

West Columbia Fire Department



Specifications for One (1)

1500 GPM Custom Pumper

Below you find the detailed specifications for one (1) custom cab pumper for the City of West Columbia and the West Columbia Fire Department. If you bid the first time, the specifications have changed, so make sure you read all items in these specifications. All bids shall be **sealed** and dropped off to Customer Service at the West Columbia City Hall, 200 12th Street, West Columbia, SC 29169 by 4:00 PM, Monday September 23rd, 2019. Bids will be opened at 4:15 PM in the Administrative Conference Room on the second floor at West Columbia City Hall. If you have any questions regarding these specifications, please contact Fire Chief Chris Smith or Deputy Chief Marquis Solomon at 803-791-4440.

Bid with Pre-Payment Options

Sealed bid proposal shall include price of custom fire pumper with options listed in these specifications, loose equipment, bond, and sales tax.

Please include in a separate section any discount options offered to the City of West Columbia by the manufacturer for 100 percent pre-payment.

Intent of specification

The apparatus shall conform to the requirements of the current NFPA 1901 standard for Motor Fire Apparatus unless otherwise specified in these specifications. The intent of these specifications is to secure apparatus constructed to withstand the severe and continuous use encountered during emergency firefighting services.

Bids will only be considered from companies which have an established reputation in the field of fire apparatus construction and have been in business for a minimum of ten (10) years.

Each bid shall be accompanied by a set of specifications consisting of a detailed description of the apparatus, equipment proposed, exceptions, and drawing of truck. The specifications shall indicate size, type, model and make of all component parts and equipment. NO EXCEPTIONS

Statement of Exceptions to NFPA 1901

If at the time of delivery, the apparatus manufacturer is not in compliance, as per NFPA 1901 4.21 a statement of exceptions must be provided as to the specific standard affected, a statement describing why the manufacturer is not in compliance, and a description of the remedy and who the responsible party is. The document must be signed by an officer of the company, and an authorized agent of the purchaser. There are no exceptions.

Single Source Manufacturer

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, pump house (including the sheet metal enclosure, valve controls, piping and operators' panel) body being designed, fabricated and assembled on the bidder's premises. The electrical system (hardwire) 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, cab weldment, chassis, etc.). The bidder shall provide evidence that they comply with this requirement.

Exceptions to Specifications

The following specifications shall be strictly adhered to. Exceptions shall be considered if they are deemed equal to or superior to the specifications, provided they are fully explained on a separate page entitled "Exceptions to Specifications." Exceptions shall be listed by page and paragraph. Failure to demote specifications in the above manner shall result in immediate rejection of the proposal. **ALL EXCEPTIONS SHALL BE LISTED.**

Performance Tests and Requirements

A road test shall be documented with the apparatus fully loaded and continuous run of ten miles or more shall be made under all driving conditions, during which time apparatus shall show no loss of power or overheating. The transmission drive shaft and or shafts, and rear axles shall run quietly and free from abnormal vibration or noise throughout the operating range of the apparatus. The successful bidder shall furnish a weight certification showing weight on the front and rear axle, and the total weight of the completed apparatus at the time of delivery.

To meet NFPA 1901 4.17 the following test shall be conducted. The apparatus must be capable of accelerating to 30 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed engine RPM. The service brakes shall be capable of stopping the fully loaded vehicle within 35 feet from a speed of 25 mph on a level concrete highway. The apparatus, fully loaded, shall be capable of obtaining a speed of 50 mph on a level highway with the engine not exceeding 95% of its governed rpm. The apparatus shall be tested and approved by a qualified testing agency in accordance with their standard practices for pumping engines. The contractor shall furnish copies of the Pump Manufacturer's Certification of Hydrostatic Test, the Engine Manufacturer's current Certified Brake Horsepower Curve and the Manufacturer's record of Construction Details.

In the event the apparatus fails to meet the test requirements of these specifications on the first trial, a second trial may be made at the option of the bidder within thirty (30) days of the date of the first trials. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Permission to keep and/or store the apparatus in any building owned or occupied by the purchaser shall not constitute acceptance of same.

Turning Radius Report

Bids shall include a turning radius report for the apparatus being bid.

General Construction

The complete apparatus, assemblies, subassemblies, component parts, etc., shall be designed and constructed with the due consideration to the nature and distribution of the load to be sustained and to the general character of the service to which the apparatus is to be subject. All parts of the

apparatus shall be designed with a factor of safety, which is equal to or greater than that which is considered standard and acceptable for this class of equipment in firefighting service. All parts of the apparatus shall be strong enough to withstand general service under full load. The apparatus shall be so designed that the various parts and readily accessible for lubrication, inspection, adjustment and repair. Bidder's specifications must meet minimum requirements of N.F.P.A. Pamphlet #1901; Underwriters Laboratories, Inc.; and all State and Federal Department of Transportation vehicle regulations at time of sale of unit.

The apparatus shall be designed and constructed, and the equipment so mounted, with due consideration to distribution of the load between front and rear axles that all equipment, including a full complement of specified ground ladders, full water tank, loose equipment, and firefighters shall be carried without overloading or injuring the apparatus.

Paint Performance Certification

The finish paint shall be certified by the apparatus manufacturer as conforming to all applicable Commercial Vehicle Paint Standards in effect at the date of contract.

Service Center and Parts Depot

The manufacturer shall have an authorized service center, as well as mobile service vehicles with a staff of factory-trained mechanics, well versed in all aspects of service for all major components of the apparatus. The service department must be staffed and so capable of responding to a service call within a 24-hour period from notification.

Technical Information

Bidder shall furnish free of charge, upon request, technical information, graphs, charts, photographs, engineering diagrams, steering geometry, drivetrain certifications, instruction guides, or other documentation as requested to show that the equipment offered fully complies with these specifications.

Material and Workmanship

All workmanship shall be of high quality and accomplished in a professional manner so as to insure a functional apparatus with a pleasing, aesthetic appearance.

Proposal and Approval Drawing

A general layout drawing depicting the apparatus layout and appearance shall be provided with the bid. The drawing shall consist of all four (4) sides and a general layout view of the pump operator's panel. The drawing shall be a depiction of the actual apparatus proposed and not a generic similar product. NO EXCEPTIONS

After award of bid and pre-construction conference, a detailed layout drawing depicting the apparatus layout and appearance including any changes agreed upon shall be provided for review and signature. The drawing will become part of the contract documents.

Pre-Construction Conference and Final Inspection

After award of the contract, and prior to construction of the apparatus, a pre-construction conference shall be held at the facility of the manufacturer. A provision for air travel for four (4) people shall be provided in the bid price for all travel, food and lodging.

An inspection trip shall be provided at the manufacturer's facility, prior to delivery of the completed apparatus. A provision for air travel for four (4) shall be provided in the bid price for all travel, food and lodging.

Performance Bond

Within twenty (20) days of notification to the successful bidder by the City of West Columbia and/or West Columbia Fire Department, prior to any work commencing on the proposed apparatus, the successful bidder shall, at their own expense, obtain and submit to the City of West Columbia a performance bond in the amount of 100 percent equal to the total contract price. Additionally, each bidder must disclose the price it pays for bonding, per \$1,000. This is to demonstrate the economic stability and credit worthiness of the bidder. No exceptions.

Delivery Requirements

The apparatus shall be completely equipped as per these specifications upon arrival and on completion of the required tests shall be ready for immediate service. Any and all alterations required at the scene of delivery to comply with these specifications must be done at the contractor's expense.

Each bidder shall state the completed apparatus delivery time based on the number of calendar days, starting from the date the sales contract is signed and accepted by the apparatus manufacturer.

Delivery of the apparatus to the purchaser shall remain the bidder's responsibility.

Upon delivery of the fire apparatus, a qualified and responsible representative of the contractor shall demonstrate the apparatus and provide initial instruction to representatives of the customer regarding the operation, care, and maintenance of the apparatus and equipment supplied.

City/Fire Department's Rights

The City of West Columbia and/or the West Columbia Fire Department reserve the right to accept or reject any bid. The City of West Columbia and/or the West Columbia Fire Department

also reserves the right to award in their best interest and reserves the right to waive any formalities.

Bid Components and Table of Contents

Bids with components scattered throughout can make review difficult. To provide for ease of bid comparison and to clearly locate all proposed items, the bid shall follow these specifications as outlined as closely as possible.

There shall also be a table of contents that list the location of all bid specifications at the front of the bid.

Chassis / Frame

The chassis frame shall be fabricated in its entirety at the manufacturer's facility utilizing industry accepted best practices and shall be specifically designed for fire apparatus use.

Each frame rail shall be constructed of two (2) thick-formed steel channels, and outer channel and an inner channel. The frame rails shall be fastened together by cross members.

The chassis frame assembly, consisting of frame rails, cross members, and axles shall have a protective coating and be finish painted black before the installation of any electrical wiring, fuel system components, or air system components.

A lifetime warranty shall be provided, per manufacturer's written statement. NO EXCEPTIONS

Chassis Wiring

All chassis wiring shall be hard wired (point to point) using high quality color-coded wiring. The function and number shall be stamped at 3" intervals on each wire. All wiring shall have high temperature crosslink insulation and be covered with high temperature rated split loom. NO EXCEPTIONS

A detailed wiring diagram of the apparatus must be provided at the time of delivery.

Vehicle Fluids Plate

As required by NFPA-1901, the contractor shall affix a permanent plate in the driver's compartment specifying the quantity and type of the following fluids used in the vehicle:

A permanent plate in the driving compartment shall specify the quantity and type of the following fluids used in the vehicle:

- Engine oil
- Engine coolant

- Chassis transmission fluid
- Pump transmission lubrication fluid
- Pump primer fluid
- Drive axle(s) lubrication fluid
- Air-conditioning refrigerant
- Air-conditioning lubrication oil
- Power steering fluid
- Cab tilt mechanism
- Transfer case fluid
- Air compressor system lubricant

Front Axle

A Meritor front axle shall be provided. The axle shall be rated at a minimum of 20,000-pound capacity.

