Request for Sealed Bid Proposals for Class A Pumping Apparatus

Ozark Fire Protection District
604 N. 3rd Street, Ozark MO 65721
(417)581-4436

Proposals are now being accepted by the Ozark Fire Protection District (OFPD) for the design and fabrication of a new Class A pumper apparatus on a custom chassis.

Sealed Proposal Submission Deadline is Friday October 10, 2025, at 12:00 pm (CST)

Bids will be Opened and Publicly Read: Friday October 10, 2025, at 12:00 pm (CST)

Obtaining a Request for Proposal:

- This document is available to all vendors that request a copy up to the closing date/hour of submission.
- Copies can be obtained by:
    - OFPD District Headquarters at 604 N. 3rd St., Ozark, MO 65721
    - Calling (417)581-4436
    - Emailing the District at info@ozarkfire.org
    - Website at www.ozarkfire.org

The apparatus will be a custom cab rescue style pumper with a 1000 gallon water tank and a 1500 gpm pump capacity. See bid specification for further details.

The qualifying equipment and installation must meet the following criteria to be considered in the bidding process and must meet all current and applicable NFPA standards. A detailed drawing that represents the desired equipment shall be provided with the bidder's specifications, as well as a detailed list of any exceptions taken with the bidder's proposal.

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General Requirements

Each bid must be accompanied by bidders' accurate written and detailed specifications covering the apparatus and related items which the bidder is proposing to furnish and to which the apparatus furnished under contract must conform. It is the intent of these specifications to cover the furnishing to the purchaser a complete apparatus constructed and equipped exactly as specified in the attached specifications. Any details of construction, materials, or equipment not specified are left to the discretion of the Contractor, whom will be responsible for all construction and manufacturing techniques involved in the assembly of the apparatus.

All aspects of the apparatus shall conform to any applicable rules/regulations imposed to such vehicles by any of the following Governing Agencies:

- National Fire Protection Association (not including recommended equipment).
- Occupational Safety Health Administration.
- Federal Motor Vehicle Safety Standards.
- Department of Transportation.
- Underwriter’s Laboratories.

Number	Description	Met	Exceptions
1	**Manufacturer Requirements**		
1.A	Corporate owner of Manufacturer		
	The manufacturer of the apparatus must be fully owned and managed by a parent company, corporation, or individual(s) that is 100% held by United States of America based Company, Corporation, or United States citizen(s).		
1.B	Premium Fire Apparatus		
	If the manufacturer or bidder for the apparatus manufacturer represents two or more different lines of apparatus and/or operates two or more manufacturing plants, it should be clearly stated in the bid proposal. In addition to this requirement, the bidder shall give a detailed explanation of why the particular line, brand, model or manufacturing facility will be used. Manufacturers or bidders with multiple lines (two or more) or multiple manufacturing facilities (two or more) shall be required to submit bid proposals on only the premium brand/model or from the premium facility. It is the intention of the purchaser to purchase a top of the line, first class, #1 quality fire apparatus. Any bidder that submits a bid on a "lower end" line, brand, model, or from a "lower end" manufacturing facility will be immediately rejected. The purchaser is not interested in purchasing a manufacturer's or bidders "lower end" apparatus. Because of this, any bids submitted that do not comply with the above requirements will be immediately rejected.		
1.C	24/7 Factory Support		
	The manufacturer (not dealer) of the apparatus shall maintain a 24 hours per day, 7 days per week, 365 days per year factory support contact system to allow the purchaser to contact the manufacturer in case of emergency. The system shall be activated by a telephone call to the manufacturing facility.		
1.D	Delivery of Completed Apparatus		
	When the apparatus is completed at the manufacturer's facility, a factory trained delivery technician shall deliver the apparatus to the Purchaser. The technician shall familiarize all individuals designated by the purchaser on the operation and maintenance of the apparatus at this time. The technician shall remain at the purchaser's location for a sufficient period of time to allow all individuals to gain a thorough knowledge of the operation of the apparatus.		
1.E	Pre-Construction Conference		
	The bidder shall provide a pre-construction conference at the factory in which the apparatus will be constructed. An engineer of the manufacturing company shall be available to answer any design and/or technical questions. A sales representative of the manufacturer must also be present but will not be sufficient representation for the engineer. All travel expenses incurred by the purchaser for up to three (3) officials shall be paid by the purchaser. The bidder shall indicate in their proposal that this conference will be provided.		
1.F	Pre-Delivery Inspection		
	The contractor shall provide a pre-delivery inspection at the factory in which the apparatus will be constructed. All travel expenses incurred by the purchaser for up to three (3) officials shall be paid by the contractor. Air fare and overnight expenses shall be included. The bidder shall indicate in their proposal that this inspection will be provided.		
1.G	Bid Guaranty		
	All bids shall be accompanied by a Surety or Bid Bond in the amount of 10 percent of the bid amount made payable to the purchaser and provided by the manufacturer of the apparatus. (Bonds submitted by dealers or agents will not be acceptable.) Failure to submit this bond, or submission by a dealer or agent in lieu of the manufacturer, will result in immediate rejection of said bid proposal.		
1.H	Performance and Payment Guaranty		

	A performance and Payment Bond in the amount of 100 percent of the contract price amount shall be provided within 21 days of official notification of bid award, or contract signing.		
1.I	Bid Acceptance Period		
	The bid proposal submitted will remain valid for a period of 30 calendar days from date of bid opening. All prices must remain firm for the entire period.		
1.J	Certification of most recent NFPA 1901 Compliance Standard		
	As per NFPA 1901, the Purchaser shall assume the responsibility of determining, prior to the purchase of the apparatus, who will be responsible for ensuring that all aspects of NFPA 1901 are met. The manufacturer shall be responsible for providing or performing only the items requested by the purchaser in the documents provided to the manufacturer by the purchaser. Written certification shall be provided by the manufacturer stating that the delivered apparatus complies with the NFPA 1901 Standard. If the purchaser has elected to provide, perform, outsource and/or contract with a third party or waive any item required by NFPA 1901, the manufacturer shall provide, upon delivery, a "Statement of Exceptions" per Chapter 4 of NFPA 1901 4.21. The "Statement of Exceptions" shall include: ● A separate specification of the section of the NFPA Standard for which the apparatus is lacking compliance. ● A description of the particular aspect of the apparatus that is not compliant therewith or required equipment that is missing. ● A description of the further changes or modifications to the delivered apparatus which must be completed to achieve full compliance. ● An identification of the entity that will be responsible for making the necessary post-delivery changes or modifications or for supplying and installing any missing required equipment to the apparatus to achieve full compliance to the standard. Prior to, or at the time of, delivery of the apparatus, the Statement of Exceptions shall be signed by an authorized agent of the entity responsible for the final assembly of the apparatus and by an authorized agent of the purchasing entity, indicating a mutual understanding and agreement between the parties regarding the substance thereof. The purchaser shall not place the apparatus into active emergency service until fully compliant with NFPA 1901.		
1.K	NFPA Required Equipment		
	The end user of this apparatus shall provide all other equipment and accessories that are required by NFPA 1901 but not specifically listed in these specifications		
1.L	Maximum Top Speed		

	Apparatus shall be governed to 68 MPH as limited by electronically governed engine speed. Apparatus shall be geared for a top speed of 72MPH		
1.M	Safety and Security		
	A 2.50-pound D.O.T approved fire extinguisher with BC rating shall be shipped loose with the cab. The cab and chassis shall include one (1) emergency road safety triangle kit. The cab and chassis shall include a total of four (4) door keys for the manual door locks.		
1.N	Chassis Operation Manual		
	There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.		
1.O	Engine and Transmission Operation Manuals		
	The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items: (1) Hard copy of the Engine Operation and Maintenance manual with digital copy (1) Digital copy of the Transmission Operator's manual (1) Digital copy of the Engine Owner's manual		
1.P	Cab/Chassis As-built Wiring Diagrams		
	The cab and chassis shall include two (2) digital copies of wiring schematics and option wiring diagrams		
1.Q	Warranty		
	Purchaser shall receive a Bumper-to-Bumper Two (2) Years, or 36,000 Miles limited warranty. The warranty certificate shall be incorporated into and included with the bidder's proposal.		
2	**Vehicle Specifications**		
2.A	Model		
	The chassis shall be equal to a Spartan MetroStar. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit, and maneuverability. The chassis shall be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.		
2.B	Model Year		
	The chassis shall have a vehicle identification number (VIN) that reflects a 2028 model year.		
2.C	Country of Service		
	The chassis shall be put in service in the country of the United States of America (USA). The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis. The chassis manufacturer is not responsible for compliance to state, regional, or local regulations. Dealers should identify those regulations and order any necessary optional equipment from the chassis manufacturer, or their OEM needed to be in compliance with those regulations.		

	The cab and chassis shall include the applicable caution, warning, and safety notice labels shall be written in English.		
2.D	Apparatus Type		
	The apparatus shall be a pumper vehicle designed for emergency service use which shall be equipped with a permanently mounted fire pump with a minimum rated capacity of 750 gallons per minute (GPM). The apparatus shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.		
2.E	Vehicle Type		
	The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.		
2.F	Vehicle Angle of Approach Package		
	The angle of approach of the apparatus shall be a minimum of 12 degrees. The angle of departure shall be a minimum of 12 degrees.		
2.G	Axle Configuration		
	The chassis shall be equipped with a 4x2 axle configuration consisting of a single rear drive axle with a single front steer axle.		
2.H	Gross Axle Weight Rating **FRONT**		
	The front axle weight rating (GAWR) of the chassis shall be approximately 20,000 lbs. This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.		;
2.I	Gross Axle Weight Rating **REAR**		
	The rear gross axle weight rating (GAWR) of the chassis shall be approximately 26,000lbs. This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.		
2.J	Cab Style		
	The cab shall be a custom, fully enclosed, MFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to eight (8) seating positions. The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum. All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention. The cab shall be constructed of 5052-H32 corrosion resistant aluminum plate. The exterior width of the cab shall be 94.00 inches wide with a minimum interior width of 88.00 inches. The overall cab length shall be approximately		

	138.00 inches with 56.00 inches from the centerline of the front of the axle to the back of the cab. The cab shall offer an interior height of 57.50 inches from the front floor to the headliner in the non-raised roof area and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The front doors shall offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The rear doors shall offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening. The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.		
2.K	Cab Front Fascia		
	The front cab fascia shall include two (2) modules on each side accommodating a total of up to four (4) Hi/Low beam headlights and two (2) turn signal lights or up to four (4) warning lights. Two (2) chrome plated bezels shall be provided on each side around each set of two lamps.		
2.L	Front Grille		
	The front fascia shall include a 304 stainless steel front grille. The top 30% +/- shall be hinged to allow access to applicable engine fluid fills and dipsticks.		
2.M	Cab Undercoat		
	There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection		
2.N	Cab Side Drip Rail		
	There shall be a drip rail along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.		
2.O	Cab Paint Exterior		
	The cab shall be painted with a premium quality automotive paint. The primary/lower cab shall be painted RED. The secondary/upper cab shall be painted BLACK. All paint colors and schemes shall match the purchasers existing fleet. The cab shall be painted prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum corrosion protection of all metal surfaces. There shall be a paint confirmation letter sent to the body manufacturer with paint spray outs to confirm the cab primary paint color or primary and secondary paint color as specified by the paint options.		
2.P	Cab Paint Exterior Break		
	The upper and lower paint shall meet at a break line on the cab which shall be located approximately 1.00 inch below the door windows on each side of the cab. The break line shall curve down at the front cab corners to approximately 5.00 inches below the windshields on the front of the cab.		
2.Q	Cab Paint Pinstripe		
	A 0.50-inch-wide gold leaf tape with black borders shall be applied on the break line between the two different colored surfaces.		
2.R	Cab Paint Warranty		
	Purchaser shall receive a Paint and Finish (Exterior Clear coated) Ten (10) Years limited warranty in accordance with, and subject to, warranty certificate		

	RFW0710. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.		
2.S	Cab Paint Interior		
	The visible interior cab structure shall be painted with an easy to clean gray texture finish.		
2.T	Cab Entry Doors		
	The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum. The exterior skins shall be constructed of aluminum plate. The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit. All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. All cab entry doors shall be full length in design to fully enclose the lower cab steps. Entry doors shall include Pollak mechanical plunger style switches for electrical component activation.		
2.U	Cab Insulation		
	The cab ceiling and walls shall include a nonwoven polyester fiber insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.		
2.V	Cab Structural Warranty		
	Purchaser shall receive a Cab Structure (Aluminum) Ten (10) Years, or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0602. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.		
2.W	Cab Test Information		
	The cab shall have successfully completed the preload side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi –Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.		
2.X	Electrical System		
	The chassis shall include a single starting electrical system which shall include a 12-volt direct current multiplexing system, suppressed per SAE J551. The wiring shall be an appropriate gauge cross link with 311-degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275-degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.		
2.Y	Load Management System		
	The apparatus load management shall be performed by the included multiplex system. The multiplex system shall also feature the priority of sequences and shall shed electrical loads based on the priority list specifically programmed.		
2.Z	Data Recording System		
	The chassis shall have a Weldon Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with		

	the Weldon Multiplex electrical system. The following information shall be recorded: Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system. The laptop connection shall be a panel mounted female type B USB connection point, remotely mounted in the left side foot well.		
2.AA	Exterior Electrical Terminal Coating		
	All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating to prevent corrosion.		
2.BB	Electrical System Warranty		
	Purchaser shall receive an Electrical System Two (2) Years, or 36,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0202. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.		
3.	**Apparatus Drivetrain**		
3.A	Engine		
	The chassis engine shall be a Cummins X12 engine. The X12 engine shall be an in-line six (6) cylinder, four-cycle diesel-powered engine. The specific engine horsepower and torque ratings shall be reviewed with the purchaser during preconstruction meetings. The X12 engine shall feature a VGT™ Turbocharger, a high-pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and shall be EPA certified to meet the 2021 emissions standards using cooled exhaust gas recirculation and selective catalytic reduction technology. The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent SAE 15W40 CK-4 low ash engine oil which shall be utilized for proper engine lubrication.		
3.B	Cab Engine Tunnel		
	The cab interior shall include an integrated engine tunnel constructed of marine grade aluminum. The tunnel shall be built to accommodate the Cummins X12 motor.		
3.C	Diesel Particulate Filter Controls		
	There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibition.		
3.D	Engine High Idle Control/Speed		
	The vehicle shall be equipped with a high-idle speed rocker switch and an automatic high-idle speed control. It shall be pre-set so when activated it will operate the engine at approximately 1250 RPM, to increase alternator output. This device shall operate only when the engine is running, and the transmission is in neutral with the parking brake set. When automatically engaged the high idle shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake is released, or when the transmission is placed in neutral.		
3.E	Auxiliary Engine Brake		
	An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all the following conditions are simultaneously detected:		

	● A valid gear ratio is detected. ● The driver has requested or enabled engine compression brake operation. ● The throttle is at a minimum engine speed position. ● The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift. The compression brake shall be controlled through an on/off switch and a low/medium/high selector switch.		
3.F	Electronic Engine Oil Level Indicator		
	The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.		
3.G	Fluid Fills		
	The engine oil, coolant, transmission, and power steering fluid fills shall be located under the cab. The windshield washer fill shall be accessible through the front left side mid step.		
3.H	Engine Warranty		
	The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.		
3.I	Engine Programming Idle Speed		
	The engine low idle speed will be programmed at 700 rpm.		
3.J	Engine Air Intake		
	The engine air intake system shall include an ember separator. The engine air intake system shall also include an air cleaner mounted above the radiator. This air cleaner shall utilize a replaceable dry type filter element designed to prevent dust and debris from being ingested into the engine. The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement		
3.K	Engine Fan Drive		
	The engine air intake system shall include an ember separator. The engine air intake system shall also include an air cleaner mounted above the radiator. This air cleaner shall utilize a replaceable dry-type filter element designed to prevent dust and debris from being ingested into the engine. The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.		
3.L	Engine Cooling System		
	There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall consist of a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components shall include a surge tank, a charge air cooler bolted to the front of the radiator, recirculation shields, a shroud, a fan, and required tubing.		

