

Troup County Fire Department Minimum Engine Specifications

Intent of Specifications

It is the intent of these specifications to clearly describe the furnishing and delivery to Troup County, a complete apparatus equipped as specified. The primary objective of these specifications is to obtain the most acceptable apparatus for service in the Fire Department. These specifications cover specific requirements as to the type of construction and tests the apparatus must conform, together with certain details as to finish, material preferences, equipment and appliances with which the successful bidder must conform.

Construction must be heavy-duty and ample safety factors must be provided to carry loads as specified. The construction method employed will be in such a manner as to allow ready removal of any component for service or repair.

The apparatus shall conform to the National Fire Protection Association Standard for Automotive Fire Apparatus, number 1901, in its most recent edition, unless otherwise specified in this document. Only the specified firefighting support equipment listed in these specifications shall be provided.

Each bid must be accompanied by a set of detailed contractor's specifications consisting of a detailed description of the apparatus and equipment proposed. These specifications shall include size, location, type, and model of all component parts being furnished. Detailed information shall be provided on the materials used to construct all facets of the apparatus body. Any bidder who fails to submit detailed construction specifications, or who photo copies and submits these specifications as their own construction details will be considered non-responsive and shall render their proposal ineligible for award. No exception.

All bidders are required to detail the payment terms for apparatus on the bidder's proposal page. Any required prepayments or progress payments must be explained in detail on the proposal page

Inspection Trip(s)

The bidder shall provide two (2) factory inspection trips. One (1) for pre-construction and one (1) for final inspection for (2) Troup County personnel at the factory. The inspection trips shall be scheduled at times mutually agreed upon between the manufacturer's representative and the customer. All cost such as travel, lodging and meals shall be the responsibility of the bidder.

ISO Compliance

The manufacturer shall operate a Quality Management System meeting the requirements of ISO 9001:2000.

Single Source Manufacturing

In order to protect Troup County from divided warranty responsibility between chassis and body manufacturers, proposals will only be accepted from apparatus builders who design, fabricate, and assemble the complete apparatus at their own facilities. This shall include the cab shell, chassis assembly, and complete body structure. Private labeling of another manufacturer's chassis will not meet the requirements of this section. No exception.

Certificate of Insurance

Each bidder shall furnish, with their proposal, a Certificate of Product Liability Insurance for a minimum of thirty (30) million dollars. Failure to provide this documentation shall render the proposal non-responsive and the bid shall be rejected. This certificate shall be from the prime builder only. Certificates submitted from various sub-contractors in order to total the thirty million dollar minimum will not be acceptable as meeting the requirements of this section.

The Certificate must be made out to the Purchaser and must be original. Submission of a non-original Certificate or a Certificate provided that is not made out to the Purchaser will not meet the requirements of this section.

Exceptions

The following apparatus specifications are considered minimum design and construction standards against which the apparatus will be inspected. It is the intent to receive proposals on equipment/apparatus meeting the attached minimum specifications in their entirety. Any proposals being submitted, without "Full Compliance" with these specifications shall so state on the bid proposal page, followed by a detailed "Letter of Exceptions" listing the areas of non-compliance and those areas that exceed minimum specifications. The reference must include page number, paragraph, and the exact nature of the exception.

Hose Bed Capacity

The hose bed shall have the capacity to store the following hose from the driver side to the officer side. 1500' 3" DJ hose; 200' 2 1/2" DJ hose.

NFPA Compliance

The supplied components of the apparatus shall be compliant with NFPA 1901, 2016 edition.

Front Bumper

The vehicle shall be equipped with a one-piece 10" high bumper made from 10 gauge (0.135" nominal) polished stainless. It shall be mounted directly to the front frame extensions and shall incorporate two (2) stiffening ribs.

The bumper shall be extended approximately 18" to 20" from the face of the cab as required.

The extended front bumper gravel shield shall be made of 3/16" (.375") aluminum tread plate material.

The center bumper tray shall have a diamond plate lid. The lid shall be hinged and include a D-Ring latch, rubber seal and held open with a pneumatic shock.

A hose tray constructed of 1/8" aluminum shall be recessed into the front bumper extension. The tray shall be located in the center of the bumper and have a capacity of 150' of 1.75" DJ hose.

The center bumper tray floor shall be covered with a heavy duty Black floor matting.

Frame Assembly

The frame shall consist of two (2) C-channel frame rails with heavy-duty cross-members. Each frame rail shall have the following minimum specifications in order to minimize frame deflection under load and thereby improve vehicle ride and extend the life of the frame:

Dimensions: 10-1/4" x 3-1/2" x 3/8"

Material: 110,000-psi minimum yield strength, high strength, low alloy steel

Section Modulus: 16.00 cu. in. minimum

Resistance to Bending Moment (RBM): 1,820,000 in. lbs. minimum

There shall be a minimum of six (6) cross-members joining the two (2) frame rails in order to make the frame rigid and hold the rails/liners in alignment. The cross-members shall be a combination of a formed steel C-channel design along with heavy duty steel fabricated designs as required for the exact chassis configuration.