Front Suspension

The front suspension shall be a taper-leaf design. Long life, maintenance free, urethane bushed spring shackles shall be utilized. All spring and suspension mounting shall be attached directly to the frame. Any spring shackles and pins that require grease will not be acceptable. The front suspension shall have the handling, stability, and ride quality enhanced by the use of an auxiliary spring system and high-performance shock absorbers. The gas filled shock absorbers shall help control the deflation of the leaf springs and dampen vibration normally transmitted to the chassis. A three (3) year 36,000-mile warranty shall be provided on the front suspension.

Front Brakes

The front brakes shall be Meritor 17" Air Disc Brakes.

Front Wheels & Tires

The front wheels shall be polished aluminum disc type, hub piloted, 22.5" x 12.25" ten stud wheels. The front tires shall be Michelin 385/65R22.5 load range J, XZY3 tread. The tires shall be equipped with an LED tire pressure sensor. The pressure sensor shall indicate if a tire is not properly inflated. Chrome plated lug nut caps shall be provided for the front wheels. NO EXCEPTION ON BRAND OF TIRE.

Front Mud Flaps

Hard rubber mud flaps shall be provided for the front tires.

Rear Axle

The rear axle shall be a Meritor Single reduction drive axle with a minimum of 27,000-pound capacity. The axle shall be hub piloted, 10 studs, with oil seals.

Rear Axle Top Speed

To comply with NFPA 1901 section 4.15.2, the top speed shall be limited to 68 mph.

Rear Suspension

A rear spring suspension shall be provided. The rear semi-elliptic springs shall be leaf with trailing arms. The trailing arms allow free movement of the axle from bump loads and deflections while holding the axle in chassis alignment. This suspension shall control axle wrap-up torque caused by accelerating or braking. The trailing arms shall be mounted in maintenance free rubber bushings at both ends.

Rear Brakes

The rear brakes shall be Meritor S-cam style brakes 16.5" x 7" with heavy duty return springs. They shall be full air actuated with automatic slack adjusters. They shall have quick change shoes for fast brake relining.

Rear Wheels and Tires

The rear wheels shall be polished aluminum disc type, hub piloted, 22.5" x 8.25" ten stud wheels. The dual rear tires shall be Michelin 12R22.5, load range H, XZE highway tread. The tires shall be equipped with an LED tire pressure sensor. The pressure sensor shall indicate if a tire is not properly inflated. Polished stainless-steel hub covers shall be provided as well as chrome plated lug nut caps shall be provided for the rear wheels. NO EXCEPTION ON BRAND OF TIRE.

Rear Mud Flaps

Custom hard rubber mud flaps shall be provided for the rear tires.

Air Brake System and Air Compressor

A dual circuit, air operated braking system, meeting the design and performance requirements of FMVSS-121 and the operating test requirements of NFPA 1901, current edition shall be installed. Each wheel shall have a separate brake chamber. A Bendix dual brake treadle valve shall split the braking power between the front and rear systems. The brake hoses from frame to axle shall have spring guards on both ends to prevent wear and crimping as they move with the suspension. All fittings for the brake system plumbing shall be brass. A Meritor-Wabco System Saver 1200 heated air dryer shall be provided.

To meet the requirements of current NFPA 1901 standard, the air system shall be provided with a rapid build-up feature and low-pressure protection valve with light and buzzer.

The air compressor shall be a Wabco brand, with a system designed so that the apparatus can move within 60 seconds from startup without brake drag and without a separate on-board electrical air compressor or shoreline to meet this requirement.

There shall be a minimum of three (3) air reservoirs installed in conformance with best automotive practices. One air reservoir shall serve as the wet tank and minimum of one tank shall be supplies for each the front and rear axles.

A spring actuated air release emergency/parking brake shall be provided. A parking brake control shall be located on the engine cover adjacent to the transmission shifter. The low-pressure parking brake shall automatically apply at or around 35 psi +/- 10 psi. In the event of a failure in the primary air system, a relay valve shall be supplied by both the primary and secondary air systems to activate the parking brake and provide parking brake modulation.

There shall be a manually activated bleeder installed to bleed the air tanks. The activation control shall be run to the driver's side.

All air lines that are piped within the pump module shall have compression style fittings installed to help prevent air leaks that can arise from the use of push lock fittings.

Air Inlet

One (1) male Schrader air chuck shall be installed in the drivers step well area. The system shall tie into the wet tank of the brake system and allow for air to be added to the brake system in case of mechanical failure.

Air Outlet

One (1) female Schrader air chuck outlet shall be provided on the pump panel. The system shall tie into the brake system with an 85-psi pressure protection valve in the outlet to prevent the brake system from losing all air.

ABS System

An anti-skid braking system (ABS) shall be provided to improve braking control and reduce stopping distance. This braking system shall be fitted to axles. All electrical connections shall be sealed from water, weatherproof, and vibration resistant. The system shall constantly monitor wheel behavior during braking.

Steering

The apparatus shall be equipped with power steering. The system shall consist of engine driven power steering pump, heavy duty power steering gear box, and steering column. The components shall be mounted in accordance with the steering gear manufacturers specifications. Steering design shall permit a maximum of 5.5 turns from stop to stop.

The steering column shall have a six-position tilt and 2" telescopic adjustment. The steering wheel shall be a minimum 18" diameter with slip resistance rubber cover. There shall be a self-

canceling lever that shall control the left and right turn signals and high beam activation mounted on the steering column.

Fuel Tank

The chassis shall be equipped with a minimum of 65-gallon fuel tank. The tank shall be mounted behind the rear axle. A minimum of one (1) tank baffle shall be used. The fuel tank shall be certified to meet FMVSS 393.67 tests and maintain engine manufacturer's recommended expansion room of 5 percent. The bottom of the fuel tank shall contain a ½" drain plug.

The fuel lines shall be reinforced nylon braid with brass fittings. The lines shall be carefully routed through the inside of the frame rails.

A minimum 4.5-gallon DEF-fluid tank shall be installed and mounted behind the rear axle. The filler neck and cap shall be located adjacent to the diesel fuel filler neck and cap.

Front Bumper

There shall be a 12" high painted steel front bumper. The bumper shall be formed steel design and shall wrap around fully to the cab. Each side of the bumper shall have a recessed painted steel pocket for an amber marker light and a Whelen M6 cornering light. The pocket shall be a welded integral part of the bumper skin.

Two cornering lights one (1) each side of the bumper shall come on steady with their coordinating turn signal.

Chevron stripping to match the rear shall be placed on the front edge of the bumper and black heavy-duty scorpion coating shall be placed on the top edge of the bumper for protection. The bumper shall extend 24" and the front corners shall be at 45 degrees. The extension shall be a four-sided boxed frame rail for superior safety protection and finished with polished aluminum treadplate and a gravel shield.

There shall be a hose well trough constructed of smooth aluminum plate located in the extended front bumper. The trough shall consist of one large compartment and a deeper trough in the center. There shall be a hose well trough constructed of smooth aluminum plate located in the extended front bumper. The deeper trough shall be large enough to hold 200 feet of 1.75" hose. On the right side (officers' side) a 2.5" discharge shall be pre-piped with a 90-degree swivel head above the front bumper. A 4" raised, rear hinged, front latched, aluminum tread plate cover shall be installed over the entire hose well trough. A "U" shaped opening shall be cut in the cover adjacent to the pre-piped discharge to allow for hose to be pre-connected to discharge. The design shall be so the discharge nor the hose trough cover shall prevent the cab from fully tilting.

Bid shall specify that the compartment will hold the hose size and length listed, NO EXCEPTIONS.

Tow Eyes

There shall be two front tow eyes with 3” diameter holes attached directly to the chassis frame. The tow eyes shall be painted to match the chassis frame and shall accessible below the front bumper. There shall be two rear tow eyes with 3” diameter holes attached directly to the chassis frame. The tow eyes shall be painted to match the chassis frame and shall accessible below the rear bumper.

Electronic Siren and Speaker

A NFPA compliant Whelen 295HFSA7 with programmable tones, electronic siren that will work with the Whelen Howler low frequency siren, shall be installed at the cab instrument panel, complete with microphone. A two (2) year parts warranty shall be provided by the siren manufacturer. Two (2) chrome plated, 100-watt weatherproof siren speakers shall be provided and wired to the electronic siren.

Low Frequency Siren

One (1) Whelen Howler low frequency siren shall be provided and installed. The Howler shall use the output of a standard emergency vehicle siren and shall synthesize a low frequency vibrating signal. The Howler shall amplify to drive Whelen low frequency speakers. The system shall be comprised of an amplifier, two speakers, and mounting hardware. The siren shall be controlled with a two-position momentary switch to allow the operator to turn the Howler on or off while the main siren is activated.

Federal Q2B Mechanical Siren

One (1) Federal Q2B mechanical siren shall be provided. The mechanical siren shall be mounted in the center of the cab grille or recessed in the front bumper.

The mechanical siren shall be activated by a solenoid and shall include two (2) brake switches. One (1) of the brake switches shall be located near the driver and the one (1) shall be located near the officer. A foot switch shall be installed on the driver’s side to activate the mechanical siren and a push button located near the brake switch shall be installed for activation on the officer side. NO EXCEPTION for the controls of this siren.

Air Horns

Two chrome plated air horns. The air horns shall be compliant with NFPA 1901 and be mounted in the front bumper, one on each side behind a perforated grill in the bumper.

Air Horn Controls

There shall be two activation controls for the air horn. One shall be activated by switch located on the officers’ side within ease of reach of the officer. The other activation location shall be the in the steering wheel. A vehicle horn / electronic siren / air horn selector toggle switch shall be provided near the driver to change steering wheel activation from standard vehicle horn to air horn or electronic siren. A push button air horn activation switch shall also be placed on the pump operator's’ panel. NO EXCEPTION for the controls of the air horn.

Cab

The cab shall be a custom tilt style, built specifically for fire service. The cab shall be a cab over engine design, with integral tilt mechanism and engine access from inside the cab. Cab shall be designed, fabricated, assembled in its entirety, and installed on the frame rails in the manufacturer's factory. This requirement will eliminate any split responsibility in warranty and service. The cab shall be a full tilt, minimum of 10” rear-raised (one-half) roof cab design specifically for the fire service and manufactured by the chassis builder. Apparatus cabs that are not manufactured by the apparatus manufacturer shall not be acceptable.