	The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The radiator and charge air cooler shall be removable through the bottom of the chassis. The cooling package shall include Extended Life Coolant (ELC)		
3.M	Engine Cooling System Protection		
	The engine cooling system shall include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris.		
3.N	Electronic Coolant Level Indicator		
	The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.		
3.O	Engine Pump Heat Exchanger		
	A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.		
3.P	Coolant Hoses		
	The cooling systems hose shall be formed silicone hose and formed aluminized steel tubing and include stainless steel constant torque band clamps.		
3.Q	Engine Coolant Overflow Bottle		
	A remote engine coolant overflow expansion bottle shall be provided in the case of over filling the coolant system. The overflow bottle shall capture the expansion fluid or overfill rather than allow the fluid to drain on the ground.		
3.R	Engine Exhaust System		
	The single module after treatment through the end of the tailpipe shall be connected with zero leak clamps. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires. The exhaust system after treatment module shall be mounted below the frame in the inboard position.		
3.S	Diesel Exhaust Fluid Tank		
	The exhaust system shall include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of six (6) usable gallons and shall be mounted on the left-hand side of the chassis frame behind the batteries below the frame. The tank shall have a fill with splash guard on the battery box under the cab for access when the cab is tilted.		
3.T	Engine Exhaust Accessories		
	An exhaust temperature mitigation device shall be shipped loose for installation by the body manufacturer on the vehicle. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet.		
3.U	Engine Exhaust Wrap		
	The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat which can be transferred from the exhaust. The exhaust flex joint shall not include the thermal exhaust wrap.		
3.V	Emissions System Warranty		

	Purchaser shall receive a Regulated Emissions Systems Five (5) Years, or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0140. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.		
3.W	Transmission		
	The drive train shall include an Allison model EVS 4000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing. The transmission shall include two (2) internal oil filters and Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.		
3.X	Transmission Mode Programming		
	The transmission, upon start-up, will automatically select a four (4) speed operation. The fifth speed over drive shall be available with the activation of the mode button on the shifting pad.		
3.Y	Electronic Transmission Oil Level Indicator		
	The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.		
3.Z	Transmission Shift Selector		
	An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall have a graphical Vacuum Florescent Display (VFD) capable of displaying two lines of text. The shift selector shall provide mode indication and a prognostic indicator (wrench symbol) on the digital display. The prognostics monitor various operating parameters and shall alert you when a specific maintenance function is required.		
3.AA	Transmission Pre-Select with Auxiliary Brake		
	When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.		
3.BB	Transmission Cooling System		
	The transmission shall include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements. The transmission cooling system shall feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.		
3.CC	Transmission Drain Plug		
	The transmission shall include an original equipment manufacturer installed magnetic transmission fluid drain plug.		
3.DD	Transmission Warranty		
	The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.		
3.EE	PTO Location		
	The transmission shall have two (2) power take off (PTO) mounting locations, one (1) in the 8:00 o'clock position and one (1) in the 4:00 o'clock position.		
3.FF	Driveline		
	All drivelines shall be heavy duty metal tube and equipped with MSI 1710 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip		

	shaft is required, the splined slip joint shall be coated with Glide Coat®. The drivelines shall include Meritor brand u-joints with thrust washers.		
3.GG	Pump Shift Controls		
	One (1) air pump shift control panel shall be located on the left-hand side of the engine tunnel, integrated with the shifter pod. The following shall be provided on the panel: a three (3) position control lever; an engraved PUMP ENGAGED identification light; and an engraved OK TO PUMP identification light. The pump shift control panel shall be black with a yellow border outline and shall include pump instructions. An instruction plate describing the transmission shift selector position used for pumping shall be provided and located so it can be read from the driver's position per NFPA **16.10.1.3**. The road mode shall be selected when the control lever is in the forward position and pump mode shall be selected when the control lever is in the rearward position. The control lever center position shall exhaust air from both pump and road sides of the pump gear box shift cylinder.		
3.HH	Fuel Filter/Water Separator		
	The fuel system shall have a Fleetguard FS20121 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve. A water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator. A secondary fuel filter shall be included as approved by the engine manufacturer.		
3.II	Fuel Lines		
	The fuel system supply and return lines installed from the fuel tank to the engine shall be reinforced nylon tubing rated for diesel fuel. The fuel lines shall be brown in color and connected with brass fittings.		
3.JJ	Fuel Shutoff Valve		
	There shall be two (2) fuel shutoff valves which shall be installed, one (1) in the fuel draw line at the primary fuel filter and one (1) in the fuel outlet line at the primary fuel filter to allow the fuel filters to be changed without loss of fuel to the fuel pump. A third fuel shutoff valve shall be installed in the fuel draw line, near the fuel tank to allow maintenance to be performed with minimal loss of fuel.		
3.KK	Electric Fuel Primer		
	Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.		
3.LL	Fuel Tank		
	The fuel tank shall have a capacity of fifty (50) usable gallons. The baffled tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw. The tank is designed with dual draw tubes and sender flanges. The tank shall have a 2.00 inch NPT fill port for left hand fill. A 0.50 inch NPT drain plug shall be centered in the bottom of the tank. The fuel tank shall be mounted below the frame, behind the rear axle.		
3.MM	Fuel Tank Material and Finish		
	The fuel tank shall be constructed of 12-gauge aluminized steel. The exterior of the tank shall be powder coated black and then painted to match the frame components.		

3.NN	Fuel Tank Strap Material		
	The fuel tank straps shall be constructed of ASTM A-36 steel. The fuel tank straps shall be powder coated black and then painted to match the frame components if possible.		
4.	**Chassis and Suspension**		
4.A	Front Axle		
	The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-20		
4.B	Front Axle Warranty		
	The front axle shall be warranted by Meritor for five (5) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.		
4.C	Front Wheel Bearing Lubrication		
	The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.		
4.D	Front Shock Absorbers		
	Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the front suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintaining consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life. The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would. The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and “road sensing” shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers. Proposals offering the use of conventional twin tube or “road sensing” designed shocks shall not be considered.		
4.E	Front Suspension		
	The front suspension shall include a ten (10) leaf spring pack in which the longest leaf measures 54.00 inch long and 4.00 inches wide and shall include a military double wrapped front eye. Both spring eyes shall have a case-hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 24,500 pounds.		
4.F	Steering Column/Wheel		
	The cab shall include a Douglas Autotech steering column which shall include a seven (7) position tilt, a 2.25-inch telescopic adjustment, and an 18.00 inch, four (4) spoke steering wheel located at the driver’s position. The steering wheel shall be covered with black polyurethane foam padding. The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.		
4.G	Electronic Power Steering Fluid Level Indicator		
	The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.		
4.H	Power Steering Pump		

	The hydraulic power steering pump shall be gear driven from the engine. The power steering system shall include an oil to air passive cooler.		
4.I	Power Steering Gear		
	The power steering gear shall be a TRW model TAS 65 with an assist cylinder		
4.J	Front Axle Cramp Angle		
	The chassis shall have a minimum front axle cramp angle of 44-degrees to the left and right.		
4.K	Chassis Alignment		
	The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.		
4.L	Rear Axle		
	The rear axle shall be a Meritor model RS-30-185 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 33,000 pounds.		
4.M	Rear Axle Warranty		
	The rear axle shall be warranted by Meritor for five (5) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.		
4.N	Rear Wheel Bearing Lubrication		
	The rear axle wheel bearings shall be lubricated with oil.		
4.O	Rear Axle Differential Control		
	A driver controlled differential lock shall be installed on the rear axle. This feature shall allow the main differential to be locked and unlocked when encountering poor road or highway conditions, where maximum traction is needed, for use at speeds no greater than 25 MPH. The differential lock shall be controlled by a locking rocker switch on the switch panel. The light on the switch shall illuminate with positive engagement of the differential control.		
4.P	Vehicle Top Speed		
	The vehicle's top speed shall be approximately 72MPH +/-2MPH at governed engine RPM.		
4.Q	Rear Suspension		
	The single rear axle shall feature a Reyco 79KB suspension which shall offer a vari-rate, self-leveling captive slipper type conventional multi-leaf spring suspension with 57.50-inch X 3.00-inch springs. One (1) adjustable and one (1) fixed torque rod shall be provided. A helper spring shall be provided in addition to the standard spring pack to help prevent vehicle sway during aggressive cornering. The rear suspension capacity shall be rated at 21,000 to 33,000 pounds.		
4.R	Tire Intermittent Service Rating		
	The chassis shall be rated using Intermittent Service ratings provided to the emergency vehicle market by the tire manufacturers as the basis for determining the maximum vehicle load and speed.		
4.S	Front Tire		
	The front tires shall be Michelin 385/65R22.5 "L" tubeless radial X Multiway HD XZE regional tread. The front tire stamped load capacity shall be 22,000 pounds per axle with a nominal speed rating of 68 miles per hour when properly inflated to 130 pounds per square inch.		
4.T	Rear Tire		

	The rear tires shall be Michelin 315/80R-22.5 20PR "L" tubeless radial XDN2 Grip all weather tread. The rear tire stamped load capacity shall be 33,080 pounds per axle with a nominal speed rating of 75 miles per hour when properly inflated to 130 pounds per square inch.		
4.U	Rear Axle Ratio		
	The rear axle ratio shall be 4.89:1.		
4.V	Tire Pressure Indicator		
	There shall be electronic chrome LED valve caps shipped loose for installation by the OEM which shall illuminate with a red LED when tire pressure drops 8psi provided. The valve caps are self-calibrating and set to the pressure of the tire upon installation.		
4.W	Front Wheel		
	The front wheels shall be Alcoa hub piloted, 22.50-inch X 12.25-inch aluminum wheels featuring a mirror polish on the outer face. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.		
4.X	Rear Wheel		
	The outer rear wheels shall be Alcoa hub piloted, 22.50-inch X 9.00-inch aluminum wheels with a mirror polished outer surface. The inner rear wheels shall be Alcoa hub piloted, 22.50-inch X 9.00-inch aluminum wheels with bright machine finish. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.		
4.Y	Tire Chains		
	On-Spot brand six (6) strand automatic ice chains shall be installed on the rear axle of the chassis to provide instant traction while traveling on ice and snow at speeds below 35 MPH.		
4.Z	Tire Chain Activation		
	The tire chain system shall be activated by a locking switch on the dash to deter accidental activation. The light on the switch shall illuminate when the tire chains are engaged. The tire chains shall be interlocked with the transmission and shall engage only if the vehicle is traveling 30 MPH or less. After traveling over 30 MPH, the vehicle must be reduced to a speed below 5 MPH for the tire chains to be engaged or re-engaged.		
4.AA	Brake System		
	A rapid build-up air brake system shall be provided. The air brakes shall include, at a minimum, a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inches of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a service brake application in the unlikely event of primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification. The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI. A four (4) sensor, four (4) modulator anti-lock braking system (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.		

	Additional safety shall be accommodated through Automatic Traction Control (ATC) which shall be installed on the single rear axle. The ATC system shall apply the ABS when the drive wheels lose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces. A momentary rocker style switch shall be provided and properly labeled "mud/snow". When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light and the light on the rocker switch shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.		
4.BB	Electronic Stability Control		
	The Electronic Stability Control (ESC) unit is a functional extension of the electronic braking system. ESC shall detect any skidding of the vehicle about its vertical axis as well as any rollover tendency. The control unit comprises an angular-speed sensor that measures the vehicle's motion about the vertical axis, caused, for instance, by cornering or by skidding on a slippery road surface. An acceleration sensor measures the vehicle's lateral acceleration. The Controller Area Network (CAN) bus provides information on the steering angle. On the basis of lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.		
4.CC	Front Brakes		
	Front Brakes shall be 17.00 inch disc brakes with vented rotors		
4.DD	Rear Brakes		
	Rear Brakes shall be S-cam drum type with a cast iron shoe.		
4.EE	Park Brake		
	Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.		
4.FF	Park Brake Control		
	A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake.		
4.GG	Air Dryer		
	The brake system shall include a Wabco System Saver 1200 air dryer with an integral 100-watt heater with a Metri-Pack sealed connector.		
4.HH	Air Compressor		
	The air compressor provided for the engine shall be a Wabco® SS318 single cylinder pass-through drive type compressor which shall be capable of producing 18.7 CFM at 1200 engine RPMs.		
4.II	Air Governor		
	An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements.		
4.JJ	Moisture Ejectors		
	Manual pet-cock type drain valves shall be installed on all reservoirs of the air supply system.		
4.KK	Air Supply Lines		
	The air system on the chassis shall be plumbed with color coded reinforced nylon tubing air lines. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.		

	Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.		
4.LL	Air Inlet Connection		
	An air connection for the shoreline air inlet shall be supplied. The air inlet shall be installed in the left-hand side lower front step in the forward position. The air connector supplied shall be a 0.25-inch size Tru-Flate Interchange style manual connection which is compatible with Milton 'T' style, Myers 0.25-inch Automotive style and Parker 0.25-inch 10 Series connectors.		
5	**Cab and Chassis Exterior**		
5.A	Chassis wheelbase		
	The customer does not currently have length restrictions for the apparatus, however, keeping a reasonable length to manage the terrain of the District is a priority.		
5.B	Frame		
	The frame shall consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame rails shall be formed in the shape of a "C" channel, with the outer rail measuring approximately 10.25 inches high X 3.50 inches deep upper and lower flanges X 0.38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and 0.38 inches thick. Proposals including heat treated rails shall not be considered. A minimum of five (5) fully gusseted 0.25-inch-thick cross members shall be installed Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25-inch-thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.		
5.C	Frame Paint		
	The frame rails shall be hot dip galvanized prior to assembly and attachment of any components. The frame parts which are not galvanized shall be powder coated prior to any attachment of components.		
5.D	Frame Assembly Structure Warranty		
	Purchaser shall receive a Frame Assembly Structural Twenty (20) Years, or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0304. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.		
5.E	Frame Rail Corrosion		
	Purchaser shall receive a Frame Rail Corrosion (Zinc Plate and Powder Coat) Twenty-Five (25) Years, or 150,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0316. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.		
5.F	Frame Components Corrosion		
	Purchaser shall receive a Frame Components Corrosion (Powder Coat) Three (3) Years, or 48,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0313. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.		
5.G	Front Bumper		

	A one piece, two (2) rib wrap-around style, polished stainless steel front bumper shall be provided. The material shall be 10-gauge 304 stainless steel, 12.00 inches high and 99.00 inches wide.		
5.H	Front Bumper Extension Length		
	The front bumper shall extend no further than 18" ahead of the cab, while providing adequate room for a bumper discharge and minimum 100' hose load.		
5.I	Front Bumper Apron		
	The extended front bumper shall include an apron constructed of 0.19-inch-thick embossed aluminum tread plate.		
5.J	Front Bumper Discharge		
	The chassis shall include frame mounted 2.00-inch diameter plumbed pipe intended for use as a discharge trash line. The discharge pipe shall be routed from the left-hand front splay rail area behind the bumper to the area rear of the front axle, ahead of the battery box. The discharge pipe shall be a 2.00-inch stainless steel schedule 10 tube. The discharge shall include a Victaulic groove for connecting to the pump and discharge hose plumbing on each end of the tube. The apparatus manufacturer shall plumb the discharge pipe to the pump and shall provide all valves as required.		
5.K	Front Bumper Center Compartment		
	The front bumper shall include a compartment in the bumper apron located in the center between the frame rails which may be used as a hose well. The compartment shall be constructed of 0.13 inch 5052-H32 grade aluminum and shall include drain holes in the bottom corners to allow excess moisture to escape.		
5.L	Mechanical Siren		
	The front bumper shall include an electromechanical Federal Q2B™ siren. The siren shall be recess mounted on the left side of the front fascia of the bumper approximately in the center of the flat surface between the bumper radius and the frame rail. The front of the siren shall include (2) stainless steel flat bars approximately 1.00 inch wide by 19.00 inches long. Each bar shall be placed vertically on the right and left side of the siren face wrapping around towards the back of the siren into the bumper extension offering protection to the Q2B siren.		
5.M	Air Horn		
	The front bumper shall include two (2) Hadley brand E-Tone air horns which shall measure 21.00 inches long with a 6.00-inch round flare. The air horns shall be trumpet style with a chrome finish on the exterior and a painted finish deep inside the trumpet. The air horns shall be recess mounted in the front bumper face on the right side of the bumper in the inboard and outboard positions relative to the right-hand frame rail.		
5.N	Air Horn Reservoir		
	One (1) air reservoir, with a 1200 cubic inch capacity, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.		
5.O	Electronic Siren Speaker		
	There shall be one (1) Cast Products Inc. model SA4301, 100-watt speaker provided. The speaker shall include a flat mounting flange which shall be polished aluminum.		

	The electronic siren speaker shall be located on the front bumper face in the center position between the frame rails.		
5.P	Front Bumper Tow Hooks		
	Two (2) heavy duty tow hooks, painted to match the frame components, shall be installed in the rearward position out of the approach angle area, bolted directly to the side of each chassis frame rail with grade 8 bolts.		
5.Q	Cab Tilt System		
	The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The cab tilt pump assembly shall be located on the right side of the chassis above the battery box. The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the "Down" button to indicate safe road operation. It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit. Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks. Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be anchored to frame brackets. A steel safety channel assembly painted safety yellow shall be installed on the right-side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.		
5.R	Cab Tilt Auxiliary Pump		
	A manual cab tilt pump module shall be attached to the cab tilt pump housing.		
5.S	Cab Tilt Control Receptacle		
	The cab tilt control cable shall include a receptacle to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include a six (6) pin Deutsch receptacle with a cap. The remote-control pendant shall include 20.00 feet of cable with a mating Deutsch connector		
5.T	Cab Tilt Lock-Down Indicator		
	The cab dash shall include a message which shall alert the driver when the cab is unlocked and ajar. In addition to the alert message an audible alarm shall sound when the cab is unlocked and ajar with the parking brake released.		
5.U	Cab Windshield		
	The cab windshield shall have a wraparound design for maximum visibility. The glass utilized for the windshield shall include standard automotive tint.		
5.V	Glass Front Door		
	The front cab doors shall include a window which has the capability to roll down completely into the door housing. This shall be accomplished manually utilizing a crank style handle on the inside of the door. The windows in the front doors shall have a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.		
5.W	Glass Rear Door		

	The rear right hand side door shall include a window which shall roll up and down manually utilizing a crank style handle on the inside of the door. The windows shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance.		
5.X	Glass Side Mid-Cab		
	The cab shall include a window on the left and right side behind the front and ahead of the crew door. This window shall be fixed within this space and shall be rectangular in shape. The windows shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance.		
5.Y	Glass Rear Wall Outer/Upper		
	The rear wall of the cab on the left and right sides shall include a window which shall measure 8.00 inches in width X 26.00 inches in height. These windows shall be fixed within this space and shall be rectangular in shape. The windows shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance.		
5.Z	Windshield Wiper System		
	The cab shall include a triple arm linkage wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers; each shall be affixed to a radial arm. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position.		
5.AA	Electronic Windshield Fluid Level Indicator		
	The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow "Check Message Center" indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a "Check Washer Fluid Level" message.		
5.BB	Cab Door Hardware		
	The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves.		
5.CC	Grab Handles		
	The cab shall include one (1) 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle shall be made of SAE 304 stainless steel and be 1.25-inch diameter to enable non-slip assistance with a gloved hand.		
5.DD	Rearview Mirrors		
	Retrac Aerodynamic West Coast style dual vision mirror heads model 613295 shall be provided and installed on each of the front cab doors. The mirrors shall be mounted via 1.00-inch diameter tubular stainless-steel arms to provide a rigid mounting to reduce mirror vibration. The mirrors shall measure 8.00 inches wide X 19.00 inches high and shall include integral convex mirrors installed in the mirror head below the flat glass to provide a wider field of vision. The flat and convex mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver. The mirrors shall be constructed of a vacuum formed chrome plated ABS plastic housing that is corrosion resistant and shall include the finest quality non-glare glass.		
5.EE	Cab Fender		
	Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner		

	liner 16.00 inches wide made of vacuum formed ABS composite and an outer fenderette 5.00 inches wide made of SAE 304 polished stainless steel.		
5.FF	Mud Flap Front		
	The front wheel wells shall have mud flaps installed on them.		
6.	Cab Interior		
6.A	Climate Control		
	A ceiling mounted combination defroster and cabin heating and air conditioning system shall be located above the engine tunnel area. The system covers and plenums shall be of severe duty design made of aluminum which shall be coated with a customer specified interior paint. The design of the system's covers shall provide quick access to washable air intake filters as well as easy access to other serviceable items. The air delivery plenums provide targeted airflow directly to the vehicle occupants. Six (6) adjustable louvers will provide comfort for the front seat occupants and ten (10) adjustable louvers will provide comfort for the rear crew occupants. The system shall be capable of producing up to 12 FPM of air velocity at all occupant seating positions. Separate front and rear blower motors shall be of brushless design and shall be controlled independently. It shall be capable of reducing the interior cabin air temperature from 122˚ F (+/- 3˚ F) to 80˚ F in thirty minutes with 50% relative humidity and full solar load as described in SAE J2646. The system shall also provide heater pull up performance which meets or exceeds the performance requirements of SAE J1612 as well as defrost performance that meets or exceeds the performance requirements of SAE J381. A gravity drain system shall be provided that is capable of evacuating condensate from the vehicle while on a slope of up to a 13% grade in any direction. The air conditioning system plumbing shall be a mixture of custom bent zinc coated steel fittings and Aeroquip flexible hose with Aeroquip EZ-Clip fittings. The overhead heater/defroster plumbing shall include an electronic flow control valve that re-directs hot coolant away from the evaporator, via a bypass loop, as the temperature control is moved toward the cold position. Any component which needs to be accessed to perform system troubleshooting shall be accessible by one person using basic hand tools. Regularly serviced items shall be replaceable by one person using basic hand tools. ****The chassis manufacturer recommends that the overall climate system performance be based off third-party testing in accordance with the Society of Automotive Engineering standards as a complete system.*** ***Individual component level BTU ratings is not an accurate indicator of the performance capability of the completed system. System individual component BTU ratings:*** ● Air conditioning evaporator total BTU/HR: 82,000 ● Air conditioning condenser total BTU/HR: 59,000 ● Heater coil total BTU/HR: 98,000		
6.B	Climate Control Drain		
	The climate control system shall include a gravity drain for water management. The gravity drain shall remove condensation from the air conditioning system without additional mechanical assistance.		
6.C	AC Compressor		
	The air-conditioning compressor shall be a belt driven, engine mounted, open type. The compressor shall utilize R-134A refrigerant and PAG oil.		
6.D	Under Cab Insulation		

	The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation, engineered for application inside diesel engine compartments.		
6.E	Interior Floor Trim		
	The floor of the cab shall be covered with a multi-layer mat consisting of sound absorbing closed cell foam with thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive and aluminum trim molding. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.		
6.F	Interior Trim		
	The cab interior shall include trim on the front ceiling, rear crew ceiling, and the cab walls. It shall be easily removable to assist in maintenance. The trim shall be constructed of insulated vinyl over a hard board backing.		
6.G	Rear Wall Interior Trim		
	The rear wall of the cab shall be trimmed with vinyl.		
6.H	Header Trim		
	The cab interior shall feature header trim over the driver and officer dash constructed of 5052-H32 Marine Grade, 0.13-inch-thick aluminum.		
6.I	Trim Center/Left/Right/Dash		
	The main center dash area shall be constructed of aluminum plate. The left-hand dash shall be fit around the instrument panel. The left-hand dash shall offer lower vertical surface area to the left and right of the steering column to accommodate control panels.		
6.J	Trim RH Dash		
	The right-hand dash shall include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. The MDT provision shall be provided above the glove compartment.		
6.K	Engine Tunnel Trim		
	The cab engine tunnel shall be covered with a multi-layer mat. There shall be a mounting plate made from 3/16” aluminum covering the top surface of the engine tunnel for mounting accessories without damage to the engine tunnel and covering.		
6.L	Power Point Dash Mount		
	The cab shall include one (1) 12-volt cigarette lighter type receptacle in the switch panel to provide a power source for 12-volt electrical equipment. The cab shall also include two (2) Blue Sea combination dual universal serial bus (USB) and universal serial bus type C (USB-C) charging receptacles in the cab dash switch panel to provide a power source for USB/USB-C chargeable electrical equipment. The USB ports shall be capable of a 5 Volt-2.1-amp total output. The receptacles shall be wired battery direct.		
6.M	Step Trim		
	Each cab entry door shall include a three-step entry. The first step closest to the ground shall be constructed of SAE 304 stainless steel with embossed perforations and cutouts. The step shall feature a splash guard to reduce water and debris from splashing into the step. The splash guard shall have drainage holes beneath the back of the step to allow debris and water to flow through rather than becoming trapped within the stepping surface. The stainless-steel material shall have a number 8 mirror finish. The lower step shall be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed with a Flex-Tred® adhesive grit surface material.		
6.N	Step Trim Kickplate		

	The cab steps shall include a kick plate in the rise of each step. The risers shall be trimmed in 3003-H22 bright aluminum tread-plate.		
6.O	Under Cab Access Door		
	The cab shall include an access door in the left crew step riser constructed of aluminum tread plate with a push and turn latch. The under-cab access door shall provide access to the diesel exhaust fluid fill.		
6.P	Interior Door Trim		
	The interior trim on the doors of the cab shall consist of an aluminum panel constructed of Marine Grade 5052-H32 0.13 of an inch thick aluminum plate. The door panels shall include a painted finish.		
6.Q	Door Trim Customer Nameplate		
	The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for the Ozark Fire Protection District.		
6.R	Cab Door Reflective Trim		
	The interior of each door shall include high visibility reflective tape. A black reflective tape shall be provided vertically along the outer rear edge of the door. The lowest portion of each door skin shall include a reflective tape chevron with red and black stripes. The chevron tape shall measure 6.00 inches in height.		
6.S	Interior Grab Handles		
	There shall be two (2) rubber covered 11.00-inch grab handles installed inside the cab, one on each “A” post at the left and right door openings. Each front door shall include one (1) ergonomically contoured cast aluminum handle mounted horizontally on the interior door panels. An aluminum assist handle shall be provided on the inside of each rear crew door. The handle shall assist personnel in exiting and entering the cab.		
6.T	Interior Soft Trim Color		
	The cab interior soft trim surfaces shall be gray in color.		
6.U	Interior Trim Sun Visor		
	The header shall include two (2) sun visors, one (1) on each side forward of the driver and officer seating positions above the windshield. The sun visors shall be constructed of impact resistant, transparent acrylic polycarbonate sun visors with a smoke gray tint.		
6.V	Interior Floor Mat Color		
	The cab interior floor shall be gray in color.		
6.W	Cab Interior Door Trim		
	The inner door panel surface shall be painted with an easy-to-clean gray texture finish. The metal surfaces in the header area shall be coated with an easy-to-clean gray texture finish. The entire center dash shall be coated with an easy-to-clean matte gray texture finish. Any accessory pods attached to the dash shall also be painted this color. The left-hand dash shall be painted with an easy-to-clean matte gray texture finish. The right-hand dash shall be painted with an easy-to-clean matte gray texture finish.		
6.X	Dash Panel Group		
	The main center dash area shall include three (3) removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one		

