLE INSTALLATION**

**COMPLY:**      YES    NO

The system shall be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators. When multiple circuits are required, the circuits shall be wired to the breaker panel in a staggered configuration to minimize electrical loads on each breaker or generator (leg) circuit. The wiring, electrical fixtures and components shall be to the highest industry quality standards available on the domestic market. The equipment shall be the type as designed for mobile type installations subject to vibration, moisture and severe continuous usage.

**RECEPTACLE INSTALLATIONS**

**COMPLY:**      YES    NO

Any receptacle installed in a wet location must be a minimum of 24 inches above the ground and provided with an approved wet location cover. Wet receptacles may not be mounted at more than 45 degrees from vertical, nor can they be mounted in a face-up position.

Two (2) 110 volt, NEMA L5-20, 20 amp, Single twist-lock receptacle with a grey thermoplastic, corrosion resistant, weatherproof cover shall be installed in at each side of the vehicle in the forward most compartment.

All receptacles shall require one (1) 20 amp, 110 volt circuit breaker to be installed in the load center.

NOTE: There shall also be provisions for 12V connection in a specified compartment for the wiring and operation of the hydraulic rescue tool system and hose reel.

**GROUNDING**

**COMPLY:**      YES    NO

The neutral conductor of the power source shall be bonded to the vehicle frame only at the power source.

The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray.

In addition to the bonding required for the lower voltage return current, each body and driving/crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. The conductor shall have a minimum amperage rating of 115 percent of the name plate current rating of the power source specification label.