The apparatus cab shall be within the following dimensions;

Cab Width.....	Minimum 96”	Max 100”
Cab Length		
Centerline front axle to front of cab....	Minimum 67”	Max 74” (excluding bumper)
Centerline front axle to rear of cab.....	Minimum 70”	Max 75”

Structural Integrity of Cab

The manufacture shall provide that testing has been conducted to prove the frontal impact strength of the cab as well as the roof and side panel strength has been conducted by a third-party testing facility. This letter documentation shall be provided with the bid.

Cab Design

The cab of the apparatus shall be designed and so attached to the vehicle as to eliminate, to the greatest possible extent, the risk of injury to the occupants in the event of an accident.

The cab shall be of a fully open design with no divider wall or window separating the front and rear cab sections. The cab shall be designed in a manner that allows for the optimum forward-facing vision for crew.

The cab shall be constructed of minimum 1/8” high strength 5052H32 aluminum plate welded to extruded aluminum framing. The framework shall be welded construction that fully utilizes the structural frame of the cab. The structural extrusion framework shall support and distribute the forces and stresses imposed by the chassis and cab loads and shall not rely on the sheet metal

skin for any structural integrity. The exterior walls, doors, and ceiling of the cab shall be insulated from the heat and cold, and to further reduce noise levels in the cab.

For enhanced protection from inclement weather, an integral drip rail shall be furnished on each side of the cab roof. The drip rail shall extend the full length of the cab roof.

Premium soundproofing/insulation shall be installed on the underneath side of the engine enclosure. The insulation material shall be retained by flat aluminum panels fastened to the cab.

Cab Sub-Frame

The cab shall be mounted to a steel box tube subframe and shall be isolated from the chassis. The subframe shall be painted to match the chassis. The sub-frame shall be mounted to the chassis through two forward pivot brackets on the front and two hydraulically activated cab latches, to secure the rear.

Cab Tilt System

An electronically powered hydraulic cab tilt system shall be provided and shall lift the cab to an angle of 45 degrees. The system shall be interlocked to the parking brake to only operate when the park brake is set. There shall be two (2) hydraulic lift cylinders which shall incorporate a check valve and velocity fuses that will activate should the hydraulic pressure have a sudden drop. The lift cylinders shall be connected to the steel cab sub-frame.

A mechanical locking system will be provided to ensure that the cab remains raised in the event of a hydraulic failure.

The cab tilt controls will consist of a momentary raise/lower switch and a two-position cab safety lock switch. Both switches are to be located on the officer's side pump panel.

There shall be a manually operated hydraulic pump for tilting the cab in the event the main electric pump should fail. Access to the pump shall be so located to ensure ease of use.

Cab Grille

There shall be a custom formed grille designed with sufficient area to allow proper airflow into the cooling system and engine compartment. Plastic chrome plated grilles will not be accepted. Allow for a custom grille design to be finalized during pre-construction.

Cab Doors

There shall be four (4) side opening entry doors. The cab door frames shall be constructed with an extruded aluminum frame and an aluminum outer door skin. Each door shall be full height from step to the cab roof extrusion and enclose the step area when the doors are closed. Each

door shall be equipped with dual weather seals. For clean appearance, the outside cab door window opening shall be framed with a black anodized aluminum frame. Each cab door shall be equipped with a heavy-duty door latching hardware.

Interior Door Panels

The interior of the cab entry doors shall have a stainless-steel scuff plate contoured to the door, from the window sill down. The plate shall be designed to allow easy access to the inner door.

The lower portion of all the cab entry doors shall have a 12” tall reflective Chevron stripe installed the full width of the door panel. The Chevron stripe shall be made using high quality 3M Scotchlite material in a pattern that matches the rear of the truck. The reflective material shall be visible to oncoming traffic when the doors are in the open position.

The door shall have an amber LED light on the inner door panel. The LED light shall flash when the door is in the open position.

Cab Handrails

There shall be one (1) handrail installed on the outside of the cab at each entrance into the cab. The handrail shall be a minimum of 24” long with sufficient space to allow for a gloved hand to firmly grip the rail.

There shall be black grab rails provided inside the cab at each opening on the A Post up front and black grab rails on the rear door facing to assist in entry and exiting of the cab.

Handrails, Front of the Cab

There shall be a two (2) knurled stainless-steel handrails on the front face of the cab, below the windshield.

Cab Windows

All four (4) cab entry doors shall be equipped with power windows. Each door shall be individually operated, and the driver’s position shall have master control over all windows. All four (4) windows shall roll all the way down.

There shall also be a center window located between the front cab doors and the rear cab doors on the side of the cab. NO EXCEPTIONS

The side center windows and the rear cab door windows shall be tinted with 5% (deep limo tint). The tint shall be incorporated into the window glass. Film tinting shall not be acceptable. The windshield and the front cab door (driver’s and officer’s windows shall not have any tint on them.

Medical Glove Box Holders

Two (2) medical glove box holders shall be provided in the cab. The box shall be constructed of smooth aluminum. Each medical glove box holder shall be capable of holding three (3) medical glove boxes. The exact location of the medical glove box holders shall be determined during pre-build.

Engine Enclosure

A formed engine enclosure shall be provided. The engine cover shall be an integral part of the cab structure. The engine enclosure shall be contoured and blended in an aesthetically pleasing manner with the interior dash and flooring. The top of the engine enclosure shall be covered with a textured coating material to provide durability and wear resistance as well as sound deadening and insulation. The rubberized floor covering shall extend upward on the lower exterior sides of the engine enclosure to also aid with sound and heat resistance. The enclosure shall be constructed to provide for high strength, low weight, and insulated for superior heat and sound deadening qualities. The insulation shall keep the DBA level within the limits stated in the current NFPA 1901.

A padded, hinged access door shall be provided in the rear of the engine enclosure to access the engine oil and transmission fluid dipsticks. The access door shall be insulated on the inside as well as coated on the outside with the same material as the engine enclosure.

Cab Interior

The cab interior shall be coated utilizing a non-porous material such as vinyl or multispec speckle urethane modified paint that can be easily cleaned. The interior shall provide durability and wear resistance. The color of the interior shall be black.

The front and rear headliners shall be insulated with padding and covered with a non-porous material such as vinyl or black FRP bubble board material that can be easily cleaned. Cloth material will not be accepted.

Cab Storage Module

A storage module shall be installed on the center doghouse area between the driver and officer. The module shall be constructed of aluminum and shall be painted with scuff resistant paint to match the cab interior. The module shall include space for two (2) cup holders, two (2) pockets for storage of miscellaneous items with hinged doors and one large pocket in the center for storage of larger miscellaneous items. There shall be a net over the larger portion.

Cab Interior Lighting

Interior lighting shall be provided inside the cab for passenger safety. Four (4) ceiling mounted combination red/clear LED dome lights shall be installed. One light shall be located each riding position. The lights shall have a push on/off switch as well as activating from an open door.

Cab Stepwells

The stepwells into the cab shall be covered with 1/8" embossed diamond plate.

Cab Floor Covering

The cab interior flooring shall be covered with a thick black rubberized material to provide a rugged but cosmetically pleasing stepping surface throughout the cab. The floor covering shall provide superior durability and resistance against foreign objects as well as normal wear and tear.

Cab Step Lighting

A LED light shall illuminate each interior cab step which is illuminated anytime the battery switch is on and the cab door is open.

360-Degree Camera System

A 360° Video camera system kit shall include a (1) 7" monitor, (4) four cameras, an Electronic Control Unit (ECU), required harnesses and a manual camera switch. The system kit shall provide split video feed with bird's-eye view and individual camera views. It shall be capable of integrating with an existing vehicle system for an automatic camera view, which seamlessly switches from front/left/right/rear views based on turn signal and reverse activation. It shall also feature a switch module that allows the operator to override the default camera view. A two-year warranty shall be provided with the system.

Cab Instrument Panel

The main dash instrument panel shall be located in front of the driver which cover from the door post to the engine cover. All gauges and controls shall be backlit for night vision and easily identifiable by function. All main gauges and warning lights shall be visible to the driver through the steering wheel.

The following gauges shall be provided; tachometer/hour meter with high exhaust system temperature, speedometer/odometer, voltmeter, fuel gauge, DEF gauge, engine oil pressure, transmission temperature, engine temperature, primary air pressure, and secondary air pressure.

The following indicators and warning lights shall be provided; parking brake engaged, low air light and buzzer, anti-lock brake warning, check engine, engine temperature, check transmission, transmission temperature, seat belt, low oil indicator, low voltage, low coolant, air filter

restriction, high idle, PTO engaged, retarder engaged, wait to start, ok to pump, and high exhaust temperature / regen.

Center Control Consoles

There shall be a center control console(s) mounted on the engine hood between the driver and officer. The console(s) shall be ergonomically designed and have a durable coating that matches the engine hood covering. The console(s) shall have illuminated rocker switches and be located for convenience for the driver and the officer. The driver shall have easy access to the controls for the high idle, Jacobs engine brake, horn/air horn switch, mechanical siren brake, master emergency, brow light controls, perimeter scene lighting, perimeter ground lighting, and parking brake controls. The officer shall have easy access to the controls for a mechanical siren brake and brow light controls. There shall be space to recess the siren controls and the radio.

The controls for the defrost, heat, and air conditioner shall be located within easy access of the driver.

Pump Shift Module

A pump shift control module with indicating lights shall be located on the console on the left side of the steering wheel. A gear lockup shall be provided to hold the transmission in direct drive for pump operation.

Vehicle Data Recorder

As required by NFPA 1901, a vehicle data recorder shall be installed. The system shall include a NFPA compliant Black Box with reporting software that shall be capable of data storage to coincide with the requirements of 1901. The data shall be downloadable by USB cable to a computer.

Cab Seating

Driver - A H.O. Bostrom Sierra Defender 500 series Air-50RX/HD/ABTS LH air suspension high back seat shall be provided. The seat shall be equipped with an integral dual retractor red 3-point shoulder harness and lap belt built into the seat assembly. The seat shall have fore and aft adjustment and shall have low seams and be upholstered with Black Duracoat Vinyl. NO EXCEPTIONS on seat material.