	(1) to the left of the officer position. The center panel shall be within comfortable reach of both the driver and officer.		
6.Y	Switches Center Panel		
	The center dash panel shall include twelve (12) rocker switch positions in a single row across the top of the panel.		
6.Z	Switches Left Panel		
	The left dash panel shall include ten (10) switches. There shall be six (6) switches across the top of the panel and four (4) across the bottom of the panel offset left. Five (5) of the top rows of switches shall be rocker type and the left one (1) shall be the headlight switch. Two (2) of the lower rows of switches shall be rocker type and the left two (2) shall be the windshield wiper/washer control switch and instrument lamp dimmer switch.		
6.AA	Switches Right Panel		
	The right dash panel shall include no rocker switches or legends.		
6.BB	Seat Belt Warning		
	A Weldon seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall activate a digital seat position indicator with a seat position legend and integrated audible alarm in the switch panel.		
6.CC	Seat Material/color		
	The Bostrom Firefighter seats shall include a covering of extra high strength, wear resistant fabric made of durable low seam Durawear Plus™ ballistic polyester. All Seats supplied with the chassis shall be gray in color. All shall include red seatbelts.		
6.DD	Seat Driver		
	The driver's seat shall be an H.O. Bostrom 500 Series Firefighter Sierra model seat with air suspension. The four-way seat shall feature a 3.00 inches vertical travel air suspension and manual fore and aft adjustment with 5.00 inches of travel. The suspension control shall be located on the seat below the left front corner of the bottom cushion. The driver’s seat shall include a standard seat back incorporating all belts to seat features (ABTS). The seat back shall recline up to 19-degrees		
6.EE	Seat Officer		
	The officer's seat shall be an H.O. Bostrom 500 Series Sierra model seat. The seat shall feature two-way manual adjustment and shall include a tapered and padded seat cushion. The seat shall feature an all belts to seat (ABTS) style of safety restraint. The officer’s seat shall include a standard seat back incorporating all belts to seat feature (ABTS). The seat back shall feature a contoured head rest. The officer’s seat shall offer a special mounting position which is 2.00 inches rearward of the standard location offering increased leg room for the occupant.		
6.FF	Seat Rear Facing Outer Location		
	The crew area shall include two (2) rear facing crew seats, which include one (1) located directly behind the left side front seat and one (1) located directly behind the right-side front seat.		
6.GG	Seat Crew Rear Forward Facing		
	The crew area shall include a seat in the rear facing outboard position which shall be a H.O. Bostrom 500 Series Firefighter model seat. The seat shall feature a tapered and padded seat, and cushion. The seat shall feature an all belts to seat (ABTS) style of safety restraint. Each outboard seat shall feature a Bostrom SecureAll™ self-contained breathing apparatus (SCBA) locking		

	system. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters. The bracket shall be adjustable to compensate for different cylinder lengths without the use of tools. The adjustment shall be made by raising a lever and moving the top clamp vertically**.** The bracket system shall be free of straps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the SCBA tank in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions. The SecureAll™ shall include a release handle which shall be integrated into the center of the bottom seat cushion for easy access and to eliminate hooking the release handle with clothing or other equipment. The seat back shall include a removable padded cover which shall be provided over the SCBA cavity. The rear facing outer seats shall offer special mounting positions which shall be 2.00 inches towards the rear wall offering additional space between the front seats and the outer rear facing seats.		
6.HH	Cab Front Under Seat Storage Access Door		
	The right under seat storage area shall have a solid aluminum hinged door with non-locking latch.		
7.	**Electrical System**		
7.A	NFPA 1901 Certified 12 Volt Electrical System		
	The NFPA 1901 defined minimum electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode: ● Propulsion engine and transmission. ● The clearance and marker lights. ● Communication equipment (5-amp default). ● Illumination of all walking surfaces, the ground at all egress points, control and instrumentation panels and 50% of total compartment lighting. ● Minimum warning lights required for "blocking right of way" mode. ● The current to simultaneously operate and fire pump and all specified electrical devices. ● Anything defined by the purchaser, in the advertised specifications, to be critical to the mission of the apparatus.		
7.B	Reserve Capacity Test		
	A Reserve Capacity Test shall be performed on the completed apparatus. All items listed in NFPA Minimum Load Definition shall be activated with the engine shut off. After 10 minutes of operation, those items shall be deactivated. After deactivation, the battery system shall have ample reserve to start the engine.		
7.C	Alternator Performance Test		
	An "alternator performance test at idle" test shall be completed. The minimum continuous electrical load shall be activated with the engine running at idle speed. When the engine temperature has been stabilized at idle speed, the		

	battery system shall be tested to detect any battery discharge current.		
7.D	Alternator Performance Test at Idle		
	An "alternator performance test at idle" test shall be completed. The minimum continuous electrical load shall be activated with the engine running at idle speed. When the engine temperature has been stabilized at idle speed, the battery system shall be tested to detect any battery discharge current.		
7.E	Alternator Performance Test at Full Load		
	An "alternator performance test at full load" test shall be completed. The minimum continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed for a 2-hour period.		
7.F	Test Conditions		
	All electrical testing shall be performed with the engine compartment at approximately 200 degrees.		
7.G	12Volt Wiring System		
	All 12-volt electrical wiring shall be SXL cross link rated to carry 125% of the maximum current for which the circuit is protected. The wire shall be of sufficient size so that voltage drop in any electrical device does not exceed 10%. All wiring shall be color, number, and function coded with the number and function being printed every 3" along the entire length of all apparatus body wires (as required by NFPA 1901). All wiring shall be routed through heavy duty PVC split loom securely attached and protected against heat, oil, and physical damage. All locations where the wire passes through a body panel shall be protected with electrical grommets. All connections shall be made using mechanical connectors and be screwed to terminal or junction box with machine screws. Wire nut, insulation displacement, or piercing connections shall not be used. All circuits shall be provided with properly rated low voltage over current protective devices of the automatic reset type. Removable access panels shall be provided to provide access to the wire and electrical components.		
7.H	Multi-Plexed Electrical System		
	The apparatus body electrical system shall incorporate a Multiplexed Electrical System. The system, at a minimum, shall be capable of performing the following functions: load management sequencing, switch loads, receive digital and analog signals, perform and report diagnostics, continuously report vehicle status and the system is expandable. The Base System Shall Include: ● Total Load Management ● Load Shedding Capabilities ● Load Sequencing Capabilities		

	• "On-Board" Diagnostics Readout • Very Reliable, Solid-State Hardware • Error Reporting • Continuous system monitoring and reporting • Emergency warning lamp flasher • Door Ajar System • Field Configurable • Expandability Capabilities • Advanced PC Diagnostics As-built wiring harness drawings and a master circuit list of electrical circuits that the apparatus builder installs shall be furnished in the delivery manuals. These schematics must show the electrical system broken down into separate functions, or small groups of related functions. Schematics shall depict circuit numbers, electrical components, harnesses, and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus builder shall not be accepted**.		
7.I	Multi-Plexed Warranty		
	The multiplexed electrical system shall be warranted, under normal use and service, for a period of four years. One-year parts and labor and the remaining three years parts only.		
7.J	Ignition		
	A master battery system with a keyless start ignition system shall be provided. A chrome push type starter button shall be provided adjacent to the master battery and ignition switches. Each switch shall illuminate a green LED indicator light on the dash when the respective switch is placed in the "ON" position. The starter button shall only operate when both the master battery and ignition switches are in the "ON" position.		
7.K	Battery		
	The single start electrical system shall include three (3) Harris BCI 31 925 CCA batteries with a 210-minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541.		
7.L	Battery Tray		
	The batteries shall be installed on a steel battery tray located on the left side of the chassis, securely bolted to the frame rails. The battery tray shall be coated with the same material as the frame. The battery tray shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the tray to allow for air flow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards. The battery box shall include a steel cover which protects the top of the batteries.		
7.M	Battery Cable		
	The starting system shall include cables which shall be protected by 275-degree F. minimum high temperature flame retardant loom, sealed at the ends with heat shrink and sealant.		
7.N	Battery Jumper Stud		
	The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.		

7.O	Alternator		
	The charging system shall include a 270-amp Leece Neville 12-volt alternator. The alternator shall include a self-excited integral regulator.		
7.P	Starter Motor		
	The single start electrical system shall include a Delco brand starter motor.		
7.Q	Battery Conditioner		
	A Kussmaul Auto Charge 40 LPC battery conditioner shall be supplied. The battery conditioner shall be mounted in the cab. A Kussmaul battery conditioner display shall be supplied. The battery conditioner display shall viewable outside the cab.		
7.R	Auxiliary Air Compressor		
	A Kussmaul Auto Pump 120V air compressor shall be supplied and mounted horizontally in the cab. The air compressor shall include an auto drain as an extra precaution to prevent moisture from entering the air system. The automatic moisture drain shall be plumbed into the system between the auxiliary air compressor pump and the air tanks.		
7.S	Electrical Inlet		
	A Kussmaul 20-amp super auto-eject electrical receptacle shall be supplied, installed to the rear of the driver's door over the wheelwell. It shall automatically eject the plug when the starter button is depressed. The electrical inlet shall be connected to the battery conditioner. The electrical inlet connection shall include a red cover.		
7.T	Headlights		
	The cab front shall include four (4) rectangular LED headlamps with separate high and low beams mounted in bright chrome bezels. Each lamp shall include a heating system that de-ices the headlight. The headlights shall be located on the front fascia of the cab directly below the front warning lights.		
7.U	Front Turn Signals		
	The front fascia shall include two (2) Whelen C6 SurfaceMax™ series programmable amber LED light heads which shall be installed in an outboard position within the front fascia chrome bezel.		
7.V	Side Turn/marker Lights		
	The sides of the cab shall include two (2) Tecniq S170 LED side marker lights which shall be provided just behind the front cab radius corners. The lights shall be amber with chrome bezels.		
7.W	Marker and ICC Lights		
	There shall be five (5) LED cab marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level. The lights shall be amber with chrome bezels.		
7.X	Headlight and Marker Light Activation		
	The headlights and marker lights shall be controlled through a rocker switch within easy reach of the driver. There shall be a dimmer switch within easy reach of the driver to adjust the brightness of the dash lights. The headlamps shall be equipped with the "Daytime Running" light feature, which shall illuminate the headlights when the ignition switch is in the "On" position and the parking brake is released.		
7.Y	Lightbar Switch		
	The light bar shall be controlled by a rocker switch located on the switch panel. This switch shall be clearly labeled for identification.		
7.Z	Interior Overhead Lights		

	The cab shall include a LED dome lamp located over each door. The lights shall include push switches on each lamp to activate both the clear and red portions of the light individually. The clear portion of the lamp shall be activated by opening the respective door.		
7.AA	Cab Front Lightbar		
	There shall be one (1) light bar installed on the cab roof. The light bar shall be provided and installed by the chassis manufacturer. The light bar installation shall include a lowered mounting that shall place the light bar just above the junction box and wiring to a control switch on the cab dash. The cab shall be provided with one (1) Whelen model F4N72 light bar. The light bar shall be 72.00 inches in length and feature eighteen (18) customizable pods. Position 1- Blank Rear LH Corner Position 2- Red LH Side Position 3- Red Front LH Corner Position 4- White Position 5- Blue Position 6- Red Position 7- White Position 8- Blue Position 9- Single Pioneer Position 11- Blue Position 12- White Position 13- Red Position 14- Blue Position 15- White Position 16- Fed Front RH Corner Position 17- Red RH Side Position 18- Blank Rear RH Corner		
7.BB	Front Scene Light		
	The front of the cab shall include a Whelen Pioneer PCH1 spot/scene light integrated into the lightbar. The light housing shall be black in color. The front scene lighting shall be activated by a rocker switch.		
7.CC	Ground Lights		
	Each door shall include LED ground light mounted to the underside of the cab step below each door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock-mounted for extended life. The ground lighting shall be activated when the parking brake is set, by the opening of the door on the respective cab side, and a rocker switch in the dash panel.		
7.DD	Lower Cab Step Lights		
	The middle step located at each door shall include LED light which shall activate with the opening of the respective door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock-mounted for extended life.		
7.EE	Intermediate Step Lights		
	The intermediate step well area at the front doors shall include LED light. The front egress step lights shall provide visibility to the step well area for the first		

	step exiting the vehicle. The Egress step lights shall activate with entry step lighting.		
7.FF	Engine Compartment Light		
	There shall be a LED NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall activate automatically when the cab is tilted.		
7.GG	Do Not Move Apparatus Light		
	The front headliner of the cab shall include a flashing red LED light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated. The flashing red light shall be located centered left to right for greatest visibility. The light and alarm shall be interlocked for activation when either a cab door is not firmly closed, or an apparatus compartment door is not closed, and the parking brake is released.		
7.HH	Master Warning Switch		
	A master switch shall be included in the main rocker switch panel. The switch shall be a rocker type, red in color and labeled “Master” for identification. The switch shall feature control over all devices wired through it. Any warning device switch left in the “ON” position shall automatically power up when the master switch is activated.		
7.II	Inboard Front Warning Lights		
	The cab front fascia shall include two (2) Whelen C6 SurfaceMax™ series Super LED front warning lights in the left and right inboard positions mounted within a chrome bezel. The warning lights shall be red with a clear lens. The front warning lights shall be controlled via rocker switch on the panel. This switch shall be clearly labeled for identification.		
7.JJ	Intersection Warning Lights		
	The chassis shall include two (2) Whelen C6 SurfaceMax series Super LED intersection warning lights, one (1) each side mounted within a chrome bezel. The intersection lights shall be red with a clear lens. The intersection lights shall be mounted on the side of the bumper in the rearward position. The side and intersection warning lights shall be controlled by a rocker switch on the switch panel. This switch shall be clearly labeled for identification.		
7.KK	Traffic Advisor		
	The cab shall contain a Whelen TACTL5 Traffic Advisor control head located in the header above the driver for OEM installation. The power to the control head shall be ignition switched and activation dependent upon the state of the controllers switched position upon ignition. A Whelen TAM65 shall be mounted at the rear of the body.		
7.LL	Roto-Ray Warning Light		
	A Roto-Rays® warning light shall be provided on the cab. The Roto-Rays light shall consist of three (3) round chrome heads, each equipped with an LED light. The LED lights shall be one (1) red, one (1) blue, and one (1) green in color. The Roto-Rays light shall be installed on the top center of the cab front fascia. When activated, the entire light head assembly shall rotate at 200 RPM. The Roto-Rays® front warning light(s) shall be separately controlled through a rocker switch on the main panel. This switch shall be clearly labeled for identification. When the parking brake is engaged, the light shall stop rotating.		
7.MM	Siren Control Head		
	A Whelen 295HFS2 electronic siren control head with remote amplifier shall be provided and flush mounted in the switch panel with a location specific to the customer’s needs. The siren shall feature 200-watt output, hands free mode and shall be in “standby” mode awaiting instruction. The siren shall offer radio broadcast, public address, wail, yelp, or piercer tones and hands-free operation which shall allow the operator to turn the siren on and off from the horn ring if a		

	horn/siren selector switch option is also selected.		
7.NN	Audible Warning LH Foot Switch		
	Two (2) foot actuated switches shall be supplied for installation in the front section of the cab for driver actuation. One (1) switch shall be wired to actuate the air horns (inboard switch) and one (1) switch the mechanical siren (outboard switch). All foot switches shall be a Linemaster model 491-S. A 30.00-degree angled foot switch bracket, wide enough to accommodate (2) foot switches, shall be installed outboard of the steering column for specified driver accessible foot switch activations.		
7.OO	Audible Warning RH Foot Switch		
	Two (2) foot actuated switches shall be supplied for installation in the front section of the cab for driver actuation. One (1) switch shall be wired to actuate the air horns (inboard switch) and one (1) switch the mechanical siren (outboard switch). All foot switches shall be a Linemaster model 491-S A 30.00-degree angled foot switch bracket, wide enough to accommodate (2) foot switches, shall be installed outboard of the steering column for specified driver accessible foot switch activations		
7.PP	Mechanical Siren Brake/Auxiliary Activation		
	Two (2) red push button type momentary type siren brakes shall be provided in the switch panel on the dash. The siren shall only be active when the master warning switch is on to prevent accidental engagement.		
7.QQ	Back-up Alarm		
	An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of 107 db. The alarm shall automatically activate when the transmission is placed in reverse.		
7.RR	Instrumentation		
	An ergonomically designed instrument panel shall be provided. Each gauge shall be backlit with LED lamps. Stepper motor movements shall drive all gauges. The instrumentation system shall be multiplexed and shall receive ABS, engine, and transmission information over the J1939 data bus to reduce redundant sensors and wiring. A twenty-eight (28) icon lightbar message center with integral LCD odometer/trip odometer shall be included. The odometer shall display up to 999,999.9 miles. The trip odometer shall display 9,999.9 miles. The LCD message center screen shall be capable of custom configuration by the users for displaying certain vehicle status and diagnostic functions. The instrument panel shall contain the following gauges: Speedometer, fuel level, and Diesel Exhaust Fluid (DEF) level. An audible alarm shall indicate low fuel or low DEF at 1/8th tank level. Tachometer displaying engine RPM, and primary and secondary air system pressures shall be included. Red indicator lights in the gauge and an audible alarm shall indicate low air pressure.		

