



Cherokee County Board of Commissioners
Purchasing Department
1130 Bluffs Parkway, Canton, GA 30114
Phone: (678) 493-6000
Fax: (678) 493-6035

REQUEST FOR PROPOSALS

RFP# 2024-017

RESCUE PUMPER APPARATUS PURCHASES

THE PROJECT: The Cherokee County Board of Commissioners Purchasing Department (County) is requesting competitive sealed **proposals** in support of the purchase of up to ten (10) engines over a six (6) year period, meeting the specifications and as described herein.

There **will not** be a mandatory meeting to review the requirements. The meeting will be held at the proposed work site and will include walking the area.

All times in the solicitation are local times to Cherokee County, Georgia in the Eastern Time Zone.

This Request for Opportunity Description is one of two documents making up this solicitation. The second document is Cherokee County Standard Solicitation Terms and Conditions, which contains all the standard forms potentially required to accompany a submission. Both of these documents together constitute the entire solicitation at the time of issuance.

The County reserves the right to reject any or all bids/proposals, to waive technicalities and to make a selection and final award as deemed to be in the best interest of the County, including using any form of contract it deems most advantageous to the County.

SCHEDULE:

Issued	February 21, 2024
Questions Due	March 5, 2024, by 4:00 PM
Answers Due	March 12, 2024
Bids/Proposals Due	March 25, 2024, at 10:00 AM
Anticipated Award Date	April 16, 2024

THE EXPECTED PERIOD OF PERFORMANCE:

The base period of performance is broken down into two areas: Physical Delivery of Product(s) and Service Delivery. This is a function of the Statement of Work (SOW) and/or specification and reflects if there is physical item or items to be delivered and / or delivery of services. An X in the box corresponding to item 1 below, Physical Delivery indicates a physical item or items are to be delivered and an X in the 2. Delivery of Services indicates that Services are to be performed. Either or both may apply to the work contemplated by this solicitation.

Additionally, should there be an X in the box corresponding item 3. Option Grant, then the County requests the right to extend the period of performance beyond the Base Rate as specified.

1. NO PHYSICAL ITEMS/GOODS PHYSICAL DELIVERY OF ITEMS/GOODS REQUIRED:

For Physical Delivery solicitations, the period of performance for an award shall begin with either the placement of Purchase Order or the date indicated on the Agreement. All items to be delivered are to be FOB Cherokee County at the address indicated in the solicitation. Performance shall be complete upon final acceptance by the County. Time is of the essence for the delivery of each item specified. Warranty requested as below:

Warranty Term Requested: _____

2. NO SERVICES REQUIRED PERFORMANCE OF SERVICES:

For Performance of Services solicitations, the period of performance shall begin with the placement of either a Purchase Order or the date of the Agreement unless the Agreement, the SOW or the Solicitation Terms indicate that performance shall begin upon the issuance of a Notice to Proceed (NTP), in which case the NTP would represent the beginning of performance. Term of services requested are as below:

Services Term:

- One Year
 Two Years
 Three Years
 Other: Up to 10 engines over 6 years

3. OPTION GRANT:

This solicitation contains requested options; please see Statement of Work for details.

SUBMITTAL INSTRUCTIONS:

Interested Bidders/Proposers should carefully review the requirements defined herein and provide complete and accurate submissions that should include the following items (**only items indicated with an “X” in the corresponding boxes are required for this solicitation**):

- Information and Addenda Acknowledgement Form (Appendix A)
- Non-Influence and Non-Collusion Affidavit (Appendix B)
- E-Verify Affidavit (Appendix C)
- References* (Appendix D)
- Acceptance of County' Standard Agreement**, as below: (Appendix E)
 - Professional Services Agreement (Sample provided)
 - Construction Services Agreement (Sample Provided)
 - Architectural & Engineering Services Agreement (Sample Provided)
 - Other: Purchase Agreement
- Certification Regarding Debarment, Suspension, and Other Responsibility Matters Primary Covered Transactions (Appendix F)
- Contractor's License Certification (Appendix G)
- Bonds Requirements **if the price bid > \$100K**
 - Ability to Provide Performance, Labor & Matl. Payment Bond (Appendix H)
 - Bid Bond (See Appendix I)
- Evidence of/ability to provide Insurance at the limits identified herein,***
- Certifications, Licenses or Registrations as required by law and/or as requested
- Pricing on Proposer's Company Letterhead
- Pricing on included pricing form
- Contractor's Qualifications Statement (Appendix J)
- Added Terms to Construction Service Agreement (Attachment)
- Substitutions Proposed: See Instructions Standard Solicitation Terms****, Item 9
- Any other requirements as requested under the scope of work

Notes:

*The County reserves the right to contact not only those references provided, but may also use previous performance for the County, other contacts it identifies and other sources of information believed to be viable to evaluate capability, viability and performance.

**If Acceptance of County's Standard Agreement is checked, all work/items defined herein are to be quoted according to these requirements. Copies of these agreements can be located at the County's Procurement web page.

***Insurance levels requested are those identified in the County's Standard Agreement, section "I."

****Standard Solicitation Terms Refer to Cherokee County Standard Solicitation Terms and Conditions

EVALUATION CRITERIA:

Bids/Proposals that contain options or additive work above and beyond the base bid will be evaluated financially according to the criteria described in the solicitation. However, should the use of options or additive work proposed exceed the County budget, the County retains its rights to address such situations as described in its Standard Terms For Bid and Proposal Solicitation as well as the right to award based on the base bid only or the base bid plus quoted additive work that is within its budget.

Bids determined to be Responsive and Responsible will be ranked based Bid Form Criteria.

OR

Proposals determined to be Responsive and Responsible will be evaluated on the following criteria:

30%	Price
50%	Technical
5%	Service
15%	Delivery
100%	TOTAL

1. **Technical (50%):** Engine must meet the minimum current NFPA standards to be considered responsive.

- Vendor shall provide documentation to evaluate design and quality of engine.
- Vendor shall provide documentation on sound apparatus design and well-made products that are consistent with internal controls and customer specifications via a 3rd party compliance or with internal documentation.
- Vendor shall provide documentation of certified trades including welders, electricians, etc.
- Vendor shall provide detailed information on all exceptions to the specifications including cost savings associated with the change(s).
- Vendor to provide detailed information that demonstrates that the cab meets or exceeds all standards for crashworthiness.
- Vendor shall provide detailed quality program information and/or ISO Certificate.
- Vendor should address the entire Quality Process to include at a minimum the Design, Order Acceptance, Specification Control, Procurement to the Specifications, Supplier Verification of Conformance to Purchased Part Specifications, Management Responsibility, and Document Control, Manufacturing Control, Final Testing, Third Party Process Control and Final inspection of the engine.
- Ability to meet specifications

2. **Service (5%):**

- Vendor shall provide service center location address and distance from Cherokee County's Fleet Department located at 421 Chattin Drive, Canton, Georgia 30115.

- Vendor shall provide information on their ability to provide on-site service and response time from time service is requested for both critical and non-critical issues with a goal of a 48 hour response time.
- Vendor shall provide resume(s), qualifications and certifications on their Emergency Vehicle Technician (EVT) certified service personnel.
- Vendor shall provide warranty information.

3. Delivery (15%): The County considers delivery to be an important factor.

- The Proposer shall provide information on their ability to deliver the completed unit and provide their time schedule of completion from NTP and order.
 - It is not required that engines be delivered at the same time.
 - If delivery of one or more engines is available earlier than others, vendors should provide timing of such delivery on each engine.

References may be contacted should the evaluation team deem them necessary.

Proposals will be scored on the above evaluation criteria. Failure to provide information necessary to evaluate proposal, may result in a lower scoring proposal.

The County reserves the right to reject the bid of any vendor who has previously failed to perform properly or complete on time contracts of a similar nature, or who upon investigation shows is not in a position to perform the contract.

ECONOMIC PRICE ADJUSTMENT:

- 1. Purpose:** This Economic Price Adjustment is incorporated into this contract to provide for an equitable adjustment in the contract price due to significant changes in market conditions as reflected by the Producer Price Index (PPI) and Consumer Price Index (CPI).
- 2. Basis for Adjustment:**
 - Primary Index: Adjustments will be based primarily on the Producer Price Index for Motor Vehicle Body Manufacturing (PCU336211336211).
 - Secondary Index: The Consumer Price Index for New Vehicles (HTRUCKSSAAR) will be used as a secondary measure in the event of significant discrepancies with the PPI.
- 4. Adjustment Frequency:** Price adjustments under this clause will be made annually, coinciding with the contract's anniversary date.
- 5. Calculation of Adjustment:**
 - Percentage Change: The percentage change in the selected index from the baseline (index value at the time of contract signing) to the current index value at the time of adjustment will determine the rate of price adjustment.
 - Price Adjustment Formula: The contract price will be adjusted in direct proportion to the percentage change in the index, subject to the cap and floor limits stated below.

6. Implementation of Adjustment:

- The supplier shall notify the buyer in writing of the proposed price adjustment, with detailed calculations and index values used, at least 30 days prior to the contract anniversary date.
- The buyer shall have the right to verify the accuracy of the index values and calculations used for the adjustment.

7. Review and Dispute Resolution:

- Any disputes regarding the application of this clause will be resolved through the contract's dispute resolution process.

8. Contract Modification:

- If adjustments are agreed upon, a formal contract modification will be executed to reflect the adjusted contract price.

HOW AND WHERE TO SUBMIT BIDS AND PROPOSALS:

The County has two methods for receiving bids and proposals that are mutually exclusive; either electronically or by physical receipt. The box with the "X" below indicates how and where bids or proposals are to be submitted. The County will NOT accept proposals by fax, or e-mail unless authorized, in writing, by the Procurement Director. The solicitation submission deadline will be strictly enforced; no late bids/proposals will be accepted for any reason, please plan accordingly.

A. Electronic Submissions Only:

Bids and Proposals are to be submitted electronically ONLY to BidNet Direct. Physical copies are not to be submitted unless approved in advance by the Purchasing Director.

Proposals and all requested documentation to be provided electronically should in the Adobe Portable Document Format (PDF) as ONE file unless otherwise indicated in these solicitation instructions. Documents provided in response to this solicitation are to be named according to the following naming convention:

- a. [Solicitation Number]_[Vendor Name]_[Document Type]
Example: "2017-111_ABC Company_Proposal"

QUESTIONS/ADDENDA:

Only written inquiries will be permitted during the solicitation period. **Questions are to be submitted via BidNet Direct** for this solicitation no later than the date and time indicated in the Schedule, as may be amended. Answers will be posted via formal Addendum and only released as part of the solicitation documents on BidNet Direct. All interested parties are instructed to monitor BidNet Direct on a regular basis throughout the solicitation period. The final date for posting of Addenda is per the Schedule, as may be amended.

STATEMENT OF WORK AND / OR SPECIFICATION LOCATED ON THE NEXT PAGE

STATEMENT OF WORK AND / OR SPECIFICATION:

Cherokee County Fire & Emergency Services currently has twenty-eight front line fire engines and eight reserve engines. As a result of this Request for Proposal, the Cherokee County Fire and Emergency Services Department intends to purchase up to ten (10) engines over a six (6) year period to further standardize Fire's fleet, meet the growing demands of the department, and maintain compliance with NFPA's recommendation on fire apparatus.

The Fire Department expects to purchase a minimum of five (5) engines upon award of the RFP.

Fire intends to purchase three (3) additional engines between 2025-2028 with the remaining two (2) engines to be considered by 2029. These timeframes are estimates and are subject to change based on needs and funding.

SPECIFICATIONS:

The following are the specifications for the Rescue Pumper Apparatus. For every specification, if the apparatus your company is proposing meets the full outlined specification so indicate in the "Yes" column. For every specification, if the apparatus your company is proposing does NOT meet the FULL outlined specification, so indicate in the "No" column. Further, for any "No" specification, a detailed specification of the alternate/substitute item must be included and easily found in the proposal.

<u>General</u>		Required Preferred Acceptable	YES	NO
1	It is the intent of these specifications to clearly describe the furnishing and delivery to the Purchaser, a complete apparatus equipped as specified. The primary objective of these specifications is to obtain the most acceptable apparatus for service in the Fire Department. These specifications cover specific requirements as to the type of construction and tests the apparatus must conform, together with certain details as to finish, material preferences, equipment and appliances with which the successful bidder must conform.			
2	These specifications are not intended to eliminate any specific apparatus manufacturer and are intended to be used as a guideline. It is understood that minor variations shall be present as a result of the manufacturer's specific process, material, and construction methods. When present, any variations shall be described in detail using the manner described below.			
3	The design of the apparatus must embody the latest approved automotive design practices. The workmanship must be of the highest quality in its respective field. Special consideration shall be given to service access to areas needing periodic maintenance, ease of operation, and symmetrical proportions. Construction must be heavy-duty and ample safety factors must be provided to carry loads as specified. The construction method employed will be in such a manner as to allow ready removal of any component for service or repair.			

4	The apparatus shall conform to the National Fire Protection Association Standard 1901 Automotive Fire Apparatus 2016 edition, unless otherwise specified in this document. Only the specified firefighting support equipment listed in these specifications shall be provided. If any items does not meet the requirements of NFAP 1901, 2016 ed. or items that are marked Required are not meet, the county may be considered theses items as "NO BID"			
5	The apparatus shall further conform to all Federal Motor Vehicle Safety Standards. No exception.			
6	Each bidder shall furnish satisfactory evidence of their ability to design, engineer, and construct the apparatus specified and shall state the location of the factory producing the apparatus. They shall also substantiate they are in a position to render prompt and proper service and to furnish replacement parts for the apparatus.			
7	Each bid must be accompanied by a set of detailed contractor's specifications consisting of a detailed description of the apparatus and equipment proposed. All bid proposal specifications must be in the same sequence as the advertised specification for ease of comparison. These specifications shall include size, location, type, and model of all component parts being furnished. Detailed information shall be provided on the materials used to construct all facets of the apparatus body.			
8	All bidders are required to detail the payment terms for apparatus on the bidder's proposal page. Any required prepayments or progress payments must be explained in detail.			
9	The following apparatus specifications are considered minimum design and construction standards against which the apparatus will be inspected. It is the intent to receive proposals on equipment/apparatus meeting the attached minimum specifications. Any variation from these specifications shall be stated on the bid proposal page, followed by a detailed "Letter of Exceptions" listing the areas of non-compliance. The reference must include page number, paragraph, and the exact nature of the exception.			
10	The County may add the statement "No Exception" to a component or design feature in these specifications. In the interest of fleet conformity or specific performance requirements, the Purchaser will not permit exceptions taken to these item(s). The Purchaser reserves the right to reject any or all bid proposals and purchase the equipment it deems most suitable to its needs.			
11	For ease in evaluating proposals, the bidder must return this supplied specification indicating in the "Bidder Complies" column to the right side of the page whether or not their proposal complies with the minimums set forth. The contractor's detailed proposal specification shall be submitted in the same sequence as these supplied specifications.			

Definitions

12	Required-These requirements are considered firm and alternatives will not be considered at this time. If required specifications are not met as defined they may be considered non-responsive.			
13	Preferred- These requirements are considered preferred, but equivalent or better-than alternatives will be evaluated. Preferred items must be equivalent of better than what is specified and should represent a savings over the specified specification.			

14	Acceptable- These requirements are representative of the performance and quality required, alternatives determined to meet these requirements will be acceptable. Acceptable specifications may be substituted without savings.			
15	All alternatives must be appropriately documented by the proposing organization. The acceptability of the alternative is at the sole discretion of Cherokee County.			

