

	Bidder Complies	
	Yes	No
<p><u>SPECIFICATIONS FOR A TRIPLE COMBINATION PUMPER</u></p> <p>Sealed bids will be received by Union County Fire Department for the furnishing of all necessary labor, equipment and material for the Fire Apparatus and other equipment as outlined in the following specifications.</p> <p><u>INTENT OF SPECIFICATIONS</u></p> <p>It shall be the intent of these specifications to cover the furnishing and delivery of a complete fire apparatus. These detailed specifications cover the requirements as to the type of construction, finish, equipment and tests to which the fire apparatus shall conform. Minor details of construction and materials, which are not otherwise specified, are left to the discretion of the contractor.</p> <p>Images and illustrative material in this specification are as accurate as known at the time of publication, but are subject to change without notice. Images and illustrative material is for reference only, and may include optional equipment and accessories and may not include all standard equipment.</p> <p><u>INSTRUCTIONS TO BIDDERS</u></p> <p>The purchaser's standards for bidding automotive fire apparatus must be strictly adhered to, and all bid forms and questions must be complete and submitted with the bid.</p> <p>Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of 20 years. Furthermore, in order to insure fair, ethical, and legal competition, neither the original equipment manufacturer (O.E.M.) nor parent company of the O.E.M. shall have ever been fined or convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.</p> <p>If a bidder represents more than one fire apparatus company or brands of apparatus, they must only bid the top of the line that meets specification.</p> <p>Each bidder shall furnish satisfactory evidence of their ability to construct the apparatus specified.</p> <p>Any apparatus manufacturer or their parent company who has had a performance bond called in the last 10 years, shall not be eligible to bid.</p> <p>Each bid shall be accompanied by a set of manufacturer's set of specifications consisting of a detailed description of the apparatus, construction methods, and equipment proposed to which the apparatus furnished under contract shall conform. These specifications shall indicate size, type, model and make of all components parts and equipment, providing proof of compliance with each and every item in the departments advertised specifications. A letter only, even though written on company letterhead, shall not be sufficient.</p>		

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	Yes	No
<p>In accordance with the current edition of NFPA 1901 standards, the proposal shall specify whether the fire department or apparatus dealership shall provide required loose equipment.</p> <p>The purchaser will utilize this advertised specification to compare all submitted bid proposals. To facilitate comparison, all bid proposal specifications shall be submitted in the same sequence as the advertised specification. Any bidder who fails to submit a set of bid proposal specifications, or who photo copies and submits these specifications as their own construction details will be considered non responsive. This shall render such proposal ineligible for award.</p> <p>The purchaser's specification shall, in all cases, govern the construction of the apparatus, unless a properly documented exception or deviation was approved.</p> <p>THE PURCHASER HAS THE RIGHT TO REJECT ANY BID WHICH DOES NOT MEET THESE SPECIFICATIONS AND IS THE SOLE DECIDER TO DEEM WHICH BID IS IN THE BEST INTEREST OF THE PURCHASER.</p> <p><u>EXCEPTIONS</u></p> <p>These specifications are based upon design and performance criteria which have been developed by the fire department as a result of extensive research and careful analysis. Subsequently these specifications reflect the only type of fire apparatus that is acceptable at this time and all specifications herein contained are considered as minimum.</p> <p>Bidders shall indicate in the "yes/no" column if their bid complies on each item (paragraph) specified.</p> <p>If a product brand name is specified and is commercially available to all bidders, an exception to such items is not acceptable and such bid may be rejected.</p> <p>Exceptions shall be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate page. All deviations, no matter how slight, shall be clearly explained on a separate sheet, in the bid sequence, citing the page and paragraph number(s) of the specifications, how the proposal deviation is different, how the deviation meets or exceeds the specifications and why it is necessary, and entitled "EXCEPTIONS TO SPECIFICATIONS". The buyer reserves the right to require a bidder to provide proof in each case that a substituted item is equal to that specified. The buyer shall be the sole judge in determination of acceptable substitutes.</p> <p>Proposals that are found to have deviations without listing them or bids taking total exceptions to these advertised specifications will be rejected.</p> <p>Bids not including all exceptions is a material breach and shall result in the bid being immediately rejected.</p>		

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<p><u>GENERAL DESIGN AND CONSTRUCTION</u></p> <p>The cab, chassis, pump module, and body are to be entirely designed, assembled and painted by the prime vehicle manufacturer, which minimizes third party involvement on engineering, design, service and warranty issues.</p> <p>All bidders shall provide a list of the company, manufacturing location, and engineering source for each individual major component, including but not limited to the welded cab assembly, the pumphouse module assembly, the chassis assembly, body and electrical system. Apparatus using any subcontracted cab, chassis, pump module, electrical system or body will not be acceptable.</p> <p>The apparatus shall be designed with due consideration to distribution of load between the front and rear axles. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Association.</p> <p>The bidder shall make accurate statements as to the apparatus weight and dimensions.</p> <p><u>QUALITY AND WORKMANSHIP</u></p> <p>All steel welding shall follow American welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding shall follow American welding Society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding shall follow American Welding Society B2.1-2000 requirements for structural welding of sheet metal. Flux core arc welding to use alloy rods, type 7000, American welding Society standards A5.20-E70T1. Employees classified as welders are tested and certified to meet the American Welding Society codes upon hire and every three (3) years thereafter.</p> <p>The manufacturer shall also be certified to operate a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International organization for Standardization (ISO) specify the quality systems that shall be established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance shall be included with the bid.</p> <p>To demonstrate the quality of the product and service, each bidder shall provide a list of at least five (5) fire departments/municipalities in the region that have bought a second time from the representing dealer.</p> <p><u>DELIVERY</u></p> <p>Apparatus, to insure proper break in of all components while still under warranty, shall be delivered under its own power - rail or truck freight shall not be acceptable. A qualified delivery representative shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in proper operation, care and maintenance of the equipment delivered.</p> <p><u>MANUALS AND SERVICE INFORMATION</u></p> <p>The manufacturer shall supply at time of delivery, complete operation and maintenance manuals covering the complete apparatus as delivered. A permanent plate shall be mounted in</p>		

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	Yes	No
<p>the drivers compartment which specifies the quantity and type of fluid required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.</p> <p><u>PERFORMANCE TESTS AND REQUIREMENTS</u></p> <p>A road test shall be conducted with the apparatus fully loaded and a continuous run of ten (10) miles or more shall be made under all driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axle shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. Vehicle shall adhere to the following parameters:</p> <p>A) The apparatus, when fully equipped and loaded, shall have not less than 25 percent nor more than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle.</p> <p>B) The apparatus shall be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.</p> <p>C) The service brakes shall be capable of stopping a fully loaded vehicle in 35 feet at 20 mph on a level concrete highway. The air brake system shall conform to Federal Motor vehicle Safety Standards (FMVSS) 121.</p> <p>D) The apparatus, fully loaded, shall be capable of obtaining a speed of 50 mph on a level concrete highway with the engine not exceeding the governed rpm (full load).</p> <p><u>FAILURE TO MEET TEST</u></p> <p>In the event the apparatus fails to meet the test requirements of these specifications on the first trial, second trials may be made at the option of the bidder within 30 days of the date of the first trial. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Failure to comply with changes to conform to any clause of the specifications, within 30 days after notice is given to the bidder of such changes, shall also be cause for rejection of the apparatus. Permission to keep or store the apparatus in any building owned or occupied by the purchaser or its use by the purchaser during the above-specified period with the permission of the bidder shall not constitute acceptance.</p> <p><u>SERVICE AND WARRANTY SUPPORT (DEALERSHIP)</u></p> <p>TO INSURE FULL SERVICE AFTER DELIVERY, THE SELLING BIDDER/DEALERSHIP MUST BE CAPABLE OF PROVIDING SERVICE WHEN REQUIRED.</p> <p>The bidder/dealership shall show that the company is in position to render prompt service and to furnish replacement parts.</p> <p>Each bidder/dealership must be able to display that they are actively in the fire apparatus service business by operating a factory authorized service center and parts repository capable of satisfying the warranty service requirements and parts requirements of the vehicle being purchased.</p>		

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<p>The bidder/dealership must state the location of this authorized service center. This service center must have a staff of factory-trained mechanics, well versed in all aspects of service for all major components of the apparatus. The service center must be within three hundred (300) miles of the Fire Department.</p> <p><u>SERVICE AND WARRANTY SUPPORT (MANUFACTURER)</u></p> <p>The manufacturer shall stock inventory dedicated to service and replacement parts to ensure quick response and minimize down time. Furthermore, the manufacturer shall house the inventory in a dedicated facility, with a dedicated shipping area that ensures service parts are given priority. The bidder shall provide detailed documentation of service and replacement part resources.</p> <p>Parts identification shall be provided to both the dealer and the Fire Department through an on line web based application for the specific truck reflected in this specification. Access will be granted using the specific VIN number of the vehicle. The online web application will provide the ability to view complete bills of materials, digital photographs, parts drawings, assembly drawings, and access to all current operation, maintenance and service publications.</p> <p>The manufacturer shall employ a staff of adequate size specifically dedicated to providing customer support and parts for the fielded fleet of vehicles it has produced.</p> <p>The manufacturer must be capable of providing both in-house and on-site service for the apparatus.</p> <p>The manufacturer shall offer regional factory hands-on repair and maintenance training classes.</p> <p>The manufacturer shall employ certified EVT technicians on staff, not only providing technical expertise in the repair of fire apparatus, but also demonstrating the commitment to service after the sale.</p> <p><u>SINGLE SOURCE MANUFACTURER</u></p> <p>Bids shall only be accepted from a single source apparatus manufacturer. The definition of single source is a manufacturer that designs and manufactures their products using an integrated approach, including the chassis, cab weldment, cab, pumphouse (including the sheet metal enclosure, valve controls, piping and operator’s panel) and body being designed, fabricated and assembled on the bidder's premises. The electrical system shall be both designed and integrated by the same apparatus manufacturer. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) must be from a single source manufacturer and not split between manufacturers (i.e. body, pumphouse, cab weldment and chassis). The bidder shall provide evidence that they comply with this requirement.</p> <p>The bidder shall state the location of the factory where the apparatus is to be built.</p>		

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<p><u>NFPA 2016 STANDARDS</u></p> <p>This unit shall comply with the NFPA standards effective January 1, 2016, except for fire department specifications that differ from NFPA specifications. These exceptions shall be set forth in the Statement of Exceptions.</p> <p>Certification of slip resistance of all stepping, standing and walking surfaces shall be supplied with delivery of the apparatus.</p> <p>All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and designated access paths to destination points shall be identified on the customer approval print and are shown as approximate. Actual location(s) shall be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required.</p> <p>A plate that is highly visible to the driver while seated shall be provided. This plate shall show the overall height, length, and gross vehicle weight rating.</p> <p>The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications.</p> <p>An official of the company shall designate, in writing, who is qualified to witness and certify test results.</p> <p><u>NFPA COMPLIANCY</u></p> <p>Apparatus proposed by the bidder shall meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in the current edition at time of contract execution. Fire Department's specifications that differ from NFPA specifications shall be indicated in the proposal as "non-NFPA."</p> <p><u>PUMP TEST</u></p> <p>The rated water pump shall be tested, approved, and certified by an ISO certified independent third-party testing agency at the manufacturer's expense. The test results, along with the pump manufacturer's certification of hydrostatic test, the engine manufacturer's certified brake horsepower curve, and the manufacturer's record of pump construction details shall be forwarded to the Fire Department.</p> <p><u>APPROVAL DRAWING</u></p> <p>A drawing of the proposed apparatus shall be provided for approval before construction begins. The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.</p> <p>A "revised" approval drawing of the apparatus shall be prepared and submitted by the manufacturer to the purchaser showing any changes made to the approval drawing.</p>		

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<p><u>IN PROCESS PHOTOS</u></p> <p>Photos shall be made available via the dealer’s website. These photos shall show weekly progress of the manufacturing process, beginning upon initial fabrication and continue until completion of the apparatus.</p> <p><u>ELECTRICAL WIRING DIAGRAMS</u></p> <p>Two (2) electrical wiring diagrams, prepared for the model of chassis and body, shall be provided.</p> <p><u>CHASSIS</u></p> <p>Chassis provided shall be a new, tilt-type custom fire apparatus. The chassis shall be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis shall be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required.</p> <p><u>WHEELBASE</u></p> <p>The wheelbase of the vehicle shall be no greater than 215.00".</p> <p><u>OVERALL LENGTH</u></p> <p>The overall length of the vehicle shall be no greater than 34 feet, six (6) inches.</p> <p><u>GVW RATING</u></p> <p>The gross vehicle weight rating shall be a minimum of 47,000 #.</p> <p><u>FRAME</u></p> <p>The chassis frame shall be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails shall be heat-treated steel measuring a minimum of 10.25" x 3.50" x 0.375".</p> <p>Each rail shall have a section modulus minimum of 16.00 cubic inches, yield strength of 120,000 psi, and a resisting bending moment (rbm) of 1,921,069 inch-pounds.</p> <p><u>FRAME REINFORCEMENT</u></p> <p>A full-length mainframe "C" liner shall be provided.</p> <p>The liner shall be an internal "C" design, heat-treated steel measuring a minimum of 9.38" x 3.13" x 0.25". Each reinforcement member shall have a section modulus minimum of 3.90 cubic inches, yield strength of 120,000 psi and resisting bending moment (rbm) of 938,762 in-lb.</p> <p><u>FRONT AXLE</u></p> <p>The front axle shall be a reverse "I" beam type with inclined king pins. With a rated capacity of 20,000 lb.</p> <p><u>FRONT SUSPENSION</u></p> <p>The front springs shall have a ground rating of 20,000 lb.</p>		

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	Yes	No
<p>The two (2) top leaves shall wrap the forward spring hanger pin. The top leaf shall also wrap the rear spring hanger pin. Both the front and rear eyes shall be Berlin style wraps that shall place the eyes in the horizontal plane within the main leaf. This shall reduce bending stress from acceleration and braking.</p> <p>A steel encased rubber bushing shall be used in the spring eye. The steel encased rubber bushing shall be maintenance free and require no lubrication.</p> <p><u>SHOCK ABSORBERS</u> Heavy-duty telescoping shock absorbers shall be provided on the front axle.</p> <p><u>FRONT OIL SEALS</u> Oil seals with viewing window shall be provided on the front axle.</p> <p><u>FRONT TIRES</u> Front tires shall be 20 ply, rated for 20,400 lb maximum axle load and 68 mph maximum speed.</p> <p>The tires shall be mounted on polished aluminum disc wheels with a ten (10) stud, 11.25" bolt circle.</p> <p><u>REAR AXLE</u> The rear axle shall have a capacity of 27,000 lb.</p> <p><u>TOP SPEED OF VEHICLE</u> A rear axle ratio shall be furnished to allow the vehicle to reach a top speed of 68 mph.</p> <p><u>REAR SUSPENSION</u> The rear suspension shall have a ground rating of 27,000 lb. The spring hangers shall be castings.</p> <p>The two (2) top leaves shall wrap the forward spring hanger pin, and the rear of the spring shall be a slipper style end that shall ride in a rear slipper hanger. To reduce bending stress due to acceleration and braking, the front eye shall be a berlin eye that shall place the front spring pin in the horizontal plane within the main leaf.</p> <p>A steel encased rubber bushing shall be used in the spring eye. The steel encased rubber bushing shall be maintenance free and require no lubrication.</p> <p><u>REAR OIL SEALS</u> Oil seals shall be provided on the rear axle.</p> <p><u>REAR TIRES</u> Rear tires shall be four (4) 16 ply all season tread, rated for 27,120 lb maximum axle load and 75 mph maximum speed.</p> <p>The outside tires shall be mounted on polished aluminum disc wheels.</p> <p>The inside tires shall be mounted on steel disc wheels.</p>		