Officer- A H. O. Bostrom Tanker 450 ABTS SLS SCBA seat shall be provided for the officer. The seat shall be equipped with an integral dual retractor red 3-point seat belt. The seat shall have a SCBA cavity and auto-pivot-and-return padded headrest. The seat shall have low seams and be upholstered with Black Duracoat Vinyl. The seat shall include a IMMI SmartDock SCBA Locking System. The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on the SCBA units. The center guide fork shall keep the cylinder in-place

for a comfortable fit in the seat. The standard release handle shall be integrated into the seat cushion for quick and easy release and shall eliminate the need for straps or pull cords to interfere with other SCBA equipment. NO EXCEPTIONS on seat material.

Rear Seats- Two (2) forward facing H.O. Bostrom Tanker 450 ABTS SLS SCBA seats shall be provided in the rear of the cab. The seat shall be equipped with an integral dual retractor red 3-point seat belt. The seats shall have a SCBA cavity back and auto-pivot-and-return padded headrest and be the “fold and hold” feature. The seats shall have low seams and upholstered with Black Duracoat Vinyl. The two crew seats shall be mounted in the center of the cab with 12” space between them. The seats shall include a IMMI SmartDock SCBA Locking System. The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on the SCBA units. The center guide fork shall keep the cylinder in-place for a comfortable fit in the seat. The standard release handle shall be integrated into the seat cushion for quick and easy release and shall eliminate the need for straps or pull cords to interfere with other SCBA equipment. NO EXCEPTIONS on seat material.

Rear Seat - One (1) folding jump seat shall be placed on the driver’s side rear wall in the rear of the cab. The seat shall be equipped with an integral dual retractor red 3-point seat belt. The seats shall have low seams and upholstered with Black Duracoat Vinyl. NO EXCEPTIONS on seat material.

Seat Belt Cushion Sensors and Belt Sensor System

As required by NFPA 1901, Chapter 14, a seat belt warning system shall be provided and shall monitor each seating position. Each seat shall be equipped with a sensor that, in conjunction with a display in the dash, shall determine when the seat belt was fastened and if the seat is occupied. An audible and visual alarm shall be activated if the seat is occupied and the seat belt is not fastened.

Under Seat Storage Compartments

There shall be a storage compartment provided under the officer’s seat. The compartment shall have an access door that shall be accessible from the front of the officer’s seat. The compartment shall be large enough for storage of firefighters’ personal items.

Officer’s side Storage Box

There shall be a keyed locking glove box with a hinged door on the right side of the main dash. A light shall be provided in the glove box activated by the control of the access door. NO EXCEPTIONS.

The top of the glove box shall have an extendable surface mount. The flat mount shall be designed for a computer/iPad to be attached and can be extended out from the top of the glove box toward the officers. The slide will be controlled and locked into place with spring levers.

Cab Communication System

A wireless SetCom communication model Liberator MAX system shall be installed and provided in the cab. The communications shall allow for communications between crew as well as radio/interface with dispatch through the radio. The system shall consist of four (4) dual ear muff behind-the-head wireless headsets, two (2) LibMAX 900 Transmit version for driver and officer for radio interface, and two (2) LibMAX 900 Intercom only for rear seats. The system should be Bluetooth capable and have a range of a minimum of 1500 feet.

The system shall come with an interface cable to connect the system base with the radio. There shall be a hanger mounted to the ceiling of the cab adjacent to all seating positions for the headsets.

Antenna Mounting

One (1) radio antenna shall be installed in the cab roof with coax cable and run to the radio mounting area. The antenna will be provided by the fire department and its location will be decided at the pre-construction meeting.

USB / Auxiliary Power Points

There shall be two (2) 12-volt dual port USB power points in the cab. One (1) shall be in close proximity of the driver and one (1) shall be in close proximity of the officer.

Power and Ground Studs

There shall be a set of three (3) threaded power studs provided in the console for future installation of two-way radios. The studs shall be wired one (1) 12-volt 60-amp direct to battery, one (1) 12-volt 30-amp controlled by the ignition switch, and one (1) 12-volt 125-amp ground.

There shall be a set of four (4) threaded power studs provided behind the officer's seat to accommodate the future installation of two-way radios. The studs shall be wired one (1) 12-volt 40-amp controlled by the battery switch, one (1) 12-volt 60-amp controlled by the ignition switch, one (1) 12-volt 60-amp direct to battery, and one (1) 12-volt 100-amp ground.

EMS Cab Storage Compartment

Two (2) aluminum storage compartments shall be mounted in the cab in lieu of the driver's side rearward facing crew seat and the officer's side rearward facing crew seat. The storage compartments shall be finished on the outside and inside to match the cab interior. NO EXCEPTIONS on compartments and finish.

The compartments shall be equipped with Amdor LED strip lighting that activates when the door opens, and the master battery switch is in the on position. Two (2) adjustable shelves shall be provided in each storage compartment. Both storage compartments shall have an Amdor rollup door that must have keyed lock for security. The EMS compartments shall be approximately 22” wide x 24” deep and full height in the cab to provide the maximum amount of storage space. NO EXCEPTIONS.

In-Cab Overhead Storage Compartment

One (1) overhead storage compartments shall be mounted in the rear crew area in the center above the engine tunnel. The storage compartment shall have the same finish and texture as the cab interior. The overhead storage area shall have netting. The storage compartments shall run the full width of the cab.

Fender Crowns

Polished stainless-steel front axle fenderettes with full depth radiused wheel liners shall be provided.

Windshield & Windshield Wipers

A windshield that is symmetric, laminated, and automotive approved safety glass shall be provided on the cab for the driver and officer providing a clear viewing area.

Electric operated, with high, low, and intermittent speed windshield wipers shall be installed. Each wiper arm shall be operated by one (1) electric motor. The wipers shall have a built-in washer system. There shall be one (1) master switch to control the wiper, washer, and intermittent wipe features.

The washer bottle shall be located in an area for ease of filling.

Mirrors

Two (2) Lang Mekra 300 Series smooth chrome plated Aero style main and convex mirrors shall be installed on each side of the vehicle. The main mirror shall be 7” x 16” chromed flat glass. The convex mirror shall be 6” x 8” chromed radius glass. Both sections shall be electronically operated from the drivers seating position. The mirrors shall be electronically heated.

Sun Visors

There shall be a sun visor located at both the driver and officer positions. The visors shall be recessed in a molded form for a flush finish. The sun visors shall be made of dark smoke colored transparent material.

Heater / Defroster / Air Conditioner

The apparatus shall have a heater/air conditioner with a minimum 72,000 BTUs cooling and 65,000 heat BTUs installed with sufficient louvers / diffusers on the engine hood to have air flow throughout the cab. There shall also be ductwork to the floor of the cab to provide heat for the front of the cab area. There shall also be a defroster/heater with a minimum of 35,000 BTUs installed with sufficient louvers / diffusers to direct flow onto windshield and side glass. The illuminated controls for the heater / defroster / air conditioner shall be located within ease of reach on the right side of the driver.

Engine

The engine shall be a Cummins, Model ISL9 450 H.P., turbo charged diesel. The engine shall have a five year or 100,000-mile warranty and be approved by Cummins for installation in chassis.

A Cummins approved fuel filter / water separator shall be remote mounted to the chassis frame rail. There shall also be a Cummins approved secondary fuel filter mounted to the engine in a location to ensure ease of replacement.

On-Board Diagnostic System

The engine shall be equipped with an on-board diagnostic system which shall monitor emissions related engine systems and components and alert the operator of any malfunctions. The system is to further enhance the engine and operating system by providing early detection of emission related faults. There shall be warning lights located in the dash instrument panel to alert the operator of a malfunction.

Engine Brake

The engine shall be equipped with a Jacobs compression engine brake. An on/off switch as well as a high/low switch shall be provided on the instrument panel within easy reach of the driver.

The engine brake shall be wired in such a manner so that the brake light illuminates the chassis brake lights when the engine brake is engaged and operating.

There shall be a pump shift interlock circuit provided to prevent the engine brake from activating while the PTO is active.

Alternator

A minimum 430-amp alternator shall be supplied with an audible and visual low voltage alarm. The alternator shall be driven by a serpentine belt. The alternator shall be designed and installed to provide maximum output at engine idle speed to meet the minimum continuous electrical load if the apparatus. NO EXCEPTIONS.

Battery System

The battery system shall be a single 12-volt system. The batteries supplied shall be minimum 1000 cold cranking amp premium batteries with a warranty accepted nationwide. The batteries shall be installed in a vented stainless-steel box with a removable cover.

There shall be one set of battery jumper terminals located by the battery box. The terminals shall be tagged to indicate positive and negative terminals. The battery cables shall be minimum of 3/0 gauge.

Battery Charger

A ProMariner, ProNautic 1240P, 40 amp fully automatic battery charger shall be provided for maintaining the vehicle battery system. The charger shall feature four (4) stage automatic charging system that shall extend the battery life and usage with a multi-stage charging featuring a fast charge and a float/maintenance mode. An LED status center shall provide at a glance status.

There shall be a ProMariner remote display installed to show the levels of charge.

120 Volt Outlets

There shall be four (4) Nema 5-20 120-volt outlets wired and provided on the apparatus. One (1) Nema 5-20 120 volt wired and located in close proximity to the lockable glove box on the officer side, one (1) Nema 5-20 120-volt outlet wired and located in EMS cabinet located on the driver's side, one (1) Nema 5-20 120-volt outlet wired and located in EMS cabinet located on the officer's side, and one (1) Nema 5-20 120-volt outlet wired and located in R1.

Engine Compartment Work Light

Two (2) Tecniq model #E18 utility work lights shall be installed on the underside of the cab to light the engine when the cab is raised. Each light shall provide 800 lumens each. The switch for these lights shall be located on the base of the light to ensure ease of access.

Air Compressor System

A Kussmaul 091-9HP air compressor shall be installed to maintain the air pressure in the air brake system while the apparatus is not in use. A Kussmaul Auto Pump timer shall be installed to protect the auto pump from high temperatures and wear if a large air leak occurs in the system. The timer shall limit the cycle to one (1) hour of run time followed by half (1/2) hour of cool down. A Kussmaul auto drain shall be installed to protect the auto pump from moisture build up.

120V Shoreline Inlet

The apparatus shall be equipped with a Kussmaul 120V 20-amp auto-eject connection with a red weatherproof cover. A 20-amp connector shall be provided as loose equipment for connecting

the external electric cord to the shoreline inlet. The inlet shall be located in the area adjacent to the driver's side cab door.