ISO Compliance

16	The Cherokee County Fire and Rescue Agency believes that a strong quality program and quality culture are responsible for sound vehicle and apparatus designs and well made products that are consistently compliant to with internal controls and customer specifications. While ISO 9001:2015 registration is preferred for suppliers of vehicles and apparatus due to its well defined and comprehensive requirements as well as its third party audit program, it is not essential for organizations to hold such a certification in order to provide proposals and be considered for award. Non-ISO proposing organizations possessing well developed and documented quality programs shall submit evidence of such for the County's review. The Agency reserves the right to evaluate organization's quality programs and make a determination of acceptability of such a program's capacity to design and build products consistent with that necessary to reasonably assure that products conform with the design and performance specifications contained herein.			
17	The manufacturer's quality systems shall consist of, but not be limited to, all written quality procedures (aka QOP) and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts products or processes. In addition, all apparatus assembly processes shall be documented for traceability and reference. The manufacturer shall also engage the services of a certified third party for testing purposes where required.			
18	If the manufacturer operates more than one manufacturing facility each facility must be ISO certified.			
19	By virtue of its ISO compliance the manufacturer shall provide an apparatus that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.			
20	A copy of the manufacturer's certificate of ISO compliance for each manufacturing facility shall be provided with the bid.			

Single Source Manufacturer

21	In order to protect the Purchaser from divided responsibility between chassis and body manufacturers, proposals will only be accepted from apparatus builders who engineer, design, and manufacturer the complete apparatus.			
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Service Requirements

22	Each bidder shall supply, with their proposal, detailed information on the bidder's ability to perform routine and emergency service on the apparatus after delivery. Detailed information shall be provided on service facilities, personnel, service vehicles, and the type and nature of repair work the bidder is able to provide. Bidder shall state the number of miles from the Purchaser's facility to the nearest fully staffed repair facility operated by the bidder. It is the intent of the Purchaser to assure that parts and service are readily available for the equipment specified. Service capabilities will be one of the criteria for award of this contract.			
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Delivery

23	The bidder shall state the time required for delivery of the completed unit on the proposal page. The completed unit shall be delivered to the purchaser with full instructions provided to Fire Department personnel on operation, care and maintenance of apparatus at the purchaser's location.			
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Apparatus Construction and Material Evaluation

24	Failure to respond to any of the below questions may result in the bidder's proposal being considered non-responsive and may result in rejection of the bid.	Required		
25	Brand Name and Model Type:	Required		
26	Manufacturer Location:	Required		
27	Have any exceptions to the specifications been taken?	Required		
28	Does the apparatus manufacturer fabricate and build the following items in their factory? If "NO"; please indicate where they are built and specifically by whom?	Required		
a	Chassis If NO, Where? _____ and by Whom? _____			
b	Cab If NO, Where? _____ and by Whom? _____			
c	Body If NO, Where? _____ and by Whom? _____			

NFPA Compliance

29	The supplied components of the apparatus shall be compliant with NFPA 1901, 2016 edition.	Required		
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Pre-Construction Conference

30	A pre-construction conference shall be performed at the factory prior to the commencement of manufacturing. All expenses for four (4) Cherokee County personnel shall be paid for by the successful bidder. If the factory is more than 400 miles from 150 Chattin Dr. Canton, GA 30115, commercial airfare shall be provided.	Required		
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Final Inspection

31	A final inspection shall be performed at the factory prior to delivery. All expenses for four (4) Cherokee County personnel shall be paid for by the successful bidder. If the factory is more than 400 miles from 150 Chattin Dr Canton Ga. 30115, commercial airfare shall be provided.	Required		
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MAXIMUM OVERALL HEIGHT

32	The maximum overall height of the apparatus shall be 11 feet	Preferred		
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MAXIMUM OVERALL LENGTH

33	The maximum overall length of the apparatus shall be approximately 33 feet	Required		
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Front Bumper

34	The vehicle shall be equipped with a one-piece 10" high bumper painted to match the color of the engine. It shall be mounted directly to the front frame extensions for maximum strength.	Required		
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Bumper Extension

35	The bumper extension shall be approximately 20" from the face of the cab. The bumper shall be design to hold 200' of 1 3/4 inch fire hose with nozzle and a large diameter intake on officer's side of truck recessed in the bumper.	Required		
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Frame Rail Construction

36	The frame shall be designed to provide a robust and ridged structure from which the vehicle can be supported. The proposing organization shall provide a detailed description of the design and manufacturing approach to ensure adequate strength for this application as well as longevity.	Required		
37	Material: 110,000-psi minimum yield strength, high strength, low alloy steel	Acceptable		
38	Resistance to Bending Moment (RBM): 1,827,045 in. lbs. minimum	Acceptable		
39	The apparatus manufacturer shall supply a full lifetime frame warranty including cross-members against defects in materials or workmanship	Required		
40	The front end shall be aligned by the approved local vendor of the fire department. Cost of this service to be included with the proposal.	Preferred		

Rear Underbody Support Frame

40	The body shall be supported at the rear by a steel frame extension bolted to the chassis frame rails.	Preferred		
41	The frame extension shall not interfere with N.F.P.A. minimum requirements for angle of departure.	Required		

Front Axle

42	The vehicle shall utilize an Arvin Meritor FL-941 front axle with a rated capacity of 20,000 lbs. It shall have "easy steer" knuckle pin bushings and 68.5" kingpin centers. The axle shall be of I-beam construction and utilize grease-lubricated wheel bearings. The vehicle shall have a nominal cramp angle of 45 degrees, plus two (+ 2) degrees to minus three (- 3) degrees including front suction applications.	Preferred		
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Front Shock Absorbers

43	The front suspension shall be furnished with two (2) heavy duty, double acting shock absorbers, one (1) on each side.	Preferred		
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Front Axle Oil Seals

44	The front axle shall have Stemco oil seals with sight glass to check the lubricant level of the axle spindles.	Preferred		
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Rear Axle

45	The vehicle shall be equipped with an Arvin Meritor RS-25-160 single rear axle with single-reduction hypoid gearing and a manufacturer`s rated capacity of 27,000 lbs. The axle shall be equipped with oil-lubricated wheel bearings with ArvinMeritor oil seals.	Preferred		
46	A 2-year/unlimited miles parts and 2-year labor rear axle warranty shall be provided as standard by ArvinMeritor Automotive.	Preferred		

Rear Suspension

47	The rear suspension shall be a pair of linear-rate leaf springs with auxiliary "helper" leaf springs and bronze bushings. The variable-rate springs with auxiliary springs ensure that the vehicle rides and handles smoothly under both loaded and unloaded conditions. The suspension shall be rated for the maximum axle capacity.	Preferred		
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Front Wheel Trim Package

48	The front wheels shall have stainless steel lug nut covers (chrome plated steel lug nut covers not acceptable). The front axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel universal baby moons. All stainless steel baby moons shall carry a lifetime warranty plus a 2 year re-buffing policy. There shall be two (2) baby moons and twenty (20) lug nut covers.	Preferred		
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Rear Wheel Trim Package, Single Axle

49	The rear wheels shall have stainless steel lug nut covers (chrome plated steel lug nut covers not acceptable), or American made chrome plated plastic lug nut covers. The rear axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel, spring clip band mount high hats, DOT user friendly. All stainless steel high hats shall carry a lifetime warranty plus a 2 year re-buffing policy. There shall be two (2) high hats and twenty (20) lug nut covers.	Preferred		
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Front Wheels

50	The vehicle shall have two (2) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.	Preferred		
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Rear Wheels

51	The vehicle shall have four (4) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.	Preferred		
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Front Tires

52	Tires with wheels shall have a weight capacity and speed rating of 18,000 lbs. @ 68 MPH	Required		
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Rear Tires

53	The tires with wheels shall have a maximum weight and speed capacity of 27,000 lbs. (dual) @ 75 MPH.	Required		
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Tire Pressure Indicators

54	The apparatus shall be provided with Real Wheels AirGuard LED tire pressure indicating valve stem caps. When the tire is under inflated by 8 PSI, the LED indicator on the cap shall flash red. The indicator housings shall be shock resistant and constructed from polished stainless steel. The batteries shall be replaceable and the indicators easily re-calibrated.	Preferred		
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Front Brakes

55	The front brakes shall be (Meritor EX225H, disc type with automatic pad wear adjustment and 17.00" ventilated rotors	Required		
56	The brakes shall be covered by the manufacturer`s standard warranty which is three years, unlimited mileage and parts only.	Preferred		

Rear Brakes

57	The rear brakes shall be Meritor Model EX225H disc and a 17.00" ventilated rotor.	Required		
58	The brakes shall be covered by the manufacturer`s standard warranty which is three years, unlimited mileage and parts only.	Preferred		

Brake System

59	The vehicle shall be equipped with air-operated brakes and an anti-lock braking system (ABS). The brake system shall meet or exceed the design and performance requirements of the current Federal Motor Vehicle Safety Standard (FMVSS)-121, and the test requirements of the NFPA 1901 Standard 2016 edition.	Required		
60	A dual-treadle brake valve shall correctly proportion the braking power between the front and rear systems. The air system shall be provided with a rapid pressure build-up feature, designed to meet current NFPA 1901 2019 ed. requirements, to allow the vehicle to begin its emergency response as quickly as possible.	Required		

61	A pressure-protection valve shall be installed to prevent use of the air horns or other air-operated devices should the air system pressure drop below 85 psi. This feature is designed to prevent inadvertent actuation of the emergency/parking brakes while the vehicle is in motion.	Required		
62	Two (2) air pressure needle gauges, one (1) each for front and rear air pressure, with a warning light and buzzer shall be installed at the driver`s instrument panel.	Preferred		
63	Air Tank Capacities (in Cubic Inches):	Preferred		
a	Wet: 1,738			
b	Front: 1,738			
c	Rear: 1,738			
d	Total: 5,214			
64	A four-channel Wabco ABS shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to both front and rear axles. All electrical connections shall be environmentally-sealed for protection against water, weather, and vibration.	Preferred		
65	The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall detect approaching wheel lock-up and instantly modulate (or pump) the brake pressure up to five (5) times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual-circuit design configured in a diagonal pattern. Should a malfunction occur in one circuit, that circuit shall revert to normal braking action. A warning light at the driver`s instrument panel shall signal a malfunction.	Preferred		
66	The system shall also be configured to work in conjunction with all auxiliary engine, exhaust, or driveline brakes to prevent wheel lock-up.	Preferred		
67	To improve maintenance troubleshooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started, and a dash-mounted light shall go out once the vehicle is moving above 4 MPH.	Preferred		
68	A 3 year/300,000 mile parts and labor Anti-Locking Braking System (ABS) warranty shall be provided as standard by Meritor Automotive.	Preferred		

Parking Brake

69	One (1) Bendix-Westinghouse PP-5 parking brake control valve shall be supplied on the lower dash panel within easy reach of the driver.	Preferred		
70	An all-wheel lock-up system shall be installed which applies air to the front and rear brakes when the parking break is engaged.	Required		

Air Dryer

71	The air dryer shall be a (WABCO System Saver 1200 IWT), with internal wet tank, spin-on coalescing filter cartridge and 100-watt heater.	Preferred		
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Air Inlet

72	One (1) air inlet with male coupling shall be provided. It shall allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet shall be located forward in the driver side lower step well of cab. A check valve shall be provided to prevent reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system. A mating female fitting shall also be provided with the loose equipment.	Preferred		
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Air Lines

73	Air brake lines shall be constructed of color coded nylon tubing routed in a manner to protect them from damage. Brass fittings shall be provided.	Preferred		
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Air Horns

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

75	A push-button transmission shift module, Allison model 29538373, shall be located to the right side of the steering column within easy reach of the driver. The shift position indicator shall be indirectly lit for after dark operation. The shift module shall have a "Do Not Shift" light and a "Service" indicator light. The shift module shall have means to enter a diagnostic mode and display diagnostic data including oil life monitor, filter life monitor, transmission health monitor and fluid level. A transmission temperature gauge with warning light and buzzer shall be installed on the cab instrument panel.	Required		
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Transmission Fluid

76	The transmission fluid shall be TransSynd synthetic.	Required		
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Vehicle Speed

77	The maximum speed shall be electronically limited to 68 MPH as required by NFPA 1901 2016 ed.	Required		
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Engine/Transmission Package**Engine**

78	The vehicle shall utilize a Cummins X12 For Emergency Vehicles:	Required		
a	500 Max. HP at 1900 rpm			
b	1700 lb.-ft. peak torque at 1000 rpm			
c	Six (6)-cylinder, charge air cooled, 4-cycle diesel			
d	720cu. in. displacement (11.9 liters)			
e	Interact System Controlled Viable Geometry Turbocharged			
f	Engine shall be equipped with Full-Authority Electronics			
g	Electronic Timing Control fuel system			
h	Fuel cooler (when equipped with a fire pump)			

i	Fleetguard fuel filter with integral water separator and water-in-fuel sensor approved by Cummins for the X12 engine			
j	Fleetguard Venturi Combo combination full-flow/by-pass oil filter approved by Cummins for the X12 engine			
k	Engine lubrication system, including filter, shall have a minimum capacity of 42 quarts			
l	Delco-Remy 39 MT-HD 12-volt starter			
m	Cummins 18.7 cubic foot per minute (cfm) air compressor min.			
n	Corrosion inhibitor additive for coolant system			
79	After treatment system consisting of a oxidation catalyst and diesel particulate filter and selective catalyist reduction system	Preferred		
80	Ember separator compliant with 2016 NFPA 1901 standard	Required		
81	The engine shall be compliant with current EPA Emission standards	Required		
82	A 5-year/100,000-miles parts and labor warranty shall be provided as standard by Cummins Bulletin 3381161.	Preferred		
83	A copy of the Engine Installation Review stating the engine installation meets Cummins recommendations shall be provided as requested. The engine installation shall not require the operation of any type of "power-down" feature to meet engine installation tests.	Required		

Transmission

84	The vehicle shall utilize an Allison EVS4000, electronic, automatic transmission.	Required		
85	A push button shift module shall be located right side of the steering column, within easy reach of the driver. The shift position indicator shall be indirectly lit for after-dark operation. The shift module shall have a "Do Not Shift" light and a "Service" indicator light that are clearly visible to the driver. The shift module shall have means to enter a diagnostic mode and display diagnostic data.	Required		
86	A transmission oil temperature gauge with warning light and buzzer shall be installed on the cab instrument panel to warn the driver of high oil temperatures that may damage the transmission.	Required		
87	The transmission shall have a gross input torque rating of 1850 lb.-ft. and a gross input power rating of 600 HP.	Required		
88	The gear ratios shall be:	Preferred		
a	1 - 3.51			
b	2 - 1.91			
c	3 - 1.43			
d	4 - 1.00			
e	5 - 0.74			
f	R - 4.80			
89	The transmission shall have an oil capacity of approximately 48 quarts and shall be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the driver.	Preferred		
90	A water-to-oil transmission oil cooler shall be provided to ensure proper cooling of the transmission when the vehicle is stationary (no air flow). Air-to-oil transmission oil coolers, which require constant air flow, are not acceptable.	Preferred		

91	The transmission shall be provided with two (2) engine-driven PTO openings.	Preferred		
92	The automatic transmission shall be equipped with a power lock-up device. The transmission lock-up shall prevent down shifting of the transmission when the engine speed is decreased during pump operations, thereby maintaining a constant gear ratio for safe operation of the pump. The transmission lock-up shall be automatically activated when the pump is engaged in gear. The transmission lock-up shall be automatically deactivated when the pump is disengaged for normal road operation.	Required		
93	A 5-year/unlimited miles parts and labor warranty shall be provided as standard by Allison Transmission.	Preferred		