	Engine oil pressure, coolant temperature, voltmeter, and transmission temperature shall be included. A red indicator light in the gauge and an audible alarm shall indicate high or low system voltage. The low voltage alarm shall indicate when the system voltage has dropped below 11.8 volts for more than 120 seconds in accordance with the requirements of NFPA 1901. A red indicator light in the gauge and an audible alarm shall indicate a high transmission temperature. The light bar portion of the message center shall include twenty-eight (28) LED backlit indicators. The lightbar shall be split with fourteen (14) indicators on each side of the LCD message screen. The lightbar shall contain the following indicators and produce the following audible alarms when supplied in conjunction with applicable configurations: <u>RED INDICATORS</u> Stop Engine - indicates critical engine fault. Air Filter Restricted - indicates excessive engine air intake restriction. Park Brake - indicates parking brake is set. Seat Belt - indicates a seat is occupied and corresponding seat belt remains unfastened. Low Coolant - indicates critically low engine coolant. Cab Tilt Lock - indicates the cab tilt system locks are not engaged. <u>AMBER INDICATORS</u> Malfunction Indicator Lamp (MIL) - indicates an engine emission control system fault. Check Engine - indicates engine fault. Check Transmission - indicates transmission fault. Anti-Lock Brake System (ABS) - indicates anti-lock brake system fault. High exhaust system temperature – indicates elevated exhaust temperatures. Water in Fuel - indicates presence of water in fuel filter. Wait to Start - indicates active engine air preheat cycle. Windshield Washer Fluid – indicates washer fluid is low. DPF restriction - indicates a restriction of the diesel particulate filter. Regen Inhibit-indicates regeneration of the DPF has been inhibited by the operator. Range Inhibit - indicates a transmission operation is prevented and requested shift request may not occur. SRS - indicates a problem in the supplemental restraint system. Check Message - indicates a vehicle status or diagnostic message on the LCD display requiring attention. <u>GREEN INDICATORS</u> Left and Right turn signal indicators ATC - indicates low wheel traction for automatic traction control equipped vehicles, also indicates mud/snow mode is active for ATC system. High Idle - indicates engine high idle is active. Cruise Control - indicates cruise control is enabled. OK to Pump - indicates the pump is engaged and conditions have been met for pump operations. Pump Engaged - indicates the pump transmission is currently in pump gear. Auxiliary Brake - indicates secondary braking device is active. <u>BLUE INDICATORS</u> High Beam indicator		

	AUDIBLE ALARMS Air Filter Restriction Cab Tilt Lock Check Engine Check Transmission Open Door/Compartment High Coolant Temperature High or Low System Voltage High Transmission Temperature Low Air Pressure Low Coolant Level Low DEF Level Low Engine Oil Pressure Low Fuel Seatbelt Indicator Stop Engine Water in Fuel Extended Left/Right Turn Signal On ABS System Fault		
7.SS	Backlighting Color		
	The instrumentation gauges and the switch panel legends shall be backlit using red LED backlighting		
7.TT	Camera		
	An FRC branded inView 360-HD™ heavy duty 360° camera system powered by SEON shall be supplied. Three (3) HD cameras with box shaped housing shall be shipped loose for OEM installation in the body to afford the driver a clear view to the rear and sides of the vehicle and one (1) HD camera shall be mounted on the front of the cab, above the windshield. The system shall provide a dual camera view. One (1) view shall be a stitched bird's eye 360.00 degrees view around the truck and one (1) shall be a direct feed from a single camera. This feed shall display the rear camera when the transmission is placed in reverse, the left or right camera with the activation of the respective side turn signal, or the front camera at all other times.		
7.UU	Camera Display		
	The camera system shall be wired to a 7.00-inch flip down HD monitor which shall include a color display and day and night brightness modes installed above the driver position.		
7.VV	Communication Antennas		
	Two (2) antenna bases, for use with an NMO type antenna, shall be mounted respectively on the right-hand and left-hand front corners of the cab roof so as not to interfere with light bars or other roof-mounted equipment installed by chassis builder. The antenna base shall be an Antenex model MABVT8 made for either a 0.38 inch or 0.75 inch receiving hole in the antenna and shall include 17.00 foot of RG58 A/U cable with no connector at the radio end of the cable. The antenna base shall be chassis builder supplied. The antenna cable shall be routed from the antenna base mounted on the roof to the area inside the center rocker switch console.		
8.	**Fire Pump**		
8.A	Waterous Model CSU 1,500 GPM Single Stage Pump		
	The fire pump shall be a Waterous Fire Pump Company model CSU that complies with all applicable requirements of		

	the latest edition of the "Standard for Automotive Fire Apparatus" published by the National Fire Protection Association and printed in Pamphlet 1901.		
8.B	Waterous Seven-Year Limited Warranty-Parts Only		
	Waterous warrants, to the original Buyer only, that products manufactured by Waterous will be free from defects in material and workmanship under normal use and service for a period of seven (7) years from the date the product is first placed in service, or seven and one-half (7-1/2) years from the date of shipment by Waterous, whichever period shall be the first to expire. The Buyer shall notify Waterous, in writing, of the defect in said product within the warranty period, and said product is found by Waterous to be nonconforming with the aforesaid warranty.		
8.C	Underwriter's Laboratory Certification		
	The completed apparatus shall be tested and approved by the independent testing company Underwriter's Laboratories, Inc. The manufacturer of the apparatus shall be responsible for all costs involved in this test. The certification of inspection and approval shall be presented to the Department upon delivery of the completed apparatus.		
8.D	Pump Performance-1,500 U.S. GPM		
	The pump shall be a single stage centrifugal with a class "A" rated capacity of 1,500 United States gallons per minute. The pump shall deliver the percentage of rated discharge pressures as indicated below: ● 100 percent of rated capacity at 150 pounds net pressure. ● 70 percent of rated capacity at 200 pounds net pressure. ● 50 percent of rated capacity at 250 pounds net pressure. ● 100 percent of rated capacity at 165 pounds net pressure.		
8.E	Pump Construction		
	The fire pump shall be midship mounted. The pump shall be mounted across the chassis frame rails and shall be mounted at the fire pump manufacturer's recommended angular position with the drive shafts. The pump shall be free from objectionable pulsation and vibration under all normal operating conditions. The engine shall provide sufficient horsepower and revolutions per minute to allow the pump to meet or exceed its rated performance. The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the NFPA 1901 performance requirements. The pump transmission shall be rigidly attached to the pump body assembly and be of the latest design incorporating a high strength, involute, tooth-form Hy-Vo chain drive and driven sprockets capable of operating at high speeds to provide		

	smooth, quiet transfer of power.		
8.F	Impeller Flame Plate		
	The impeller shall have a Flame Plated Hub to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped.		
8.G	Mechanical Seal		
	The pump shaft shall have self-adjusting corrosion and wear resistant mechanical seals.		
8.H	FRC Pump Boss Pressure Governor System		
	Fire Research Pump Boss pressure governor and monitoring display kit shall be installed. The kit shall include a control module, pressure sensor, and cables.		
8.I	Intake Relief Valve		
	An intake relief/dump valve shall be provided on the intake side of the pump to relieve excess incoming pressure.		
8.J	Pump Shift		
	The pump shift system, including indicator lights, shall be provided.		
8.K	Manual Pump Shift Override-Remote Cable Actuation		
	A manual pump shift override shall be provided on the apparatus. The shift shall be remote cable actuated. The remote cable shall have a "T" handle control which shall be positioned just inside the pump compartment on the driver's side. The control shall be easily accessed through the side panel hinged access door. The control shall be clearly labeled "MANUAL PUMP SHIFT".		
8.L	Trident Priming System		
	A Trident air priming system shall be provided		
8.M	Manifold Drain Valve		
	The pump shall have a manifold type drain valve assembly consisting of a stainless steel plunger in a bronze body with multiple ports. The control for the valve shall be on the left side along the bottom of the panel and above the side running board. The valve shall be a rotary type with a large easy to grip handle. The valve shall be labeled "PUMP DRAIN".		
8.N	ICI "Lever Lift" Bleeder/Drain Valves		
	ICI 3/4" quarter turn ball type bleeder/drain valve shall be provided for each discharge and auxiliary intake. A hose shall be connected to the valve that will direct water below the apparatus and away from the immediate pump operator's location. The control handle shall be "lever lift" style for easy actuation. The handle for the control shall have a recessed area for the color-coded identification label.		
8.O	Low-Point Auto Drains		
	Automatic drains shall be provided in low points of any discharge piping. The drain shall drain to the ground below its location. This drain shall be a supplementary drain and will not be considered the required 3/4" bleeder drain.		
8.P	6" Left (Driver) Side Master Intake		
	A 6" master intake shall be provided on the left (driver) side of the apparatus. The intake shall have a 6" male NST connection. The intake shall have a removable screen to prevent the entry of large objects into the pump. The screen		

	shall be constructed of a material that will provide cathodic protection to the pump. A label shall be provided above the intake that states "DRIVER SIDE MASTER INTAKE". The label shall be color coded burgundy.		
8.Q	6” Right (Passenger) Side Master Intake		
	A 6" master intake shall be provided on the right (passenger) side of the apparatus. The intake shall have a 6" male NST connection. The intake shall have a removable screen to prevent the entry of large objects into the pump. The screen shall be constructed of a material that will provide cathodic protection to the pump. A label shall be provided above the intake that states "PASSENGER SIDE MASTER INTAKE". The label shall be color coded burgundy.		
8.R	6” Rear Master Intake		
	A rear master intake shall be provided and located on the right-side rear face of body near frame height.		
8.S	Akron 7950 Electric Master Intake Valve for Rear Master Intake		
	The rear master intake shall be equipped with an Akron 7950 electric operated intake valve mounted on the fire pump between the suction tube extension and the suction tube behind the pump panel. The valve shall not interfere with other suction or discharge openings on the fire pump. An Akron 9327 controller shall be provided on the pump operator's panel to open/close the valve. A 3/4" drain shall be provided on the intake to allow draining of the outer side of the valve. A 1/4" bleeder valve shall be provided on the intake to bleed off air on the outer side of the valve.		
8.T	Rear Master Intake Piping		
	All piping in the front intake shall be 4" stainless steel suction pipe. Heavy duty suction type hose may be used in areas that require a flex joint area. Victaulic couplings shall be used throughout the piping assembly to allow for easy disassembly if necessary. All elbows used in the piping shall be smooth radius type to allow maximum flow and minimum pressure loss. 3/4" drain(s) shall be provided in the low points on the front intake piping. The manually operated drain controls shall be accessible from the outside of the apparatus.		
8.U	Rear Intake Relief Valve		
	An intake relief/dump valve shall be provided in the supply side of the rear gated master intake to relief excess incoming pressure. The pressure setting shall be preset by the apparatus manufacturer at a 125-PSI position.		
8.V	Rear Intake Connection		
	A Harrington brand adapter to 5” Stortz, with 5” Stortz cap, shall be provided. A built-in strainer shall be included with the adapter.		
8.W	3/8” Pump Cooling/Bypass Line		
	A 3/8" pump cooling/bypass line shall be provided from the pump discharge manifold directly into the tank.		

8.X	Tank Refill/Recirculation Discharge		
	A discharge shall be provided from the pump discharge manifold to allow pump cooling when necessary as well as to refill the booster tank. The water tank fill gauge shall be directly in line with this discharge control. The valve and piping shall be 2". The refill/recirculation discharge shall be manually controlled on the pump panel.		
8.Y	Stainless Steel Piping		
	All piping for discharges shall be stainless steel using stainless steel fittings. High pressure helix wire reinforced flexible piping with a minimum burst pressure of 1200 psi may be used in some areas to minimize friction losses. All flexible piping couplings shall be high tensile strength stainless steel. All piping shall be properly supported and braced to prevent movement of piping other than what is allowed by the flexible couplings to compensate for apparatus flexing. Any discharge manifolds provided on the apparatus must be fabricated of a minimum of schedule 10 304 marine grade piping. Use of any welded light gauge (less than Schedule 10) manifolding or plumbing will not be acceptable. The stainless-steel piping shall be warranted to be free from corrosion perforation for a period of 10 years following the delivery of the apparatus.		
8.Z	Victaulic Couplings		
	Victaulic style couplings shall be used in the assembly of the pump piping system. The couplings shall allow flex in the piping and provide for a disassembly point for maintenance and repairs.		
8.AA	Vented Lug Caps and Plugs		
	All intake and discharge plugs and caps and plugs shall be vented lug type designed to relieve trapped pressure and help reduce possible operator injuries.		
8.BB	Akron HD-8800 Series Valves		
	All discharge and small diameter auxiliary intakes shall have heavy duty Akron 8800 series brass ball valves with stainless steel ball. This shall include the tank to pump and tank fill valve.		
8.CC	Right Side Forward Auxiliary Intake		
	An auxiliary intake shall be provided on the right side of the pump compartment in the forward position.		

	The valve control shall be manually controlled at the intake location. The intake shall have a 2 1/2" chrome plated female NST swivel connection with screen and a male NST chrome plated intake plug and chain. A 3/4" bleeder/drain valve shall be provided.		
8.DD	Left Side Forward Auxiliary Intake		
	An auxiliary intake shall be provided on the left side of the pump compartment in the forward position. The intake valve and piping shall be 2 1/2". The valve control shall be manually controlled at the intake location. The intake shall have a 2 1/2" chrome plated female NST swivel connection with screen and a male NST chrome plated intake plug and chain. A 3/4" bleeder/drain valve shall be provided.		
8.EE	Right Side Discharges		
	One 3" and one 2 1/2" discharge shall be provided on the right-side pump panel. The discharges shall be located in the forward section of the side pump panel, vertically stacked with the 3" below the 2 1/2". One (1) right side 2 1/2" Discharge: The right side 2 1/2" discharge shall be manually controlled on the pump panel. The discharge shall be equipped with a chrome plated brass or bright finish stainless steel discharge elbow with 2 1/2" MNST thread. A 2 1/2" chrome plated NST cap and chain shall be provided. One (1) right side 3" discharge: The right side 3" discharge shall be manually controlled on the pump panel. The control shall have an integrated slow closing mechanism to comply with NFPA 1901. The discharge shall extend straight out of the apparatus with no elbow.		