Engine Fast Idle

There shall be a fast idle for the electronic controlled engine shall be provided. The fast idle shall be controlled by an on/off switch on the dash. An electronic interlock system shall prevent the fast idle from operating unless the transmission is in neutral and the parking brake is fully engaged.

The load management system shall be capable of activating the apparatus high idle system when the system voltage drops below 12.3-volts DC. The system shall raise the engine speed for a minimum of five minutes until the voltage exceeds 13.0-volt DC. The automatic high idle system shall deactivate whenever the brake pedal is pressed.

Load Manager

There shall be a load manager to manage the electrical loads on and off. The load manager shall be able to shed loads on the electrical system starting with the lowest priority when the vehicle starts dropping voltage. If the vehicle voltage returns, the shed load shall automatically come on. When the voltage drops below 12.3 volts, the load management system shall be capable of activating the high idle system. The system shall raise the high idle engine speed for minimum of five minutes until voltage exceeds 13.0 volts.

Exhaust Adapter

The exhaust shall terminate to accept a station mounted MagneGrip exhaust system.

Radiator / Cooling / Fan

The cooling system shall be designed to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the engine and transmission manufacturer's requirements, and EPA regulations. The complete cooling system shall be mounted in a manner to isolate the system from vibrations and stress. The system shall be equipped with a site glass to ensure proper fluid level and be equipped with a drain cock to drain the coolant for serviceability.

The engine cooling system shall have a heavy-duty cooling fan, installed on the engine and include a shroud and recirculation shield. A fan clutch shall be provided to all the fan to operate when needed. The fan shall remain continuously activated when the truck is placed in pump gear.

Air Cleaner

An engine air intake and filter shall be designed in accordance with the manufacturer's recommendations. The engine air filter and plumbing for the air system shall be located as high as possible on the engine to prevent any water from entering the air filtering system if the vehicle must navigate through water.

An air restriction warning light shall be provided and located on the dash in an area easily seen by the apparatus operator.

As required by NFPA 1901, an ember separator shall be provided in the engine intake.

Transmission

The chassis shall be equipped with a Generation 5 Allison six automatic transmission, Model EVS3000. The transmission shall be installed to manufacturer's specifications. The transmission shall be filled with synthetic transmission fluid meeting Allison specifications.

An illuminated, Allison touch-pad shift control shall be mounted to the right of the driver on the engine cover.

The apparatus transmission shall be equipped with a transmission cooler. The cooler shall be located in an area to be easily accessible for ease of service.

Driveline

The driveline shall consist of Spicer 1710 heavy duty, dual grease fitting universal joints with half-round/half loop end yokes. The drive shaft shall be built of heavy-duty steel tubing that is dynamically balanced prior to installation. The manufacturer shall provide proof of compliance with all drive shaft manufacturer's standards and specifications.

Fire Pump

The fire pump shall be a Hale QMax midship mounted, double suction single stage centrifugal pump which shall comply with all applicable requirements of NFPA 1901. The fire pump shall have a rated capacity of 1500 GPM.

The pump shall have an Anode Pro with three (3) intelligent anodes that display through LED lighting when anode needs to be replaced.

The pump must deliver the percentage of rated capacity of the pressure listed below:

- 100% of rated capacity at 150 psi net pump pressure.
- 100% of rated capacity at 165 psi net pump pressure.
- 70% of rated capacity at 200 psi net pump pressure.
- 50% of rated capacity at 250 psi net pump pressure.

Pump Transfer Case

The drive unit shall be designed of ample capacity for lubricating reserve and to maintain the proper temperature. Pump drive unit shall be sufficient size to withstand the torque of the engine in both road and pump operating conditions. The gearbox drive shafts be engineered to withstand the full torque of the engine in both road and pump operating conditions.

The engagement of the pump transmission shall be of such design so as to permit transfer of power from road to pump operations only after vehicle is completely stopped. The pump shift shall be air actuated from the cab and have both a green “Pump Engaged” light, and a green “Ok to Pump” light. A third green light shall be provided on the pump operator’s panel for a “Throttle Ready”.

Pump Seal

The pump shaft shall have only one packing gland located on the inlet side of the pump. It shall be split for ease of repacking. The packing gland must be a full circle threaded design to exert uniform pressure on the packing to prevent uneven packing load when tightened.

Pump Test Certification

The pump shall be tested and certified by a third-party independent testing agency in accordance with NFPA 1901. A three-hour pumping test from draft shall be conducted consisting of two hours of continuous pumping at 100% of rated capacity at 150 psi net pump pressure, followed by ½ hour of continuous pumping at 70% of rated capacity at 200 psi net pump pressure, and ½ hour of continuous pumping at 50% of rated capacity at 250 psi net pump pressure. The testing shall include a pressure control system test, priming system test, vacuum test, a gauge/flowmeter test, a tank to pump test, and a pumping engine overload test

Auxiliary Cooler

An auxiliary cooler shall be furnished to provide additional cooling to the engine under extreme pumping conditions. Water from the pump is to be piped to the coils of the heat exchanger allowing the engine fluid to be cooled as required.

Thermal Relief Valve

There shall be a thermal relief valve (TRV) model TRV-L installed to protect the pump from being overheated. TRV will monitor pump water temperature. The TRV comes with a visual warning light on the pump panel.

Manual Pump Shift

A manual pump shift control shall be furnished on the pump panel which may be utilized if the air shift control does not operate. A transmission, manual lock-up switch shall be furnished on the cab to ensure positive lock-up of the transmission. NO EXCEPTIONS

Pump Enclosure Work Light

Two (2) Tecniq model #E18 utility work lights shall be installed inside the pump enclosure providing 800 lumens each. The switch for these lights shall be located on the base of the lights and shall be installed for ease of access.

Tank to Pump

One (1) minimum 3” tank to pump line shall connect the booster tank to the 3” Akron Heavy duty swing out valve on the intake side of the pump. The valve shall be a 3” Akron Heavy duty brass body with stainless steel ball with dual polymer seat and come with a 10-year warranty from Akron Brass.

The valve shall be controlled by a push/pull handle located on the right side of the pump panel.

Tank Fill

One 2” full flow pump to tank fill line shall be provided. The valve shall be a 2” Akron Heavy duty brass body with stainless steel ball with dual polymer seat and come with a 10-year warranty from Akron Brass.

The valve shall be controlled by a push/pull handle located on the right side of the pump panel.

Pressure Governor

A Fire Research Pump Boss model PBA400-A00 pressure governor and monitoring display kit shall be installed. The kit shall include two (2) 600 psi pressure sensors and cables. The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A control knob that uses optical technology shall adjust pressure or RPM settings. It shall be 2” in diameter with no mechanical stops, a serrated grip, and have a red idle push button in the center. The pressure governor and monitoring display shall be programmed to interface with the Cummins engine.

Pump Primer

The primer pump shall be a Trident Emergency Products air primer system. A push in primer handle will open the priming valve and prime the pump. The priming system shall come with a five-year warranty.

Pump Panel

The pump panel shall be located on the driver’s side of the apparatus. The pump enclosure side panels shall be completely removable and designed for easy access and servicing. The pump panel shall be constructed of black vinyl covered aluminum. The gauge and control panels shall be two separate panels for ease of maintenance. The upper gauge panel shall be hinged with full-length stainless-steel hinge held closed with a quarter turn latch. The officers side too shall be

split, vertically hinged with stainless-steel hinges and quarter turn latch to access the pump and plumbing. Both side panels, drivers and officers' side shall be illuminated by a full width LED light strip.

Both the pump operator's panel on the driver's side and the panel on the officer's side shall be equipped with a light shield/step fabricated from polished aluminum tread plate that shall be full width of the control panel and shall be positioned to cover the lights and prevent glare. The light shield shall be fabricated from aluminum tread plate, which shall also serve as a step. The step shall be a minimum of 8" deep and run from the back of the crosslays to the back of the panel.

The steps on both sides shall have two (2) Amdor Luma Bar H2O super bright LED strip lights. One light shall be activated when the pump is engaged and the other is activated by a switch located on the pump panel.

The width of the pump panel module shall not exceed 48" wide. NO EXCEPTIONS

Pump Panel Controls

The controls on the panel shall be laid out in a user-friendly manner. All valve controls shall have the corresponding discharge gauge located immediately adjacent to the control handle and shall have color coded escutcheon plates around the controls. Each discharge valve control, outlet, and corresponding line gauge shall be color-coded. The pump panel shall have two (2) certified laboratory test gauge outlets, pump primer control, master drain control and individual line drains, tank-fill and pump cooler valve controls, tank to pump valve control, pump capacity rating plate, all discharge controls, two (2) master pump gauges, and gauges on all discharge lines, one (1) air horn control button, and electronic governor control head. All controls shall be clearly labeled.

Pump Drains

There shall be a multiport master drain valve provided and plumbed to multiple locations on the main pump body. The valve assembly shall be clearly marked as Master Drain. Vertical lift up style valves shall be provided for each suction inlet, or discharge outlet. Each drain shall be clearly marked and color coded.

Master Gauges

Liquid filled 6" diameter pump pressure and vacuum gauges shall be provided. The compound gauges shall be white faced with black numbering/lettering with a pressure range of -30"-0-400 psi.

Water Tank Level Gauges

A Fire Research, model WLA300-A00 Tankvision Pro gauge labeled "water" shall be installed on the pump operator's panel.

A Fire Research TankVision MaxVision WLA280-A00 LED light shall be provided and mounted high on both sides of the cab behind the rear crew doors. The light shall have a wide-angle diffusion lens in front of the LEDs.

Foam Tank Gauge

A Fire Research, model WLA360-A00 Tankvision Pro gauge labeled foam shall be installed on the pump operator's' panel.

Foam Tank

There shall be a minimum 25-gallon foam tank. The tank shall be a part of the main booster tank. There shall be a 3" fill tower and cap with a tank vent.