Jacobs Engine Brake

94	One (1) Jacobs engine brake shall be installed to assist in slowing and controlling the vehicle as required by NFPA 1901 2016 ed. for vehicles with gross vehicle weight ratings (GVWR) of 36,000 lbs. or greater. An on-off control switch and a high-medium-low selector switch shall be mounted in the cab accessible to the driver.	Preferred		
95	When activated, the Jacobs engine brake shall cut off the flow of fuel to the cylinders and alter the timing of the exhaust valves. This shall transform the engine into a high-pressure air compressor, driven by the wheels, and the horsepower absorbed by the engine in this mode shall slow the vehicle. The selector switch allows the driver to select the amount of retarding power.	Required		
96	When the on-off switch is in the "on" position, the engine brake shall be automatically applied whenever the accelerator is in the idle position and the automatic transmission is in the lock-up mode. If the accelerator is depressed or if the on-off switch is placed in the "off" position, the engine brake shall immediately release and allow the engine to return to its normal function.	Preferred		

Transmission Programming

97	The transmission shall include the Allison 2nd gear Pre-Select feature. This option will direct the transmission to down shift to second gear when the throttle is released and the Jacobs engine brake (or Telma retarder wired to activate with release of throttle) is engaged. This feature is designed to increase brake life and aid vehicle braking.	Preferred		
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Silicone Hoses

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

99	The system shall include a charge air cooler to ensure adequate cooling of the turbocharged air for proper engine operation and maximum performance.	Preferred		
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Charge Air Cooler Hoses

100	Charge air cooler hoses shall be made from high-temperature, wire-reinforced silicone to withstand the extremely high temperatures and pressures of the turbocharged air. The hoses shall incorporate a flexible hump section to allow motion and misalignment of the engine relative to the charge air cooler. Charge air cooler hose clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.	Preferred		
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Transmission Cooler

101	The cooling system shall include a liquid-to-liquid transmission cooler capable of cooling the heat generated from the transmission. When a transmission retarder is selected, the cooler shall have an increased capacity to handle the additional heat load.	Preferred		
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Fuel System

102	The fuel capacity shall allow the engine to drive the pump for 2 1/2 hours at rated pump capacity at 150 psi net pump pressure and at the suction conditions specified in this standard or to operate at 60 percent of gross engine horsepower for 2 1/2 hours, whichever is greater	Required		
103	The filler neck shall extend to the rear of the vehicle and away from the heat of the exhaust system as required by NFPA 1901 2016 ed. Standard for Automotive Fire Apparatus. The open end of the filler neck shall be equipped with a twist-off filler cap with a retaining chain.	Required		
104	The tank shall be plumbed with top-draw and top-return fuel lines in order to protect the lines from road debris. Bottom-draw and/or bottom-return fuel lines are not acceptable. A vent shall be provided at the top of the tank. The vent shall be connected to the filler neck to prevent splash-back during fueling operations. A .50" NPT drain plug shall be provided at the bottom of the tank.	Preferred		

320 Amp Alternator

105	The alternator shall be a 320amp Leece Neville	Preferred		
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Battery System

106	The manufacturer shall supply four (4) heavy duty Group 31 12-volt maintenance-free batteries. Each battery shall be installed and positioned so as to allow easy replacement of any single battery. Each battery shall be equipped with carrying handles to facilitate ease of removal and replacement. There shall be two (2) steel frame mounted battery boxes, one (1) on the left frame rail and one (1) on the right frame rail. Each battery box shall be secured to the frame rail with Grade 8 hardware. Each battery box shall hold (2) batteries. The batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections. The battery stud terminals shall each be treated with concentrated industrial soft-seal after cable installation to promote corrosion prevention. The positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification.	Preferred		
107	Batteries shall be placed on non-corrosive rubber matting and secured with hold-down brackets to prevent movement, vibration, and road shock. The hold-down bracket J-hooks shall be cut to fit and shall have all sharp edges removed. The batteries shall be placed in plastic trays to provide preliminary containment should there be leakage of hazardous battery fluids. There shall be two (2) plastic trays, each containing (2) batteries. Each battery tray shall be equipped with a rubber vent hose to facilitate drainage. The rubber vent hose shall be routed to drain beneath the battery box. The batteries shall be positioned in well-ventilated areas.	Preferred		
108	One (1) positive and one (1) negative jumper stud shall be provided below the driver's door	Preferred		
109	Batteries shall have a warranty of twelve (12) months that shall commence upon the date of delivery of the apparatus.	Preferred		

Rear Tow Eyes

110	Two (2) heavy duty tow eyes made of 3/4" (0.75") thick steel having 2-1/2" diameter holes shall be mounted below the body at the rear of the vehicle to allow towing of the apparatus without damage. The tow eyes will be welded to the lower end of a 5" steel channel that is bolted at the end of the chassis frame rails. The tow eyes shall be painted chassis black.	Preferred		
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Front Tow Hooks

111	Two (2) heavy duty painted front tow hooks shall be securely bolted to the front chassis frame rail extensions to allow towing of the apparatus without damage. They shall be mounted in the downward position.	Preferred		
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DEF Tank

112	A diesel exhaust fluid (DEF) tank with a five (5) gallon capacity shall be provided.	Preferred		
113	The DEF tank shall include a heater fed by hot water directly from the engine block to prevent the DEF from becoming too cool to operate correctly per EPA requirements. The tank shall include a temperature sensor to control the heater control valve that controls the feed of hot water from the engine to the DEF tank heater.	Preferred		

114	A sender shall be provided in the DEF tank connected to a level gauge on the cab dash.	Preferred		
115	The tank shall be located left side below rear of cab.	Preferred		

Cab

116	The cab shall be designed specifically for the fire service and manufactured by the chassis builder.	Required		
117	For reasons of structural integrity and enhanced occupant protection, the cab shall be a heavy-duty design, constructed to meet the most current cab integrity certification. Certification to be provided with the bid.	Preferred		
118	The crew cab section shall have a 12.00" raised roof.	Preferred		
119	The crew cab shall be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.	Preferred		

Cab Exterior

120	Front axle fenderette trim shall be brushed aluminum for appearance and corrosion resistance. Bolt-in front wheel well liners shall be constructed of a material to provide a maintenance-free, damage-resistant surface that helps protect the underside of the cab structure and components from stones and road debris.	Preferred		
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Cab Mounts and Cab Tilt System

121	The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements.	Preferred		
122	An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one (1) on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation.	Preferred		
123	Safety flow fuses (velocity fuses) shall be provided in the hydraulic lift cylinders to prevent the raised cab from suddenly dropping in case of a burst hydraulic hose or other hydraulic failure. The safety flow fuses shall operate when the cab is in any position, not just the fully raised position.	Preferred		
124	The hydraulic pump shall have a manual override system as a backup in the event of an electrical failure. Lift controls shall be located in a compartment to the rear of the cab on the right side of the apparatus. A parking brake interlock shall be provided as a safety feature to prevent the cab from being tilted unless the parking break is set.	Preferred		
125	The entire cab shall be tilted through a 42-45 degree arc to allow for easy maintenance of the engine, transmission and engine components. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab.	Preferred		
126	In the lowered position, the cab shall be locked down by two (2) automatic, spring-loaded cab latches at the rear of the cab. A "cab ajar" indicator light shall be provided on the instrument panel to warn the driver when the cab is not completely locked into the lowered position.	Preferred		

Cab Interior

127	The interior of the cab shall be of the open design with an ergonomically-designed driver area that provides ready access to all controls as well as a clear view of critical instrumentation.	Preferred		
128	The engine cover between the driver and the officer shall be a low-rise contoured design to provide sufficient seating and elbow room for the driver and the officer. The engine cover shall blend in smoothly with the interior dash and flooring of the cab.	Preferred		
129	The rear portion of the engine cover shall be provided with a lift-up section to provide easy access for checking transmission fluid, power steering fluid, and engine oil without raising the cab. The engine cover insulation shall meet or exceed DOT standard MVSS 302-1 and V-0 (UI subject 94 Test).	Preferred		
130	Four (4) USB charging ports shall be included. Location of USB charging ports will be determined at pre-construction meeting.	Preferred		
131	Four (4) USB-C charging ports shall be included. Location of USB-C charging ports will be determined at pre-construction meeting.	Preferred		
132	Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab.	Preferred		
133	All exposed interior metal surfaces shall be pretreated using a corrosion prevention system.	Preferred		
134	The interior of the cab shall be insulated to ensure the sound (dba) level for the cab interior is within the limits stated in the current edition of NFPA 1901 2016 ed.	Required		
135	The overhead console and heater cover shall be covered with thermoformed, non-metallic, non-fiber trim pieces to provide scuff and abrasion resistance, as well as chemical stain resistance. The thermoformed material shall comply with Federal Motor Vehicle Safety Standard (FMVSS) 302 for flammability of interior materials.	Preferred		
136	The vehicle shall use a seven-position tilt and telescopic steering column to accommodate various size operators. An 18" padded steering wheel with a center horn button shall be provided.	Preferred		
137	A full-width overhead console shall be mounted to the cab ceiling for placement of siren and radio heads, and for warning light switches. The console shall be made from a thermoformed, non-metallic material and shall have easily removable mounting plates.	Preferred		
138	Storage areas, with hinged access doors, shall be provided below the driver and officer seats (officer's seat shall be lockable). The driver side compartment shall be approximately 19.25" x 17.75" x 5.75" high and the officer side compartment shall be approximately 18.25" x 22.5" x 11" high.	Preferred		
139	The front cab steps shall be a minimum of 8" deep x 24" wide. The rear cab steps shall be a minimum 12" deep x 21" wide. The rear steps shall incorporate intermediate steps for easy access to the cab. The steps are to be located inside the doorsill, where they are protected against mud, snow, ice, and weather. The step surfaces shall be aluminum diamond plate with a multi-directional, aggressive gripping surface incorporated into the aluminum diamond plate in accordance with current NFPA 1901.	Preferred		

140	A black rubber grip handle shall be provided on the interior of each front door below the door window to ensure proper hand holds while entering and exiting the cab. An additional black rubber grip handle shall be provided on the left and right side windshield post for additional handholds.	Preferred		
141	There shall be cup holders located at each seat with expectation to the fold down seats	Preferred		

Cab Doors

142	There shall be reflective signs on each cab door.	Preferred		
143	Four (4) side-opening cab doors shall be provided.	Required		
144	The front doors shall open approximately 75 degrees, and the rear doors shall open approximately 80 degrees.	Preferred		
145	The doors shall be securely fastened to the doorframes with full-length, stainless steel piano hinges, that are corrosion resistance. Mounting hardware shall be treated with corrosion-resistant material prior to installation. For effective sealing, an extruded rubber gasket shall be provided around the entire perimeter of all doors.	Preferred		
146	Stainless steel paddle-style door latches shall be provided on the interiors of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening.	Preferred		
147	All windows shall have 75% light transmittance automotive safety tint. Full roll-down windows shall be provided for the front cab doors with worm gear drive cable operation for positive operation and long life.	Preferred		

Cab Instruments and Controls

148	Two (2) pantograph-style windshield wipers with two (2) separate electric motors shall be provided for positive operation. Air-operated windshield wipers are not acceptable because of their tendency to accumulate moisture, which can lead to corrosion or to freezing in cold weather. The wipers shall be a wet-arm type with a one (1) gallon washer fluid reservoir, an intermittent-wipe function, and an integral wash circuit.	Preferred		
149	Cab controls shall be located on the cab instrument panel in the dashboard on the driver's side where they are clearly visible and easily reachable. Emergency warning light shall be controlled by two (2) Weldon Vista IV units located on driver and officer side. The mounting location will be determined at pre-construction meeting.	Preferred		
150	The following gauges and/or controls shall be provided:	Required		
a	• Master battery switch/ignition switch (rocker with integral indicator)			
b	• Starter switch/engine stop switch (rocker)			
c	• Heater and defroster controls with illumination			
d	• Marker light/headlight control switch with dimmer switch			
e	• Self-canceling turn signal control with indicators			
f	• Windshield wiper switch with intermittent control and washer control			
g	• Master warning light switch			
h	• Transmission oil temperature gauge			
i	• Air filter restriction indicator			

j	• Pump shift control with green "pump in gear" and "o.k. to pump" indicator lights			
k	• Parking brake controls with red indicator light on dash			
l	• Automatic transmission shift console			
m	• Electric horn button at center of steering wheel			
151	• Cab ajar warning light on the message center enunciator			
151	Controls and switches shall be identified as to their function by backlit wording adjacent to each switch, or indirect panel lighting adjacent to the controls.	Required		

Fast Idle System

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

153	The cab and chassis system shall have a centrally located electrical distribution area. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An automatic thermal-reset master circuit breaker compatible with the alternator size shall be provided. Automatic-reset circuit breakers shall be used for directional lights, cab heater, battery power, ignition, and other circuits. An access cover shall be provided for maintenance access to the electrical distribution area.	Preferred		
154	All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color-coded and functionally-labeled every 3" on the outer surface of the insulation for ease of identification and maintenance. The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather-resistant. All harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion.	Preferred		
155	A Vehicle Data Computer (VDC) shall be supplied within the electrical system to process and distribute engine and transmission Electronic Control Module (ECM) information to chassis system gauges, the message center, and related pump panel gauges. Communication between the VDC and chassis system gauges. The VDC shall be protected against corrosion, excessive heat, vibration, and physical damage.	Required		
156	There shall be dual rectangular LED headlights installed on the front of the cab, one (1) on each side, mounted in a polished chrome-plated bezel. The low beam headlights shall activate with the release of the parking brake to provide daytime running lights (DRL) for additional vehicle conspicuity and safety. The headlight switch shall automatically override the DRL for normal low beam/high beam operation.	Preferred		
157	A Kussmaul PDS-100 power distribution system shall be provided and installed per the manufactures recommendations. The unit shall power the radio, the in vehicle router with air card, cellular booster, the key secure box, a power port for the MDT and other power ports to be determined at the per-bid meeting.	Preferred		

INTERCOM SYSTEM

158	There shall be a SOMETICS/FIRECOM wireless intercom system consisting of, four (4) wireless under the helmet headsets item number UHW505 (radio transmit FH, DECT7 Headset), item number WB505R (wireless base station 5-users radio transmit) item number 5100D (DIGITAL INTERCOM 1 RADIO FireCom GA), item number 110-5136-30 (MR-52X,MOTOROLA, 4 FT. Motorola XTL-5000) and item number 108-0678-00 (HANGER HOOK, YELLOW NFPA FOR HEADSET). All headsets shall interface with the radio	Preferred		
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RADIO / INTERCOM INTERFACE

159	The radio interfaced stations shall have universal radio interfaces installed. The interface wiring shall be routed within the cab to instrument panel area. ALL HEADSETS SHALL HAVE RADIO TALK CAPABILITIES	Preferred		
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Radio

160	Successful bidder shall install a power supply and coax for one (1) Motorola APX 8500 Dual Band radio. Exact location will be determined at the per-bid meeting.	Required		
161	BLANK			

Antenna Base

162	The antenna shall be located driver side	Preferred		
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Cab Crashworthiness Requirement

163	The fire apparatus manufacturer shall provide a cab crash test certification with this proposal. The certification shall state that a specimen representing the substantial structural configuration of the cab has been tested and certified by an independent third party test facility. Testing events shall be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap.	Preferred		
164	Testing shall meet or exceed the requirements:	Required		
a	European Occupant Protection Standard ECE Regulation No.29			
b	SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.			
c	SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.			
d	The cab shall be subjected to a roof crush force of 22,500 lb. This value meets the ECE 29 criteria and is equivalent to the front axle rating up to a maximum of ten (10) metric tons.			
e	The same cab shall be subjected to dynamic preload where a 13,275-lb moving barrier is slammed into the side of the cab at 5.50 mph, striking with an impact of 13,000 ft-lb of force. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab shall see in a rollover incident.			
f	The same cab shall withstand a frontal impact of 32,600 ft-lb of force using a moving barrier in accordance with SAE J2420.			
g	The same cab shall withstand a frontal impact of 65,200 ft-lb of force using a moving barrier. (Twice the force required by SAE J2420)			
h	The same cab shall withstand all tests without any measurable intrusion into the survival space of the occupant area.			