The frame rails shall be hot-dip galvanized and powder coated for improved corrosion resistance. The galvanization shall be a minimum of 4 mils thick and done in accordance with ASTM A123. The powder coat shall be 6.5 mils thick (+/- 1.5 mils) and pass ASTM D3359 testing.

A full-length frame "C" liner shall be provided.

Coated Fasteners

The custom chassis frame assembly shall be assembled using coated fasteners for corrosion resistance.

Shock Absorbers Front

Heavy duty shock absorbers shall be provided for the front axle.

Front Axle Oil Seals

The front axle shall have oil seals with sight glass to check the lubricant level of the axle spindles.

Rear Axle

The vehicle shall be equipped with an ArvinMeritor or Dana single rear axle with single-reduction hypoid gearing and a manufacturer`s rated capacity of 31,000 lbs. The axle shall be equipped with oil-lubricated wheel bearings with oil seals.

Front Axle

The vehicle shall utilize an ArvinMeritor or Dana front axle with a rated capacity of 18,000 lbs. minimum.

The front springs shall be parabolic tapered, minimum 4” wide x 54” long (flat), minimum 3 leaf, progressive rate with bronze bushings and a capacity of 18,000 lbs. minimum at the ground.

Rear Suspension

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

Wheels

The wheels shall be steel hub-piloted disc sized appropriately for the tires.

Wheel Trim Package

All wheels shall have lug nut covers with mirror finish and universal baby moons.

Valve Stem Extensions

Each inside rear wheel on the rear axle shall have valve extensions.

Tires

Rear tires shall be Goodyear 12R22.5 tubeless type "H" range radial tires with Endurance RSA highway tread rated for maximum axel load and 68 mph maximum speed.

The front tires shall be Goodyear tubeless type "J" range radial tires with G296 MSA highway tread rated for maximum axel load and 68 mph maximum speed.

Tire Pressure Indicators

The apparatus shall be provided with Real Wheels AirGuard LED tire pressure indicating valve stem caps.

Front Brakes

The front axle shall be equipped with 17 inch disc brakes.

Rear Brakes

The rear axle shall be equipped with 16-1/2" x 7" minimum S-cam brakes. The rear axle brakes shall be furnished with automatic slack adjusters.

Brake System

The vehicle shall be equipped with air-operated brakes and an anti-lock braking system (ABS). The brake system shall meet or exceed the design and performance requirements of the current Federal Motor Vehicle Safety Standard (FMVSS)-121, and the test requirements of the current NFPA 1901 Standard.

The braking system shall be provided with a minimum of three (3) air tank reservoirs for a total air system capacity of a sufficient volume of air to comply with FMVSS-121.

Manufactures shall provide air tank capacity with proposal.

Spring-actuated emergency/parking brakes shall be installed on the rear axle.

Park Brake Release

One (1) parking brake control valve shall be supplied on the lower dash panel within easy reach of the driver.

Air Dryer

The chassis air system shall be equipped with an air dryer.

Air Inlet

A 1/4" brass quick-release air inlet with a male connection shall be provided. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging air directly into the wet tank of the air brake system. It shall be located driver door jamb.

Air Lines

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

Air Horns

Dual Grover air horns shall be provided, connected to the chassis air system. The horns shall be mounted through the front bumper.

Transmission Fluid

The transmission fluid shall be TranSynd, Shell Spirax S6ATF A295, or equivalent synthetic.

Vehicle Speed

The maximum speed shall be electronic limited to 68 MPH as required by NFPA 1901.

Engine/Transmission Package

Engine

The vehicle shall utilize a Cummins L9 engine with 450 maximum horsepower at 2100 rpm, 1250 lb-ft peak torque at 1400 rpm

Transmission

The vehicle shall utilize an Allison EVS3000P, electronic, 5-speed automatic transmission.

A push button shift module shall be located within easy reach of the driver.

Automatic Shift to Neutral

The transmission shall be programmed to comply with NFPA 1901 and automatically shift to neutral upon application of the parking brake.

Jacobs Engine Brake

One (1) Jacobs engine brake shall be installed to assist in slowing and controlling the vehicle as required by NFPA 1901. An on-off control switch and a high-medium-low selector switch shall be mounted in the cab accessible to the driver.

Transmission Programming

The transmission shall include the Allison 2nd gear Pre-Select feature. This option will direct the transmission to down shift to second gear when the throttle is released and the Jacobs engine brake is engaged.

Engine Cooling Package

The cooling system shall include an aluminum tube-and-fin radiator with a minimum total square inches of frontal area to ensure adequate cooling under all operating conditions.

State the cooling capacity in square inches of the proposed apparatus: _____

Silicone Hoses

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

Coolant

The cooling system shall be filled with a 50/50 mixture of water and antifreeze/coolant conditioner to provide freezing protection to minus 40 (- 40) degrees F for operation in severe winter temperatures.