Foam System

The apparatus shall be equipped with a Class B electric, fully automatic, variable speed, discharge side foam proportioning system. The system shall be capable of handling class A and most types of class B foam. The system shall be equipped with a 12-volt electric motor driven positive displacement foam concentrate pump, rated up to 5.0 gpm, with operating pressures up to 400 psi. Foam shall be made available to crosslay #1, left rear discharge, and front bumper discharge. A digital computer control display shall be provided. The display shall include the following functions:

- Push-button control of foam proportioning foam
- Current flow-per-minute of water
- Volume of water discharged
- Flow rate simulation
- Set-up and diagnostic functions
- "Low Concentrate" warning light
- "No Concentrate" warning light

Water Tank

A poly tank shall be installed with a capacity of 750 gallons. The tank shall be designed to be completely independent of the body and compartments. The tank shall be constructed with transverse and longitudinal swash partitions. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments and meet NFPA standards.

The tank shall have a vent/fill tower with a removable screen and hinged cover. The tower shall be equipped with a 4" vent overflow pipe designed to run through the tank and piped behind the rear wheels.

There shall be two (2) standard tank outlets. One for the tank to pump suction line and one for the tank fill line. All tank fill couplings shall be backed with flow deflectors to break up the stream entering the tank.

The tank shall come with a lifetime warranty and shall be completely removable without dismantling the apparatus structure.

Intake Relief Valve

An Akron model 591103 intake relief valve system shall be plumbed on the suction side of the pump to comply with NFPA 1901. The valve shall be 300 psi and be adjustable. Excess pressure shall be discharged away from the pump operator and terminate with NST hose threads.

6" Pump Inlet

A 6" diameter NST male threads suction inlet shall be provided on both sides of the apparatus. The inlet shall extend through the side pump panels and come complete with removable strainer and long handle chrome-plated cap.

Akron Revolution Ball Intake Valves

Two (2) Akron Brass Style 7982 Intake valves shall be provided. One (1) for the driver side intake suction and one (1) for the officer's side intake suction. The intake valves shall be constructed of lightweight, corrosion-resistant, hard-anodized aluminum and stainless steel. The truck side of the valves shall be 6" NST Female with large handles, and the inlet side shall be 5" Storz with cap. The valve shall come with a 30-degree swiveling elbow inlet.

2.5" Auxiliary Side Inlets

One (1) 2.5" gated inlet valve shall be provided on the driver's side pump panel and one (1) 2.5" gated inlet valve shall be provided on the officer's side pump panel. The valves shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball and dual polymer seats, and be supplied with chrome plate NST Female swivel, plug, chain, and removable strainer. The valves shall attach directly to the suction side of the pump with the valve body behind the pump panel.

The valves shall be controlled by a swing type handle with full 90-degree movement located on the panels to the rear of the main suction inlets. The valve shall come with a 10-year warranty covered by Akron Brass.

Discharge #1 – 2.5" Discharge Driver's Side

A 2.5" discharge shall be provided and located on the driver's side pump panel. The driver's side discharge #1 shall terminate with NST threads, through the left side of the panel above the pump

intake. The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball and dual polymer seat.

The discharge valve shall be equipped with a straight 2.5" NST adapter that shall be equipped with a 2.5" NST, 30-degree, chrome plated elbow. A 2.5" NST chrome plated pressure vent cap shall be installed on the discharge. There shall be chrome plated escutcheon plate around discharge on the outside of the panel.

The valve shall be controlled by a push/pull handle located on the operator's panel. The valve shall come with a 10-year warranty covered by Akron Brass.

There shall be a liquid filled individual line pressure gauge provided. The gauge shall be 2.5" in diameter with white face and black lettering and have a pressure range of 0-400 psi. The gauge shall be located adjacent to the control handle.

Discharge #2 – 2.5" Discharge Driver's Side

A 2.5" discharge shall be provided and located on the driver's side pump panel. The driver's side discharge #2 shall terminate with NST threads, through the right side of the panel above the pump intake. The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball and dual polymer seat.

The discharge valve shall be equipped with a straight 2.5" NST adapter that shall be equipped with a 2.5" NST, 30-degree, chrome plated elbow. A 2.5" NST chrome plated pressure vent cap shall be installed on the discharge. There shall be chrome plated escutcheon plate around discharge on the outside of the panel.

The valve shall be controlled by a push/pull handle located on the operator's panel. The valve shall come with a 10-year warranty covered by Akron Brass.

There shall be a liquid filled individual line pressure gauge provided. The gauge shall be 2.5" in diameter with white face and black lettering and have a pressure range of 0-400 psi. The gauge shall be located adjacent to the control handle.

Discharge #3 – 2.5" Discharge Officer's Side

A 2.5" discharge shall be provided and located on the officer's side pump panel. The officer's side discharge shall terminate with NST threads, through the right-side panel above the pump intake. The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball and dual polymer seat.

The discharge valve shall be equipped with a straight 2.5" NST adapter that shall be equipped with a 2.5" NST, 30-degree, chrome plated elbow. A 2.5" NST chrome plated pressure vent cap shall be installed on the discharge. There shall be chrome plated escutcheon plate around discharge on the outside of the panel. The valve shall come with a 10-year warranty covered by Akron Brass.

The valve shall be controlled by a push/pull handle located on the operator's panel. The valve shall come with a 10-year warranty covered by Akron Brass.

There shall be a liquid filled individual line pressure gauge provided. The gauge shall be 2.5" in diameter with white face and black lettering and have a pressure range of 0-400 psi. The gauge shall be located adjacent to the control handle.

Discharge #4 – 4" LDH Discharge Officer's Side

A 4" LDH discharge shall be provided and located on the officer's side pump panel. The officer's side discharge shall terminate with NST threads, through the right-side panel above the pump intake. The valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball and dual polymer seat.

The discharge valve shall be equipped with a straight 4" NST adapter that shall be equipped with a 4" NST, 30-degree, chrome plated elbow. A Kocheck 4" NSTF x 5" Storz straight adapter with cap shall be provided and installed on the #4 LDH discharge on the officer's side. There shall be chrome plated escutcheon plate around discharge on the outside of the panel.

The valve shall be controlled be gated with an Akron Hand Wheel controlled, inline valve. The valve shall be controlled at the pump operator's panel with a chrome plated hand wheel and mechanical valve position indicator. The valve shall come with a 10-year warranty covered by Akron Brass.

There shall be a liquid filled individual line pressure gauge provided. The gauge shall be 2.5" in diameter with white face and black lettering and have a pressure range of 0-400 psi. The gauge shall be located adjacent to the control handle.

Discharge #5 – 2.5" Left Rear Discharge

A 2.5" discharge shall be provided at the rear of the vehicle and located on the driver's side, left of center on the rear body panel of the apparatus. The left rear discharge #5 shall be plumbed from the pump utilizing 2.5" schedule 10 stainless steel piping. The rear discharge #5 shall be plumbed through a pipe sleeve integrated into the water tank that shall terminate on the rear body panel, on the driver's side, left of center. The discharge valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball and dual polymer seat.

The discharge valve shall be equipped with a straight 2.5" NST adapter that shall be equipped with a 2.5" NST, 30-degree, chrome plated elbow. A 2.5" NST chrome plated pressure vent cap shall be installed on the discharge.

The valve shall be controlled by a push/pull handle located on the operator's panel. The valve shall come with a 10-year warranty covered by Akron Brass.

There shall be a liquid filled individual line pressure gauge provided. The gauge shall be 2.5" in diameter with white face and black lettering and have a pressure range of 0-400 psi. The gauge shall be located adjacent to the control handle.

Discharge #6 – 2.5" Rear Discharge – Center

A 2.5" discharge shall be provided at the rear of the vehicle and located between the left rear and right rear discharges on the rear body panel of the apparatus. The rear center discharge #6 shall be plumbed from the pump utilizing 2.5" schedule 10 stainless steel piping. The rear center discharge #6 shall be plumbed through a pipe sleeve integrated into the water tank that shall terminate on the rear body panel, on the officer's side, right of center. The discharge valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball and dual polymer seat.

The discharge valve shall be equipped with a straight 2.5" NST adapter that shall be equipped with a 2.5" NST, 30-degree, chrome plated elbow. A 2.5" NST chrome plated pressure vent cap shall be installed on the discharge.

The valve shall be controlled by a push/pull handle located on the operator's panel. The valve shall come with a 10-year warranty covered by Akron Brass.

There shall be a liquid filled individual line pressure gauge provided. The gauge shall be 2.5" in diameter with white face and black lettering and have a pressure range of 0-400 psi. The gauge shall be located adjacent to the control handle.

Discharge #7 – 2.5" Right Rear Discharge

A 2.5" discharge shall be provided at the rear of the vehicle and located on the officer's side, on the rear body panel of the apparatus. The right rear discharge #7 shall be plumbed from the pump utilizing 2.5" schedule 10 stainless steel piping. The right rear discharge #7 shall be plumbed through a pipe sleeve integrated into the water tank that shall terminate on the rear body panel, on the officer's side, right of center. The discharge valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball and dual polymer seat.

The discharge valve shall be equipped with a straight 2.5" NST adapter that shall be equipped with a 2.5" NST, 30-degree, chrome plated elbow. A 2.5" NST chrome plated pressure vent cap shall be installed on the discharge.

The valve shall be controlled by a push/pull handle located on the operator's panel. The valve shall come with a 10-year warranty covered by Akron Brass.

There shall be a liquid filled individual line pressure gauge provided. The gauge shall be 2.5" in diameter with white face and black lettering and have a pressure range of 0-400 psi. The gauge shall be located adjacent to the control handle.

Discharge #8 – 2.5" Front Bumper Discharge

A 2.5" discharge shall be provided at the front bumper on the officer's side, plumbed even with the bumper. The front bumper discharge #8 shall be plumbed from the pump utilizing 2.5" schedule 10 stainless steel piping. The front bumper discharge valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball and dual polymer seat.

The discharge outlet shall be equipped with a straight 2.5" NST adapter that shall be equipped with a 2.5" NST, 90-degree swiveling, chrome plated elbow. A 2.5" NST chrome plated pressure vent cap shall be installed on the discharge outlet.

The valve shall be controlled by a push/pull handle located on the operator's panel. The valve shall come with a 10-year warranty covered by Akron Brass.

There shall be a liquid filled individual line pressure gauge provided. The gauge shall be 2.5" in diameter with white face and black lettering and have a pressure range of 0-400 psi. The gauge shall be located adjacent to the control handle.

The discharge valve control, outlet, and corresponding line gauge shall be color-coded green for the front bumper discharge #8.