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	Yes	No
An isolator shall be provided between the steel and aluminum rims.		
<p><u>TIRE BALANCE</u> All tires shall be balanced with counteract balancing beads. The beads shall be inserted into the tire and eliminate the need for wheel weights.</p> <p><u>TIRE PRESSURE MANAGEMENT</u> There shall be a tire alert pressure management system provided, that shall monitor each tire's pressure. A sensor shall be provided on the valve stem of each tire for a total of six (6) tires.</p> <p><u>FRONT HUB COVERS</u> Stainless steel hub covers shall be provided on the front axle. An oil level viewing window shall be provided.</p> <p><u>REAR HUB COVERS</u> A pair of stainless steel high hat hub covers shall be provided on rear axle hubs.</p> <p><u>CHROME LUG NUT COVERS</u> Chrome lug nut covers shall be supplied on front and rear wheels.</p> <p><u>MUD FLAPS</u> Mud flaps shall be installed behind the front and rear wheels of the apparatus.</p> <p><u>AUTOMATIC TIRE CHAINS</u> One (1) pair of ONSPOT extreme duty automatic tire chains shall be provided at the rear. System shall be electric over air operated with switch on cab instrument panel. System to be operable at speeds up to 35 mph.</p> <p><u>WHEEL CHOCKS</u> There shall be one (1) pair of wheel chocks provided.</p> <p><u>WHEEL CHOCK BRACKETS</u> There shall be one (1) pair provided. The brackets shall be mounted forward of the left rear wheels.</p> <p><u>ANTI-LOCK BRAKE SYSTEM</u> The vehicle shall be equipped with an anti-lock braking system.</p> <p><u>BRAKES</u> The service brake system shall be full air type. Front brakes shall be disc type with automatic pad wear adjustment. The rear brakes shall have automatic slack adjusters.</p> <p><u>BRAKE SYSTEM AIR COMPRESSOR</u> The air compressor shall have a minimum output of 18.7 cubic feet per minute.</p>		

Bidder Complies	
Yes	No

BRAKE SYSTEM

The brake system shall include:

- Brake treadle valve
- Heated automatic moisture ejector on air dryer
- Total air system minimum capacity of 4,272 cubic inches
- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi
- Spring set parking brake system
- Parking brake operated by a push-pull style control valve
- A parking "brake on" indicator light on instrument panel
- Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, with an automatic spring brake application at 40 psi
- A pressure protection valve to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa)
- 1/4 turn drain valves on each air tank

The air tank shall be primed and painted to meet a minimum 750 hour salt spray test.

To reduce the effects of corrosion, the air tank shall be mounted with stainless steel brackets.

BRAKE SYSTEM AIR DRYER

The air dryer shall have an internal wet tank, spin-on coalescing filter cartridge and 100 watt heater.

BRAKE LINES

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

AIR INLET/OUTLET

One (1) air inlet/outlet shall be installed with the female coupling located on the driver side walkway compartment behind cab. This system shall tie into the "wet" tank of the brake system and include a check valve in the inlet line and an 85 psi pressure protection valve in the outlet line. The air outlet shall be controlled by a needle valve.

A mating male fitting shall be provided with the loose equipment.

The air inlet shall allow a shoreline air hose to be connected to the vehicle. This shall allow station air to be supplied to the brake system of the vehicle to insure constant air pressure.

ENGINE

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

Make:	Cummins
Model:	L9
Power:	450 hp at 2100 rpm

		Bidder Complies	
		Yes	No
Torque:	1250 lb-ft at 1400 rpm		
Governed Speed:	2200 rpm		
Emissions Level:	EPA 2021		
Fuel:	Diesel		
Cylinders:	Six (6)		
Displacement:	543 cubic inches (8.9L)		
Starter:	Delco 39MT™		
Fuel Filters:	Spin-on style primary filter with water separator and water-in-fuel sensor. Secondary spin-on style filter.		
<p>The engine shall include On-board diagnostics (OBD), which provides self diagnostic and reporting. The system shall give the owner or repair technician access to state of health information for various vehicle sub systems. The system shall monitor vehicle systems, engine and after treatment. The system shall illuminate a malfunction indicator light on the dash console if a problem is detected.</p> <p><u>HIGH IDLE</u></p> <p>A high idle switch shall be provided, inside the cab, on the instrument panel, that shall automatically maintain a preset engine rpm. A switch shall be installed, at the cab instrument panel, for activation/deactivation.</p> <p>The high idle shall be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light shall be provided, adjacent to the switch. The light shall illuminate when the above conditions are met. The light shall be labeled "OK to Engage High Idle."</p> <p><u>ENGINE BRAKE</u></p> <p>An engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.</p> <p>The driver shall be able to turn the engine brake system on/off and have a high, medium and low setting.</p> <p>The engine brake shall activate when the system is on and the throttle is released.</p> <p>The high setting of the brake application shall activate and work simultaneously with the variable geometry turbo (VGT) provided on the engine.</p> <p>The engine brake shall be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.</p> <p>The ABS system shall automatically disengage the auxiliary braking device, when required.</p>			

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	Yes	No
<p><u>CLUTCH FAN</u> A fan clutch shall be provided. The fan clutch shall be automatic when the pump transmission is in "Road" position, and constantly engaged when in "Pump" position.</p> <p><u>ENGINE AIR INTAKE</u> The engine air intake shall be located above the engine cooling package. It shall draw fresh air from the front of the apparatus through the radiator grille.</p> <p>A stainless steel metal screen shall be installed at the inlet of the air intake system that shall meet NFPA 1901 requirements.</p> <p>The air cleaner and stainless steel screen shall be easily accessible by tilting the cab.</p> <p><u>EXHAUST SYSTEM</u> The exhaust system shall be stainless steel from the turbo to the engine's aftertreatment device, and shall be 4.00" in diameter. The exhaust system shall include a single module aftertreatment device to meet current EPA standards. An insulation wrap shall be provided on all exhaust pipes between the turbo and aftertreatment device to minimize the heat loss to the aftertreatment device. The exhaust shall terminate horizontally ahead of the right side rear wheels. A tailpipe diffuser shall be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields shall be provided to isolate chassis and body components from the heat of the tailpipe diffuser.</p> <p><u>RADIATOR</u> The radiator and the complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system standards.</p> <p>The radiator core shall have a minimum front area of 1060 square inches.</p> <p>The radiator shall be compatible with commercial antifreeze solutions.</p> <p>The radiator assembly shall be isolated from the chassis frame rails with rubber isolators to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven terrain.</p> <p>The radiator shall include a de-aeration/expansion tank. For visual coolant level inspection, the radiator shall have a built-in sight glass. The radiator shall be equipped with a 15 psi pressure relief cap.</p> <p>A drain port shall be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.</p> <p><u>COOLANT LINES</u> Rubber hose shall be used for all engine coolant lines installed by the chassis manufacturer.</p>		

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	Yes	No
<p>Hose clamps shall be stainless steel constant torque type to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.</p> <p><u>FUEL TANK</u></p> <p>A fuel tank shall be provided and mounted at the rear of the chassis. It shall be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank shall be mounted with stainless steel straps.</p> <p>A 0.75" drain plug shall be provided in a low point of the tank for drainage.</p> <p>A fill inlet shall be located on the left hand side of the body and be covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."</p> <p>A 0.50" diameter vent shall be provided running from top of tank to just below fuel fill inlet.</p> <p>The tank shall meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.</p> <p>All fuel lines shall be provided as recommended by the engine manufacturer.</p> <p><u>DIESEL EXHAUST FLUID TANK</u></p> <p>An 8.0 gallon diesel exhaust fluid (DEF) tank shall be provided and mounted in the left side body forward of the rear axle.</p> <p>A 0.50" drain plug shall be provided in a low point of the tank for drainage.</p> <p>A fill inlet shall be provided and marked "Diesel Exhaust Fluid Only". The fill inlet shall be located behind a, painted door on the left side of the vehicle.</p> <p>The tank shall meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing.</p> <p>The tank shall include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.</p> <p><u>TRANSMISSION</u></p> <p>An Allison 5th generation, Model EVS 3000P, electronic torque converting automatic transmission shall be provided.</p> <p>The transmission shall be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display shall indicate when service is due.</p> <p>Two (2) PTO openings shall be located on both sides of converter housing (positions 4 o'clock and 8 o'clock) as viewed from the rear.</p>		

Bidder Complies	
Yes	No

A transmission temperature gauge with red light and audible alarm shall be installed on the cab dash.

TRANSMISSION SHIFTER

A five (5)-speed push button shift module shall be provided. Shift position indicator shall be indirectly lit for after dark operation.

The transmission ratio shall be:

1st	3.49 to 1.00
2nd	1.86 to 1.00
3rd	1.41 to 1.00
4th	1.00 to 1.00
5th	0.75 to 1.00
R	5.03 to 1.00

TRANSMISSION COOLER

An oil cooler shall be provided using engine coolant to control the transmission oil temperature.

DRIVELINE

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

The shafts shall be dynamically balanced before installation.

A splined slip joint shall be provided in each driveshaft where the driveline design requires it. The slip joint shall be coated with Glidecoat® or equivalent.

STEERING

Dual steering gear, with integral heavy-duty power steering, shall be provided. For reduced system temperatures, the power steering shall incorporate an air to oil cooler and Vickers® V20NF or equal hydraulic pump with integral pressure and flow control. All power steering lines shall have wire braded lines with crimped fittings.

A tilt and telescopic steering column shall be provided to improve fit for a broader range of driver configurations.

STEERING WHEEL

The steering wheel shall have tilting and telescoping capabilities.

BUMPER

A one (1)-piece, polished stainless steel bumper, a minimum of 10.00" high, shall be attached to a bolted modular extension frame constructed of 50,000 psi tensile steel "C" channel mounted directly behind it to provide adequate support strength.

The bumper shall be extended approximately 19.00" from front face of cab.

	Bidder Complies	
	Yes	No
<p><u>Gravel Pan</u> A gravel pan, constructed of bright aluminum treadplate, shall be furnished between the bumper and cab face. The gravel pan shall be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.</p> <p><u>CENTER HOSE TRAY</u> A hose tray, constructed of aluminum, shall be placed in the center of the bumper extension. The tray shall have a capacity of 150' of 1.75" double jacket cotton-polyester hose. Black rubber grating shall be provided at the bottom of the tray. Drain holes are also provided.</p> <p><u>Center Hose Tray Restraint</u> There shall be one (1) pair of hose tray restraint straps located over the center mounted tray. The straps shall be used to secure the hose in the tray.</p> <p><u>TOW EYES</u> Two (2) painted steel tow eyes shall be installed under the bumper and attached to the front frame members. The tow eyes shall be designed and positioned to allow up to a 6,000 lb straight horizontal pull in line with the centerline of the vehicle. The tow eyes shall not be used for lifting of the apparatus. The inner and outer edges of the tow eyes shall have a .25" radius. The tow eyes shall be painted black.</p> <p><u>CAB</u> The cab shall be designed specifically for the fire service and manufactured by the chassis builder. The cab shall be built by the apparatus manufacturer in a facility located on the manufacturer's premises. For reasons of structural integrity and enhanced occupant protection, the cab shall be a heavy duty design, constructed to the following minimal standards. The crew cab section shall have a minimum 10.00" raised roof. The crew cab shall be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants. The cab shall be a full tilt cab style. A 3-point cab mount system with rubber isolators shall improve ride quality by isolating chassis vibrations from the cab.</p>		

	Bidder Complies	
	Yes	No
<p><u>CAB ROOF DRIP RAIL</u> For enhanced protection from inclement weather, a drip rail shall be furnished on the sides of the cab. The drip rail shall extend the full length of the cab roof.</p> <p><u>INTERIOR CAB INSULATION</u> The cab shall include a minimum 1.00" insulation in the ceiling, 1.50" insulation in the side walls, and 2.00" insulation in the rear wall to maximize acoustic absorption and thermal insulation.</p> <p><u>FENDER LINERS</u> Full circular inner fender liners in the wheel wells shall be provided.</p> <p><u>WINDSHIELD</u> A safety glass windshield shall be provided with a minimum of 2,775 square inches of clear viewing area.</p> <p><u>WINDSHIELD WIPERS</u> Electric windshield wipers with washer shall be provided that meet FMVSS and SAE requirements.</p> <p><u>ENGINE TUNNEL</u> Engine hood side walls shall be constructed of a minimum of 0.375" aluminum. The top shall be constructed of aluminum and shall be tapered at the top to allow for more driver and passenger elbow room.</p> <p>The engine hood shall be insulated for protection from heat and sound. The noise insulation keeps the dBA level within the limits stated in the current NFPA 1901 standards.</p> <p><u>CAB REAR WALL EXTERIOR COVERING</u> The exterior surface of the rear wall of the cab shall be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.</p> <p><u>CAB LIFT</u> A hydraulic cab lift system shall be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves.</p> <p>Hydraulic pump shall have a manual override for backup in the event of electrical failure.</p> <p>Lift controls shall be located on the right side pump panel or front area of the body in a convenient location.</p> <p>The cab shall be capable of tilting to accommodate engine maintenance and removal.</p> <p>The cab shall be locked down by a 2-point normally closed spring loaded hook type latch that fully engages after the cab has been lowered.</p> <p>For increased safety, a redundant mechanical stay arm shall be provided that must be manually put in place on the left side between the chassis and cab frame when the cab is in the raised</p>		

	Bidder Complies	
	Yes	No
<p>position. This device shall be manually stowed to its original position before the cab can be lowered.</p> <p><u>Cab Lift Interlock</u> The cab lift system shall be interlocked to the parking brake. The cab tilt mechanism shall be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism shall be disabled.</p> <p><u>GRILLE</u> An American flag mesh grille screen, inserted behind a bright finished grille surround, shall be provided on the front center of the cab.</p> <p><u>SIDE OF CAB MOLDING</u> Chrome molding shall be provided on both sides of cab.</p> <p><u>MIRRORS</u> A west coast style mirror, with chrome finish, shall be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass shall be heated and adjustable with remote control within reach of the driver.</p> <p><u>DOORS</u> The forward cab and crew cab doors shall be constructed of aluminum.</p> <p>The cab doors shall be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The locks shall be capable of activating when the doors are open or closed. The doors shall remain locked if locks are activated when the doors are opened, then closed.</p> <p>A full length, heavy duty, stainless steel, piano-type hinge shall be provided on all cab doors. There shall be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.</p> <p>A grab handle shall be provided on the inside of each cab door for ease of entry.</p> <p>The cab steps at each cab door location shall be located inside the cab doors to protect the steps from weather elements.</p> <p><u>Door Panels</u> The inner cab door panels shall be constructed out of brushed stainless steel.</p> <p><u>ELECTRIC OPERATED CAB DOOR WINDOWS</u> All four (4) cab doors shall be equipped with electric operated windows with one (1) flush mounted automotive style switch on each door. The driver's door shall have four (4) switches, one (1) to control each door window.</p> <p>Each switch shall allow intermittent or auto down operation for ease of use. Auto down operation shall be actuated by holding the window down switch for approximately 1 second.</p>		