	A Harrington model H30E-50-30NH x 5" locking swivel Storz elbow adapter shall be provided on the right side 3" discharge(s). A model HBC-50-PC 5" locking Storz cap and chain shall be provided.		
8.FF	Left Side Discharges		
	Two 2 1/2" discharges shall be provided on the left side pump panel. The discharges shall be located one forward of the intake and one located rear of the intake. The left side 2 1/2" discharges shall be manually controlled on the pump panel with a horizontal side-to-side lever control, an ICI pressure gauge and ¾" drain to match the other discharges. Each discharge shall be equipped with a chrome plated brass or bright finish stainless steel discharge elbow with MNST thread. A 2 1/2" chrome plated NST cap and chain shall be provided on each discharge.		
8.GG	Left Rear Discharge		
	One (1) 3" discharge shall be provided on the left rear of the apparatus. The valve shall be manually controlled on the pump panel. The control shall have and integrated slow closing mechanism to comply with NFPA 1901. A chrome discharge elbow with a cap and chain shall be provided.		
8.HH	1 ¾" Crosslay Pre-connects		
	Two 1 3/4" preconnected crosslays shall be provided and located above the side mount pump panel. The crosslay compartment shall be constructed of 5052 smooth aluminum sheet material with a random brushed finish applied after fabrication. Each crosslay shall be piped using 2" piping or high-pressure hose incorporating a 2" ball valve with the control on the side mount pump operator's panel. The #1 - hand line crosslay shall have the capacity to hold 200' of 1 3/4" or 2" fire hose and nozzle. The #2 - hand line crosslay shall have the capacity to hold 200' of 1 3/4" or 2" fire hose and nozzle. The valve(s) shall be manually controlled on the pump panel. There shall be two (2) 2" swivel elbows with 1 1/2" male NST hose thread connections provided on the cross lay hose beds. The swivels shall be mounted in a position to prevent hose "pinching" at the hose thread connection.		

8.II	2 1/2” Pre-connect		
	One (1) 2 1/2" pre-connected crosslay(s) shall be provided and located above the side mount pump panel. The crosslay compartment shall be constructed of 5052 smooth aluminum sheet material with a random brushed finish applied after fabrication. Each crosslay shall be piped using 2 1/2" piping or high-pressure hose incorporating a 2 1/2" ball valve with the control on the side mount pump operator’s panel. The #1 - 2 1/2" crosslay shall have the capacity to hold 200' of 2 1/2" or 3" fire hose and nozzle. The valve(s) shall be manually controlled on the pump panel. There shall be one (1) 2 1/2" swivel elbow with a 2 1/2" male NST hose thread connection provided on the 2 1/2" cross lay hose bed. The swivel shall be mounted in a position to prevent hose "pinching" at the hose thread connection. All crosslays shall be foam capable. 3/4" manual drain valves shall be provided for all crosslays. The valves shall have an all-brass body with heavy duty neoprene seal.		
8.JJ	Crosslay Compartment Ends- Black Webbing		
	The crosslay compartment shall be enclosed on each end using a heavy-duty webbing to prevent hose from accidentally unloading. The webbing shall be black. A yellow nozzle strap shall be provided for each crosslay. The strap shall be designed to loop through the nozzle handle and secured to the apparatus to keep nozzle from coming out of the crosslay compartment without manually disconnecting the nozzle strap. The crosslay/speedlay end cover shall be secured with footman loops and Velcro straps.		
8.KK	Hinged Aluminum Treadbrite Crosslay Cover		
	An aluminum treadbrite hinged cover shall be provided to cover the crosslay compartment. The cover shall have a full length polished stainless steel hinge. A chrome plated lift handle shall be provided on each end of the cover. Rubber protection blocks shall be provided in any area where the cover may come into contact with a painted surface.		
8.LL	3” Monitor Discharge		
	A 3" monitor discharge shall be provided above the pump compartment. The discharge piping shall extend above the pump compartment a sufficient distance to allow use of the deck gun.		

	The valve shall be manually controlled on the pump panel. The control shall have an integrated slow closing mechanism to comply with NFPA 1901.		
8.MM	1 ¾" Front Bumper Discharge		
	There shall be one (1) 1 3/4" discharge(s) provided on the front of the apparatus. Piping and valve shall be 2". The valve shall be manually controlled on the pump panel.		
8.NN	Front Discharge Hose Connection-Swivel		
	The swivel hose connection for the discharge shall be located inside the hose compartment in the center of the floor. The front bumper discharge shall have a 1 1/2" MNST thread connection.		
8.OO	Pump House		
	A modular pump house with side mounted pump operator's panel shall be provided. The modular design of the pump house shall allow the compartment to be fully independent of the apparatus body. A flex joint shall be provided between the pump house and the apparatus body.		
8.PP	Pump House Construction		
	The use of any type of enclosed tubing that requires the use of self-tapping, or any other type of machine screw shall not be acceptable.		
8.QQ	Pump House Running Boards		
	The pump compartment side running boards shall be constructed of NFPA compliant slip resistant aluminum Treadbrite.		
8.RR	Pump House Front Wall		
	The front wall of the pump compartment shall be constructed of aluminum Treadbrite which is bolted to the pump compartment assembly and removable.		
8.SS	Pump House Right Side Access Door-Side Mount		
	A brushed stainless steel horizontally hinged access door shall be provided on the right side of the pump compartment above the lower pump discharge/intake panel. The door shall have a pneumatic hold open device and push button type flush latches.		
8.TT	Side Mount Brushed Stainless Steel Pump Panel		
	All controls and instruments shall be located on the left side of the apparatus. All discharge and intake valve controls shall be located on the left side pump panel.		
8.UU	Brushed Stainless Steel Pump Panels		
	The left and right-side lower pump panels shall be constructed of 304 2B marine grade brushed stainless steel with a #4 brushed and polished finish. The panels shall be held into place with two latches on the top to allow for easy removal of the panels. The upper section of the left side pump panel shall be constructed of the same 304 2B marine grade stainless steel. The upper section shall be vertically hinged and have a chrome plated latch to secure the panel when closed.		
8.VV	LED Side Mount Pump Panel Lights		
	The left side mount pump panel shall be illuminated using a		

	track type LED light assembly.		
8.WW	LED Right Side Discharge/Intake Panel Lights		
	The right-side discharge and intake panels shall be illuminated using a track type LED light assembly.		
8.XX	Automatic Pump Panel Light Activation		
	The pump panel lights above the pump control panel shall function automatically with the pump shift activation.		
8.YY	Push/Pull Valve Control Handles		
	The apparatus pump panel shall be equipped with Innovative Controls side mount valve controls to open/close the manually operated discharge valves. The ergonomically designed ¼ turn push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and verbiage. The control rod shall provide a true positive lock to eliminate valve drift. Rod housings shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome plated zinc panel mounting bezel.		
8.ZZ	Discharge Valve Control Handle Layout		
	All discharge valve control handles shall be located in one or two horizontal lines across the mid-section of the pump panel. The control handles shall be located immediately below their corresponding pressure gauge for ease of pump operation. Any pump operator's panel discharge(s) shall have direct horizontal lever style control(s) with the gauge adjacent to the control.		
8.AAA	ICI Master Pump Gauges		
	An ICI 4" diameter master pressure gauge shall be provided to indicate the main pump discharge pressure. The gauge shall read from 30" hg vacuum to 400 psi and shall be accurate within +/- 1%. The gauge shall be glycerin filled (-40F to +150F) and have a high impact resistant clear acrylic lens. An ICI 4" diameter master pressure gauge shall be provided to indicate the pump intake pressure. The gauge shall read from 30" hg vacuum to 400 psi and shall be accurate within +/- 1%. The gauge shall be glycerin filled (-40F to +150F), read up to 400 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic lens. The master intake and discharge gauges shall have bright finish stainless steel bezels. The master gauge dials shall be white with black markings. The needle shall match the color of the markings. The master intake gauge shall be clearly labeled "PUMP INTAKE" and shall be located to the left of the master discharge pressure gauge. The label shall be burgundy color.		

	The master discharge gauge shall be clearly labeled "PUMP DISCHARGE" and shall be located to the right of the intake pressure gauge. The label shall be black color. The master intake/discharge pressure gauges shall have a lifetime non-yellowing and freeze warranty. The gauges shall also be warrantied for 4 years for defects in materials and workmanship, including fluid leakage. The warranty will not cover labor costs and/or transportation costs.		
8.BBB	Pressure/Vacuum Test Plugs		
	Underwriter's test plug adapters shall be provided for connection of pump test gauges.		
8.CCC	Innovative Controls SL Plus Tank Gauge-Pump Panel		
	An Innovative Controls SL Plus tank gauge shall be provided on the pump panel. The gauge shall feature a 180 degree highly visible wide view ultra-bright LED display showing the level of the booster tank. The gauge shall have a chrome bezel.		
8.DDD	Tank Gauge Park Brake Disable		
	The tank gauge(s) shall be disabled when the park brake is released so that the lights are not a distraction when the vehicle is in motion.		
8.EEE	ICI Discharge Pressure Gauges		
	Unless otherwise specified, each 1 1/2" or larger discharge shall have an ICI pressure gauge. The gauge shall be glycerin filled (-40F to +150F), read from 0 - 400 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic lens. The individual discharge pressure gauges shall have a 2 3/4" diameter. The discharge pressure gauge dials shall be white with black markings. The needle shall match the color of the markings. The pressure gauge shall be directly in line with or adjacent to the discharge control handle for the discharge that they provide pressure readout for. **For ease of operation, this requirement must be strictly adhered to. There shall be no exception to this requirement.** The gauges shall be clearly labeled with permanent color-coded labels. The discharge pressure gauges shall have a lifetime non-yellowing and freeze warranty. The gauge shall also be warrantied for four years for defects in materials and workmanship including fluid leakage. Warranty will not cover labor costs and/or transportation costs.		
8.FFF	Pump Panel Air Horn Button		
	A momentary push button shall be provided on the pump		

	panel to activate air horns.		
8.GGG	Identification Labels for Pump Panel		
	Verbiage label bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These labels shall be designed and manufactured to withstand the specified apparatus service environment. The color scheme for the discharge and intake labels shall be per NFPA A.16.9.1		
8.HHH	Booster Tank- United Plastic Fabricating, INC.		
	The tank shall have a LIFETIME warranty provided by United Plastic Fabricating, Inc. The tank exterior shell shall be constructed of minimum 1/2" thick PT3 polypropylene sheet stock. The tank construction shall include Poly Pro Seal technology. 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 transverse swash partitions shall be manufactured of 3/8" PT3 polypropylene material. The longitudinal swash partitions shall be constructed of 3/8" PT3 polypropylene and extend through the cover to allow for positive welding and maximum integrity. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions shall interlock with one another and are welded to each other as well as to the walls of the tank. All partition spacing shall be compliant with NFPA 1091 recommendations. The top of the booster tank shall be fitted with removable lifting eyes. The tank cradle assembly shall be designed to provide support to the tank. The assembly shall be approved by the manufacturer of the tank.		
8.III	Booster Tank Capacity		
	The poly booster tank capacity is 1,000 U.S. Gallons		
8.JJJ	Booster Tank Fill Tower- Left Side Front		
	The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" polypropylene and shall be a minimum of 12" x 24" outer dimension. The tower shall be located in the left front corner of the hose bed. The tower shall have a 1/4" thick removable polypropylene screen and polypropylene hinged type cover. **NOTE: Fill tower shall be “anti-surge" type. NO EXCEPTIONS.**		
8.KKK	6” Tank Overflow		
	A 6" diameter tank vent/overflow shall be provided and		

	integrated into the tank. The piping shall be a minimum of schedule 40 polypropylene designed to run through the tank and discharge behind the rear wheels.		
8.LLL	1” Tank Sump Drain		
	A 1" drain shall be provided in the bottom of the tank sump to fully drain the tank. The drain shall use 1" stainless steel piping with a 1" valve. The control for the valve shall be remoted to the driver’s side of the apparatus just under and behind the side rub rail. The drain control handle shall be labeled "TANK DRAIN".		
8.MMM	3” Tank Sump Clean Out Plug		
	A 3" tank sump clean out plug shall be provided in the bottom of the tank sump.		
8.NNN	2 ½” Right Rear Tank Fill		
	One 2 1/2" rear tank fill shall be provided on the right rear of the apparatus. The fill shall be located to the right and above the top of the dump valve. The fill valve shall be connected to the tank with 2-1/2" stainless steel pipe. An Akron 8825 series valve with TSC handle shall be utilized on the tank fill. The tank fill shall be provided with a 2 1/2" FNST swivel connection, 30-degree elbow and a 2 1/2” chrome plated plug and chain. A 3/4" bleeder valve shall be provided on the tank fill.		
8.OOO	3” Tank to Pump		
	One 3” tank to pump line(s) and valve(s) shall be provided between the tank and the pump. The piping from the sump to the valves shall be 4”. The tank to pump valve shall be manually controlled at the pump panel.		
8.PPP	Tank to Pump Check Valve		
	A check valve assembly shall be provided on the pump. The valve shall prevent unintentional back filling of the tank through the tank to pump line. Connection from the valve to the tank shall be made by using a non-collapsible flexible rubber hose.		
9.	**Apparatus Body**		
9.A	Body Width		
	The apparatus body shall be 100” wide from side-to-side measuring from the rub rail mounting surface.		
9.B	Apparatus Body Material		
	The entire apparatus body shall be constructed of 304 marine grade stainless steel or 5052-H32 aluminum plate. The interior of the apparatus body shall not require any finish painting.		