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 Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers shall survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles. The bidder shall certify that the wiper system design has been tested and that the wiper system has met these criteria

Raised Roof

165	The rear portion of the cab roof shall be raised 12". This will provide at least 5` 7" standing room. The front of the vista hood shall be sloped at 45 degrees from the vertical. The slope shall begin slightly in front of the centerline of the front axle to leave room for warning lights and air conditioning in front of the vista. The main roof extrusion shall extend up into the vista to strengthen the roof perimeter. Windows shall be provided on front, side, and rear unless otherwise specified.	Preferred		
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GRILLE

166	The front cooling air intake grille shall be constructed of stainless-steel mesh with a US Flag Logo and a red line	Preferred		
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Rear Cab Door Position

167	The cab rear doors shall be to the rear of the wheel opening. This door placement facilitates easier entry and egress by reducing the rear facing seat protrusion into the door opening.	Preferred		
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Cab Front Door Windows

168	Driver and officer door windows shall have the support pillar located toward the front of the window. There shall be a vent that can be opened and closed within the window itself, located towards the front.	Preferred		
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Cab Front Windows

169	The front windows of the cab shall be electrically operated to raise and lower.	Preferred		
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Cab Door Rear Windows

170	The rear windows of the cab shall be manually operated to raise and lower.	Preferred		
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Cab Door Locks

171	Each cab door shall have a manually operated door lock actuated from the interior of each respective door. Exterior of each cab door shall be provided with a barrel style keyed lock below the cab door handle.	Preferred		
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Exterior Cab Door Latches

172	All exterior cab door latches shall be paddle style.	Preferred		
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Cab Door Panels

173	The cab door panels shall incorporate an easily removable panel for access to the latching mechanism for maintenance or service.	Preferred		
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Cab Door Area Lighting

174	There shall be four (4) clear LED lights provided to illuminate the cab step well area. Each light shall be located on each cab door in the inboard position. Each light shall be activated by the cab door ajar circuit.	Preferred		
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Cab Door Reflective Material

175	Reflective Red/Lemon Yellow material striping shall be supplied on each of the lower cab doors. The stripes shall be angled from the lower outer corner to the upper inside corner, forming an "A" shape when viewed from the rear.	Preferred		
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Cab Mirrors

176	Mirrors shall be dual vision, motorized, motorcoach style mirror, with chrome finish. The flat glass and convex glass shall be heated and adjustable with remote control within reach of the driver. The convex mirror shall be a separate piece located above the main mirror.	Preferred		
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Cab Canopy Window

178	There shall be a fixed window provided between the front and rear doors on the driver's side of the cab.	Preferred		
179	Window dimensions shall be approximately 26"W x 24"H	Preferred		

Front Mud Flaps

180	Black linear low density polyethylene (proprietary blend) mud flaps shall be installed on the rear of the cab front wheel wells. The design of the mud flaps shall have corrugated ridges to distribute water evenly.	Preferred		
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Handrails

181	Cab door assist handrails shall consist of two (2) 1.25" diameter x 18" long tubes mounted directly behind the driver and officer door openings one each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2" from the mounting surface to allow a positive grip with a gloved hand.	Preferred		
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Heat, Air Conditioning and Defroster

182	A high performance, customized heat and air conditioning system shall be furnished inside the cab and crew cab.	Required		
183	The heating system shall be capable of heating the cab during extreme weather conditions that may exist in the Northern Georgia area. The heater shall be capable of heating the cabin to 75 degrees Fahrenheit within 30 minutes when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours. The heaters shall include high performance dual scroll blowers, one (1) for each unit.	Required		

184	The defroster shall be capable of defrosting applicable windows during extreme weather conditions that may exist in the Northern Georgia area. The defroster unit shall be strategically located under the center forward portion of the instrument panel. 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 be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system shall meet or exceed SAE J382 requirements.	Required		
185	The heater/defroster and crew cab heaters shall be controlled by a single integral electronic control panel. The heater control panel shall allow the driver to control heat flow to the front and rear simultaneously. 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 highly visible, indicators for both fan speed and temperature.	Preferred		
186	The air conditioning system shall be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit within 10 minutes at 65 percent relative humidity. The cooling performance test shall be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.	Required		
187	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.	Preferred		
188	The refrigerant lines shall be multiple section with each section not to exceed 8 feet for maintenance	Preferred		

Seating

189	All seats shall be H.O. Bostrom brand.	Preferred		
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Seat, Driver

190	A H.O. Bostrom Sierra Defender A350, air suspension high back seat shall be provided in the cab for the driver. For increased convenience, the seat shall include a manual control to adjust the horizontal position (5.50" travel). To provide flexibility for multiple driver configurations, the seat shall have a reclining back, adjustable from 15 degrees back to 45 degrees forward	Preferred		
191	All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.	Preferred		

Seat, Officer

192	A H.O. Bostrom Tanker 500 Series, SCBA fixed seat shall be provided in the cab for the officer. For optimal comfort, the seat shall be provided with 17.00" deep cushion The preferred seat back shall be an SCBA back style with a 5 degree fixed recline angle. The SCBA cavity shall be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.	Preferred		
193	All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.	Preferred		

Seat, Rear Facing

194	The tow (2) HO Bostrom Tanker 500 Series, SCBA seat shall be provided in the crew cab. For optimal comfort, the seat shall be provided with 17.00" deep cushion.	Preferred		
195	The preferred seat back shall be an SCBA back style with a 5 degree fixed recline angle. The SCBA cavity shall be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location. The seats shall be furnished with a 3-point, shoulder type seat belt	Preferred		
196	All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.	Preferred		

Seat Fabric Color

197	All seats shall have a heavy duty gray in color fabric.	Preferred		
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Seating Capacity Tag

198	A tag that is in view of the driver stating seating capacity of six (6) personnel shall be provided.	Required		
199	Two(2) fold down jump seat shall be provided.	Preferred		
200	The seat shall be located on the rear wall driver's side outboard, officer's side outboard.	Preferred		
201	Features to include:	Preferred		
a	• Seat bottom cushion shall be constructed of high density foam with a heavy duty, wear resistant material.			
b	• Seat bottom automatically folds up when not in use to provide increased room in the rear of the cab.			
202	All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.	Preferred		

Seat Cover Material

203	All seats shall have Vinyl seat cover material.	Preferred		
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Medical Cabinet

204	There shall be a medical storage cabinet provided at the back wall of the interior of the cab, between outboard seats. The medical cabinet shall be approximately 48" high x 40" wide x 20" deep interior.	Preferred		
205	Three (3) vertically adjustable shelves shall be provided and installed in the medical cabinet. Each shelf shall have a 1" front for added strength and reinforcement. The shelves shall be sized to the interior dimensions of the medical cabinet.	Preferred		
206	There shall be a locking roll-up door provided to secure contents.	Preferred		
207	A Blue Sea System ST Blade Fuse Block- 6 Circuit with Negative Bus with Cover and 110 volt power supply shall be installed in cabinet. The mounting locations to be determined at pre-construction meeting.	Preferred		

Medical Storage Cabinet Finish

208	The medical storage cabinet(s) shall have a Zolatone (or equivalent) gray finish. The finish shall be applied to the interior, exterior, shelves (if equipped) and trays (if equipped) of the cabinet.	Preferred		
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Medical Cabinet Doors

209	All medical cabinets on the custom cab shall be ROM Series IV roll-up type doors.	Preferred		
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Cab Interior Color

210	Cab instrument panel, overhead console, trim panels, headliner, and door panels shall be gray.	Preferred		
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Sun Visors

211	Lexan sun visors shall be provided for the driver and officer matching the interior trim of the cab and shall be flush mounted into the underside of the overhead console.	Preferred		
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Cab Dash

212	A hinged access panel shall be provided on top of the center dash to provide easy access to components within.	Preferred		
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CAB DASH PASSENGER SIDE

213	One (1) additional speedometer shall be installed on the passenger seat and shall be visible and readable from the front passenger seat.	Required		
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Engine Cover

214	The engine cover shall blend in smoothly with the interior dash and flooring of the cab. The upper left and right sides shall have a sloped transition surface running front to rear providing increased space for the driver and officer.	Preferred		
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Cab Dome Lights

215	A LED dome light assembly with one (1) white lens and one (1) red lens and plastic housing shall be installed. The white light activates with appropriate cab door and light assembly switch, the red light activates with light assembly mounted switch only.	Preferred		
216	There shall be two (2) mounted in the front of the cab, one (1) in the driver and one (1) in the officer ceiling.	Preferred		
217	There shall be two (2) mounted in the rear of the cab, one (1) in the driver side and one (1) in the officer side ceiling.	Preferred		

MDT Mount

218	A Havis DS-DELL-422-3 Docking Station for a Dell 5420 Notebooks with Advanced Port Replication, Triple Pass-Thru Antenna Connections & LIND Power Supply shall be installed using a Havis C-MD-114 11" Slide Out Locking Swing Arm and respective equipment. The mounting location will be determined at pre-construction meeting.	Required		
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DPF Regeneration Override

221	An override switch shall be provided for the Diesel Particulate Filter (DPF) regeneration. The switch will inhibit the regeneration process until the switch is reset or the engine is shut down and restarted. The switch shall be located within reach of the driver.	Preferred		
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English Dominant Gauge Cluster

222	The cab operational instruments shall be located in the dashboard on the driver side of the cab and shall be clearly visible. The gauges in this panel shall be English dominant and shall be the following:	Required		
a	• Speedometer/Odometer			
b	• Tachometer with integral hour meter			
c	• Engine oil pressure gauge with warning light and buzzer			
d	• Engine water temperature gauge with warning light and buzzer			
e	• Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)			
f	• Fuel gauge			
g	• Voltmeter			
h	• Transmission oil temperature gauge			
223	This panel shall be backlit for increased visibility during day and night time operations.	Preferred		

Cab Turn Signals

224	The front turn signals shall be Federal model FR6-ARROW	Preferred		
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Battery Charger Location

225	The battery charger shall be located behind driver's seat.	Preferred		
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Customer Supplied Antenna

226	The customer supplied external GPS antenna shall be mounted on the cab roof. The antenna shall be located between quadrant #5 and #6 rearward (centered side to side) with coaxial cable terminating upper section of rear wall medical cabinet.	Preferred		
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Battery Charger

227	There shall be a Kussmaul, Model LPC 40, or equivalent, part number 091-200-12-IND battery charger installed per manufactures speciation's	Required		
228	There shall be two (2) 120 volt outlet install in the rear compartments powered via the shoreline only.	Required		
229	Exact mounting location to be determined at pre-construction meeting.	Required		

AUTO EJECT FOR SHORELINE

230	There shall be one (1) Kussmaul™, Model 091-55-20-120, 20 amps 120-volt AC shoreline inlet, or equivalent provided to operate the dedicated 120-volt AC circuits on the apparatus.	Required		
231	The shoreline inlet shall include a red weatherproof flip up cover.	Preferred		
232	There shall be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.	Required		
233	The shoreline receptacle shall be located on the driver side of cab, above wheel.	Preferred		
234	There shall be a label installed near the inlet that state the following:	Required		
a	Line Voltage			
b	Current Rating (amps)			
c	Phase			
d	Frequency			

Driver Side Compartments

235	The compartments shall be modular in design and shall not be a part of the body support structure.	Preferred		
236	There shall be one (1) compartment located ahead of the rear wheels. This compartment shall be approximately 42" wide x 68" high x 26" deep in the lower 57" high section and 12" deep in the upper 11" high section. The compartment shall contain approximately 39 cu. ft. of combined storage space. The door opening shall be approximately 42" wide x 68" high.	Preferred		
237	There shall be one (1) compartment located over the rear wheel. This compartment shall be approximately 56" wide x 34" high x 26" deep in the lower 23" high section and 12" deep in the upper 11" high section and contain approximately 23.6 cu. ft. of storage space. The door opening shall be approximately 56" wide x 34" high. There shall be two (2) tool board installed. Tool board shall have a carrying capacity of 500lbs and be self locking. A Blue Sea System ST Blade Fuse Block- 6 Circuit with Negative Bus and Cover shall be installed in the compartment. The mounting location to be determined at pre-construction meeting.	Preferred		

238	There shall be one (1) compartment located behind the rear wheel. The compartment shall be approximately 56" wide x 68" high. The forward area of the compartment shall be approximately 42" wide x 68" high x 26" deep in the lower 57" high section and 12" deep in the upper 11" high section. The enhanced extended rear portion of the compartment shall be approximately 14" wide x 68" high x 24" deep in the lower 57" high section and 11" deep in the upper 38" high section. The total combined storage space shall be approximately 51.7 cu. ft. The door opening shall be approximately 56" wide x 68" high.	Preferred		
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Officer Side Compartments

239	The compartments shall be modular in design and shall not be a part of the body support structure.	Preferred		
240	There shall be one (1) compartment located ahead of the rear wheel. The compartment shall be approximately 42" wide x 68" high x 26" deep in the lower 30" high section and 12" deep in the upper 38" high section. The compartment shall contain approximately 30 cu. ft. of combined storage space. The door opening shall be approximately 42" wide x 68" high.	Preferred		
241	There shall be one (1) compartment located over the rear wheel. The compartment shall be approximately 56" wide x 34" high x 12" deep and contain approximately 13.2 cu. ft. of storage space. The door opening shall be approximately 56" wide x 34" high. A Blue Sea System ST Blade Fuse Block- 6 Circuit with Negative Bus and Cover shall be installed in the compartment. The mounting location to be determined at pre-construction meeting.	Preferred		
242	There shall be one (1) compartment located behind the rear wheel. The compartment shall be approximately 56" wide x 68" high. The forward area of the compartment shall be 42" wide x 30" high x 26" deep in the lower area and 42" wide x 38" high x 12" deep in the upper area. The enhanced extended rear portion of the compartment shall be approximately 14" wide x 68" high x 24" deep in the lower 30" high section and 11" deep in the upper 38" high section. The total combined storage space shall be approximately 39.5 cu. ft. The door opening shall be approximately 56" wide x 68" high.	Preferred		

Storage Tunnel

243	The area directly behind the upper area of the officer side compartments shall be for the storage of NFPA equipment.	Preferred		
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Rear Body Compartment

244	The compartment shall be modular in design and shall not be a part of the body support structure.	Preferred		
245	The compartment shall be approximately 38" wide and shall be 68" in height and 27" in depth.	Preferred		

Storage Compartments

246	A storage compartment shall be provided at the rear body compartment. The storage compartment shall be located to the officer side of the rear compartment.	Preferred		
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247	The storage compartment shall be approximately 13" wide x 29" high x length of side assembly. The storage compartment shall store NFPA equipment.	Preferred		
248	The storage compartment shall include a vertically hinged door to secure contents. The door shall have a push-button style latch. The compartment door shall be securely attached with a full-length stainless steel piano type hinge with 1/4" pin (outboard standard design, inboard when rear body includes beaver tail). The hinge shall be "staked" on every other knuckle to prevent the pins from sliding. The door shall be wired to the door ajar indicator light in the cab and shall be interlocked with the parking brake per NFPA.	Preferred		