	Bidder Complies	
	Yes	No
<p><u>CAB STEPS</u> The forward cab and crew cab access steps shall be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps shall be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage.</p> <p><u>CAB EXTERIOR HANDRAILS</u> A slip-resistant, knurled aluminum handrail shall be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress.</p> <p><u>STEP LIGHTS</u> There shall be six (6) white LED step lights installed for cab and crew cab access steps.</p> <ul style="list-style-type: none"> • One (1) light for the driver's access steps. • Two (2) lights for the driver's side crew cab access steps. • Two (2) lights for the passenger's side crew cab access steps. • One (1) light for the passenger's side access step. <p>The lights shall be activated when the battery switch is on and the adjacent door is opened.</p> <p><u>FENDER CROWNS</u> Stainless steel fender crowns shall be installed at the cab wheel openings.</p> <p><u>CREW CAB WINDOWS</u> One (1) fixed window with tinted glass shall be provided on each side of the cab, to the rear of the front cab door. The windows shall be sized to enhance light penetration into the cab interior.</p> <p>To enhance both visibility out of and light penetration into the crew cab, two (2) tinted windows shall be provided in the front slanted portion of the raised roof.</p> <p><u>MOUNTING PLATE ON ENGINE TUNNEL</u> Equipment installation provisions shall be installed on the engine tunnel.</p> <p>A 0.188" smooth aluminum plate shall be bolted to the top surface of the engine tunnel. The plate shall follow the contour of the engine tunnel and shall run the entire length of the engine tunnel. The plate shall be spaced off the engine tunnel .75" to allow for wire routing below the plate.</p> <p>There shall be a custom designed pocket for a portable lap top computer incorporated into this plate. There shall be a USB port located adjacent to the pocket. Exact design shall be finalized at the pre-construct conference.</p> <p>The mounting surface shall be painted to match the cab interior.</p> <p><u>CAB INTERIOR</u> The cab interior shall be constructed of primarily metal (painted aluminum) to withstand the severe duty cycles of the fire service.</p>		

	Bidder Complies	
	Yes	No
<p>The officer side dash shall be constructed out of painted aluminum.</p> <p>The engine tunnel shall be padded and covered, on the top and sides, with black leather grain vinyl resistant to oil, grease, and mildew.</p> <p>For durability and ease of maintenance, the cab interior side walls shall be painted aluminum. The rear wall shall be painted aluminum.</p> <p>Headliner shall be installed in both forward and rear cab sections. Headliner material shall be vinyl. A sound barrier shall be part of its composition. Material shall be installed on aluminum sheet and securely fastened to interior cab ceiling.</p> <p>Forward portion of cab headliner shall permit easy access for service of electrical wiring or other maintenance needs.</p> <p>All wiring shall be placed in metal raceways.</p> <p><u>CAB INTERIOR UPHOLSTERY</u></p> <p>The cab interior upholstery shall be black vinyl.</p> <p><u>CAB INTERIOR PAINT</u></p> <p>The cab interior metal surfaces shall be painted gray, vinyl texture paint.</p> <p><u>CAB FLOOR</u></p> <p>The cab and crew cab floor areas shall be covered with acoustical floor mat.</p> <p><u>DEFROST/AIR CONDITIONING SYSTEM</u></p> <p>A combination heater, defroster, and air conditioning system shall be installed in the cab.</p> <p><u>Cab/Crew Auxiliary Heater</u></p> <p>There shall be one auxiliary heater provided in each outboard rear facing seat risers with a dual scroll blower.</p> <p><u>Air Conditioning</u></p> <p>The air conditioning system shall be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. The cooling performance test shall be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.</p> <p>A high efficiency particulate air (HEPA) filter shall be included for the system.</p> <p>The air conditioner refrigerant shall be R-134A and shall be installed by a certified technician.</p> <p><u>Climate Control</u></p> <p>An automotive style controller shall be provided to control the heat and air conditioning system within the cab. It shall have controls for fan speed, temperature, and air flow distribution.</p>		

	Bidder Complies	
	Yes	No
<p><u>Gravity Drain Tubes</u> Condensate drain tubes shall be provided for the air conditioning evaporator..</p> <p><u>SUN VISORS</u> Two (2) sun visors shall be provided. The sun visors shall be located above the windshield with one (1) mounted on each side of the cab.</p> <p><u>GRAB HANDLE</u> A grab handle shall be mounted on the door post of the driver and officer's side cab door to assist in entering the cab. The officer's side grab handle shall be mounted on the lower portion of the door post. The grab handle shall be securely mounted to the post area between the door and windshield.</p> <p><u>ENGINE COMPARTMENT LIGHT</u> An engine compartment light shall be installed under the engine hood, of which the switch is an integral part. Light shall have a weep hole in its lens to prevent moisture retention.</p> <p><u>ACCESS TO ENGINE DIPSTICKS</u> For access to the engine oil and transmission fluid dipsticks, there shall be a door on the engine tunnel, inside the crew cab.</p> <p>The engine oil dipstick shall allow for checking only. The transmission dipstick shall allow for both checking and filling.</p> <p>The door shall have a rubber seal for thermal and acoustic insulation. One (1) flush latch shall be provided on the access door.</p> <p><u>SEATING CAPACITY</u> The seating capacity in the cab shall be four (4).</p> <p><u>DRIVER SEAT</u> A Seats Incorporated, 911, scissor action, air ride, mid-height with headrest style seat shall be provided in the cab for the driver.</p> <p><u>OFFICER SEAT</u> A Seats Incorporated, 911, scissor action air ride, mid-height with headrest style seat shall be provided in the cab for the officer.</p> <p><u>FORWARD FACING CENTER SEATS</u> There shall be two (2) forward facing, Seats Incorporated 911 non-SCBA seats provided at the center position in the crew cab.</p> <p><u>SEAT UPHOLSTERY</u> All seat upholstery shall be leather grain black vinyl resistant to oil, grease and mildew.</p>		

	Bidder Complies	
	Yes	No
<p><u>SEAT BELTS</u></p> <p>All cab seating positions shall have red seat belts. The seat belts shall be furnished with a single automatic retractor. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length shall meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.</p> <p>To ensure safe operation, the seat shall be equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not buckled.</p> <p><u>HELMET STORAGE PROVIDED BY FIRE DEPARTMENT</u></p> <p>NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided.</p> <p>There is no helmet storage on the apparatus as manufactured. The fire department shall provide a location for storage of helmets.</p> <p><u>CAB DOME LIGHTS</u></p> <p>There shall be four (4) dual LED dome lights provided. Two (2) lights shall be mounted above the inside shoulder of the driver and officer and two (2) lights shall be installed and located, one (1) on each side of the crew cab.</p> <p>The color of the LED's shall be red and white.</p> <p>The white LED's shall be controlled by the door switches and the lens switch.</p> <p>The color LED's shall be controlled by the lens switch.</p> <p><u>PORTABLE HAND LIGHTS, PROVIDED BY FIRE DEPARTMENT</u></p> <p>NFPA 1901, 2016 edition, section 5.9.4 requires two portable hand lights mounted in brackets fastened to the apparatus.</p> <p>The hand lights are not on the apparatus as manufactured. The fire department shall provide and mount these hand lights.</p> <p><u>CAB INSTRUMENTATION</u></p> <p>The cab instrument panel shall include gauges, telltale indicator lamps, control switches, alarms, and a diagnostic panel. The function of the instrument panel controls and switches shall be identified by a label adjacent to each item. Actuation of the headlight switch shall illuminate the labels in low light conditions. Telltale indicator lamps shall not be illuminated unless necessary. The cab instruments and controls shall be conveniently located within the forward cab section, forward of the driver. The gauge assembly and switch panels are designed to be removable for ease of service and low cost of ownership.</p> <p><u>Gauges</u></p> <p>The gauge panel shall include the following ten (10) black faced gauges with black bezels to monitor vehicle performance:</p> <ul style="list-style-type: none"> • Voltmeter gauge (volts): 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> ○ Low volts (11.8 VDC) <ul style="list-style-type: none"> ▪ Amber telltale light on indicator light display with steady tone alarm ○ High volts (15.5 VDC) <ul style="list-style-type: none"> ▪ Amber telltale light on indicator light display with steady tone alarm ● Engine Tachometer (RPM) ● Speedometer MPH (Major Scale), KM/H (Minor Scale) ● Fuel level gauge (Empty - Full in fractions): <ul style="list-style-type: none"> ○ Low fuel (1/8 full) <ul style="list-style-type: none"> ▪ Amber indicator light in gauge dial with steady tone alarm ● Engine Oil pressure Gauge (PSI): <ul style="list-style-type: none"> ○ Low oil pressure to activate engine warning lights and alarms <ul style="list-style-type: none"> ▪ Red indicator light in gauge dial with steady tone alarm ● Front Air Pressure Gauges (PSI): <ul style="list-style-type: none"> ○ Low air pressure to activate warning lights and alarm <ul style="list-style-type: none"> ▪ Red indicator light in gauge dial with steady tone alarm ● Rear Air Pressure Gauges (PSI): <ul style="list-style-type: none"> ○ Low air pressure to activate warning lights and alarm <ul style="list-style-type: none"> ▪ Red indicator light in gauge dial with steady tone alarm ● Transmission Oil Temperature Gauge (Fahrenheit): <ul style="list-style-type: none"> ○ High transmission oil temperature activates warning lights and alarm <ul style="list-style-type: none"> ▪ Amber indicator light in gauge dial with steady tone alarm ● Engine Coolant Temperature Gauge (Fahrenheit): <ul style="list-style-type: none"> ○ High engine temperature activates an engine warning light and alarms <ul style="list-style-type: none"> ▪ Red indicator light in gauge dial with steady tone alarm ● Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions): <ul style="list-style-type: none"> ○ Low fluid (1/8 full) <ul style="list-style-type: none"> ▪ Amber indicator light in gauge dial <p><u>Indicator Lamps</u></p> <p>To promote safety, the following telltale indicator lamps shall be located on the instrument panel in clear view of the driver. The indicator lamps shall be "dead-front" design that is only visible when active. The colored indicator lights shall have descriptive text or symbols.</p> <p>The following amber telltale lamps shall be present:</p> <ul style="list-style-type: none"> ● Low coolant ● Check engine ● Check trans (check transmission) ● Air rest (air restriction) ● DPF (engine diesel particulate filter regeneration) ● HET (engine high exhaust temperature) ● ABS (antilock brake system) ● MIL (engine emissions system malfunction indicator lamp) 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • Regen inhibit (engine emissions regeneration inhibit) • The following red telltale lamps shall be present: • Parking brake • Stop engine • The following green telltale lamps shall be present: • Left turn • Right turn • Battery on • Ignition • The following blue telltale lamps shall be present: • High beam <p><u>Alarms</u> A steady audible tone alarm shall be provided whenever a warning condition is active.</p> <p><u>Indicator Lamp and Alarm Prove-Out</u> A system shall be provided which automatically tests telltale indicator lights and alarms located on the cab instrument panel. Telltale indicators and alarms shall perform prove-out for 3 to 5 seconds when the ignition switch is moved to the on position with the battery switch on.</p> <p><u>Control Switches</u> For ease of use, the following controls shall be provided immediately adjacent to the cab instrument panel within easy reach of the driver. All switches shall have backlit labels for low light applications.</p> <p>Headlight/Parking light switch: A three (3)-position maintained rocker switch shall be provided. The first switch position shall deactivate all parking and headlights. The second switch position shall activate the parking lights. The third switch shall activate the headlights.</p> <p>Panel back lighting intensity control switch: A three (3)-position momentary rocker switch shall be provided. Pressing the top half of the switch, "Panel Up" increases the panel back lighting intensity and pressing the bottom half of the switch, "Panel Down" decreases the panel back lighting intensity. Pressing the half or bottom half of the switch several times shall allow back lighting intensity to be gradually varied from minimum to maximum intensity level for ease of use.</p> <p>Ignition switch: A three (3)-position maintained/momentary rocker switch shall be provided. The first switch position shall turn off and deactivate vehicle ignition. The second switch position shall activate vehicle ignition and shall perform prove-out on the telltale indicators and alarms for 3 to 5 seconds after the switch is turned on. A green indicator lamp is activated with vehicle ignition. The third momentary position shall temporarily silence all active cab alarms. An alarm "chirp" may continue as long as alarm condition exists. Switching ignition to off position shall terminate the alarm silence feature and reset function of cab alarm system.</p>		

	Bidder Complies	
	Yes	No
<p>Engine start switch: A two (2)-position momentary rocker switch shall be provided. The first switch position is the default switch position. The second switch position shall activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.</p> <p>Hazard switch shall be provided on the instrument panel or on the steering column.</p> <p>Heater and defroster controls.</p> <p>Turn signal arm: A self-canceling turn signal with high beam headlight controls.</p> <p>Windshield wiper control shall have high, low, and intermittent modes.</p> <p>Parking brake control: An air actuated push/pull park brake control.</p> <p>Chassis horn control: Activation of the chassis horn control shall be provided through the center of the steering wheel.</p> <p>High idle engagement switch: A maintained rocker switch with integral indicator lamp shall be provided. The switch shall activate and deactivate the high idle function. The "OK To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch shall indicate when the high idle function is engaged.</p> <p>"OK To Engage High Idle" indicator lamp: A green indicator light shall be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.</p> <p>Emergency switching shall be controlled by an Emergency Master switch which controls all emergency warning lights including lightbars, cab warning lights, body warning lights and high beam flash.</p> <p><u>Custom Switch Panels</u> The design of cab instrumentation shall allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. All switches have backlit labels for low light conditions.</p> <p><u>Diagnostic Panel</u> A diagnostic panel shall be provided and accessible while standing on the ground. The panel shall be located inside the driver's side door left of the steering column. The diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches shall allow ABS systems to provide blink codes should a problem exist.</p> <p>The diagnostic panel shall include the following:</p> <ul style="list-style-type: none"> ENGINE/TRANSMISSION/ABS J1939 Diagnostic Port 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • ABS Diagnostic Switch and Indicator - The switch and amber indicator shall allow access to diagnostic mode and display of standard ABS system fault blink codes that may be generated by the ABS system • DPF REGEN (Diesel Particulate Filter Regeneration Switch) shall be provided to request regeneration of the engine emission system. An amber indicator shall be provided on top of the switch that shall illuminate in a "CHECK ENGINE" condition • REGEN INHIBIT (Diesel Particulate Filter Regeneration Inhibit Switch) shall be provided that shall request that regeneration be temporarily prevented. A green indicator shall be provided on top of the Regen Inhibit switch that shall illuminate when the Regen Inhibit feature is active. Regen Inhibit shall be disabled upon cycling of the ignition switch to the off state. <p><u>AIR RESTRICTION INDICATOR</u> A high air restriction warning indicator light (electronic) shall be provided.</p> <p><u>"DO NOT MOVE APPARATUS" INDICATOR</u> A flashing red indicator light, located in the driving compartment, shall be illuminated automatically per the current NFPA requirements. The light shall be labeled "Do Not Move Apparatus If Light Is On." The same circuit that activates the Do Not Move Apparatus indicator shall activate a pulsing alarm when the parking brake is released.</p> <p><u>SWITCH PANELS</u> The built-in switch panels shall be located in the lower console or overhead console of the cab. Switches shall be rocker type with an indicator light, of which is an integral part of the switch.</p> <p><u>WIPER CONTROL</u> Wiper control shall consist of a two (2)-speed windshield wiper control with intermittent feature and windshield washer controls.</p> <p><u>SPARE CIRCUIT</u> There shall be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires shall have the following features:</p> <ul style="list-style-type: none"> • The positive wire shall be connected directly to the battery power. • The negative wire shall be connected to ground. • Wires shall be protected to 2.0 amps at 12 volts DC. • Power and ground shall terminate at the engine tunnel convenient to driver. • Termination shall be a Blue Sea Systems part number 1016 dual USB charger socket. • Wires shall be sized to 125% of the protection. <p>This circuit may be load managed when the parking brake is applied.</p>		