9.C	Compartment Floors		
	All compartment floors shall be sweep out design. This shall include the lower side compartments, any compartments above the wheel well, any transverse compartments, and the rear face compartment(s). Any exception to this requirement will cause immediate rejection of the bid.		
9.D	Front Compartment Corners		
	The apparatus body front compartment vertical faces on both sides shall be covered with an unpainted polished finish. The corners shall be a one-piece fabrication from top to and shall wrap around the side of the apparatus body to the front compartment door jamb providing front corner protection.		
9.E	Rear Compartment Corners		
	The polished finish corners shall be a one-piece fabrication from top to bottom and shall wrap around the side of the apparatus body to the front compartment door jamb providing front corner protection.		
9.F	Compartment Top Overlay		
	The compartment top shall be overlaid with 1/8" aluminum Treadbrite. The aluminum Treadbrite shall be an overlay only and shall not form any structural part of the apparatus body or shall the bottom side of the Treadbrite be visible when looking into the compartment.		
9.G	Painted Fender-wells		
	The left and right-side rear fender wells shall be painted to match the primary body color. The fender wells shall be radius cut and shall have a full circular inner liner to prevent rust pockets and for ease of cleaning. Sufficient clearance shall be provided for tire chains.		
9.H	Stainless Steel Fenderette		
	The fender wells shall be trimmed with a polished stainless steel fenderette. The stainless steel fenderette shall be secured into place with stainless steel fasteners and shall be easily removable for replacement.		
9.I	Compartment Ventilation		
	Each compartment shall be ventilated to the exterior of the body through a removable metal ventilation plate in the compartment wall or through pass through ventilation into an adjoining compartment. A cleanable filter material shall be provided behind the plate. Plastic cover plates will not be acceptable.		
9.J	ROM Series IV Roll Up Compartment Doors		
	For all compartments requiring roll up doors, Robinson (ROM) Series IV roll up doors shall be installed. **The compartment shall have a roll up door which shall be painted to match the primary exterior color of the apparatus.**		
9.K	Roll Up Door Pull Ropes		
	Pull ropes shall be provided on the interior of all roll up doors on all high side compartments. One end of the rope shall be mounted to the bottom portion of		

	the door and the other mounted to the side wall of the compartment. The end shall be mounted in a location that will prevent the strap from hanging out the door opening when the door is closed.		
9.L	Roll Up Door Shroud		
	Roll up door shrouds shall be provided on all compartment doors. The shroud(s) shall protect the roll up drum from possible damage from shifting equipment and protect the stored equipment in the compartment from water drainage of snow or rain covered doors when they have been rolled up.		
9.M	Stainless Steel Coated Fasteners		
	All fasteners used in the finish construction of the apparatus body shall be marine grade stainless steel. Fasteners that pass through a dissimilar metal panel shall be Magna-Gard, or equal, coated to help prevent metal reaction and corrosion.		
9.N	Driver's Side Compartment in Front of the Rear Wheels		
	A compartment shall be provided in front of the rear wheels. The compartment interior dimensions shall be approximately 67" high x 83.75" wide with the lower 28" of the compartment being 26" usable depth and the remaining upper section being 14" usable depth.		
9.O	Driver's Side Compartment Above Rear Wheels		
	A compartment shall be provided above the rear wheels. The compartment interior dimensions shall be approximately 37" high x 63.75" wide x 14" usable depth.		
9.P	Driver's Side Compartment Behind the Rear Wheel		
	A compartment shall be provided behind the rear wheels. The compartment interior dimensions shall be approximately 67" high x 44" wide x 26" useable depth in a portion of the lower section and the remaining upper section being 14" usable depth.		
9.Q	Passenger's Side Compartment in Front of Rear Wheels		
	A compartment shall be provided in front of the rear wheels. The compartment interior dimensions shall be 36.5" high x 83.75" wide with the lower 28" of the compartment being 26" usable depth and the remaining upper section being 10" usable depth.		
9.R	Passenger's Side Compartment Above Rear Wheels		
	A compartment shall be provided above the rear wheels. The compartment interior dimensions shall be approximately 37" high x 63.75" wide x 14" usable depth.		
9.S	Passenger's Side Compartment Behind the Rear Wheels		
	A compartment shall be provided behind the rear wheels. The compartment interior dimensions shall be approximately 67" high x 44" wide x 26" useable depth in a portion of the lower section and the remaining upper section being 14" usable depth.		
9.T	Rear Tailboard Step with Mitered Corners		
	The outer rear edge of the rear step shall be positioned 26" from the rear face of the apparatus. This shall include an approximate 3/4" wash out gap at the rear face of the body. The rear step corners shall be mitered on each side. The miter shall be at a 45-degree angle starting in 18" on each side.		
9.U	Rub Rails		

	Extruded aluminum rub rails shall be provided on the apparatus body sides. The rub rails shall have a bright finish with anodized coating to protect the finish. The rub rails shall be spaced from the apparatus body a minimum of 1/4" with poly spacers. The rub rails must be bolted on to the apparatus body to allow easy replacement if damaged. The rub rail ends shall be 'capped' with a high impact resistant black EPDM contoured block.		
9.V	Hose Bed		
	The hose bed shall be 72" wide from side to side. The hose bed shall store the following hose from left to right: 300' of 3" DJ hose 1000' of 5" supply hose 200' of 2-1/2" hose The floor of the hose bed shall be constructed of slatted sections. The sections shall be spaced apart to allow for drainage and ventilation.		
9.W	Hose Bed Dividers		
	There shall be two (2) hose bed dividers to partition off hose. The divider(s) shall be constructed of thick aluminum plate material. The lower edge of the divider(s) shall have a two inch 90-degree bend toward each side to form an inverted "T" shape. The divider(s) shall be adjustable by sliding in tracks which are recessed flush into the hose bed flooring, one on front and one on rear. The divider shall be held in place by two bolts on each end. The upper rear corner of the divider(s) shall have a minimum of a 3" radius cut with a 1" aluminum rub plate. The divider height shall be the same height as the side as the apparatus body walls.		
9.X	Hose Bed Cover		
	A heavy-duty vinyl coated nylon hose bed cover shall be provided to protect the hose load from the weather. The cover shall extend from the front of the hose bed to the rear and then extend downward to cover the exposed rear of the bed. The cover shall have a double reinforced area where the cover comes into contact with the upper rear corners of the hose bed dividers. The cover shall be secured to the apparatus using Velcro on the sides and lift dots on front. The rear of the cover shall be secured to the apparatus using positive mechanical latches. The hose bed cover shall be red in color.		
9.Y	Hose Bed Cover Front Attachment		
	The front edge of the hose bed cover shall be permanently attached to the front of the hose bed area using an awning rail type assembly.		
9.Z	Low Mount Enclosed Ladder Compartment		
	A ladder storage compartment shall be provided on the right side of the apparatus with an access door on the rear. The compartment shall be located below the hose bed level and shall not be located above or through the booster tank. The compartment shall be located between the booster tank and the right-side compartments.		

	For ease of removal and replacement with limited staffing, the compartment shall be designed to carry all portable ladders vertically on their beams. Individual slides shall be provided in the compartment on both sides to allow individual storage for all ladders. The slides shall be provided with poly slip blocks with tapered front and rear edges. All ladders shall be capable of being removed individually without disturbing the remaining ladders.		
9.AA	Ladder Compartment Door		
	A smooth aluminum vertically hinged door with a slam-type latch shall be provided on the compartment. The latch shall be activated by a large "D" ring control. The door shall be covered with Chevron material. Storage for two straight handle pike poles shall be provided in the ladder storage compartment. An LED light shall be provided in the ladder storage compartment. The light shall be mounted just inside the ladder compartment access door and activated with an automatic door switch. The light switch shall be incorporated into the door ajar warning system in the cab.		
9.BB	Duo Safety Ground Ladders		
	One Duo Safety 1200A 24’ NFPA compliant two section aluminum extension ladder provided and mounted. One Duo Safety model 875DF 16’ double-ended roof ladder with folding roof hooks shall be provided and mounted. One Duo Safety 585A 12’ NFPA compliant aluminum folding attic ladder shall be provided and mounted.		
9.CC	Enclosed Hard Suction Storage		
	Storage for hard suction shall be provided on the right side of the apparatus directly below the ladders sharing an access door with the ladders and pike poles. The hard suction shall be capable of being removed individually without having to disturb the remaining stored items.		
9.DD	Hard Suction		
	One (1) section of 5” diameter x 10’ clear lightweight PVC hard suction hose shall be provided and mounted. The hard suction shall be coupled with 5” Storz rocker style locking fittings.		
9.EE	Dual Compartment Shelf Tracks		
	Six (6) sets consisting of four heavy duty aluminum adjustable tracks shall be provided in all body compartments, two for each end of each shelf. The tracks shall not be welded to the apparatus body.		
9.FF	Shallow Depth Compartment Shelving		
	There shall be two (2) shallow depth shelves provided. The shelves shall be constructed of 1/8" smooth aluminum with a 2" upward bend on the front and rear edges.		
9.GG	Full Depth Compartment Shelving		
	There shall be one (1) full depth shelves provided. The shelves shall be constructed of 1/8" smooth aluminum with a 2" upward bend on the front and rear edges.		
9.HH	Wheel Well Spare Cylinder Compartments		

	A compartment shall be provided in the wheel area in front of the rear axle on the driver's side to hold three spare SCBA cylinders. A compartment shall be provided in the wheel area behind the rear axle on the driver's side to hold two spare SCBA cylinders. A compartment shall be provided in the wheel area in front of the rear axle on the passenger's side to hold three spare SCBA cylinders. A compartment shall be provided in the wheel area behind the rear axle on the passenger's side to hold three spare SCBA cylinders. The compartment shall be injection molded high strength polyethylene designed specifically for the SCBA cylinder storage. The compartment shall be slanted towards the rear and have a drain port at the low point of the compartment. The compartments shall be specifically for the SCBA cylinder storage. The compartment shall be slanted towards the rear and have a drain port at the low point of the compartment. Brushed finish stainless steel access doors shall be provided on each wheel well storage compartment in the wheel well. The doors shall be secured using chrome plated thumb lever latches.		
9.II	Wheel Well SCBA Cylinder Compartment Retention Straps		
	One 1" wide loop of high visibility yellow webbing shall be installed in each wheel well spare cylinder compartment for each cylinder to be stored in the compartment. The loop(s) shall be designed to loop around the cylinder valve and help prevent the cylinder from sliding out of the compartment if the door is not latched or fails.		
9.JJ	Swing Out Tool Board		
	There shall be one vertically mounted swing out tool board provided. The tool board shall be constructed of 3/16" 1"X 1" aluminum peg bord. 250lb total capacity heavy duty ball bearing type telescoping slides shall be provided. A positive latching mechanism shall be provided to hold the tray in either the fully open or fully closed position. This tool board shall be in a compartment over the rear axle. Verify exact location with customer.		
9.KK	Folding Access Steps		
	Austin FS-200 CHR chrome plated folding access steps shall be provided in areas listed as follows: Three (3) NFPA compliant folding steps shall be provided on the right-side front compartment face. Three (3) NFPA compliant folding steps shall be provided on the left side front compartment face. Four (4) NFPA compliant folding steps shall be provided on the right-side rear of the compartment face.		

	Four (4) NFPA compliant folding steps shall be provided on the left-side rear of the compartment face.		
9.LL	Intermediate Hose Bed Step		
	A full width aluminum treadbrite step shall be provided on the rear face of the apparatus. The step assembly shall be bolted into place using stainless steel fasteners. The rear intermediate step shall be 8" depth		
9.MM	NFPA Knurled Finish Handrails		
	All handrails shall be 1 1/4" diameter extruded aluminum "knurled finish" with chrome plated stanchions. Rubber gaskets shall be provided between the stanchions and any painted surfaces and will be located in as follows: One (1) NFPA compliant handrail shall be provided on the left rear of the apparatus for boarding the rear step and using the left rear hose bed access steps. One (1) NFPA compliant handrail shall be provided on the right rear of the apparatus for boarding the rear step and using the right rear hose bed access steps. One (1) 12" NFPA compliant horizontal handrail shall be provided on the upper right front of the apparatus towards the front of the hose bed. One (1) 12" NFPA compliant horizontal handrail shall be provided on the upper left front of the apparatus towards the front of the hose bed. One (1) 12" NFPA compliant horizontal handrail shall be provided on the right rear of the apparatus towards the rear of the hose bed. One (1) 12" NFPA compliant horizontal handrail shall be provided on the left rear of the apparatus towards the rear of the hose bed. One (1) intermediate horizontal handrail shall be provided on the rear of the apparatus.		
9.NN	Fuel Tank Access		
	A removable panel shall be provided on the rear of the apparatus for maintenance access to the top of the fuel tank		
9.OO	Horizontal Engine Exhaust		
	Shielding shall be provided between the apparatus body and the exhaust pipe if necessary to deflect heat away from the body. The exhaust system shall be designed and installed to comply with EPA equipment requirements and shall not be modified.		
9.PP	Driver's Side Fuel Fill Door		
	A chassis fuel fill shall be located in the driver's side rear wheel well. The fill shall be located behind a brushed stainless steel hinged door with flush latch. The fuel fill shall be properly vented.		
9.QQ	Cab Tilt Receptacle		
	The cab tilt receptacle shall be located inside the right-side pump access door.		
9.RR	Rear Mud Flaps		
	Heavy duty black rubber mud flaps shall be provided on the rear wheels. The mud flaps shall be attached to the apparatus in the rear wheel well area using heavy-duty stainless-steel retention straps that are secured into place using stainless steel fasteners.		
9.SS	Front and Rear Axle Nut Covers and Baby Moons		

	The front and rear axles shall have stainless steel nut covers and baby moons.		
9.TT	Frame Rail Tow Eyes		
	Two (2) ¾" chrome plated tow eyes shall be attached directly to the end of the frame rails on the rear of the apparatus. The eyes shall have a minimum of 3" diameter pass through. Each eye shall be attached to the frame rail with a minimum of four (4) ¾" hardened steel bolts with locking nuts.		
9.UU	Aluminum Wheel Chocks		
	One (1) set(s) of two (2) Zico SAC-44 folding wheel chocks shall be provided. Two "underbody" horizontal brackets (per set) shall be provided and installed.		
10	**Apparatus Body Lighting**		
10.A	Rear License Plate Light/Bracket		
	A chrome plated LED license plate light shall be provided on the rear of the apparatus. A license plate mounting bracket that spaces the license plate away from the apparatus body shall be provided.		
10.B	Clearance Light/Reflectors		
	All apparatus body clearance lights shall be LED style. All lower clearance lights and reflectors shall be mounted in a manner that provides protection from damage and shall comply with FMVSS-108 regulations.		
10.C	Mid-Mounted Side LED Turn Sigal		
	An amber LED side turn signal shall be provided in the mid-section area of the apparatus on both sides.		
10.D	LED Pump Compartment Lights		
	Two (2) LED compartment lights shall be provided to illuminate the pump compartment. The lights shall function with the pump operator's gauge panel lights.		
10.E	Dual Track Type LED Compartment Lighting		
	Each apparatus body compartment shall have two track type LED lights vertically mounted in the compartment. A compartment that is considered a 'full height' compartment shall each have two 48" long light sections and a 'low height' or above wheel compartment shall each have two 18" long sections. The lights shall function automatically and independently of other compartments when the compartment door is opened. **Compartment lighting systems that are controlled by a single, dash mounted switch are not acceptable.**		
10.F	Compartment Light Switches		
	Each hinged apparatus body door compartment shall have a magnetic style reed indicator switch. Each roll up door shall have an integral door open indicator magnet in the lift bar. If the bar is not properly closed, it shall activate the "Door Open" light in the cab. The compartment lights shall function automatically when the door is opened. A master compartment light switch shall not be acceptable.		
10.G	Door Ajar Indicator Park Brake Disable		
	All apparatus body door ajar indicators shall be disabled when the park brake is set.		
10.H	Perimeter Ground Lighting		