Deluge Riser Discharge

A 3" deluge riser shall be installed and plumbed from the pump in such a manner that an extendable riser and monitor can be mounted and used effectively. The piping shall be rigidly supported and braced. The riser shall be gated and controlled from the pump operator's' panel.

The discharge shall be in the dunnage area above the pump module. A pedestal type, steel plate support assembly shall be provided to stabilize deck gun plumbing below deck gun mount flange.

The discharge valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball and dual polymer seat.

The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve shall not require the lubrication of seats or any other internal waterway parts and be capable of swinging out of the waterway for maintenance by the removal of six bolts.

The valve shall be controlled by a push/pull handle located on the operator's panel. The valve shall come with a 10-year warranty covered by Akron Brass.

There shall be a liquid filled individual line pressure gauge provided. The gauge shall be 2.5" in diameter with white face and black lettering and have a pressure range of 0-400 psi. The gauge shall be located adjacent to the controls.

The deck gun piping shall terminate with NPT threads.

A hazard warning light shall be installed to warn the driver that the "Deck Gun is Raised".

Akron Monitor

There shall be an Akron Apollo Model 3431 monitor mounted above the pump. This shall be connected to the deluge riser and shall be removable. Quad stacked tips, stream shaper and portable base shall also be provided.

Crosslay #1

A crosslay #1 hose bed shall be provided and plumbed from the pump and located above the pump for quick attack deployment. The crosslay bed flooring shall be designed to be removable, constructed of brushed finish, perforated aluminum material. The crosslay floor shall be a minimum inside diameter of 7.5" and accommodate 250 feet of 1.75" attack hose in a double stack configuration.

The crosslay #1 discharge shall be plumbed with 2" piping from the pump to the hose bed and terminate below the hose bed floor with a 1.5" NSTM chicksan swivel adapter. The hose bed floor shall be slotted to allow the swivel to extend up through the floor, allowing a preconnected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

The crosslay #1 discharge valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball and dual polymer seat.

The valve shall be controlled by a push/pull handle located on the operator's panel. The valve shall come with a 10-year warranty covered by Akron Brass.

There shall be a liquid filled individual line pressure gauge provided. The gauge shall be 2.5" in diameter with white face and black lettering and have a pressure range of 0-400 psi. The gauge shall be located adjacent to the control handle.

The discharge valve control, outlet, and corresponding line gauge shall be color-coded yellow for the crosslay #1.

Crosslay #2

A crosslay #2 hose bed shall be provided and plumbed from the pump and located above the pump for quick attack deployment. The crosslay bed flooring shall be designed to be removable, constructed of brushed finish, perforated aluminum material. The crosslay floor shall be able to accommodate 250 feet of 2.5" attack hose in a double stack configuration.

The crosslay #2 discharge shall be plumbed with 2.5" piping from the pump to the hose bed and terminate below the hose bed floor with a 2.5" NSTM chicksan swivel adapter. The hose bed floor shall be slotted to allow the swivel to extend up through the floor, allowing a preconnected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

The crosslay #2 discharge valve shall be an Akron Heavy-Duty swing out 8000 series brass body with flow optimizing stainless steel ball and dual polymer seat.

The valve shall be controlled by a push/pull handle located on the operator's panel. The valve shall come with a 10-year warranty covered by Akron Brass.

There shall be a liquid filled individual line pressure gauge provided. The gauge shall be 2.5" in diameter with white face and black lettering and have a pressure range of 0-400 psi. The gauge shall be located adjacent to the control handle.

The discharge valve control, outlet, and corresponding line gauge shall be color-coded white for crosslay #2.

Apparatus Body

The body side and compartment assemblies shall be designed and assembled to provide maximum strength and durability under all operating conditions. Special attention shall be taken to minimize corrosion on all fabricated parts and structural members on the body.

The body shall be constructed minimum 1/8" aluminum sheet, #3032 bright aluminum diamond plate, and structural aluminum extrusions. The body shall be of modular design to allow for the proper flexing of the truck chassis. The body shall be custom built and engineered for proper load distribution on the chassis. An insulator material shall be used where aluminum and steel are in contact to prevent corrosion.

The ceilings, sidewalls and floors of the body compartment shall be constructed of minimum 1/8" aluminum with tensile strength range of 32,000 to 44,000 psi. Continuous fill welding shall seal compartment panels.

The body framework shall be constructed of custom-designed aluminum alloy extrusions with a tensile strength of 35,000 psi.

The compartment extrusions shall be slotted full length on backside for uniform fitting of the aluminum plate work that forms the compartment interiors.

The aluminum extrusions profile shall incorporate recessed continuous door seal at the bottom of the compartment. It shall be designed to allow for unobstructed, sweep out floors in all compartments.

Compartment tops shall extend downward over the extrusions and form a drip molding. The material shall be aluminum tread plate with approved aerated service for walking.

Each compartment shall be properly vented with louvers.

The apparatus body shall be a separate module from the pump enclosure and shall not be fastened together in any manner.

Body Protection Panels

The front face of the side compartments, next to the driver and officer pump panel shall be overlaid with full height polished aluminum tread plate protection panels. They shall cover the front face only and not wrap around the door opening.

Running Board Steps

The driver and officer running board steps shall be fabricated of polished aluminum treadplate. The steps shall function as a load-bearing surface, there shall be a heavy steel substructure to ensure that there shall be no flexing or cracking of running boards.

Running Board Trough

A floating hose trough shall be provided in both the drivers and officers side running boards. The trough shall be designed and long enough to hold a 60' section of 5" hose flat loaded. Velcro straps shall be provided to secure the hose.

Rear Body Panel

The rear body panel shall extend the full width between the body side compartments. This panel shall be full height from the rear step to the hose bed floor. No part of the rear panel shall be attached to the water tank. The rear body panel shall be smooth aluminum.

Body Rub Rails

The base of the body shall be equipped with anodized aluminum channel style rub rails that extend the full length of the body. The rub rails shall be polished to a bright finish and be spaced away from the body by spacers.

Backboard & Pike Pole Storage Compartment

There shall be a backboard & pike pole storage compartment installed in the dunnage area of the pump module. The compartment shall be constructed of smooth aluminum and shall accommodate one (1) backboard and four (4) standard pike poles. The backboard storage shall measure approximately 2.75" wide x 20" tall x 78" long. A spring-loaded clip shall be installed near each pike pole storage tube to secure the head of a standard pike pole. A vertically hinged tread plate door shall be installed over the rear opening with T-handle latch, one (1) each side so tools and backboard are accessible from either side.

Body Compartments – Left Side

There shall be three (3) split depth compartments on the left side of the apparatus body, to allow room for the ladder chute.

The first compartment (L1) shall be located ahead of the rear wheels and shall be a minimum of 53" wide x 66" high and a minimum of 24" deep at the bottom, and approximately 10.5" at the top to accommodate the ladder chute.

The second compartment (L2) shall be located above the rear tires and shall be a minimum of 61.5" wide x 36.5" high x 10.5" deep to accommodate the ladder chute.

The third compartment (L3) shall be located behind the rear wheels and shall be a minimum of 53" Wide x 66" high and a minimum of 24" deep at the bottom, and approximately 10.5" at the top to accommodate the ladder chute.

Left Upper Hatch Compartment

There shall be a compartment above the left side body compartments shall be a minimum of 18" wide x 18" deep and long as the left side compartments. Compartment shall feature two (2) aluminum tread plate doors on piano style hinges with LED compartment lights.

Body Compartments – Right Side

There shall be three (3) full-height, full-depth compartments on the right side of the apparatus body.

The first compartment (R1) shall be located ahead of the rear wheels and shall be a minimum of 53" wide x 66" high x 24" deep.

The second compartment (R2) shall be located above the rear tires and shall be approximately 61.5" wide x 36.5" high x 24" deep.

The third compartment (R3) shall be located behind the rear wheels and shall be a minimum of 53" wide x 66" high x 24" deep.

Right Upper Hatch Compartment

There shall be a compartment above the right side body compartments shall be a minimum of 18" wide x 18" deep and long as the right-side compartment. Compartment shall feature two (2) aluminum tread plate doors on piano style hinges with LED compartment lights.

Rear Step Compartment

There shall be a compartment provided at the rear step. The roll up door for this compartment shall be polished, but not painted.

Compartment Lighting

Each compartment shall be equipped with two (2) Amdor H2O LED light strips which shall provide consistent pattern to illuminate the entire compartment.

Roll-Up Compartment Doors

The apparatus body shall be equipped with seven (7) Amdor brand roll up doors. The door slats shall be double wall box frame, manufactured from anodized aluminum. NO EXCEPTION

With the exception of the door on the rear, the roll up doors shall be painted to match exactly the required body color that the fire department specifies. NO EXCEPTION

A brushed plain aluminum finish protection panel shall be installed below the roll-up area to prevent possible damage to the roll-up doors by misplaced equipment.

All doors shall be equipped with a sensor that alerts the driver with both a visual and audible warning that a door is open if the parking brake is released. NO EXCEPTION.

Compartment Shelving

Compartments L1 shall have one “CTECH” storage tool chest with three slide out drawers on the right lower side. The upper portion of the compartment shall have the PAC mounting plates on the back wall for tool mounting.

Compartment L2 shall have a swing out Tool Board.

Compartment L3 shall have two (2) 500-pound rated aluminum trays with adjusting shelf heights.

Compartment R1 shall have one (1) aluminum 500-pound rated slide out drawer and one (1) aluminum adjustable shelf.

Compartment R2 shall have an aluminum 500-pound rated pull out and tilt down shelf.

Compartment R3 will have a center divider. One side of the divider shall have one (1) aluminum vertical slide out. The other side of the divider shall have two (2) aluminum adjustable shelves.

There shall be one 500-pound rated adjustable slide out shelf in the rear A1 compartment.

Hose Bed

The hose bed shall be provided with easily removable aluminum slatted flooring.

The hose bed shall be divided by three (3) 3/16” aluminum partitions that are fully adjustable by sliding in tracks located at the front and rear of the hose bed.

An aluminum two-piece, hinged hose bed cover constructed of aluminum diamond plate and square aluminum extrusion shall be provided for the main hose bed. NO EXCEPTION on aluminum diamond plate cover.