	Bidder Complies	
	Yes	No
<p><u>SPARE CIRCUIT</u></p> <p>There shall be one (1) pair of wires, including a positive and a negative, installed on the apparatus.</p> <p>The above wires shall have the following features:</p> <ul style="list-style-type: none"> • The positive wire shall be connected directly to the battery power. • The negative wire shall be connected to ground. • Wires shall be protected to 10 amps at 12 volts DC. • Power and ground shall terminate at the rear of engine tunnel. • Termination shall be with heat shrinkable butt splicing. <p>Wires shall be sized to 125% of the protection.</p> <p>This circuit may be load managed when the parking brake is applied.</p> <p><u>SPARE CIRCUIT</u></p> <p>There shall be one (1) pair of wires, including a positive and a negative, installed on the apparatus.</p> <p>The above wires shall have the following features:</p> <ul style="list-style-type: none"> • The positive wire shall be connected directly to the battery power • The negative wire shall be connected to ground • Wires shall be protected to 15 amps at 12 volts DC • Power and ground shall terminate in the center console • Termination shall be with 15 amp, power point plug with rubber cover • Wires shall be sized to 125 percent of the protection <p>This circuit may be load managed when the parking brake is set.</p> <p><u>STEREO RADIO</u></p> <p>A heavy duty AM/FM/CD/Weatherband stereo radio, with front auxiliary input and shall be installed per switch panel layout . There shall be one (1) pair of speakers in the cab. The antenna shall be a roof-mounted rubber antenna located in an open space, on the cab roof .</p> <p>The following features shall be included:</p> <ul style="list-style-type: none"> • CD Player with Electronic Skip Protection (ESP) • Full 7-Channel NOAA Weatherband Tuner with SAME technology • Built-in Clock • Audio CD, CD-R, R/W, MP3 CD compatible • Radio Broadcast Data System Text Display • Front panel USB input • Front and Rear Auxiliary Audio Input • Receives audio (A2DP/AVRCP) from Bluetooth enabled device 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • Supports Bluetooth HFP to receive phone calls from BT-enabled phones • Low battery alert (&lt;10.8Vdc) • Heavy Duty design with Conformal Coated Circuit Boards for maximum durability under all conditions <p><u>CENTER STORAGE BIN</u></p> <p>A bin shall be provided within reach of the officer in the center of the cab close to the windshield.</p> <p>The depth and width of the bin shall be maximized for the space available.</p> <p>The bin is not intended for storage of loose equipment. Items stored on bin shall be permanently attached to meet NFPA requirements.</p> <p><u>INFORMATION CENTER</u></p> <p>There shall be a LCD display integral to the cab gauge panel provided that shall display the following information:</p> <ul style="list-style-type: none"> • Total distance • Trip distance • Total hours • Trip hours • PTO "A" hours • PTO "B" hours <p><u>VEHICLE DATA RECORDER</u></p> <p>There shall be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.</p> <p>The information stored on the VDR can be downloaded through a USB port mounted in a convenient location. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.</p> <p>The vehicle data recorder shall be capable of recording the following data via hardwired and/or CAN inputs:</p> <ul style="list-style-type: none"> • Vehicle Speed - MPH • Acceleration - MPH/sec • Deceleration - MPH/sec • Engine Speed - RPM • Engine Throttle Position - % of Full Throttle • ABS Event - On/Off • Seat Occupied Status - Yes/No by Position • Seat Belt Buckled Status - Yes/No by Position 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • Master Optical Warning Device Switch - On/Off • Time - 24 Hour Time • Date - Year/Month/Day <p><u>Seat Belt Monitoring System</u> A seat belt monitoring system (SBMS) shall be provided. The SBMS shall be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:</p> <ul style="list-style-type: none"> • Seat Occupied & Buckled = Green LED indicator illuminated • Seat Occupied & Unbuckled = Red LED indicator with audible alarm • No Occupant & Buckled = Red LED indicator with audible alarm • No Occupant & Unbuckled = No indicator and no alarm <p>The SBMS shall include an audible alarm that shall warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.</p> <p><u>RADIO ANTENNA MOUNT</u> There shall be one (1) standard 1.125", 18 thread antenna-mounting base installed on the right side on the cab roof with high efficiency, low loss, coaxial cable routed to the instrument panel area. A weatherproof cap shall be installed on the mount.</p> <p><u>VEHICLE CAMERA SYSTEM</u> There shall be a color vehicle camera system provided with the following:</p> <ul style="list-style-type: none"> • One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse. <p>The camera image shall be displayed on a minimum 7.00" LCD display located in view of the driver on the dash. The display shall include manual camera activation capability and audio from the active camera.</p> <p><u>ELECTRICAL POWER CONTROL SYSTEM</u> A compartment shall be provided in or under the cab to house the vehicle's electrical power and signal circuit protection and control components. The power and signal protection and control compartment shall contain circuit protection devices and power control devices. Power and signal protection and control components shall be protected against corrosion, excessive heat, excessive vibration, physical damage and water spray.</p> <p>Serviceable components shall be readily accessible.</p> <p>Circuit protection devices, which conform to SAE standard, shall be utilized to protect each circuit. All circuit protection devices shall be sized to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers shall be Type-I automatic reset (continuously resetting) and conform to SAE J553 or J258. When required,</p>		

	Bidder Complies	
	Yes	No
<p>automotive type fuses conforming to SAE J554, J1284, J1888 or J2077 shall be utilized to protect electronic equipment.</p> <p>Power control relays and solenoids shall have a direct current (dc) rating of 125 percent of the maximum current for which the circuit is protected.</p> <p>Visual status indicators shall be supplied to identify control safety interlocks and vehicle status. In addition to visual status indicators, audible alarms designed to provide early warning of problems before they become critical shall be used.</p> <p><u>VOLTAGE MONITOR SYSTEM</u></p> <p>A voltage monitor system shall be provided to indicate the status of each battery system connected to the vehicle's electrical load. The monitor system shall provide visual and audio warning when the system voltage is above or below optimum levels.</p> <p><u>POWER AND GROUND STUDS</u></p> <p>Spare circuits shall be provided in the primary distribution center for two-way radio equipment.</p> <p>The spare circuits shall consist of the following:</p> <ul style="list-style-type: none"> • One (1) 12-volt DC, 30 amp battery direct spare • One (1) 12-volt DC ground and un-fused switched battery stud located in or adjacent to the power distribution center <p><u>EMI/RFI PROTECTION</u></p> <p>The electrical system proposed shall include means to control undesired electromagnetic and radio frequency emissions. State of the art electrical system design and components shall be used to ensure radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions are suppressed at their source.</p> <p>The apparatus proposed shall have the ability to operate in the electromagnetic environment typically found in fire ground operations. The contractor shall be able to demonstrate the EMI and RFI testing has been done on similar apparatus and certifies that the vehicle proposed meets SAE J551 requirements.</p> <p>EMI/RFI susceptibility shall be controlled by applying immune circuit designs, shielding, twisted pair wiring and filtering. The electrical system shall be designed for full compatibility with low level control signals and high powered two-way radio communication systems. Harness and cable routing shall be given careful attention to minimize the potential for conducting and radiated EMI-RFI susceptibility.</p> <p><u>ELECTRICAL</u></p> <p>All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. All wiring shall be high temperature crosslink type. Wiring shall be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers shall be provided which conform to SAE Standards. Wiring</p>		

	Bidder Complies	
	Yes	No
<p>shall be color, function and number coded. Function and number codes shall be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors shall be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.</p> <p>Electrical wiring and equipment shall be installed utilizing the following guidelines:</p> <ol style="list-style-type: none"> 1. All holes made in the roof shall be caulked with silicon, rope caulk is not acceptable. Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof. 2. Any electrical component that is installed in an exposed area shall be mounted in a manner that shall not allow moisture to accumulate in it. Exposed area shall be defined as any location outside of the cab or body. 3. Electrical components designed to be removed for maintenance shall not be fastened with nuts and bolts. Metal screws shall be used in mounting these devices. Also, a coil of wire shall be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work. 4. Corrosion preventative compound shall be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections shall require this compound in the plug to prevent corrosion and for easy separation (of the plug). 5. All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area. 6. All electrical terminals in exposed areas shall have silicon applied completely over the metal portion of the terminal. <p>All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, shall be furnished. Rear identification lights shall be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads shall be protected from damage by installing a false bulkhead inside the rear compartments.</p> <p>An operational test shall be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.</p> <p>The results of the tests shall be recorded and provided to the purchaser at time of delivery.</p> <p><u>BATTERY SYSTEM</u></p> <p>There shall be four (4) 12 volt batteries that include the following features shall be provided:</p> <ul style="list-style-type: none"> • 950 CCA, cold cranking amps • 190 amp reserve capacity • High cycle • Group 31 • Rating of 3800 CCA at 0 degrees Fahrenheit • 760 minutes of reserve capacity • Threaded stainless steel studs 		

	Bidder Complies	
	Yes	No
<p>Each battery case shall be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover shall be manifold vented with a central venting location to allow a 45 degree tilt capacity.</p> <p>The inside of each battery shall consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.</p> <p><u>BATTERY SYSTEM</u></p> <p>There shall be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.</p> <p><u>MASTER BATTERY SWITCH</u></p> <p>There shall be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.</p> <p>An indicator light shall be provided on the instrument panel to notify the driver of the status of the battery system.</p> <p><u>BATTERY COMPARTMENTS</u></p> <p>Batteries shall be placed on non-corrosive mats and be stored in well ventilated compartments located under the cab.</p> <p>Heavy-duty battery cables shall be used to provide maximum power to the electrical system. Cables shall be color coded.</p> <p>Battery terminal connections shall be coated with anti-corrosion compound. Battery solenoid terminal connections shall be encapsulated with semi-permanent rubberized compound.</p> <p><u>JUMPER STUDS</u></p> <p>One (1) set of battery jumper studs with plastic color-coded covers shall be included on the battery compartments.</p> <p><u>BATTERY CHARGER</u></p> <p>There shall be a battery charger with IQ4, controller provided.</p> <p>The battery charger shall be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.</p> <p>There shall be a Kussmaul™, Model #091-94-12, remote indicator included.</p> <p>The battery charger shall be located in the left body compartment mounted on the left wall as high as possible.</p> <p>The battery charger indicator shall be located on the driver's seat riser.</p> <p><u>AUTO EJECT FOR SHORELINE</u></p> <p>There shall be one (1) Kussmaul™, Model 091-55-20-120, 20 amp 120 volt AC shoreline inlet provided to operate the dedicated 120 volt AC circuits on the apparatus.</p>		

	Bidder Complies	
	Yes	No
<p>The shoreline inlet shall include a red weatherproof flip up cover.</p> <p>There shall be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.</p> <p>The shoreline shall be connected to the battery charger.</p> <p>There shall be a mating connector body supplied with the loose equipment.</p> <p>There shall be a label installed near the inlet that state the following:</p> <ul style="list-style-type: none"> • Line Voltage • Current Rating (amps) • Phase • Frequency <p>The shoreline receptacle shall be located on the driver side of cab, above wheel.</p> <p><u>ALTERNATOR</u> An alternator shall be provided. It shall have a rated output current of 320 amps, as measured by SAE method J56. The alternator shall feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator shall be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.</p> <p><u>ELECTRONIC LOAD MANAGEMENT</u> An electronic load management (ELM) system that monitors the vehicles 12-volt electrical system, and automatically reduces the electrical load in the event of a low voltage condition and by doing so, ensures the integrity of the electrical system.</p> <p>The ELM shall monitor the vehicle's voltage while at the scene (parking brake applied). It shall sequentially shut down individual electrical loads when the system voltage drops below a preset value. Two (2) separate electrical loads shall be controlled by the load manager. The ELM shall sequentially re-energize electrical loads as the system voltage recovers.</p> <p><u>HEADLIGHTS</u> There shall be four (4) rectangular LED lights mounted in the front quad style, chrome housing on each side of the cab grille.</p> <p>The low beam lights shall be activated when the headlight switch is on.</p> <p>The high beam and low beam lights shall be activated when the headlight switch and the high beam switch is activated.</p>		

	Bidder Complies	
	Yes	No
<p><u>FRONT DIRECTIONALS</u> The front directional's shall be Whelen, Model M6T, amber LED arrow lights. The directional's shall be housed in the same chrome common bezel as the front warning light and shall be located above the headlights.</p> <p><u>INTERMEDIATE LIGHT</u> There shall be two (2) Weldon, Model 9186-8580-29, or equal, amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light shall double as a turn signal and marker light.</p> <p><u>CAB CLEARANCE/MARKER/ID LIGHTS</u> There shall be five (5) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:</p> <ul style="list-style-type: none"> • Three (3) amber LED identification lights shall be installed in the center of the cab above the windshield. • Two (2) amber LED clearance lights shall be installed, one (1) on each outboard side of the cab above the windshield. <p><u>FRONT CAB SIDE DIRECTIONAL/MARKER LIGHTS</u> There shall be two (2) Weldon, Model 9186-8580-29, or equal, amber LED lights installed front of the cab door, one (1) on each side of the cab.</p> <p>The lights shall activate as marker lights with the headlight switch and directional lights with the corresponding directional circuit.</p> <p><u>REAR CLEARANCE/MARKER/ID LIGHTING</u> There shall be a three (3) LED light bar used as identification lights located at the rear of the apparatus per the following:</p> <ul style="list-style-type: none"> • As close as practical to the vertical centerline • Centers spaced not less than 6.00" or more than 12.00" apart • Red in color • All at the same height <p>There shall be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:</p> <ul style="list-style-type: none"> • To indicate the overall width of the vehicle • One (1) each side of the vertical centerline • As near the top as practical • Red in color • To be visible from the rear • All at the same height 		