Tailboard Step

249	A tailboard step shall be provided at the rear of the body. The tailboard shall 15.5" in depth and in accordance with NFPA in both step height and stepping surface. The maximum rear step height to the tailboard shall not exceed 24".	Preferred		
250	The tailboard step shall be bolted on to the body from the underside assuring a clear surface and shall be easily removable for replacement in the case of damage.	Preferred		

Rear Access Handrails

251	Handrails shall be provided at the rear of the body to assist ground personnel accessing the tailboard step and Hosebed area. Each handrail shall be constructed of 1.25" OD aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, and shall be mounted between chrome stanchions.	Preferred		
252	The handrails shall be located- two (2) handrails, one (1) on each side, appropriately sized handrail mounted vertically on the trailing edge of the body and appropriately sized handrail(s) mounted horizontally below the rear Hosebed opening.	Preferred		

Painted Roll Up Compartment Door

253	ROM Series IV roll up door painted job color shall be provided on a compartment up to 45" tall. The door(s) shall be installed in the following location(s): L2, R2.	Preferred		
254	The Robinson door slats shall be double wall box frame and manufactured from anodized aluminum. The slats shall have interlocking end shoes on each slat. The slats shall have interlocking joints with a PVC/vinyl inner seal to prevent any metal to metal contact and inhibit moisture and dust penetration.	Preferred		
255	The track shall be painted aluminum with a finishing flange incorporated to provide a finished look around the perimeter of the door without additional trim or caulking. The track shall have a replaceable side seal to prevent water and dust from entering the compartment.	Preferred		
256	The doors shall be counterbalanced for ease in operation. A full width latch bar shall be operable with one hand, even with heavy gloves. Securing method shall be a positive latch device.	Preferred		
257	A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation.	Preferred		
258	The door opening shall be reduced by 2" in width and approximately 8-9" in height depending on door height.	Preferred		

Roll Up Compartment Door

259	ROM Series IV roll up door with satin finish shall be provided on a compartment greater than 45" tall. The door(s) shall be installed in the following location(s): B1.	Preferred		
260	The Robinson door slats shall be double wall box frame and manufactured from anodized aluminum. The slats shall have interlocking end shoes on each slat. The slats shall have interlocking joints with a PVC/vinyl inner seal to prevent any metal to metal contact and inhibit moisture and dust penetration.	Preferred		
261	The track shall be anodized aluminum with a finishing flange incorporated to provide a finished look around the perimeter of the door without additional trim or caulking. The track shall have a replaceable side seal to prevent water and dust from entering the compartment.	Preferred		
262	The doors shall be counterbalanced for ease in operation. A full width latch bar shall be operable with one hand, even with heavy gloves. Securing method shall be a positive latch device.	Preferred		
263	A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation.	Preferred		
264	The door opening shall be reduced by 2" in width and approximately 8-9" in height depending on door height.	Preferred		

Painted Roll Up Compartment Door

265	ROM Series IV roll up door painted job color shall be provided on a compartment greater than 45" tall. The door(s) shall be installed in the following location(s): L1, L3, R1, R3.	Preferred		
266	The Robinson door slats shall be double wall box frame and manufactured from anodized aluminum. The slats shall have interlocking end shoes on each slat. The slats shall have interlocking joints with a PVC/vinyl inner seal to prevent any metal to metal contact and inhibit moisture and dust penetration.	Preferred		
267	The track shall be painted aluminum with a finishing flange incorporated to provide a finished look around the perimeter of the door without additional trim or caulking. The track shall have a replaceable side seal to prevent water and dust from entering the compartment.	Preferred		
268	The doors shall be counterbalanced for ease in operation. A full width latch bar shall be operable with one hand, even with heavy gloves. Securing method shall be a positive latch device.	Preferred		
269	A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation.	Preferred		
270	The door opening shall be reduced by 2" in width and approximately 8-9" in height depending on door height.	Preferred		

Shelves

280	There shall be two (2) adjustable aluminum shelves each, provided in compartment R1 and R3, one located above extrusion if applicable and the other below the offset. The shelves above the offset shall be pull-out tilt down shelves. Compartment shall also have two (2) vertical adjustable pull-out pegboard tool board. The location of the tool boards will be determined at pre-construction meeting.	Preferred		
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281	The shelf shall have a minimum 2" front lip for added strength and reinforcement and to accommodate optional plastic interlocking compartment tile systems.	Preferred		
282	The shelf shall be sized, width and depth, to match the size and location in the compartment. The shelf shall be capable of holding 100 lbs.	Preferred		

Shelves and Tool Boards

283	There shall be two (2) aluminum adjustable shelves provided for each compartment L1 and L3. One located above extrusion if applicable and the other below the offset. The shelves above the offset shall be pull-out tilt down shelves. One (1) aluminum adjustable pull-out shelf shall be installed in B1. Compartment L2 shall have two (2) vertical hinged heavy-duty swing-out pegboard tool board. D-ring handles shall be installed to secure in the closed position.	Preferred		
284	The shelf shall have a minimum 2" front and rear lips to accommodate optional plastic interlocking compartment tile systems. For additional strength and reinforcement of the shelf a return break shall be provided on the outward lip. The adjustable shelf shall be capable of holding 250 lbs.	Preferred		
285	The shelf shall be sized, width and depth, to match the size and location in the compartment. The shelf shall be capable of holding 100 lbs.	Preferred		

Adjustable Tracks

286	Tracks shall be provided for use with adjustable shelves. The tracks shall be vertically mounted and attached to the side and/or rear walls of the compartments.	Preferred		
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Running board Pullout Step (under pump panel)

287	A pullout step shall be located under the running board. The step shall be provided and located on the driver side running board and officer side running board.	Preferred		
288	The step shall lock in the extended and retracted position. The step shall be properly reinforced to support the weight of firefighters. The step shall be approximately the width of the pump panel.	Preferred		

Roll-Out Tray

289	There shall be a floor mounted roll-out trays provided in compartment L1, L3 B1, R1 and R3	Preferred		
290	The tray shall be sized in width and depth as applicable.	Preferred		
291	For greater tray accessibility, the drawer slides shall feature one hundred percent extension. The tray shall utilize a gas spring to secure the tray in the open or closed position.	Preferred		
292	The tray shall have a total capacity of 500 lbs.	Preferred		

Hose Bed Cover

293	A bright aluminum treadplate wind deflector shall be provided at the front of the hose bed. The deflector shall be approximately 24.00" deep x the width of the hose bed and shall be hinged at the front with a 20-degree angle on rear. The deflector shall be held in the open position with two (2) gas struts. A flush mount style latch shall be provided to secure the platform.	Preferred		
294	The platform shall be properly reinforced to support the weight of firefighters.	Preferred		

Crosslay Cover

295	The crosslay cover shall be constructed diamond plate. The cover shall be hinged along the forward edge with a D-ring handle to secure in the close position. The cover shall not interfere with the deployment of the fire hose.	Preferred		
296	The side flaps shall be heavy duty webbing and secured in place across the top and sides of the body by chrome snaps or buckles or other means approved by NFPA 1901. The center of the cover shall have integral Velcro flaps that extend down to cover.	Preferred		
297	BLANK			
298	BLANK			

Pump Module Running Boards

299	The pump module shall include a running board on each side of the pump module. Each running board shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. Each running board shall be bolted on to the pump module and be easily removable for replacement in the case of damage.	Preferred		
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Pump Module Width

300	Pump module shall be approximately 76" wide.	Preferred		
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Dunnage Pan

301	The dunnage pan shall be sized to maximize available storage space.	Preferred		
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Side Mount Pump Panels

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

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

304	The officer side pump panel shall be vertically hinged.	Preferred		
305	The pump panels shall be securely attached with a vertical stainless steel piano type hinge with 1/4" pins along the forward edge of the pump module. The hinge shall be "staked" on every other knuckle to prevent the pin from sliding. The panels shall have push button style latches to secure the panels in the closed position and one (1) pneumatic shock to hold the upper panel in the open position.	Preferred		

Pump Panel Tags

306	Color coded pump panel labels shall be supplied to be in accordance with NFPA 1901 compliance.	Required		
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Air Blow-Out Valve

307	A snubber valve shall be installed between the chassis air reservoir and a specified system. This valve shall be mounted on the pump panel and, upon opening, shall flush water from the system. There shall be a check valve in the air line to prevent water from entering the chassis air system. There shall also be a pressure protection valve set to 85 PSI plumbed off of the front air tank.	Preferred		
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Flex Joint

308	The area between the pump modules and body shall include a rubber flex joint.	Preferred		
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Air Horn Switch

309	A heavy duty weatherproof push-button switch shall be installed at the pump operator's panel to operate the air horns.	Preferred		
310	The switch shall be labeled "Evacuation Alert".	Preferred		
311	Location: driver side pump panel.	Preferred		

1000 Gallon Water Tank

312	A 1000 gallon (US) "R" booster tank shall be supplied.	Required		
313	The booster tank shall be constructed of polypropylene material. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal.	Preferred		
314	The booster tank top, sides, and bottom shall be constructed of a minimum 1/2" (0.50") thick black UV-stabilized copolymer polypropylene. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The tank cover shall be constructed of 1/2" thick polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions.	Preferred		
315	The tank shall have a combination vent and manual fill tower with a hinged lid. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter (subject to change for specific design applications). The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 1/4" thick removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.	Preferred		

316	The booster tank shall have two (2) tank plumbing openings. One (1) for a tank-to-pump suction line with an anti-swirl plate, and one (1) for a tank fill line. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates per the tank fill inlet size.	Preferred		
317	The sump shall be constructed of a minimum of 1/2" polypropylene. The sump shall have a minimum 3" N.P.T. threaded outlet for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3" above the inside floor.	Preferred		
318	The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength.	Preferred		
319	Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with an I.D. of 3" or larger that is designed to run through the tank. This outlet shall direct the draining of overflow water past the rear axle, thus reducing the possibility of freeze-up of these components in cold environments. This drain configuration shall also assure that rear axle tire traction shall not be affected when moving forward.	Preferred		
320	The booster tank shall undergo extensive testing prior to installation in the truck. All water tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale.	Preferred		
321	Each tank shall be weighed empty and full to provide precise fluid capacity. Each tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.	Preferred		
322	A tag shall be installed on the apparatus in a convenient location and contain pertinent information including a QR code readable by commercially available smart phones. The information contained on the tag shall include the capacity of the water and foam (s), the maximum fill and pressure rates, the serial number of the tank, the date of manufacture, the tank manufacturer, and contact information. The QR code will allow the user to connect with the tank manufacturer for additional information and assistance.	Preferred		
323	The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.	Preferred		

Fill Tower Location

324	Fill tower(s) shall be located offset to officer side of water tank.	Preferred		
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Tank Fill 2 Akron Valve

325	One (1) 2" pump-to-tank fill line having a 2" manually operated full flow valve. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times. The fill line shall be controlled using a chrome handle with an integral tag.	Preferred		
326	The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.	Preferred		
327	The valve shall be of unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.	Preferred		
328	All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.	Preferred		

Tank To Pump

329	One (1) manually operated 3" Akron valve shall be installed between the pump suction and the booster tank. Includes flex hose with stainless steel hose clamps for connection to the 4" tank sump outlet. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.	Preferred		
330	The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.	Preferred		
331	The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.	Preferred		
332	All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.	Preferred		
333	A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.	Preferred		

Hard Suction Hose Rack

334	Two (2) hard suction hose storage rack shall be provided. The rack shall be located outboard on the driver and officer's side inside the hosebed.	Preferred		
335	Two (2) 10' x 6" Sections of Flexible (Semitransparent) Hard Suction Hose shall be included	Preferred		
336	Restraint shall be provided to secure each hose.	Preferred		
337	Exact location to be determined at pre-construction meeting.	Required		

Ladder Brand

338	The ladder brand capable of being carried on the unit shall be Duo-Safety	Required		
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Ladders

339	The length of ladders capable of being stored shall be the following: 28' 2-section, 14' roof ladder and 10' attic ladder w/shoes.	Required		
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Storage Tunnel Contents

340	Storage tunnel shall be capable of holding all required ladders, two (2) pike poles 1 ten foot and 1-eight foot, one (1) backboard.	Preferred		
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Hose Bed Folding Steps

341	Four (4) dual lighted LED folding steps shall be positioned to both the driver and passenger side rear of the body. The steps shall be NFPA compliant for access to the hose bed storage area and in step height and surface area. The steps shall be staggered stepped as applicable with tailboard depth, not applicable with recessed step mounting.	Preferred		
342	Dual lighted LED folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 FC on the stepping surface. Each step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18" below the step.	Preferred		
343	The folding step shall sustain a minimum static load of 500 lbs. The folding step shall also meet NFPA slip resistance qualifications.	Preferred		
344	TWO (2) hand rail shall be installed one on each the driver and passenger side (as applicable) in compliance with current NFPA. The hand rail shall be constructed to assure a good grip for personnel safety, mounted between chrome stanchions.	Preferred		

Folding Steps

345	Four (4) dual lighted LED folding steps shall be located on the officer side front compartment face and the driver side front compartment face. The folding steps shall meet current NFPA in step height and surface area.	Preferred		
346	Dual lighted LED folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 FC on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18" below the step. The folding step shall sustain a minimum static load of 500 lbs. The folding step shall also meet NFPA slip resistance qualifications.	Preferred		
347	One (1) hand rail shall be installed in compliance with current NFPA. The hand rail shall be constructed to assure a good grip for personnel safety, mounted between chrome stanchions.	Preferred		

Module Horizontal Handrails

348	Two (2) additional handrails, horizontally mounted above the pump panel and below the upper pump module. One (1) driver side, one (1) officer side. Mount handrails offset to the rear (just forward of folding steps).	Preferred		
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Rear Mud Flaps

349	The rear tires shall have a set of black mud flaps mounted behind the rear chassis wheels.	Preferred		
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Water Tank Mounting System

350	The body design shall allow the booster tank to be completely removable without disturbing or dismounting the apparatus body structure.	Preferred		
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Hosebed Side Assembly

351	The exterior hosebed side surface shall be completely sanded and deburred to assure a smooth finish and painted job color. The interior hosebed side surface shall be completely sanded and deburred to assure a smooth sanded finish.	Preferred		
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Hose Bed Capacity

352	Hose bed shall accommodate two (2) hard suction hoses, 1000' of 5", 300' of 3", and 150' of 1 3/4".	Required		
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Hosebed

353	The hosebed shall be a wide configuration.	Preferred		
354	Flooring of the hose bed shall be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats shall be a minimum of 0.50" x 4.50" with spacing between slats for hose ventilation.	Preferred		

Hose Bed Divider

356	Three (3) adjustable hosebed dividers shall be furnished for separating hose and hard suction.	Required		
357	Divider shall be fully adjustable by sliding in tracks, located at the front and rear of the hose bed.	Required		
358	Divider shall be held in place by tightening bolts, at each end.	Required		

Hose Bed Divider Hand Hold

359	There shall be a hand hole cut-out on the trailing edge of each hose bed dividers. The cut-out is specifically sized for use in adjusting of the hose bed divider.	Required		
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Fuel Fill

360	A recessed fuel fill shall be provided on both side of the truck, in the rear wheel well area.	Preferred		
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Body Wheel Well

361	The liners shall be bolt-on and shall provide a maintenance-free and damage-resistant surface.	Preferred		
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Rub rail