	There shall be seven (7) 4" diameter LED underbody perimeter lights furnished and installed. The lights shall have an unbreakable polycarbonate lens and housing. The lights shall be sealed to help prevent moisture entry. The ground lights shall be activated with the parking brake. There shall be a manual switch to override the park brake and allow lighting to be turned on from a switch overhead of the driver.		
10.I	LED Apparatus Body Step Lighting		
	All apparatus steps and running boards shall be illuminated using LED lights. The lights shall function automatically with the park brake.		
10.J	Ground/Step Lighting Switch		
	A ground/step light cutoff switch shall be provided in the cab to allow the driver to disable the ground lights and other lights that activate when the parking brake is set. The switch shall automatically re-set itself when the parking brake is released.		
10.K	LED Taillights		
	Whelen C6BTT LED taillights, C6T LED turn signals and a C6BU clear LED backup light shall be provided.		
10.L	Backup Lights Park Function		
	The backup lights shall automatically activate when the park brake is set to provide work lighting at the rear of the apparatus.		
10.M	Zone A Upper Warning Lights		
	The lightbar shall be provided on the chassis. Specifications for the lightbar are listed in the chassis specifications.		
10.N	Zone C Upper Warning Lights		
	Two Whelen model R316RRF red (clear lens) Roto-Beam Super LED beacons shall be provided one on each side on the rear.		
10.O	Whelen C6LRC Super Max LED Mid-Section Warning Lighting		
	One Whelen C6LRC Super Max red LED light head shall be mounted on each side in a lower mid-section position. Both shall have clear lenses. A C6FC chrome bezel shall be provided around the lights.		
10.P	Whelen C6LRC Super Max LED Side Rear Warning Lighting		
	One Whelen C6LRC Super Max red LED light head shall be mounted on each side in a lower rear position. Both shall have clear lenses. A C6FC chrome bezel shall be provided around the lights.		
10.Q	Whelen C6LR Super Max LED Lower Rear Warning Lights		
	Two Whelen C6LR Super Max red LED light heads shall be mounted on the rear of the apparatus in a low position. C6FC chrome trim housings shall be provided. Both shall have clear lenses.		
10.R	Whelen TAM65 Traffic Advisor		
	A Whelen TAM65 36" 6 lamp LED directional traffic advisor shall be provided and mounted on the rear of the apparatus. The advisor shall be subject to load management shedding to comply with NFPA 1901. A Whelen TACTL5 controller shall be provided for the Traffic Advisor.		
10.S	Directional Light Mounting-Intermediate Step		
	The arrowstick/advisor shall be either recessed into or mounted under the rear intermediate step.		
10.T	FRC SPA900-Q70 Scene Lights		

	Six FRC SPA900-Q70 scene lights shall be provided and mounted two on each side and one on each side on the rear. The lights shall be 12VDC and create up to 7,000 lumens each. Chrome trim housings shall be provided.		
10.U	12 Volt Scene Light Activation Switches		
	Three switches shall be provided to activate the 12-volt scene light(s). The driver's side lights, passenger's side lights and the rear lights shall each be individually switched. The switches shall be located on the cab control console.		
10.V	Dual Function Scene Lights		
	The side rear and rear facing scene light(s) shall activate automatically when the apparatus transmission is placed into reverse.		
10.W	LED Hose Bed Lights		
	Two LED lights shall be provided and mounted one in the front of the hose bed and one on the rear. The lights shall be controlled by the pump panel light switch.		
11	**Paint, Striping, and Placards**		
11.A	Paint Procedure		
	The following exterior surfaces shall be fully painted: ● Entire rear wheel well area. ● All vertical and horizontal door jambs. All seams or flanges on the apparatus body shall be caulked or properly sealed to prevent moisture accumulation in flanged areas.		
11.B	10 Year Limited Paint Warranty		
	The apparatus body exterior finish paint shall have a 10-year limited warranty. The warranty shall be certified by the manufacturer of the paint. Documentation of this shall be provided to the end user. Any warranty that is extended by the apparatus manufacturer and not backed by the paint manufacturer will not be acceptable.		
11.C	Electrolysis Corrosion Control		
	The apparatus shall be assembled using ECK or electrolysis corrosion control, on all high corrosion potential areas, such as door latches, door hinges, trim plates, fenderettes, etc. This coating is a high zinc compound that shall act as a sacrificial barrier to help minimize electrolysis and corrosion between dissimilar metals. This shall be in addition to any other barrier material that may be used.		
11.D	Apparatus Body Undercoating		
	The apparatus body shall be undercoated after assembly is completed. A bituminous based automotive type of undercoat shall be used. Care shall be taken to avoid undercoat application to items that would hinder normal maintenance.		
11.E	Lettering		
	Lettering of the apparatus shall be completed by customer.		
11.F	NFPA Reflective Stripe		
	A 6" BLACK reflective stripe shall be applied to the apparatus. A 1" gap shall be provided on both the top and bottom of the 6" stripe followed by a 1" BLACK reflective stripe above and		

	below the upper and lower gap. A single 6" stripe shall be applied to the front if space does not permit for the 3-stripe pattern. The striping shall be applied to a minimum of 50% of the length of the apparatus on each side and 25% across the front of the apparatus. The stripe shall comply with NFPA 1901 requirements.		
11.G	Cab Paint Break Striping		
	A single horizontal Smart Gold pinstripe with black border on top and bottom shall be provided on the cab below the windows.		
11.H	Rear Chevron Striping		
	A minimum of 50 percent of the rear vertical surface of the apparatus shall be covered with 6 inch alternating red and black retro-reflective striping. The striping shall slope downward away from the centerline of the apparatus at a 45-degree angle. The retro-reflective material shall conform to the requirements of ASTM D 4956 "Standard Specification for Retro-Reflective Sheeting for Traffic Control", Type I or better.		
11.I	FAMA Safety Labels		
	Permanent labels shall be provided near all locations that warn of potential injury or death as required by FAMA, NFPA and/or OSHA.		
11.J	Tank Fill Rate Label RH		
	A permanent label shall be provided near any tank fill location clearly stating the following tank fill limitations and procedures: ● Do not exceed 100 psi when filling the tank. ● Fill rate in GPM = tank size capacity. ● For tanks over 1000 gallons, do not exceed the maximum fill rate of 1,000 GPM. ● Gate back fill when water reaches the top of the tank. The label shall also state that failure to follow procedure could result in over-pressurization, premature tank failure and possibly void tank warranty.		
11.K	Fluid Capacity Label		
	A permanent plate shall be mounted in the driver's compartment specifying the quantity and type of the following fluids used in the apparatus (if applicable) for normal maintenance: ● Engine oil. ● Engine coolant. ● Chassis transmission fluid. ● Pump transmission fluid. ● Pump primer fluid. ● Drive axle fluid.		

	• Air conditioning refrigerant. • Air conditioning lubrication oil. • Power steering fluid. • Cab-tilt mechanism fluid (if applicable). • Transfer case fluid (if applicable). • Equipment rack fluid (if applicable). • CAFS compressor system lubricant (if applicable). • Generator system lubricant (if applicable). • Front tire cold pressure. • Rear tire cold pressure. • Maximum tire speed ratings.		
11.L	Length, Height, Weight Label		
	A permanent plate or label shall be provided in the cab stating the overall length, height and the gross vehicle weight rating (GVWR), in tons, of the completed apparatus. The wording on this label shall indicate that the information on the plate/label was current at the time of manufacture and if the overall height of the apparatus changes while the vehicle is in service, the purchaser shall revise the height dimension on the plate.		
12.	**Required Apparatus Certifications and Documentation**		
12.A	Pump Certification		
	Where applicable, the following documents shall be provided with the completed apparatus: • Pump manufacturer's certification of suction capability. • Special condition certifications, if any. • Pump manufacturer's approval for stationary pumping. • Engine manufacturer's certified brake horsepower curve showing maximum governed speed. • Pump manufacturer's certification of hydrostatic test. • Pump manufacturer's certification of hydrodynamic test, if required. Certification of inspection and tests for the fire pump.		
12.B	Optical Warning Light Certification		
	The emergency warning light system shall be certified using one of the available methods provided for in NFPA 1901 13.8.16.		
12.C	Electrical System Performance Certification		
	A written load analysis and the results of the electrical system performance test shall be provided with the completed apparatus. The load analysis shall include the following: • Nameplate rating of the alternator. • The alternator rating under the conditions specified in NFPA 1901 13.3.2. • Each of the component loads specified in NFPA 1901 13.3.3 that make up the minimum continuous electrical load. • Additional electrical loads that, when added to the minimum continuous electrical load, determine the total continuous electrical load. • Each individual intermittent electrical load.		

12.D	Booster Tank Capacity Certification		
	The manufacturer shall certify the capacity of the booster tank. Certification shall be documented on the Manufacturer's Record of Construction document.		
12.E	NFPA Slip Resistance Certification		
	Any materials used as a stepping, standing or walking surface shall be certified to be compliant with NFPA 1901 15.7.4. Documentation shall be provided with the completed apparatus.		
12.F	Weight Certification		
	Documents from a certified scale showing actual loading on the front, rear and overall apparatus shall be provided. The apparatus shall be scaled with the water tank full but without personnel, equipment and hose.		
12.G	Vehicle Rollover Stability		
	The apparatus chassis shall be equipped with a stability control system and shall be certified to NFPA 1901 Rollover Stability requirements.		
12.H	Underwriter's Laboratories Testing		
	The apparatus shall undergo an Underwriter's Laboratories Certification Test to ensure that the completed apparatus meets the requirements of NFPA 1901. The certificate shall be provided to the purchaser upon completion. Underwriter's Laboratories shall also perform the required testing on the entire installed electrical system. Self-certification by the apparatus manufacturer will not be acceptable.		
12.I	Manufacturer's Record of Apparatus Construction		
	All information required to comply with NFPA 1901 4.20.1 shall be provided with the completed apparatus.		
12.J	Operations and Service Documentation		
	The apparatus shall be complete with all operation and service documentation covering the apparatus as delivered and accepted. The documentation shall address the inspection, service and operations of the apparatus and all major components as required in NFPA 1901 4.20.2.		
12.K	"As Built" Apparatus Owner's Manual		
	Two "as built" apparatus owner's manual USB drives shall be provided with the apparatus. All apparatus body electrical schematics shall be provided as well as all instructional and maintenance manuals on components provided and permanently mounted on the apparatus. A copy of the final apparatus body build specifications shall also be included on the drive. The USB shall be "read only" and shall not allow modification. To eliminate component confusion, generic documentation with equipment that is not provided on the apparatus body shall not be acceptable.		
12.L	FAMA Fire Apparatus Safety Guide		
	One (1) FAMA Fire Apparatus Safety Guide(s) shall be provided with the completed apparatus.		
12.M	Statement of Exception-NFPA Miscellaneous Required Equipment		
	The customer shall be responsible for providing all NFPA		

	required miscellaneous equipment that is not contained within these specifications. All required equipment must be properly installed on the apparatus and in working condition prior to the apparatus being placed into service.		
13.	**Apparatus Familiarization and Acceptance**		
13.A	Apparatus Familiarization and Demonstration		
	Upon completion of the new apparatus, an authorized properly trained representative of the manufacturer shall perform a "Familiarization and Demonstration" overview of the apparatus and related components for all three shifts. The training shall accommodate a 48/96 shift schedule. The Department shall provide the representative with a written list, by full proper names, of the individual(s) that are to receive the overview. Upon completion of the overview, each person in attendance will be required to acknowledge, by signature, that they understand the operation of the apparatus and all related components.		
13.B	Chassis Familiarization		
	Familiarization of the apparatus shall include the following: ● How to locate gauges or indicators and check all fluid levels and operational use of the apparatus. ● How to tilt the chassis cab or hood assembly for access to the engine, fire pump (if applicable), or aerial control (if applicable), or any other device to allow access to fluids or for required maintenance. ● Interior cab controls, instruments, mirrors, safety devices or alarms, brake operations, transmission control, pump controls (if applicable) exhaust regeneration (if applicable), seat adjustments, warning light engagement and other operational equipment.		
13.C	Fire Pump Familiarization		
	Familiarization of the apparatus shall include the following items related to the fire pump system: ● Setting the parking brake, proper transmission gear and the fire pump engagement operations. ● Throttle control. ● Primer and tank-to-pump operation. ● Use of a pressure control device. ● Tank refilling operations. ● Proper operation of discharge controls. ● Proper shutdown and draining of the system.		
13.D	Post Acceptance Training Requirements		
	After apparatus acceptance, the Department shall be responsible for ongoing training of personnel. The Department shall not allow untrained or undertrained personnel to operate the apparatus or any included feature of the apparatus.		
14.	**Supplemental Information**		
14.A	**Policy on Nondiscrimination on the Basis of Disability**		
	In accordance with the Americans with Disabilities Act (ADA) and Section 504 of the		

	Rehabilitation Act of 1973, the OFPD does not discriminate on the basis of disability in the admission of or access to, or treatment or employment in, its programs, activities, or services.
14.B	**Conflict of Interest**
	● A member or delegate to the Congress of the United States, or the Missouri General Assembly, or a member, elected official, officer or employee of the Ozark Fire Protection District, or a member, elected official, officer, or employee of a public body will only be authorized to receive an award of, and to perform this contract, upon full compliance with Sections 105.450 – 105.498 of the Revised Statutes of Missouri. ● Elected or appointed local, county and state governmental officials in the State of Missouri who are employees, officers, shareholders, or owners of a firm may participate in the award of, or performance of, this agreement, if: − The subcontract or purchase agreement is made pursuant to an award made after disclosure by the governmental official of the nature of the interest. − The award is made in full compliance with Sections 105.450-105.498 of the Revised Statutes of Missouri and Pursuant to approval of the Ozark Fire Protection District.
14.C	**Supplemental Information**
	● The awarded vendor shall provide one hour of time for a pre-construction meeting with the district's representative to ensure proper location and function of the installed equipment. ● The OFPD reserves the right to reject any and all bid proposals. ● Delivery is expected to be within six (6) months of awarding the bid. ● Contractor shall exonerate, indemnify, and hold harmless the OFPD, its agents and employees from and against all claims, damages, actions, losses, and expenses, including attorney fees, arising out of any negligent act or omission arising out of the performance of the services provided under such agreement. ● Contractor hereby agrees to furnish items and/or services described in this document and attachments, even if only by reference, pursuant to all requirements and specifications contained herein, and further agrees that the language of this document shall govern in the event of a conflict with his or her proposal.

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Jarett Metheny

8/8/2025

Jarett Metheny, Fire Chief Date