	Bidder Complies	
	Yes	No
<p>There shall be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:</p> <ul style="list-style-type: none"> • To indicate the overall length of the vehicle • One (1) each side of the vertical centerline • As near the top as practical • Red in color • To be visible from the side • All at the same height <p>There shall be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</p> <p>There shall be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</p> <p>Per FMVSS 108 and CMVSS 108 requirements.</p> <p><u>REAR FMVSS LIGHTING</u></p> <p>The rear stop/tail and directional LED lighting shall consist of the following:</p> <ul style="list-style-type: none"> • Two (2) Whelen®, Model M6BTT, red LED stop/tail lights • Two (2) Whelen, Model M6T, amber LED arrow turn lights <p>The lights shall be provided with clear lenses.</p> <p>Each light shall be installed separately at the rear with Whelen, Model M6FC, chrome flanges.</p> <p>Two (2) Whelen Model M6BUW, LED backup lights shall be provided with a flange.</p> <p><u>LICENSE PLATE BRACKET</u></p> <p>There shall be one (1) license plate bracket mounted on the rear of the body.</p> <p>A white LED light shall illuminate the license plate. A stainless steel light shield shall be provided over the light that shall direct illumination downward, preventing white light to the rear.</p> <p><u>BACK-UP ALARM</u></p> <p>A solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided. The device shall sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.</p> <p><u>CAB PERIMETER SCENE LIGHTS</u></p> <p>There shall be four (4) Truck-Lite, Model 6060C, or equal, white LED lights with grommets provided, one (1) for each cab and crew cab door.</p>		

	Bidder Complies	
	Yes	No
<p>These lights shall be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.</p> <p><u>PUMP HOUSE PERIMETER LIGHTS</u></p> <p>There shall be four (4) Truck-Lite, Model 6060C, 6.00" x 2.00" oval white LED lights with Model 60700, grommets provided, or equal.</p> <p>The lights shall be mounted in the following locations:</p> <ul style="list-style-type: none"> • One (1) light shall be provided under the driver's side top mount pump panel access step • One (1) light shall be provided under the driver's side pump panel running board • One (1) light shall be provided under the passenger's side pump panel running board • One (1) light shall be provided under the passenger's side top mount pump panel access step <p>The lights shall be controlled by the same means as the body perimeter lights.</p> <p><u>BODY PERIMETER SCENE LIGHTS</u></p> <p>There shall be two (2) Truck-Lite, Model 6060C, or equal, white LED lights with grommets provided under at the rear step area of the body, one (1) each side shining to the rear.</p> <p>The perimeter scene lights shall be activated when the parking brake is applied.</p> <p><u>STEP LIGHTS</u></p> <p>There shall be four (4) white LED, step lights provided. One (1) step light shall be provided on each side, on the front compartment face and two (2) step lights at the rear to illuminate the tailboard.</p> <p>In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.</p> <p>These step lights shall be actuated when the ignition switch is on and the parking brake is set.</p> <p>All other steps on the apparatus shall be illuminated per the current edition of NFPA 1901.</p> <p><u>SCENE LIGHTS</u></p> <p>There shall be one (1) Whelen, Model M9LZC LED scene light with chrome flange installed on the side of the apparatus, passenger's side, rear of cab door.</p> <p>Control for the light selected above shall be the following:</p> <p>A switch at the driver's side switch panel</p> <p>This light may be load managed when the parking brake is set.</p>		

	Bidder Complies	
	Yes	No
<p><u>SIDE SCENE LIGHTS</u> There shall be one (1) Whelen, Model M9LZC, LED scene light with chrome flange installed on the side of the apparatus, driver's side, rear of cab door.</p> <p>Control for the light selected above shall be the following:</p> <p>A switch at the driver's side switch panel</p> <p>This light may be load managed when the parking brake is applied.</p> <p><u>12 VOLT LIGHTING</u> There shall be one (1) Akron SceneStar, Model ELSS-XLDC-W-TM, 12 volt DC LED scene light provided on top mount brackets with pull up pole or equal to, located passenger's side of cargo area. The light shall be controlled in the following way:</p> <p>A switch at the pump operator's panel</p> <p>This light may be load managed when the parking brake is applied.</p> <p>This light shall be connected to the Do Not Move Truck Indicator circuit.</p> <p><u>12 VOLT LIGHTING</u> There shall be one (1) Akron SceneStar, Model ELSS-XLDC-W-TM, 12 volt DC LED scene light provided on top mount brackets with pull up pole or equal to, located driver's side of cargo area. The light shall be controlled in the following way:</p> <p>A switch at the pump operator's panel</p> <p>This light may be load managed when the parking brake is applied.</p> <p>This light shall be connected to the Do Not Move Truck Indicator circuit.</p> <p><u>12 VOLT LIGHTING</u> There shall be one (1) Akron SceneStar, Model ELSS-XLDC-W-BL, 12 volt LED floodlight or equal to provided on the front visor, centered.</p> <p>The light shall be controlled in the following way:</p> <ul style="list-style-type: none"> • a switch at the driver's side switch panel • a switch at the passenger's side switch panel <p>This light may be load managed when the parking brake is applied.</p> <p><u>HOSE BED LIGHT</u> There shall be one (1) Whelen, Model 60COELZR, LED light with a Whelen, Model 6EFLANGE, chrome flange installed at the center of the forward hose bed bulkhead. The light shall be mounted with a smooth aluminum bracket painted job color and with an aluminum guard.</p>		

	Bidder Complies	
	Yes	No
<p>The light shall be activated when the step lights are activated.</p> <p><u>REAR SCENE LIGHT(S)</u> There shall be two (2) Whelen®, Model M9LZC, LED scene lights with chrome trim bezels installed at the rear of the apparatus, one (1) each side high on rear body bulkhead .</p> <p>The lights shall be controlled by a switch at the driver's side switch panel.</p> <p>The lights may be load managed when the parking brake is applied.</p> <p><u>WALKING SURFACE LIGHT</u> There shall be Model FRP, 4" round black 12 volt DC LED floodlight, or equal, provided to illuminate the entire designated walking surface on top of the body.</p> <p>The light shall be activated when the body step lights are on.</p> <p><u>WATER TANK</u> Booster tank shall have a capacity of 1000 gallons and be constructed of polypropylene plastic.</p> <p>Tank joints and seams shall be nitrogen welded inside and out.</p> <p>Tank shall be baffled in accordance with NFPA Bulletin 1901 requirements.</p> <p>Baffles shall have vent openings at both the top and bottom to permit movement of air and water between compartments.</p> <p><u>SLEEVE, PLUMBING, THROUGH TANK</u> One (1) sleeve shall be provided in the water tank for a 3.00" pipe to the rear.</p> <p><u>HOSE BED</u> The hose bed shall be fabricated of .125" aluminum with a nominal 38,000 psi tensile strength.</p> <p>The upper inside area of the beavertails shall be covered with brushed stainless steel to prevent damage to painted surface when hose is removed.</p> <p>Flooring of the hose bed shall be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats shall have spacing between slats for hose ventilation.</p> <p>The inside of the hose bed shall be unpainted and have a DA sanded finish. The inside of the cargo area shall be unpainted with a DA sanded finish .</p> <p>Hose bed shall accommodate 1100' of 3.00" hose.</p> <p><u>HOSE BED DIVIDER</u> One (1) adjustable hosebed divider shall be furnished for separating hose.</p> <p>Each divider shall be constructed of a .25" brushed aluminum sheet. Flat surfaces shall be sanded for uniform appearance or constructed of brushed aluminum.</p>		

	Bidder Complies	
	Yes	No
<p>Divider shall be fully adjustable by sliding in tracks, located at the front and rear of the hose bed.</p> <p>Divider shall be held in place by tightening bolts, at each end.</p> <p>Acorn nuts shall be installed on all bolts in the hose bed which have exposed threads.</p> <p><u>HOSE BED HOSE RESTRAINT</u></p> <p>The hose in the hose bed shall be restrained by a black nylon Velcro® strap at the top of the hose bed. At the rear of the hose bed, 2.00" black nylon webbing with a 1.50" x 4.00" box pattern shall attach at the top rear outside corners with seat belt buckle fasteners. The webbing shall have straps connected with seat belt buckle fasteners located at the rear body sheet below the hose bed.</p> <p><u>CUTOUT, HANDHOLD</u></p> <p>A cutout with radiused corners shall be provided at the rear of the one (1) hose bed divider.</p> <p><u>RUNNING BOARDS</u></p> <p>Running boards shall be fabricated of .125" bright aluminum treadplate.</p> <p>Each running board shall be supported by a welded assembly, which shall be bolted to the pump compartment substructure.</p> <p>Running boards shall be approximately 12.75" deep and spaced .50" away from the pump panel.</p> <p>A splash guard shall be provided above the running board treadplate.</p> <p><u>TAILBOARD</u></p> <p>The tailboard shall also be constructed of .125" bright aluminum treadplate and spaced .50" from the body, as well as supported by a structural steel assembly.</p> <p>The tailboard area shall be 12.00" deep and full width of the body. The outboard sides of the tailboard shall be angled at 45 degrees beginning at the point where the body meets the tailboard at the outboard edge angling rearward to the rear edge of the tailboard.</p> <p>The exterior side shall be flanged down and in for increased rigidity of tailboard structure.</p> <p><u>REAR WALL, SMOOTH ALUMINUM/BODY MATERIAL</u></p> <p>The rear facing surfaces of the center rear wall shall be smooth aluminum.</p> <p>The bulkheads, the surface to the rear of the side body compartments, shall be smooth and the same material as the body.</p> <p><u>TOW BAR</u></p> <p>A tow bar shall be installed under the tailboard at center of truck.</p> <p>When force is applied to the bar, it shall be transmitted to the frame rail.</p>		

	Bidder Complies	
	Yes	No
<p>Tow bar assembly shall be designed and positioned to allow up to a 30-degree upward angled pull of 17,000 lb, or a 20,000 lb straight horizontal pull in line with the centerline of the vehicle.</p> <p>Tow bar design shall have been fully tested and evaluated using strain gauge testing and finite element analysis techniques.</p> <p><u>COMPARTMENTATION</u></p> <p>Body and compartments shall be fabricated of aluminum.</p> <p>Circular fender liners shall be provided for prevention of rust pockets and ease of maintenance.</p> <p>Side compartment flooring shall be of the sweep out design with the floor higher than the compartment door lip.</p> <p>Drip protection shall be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate or polished stainless steel.</p> <p>The top of the compartment shall be covered with bright aluminum treadplate rolled over the edges on the front, rear and outward side. These covers shall have the corners welded.</p> <p>Side compartment covers shall be separate from the compartment tops.</p> <p>Front facing compartment walls shall be covered with bright aluminum treadplate.</p> <p>All screws and bolts which protrude into a compartment shall have acorn nuts on the ends to prevent injury.</p> <p><u>UNDERBODY SUPPORT SYSTEM</u></p> <p>Due to the severe loading requirements of this pumper a method of body and compartment support suitable for the intended load shall be provided.</p> <p>The backbone of the support system shall be the chassis frame rails which is the strongest component of the chassis and is designed for sustaining maximum loads.</p> <p>This system shall create a floating substructure which shall result in a 500 lb equipment support rating per lower compartment.</p> <p>The floating substructure shall be separated from the horizontal members with neoprene elastomer isolators. These isolators shall reduce the natural flex stress of the chassis from being transmitted to the body.</p> <p><u>AGGRESSIVE WALKING SURFACE</u></p> <p>All exterior surfaces designated as stepping, standing, and walking areas shall comply with the required average slip resistance of the current NFPA standards.</p> <p><u>LOUVERS</u></p> <p>Louvers shall be stamped into compartment walls to provide the proper airflow inside the body compartments and to prevent water from dripping into the compartment. Where these louvers</p>		

	Bidder Complies	
	Yes	No
<p>are provided, they shall be formed into the metal and not added to the compartment as a separate plate.</p> <p><u>TESTING OF BODY DESIGN</u></p> <p>Body structural analysis shall be fully tested. Proven engineering and test techniques such as finite element analysis, stress coating and strain gauging shall be performed with special attention given to fatigue, life and structural integrity of the cab, body and substructure.</p> <p>Body shall be tested while loaded to its greatest in-service weight.</p> <p>The criteria used during the testing procedure shall include:</p> <ul style="list-style-type: none"> • Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb. • Making a 90 degree turn, while driving at 20 mph to simulate aggressive driving conditions. • Driving the vehicle at 35 mph on a washboard road. • Driving the vehicle at 55 mph on a smooth road. • Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement. <p>Evidence of actual testing techniques shall be made available upon request.</p> <p><u>LEFT SIDE COMPARTMENTATION</u></p> <p>The left side compartmentation shall consist of three lap door compartments. Dimensions provided shall be a minimum.</p> <p>A full height, vertically hinged, double door compartment ahead of the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 34.00" wide x 64.00" high x 28.00" deep.</p> <p>A horizontally hinged, single lift-up door compartment over the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 64.00" wide x 35.00" high x 28.00" deep.</p> <p>A full height, vertically hinged, double door compartment behind the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 56.00" wide x 66.00" high x 28.00" deep.</p> <p>The interior height of the compartments shall be measured from the compartment floor to the ceiling. The depth of the compartments shall be measured from the back wall to the inside of the door frame.</p> <p>Closing of the doors shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.</p> <p>The vertically hinged doors shall be furnished with a positive door holder.</p>		

	Bidder Complies	
	Yes	No
<p>The lift-up door shall be furnished with two gas-charged cylinders to assist in the opening of the door and to maintain the door in an open position.</p> <p><u>RIGHT SIDE COMPARTMENTATION</u></p> <p>The right side compartmentation shall consist of five lap door compartments. Dimensions provided shall be minimum.</p> <p>A vertically hinged, double door compartment in the lower area ahead of the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 35.00" wide x 30.00" high x 27.00" deep</p> <p>A horizontally hinged, single lift-up door compartment in the upper area, ahead of the rear wheels, shall be provided. The interior dimensions of this compartment shall be approximately 51.00" wide x 36.00" high x 12.50" deep.</p> <p>A horizontally hinged, single lift-up door compartment above the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 53.00" wide x 36.00" high x 12.50" deep.</p> <p>A horizontally hinged, single lift-up door compartment in the upper area, behind the rear wheels, shall be provided. The interior dimensions of this compartment shall be approximately 53.00" wide x 36.00" high x 12.50" deep.</p> <p>A vertically hinged, double door compartment in the lower area behind the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 56.00" wide x 30.00" high x 27.00" deep</p> <p>The interior height of the compartments shall be measured from the compartment floor to the ceiling. The depth of the compartments shall be measured from the back wall to the inside of the door frame.</p> <p>Closing of the doors shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.</p> <p>The vertically hinged doors shall be furnished with a positive door holder.</p> <p>The lift-up door shall be furnished with two gas-charged cylinders to assist in the opening of the door and to maintain the door in an open position.</p> <p><u>SIDE COMPARTMENT DOORS</u></p> <p>All hinged compartment doors shall be lap style.</p> <p>Doors shall be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core shall be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment.</p>		