362	The pump area module(s) and body shall have rub rails mounted along the sides and at the rear.	Preferred		
363	The rub rail shall be 2.75" high x 1.25" deep and shall extend beyond the body width to protect compartment doors and the body side. The rub rail depth shall allow marker and/or warning lights to be recessed inside for protection.	Preferred		

364	The top surface of the rub rail shall have minimum of five (5) raised serrations. Each serration being a minimum of .1" in height and with cross grooves to provide a slip-resistant edge for the tailboard step and pump module running board areas. The rub rail shall be mounted a minimum of 3/16" off the pump module and body with nylon spacers. The ends of each section shall be provided with a finished rounded corner piece.	Preferred		
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Wheel Well SCBA Storage

365	The body wheel well area shall store up to seven (7) SCBA bottles- four (4) on the officer side and three (3) on the driver side. The bottles shall be secured in each storage area by a vertically hinged door which shall be secured in the closed position by a push button latch. The doors shall match the wheel well area material and finish.	Preferred		
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Fire Pump System

366	The pump shall be a midship-mounted Hale QMAX 1500gpm single stage centrifugal pump.	Required		
367	The entire pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 psi (207 MPa). All metal moving parts in contact with water shall be of high quality bronze or stainless steel. Pump body shall be horizontally split in two sections, for easy removal of impeller assembly including wear rings and bearings from beneath the pump without disturbing pump mounting or piping.	Required		
368	The pump impeller shall be hard, fine grain bronze of the mixed flow design and shall be individually ground and hand balanced. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body, and of wrap-around double labyrinth design for maximum efficiency.	Required		
369	The pump shaft shall be heat-treated, corrosion-resistant stainless steel and shall be rigidly supported by three (3) bearings for minimum deflection. The sleeve bearing is to be lubricated by a force fed, automatic oil lubricated design, pressure-balanced to exclude foreign material. The remaining bearings shall be heavy-duty, deep groove ball bearings in the gearbox and shall be splash-lubricated. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of the gearbox.	Required		
370	Two (2) 6" diameter suction ports with 6" NST male threads and removable screens shall be provided, one each side. The ports shall be mounted one (1) on each side of the midship pump and shall extend through the side pump panels. Inlets shall come equipped with long handle chrome caps.	Required		

Discharge Manifold

371	The pump system shall utilize a stainless steel discharge manifold system that allows a direct flow of water to discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion.	Preferred		
372	The apparatus manufacturer shall provide a full 10 year stainless steel plumbing components warranty. This warranty shall cover defects in materials or workmanship of apparatus manufacturer designed foam/water plumbing system stainless steel components for 10 years. A copy of the warranty document shall be provided with the proposal.	Preferred		

Priming System

373	The electrically-driven priming pump shall be a positive displacement vane type. One (1) priming control, located at the pump operator's position, shall open the priming valve and start the priming motor. The primer shall be oil-less type. The priming valve shall be electronically interlocked to the "Park Brake" circuit to allow priming of the pump before the pump is placed in gear.	Preferred		
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Pump Shift

374	The pump shift shall be pneumatically-controlled using a power shifting cylinder.	Preferred		
375	The power shift control valve shall be mounted in the cab and be labeled "PUMP SHIFT". The apparatus transmission shift control shall be furnished with a positive lever, preventing accidental shifting of the chassis transmission.	Preferred		
376	A green indicator light shall be located in the cab and be labeled "PUMP ENGAGED". The light shall not activate until the pump shift has completed its full travel into pump engagement position.	Preferred		
377	A second green indicator light shall be located in the cab and be labeled "OK TO PUMP". This light shall be energized when both the pump shift has been completed and the chassis automatic transmission has obtained converter lock-up (4th gear lock-up).	Preferred		
378	A "MANUAL PUMP SHIFT OVERRIDE" shall be installed on the pump operators panel.	Preferred		
379	Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump.	Required		
380	A master drain valve shall be installed and operated from the pump operator's panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal and turning handle.	Preferred		
381	The manual master drain valve shall have six (6) individually-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 psi.	Preferred		
382	The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.	Preferred		

Gearbox Cooler

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

384	An engine cooler used to lower engine water temperature during prolonged pumping operations and controlled at the pump operator's panel shall be provided.	Preferred		
385	The engine cooler shall be installed in the engine coolant system in such a manner as to allow cool pump water to circulate around engine water, thus forming a true heat exchanger action. Cooler inlet and outlet shall be continuous, preventing intermixing of engine coolant and pump water.	Preferred		

Pump Certification

386	The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. The pump shall be tested at the manufacturer's facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in current NFPA 1901.	Required		
387	The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.	Required		
388	A piping hydrostatic test shall be performed as outlined in current NFPA 1901.	Required		
389	The pump shall deliver the percentage of rated capacities at pressures indicated below:	Required		
a	100% of rated capacity at 150 psi net pump pressure			
b	100% of rated capacity at 165 psi net pump pressure			
c	70% of rated capacity at 200 psi net pump pressure			
d	50% of rated capacity at 250 psi net pump pressure			
390	A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-load governed speed of the engine.	Required		
391	A Certificate of Inspection certifying performance of the pump and all related components shall be provided at time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer's Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer.	Required		

Pump Cooler

392	The pump shall have a 3/8" line installed from the pump discharge to the booster tank to allow a small amount of water to circulate through the pump casing in order to cool the pump during sustained periods of pump operation when water is not being discharged. The pump cooler line shall be controlled from the pump operator's panel by a 1/4" snubber valve.	Preferred		
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Steamer Connections

393	The pump 6" steamer intake(s) shall be mounted approximately 1" from the pump panel to back of cap when installed. The "Flush+1" dimension can vary + or - 1-1/4" or as practicable depending on the pump module width and options selected. (Example 72" or 76" modules.) The steamer connections on the officer side and front bumper shall be Hale MIV electrically controlled from the pump panel.	Preferred		
394	Location: driver's side, officer's side officer side front bumper recessed	Required		

Class 1 Pressure Governor

395	A Class 1 Total Pressure Governor (TPG) shall be installed. The TPG shall include integrated engine instruments (battery voltage, coolant temperature, oil pressure and engine RPM). The TPG shall be easy to read with an alpha numeric displays and programmable presets. An integrated alarm output shall provide a warning whenever anything is out of parameters. Also include a Class 1 twist throtal control.	Preferred		
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Mechanical Pump Seal

399	The midship pump shall be equipped with a high quality, spring loaded, self-adjusting mechanical seal capable of providing a positive seal to atmosphere under all pumping conditions. This positive seal to atmosphere must be achievable under vacuum conditions up to 26 Hg (draft) or positive suction pressures up to 250 psi.	Preferred		
400	The mechanical seal assembly shall be 2 inches in diameter and consist of a carbon sealing ring, stainless steel coil spring, Viton rubber boot, and a tungsten carbide seat, with a Teflon back-up seal provided.	Preferred		
401	Only one mechanical seal shall be required, located on the first stage suction (inboard) side of the pump and be designed to be compatible with a one piece pump shaft. A continuous cooling flow of water from the pump shall be directed through the seal chamber when the pump is in operation.	Preferred		

Master Drain Valve

402	A manual master drain valve shall be installed on the pump panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal. The master drain shall have a rubber seal to prevent water from running out on the running board.	Preferred		
403	The manual master drain valve shall have twelve (12) individually-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.	Preferred		
404	The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.	Preferred		

Left Intake 2.5 Akron Valve

405	One (1) 2-1/2" suction inlet with a manually operated 2-1/2" Akron valve shall be provided on the left side pump panel.	Preferred		
406	The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.	Preferred		
407	The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.	Preferred		
408	The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2" NST female chrome inlet swivel, and shall be equipped with a chrome plated rocker lug plug with a retainer device.	Preferred		
409	The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.	Preferred		
410	All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.	Preferred		
411	A 3/4" bleeder valve assembly will be installed on the left side pump panel.	Preferred		

Right Intake 2.5 Akron Valve

412	One (1) 2-1/2" gated suction inlet with a manually operated Akron valve shall be installed in the right side pump panel with the valve body behind the panel. The valve control shall be located at the intake and shall visually indicate the position of the valve at all times.	Preferred		
413	The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.	Preferred		
414	The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.	Preferred		
415	The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2" NST female chrome inlet swivel and shall be equipped with a chrome plated rocker lug plug with a retainer device.	Preferred		
416	All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.	Preferred		
417	A 3/4" bleeder valve assembly will be installed on the right side pump panel.	Preferred		

Intake Relief Valve

418	The pump shall be equipped with an Akron style 59 cast brass, variable-pressure-setting relief valve on the pump suction side. It shall be designed to operate at a maximum inlet pressure of 250 PSI. The relief valve shall be normally closed and shall be set to begin opening at 125 PSI in order to limit intake pressures in the pumping system. When the relief valve opens, the overflow water shall be directed through a plumbed outlet to discharge below the body in an area visible to the pump operator. The overflow outlet shall terminate with a male 2-1/2" NST threaded fitting to allow the overflow water to be directed away from the vehicle with a short hose (supplied by the fire department) during freezing weather or under other conditions where an accumulation of water around the apparatus might be hazardous.	Preferred		
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Deck Gun 3" Discharge Akron Valve

419	One (1) 3" deck gun discharge outlet with a manually operated Akron valve and 3" stainless steel pipe shall be provided above the pump compartment.	Preferred		
420	The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.	Preferred		
421	The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.	Preferred		
422	The valve shall be equipped with a device that limits the opening and closing speeds to comply with the current edition of NFPA 1901.	Required		
423	The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.	Preferred		

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

425	Two (2) crosslays shall have 1.50" outlets provided. Each bed to be capable of carrying 200' of 1.75" double jacketed hose and shall be plumbed quarter turn ball valve	Required		
426	One (1) crosslay shall have a 2.50" outlet provided. Bed shall be capable of carrying 200 feet of 2.50" double jacket hose and shall be plumbed quarter turn ball valve.	Required		
427	Stainless steel vertical scuff plates shall be provided at hose bed end (each side of vehicle). Bottom of hose bed end (each side) shall also be equipped with a stainless steel scuff plate.	Preferred		
428	Two (2) crosslay dividers shall be aluminum and shall provide adjustment from side to side.	Preferred		
429	The divider shall be unpainted with a DA finish.			
430	The crosslays shall be lowered 8.00" from standard.	Preferred		

Discharge Left Panel 2.5 Akron Droop

431	Two (2) 2-1/2" discharge outlets with a manually operated Akron valves shall be provided at the left hand side pump panel.	Preferred		
432	The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.	Preferred		
433	The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.	Preferred		
434	The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.	Preferred		
435	The discharge shall extend out beyond the pump panel with a 30 degree downward angle with 2-1/2" NST threads to help prevent kinking of the discharge hose. The 30 degree chrome droop shall be an integral part of the discharge valve and shall be equipped with a chrome plated rocker lug cap with a retainer chain.	Preferred		
436	The discharge shall be supplied with a 3/4" bleeder valve assembly. The bleeder valve shall be installed to drain water from the gauge pressure line to prevent freezing of the line. The drain shall be controlled with a quarter-turn valve on the pump panel.	Preferred		
437	All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.	Preferred		
438	Location: left side discharge 1, left side discharge 2.	Preferred		

Discharge Right Panel 2.5 Akron Droop

439	One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel.	Preferred		
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440	The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.	Preferred		
441	The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.	Preferred		
442	The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.	Preferred		
443	The discharge shall extend out beyond the pump panel with a 30 degree downward angle with chrome plated 2-1/2" NST threads to help prevent kinking of the discharge hose. The 30 degree chrome droop shall be an integral part of the discharge valve and shall be equipped with a chrome plated rocker lug cap with a retainer chain.	Preferred		
444	All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.	Preferred		
445	Location: right side discharge 2.	Preferred		

Left Rear 2.5" Discharge Akron Valve

446	One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be supplied to the left rear of the apparatus by a 2-1/2" stainless steel pipe.	Preferred		
447	The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.	Preferred		
448	The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.	Preferred		
449	The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.	Preferred		
450	All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.	Preferred		
451	Location: left rear discharge.	Preferred		

4in Discharge

452	One (1) 4" discharge outlet with a 3" manually operated Akron valve shall be provided at the right side pump panel. The discharge shall consist of a 3" valve connected with 30 degree droop to a 3" FNST x 4" MNST chrome adapter. The end of the discharge adapter shall be equipped with a chrome plated rocker lug cap with a retainer cable.	Preferred		
453	The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.	Preferred		
454	The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.	Preferred		
455	The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.	Preferred		

456	All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.	Preferred		
457	Location: right side discharge 1.	Preferred		

Deck Gun Location

458	Deck gun piping shall be positioned forward section of the officer's side dunnage area positioned so it does not exceed 12' with the deck gun. This location shall allow for optimal operation of a deck gun monitor once installed.	Preferred		
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Extend-A-Gun

459	A Task Force Tips 18" Extend-A-Gun piping shall be supplied for the deck gun discharge to allow for raising and lowering the deck gun monitor.	Required		
460	The Extend-A-Gun shall include a raised monitor sensor connected to the door ajar light.	Preferred		

Bleeder Drain Valve

461	The specified discharge shall be supplied with a 3/4" bleeder valve assembly. The bleeder valve shall be installed to drain water from the gauge pressure line to prevent freezing of the line. The drain shall be controlled with a quarter-turn valve on the pump panel.	Preferred		
462	Plumbed to: left rear discharge, deck gun, crosslay preconnect, left discharge, right discharge.	Preferred		

Controls, Push-Pull T Handle

463	Control handles for tank supply, tank fill and all discharges shall be Push-Pull "T" style controls. The valve control levers shall be a chrome push-pull locking "T" handle located at the pump operator's panel and shall visibly indicate the position of the valves at all times. The control levers shall be located directly adjacent to one another and shall be mounted in line so they are in the same position when shut off. The control lever shall be connected directly to its respective valve by a .718" OD rod to form a direct linkage control system.	Preferred		
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Bleeder Drain

464	The specified discharge/inlet shall be supplied with a 3/4" bleeder valve assembly. The bleeder valve shall be installed to bleeder/drain water. The bleeder/drain shall be controlled with a quarter-turn valve.	Preferred		
465	Plumbed to: hose reel in pan.	Preferred		

Booster Hose Reel

466	A Hannay booster reel shall be provided and located dunnage pan offset to driver side.	Preferred		
467	The booster reel shall be constructed utilizing an all aluminum welded base. Reel bushings shall be manufactured from Nylatron to ensure maintenance free operation. A 12 volt electrical motor shall be provided and will rewind the reel with a chain and sprocket drive mechanism. All electrical switch connections shall be coated to protect against moisture. The booster reel shall have a capacity for up to 200' of 1" booster hose.	Preferred		

468	Plumbing to the reel shall be a 1-1/2" flexible line with the discharge control located at the operator's control panel.	Preferred		
469	All fabricated piping shall be constructed to reduce corrosion of the lines.	Preferred		
470	A polished stainless steel roller and guide assembly shall be mounted on the reel side of the apparatus	Preferred		

Tank Level Gauge

471	One (1) Class 1 brand Intelli-Tank™ water tank level gauge shall be located at the pump operator's panel of the apparatus to provide wide angle viewing and a high-visibility display of the water tank level. Four (4) ultra-bright LED's (light emitting diodes) on the display module allow the full, 3/4, 1/2 and refill levels to be easily distinguished at a glance.	Preferred		
472	A Fire Research TankVision model WLA280-A00 tank remote indicator shall be installed on both sides of the cab (exact location to be determined at pre-construction meeting).	Preferred		
473	The system shall calibrate to any size and shape of tank and has a built-in diagnosis feature. It comes complete with an industrial pressure transducer, which will provide nine (9) accurate levels of indications. Each display also has a programmable night dimming feature.	Preferred		