The hose bed shall be configured as low as possible to ensure simple and safe firefighter operations. The bottom of the hose bed floor shall be between 68” and 74” from the ground. NO EXCEPTIONS

The design of the hose bed shall be designed with three (3) hose bed dividers to hold 1200 feet of 5” hose, 200 feet of pre-connected 2.5” hose (single stack), 500 feet of 3” hose (double stack), and one (1) compartment of 300 feet of 1.75” hose (single stack).

One (1) Amdor LED surface mounted strip light shall be provided in the hose bed on the front wall to illuminate the hose bed, with custom hose bed cover.

SCBA Cylinders / Extinguisher Compartment

There shall be one (1) SCBA cylinder compartment, three (3) triple cylinder/fire extinguisher compartments located in the rear fender wells of the apparatus body.

Recessed Rear Step

A recessed step that will serve as a landing to access the top of the hose bed shall be located in the upper section of the rear of the body above the climbing ladder on the right rear. The recessed area shall be approximately 18” deep x 18” wide x 12” high.

Steps and Handrails

All steps and handrail location, number and size shall meet or exceed NFPA 1901.

There shall be fold down steps mounted on each side of the front face of the body to provide access to the top of the pump module and dunnage area.

The left and right rear of the body shall be equipped with folding large lighted steps to provide a stable footing position to provide access to the hose bed.

There shall be two (2) vertical handrail mounted on the rear of the body. One (1) on the left, outside of the folding steps and one (1) on the right, outside the folding steps.

There shall one (1) horizontally mounted handrail above the pump panel on the driver’s side and one (1) horizontally mounted handrail above the pump panel on the officer’s side.

Extended Rear Step

The extended rear step shall be 18” deep, extended beyond the body compartments. The step shall be as wide as the apparatus, with tapered corners for better clearance. The step shall be fabricated from polished aluminum tread plate and shall be rigidly reinforced.

Rear Wheel Well Liners

Fully removable, bolt in aluminum fender liners shall be provided. The wheel well liners shall extend from the outer wheel well body panel, into the truck frame. The completely washable

fender liners shall be designed to protect the front and rear compartments and main body supports from road grime, dirt accumulation and corrosion.

Rear Fenderettes

The single rear fenders shall be equipped with polished stainless steel fenderettes.

Ladders, Ladder Chute, and Storage

The apparatus shall be equipped with the following ladders;

One (1) Duo-Safety Series 24' two-section aluminum extension ladder.

One (1) Duo-Safety Series 14' aluminum roof ladder.

One (1) Duo-Safety Series 10' folding attic ladder.

NO EXCEPTION on ladder brand.

The ladders shall be accessed from the rear and shall be located in a chute compartment that shall be mounted behind the LEFT upper compartments in an area accessible from the rear of the apparatus. The ladders shall be stored on their beams and individually located in holders lined with anti-wear strips. An aluminum diamond tread plate door shall enclose the ladders at the rear. The chute shall be fully enclosed to protect the ladders and equipment from road debris. The chute shall also have storage for two (2) pike poles.

Headlights / Front Turn Signals

All exterior lighting and reflectors shall meet or exceed Federal Motor Vehicle Safety Standards and NFPA 1901. There shall be dual FireTech FT-4x6-4KIT LED headlights in custom housing mounted to each side of the front of the cab. The LED headlights shall be high and low beam and be long lasting and able to withstand shock and vibration. There shall be two (2) Whelen M6 Series LED rectangular amber turn signal lights mounted to each side of the headlight housing.

The headlights shall have an alternating flash feature for emergency response use.

Clearance Lights

There shall be DOT approved LED marker lights and reflectors to meet or exceed Federal Motor Vehicle Standards and NFPA placed on apparatus. The marker lights shall be amber on the front and red on the rear, and properly identify the vehicle as required by the standards.

Tail/Stop/Turn/Backup Lights

The combination brake/tail lights/turn signal/backup lights are to meet or exceed Federal Motor Vehicle Safety Standards and NFPA 1901 and be mounted in a custom housing on the rear of the apparatus. The combination lights shall be Whelen M6 series LED lights. The turn signal shall have an amber arrow.

Back-Up Alarm

An automatic electronic back-up alarm shall be installed at the rear of between the frame rails. It shall operate when the transmission is placed in reverse.

Ground Lighting

The apparatus shall be equipped with lighting capable of meeting or exceeding the illumination requirements of NFPA 1910 13.10. Ground lights shall be Amdor H2O LED ground lights. Lighting shall be provided under the driver and crew riding area exits and shall be automatically activated when the cab doors are opened, all other work areas, steps, and walkway ground lighting shall activate when the parking brake is applied. There shall also be a two rocker switches, one (1) within close proximity of the driver and one (1) on the officer's side that can also turn on ground lighting. There shall also be two (2), one both sides under the pump panels, one (1) under L1, one (1) under R1, one (1) under L3, and one (1) under R3.

Brow Mounted LED Scene Light

One (1) HiViz LEDs FireTech Brow light model FT-B-72-ML-3PKIT surface mounted LED scene light shall be provided. The lamp head shall operate at 277 watts, 12 volts DC, draw 23 amps, and generate 29,900 lumens of light. The housing color of the light shall be white. The light shall be mounted at the front brow of the cab and shall be controlled from rocker switches located in close proximity of the driver as well as rocker switches located in close proximity of the officer. The light shall be set up with switches to allow for each section to be turned on individually or all together.

Surface Mounted LED Scene Lights

Eight (8) FireTech Guardian Elite FT-GESM surface mounted LED scene lights shall be provided. Two of the lights shall be mounted one (1) each side of the cab at the top portion of the raised roof between both cab doors. Two (2) of the lights shall be located one (1) each side on the front upper body drivers and officer side. Two (2) of the lights shall be located one (1) each side on the rear upper body drivers and officer side. Two (2) of the lights shall be located on the rear one (1) each side below the emergency warning lights. In addition, the two rear lights shall activate when the transmission is placed into reverse.

Three (3) switches shall be provided to activate the scene lights, one (1) shall be located in close proximity of the driver, one (1) shall be located in close proximity of the officer, and one (1) shall be located on the pump operator's panel. NO EXCEPTION

Emergency Warning Lighting

The visual warning system shall be capable of two separate signaling modes during emergency operations. One mode shall signal drivers and pedestrians that the apparatus is responding and is

asking for the right-of-way and the other mode shall signal that the apparatus is stopped and is blocking the right-of-way.

A momentary rocker switch shall be provided near the driver and labeled Master Emergency to activate all visual warning devices provided. All lights shall operate at not less than the minimum flash rate per minute as specified by NFPA.

The upper and lower level warning shall be divided into zones A (front), zone B (officer's side), zone C (rear) and zone D (driver's side).

Upper Zone A shall have a Whelen Freedom Edge Series IV. 72" cab roof warning light bar which shall be rigidly mounted on the top of the cab roof. The light bar shall be equipped with clear lenses and have two (2) front corner red linear LEDs, ten (10) red forward-facing linear LEDs, two (2) white forward-facing linear LEDs, and two (2) red end linear LEDs. The forward-facing white lights shall be automatically disabled when the vehicle transmission is in park and the vehicle in in the blocking the right-of-way mode.

Four (4) Whelen M9 super LED light heads shall be mounted two (2) each side on the upper side face, one (1) towards the front of the body and one (1) towards the rear of the body, facing to each side of the unit. Each light head shall be equipped with red LEDs and clear lens. The light heads shall be installed with a chrome plated mounting flange.

Upper Zone C shall have two (2) Whelen M9 super LED light heads mounted one (1) each side on the upper rear face of the body, facing rear. One (1) light head shall be equipped with red LEDs and clear lens and be located on the officer's side. One (1) light head shall be equipped with amber LEDs and clear lens and be located on the officer's side. The light heads shall be installed with a chrome plated mounting flange.

Lower Zone A shall have four (4) Whelen M6 Super red LED with clear lens warning lights installed two (2) each side on the front of the cab. The lights shall have a bezel trim and be mounted in chrome plated warning light housings.

Lower Front Zone B & D shall have two (2) Whelen M6 Super red LED Super red LED with clear lens warning lights installed one (1) each side on the front corner of the cab. The lights shall have a bezel trim and be mounted in chrome plated warning light housings.

Two (2) Whelen M6 super LED light heads shall be mounted one (1) each side above the front tires on the cab between the front and rear cab doors. Each light head shall be equipped with red LEDs and clear lens. The light heads shall be installed with a chrome plated stainless steel mounting flange.

Lower Rear Zone B & D shall have four (4) Whelen M6 super LED light heads mounted two (2) each side of the rear tires. Each light head shall be equipped with red LEDs and clear lens. The light heads shall be installed with a chrome plated stainless steel mounting flange.

Lower Zone C shall have two (2) Whelen M6 super LED light heads mounted one (1) each side below the tail/brake/turn cluster. Each light head shall be equipped with red LEDs and clear lens. The light heads shall be installed with a chrome plated stainless steel mounting flange.

Painting

The cab and shall be one (1) color of red. The specific paint color code will be specified at pre-build. The specific paint color code which will match the cab will be specified at pre-build.

The frame rails and the subframe shall be painted black.

Lettering and Striping

A white 6" Scotchlite stripe bordered by two (2) 2" stripes, one each side of the 6" stripe shall be provided across the front of the cab and along each side of the apparatus. The exact design of the stripes will be determined at the pre-build conference.

The side panels above the side compartments shall have reflective letters. The exact design and layout will be determined at the prebuild conference.

22KT Gold laminate gold-leaf letters, with left hand shading and right-hand outline shall be provided on the driver's and officer's doors.

Full color department logo shall be centered on both rear crew doors.

Chevron Striping, Rear Body

The apparatus shall have 6" red and yellow reflective Orafol Reflexite Chevron style striping affixed to the outboard rear body panels. The striping will be set in a manner to have the effect of an inverted V shape.

Wheel Chocks

Two (2) Ziamatic SAC-44-E folding wheel chocks with holders shall be provided and mounted one (1) in front of the rear tires and one (1) behind the rear tires and be easily accessible from the side of the apparatus.

Loose Equipment List

The department has budgeted for loose equipment. The successful bidder will be given a list of the loose equipment that is to be purchased with this apparatus.