	Bidder Complies	
	Yes	No
<p>All compartment doors shall have polished stainless steel continuous hinge with a pin diameter of .25" that is bolted or screwed on with stainless steel fasteners.</p> <p>All door locking mechanisms shall be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area.</p> <p>Doors shall be latched with recessed, polished stainless steel "D" ring handles and FMVSS approved door locking mechanisms.</p> <p>A rubber gasket shall be provided between the "D" ring handle and the door.</p> <p>Interior door panel shall have a sanded DA finish.</p> <p><u>REAR COMPARTMENTATION</u></p> <p>A vertically hinged, double door compartment above the rear tailboard shall be provided.</p> <p>The interior dimensions of this compartment shall be approximately 42.00" wide x 36.00" high x 26.00" deep. The interior height of the compartments shall be measured from the compartment floor to the ceiling. The depth of the compartments shall be measured from the back wall to the inside of the door frame.</p> <p>A louvered, removable access panel shall be furnished on the back wall of the compartment.</p> <p>The rear compartment shall not be open into the rear side compartments.</p> <p>Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.</p> <p>Each of the vertically hinged compartment doors shall be provided with a positive door holder.</p> <p><u>REAR COMPARTMENT DOORS</u></p> <p>Compartment doors shall be lap style.</p> <p>Doors shall be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core shall be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment.</p> <p>All compartment doors shall have polished stainless steel continuous hinge with a pin diameter of .25", that is bolted or screwed on with stainless steel fasteners. A strip of dielectric isolation tape shall be provided between the hinge and door jamb.</p> <p>All door lock mechanisms shall be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area.</p> <p>Doors shall be latched with recessed, polished stainless steel "D" ring handles and FMVSS approved door locking mechanisms.</p> <p>A rubber gasket shall be provided between the "D" ring handle and the door.</p>		

	Bidder Complies	
	Yes	No
Interior door panel shall have a sanded DA finish.		
<p><u>COMPARTMENT LIGHTING</u></p> <p>There shall be seven (7) compartments with two (2) white 12 volt DC LED compartment light strips. The dual light strips shall be centered vertically along each side of the door framing. There shall be two (2) light strips per compartment.</p> <p>Opening the compartment door shall automatically turn the compartment lighting on.</p> <p><u>MOUNTING TRACKS</u></p> <p>There shall be four (4) sets of tracks for mounting shelves. These tracks shall be installed vertically to support the adjustable shelves and shall be full height of the compartment.</p> <p>The location of the mounting tracks shall be determined at the pre-construct conference.</p> <p><u>ADJUSTABLE SHELVES</u></p> <p>There shall be four (4) shelves with a capacity of 500 lb provided.</p> <p>The shelf construction shall consist of .188" aluminum with 2.00" sides.</p> <p>Each shelf shall be infinitely adjustable by means of a threaded fastener, which slides in a track.</p> <p>The locations shall be determined at the pre-construct conference.</p> <p><u>SLIDE-OUT/TILT-DOWN TRAY</u></p> <p>There shall be one (1) slide-out\tilt out tray provided.</p> <p>The bottom of tray shall be constructed of 0.188" thick aluminum. The corners shall be welded to form a rigid unit.</p> <p>Rubber padded stops shall be provided for the tray in the extended position.</p> <p>The capacity rating of the tray shall be a minimum of 215 lb in the extended position.</p> <p>The vertical position of the tray within the compartment shall be adjustable.</p> <p>The location shall be determined at the pre-construct conference.</p> <p><u>RUB RAIL</u></p> <p>Bottom edge of the side compartments shall be trimmed with a bright aluminum extruded rub rail.</p> <p>The rub rails shall not be an integral part of the body construction, which allows replacement in the event of damage.</p>		

	Bidder Complies	
	Yes	No
<p><u>BODY FENDER CROWNS</u></p> <p>Polished stainless steel fender crowns shall be provided around the rear wheel openings with a dielectric barrier shall be provided between the fender crown and the fender sheet metal to prevent corrosion.</p> <p>The fender crowns shall be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion. Rubber welting shall be provided between the body and crown.</p> <p><u>BODY FENDER LINER</u></p> <p>A painted fender liner shall be provided. The liners shall be removable to aid in the maintenance of rear suspension components.</p> <p><u>HARD SUCTION HOSE PROVIDED BY DEALER</u></p> <p>NFPA 1901, 2016 edition, section 5.8.2 requires a minimum of 20 ft of suction hose or 15 ft of supply hose.</p> <p>Hose is not on the apparatus as manufactured. The dealer shall provide suction or supply hose.</p> <p>There shall be two (2) lengths of 10' long x 6.00" diameter hose provided and equipped with long handle couplings provided on the ends.</p> <p><u>HOSE TROUGHS</u></p> <p>Hard suction hose shall be carried in two (2) V-shaped troughs, one (1) each side, and held in place by chrome plated, quarter turn, spring loaded clamps.</p> <p>Troughs shall be constructed of aluminum and shall be unpainted with a DA sanded finish.</p> <p><u>HANDRAILS</u></p> <p>The handrails shall be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface.</p> <p>Chrome plated end stanchions shall support the handrail. Plastic gaskets shall be used between end stanchions and any painted surfaces.</p> <p>Drain holes shall be provided in the bottom of all vertically mounted handrails.</p> <p>Handrails shall be provided to meet NFPA 1901 section 15.8 requirements. The handrails shall be installed as noted on the sales drawing.</p> <p><u>HANDRAILS</u></p> <p>One (1) vertical handrail shall be located on each rear beavertail.</p> <ul style="list-style-type: none"> • One (1) full width horizontal handrail shall be provided below the hose bed at the rear of the apparatus. 		

	Bidder Complies	
	Yes	No
<p><u>AIR BOTTLE STORAGE (TRIPLE)</u> A quantity of two (2) air bottle compartments designed to hold (3) air bottles up to 7.25" in diameter x 26.00" deep shall be provided on the right side forward of the rear wheels and on the right side rearward of the rear wheels.</p> <p>Inside the compartment, black rubber matting shall be provided.</p> <p><u>AIR BOTTLE COMPARTMENT STRAP</u> A strap shall be provided in the air bottle compartments to help contain the air bottles when the vehicle is parked on an incline. The strap shall wrap around the neck and attach to the wall of the compartment.</p> <p><u>EXTENSION LADDER</u> There shall be a 24' two-section aluminum Duo-Safety Series 900-A extension ladder provided.</p> <p><u>ROOF LADDER</u> There shall be a 14' aluminum Duo-Safety Series 775-A roof ladder provided.</p> <p><u>LADDER STORAGE</u> The ladders shall be stored between the water tank and the right side compartments.</p> <p>The ladders shall extend into the pump compartment just to the rear of the water pump discharges.</p> <p>The ladder storage area shall be enclosed as practical by means of sheet metal to protect the ladders from road dirt. The ladders that extend into the pump house shall also be enclosed. A black rubber boot shall be provided to enclose the ladders in the gap between the pump house and the body.</p> <p>Each ladder shall be stored vertically in a separate stainless steel storage trough. Each stainless steel trough shall be lined with nylon slides.</p> <p>An aluminum enclosure shall be provided at the rear of the body to properly contain the ladders. This enclosure shall extend to the rear of the side body compartments.</p> <p>The enclosure shall also include a vertically hinged smooth aluminum door with a D-handle latch to access the ladders. The door shall be hinged on the left side.</p> <p><u>FOLDING LADDER</u> One (1) 10.00' aluminum, Series 585-A, Duo-Safety folding ladder shall be installed in a U-shaped trough inside the ladder storage compartment.</p> <p><u>PIKE POLE PROVIDED BY FIRE DEPARTMENT</u> NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) 8 ft or longer pike pole mounted in a bracket fastened to the apparatus.</p>		

	Bidder Complies	
	Yes	No
<p>The pike pole is not on the apparatus as manufactured. The fire department shall provide and mount the pike pole.</p> <p><u>6' PIKE POLE PROVIDED BY FIRE DEPARTMENT</u> NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) 6' pike pole or plaster hook mounted in a bracket fastened to the apparatus.</p> <p>The pike pole is not on the apparatus as manufactured. The fire department shall provide and mount the pike pole.</p> <p><u>PIKE POLE STORAGE</u> Aluminum tubing shall be used for the storage of two (2) pike poles and (1) New York style roof hook and shall be located in ladder storage compartment.</p> <p><u>FOLDING STEPS FRONT OF BODY</u> Folding steps shall be provided on the left side and right side body compartments to provide access to the cargo bed. Steps shall be full height and spaced evenly.</p> <p>The steps shall be bright finished, non-skid with a black coating.</p> <p>The steps can be used as a hand hold with two openings wide enough for a gloved hand.</p> <p><u>REAR FOLDING STEPS</u> Bright finished, non-skid folding steps with a black coating shall be provided at the rear. The steps can be used as a hand hold with two openings wide enough for a gloved hand.</p> <p><u>PUMP</u> Pump shall be a 1500 gpm single (1) stage midship mounted centrifugal type.</p> <p>Pump shall be the class "A" type.</p> <p>Pump shall deliver the percentage of rated discharge at pressures indicated below:</p> <ul style="list-style-type: none"> - 100% of rated capacity at 150 psi net pump pressure. -70% of rated capacity at 200 psi net pump pressure. -50% of rated capacity at 250 psi net pump pressure. <p>Pump body shall be close-grained gray iron, bronze fitted, and horizontally split in two (2) sections for easy removal of the entire impeller shaft assembly (including wear rings).</p> <p>Pump shall be designed for complete servicing from the bottom of the truck, without disturbing the pump setting or apparatus piping.</p> <p>Pump case halves shall be bolted together on a single horizontal face to minimize chance of leakage and facilitate ease of reassembly. No end flanges shall be used.</p>		

	Bidder Complies	
	Yes	No
<p>Discharge manifold of the pump shall be cast as an integral part of the pump body assembly and shall provide a minimum of three (3) 3.50" openings for flexibility in providing various discharge outlets for maximum efficiency.</p> <p>The three (3) 3.50" openings shall be located as follows: one (1) outlet to the right of the pump, one (1) outlet to the left of the pump, and one (1) outlet directly on top of the discharge manifold.</p> <p>Impeller shaft shall be stainless steel, accurately ground to size. It shall be supported at each end by sealed, anti-friction ball bearings for rigid precise support. Impeller shall have flame plated hubs assuring maximum pump life and efficiency despite any presence of abrasive matter in the water supply.</p> <p>Bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. No special or sleeve type bearings shall be used.</p> <p><u>PUMP PACKING</u></p> <p>Stuffing boxes shall be of the conventional two (2) piece, split-gland type, to permit adjustment or replacement of Grafoil packing without disturbing the pump. Water shall be fed into stuffing box lantern rings for proper lubrication and cooling when the pump is operating.</p> <p>Lantern rings shall be located at the inner ends of the stuffing boxes, to avoid having to remove them when replacing pump packing.</p> <p>Wear rings shall be bronze and easily replaceable to restore original pump efficiency and eliminate the need to replace the entire pump casing due to wear.</p> <p><u>PUMP TRANSMISSION</u></p> <p>The pump transmission shall be made of a three (3) piece, aluminum, horizontally split casing. Power transfer to pump shall be through a high strength Morse HY-VO silent drive chain. By the use of a chain rather than gears, 50% of the sprocket shall be accepting or transmitting torque, compared to two (2) or three (3) teeth doing all the work.</p> <p>Drive shafts shall be 2.35" diameter hardened and ground alloy steel and supported by ball bearings. The case shall be designed to eliminate the need for water cooling.</p> <p><u>PUMPING MODE</u></p> <p>An interlock system shall be provided to ensure that the pump drive system components are properly engaged so that the apparatus can be safely operated. The interlock system shall be designed to allow stationary pumping only.</p> <p><u>AIR PUMP SHIFT</u></p> <p>Pump shift engagement shall be made by a two (2) position sliding collar, actuated pneumatically (by air pressure), with a three (3) position air control switch located in the cab.</p> <p>Two (2) indicator lights shall be provided adjacent to the pump shift inside the cab. One (1) green light shall indicate the pump shift has been completed and be labeled "pump engaged".</p>		

	Bidder Complies	
	Yes	No
<p>The second green light shall indicate when the pump has been engaged, and that the chassis transmission is in pump gear. This indicator light shall be labeled "OK to pump".</p> <p>The pump shift shall be interlocked to prevent the pump from being shifted out of gear when the chassis transmission is in gear to meet NFPA requirements.</p> <p>The pump shift control in the cab shall be illuminated to meet NFPA requirements.</p> <p><u>TRANSMISSION LOCK-UP</u></p> <p>The direct gear transmission lock-up for the fire pump operation shall engage automatically when the pump shift control in the cab is activated.</p> <p><u>AUXILIARY COOLING SYSTEM</u></p> <p>A supplementary heat exchange cooling system shall be provided to allow the use of water from the discharge side of the pump for cooling the engine water. Heat exchanger shall be cylindrical type and shall be a separate unit. It shall be installed in the pump or engine compartment with the control located on the pump operator's control panel. Exchanger shall be plumbed to the master drain valve.</p> <p><u>INTAKE RELIEF VALVE - PUMP</u></p> <p>An Akron Style 53 relief valve shall be installed on the suction side of the pump preset at 125 psig.</p> <p>The relief valve shall have a working range of 50 psi to 250 psi.</p> <p>The outlet shall terminate below the frame rails with a 2.50" National Standard hose thread adapter and shall have a "do not cap" warning tag.</p> <p>The relief valve pressure control shall be located behind the right side pump panel with a stainless steel access door.</p> <p><u>PRESSURE GOVERNOR</u></p> <p>This apparatus shall be equipped with a Class1 "Total Pressure Governor" engine/pump governor/throttle system that is connected directly to the Electronic Control Module (ECM) mounted on the engine. The "Total Pressure Governor" is to operate as a pressure sensor (regulating) governor (PSG).</p> <p>A special preset feature shall permit a predetermined pressure of RPM to be set. The preset pressure or RPM will be displayed on the message display of the "Total Pressure Governor". The preset shall be easily adjustable by the operator.</p> <p>The pressure sensor governor system shall be operable only after the vehicle parking brake has been set, the transmission is the pumping mode, and the fire pump has been engaged.</p> <p>The pressure sensor governor system shall have two (2) modes of operation: pressure mode or rpm mode.</p>		

	Bidder Complies	
	Yes	No
<p>When in the pressure mode, the PSG system shall automatically maintain the discharge pressure set by the operator regardless of flow (within engine/pump operating capabilities).</p> <p>In the rpm mode, the PSG system shall automatically maintain a set engine speed, regardless of engine load (within engine operation capabilities).</p> <p>A pump cavitation protection feature shall be provided which shall return the engine to idle should the pump cavitate.</p> <p>The pressure controller shall incorporate monitoring for engine coolant temperature, oil pressure, and battery voltage.</p> <p><u>PRIMING PUMP</u></p> <p>The priming pump shall be a Trident Emergency Products compressed air powered, high efficiency, multistage venturi based AirPrime System, conforming to standards outlined in the current edition of NFPA 1901.</p> <p>All wetted metallic parts of the priming system are to be of brass and stainless steel construction.</p> <p>One (1) priming control shall open the priming valve and start the pump primer.</p> <p><u>PUMP MANUALS</u></p> <p>There shall be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals shall be provided by the pump manufacturer in the form of two (2) electronic copies. Each manual shall cover pump operation, maintenance, and parts.</p> <p><u>PLUMBING, STAINLESS STEEL AND HOSE</u></p> <p>All inlet and outlet lines shall be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hoses shall be equipped with brass or stainless steel couplings. All stainless steel hard plumbing shall be a minimum of a schedule 10 wall thickness.</p> <p>Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping shall be equipped with Victaulic or rubber couplings.</p> <p>Plumbing manifold bodies shall be ductile cast iron or stainless steel.</p> <p>All piping lines are to be drained through a master drain valve or shall be equipped with individual drain valves. All drain lines shall be extended with a hose to drain below the chassis frame.</p> <p>All water carrying gauge lines shall be of flexible polypropylene tubing.</p> <p>All piping, hose and fittings shall have a minimum of a 500 PSI hydrodynamic pressure rating.</p>		