Compound Pressure Gauges

474	Two (2) Class 1 weatherproof 4-1/2" compound vacuum pressure gauges with a range of 30-0-600 shall be installed on the pump panel. The gauge shall be filled with a liquid solution.	Preferred		
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ENFO IV System

475	The apparatus shall be equipped with a Class 1 ENFO IV electronic system and engine operating information display/warning system mounted on the pump operator's panel. The gauge shall be a self-contained, weatherproof display, approximately 4.5" H x 6" W.	Preferred		
476	Features:			
a	• Engine RPM - engine RPM shall be displayed numerically.	Preferred		
b	• System voltage display and alarm - a display shall be provided to indicate voltage and an audible alarm warning of low voltage. If the system voltage drops below 11.9 volts (12V ignition), or below 23.8 volts (24V ignition), for more than 2 seconds the audible alarm shall activate and shall cause the display to alternate between the current value and "LO" to warn the operator.	Preferred		
c	• Engine temperature display and alarm - a display shall be provided to indicate engine temperature and an audible alarm warning of high engine temperature. If the engine temperature reaches 250 degrees F or higher the audible alarm shall activate and the display shall alternate between the current temperature and "HI" to warn the operator.	Preferred		
d	• Engine oil pressure display and alarm - a display shall be provided to indicate oil pressure and an audible alarm warning of low oil pressure. If the oil pressure drops to 10 PSI or lower the audible alarm shall activate and the display shall alternate between the current pressure and "LO" to warn the operator.	Preferred		

477	The connection to the apparatus shall be achieved by the use of a Deutsch four (4) position socket connector.	Preferred		
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Compound Pressure Gauge

478	A Class 1 weatherproof 2-1/2" compound vacuum pressure gauge with a range of 30-0-600 shall be installed on the pump panel. The gauge shall be filled with a liquid solution to assure visual reading to within 1% accuracy.	Preferred		
479	Gauge shall be provided for the following discharge(s): left rear discharge, 1.5 in. crosslay preconnect, deck gun, left side discharge 1, left side discharge 2, right side discharge 1, right side discharge 2.	Preferred		

Multiplex Electrical System

Electrical System

480	The apparatus shall incorporate a Weldon V-MUX multiplex 12 volt electrical system. The system shall have the capability of delivering multiple signals via a CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA 1901 standards.	Preferred		
481	The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.	Preferred		
482	The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The over-current protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.	Preferred		
483	Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.	Preferred		

Multiplex System

484	For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:	Preferred		
485	The network system must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this application.	Preferred		
486	Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.	Preferred		
487	All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.	Preferred		
488	Each module that controls a device shall hold its own configuration program.	Preferred		
489	Each module should be able to function as a standalone module. No "add-on" module will be acceptable to achieve this form of operation.	Preferred		

490	Load shedding power management (8 levels).	Preferred		
491	Switch input capability for chassis functions.	Preferred		
492	Responsible for lighting device activation.	Preferred		
493	Self-contained diagnostic indicators.	Preferred		
494	Wire harness needed to interface electrical devices with multiplex modules.	Preferred		
495	The grounds from each device should return to main ground trunk in each sub harness by the use of ultrasonic splices.	Preferred		

Wiring

496	All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines. No exceptions.	Required		
a	• NFPA 1901-Standard for Automotive Fire Apparatus			
b	• SAE J1127 and J1127			
c	• IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies. (Class 3 – High Performance Electronic Products)			
497	All wiring shall be copper or copper alloys of a gauge rated to carry 125 of the maximum current for which the circuit is protected. Insulated wire and cable 8 gauge and smaller shall be SXL, GXL, or TXL per SAE J1128. Conductors 6 gauge and larger shall be SXL or SGT per SAE J1127.	Required		
498	All wiring shall be colored coded and imprinted with the circuits function. Minimum height of imprinted characters shall not be less than .082” plus or minus .01”. The imprinted characters shall repeat at a distance not greater than 3”.	Preferred		
499	A coil of wire shall be provided behind electrical appliances to allow them to be pulled away from mounting area for inspection and service work.	Preferred		

Wiring Protection

500	The overall covering of the conductors shall be loom or braid.	Preferred		
501	Braid style wiring covers shall be constructed using a woven PVC-coated nylon multifilament braiding yarn. The yarn shall have a diameter of no less than .04” and a tensile strength of 22 lbs. The yarn shall have a service temperature rating of -65 F to 194 F. The braid shall consist of 24 strands of yarn with 21 black and 3 yellow. The yellow shall be oriented the same and be next to each other.	Preferred		
502	Wiring loom shall be flame retardant black nylon. The loom shall have a service temperature of -40 F to 300 F and be secured to the wire bundle with adhesive-backed vinyl tape.	Preferred		

NFPA Required Testing of Electrical System

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

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

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

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

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

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

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

Vehicle Data Recorder

509	A vehicle data recorder system shall be provided to comply with NFPA 1901, 2009 edition.	Required		
510	The following data shall be monitored:	Required		
a	Vehicle speed MPH			
b	Acceleration (from speedometer) MPH/Sec.			
c	Deceleration (from speedometer) MPH/Sec.			

d	Engine speed RPM	
e	Engine throttle position % of full throttle	
f	ABS Event On/Off	
g	Seat occupied status Occupied Yes/No by position	
h	Seat belt status Buckled Yes/No by position	
i	Master Optical Warning Device Switch On/Off	
j	Time: 24 hour time	
k	Date: Year/Month/Day	

Occupant Detection System

511	There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.	Preferred		
512	The audible warning shall activate when the vehicle's park brake is released and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.	Preferred		
513	The visual warning shall consist of a graphical representation of each cab seat in the multiplex display screen that will continuously indicate the validity of each seat position.	Preferred		
514	The system shall include a seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness.	Preferred		

VEHICLE 360 VIDEO SYSTEM

515	The vehicle shall be equipped with an FRC, model SNB100-C00 inView™ 360 Video system and include a 7in HD In-Cab Monitor (SNB1option-MH0). This system shall provide the driver with a 360 degree birds-eye style view of the apparatus, along with individual camera views based on determined conditions.	Preferred		
516	The location of the InView™ 360 HD video system will be determined at the pre-construction meeting.	Preferred		

Light Bar

517	There shall be one (1) 73" Navigator with Patented Solaris® technology incorporated in SLR and QuadraFlare® modules including with (4) QL73 Red, (4) QL64 Red, (4) QL64 Red/White with clear lenses	Preferred		
518	There shall be two (2) 18" Navigator with Patented Solaris® technology incorporated in SLR and QuadraFlare® modules installed. One over the drivers door and one over the officers door. These lightbars shall run parallel with the side of the truck.	Preferred		
519	One (1) FireTech 72" brow light (spot, flood and scene) with integrated marker lights with a white housing shall be installed on front of cab. Two (2) FireTech 30 LED 38.66" long single stack minibrow light with a combination beam pattern shall be installed over compartment L2 and R2 (exact location to be determined at pre-construction meeting).	Preferred		
520	Final design of lightbar to be determined at the pre-construct meeting.	Preferred		

Warning Light Package

521	Ten (10) Federal perimeter Warning Light shall be 6X4 Dimension Quadraflare Light heads with Chrome Bezel and Red Lens. Part number is QL64-RR for the light head and QL64MC for the Bezel.	Preferred		
522	The rectangular lights shall include chrome flanges where applicable. The lights shall mounted as close to the following locations as possible (light placement shall meet NFPA Requirement)	Preferred		
523	Two (2) Red lights on the front of the apparatus facing forward	Preferred		
b	Two (2)Red lights on the rear of the apparatus facing rearward			
c	Two (2) lights each side of the apparatus, just in-front of the driver's and officer's doors centered with the front bumper.			
d	Two (2) Red light each side of the apparatus centered above the rear tires and below the compartment			
e	Two (2) Red lights located on each side of the rear of the truck above the break light assembly.			
f	Four (4) Federal perimeter Warning Light shall be 9X7 Dimension Quadraflare Light heads with Chrome Bezel and Red Lens located on each side of the truck (above compartments L1, L3, R1 and R3). These warning lights shall have Red LEDs and Red lens (QL97-RR).			
524	Federal LED Traffic Clearing Lights model number LEDTCL64C-W shall be installed on the front of the apparatus inboard next to the left and right turn signal			
525	All warning devices shall be surface mounted in compliance with NFPA standards.	Required		
526	Two (2) Federal Pro LED Beacon model number 300TMP-R shall be installed on the rear of the truck above the compartment The rectangular lights shall include chrome flanges where applicable.	Preferred		
527	four (4) Federal MicroPulse Wide Angle lights model number MPWS9-R shall be install in the lower rub rail on the sides of the apparatus. One (1) under each compartment L1 and R1 and one (1) under each compartment L3 and R3	Preferred		

Hazard (Door Ajar) Light

528	There shall be a 2.5" red LED hazard light installed as specified.	Preferred		
529	The light shall be located center overhead.	Preferred		

Electronic Siren

530	A Federal Pathfinder electronic siren and Federal Rumbler (part #RBKIT2) shall be installed.	Preferred		
531	The Pathfinder shall include a OBDII integration cable for the vehicle. This integrate with the vehicle to allow light and siren control with vehicle events such as door open, headlight, brake, speed, park, etc.	Preferred		
532	The siren shall be recessed mounted in the cab.	Preferred		

Electronic Siren Control Location

533	The electronic siren control shall be located in the center overhead.	Preferred		
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Mechanical Siren

534	A chrome plated flush mounted Federal Q2B-012NNBSD coaster siren shall be installed in the front bumper. An electric siren brake switch shall be located in the cab accessible to driver.	Preferred		
535	The mechanical siren shall be actuated by a push bottom switches located on the officer's side. Location to be determined at pre-construction meeting.	Preferred		
536	The siren shall be mounted outboard on the drivers side.	Preferred		

Siren Speaker

537	There shall be two (2) Federal model number BP100, 100-watt, speaker with through bumper mounting brackets and polished stainless steel grille provided.	Preferred		
538	The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA 1901 requirements.	Preferred		

Tail Lights

539	The tail lights shall be Federal model numbers QL643V-LEFT and QL643V-RIGHT	Preferred		
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License Plate Light and license plate mount

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

541	LED clearance/marker lights shall be installed as specified.	Preferred		
542	Upper Cab:			
a	• Five (5) amber LED clearance lights on the cab roof.	Preferred		
543	Lower Cab:			
a	• One (1) amber LED side turn/marker each side of cab ahead of the front door hinge.	Preferred		
544	Upper Body:			
a	• One (1) red Trucklite LED clearance light each side, rear of body to the side.	Preferred		
545	Lower Body:			
a	• Three (3) red Trucklite LED clearance lights centered at rear, recessed in the rubrail.	Preferred		
b	• One (1) red Trucklite LED clearance light each side at the trailing edge of the apparatus body, recessed in the rubrail.	Preferred		
c	• One (1) amber Trucklite LED clearance/auxiliary turn light each side front of body/module, recessed in the rubrail.	Preferred		

Medical Cabinet Lighting

546	One (1) ROM V4 LED compartment light strip shall be mounted in the medical cabinet(s).	Preferred		
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547	The light bar shall include super bright white LEDs (16 per 12" strip) mounted to circuit boards that have acrylic conformal coating for corrosion protection. The LED circuit boards shall be mounted to an extruded aluminum base with lexan lens. The light shall produce 250 lumens per foot and be waterproof up to 1 meter (3.3 feet).	Preferred		
548	The light shall be controlled by a compartment door switch.	Preferred		

Compartment Light Package

549	One (1) ROM V4 compartment light strip shall be mounted in each body compartment greater than 4 cu. ft.	Preferred		
550	Each light bar shall include sixteen (16) super bright white LEDs per foot mounted to circuit boards that have acrylic conformal coating for corrosion protection. The LED circuit boards shall be mounted to an extruded aluminum base with lexan lens. The light shall produce 250 lumens per foot and be waterproof up to 1 meter (3.3 feet).	Preferred		
551	Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel.	Preferred		
552	The wiring connection for the compartment lights shall be made with a weather-resistant plug in style connector. A single water and corrosion-resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall allow the light to illuminate if the compartment door is open.	Preferred		

Ground Lights

553	The apparatus shall be equipped with Fire Research Sun Strip LED Work Light model LED200-A09. The LEDs and electronics shall be enclosed in a 5/8" diameter Lexan tube that is sealed at both ends with EPDM rubber caps to create a waterproof environment and be suitable for mounting in a wet location. The LEDs shall be in a row one inch apart and have a beam angle of 120 degrees. The tube shall rotate to adjust the beam direction as required.	Preferred		
554	All ground area lights shall be switched from the cab to operate while driving.	Preferred		
555	Ground light shall be installed under driver's door, officer's door both rear doors, each side of the front and rear bumper, under pump panel (driver and officer side) and under compartments L1, L3, R1 and R3.	Preferred		
556	All Ground lights shall be activated automatically when the exit doors are opened.	Preferred		

Hose Bed Light

557	One (1) 6" chrome plated 12 volt LED light shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901. The hose bed light shall be manually operated by the work light on/off switch located in the cab. An on/off switch shall also be provided on the light.	Preferred		
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NFPA Required Crosslay Light

558	A light that meeting NFPA 1901 2016 edition shall be installed. Location of the light to be determined at pre-construction meeting.	Preferred		
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Scene Lights

559	Two (2) Federal scene lights model number FR9LEDSCENE with Chrome Bezel model number FR9MC shall be provided.	Preferred		
560	Lights shall be located (1) each side of cab, rearward of forward doors, up high and switched in cab (side facing lights switched separately).	Preferred		

Engine Compartment Light

561	There shall be LED lighting provided to illuminate the engine compartment area.	Preferred		
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Pump Compartment Light

562	A LED light shall be provided in the pump compartment area for NFPA compliance. The light shall be wired to operate with the work light switch in the cab.	Preferred		
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Pump Panel Light Package

563	Three (3) Weldon #2030 lights shall be mounted under a light shield directly above each pump panel.	Preferred		
564	The work light switch in the cab shall activate the lights when the park brake is set.	Preferred		

Hose Reel Switch

565	A foot-operated fully shielded rewind switch shall be provided to assist with rewinding the deployed hose.	Preferred		
566	Location: driver side pump panel, officer side pump panel.	Preferred		

Back-Up Alarm

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

583	Fire Research Focus model FCA530-M10-SR-SW-ON side mount push up telescopic light shall be installed. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall rotate 360 degrees. The outer pole shall be a grooved aluminum extrusion and qualify as an NFPA compliant handrail. The pole mounting brackets shall have a 3 1/2" offset. Wiring shall extend from the pole bottom with a 4ft retractile cord.	Preferred		
584	The lamp head shall have one (1) L.E.D. lighting comparable to a quartz halogen 1000 watt 120 volt bulb. The bulb will draw 8.3 amps and generate 22,000 lumens. The bulb shall be accessible through the front. The lamp head shall direct 50 percent of the light onto the action area while providing 50 percent to illuminate the working area. The lamp head angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamp head shall incorporate heat-dissipating fins and be no more than 5 1/4" deep by 3 3/8" high by 15" wide. Lamp head and mounting arm shall be powder coated white. The floodlight shall be UL listed as a scene light for fire service use.	Preferred		

585	Fire Research Focus -SW option raised pole hazard light switch for a 530 pole shall be installed. The magnetic switch shall be housed within the light pole mounting flange. A magnet shall be mounted in the extension pole. The switch contacts shall close when the pole is raised.	Preferred		
586	A Fire Research FC-ON switch shall be installed on the Focus lamp head. The weatherproof on-off toggle switch shall be mounted in a switchbox below the lamp head. The switchbox shall be powder coated white.	Preferred		
587	Location: officer side back of cab, driver side back of cab.	Preferred		

DOT Required Drive Away Kit

595	Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.	Required		
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Paint Break with Dip to Grille

596	The cab shall have a two-tone paint break. The break line shall be approximately 31.5 inches below the cab roof drip rail. The paint break shall include a dip down to the corners of the cab grille.	Preferred		
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Un-Painted Pump/Pre-Connect Module

597	All applicable pump application modules shall have a sanded finish (not painted job color). Includes upper and lower pump modules, crosswalk module and/or speedlay/pre-connect module (as applicable). Rear mounted body/pump module shall be painted job color.	Preferred		
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Paint Custom Cab

598	The apparatus cab shall be painted Sikkens FLNA3042 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.	Preferred		
599	The cab exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces. Cab doors and any hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on cab, door jambs and door edges.	Preferred		
600	Paint process shall feature Sikkens high solid LV products and be performed in the following steps:	Preferred		
a	Corrosion Prevention - all surfaces shall be pre-treated to provide superior corrosion resistance and excellent adhesion of the base coat.			
b	Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.			
c	Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.			
d	Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.			