	Bidder Complies	
	Yes	No
<p><u>MAIN PUMP INLETS</u> A 6.00" pump manifold inlet shall be provided on each side of the vehicle. The suction inlets shall include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.</p> <p><u>MAIN PUMP INLET CAP</u> The main pump inlets shall have National Standard Threads with a long handle chrome cap. The cap shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).</p> <p><u>SHORT SUCTION TUBES</u> The suction tubes on the water pump shall have short suction tubes installed to allow for installation of adapters, elbows or intake valves without excessive overhang.</p> <p><u>VALVES</u> All ball valves shall be Akron® Brass in-line valves. The Akron valves shall be the 8000 series heavy-duty style with a stainless steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve. Valves shall have a ten (10) year warranty.</p> <p><u>LEFT SIDE INLET</u> There shall be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter. The auxiliary inlet shall be provided with a strainer, chrome swivel and plug.</p> <p><u>RIGHT SIDE INLET</u> There shall be one (1) auxiliary inlet with a 2.50" valve at the right side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter. The auxiliary inlet shall be provided with a strainer, chrome swivel and plug. Inlet valve location shall be behind the pump panel.</p> <p><u>INLET CONTROL</u> The side auxiliary inlets shall incorporate a quarter-turn ball valve with the control located at the top mount control panel. The valve operating mechanism shall indicate the position of the valve. There shall be two (2) inlets.</p> <p><u>INLET BLEEDER VALVE</u> A 0.75" bleeder valve shall be provided for each side gated inlet. The valves shall be located behind the panel with a swing style handle control extended to the outside of the panel. The handles shall be chrome plated and provide a visual indication of valve position. The swing</p>		

	Bidder Complies	
	Yes	No
<p>handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders shall be routed below the chassis frame rails.</p> <p><u>TANK TO PUMP</u> The booster tank shall be connected to the intake side of the pump with stainless steel piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel. Tank to pump line shall run straight (no elbows) from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling shall be included in this line to prevent damage from vibration or chassis flexing.</p> <p>A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.</p> <p><u>TANK REFILL</u> A 1.50" combination tank refill and pump re-circulation line shall be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.</p> <p><u>LEFT SIDE DISCHARGE OUTLETS</u> There shall be two (2) discharge outlets with a 2.50" valve on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</p> <p><u>RIGHT SIDE DISCHARGE OUTLETS</u> There shall be two (2) discharge outlets with a 2.50" valve on the right side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</p> <p><u>FRONT DISCHARGE OUTLET</u> There shall be one (1) 2.50" discharge outlet piped to the front of the apparatus and located on the top of the right side of the front bumper.</p> <p>Plumbing shall consist of 2.50" piping and flexible hose with a 2.50" full flow valve with control at the pump operator's panel. A fabricated weldment made of stainless steel pipe shall be used in the plumbing where appropriate. The piping shall terminate with a 2.50" NST with 90 degree stainless steel swivel.</p> <p>There shall be automatic drains provided at all low points of the piping.</p> <p><u>DISCHARGE CAPS/ INLET PLUGS</u> Chrome plated, rocker lug, caps with vinyl covered cables shall be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets.</p> <p>Chrome plated, rocker lug, plugs with vinyl covered cables shall be furnished for all auxiliary inlets 1.00" thru 3.00" in size.</p> <p>The caps and plugs shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected.</p>		

	Bidder Complies	
	Yes	No
<p><u>OUTLET BLEEDER VALVE</u></p> <p>A 0.75" bleeder valve shall be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.</p> <p>The valves shall be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles shall be chrome plated and provide a visual indication of valve position. The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders shall be located at the bottom of the pump panel. They shall be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders shall be routed below the chassis frame rails.</p> <p><u>LEFT SIDE OUTLET ELBOWS</u></p> <p>The 2.50" discharge outlets located on the left side pump panel shall be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.</p> <p>The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected.</p> <p><u>RIGHT SIDE OUTLET ELBOWS</u></p> <p>The 2.50" discharge outlets located on the right side pump panel shall be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.</p> <p>The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected.</p> <p><u>DISCHARGE OUTLET CONTROLS</u></p> <p>The discharge outlets shall incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism shall indicate the position of the valve.</p> <p>If a handwheel control valve is used, the control shall be a minimum of a 3.9" diameter stainless steel handwheel with a dial position indicator built into the center of the handwheel.</p> <p>Any 3.00 inch or larger discharge valve shall be a slow-operating valve in accordance with NFPA 16.7.5.3.</p> <p><u>DELUGE RISER</u></p> <p>A 3.00" deluge riser shall be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping shall be installed securely so no movement develops when the line is charged. The riser shall be gated and controlled at the pump operator's panel. The outlet shall include an Akron valve with a handwheel control.</p> <p><u>TELESCOPIC PIPING</u></p> <p>The deluge riser piping shall include a 12.00" Task Force Model XG12 Extend-A-Gun extension.</p>		

	Bidder Complies	
	Yes	No
<p>This extension shall be telescopic to allow the deluge gun to be raised 12.00" increasing the range of operation.</p> <p>A position sensor shall be provided on the telescopic piping that shall activate the "do not move vehicle" light inside the cab when the monitor is in the raised position.</p> <p>The deluge riser shall have male National Pipe Threads for mounting the monitor.</p> <p><u>SPEEDLAYS WITH TRAY</u></p> <p>Ahead of the pump enclosure shall be two (2) 1.75" speedlay hose beds. Each bed shall have a 2.00" pre-connect line with a 2.00" quarter-turn ball valve and terminate with a 1.50" National Standard hose thread 90-degree swivel. The swivel shall be located at the top of the speedlay compartment to allow easy removal of the hose in either direction.</p> <p>Individual controls for the speedlays shall be at the pump operator's panel.</p> <p>Each compartment shall be capable of carrying 200 feet of 1.75" double jacketed hose with the one (1) compartment located above the other.</p> <p>A removable tray shall be provided for each speedlay hosebed. The speedlay trays shall be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes shall be in the floor and additional hand holes shall be provided in the sides for easy removal and installation from the compartment. The floor of the trays shall be perforated to allow for drainage and hose drying. The bottom of the speedlay compartments shall be lined with stainless steel to allow the tray to slide with ease. Scuffplates shall be provided on both sides, at the sides and bottom of each opening to protect the paint.</p> <p><u>SPEEDLAY HOSE RESTRAINT</u></p> <p>A 2.00" black nylon webbing design restraint shall be provided across the ends of speedlays to secure the hose during travel. The webbing assembly is to be attached at the bottom of the speedlay with footman loops as a permanent attachment and is attached at the top with 2.00" cam buckle fasteners.</p> <p><u>BOOSTER HOSE REEL</u></p> <p>An electric rewind booster hose reel shall be installed over the pump in a recessed open compartment on the left side of the apparatus.</p> <p>A polished stainless steel roller and guide assembly shall be mounted on the reel side of the apparatus.</p> <p>Discharge control shall be provided at the pump operator's panel. Plumbing to the reel shall consist of 1.50" hose and a 1.50" valve.</p> <p>The exterior finish of the reel shall be painted job color matching the body exterior.</p> <p>Reel motor shall be protected from overload with a circuit breaker rated to match the motor.</p>		

	Bidder Complies	
	Yes	No
<p>An electric rewind control switch shall be installed on the reel side pump panel.</p> <p>Booster hose, 1.00" diameter and 150 feet, with chrome plated Barway, or equal couplings shall be provided.</p> <p>Working pressure of the booster hose shall be a minimum of 800 psi.</p> <p>Capacity of the hose reel shall be 150 feet of 1.00" booster hose.</p> <p>There shall be one (1) additional polished stainless steel roller and guide assembly mounted on the top flange of passenger's side dunnage area.</p> <p><u>ADDITIONAL, SWITCH, REEL</u></p> <p>There shall be one (1) additional switch provided for the booster hose reel. The additional switch shall be at the passenger's side pump panel, accessible from ground.</p> <p><u>FOAM SYSTEM</u></p> <p>A foam system shall not be required on this apparatus.</p> <p><u>PUMP COMPARTMENT</u></p> <p>The pump compartment shall be separate from the hose body and compartments so that each may flex independently of the other. The pump compartment shall be constructed of the same material as the body compartmentation.</p> <p>The pump compartment substructure shall be a fabricated assembly which supports both the fire pump and the side running boards.</p> <p>The pump compartment shall be mounted on the chassis frame rails with rubber biscuits in a four-point pattern to allow for chassis frame twist.</p> <p>Pump compartment, pump, plumbing and gauge panels shall be removable from the chassis in a single assembly.</p> <p><u>PUMP MOUNTING</u></p> <p>Pump shall be mounted to a substructure which shall be mounted to the chassis frame rail using rubber isolators. The mounting shall allow chassis frame rails to flex independently without damage to the fire pump.</p> <p><u>TOP MOUNT PUMP CONTROL PANELS</u></p> <p>All pump controls and gauges to be properly marked and located above the pump to the rear of the walkway. Operator to face the rear of the truck when viewing the control panel from the operating position.</p> <p>The control panel shall be in two planes.</p> <p>Both planes to be full width of the pump house.</p>		

	Bidder Complies	
	Yes	No
<p>The upper plane shall contain the pump master gauges, engine monitoring gauges, and electrical switches. The upper plane shall be hinged at the bottom with a full-length stainless-steel hinge. Vinyl covered cable or chains shall be used to hold the gauge panel in the dropped position.</p> <p>The lower plane is to contain all the line pressure gauges and valve control rods. The line pressure gauge shall be mounted directly below the corresponding discharge control handle and recessed within the same chrome plated casting for quick identification. All outlet and inlet controls shall be the lever type with direct linkage utilizing bell cranks and universal swivels to the valve itself. The control levers shall be made of a 0.62" (minimum) stainless steel rod.</p> <p>The gauge and valve control bezels shall be removable from the face of the pump panel for ease of maintenance.</p> <p><u>IDENTIFICATION TAGS</u></p> <p>Identification tags for the discharge controls shall be recessed within the same bezel. The discharge identification tags shall be color coded, with each discharge having its own unique color.</p> <p>All remaining identification tags shall be mounted on the pump panel in chrome plated bezels.</p> <p>The side pump panels shall be easily removable for ease of maintenance.</p> <p>Polished stainless-steel trim collars to be installed around all inlets and outlets.</p> <p><u>WALKWAY</u></p> <p>A minimum 19.00" wide walkway shall be provided for access to the top control panel. The walkway shall be constructed of bright aluminum treadplate and properly reinforced.</p> <p>There shall be six (6) white LED lights provided on the back of the cab to illuminate the walkway. The lights shall come on with the body perimeter lights.</p> <p><u>WALKWAY TOOL COMPARTMENT</u></p> <p>A tool compartment shall be provided on each side of the walkway. Each compartment shall have an aluminum treadplate door and shall be equipped with two (2) white LED lights with chrome bezels, one (1) in each compartment.</p> <p><u>PUMP PANEL CONFIGURATION</u></p> <p>The pump panel configuration shall be arranged and installed in an organized manner that shall provide user-friendly operation.</p> <p><u>PUMP AND GAUGE PANEL</u></p> <p>The side control panels shall be constructed of aluminum with a black vinyl finish or brushed stainless steel.</p> <p>The gauge and top mount control panels shall be constructed of aluminum with a black vinyl finish or brushed stainless steel.</p>		

	Bidder Complies	
	Yes	No
<p>The left and right side pump panels shall be removable with quick release fasteners.</p> <p><u>PUMP COMPARTMENT LIGHT</u> A pump compartment light shall be provided inside the right-side pump enclosure and accessible through a door on the pump panel.</p> <p><u>THROTTLE READY GREEN INDICATOR LIGHT</u> There shall be a green indicator light integrated with the pressure governor and/or engine throttle installed on the pump operator's panel that is activated when the pump is in throttle ready mode.</p> <p><u>AIR HORN BUTTON</u> An air horn control button shall be provided at the pump operator's control panel. This button shall be red in color and properly labeled "Evacuation".</p> <p><u>VACUUM AND PRESSURE GAUGES</u> The pump vacuum and pressure gauges shall be liquid filled.</p> <p>The gauges shall be a minimum of 4.00" in diameter and shall have white faces with black lettering, with a pressure range of 30.00"-0-600#.</p> <p>Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.</p> <p>The pump pressure and vacuum gauges shall be installed adjacent to each other at the pump operator's control panel.</p> <p>Test port connections shall be provided at the pump operator's panel. One (1) shall be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They shall have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They shall be marked with a label.</p> <p>This gauge shall include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</p> <p><u>PRESSURE GAUGES</u> The individual "line" pressure gauges for the discharges shall be interlube filled.</p> <p>They shall be a minimum of 2.00" in diameter and shall have white faces with black lettering.</p> <p>Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.</p> <p>Gauges shall have a pressure range of 30"-0-400#.</p> <p>The individual pressure gauge shall be installed as close to the outlet control as practical.</p>		

	Bidder Complies	
	Yes	No
<p>This gauge shall include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</p> <p><u>WATER LEVEL GAUGE</u></p> <p>A Fire Research TankVision Pro model WLA300-A00 water tank indicator gauge shall be installed on the pump operator's panel. The gauge kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The gauge shall show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The gauge case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label.</p> <p>The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a data link to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank and down chasing LEDs when the tank is almost empty.</p> <p>The gauge shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.</p> <p><u>ADDITIONAL WATER LEVEL GAUGE</u></p> <p>There shall be two (2) additional Fire Research MaxVision model WLA280-A00 water tank remote indicators provided and installed on each side of cab behind crew cab doors, upper section. The indicators shall show the volume of water in the tank on ninety-six (96) easy to see super bright Tri-color LEDs. The indicator case shall be waterproof, manufactured of Polycarbonate material with an integrated lens.</p> <p>The remote indicator shall indicate the level as a single color in Red for 25% or less, Amber color for up to 50% volume, Blue color for up to 75% volume and Green color for up to 100% volume. When the level reaches 25%, the red LEDs will begin flashing. When the level is empty, the red LEDs will scroll in a down-chasing motion and then flash three times.</p> <p>The flash rate shall be determined by the main water tank sensor.</p> <p>It shall have the program capability to adjust the brightness level for daytime and night time viewing. The LEDs can also be programmed for different colors.</p> <p>This module shall be activated when the parking brake is applied.</p> <p><u>LIGHT SHIELDS</u></p> <p>Illumination shall be provided by LED strip lights at the pump control panel for controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus and the equipment provided on it.</p>		