601	After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.	Preferred		
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Paint Cab Two-Tone Color

602	The upper section of the cab shall be painted Sikkens FLNA4040 White.	Preferred		
603	The paint process of the secondary cab color shall be the same as the primary color.	Preferred		

Paint Body Small

604	The apparatus body shall be painted Sikkens FLNA3042 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.	Preferred		
605	The body exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces of the body. Any vertically or horizontally hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on body, door jambs and door edges.	Preferred		
606	Paint process shall feature Sikkens high solid LV products and be performed in the following steps:	Preferred		
a	Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.			
b	Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.			
c	Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.			
d	Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.			
607	After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.	Preferred		

Cab Interior Paint

608	The interior of the cab shall be painted Zolatone gray #20-64. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system.	Preferred		
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Scotchlite Chassis Stripe

609	Scotchlite chassis stripe shall be 3/4" Black Scotchlite. Stripe shall be centrally located and shall contour with the chassis, following the paint break.	Preferred		
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Rear Body Scotchlite Striping

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

611	Lettering and graphics shall be installed by MC Wraps Design located at 765 Ash Street Suite 100 Canton, GA 30114. Contact information is; phone: 770-345-7448, Email: shelly@mc-wraps.com or mike@mc-wraps.com. The design shall meet the design and layout of the existing fleet. A color drawing shall be provided and is to be signed off by the Fire Chief prior to application of striping and graphics.	Required		
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Standard 1 Year Warranty

612	The apparatus manufacturer shall provide a full 1-year standard warranty. All components manufactured by the apparatus manufacturer shall be covered against defects in materials or workmanship for a 1-year period. All components covered by separate suppliers such as engines, transmissions, tires, and batteries shall maintain the warranty as provided by the component supplier. A copy of the warranty document shall be provided with the proposal.	Preferred		
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Lifetime Frame Warranty

613	The apparatus manufacturer shall provide a full lifetime frame warranty. This warranty shall cover all apparatus manufacturer designed frame, frame members, and cross-members against defects in materials or workmanship for the lifetime of the covered apparatus. A copy of the warranty document shall be provided with the proposal. Frame warranties that do not cover cross-members for the life of the vehicle shall not be acceptable.	Preferred		
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10 Year 100,000 Mile Structural Warranty

614	The apparatus manufacturer shall provide a comprehensive 10 year/100,000 mile structural warranty. This warranty shall cover all structural components of the cab and/or body manufactured by the apparatus manufacturer against defects in materials or workmanship for 10 years or 100,000 miles, whichever occurs first. Excluded from this warranty are all hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the proposal.	Preferred		
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10 Year Stainless Steel Plumbing Warranty

615	The apparatus manufacturer shall provide a full 10-year stainless steel plumbing components warranty. This warranty shall cover defects in materials or workmanship of apparatus manufacturer designed foam/water plumbing system stainless steel components for 10 years. A copy of the warranty document shall be provided with the proposal.	Preferred		
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10 Year Paint and Corrosion Warranty

616	The apparatus manufacturer shall provide a 10-year limited paint and corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner.	Preferred		
	The paint shall be prorated for 10 years as follows:	Preferred		
617	Topcoat & Appearance (Gloss, Color Retention, Cracking):	Preferred		
a	0 to 72 months: 100%			
b	63 to 120 months: 50%			
618	Coating System, Adhesion & Corrosion (includes dissimilar metal corrosion, flaking, blistering & bubbling):	Preferred		
a	0 to 36 months: 100%			
b	37 to 84 months: 50%			
c	85 to 120 months: 25%			
619	Corrosion perforation shall be covered 100% for 10 years. Corrosion perforation is defined as complete penetration through the exterior metal of the apparatus.	Preferred		
620	The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. A copy of the warranty document shall be provided with the proposal.	Preferred		
621	UV paint fade shall be covered in a separate warranty supplied by Akzo Nobel (Sikkens) and shall be for a minimum of 10 years.	Preferred		

Approval Drawings

622	A general arrangement drawing depicting the vehicles appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views.	Preferred		
623	Vehicles requiring pump controls shall include a general arrangement view of the pump operator`s position, scaled the same as the elevation views.	Preferred		

Electronic Manuals

624	Two (2) copies of all operator, service, and parts manuals MUST be supplied at the time of delivery in electronic format (CD-ROMs) -NO EXCEPTIONS! The electronic manuals shall include the following information:	Required		
625	Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, installed components, and auxiliary systems.	Required		
626	Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and fire fighting systems.	Required		
627	Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.	Required		
628	Instructions regarding the frequency and procedure for recommended maintenance.	Required		
629	Maintenance instructions for the repair and replacement of installed components.	Required		
630	Parts listing with descriptions and illustrations for identification.	Required		
631	Warranty descriptions and coverage.	Required		
632	The CD-ROM shall incorporate a navigation page with electronic links to the operator`s manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each copy shall include a table of contents with links to the specified documents or illustrations.	Required		

633	The CD must be formatted in such a manner as to allow not only the printing of the entire manual, but to also the cutting, pasting, or copying of individual documents to other electronic media, such as electronic mail, memos, and the like.	Required		
634	A find feature shall be included to allow for searches by text or by part number.	Preferred		
635	These electronic manuals shall be accessible from any computer operating system capable of supporting portable document format (PDF). Permanent copies of all pertinent data shall be kept file at both the local dealership and at the manufacturer`s location.	Preferred		
636	NOTE: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included.	Preferred		

Supplied Loose Equipment

637 The following equipment shall be supplied with the completed apparatus: No Exception

a	One (1) 28' DUO-SAFETY Extension Ladder	Required		
b	One (1) 14' DUO-SAFETY-14 Roof Ladder with Hooks	Required		
c	One (1) 10' DUO-SAFETY-10 Folding Attic Ladder	Required		
d	One (1) 3" NST x 5" Storz with cap and chain	Required		
e	Two (2) 8' Fiberglas Handled Pike Poles	Required		
f	Two (2) 10' x 6" Sections of Flexible (Semitransparent) Hard Suction Hose	Required		
g	Two (2) 100' Sections of 1 inch rubber booster hose	Required		
h	One (1) TFT New Force Series 1" Booster Nozzle Part Number GDD6F2S	Required		
i	One (1) 6" Barrel Strainer	Required		
j	One (1) set of Ziamatic Corp (Zico) wheel chocks and brackets (pair-installed)	Required		
k	Four (4) Streamlight Fire Vulcan LED - Orange Item #44451	Required		
L	TFT Crossfire Series Monitor TFT XFC-52 Package to Include: XFT-NJ – 2.5” NH Outlet Monitor Top 1250 GPM XF-B - Storage Bracket MST-4NJ - 2.5” NH – 4 Stacked Tips with Laser Engraved Flow Chart XF-SS10 – 10” 2.5” Stream Straightener M-R1250S-NJ – 2.5” NH Automatic Pressure Nozzle 150-1250GPM flow range XFH-1ST– Single 5” Storz Safe-Tak 1250 Base Halo Ring Master Stream Nozzle	Required		
M	One (1) 3 NST Swivel x 3 NST M, 30 Degree Elbow Chrome Plated Finish South Park Item #SE393020AC	Required		

EQUIPMENT SPECIFICATION LIST

Item	Quantity	Description	Item / Part Number
SCBA Harness	4	Scott X3 Pro	X8814025305304
Cylinder	8	Scott 4500 Cylinder	804722-01
Water Can	1	Amerex	AMX-240
Stair Chair	1	Stryker	Stair-Pro Model 6252
Battery Fan	1	Super Vac	V18-BK-08-SP
Chain Saw	1	Stihl	362 CM w/ 20" Bar & Chain
K-12 Saw	1	Stihl	TS420 14" Cut Off Saw
1.75" Hose	4	Key Combat Ready Hose, 1.75" 50', Blue, 1.5" NST Couplings	DP17-1000-50B-ARN
1.75" Hose	3	Key Combat Ready Hose, 1.75" 50', Green, 1.5" NST Couplings	DP17-1000-50G-ARN
1.75" Hose	5	Key Combat Ready Hose, 1.75" 50', Orange 1.5" NST Couplings	DP17-1000-50O-ARN
1.75" Hose	4	Key Combat Ready Hose, 1.75" RED, W/ 1.5" ALUMINUM COUPLING	DP17-1000-50R-ARN
2.5" Hose	4	Key Fire Hose, 2.5" x 50' Tan, Combat Ready, 2.5" NH	DP25X50-1000TARN
3" Hose	4	KFH, Big 10 DJ, Tan 800 PSI 2.5" NST, 3.0" x 50'	DP30X50T25N
5" Hose	10	KFH 5"X100' YELLOW, RUBBER, 450 PSI, 5" STZ	RC50-450-100Y-STZ
Water Thief	1	Task Force Tips	WT5NJ-NJ-NF
Metro 1 Nozzle	4	Task Force Tips - include all equipment below:	Metro 1
		ME1TO-202 TFT 1.5" Metro 1 Tip Only	
		w/ 175 GPM @ 75 PSI Washer	
		F140SBI TFT Smooth Bore Insert Kit	
		For H-VO & H-2VO Series Shutoff 8"	
		15/16", 1" & 1-1/8" Inserts	
		P116-Kit TFT 1.5" Stream Straightener	
		For VIT & FLIP TIP Models	
		H-VOL TFT 1.5" x 1.5" Detent Ball Shutoff	
		Valve w/ 1-3/8" Waterway & Pistol Grip	
		175 GPM GREEN HANDLE & BELL	
Metro 2 Nozzle	1	Task Force Tips - include all equipment below:	Metro 2
		H-2VOL TFT 2.5" x 1.5" Detent Ball Type	
		Shutoff Valve w/ 1-3/8" Waterway & Pistol Grip	
		P116 Kit TFT 1.5 Stream Straightener	
		F14034 Kit TFT 1-1/8 Smooth Bore Insert kit	
		VO-123 TFT O-Ring 123	
		V4232 TFT Smalley Ring	
		ME2TO- 354 TFT 1.5" Metro 2 Tip Only	
		w/ 250GPM @ 50 PSI Washer	
		Install P198 & P119F Coupling	
		Items To be assembled @ TFT Before Shipping	

2.5 Gate Valve	1	Task Force Tips	AYSNJ-NF
Double Male	2	Task Force Tips	AA6N-NJ
Double Female	2	Task Force Tips	AA7NJ-NJ
4.5" female to 5" Storz	1	Task Force Tips	A04NR-ST Hydrant Adapter
5" Storz to 2.5" Male	1	Task Force Tips	AA2ST-NJ
5" Storz to 2.5" female	1	Task Force Tips	AA12ST-NJ
Foam Eductor	1	Task Force Tips	UE-095-NF
5" Storz to 4.5" Female	1	Task Force Tips	TFT-AA1ST-NR 5" Storz x 4.5" Female
6" female to 5" Storz	1	Task Force Tips	AA1ST-NHF 5"Storz x 6" NHF
3" Cap	1	South Park	HCC2810AC
2.5" Cap	2	South Park	HCC2808AC
2.5" x 1.5"	1	Task Force Tips	AA5NJ-NF

END OF STATEMENT OF WORK/SPECIFICATION

RFP# 2024-017**RESCUE PUMPER APPARATUS PURCHASES***PRICING FORM*

Vendors may provide a price breakdown in addition to the pricing required below. Pricing options for equipment and mounting are also requested as option 1 and 2.

Year 1 pricing (award of RFP through 12/31/2024):

NUMBER OF ENGINES	PRICE PER ENGINE	DELIVERY TIMEFRAME
1 ST ENGINE		
2 ND ENGINE		
3 RD ENGINE		
4 TH ENGINE		
5 TH ENGINE		

Total cost of five engines: _____

Year 1 pricing if pre-payment. Please provide the amount required for the pre-payment and the discount applied:

NUMBER OF ENGINES	PRE-PAYMENT AMOUNT REQUIRED	DISCOUNTED COST OF ENGINE	DELIVERY TIMEFRAME
1 ST ENGINE			
2 ND ENGINE			
3 RD ENGINE			
4 TH ENGINE			
5 TH ENGINE			

Total cost of five engines: _____

If different pre-payment options are available, please describe them on a separate page.

RFP# 2024-017**RESCUE PUMPER APPARATUS PURCHASES***PRICING FORM – CONTINUED*

For the initial purchase, please provide pricing for the below options.

Equipment Option 1: In addition to the cost of the engines, please provide a cost to include all equipment as stated on the “Equipment Specification List”. If option 1 is used, Fire will allow for an allowance for mounting the equipment.

Equipment price per engine: _____

Equipment Mounting Allowance: \$10,000

Equipment Option 2: An allowance of \$35,000 to be used at the discretion of the County for equipment mounting. Please do not quote this allowance in the pricing of the engines above. Should Equipment Option 2 be selected, the County will add this allowance to the cost of each engine. Option 2 is for the mounting of equipment only and does not include purchasing any of the equipment.

For years two through six, please provide a forecasted percentage price increase for each year. Actual pricing will be negotiated at time of purchase using the pricing provided below and in accordance with the economic price adjustment described in the RFP. The number of engines ordered in years two through six will be based off pricing, lead times, and needs assessment, among other factors.

Year 2: 1/1/2025 – 12/31/2025

Percentage increase above year 1 pricing: _____

Percentage discount for pre-payment: _____

Pre-payment amount required: _____

Lead time from the time order is placed: _____

Year 3: 1/1/2026 – 12/31/2026

Percentage increase above year 2 pricing: _____

Percentage discount for pre-payment: _____

Pre-payment amount required: _____

Lead time from the time order is placed: _____

RFP# 2024-017

RESCUE PUMPER APPARATUS PURCHASES

PRICING FORM – CONTINUED

Year 4: 1/1/2027 – 12/31/2027

Percentage increase above year 3 pricing: _____

Percentage discount for pre-payment: _____

Pre-payment amount required: _____

Lead time from the time order is placed: _____

Year 5: 1/1/2028 – 12/31/2028

Percentage increase above year 4 pricing: _____

Percentage discount for pre-payment: _____

Pre-payment amount required: _____

Lead time from the time order is placed: _____

Year 6: 1/1/2029 – 12/31/2029

Percentage increase above year 5 pricing: _____

Percentage discount for pre-payment: _____

Pre-payment amount required: _____

Lead time from the time order is placed: _____

DATE: _____

Bidder: _____
(Company Name)

By: _____

Title: _____