	Bidder Complies	
	Yes	No
<p>Lights shall be installed under a stainless-steel shield.</p> <p>A light shall come on above the pump panel light switch when the parking brake is applied. This is to afford the operator some illumination when first approaching the control panel.</p> <p>The remaining lights to be actuated from a switch located on the pump panel.</p> <p><u>AIR HORN SYSTEM</u></p> <p>Two (2) Grover, Stutter Tone, air horns shall be recessed in the front bumper. The horn system shall be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve shall be installed in-line to prevent loss of air in the air brake system.</p> <p><u>Air Horn Location</u></p> <p>The air horns shall be located on each side of the bumper, towards the outside.</p> <p><u>AIR HORN CONTROL</u></p> <p>The air horns shall be actuated by a momentary red rocker switch on the officer's side instrument panel convenient to officer and by the horn button in the steering wheel. The driver shall have the option to control the air horns or the chassis horns from the horn button by means of a selector switch located on the instrument panel.</p> <p><u>ELECTRONIC SIREN</u></p> <p>A Whelen®, Model 295SLSA1, electronic siren with noise canceling microphone shall be provided.</p> <p>This siren to be active when the battery switch is on and that emergency master switch is on.</p> <p>Electronic siren head shall be recessed in the driver side center switch panel.</p> <p>The electronic siren shall be controlled on the siren head only. No horn button or foot switches shall be required.</p> <p><u>SPEAKER</u></p> <p>There shall be one (1) Whelen®, Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets and polished stainless-steel grille provided. The speaker shall be connected to the siren amplifier.</p> <p>The speaker shall be recessed in the center of the front bumper.</p> <p><u>MECHANICAL SIREN</u></p> <p>A Federal Signal Model Q2B mechanical siren shall be provided and installed.</p> <p>The control solenoid shall be powered up after the emergency master switch is activated.</p> <p>The mechanical siren shall be mounted on the bumper deck plate. It shall be mounted on the left side. The siren mounting shall include a reinforcement plate.</p>		

	Bidder Complies	
	Yes	No
<p><u>SWITCHES, MECHANICAL SIREN</u></p> <p>The mechanical siren shall be actuated by one (1) foot switch located on the driver's side and a momentary rocker switch on the officer's side of cab.</p> <p>A momentary red switch shall be included in the left side overhead switch panel to activate the siren brake.</p> <p>A momentary red switch shall be included in the right-side overhead switch panel to activate the siren brake.</p> <p><u>FRONT ZONE UPPER WARNING LIGHTS</u></p> <p>There shall be one (1) 72.00" Whelen Freedom IV LED lightbar mounted on the cab roof.</p> <p>The lightbar shall include the following:</p> <ul style="list-style-type: none"> • One (1) red flashing LED module in the driver's side end position. • One (1) red flashing LED module in the driver's side front corner position. • One (1) white flashing LED module in the driver's side first front position. • One (1) white flashing LED module in the driver's side second front position. • One (1) red flashing LED module in the driver's side third front position. • One (1) red flashing LED module in the driver's side fourth front position. • One (1) white flashing LED module in the driver's side fifth front position. • One (1) red flashing LED module in the driver's side sixth front position. • One (1) red flashing LED module in the passenger's side sixth front position. • One (1) white flashing LED module in the passenger's side fifth front position. • One (1) red flashing LED module in the passenger's side fourth front position. • One (1) red flashing LED module in the passenger's side third front position. • One (1) white flashing LED module in the passenger's side second front position. • One (1) white flashing LED module in the passenger's side first front position. • One (1) red flashing LED module in the passenger's side front corner position. • One (1) red flashing LED module in the passenger's side end position. <p>There shall be clear lenses included on the lightbar.</p> <p>There shall be a switch in the cab on the switch panel to control this lightbar.</p> <p>The six (6) white flashing LED modules shall be deactivated when the parking brake is applied.</p> <p>The six (6) red flashing LED modules in the front positions may be load managed when the parking brake is applied.</p> <p><u>LIGHTS, FRONT ZONE LOWER</u></p> <p>Two (2) Whelen model M6*C LED flashing warning lights shall be installed on the cab face above the headlights, in a common bezel with the directional lights.</p> <p>The driver's side front warning light to be red.</p>		

	Bidder Complies	
	Yes	No
<p>The passenger's side front warning light to be red.</p> <p>Both lights shall include a clear lens.</p> <p>There shall be a switch located in the cab on the switch panel to control the lights.</p> <p><u>HEADLIGHT FLASHER</u></p> <p>The high beam headlights shall flash alternately between the left and right side.</p> <p>There shall be a switch installed in the cab on the switch panel to control the high beam flash. This switch shall be live when the battery switch and the emergency master switches are on.</p> <p>The flashing shall automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.</p> <p><u>SIDE ZONE LOWER LIGHTING</u></p> <p>There shall be six (6) Whelen®, Model M6*C, flashing LED warning lights with chrome trim installed per the following:</p> <ul style="list-style-type: none"> • Two (2) lights, one (1) each side on the bumper extension. The side front lights to be red. • Two (2) lights, one (1) each side, under the top mount access step. The side middle lights to be red. • Two (2) lights, one (1) each side above rear wheels. The side rear lights to be red. • The lights shall include clear lenses. <p>There shall be a switch in the cab on the switch panel to control the lights.</p> <p><u>SIDE WARNING LIGHTS</u></p> <p>There shall be two (2) Whelen, Model M6*C LED flashing warning lights with bezels provided, one per side on upper body panels, forward.</p> <p>The color of the lights shall be red.</p> <p>All of these lights shall include a clear lens.</p> <p>These lights shall be activated with the Side Zone Lower warning lights.</p> <p><u>REAR ZONE LOWER LIGHTING</u></p> <p>There shall be two (2) Whelen®, Model M6*C LED flashing warning lights with chrome trim located at the rear of the apparatus.</p> <ul style="list-style-type: none"> • The driver's side rear light to be red • The passenger's side rear light to be red <p>The lenses shall be clear.</p> <p>There shall be a switch located in the cab on the switch panel to control the lights.</p>		

	Bidder Complies	
	Yes	No
<p><u>REAR AND SIDE ZONE UPPER WARNING LIGHTS</u></p> <p>There shall be two (2) Whelen, Model M6*C, LED flashing warning lights provided one each side high and rearward, on the rear body side sheets.</p> <ul style="list-style-type: none"> • The side rear upper light on the driver's side to be red. • The side rear upper light on the passenger's side to be red. <p>These lights shall include a lens that is clear.</p> <p>There shall be two (2) Whelen, Model M9*C, LED flashing warning lights provided one each side high at the rear of the apparatus.</p> <ul style="list-style-type: none"> • The rear upper light on the driver's side to be red. • The rear upper light on the passenger's side to be red. <p>These lights shall include a lens that is clear.</p> <p>There shall be a switch located in the cab on the switch panel to control the lights.</p> <p><u>REAR LIGHT MOUNTING</u></p> <p>The rear warning lights shall be mounted on the rear side sheet flange and rear bulkhead of the body as high as possible with all wiring totally enclosed.</p> <p><u>NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT</u></p> <p>The following loose equipment as outlined in NFPA 1901, 2016 edition, section 5.9.3 and 5.9.4 shall be provided by the fire department.</p> <ul style="list-style-type: none"> • 800 ft (60 m) of 2.50" (65 mm) or larger fire hose. • 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose. • One (1) handline nozzle, 200 gpm (750 L/min) minimum. • Two (2) handline nozzles, 95 gpm (360 L/min) minimum. • One (1) smoothbore of combination nozzle with 2.50" shutoff that flows a minimum of 250 gpm. • One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer. • One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s). • One (1) first aid kit. • Four (4) combination spanner wrenches. • Two (2) hydrant wrenches. • One (1) double female 2.50" (65 mm) adapter with National Hose threads. • One (1) double male 2.50" (65 mm) adapter with National Hose threads. • One (1) rubber mallet, for use on suction hose connections. • Two (2) salvage covers each a minimum size of 12 ft x 14 ft (3.7 m x 4.3 m). 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, <i>Standard for High Visibility Public Safety Vests</i>, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front. • Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band. • Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities. • One (1) automatic external defibrillator (AED). • Four (4) ladder belts meeting the requirements of NFPA 1983, <i>Standard on Fire Service Life Safety Rope and System Components</i> (if equipped with an aerial device). • If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, shall be carried mounted in brackets fastened to the apparatus. • If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side shall be carried. Any intake connection larger than 3.00" (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6. • If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake. • If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters shall be carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to allow the hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake. <p><u>STRAINER PROVIDED BY DEALER</u> NFPA 1901, 2016 edition, section 5.8.2.1.1 requires a suction strainer when suction hose is provided. The strainer is not on the apparatus as manufactured. The dealer shall provide the suction strainer.</p> <p><u>DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT</u> NFPA 1901, 2016 edition, section 5.9.4 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus. The extinguisher is not on the apparatus as manufactured. The fire department shall provide and mount the extinguisher.</p>		

	Bidder Complies	
	Yes	No
<p><u>WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT</u> NFPA 1901, 2016 edition, section 5.9.4 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.</p> <p>The extinguisher is not on the apparatus as manufactured. The fire department shall provide and mount the extinguisher.</p> <p><u>FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT</u> NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) flathead axe mounted in a bracket fastened to the apparatus.</p> <p>The axe is not on the apparatus as manufactured. The fire department shall provide and mount the axe.</p> <p><u>PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT</u> NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) pickhead axe mounted in a bracket fastened to the apparatus.</p> <p>The axe is not on the apparatus as manufactured. The fire department shall provide and mount the axe.</p> <p><u>PAINT PROCESS</u> The exterior custom cab and/or body painting procedure shall consist of a seven (7) step finishing process. The following procedure shall be used by the apparatus manufacturer:</p> <ol style="list-style-type: none"> 1. <u>Manual Surface Preparation</u> - All exposed metal surfaces on the custom cab and body shall be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces shall be removed and sanded to a smooth finish. Exterior seams shall be sealed before painting. Exterior surfaces that shall not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate. 2. <u>Chemical Cleaning and Pretreatment</u> - All surfaces shall be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces shall be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces shall be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion. A final pure water rinse shall be applied to all metal surfaces. 3. <u>Surfacer Primer</u> - The Surfacer Primer shall be applied to a chemically treated metal surface to provide a strong corrosion protective base coat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a critical aesthetic finish. The surfacer primer shall be a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded. 		

	Bidder Complies	
	Yes	No
<p>4. <u>Finish Sanding</u> - The surfacer primer shall be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.</p> <p>5. <u>Sealer Primer</u> - The sealer primer is applied prior to the base coat in all areas that have not been previously primed with the surfacer primer. The sealer primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when top coated.</p> <p>6. <u>Base coat Paint</u> - Two coats of a high performance, two component high solids polyurethane base coat shall be applied. The Base coat shall be applied to a thickness that shall achieve the proper color match. The Base coat shall be used in conjunction with a urethane clear coat to provide protection from the environment.</p> <p>7. <u>Clear Coat</u> - Two (2) coats of clear coat shall be applied over the base coat color. The clear coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style doors shall be clear coated to match the body.</p> <p>Specifications are written to define cyclic corrosion testing, physical strengths, durability and minimum appearance requirements must be met in order for an exterior paint finish to be considered acceptable as a quality finish.</p> <p>Each batch of base coat color shall be checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color is verified again to make sure that it matches the color standard. Electronic color measuring equipment shall be used to compare the color sample to the color standard entered into the computer. Color specifications are used to determine the color match. A Delta E reading shall be used to determine a good color match within each family color.</p> <p>All removable items such as brackets, compartment doors, door hinges, and trim shall be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly.</p> <p><u>Environmental Impact</u> Contractor shall meet or exceed all current State regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. Controls shall include the following conditions:</p> <ul style="list-style-type: none"> • Topcoats and primers shall be chrome and lead free. • Metal treatment chemicals shall be chrome free. The wastewater generated in the metal treatment process shall be treated on-site to remove any other heavy metals. • Particulate emission collection from sanding operations shall have a 99.99 percent efficiency factor. • Particulate emissions from painting operations shall be collected by a dry filter or water wash process. If the dry filter is used, it shall have an efficiency rating of 98 percent. Water wash systems shall be 99.97 percent efficient. 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • Water from water wash booths shall be reused. Solids shall be removed on a continual basis to keep the water clean. • Paint wastes shall be disposed of in an environmentally safe manner. • Empty metal paint containers shall be recycled to recover the metal. • Solvents used in clean-up operations shall be recycled on-site or sent off-site for distillation and returned for reuse. <p>Additionally, the finished apparatus shall not be manufactured with or contain products that have ozone depleting substances. Contractor shall, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with the state EPA rules and regulations.</p> <p><u>PAIN</u></p> <p>The cab shall be two-tone, with the upper section and a shield design on the cab face painted white. The remaining lower section of the cab and the body shall be painted red.</p> <p><u>PAIN CHASSIS FRAME ASSEMBLY</u></p> <p>The chassis frame assembly shall be finished with a single system black top coat before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.</p> <p>Components that are included with the chassis frame assembly that shall be painted are:</p> <ul style="list-style-type: none"> • Frame rails • Frame liners • Cross members • Axles • Suspensions • Steering gear • Battery boxes • Bumper extension weldment • Frame extensions • Body mounting angles • Rear Body support substructure (front and rear) • Pump house substructure • Air tanks • Steel fuel tank • Castings • Individual piece parts used in chassis and body assembly <p>Components treated with epoxy protection prior to paint:</p> <ul style="list-style-type: none"> • Two (2) C-channel frame rails • Two (2) frame liners 		

	Bidder Complies	
	Yes	No
<p><u>PAINT, REAR WHEELS</u> All wheel surfaces, inside and outside of inboard steel wheels only, shall be provided with black powder coat paint.</p> <p><u>AXLE HUB PAINT</u> All axle hubs shall be painted to match lower job color.</p> <p><u>COMPARTMENT INTERIOR PAINT</u> The interior of all compartments shall be painted with a gray spatter type paint.</p> <p><u>REFLECTIVE BAND</u> A 4.00" white reflective band shall be provided across the front of the vehicle and along the sides of the body.</p> <p>The reflective band provided on the cab face shall be at the headlight level.</p> <p><u>REAR CHEVRON STRIPING</u> There shall be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The rear surface, excluding the rear compartment door, shall be covered.</p> <p>The colors shall be red and fluorescent yellow green diamond grade.</p> <p>Each stripe shall be 6.00" in width.</p> <p>This shall meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface shall be covered with chevron striping.</p> <p><u>STRIPE, REFLECTIVE, "S" RIBBON</u> "S" type ribbons shall be added to the reflective stripe to match the existing fleet.</p> <p><u>CAB DOOR REFLECTIVE STRIPE</u> A 6.00" x 16.00" white reflective stripe shall be provided across the interior of each cab door. The stripe shall be located approximately 1.00" up from the bottom, on the door panel.</p> <p>This stripe shall meet the NFPA 1901 requirement.</p> <p><u>CAB GRILLE DESIGN</u> An American flag design shall be painted on the cab grille.</p> <p>Business Name: _____</p> <p>Signature: _____</p> <p>Printed Name & Title: _____</p> <p>Date: _____</p>		