Coolant Recovery

There shall be a coolant overflow recovery system provided.

Charge Air Cooler System

The system shall include a charge air cooler to ensure adequate cooling of the turbocharged air for proper engine operation and maximum performance.

Charge Air Cooler Hoses

Charge air cooler hoses shall be made from high-temperature, wire-reinforced silicone to withstand the extremely high temperatures and pressures of the turbocharged air. Charge air cooler hose clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures. NO EXCEPTION

Fan/Shroud

Provide fan/shroud specifications with proposal. (page): _____

Transmission Cooler

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

Engine Cooler

A water to water type heat exchanger shall be provided to lower the chassis engine water temperature during prolonged pumping operations.

Fuel System

One (1) 65 gallon fuel tank shall be provided. The fuel tank shall be equipped with a 2" diameter filler neck. The filler neck shall extend to the rear of the vehicle behind the rear tires and away from the heat of the exhaust system as required by NFPA 1901

A fuel pump shall be provided and sized by the engine manufacturer as part of the engine.

Fuel Shut-Off

A shut-off valve shall be supplied to prevent drain back of fuel into the main supply line during filter changes. The valve(s) shall be located: one (1) at fuel tank.

Fuel Line

All fuel lines shall be rubber.

320 Amp Alternator

There shall be a 320 amp Leece Neville alternator installed as specified. The alternator shall be a Leece Neville 4890JB series brushless type with integral rectifier and adjustable voltage regulator with an output of 272 amps per NFPA 1901 rating (320 amps per SAE J56).

Battery System

The manufacturer shall supply four (4) heavy duty Group 31 12-volt maintenance-free batteries. The batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for extended operation.

One (1) positive and one (1) negative jumper stud shall be provided.

Engine Fan Clutch

The engine shall be equipped with a thermostatically controlled engine cooling fan. The fan shall be belt driven and utilize a clutch to engage when the engine reaches a specified temperature and / or the water pump is engaged.

Drivelines

Drivelines shall have a heavy duty metal tube and shall be equipped with Spicer 1710HD universal joints to allow full-transmitted torque to the axle(s). Drive shafts shall be axially straight, concentric with axis and dynamically balanced.

Rear Tow Capability

A means to tow the vehicle from the rear shall be included. This can be either tow eyes or a tow bar.

Front Tow Hooks

Two (2) heavy duty stainless steel front tow hooks shall be securely attached to the front chassis frame rails to allow towing (not lifting) of the apparatus without damage.

DEF Tank

A diesel exhaust fluid (DEF) tank with a five (5) gallon capacity shall be provided and include a gauge in the cab.

Power Steering Cooler

A heat exchanger (cooler) shall be installed to maintain desired power steering fluid temperature.

Cab

The vehicle shall include an all-welded aluminum and fully enclosed tilt cab. The cab shall be designed exclusively for fire/rescue service and shall be pre-engineered to ensure long life. The cab shall have a front axel to rear of cab length of 58" to 62"

It is not the desire of Troup County to utilize anyone's "entry level" cab. If the manufacturer designs and builds more than one level of quality of cab, they should rank them in order and show where their proposed cab lies on the level of quality.

Cab Model Proposed: _____

Method of Construction: _____

Material Used in Construction:

Cab Side Walls: _____

Cab Rear Wall: _____ (overlays are not to be counted for this item)

Cab Door skin Thickness: _____

SAE Crashworthiness for proposed cab model? YES / NO

Certificates Attached? YES / NO

Pages which outline the cab construction and material: _____

Cab Mounts and Cab Tilt System

The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements. Mounting points shall consist of two (2) forward-pivoting points, one (1) on each side; two (2) intermediate rubber load-bearing cushions located midway along the length of the cab, one on each side; and two (2) combination rubber shock mounts and cab latches located at the rear of the cab, one (1) on each side.

An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one (1) on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation.

Cab Interior

The interior of the cab shall be of the open design with an ergonomically-designed driver area that provides ready access to all controls as well as a clear view of critical instrumentation.

The engine cover between the driver and the officer shall be a low-rise contoured design to provide sufficient seating and elbow room for the driver and the officer. The overall height of the engine enclosure shall be designed to be as low as possible when measured from the floor and its width should provide for maximum hip and elbow room for the driver and officer. Provide page number with engine cover specifications. _____

The rear portion of the engine cover shall be provided with a lift-up section to provide easy access for checking transmission fluid, power steering fluid, and engine oil without raising the cab. All cab floors shall be covered with a black rubber floor mat that provides an aggressive slip-resistant surface in accordance with current NFPA 1901.

Equipment installation provisions shall be installed on the engine tunnel. A smooth aluminum plate shall be bolted to the top surface of the engine tunnel with 1" spacers.

A measurement of floor-to-ceiling height shall be provided in the front seating area of the cab and a measurement of floor-to-ceiling height shall be provided in the rear seating area.

A measurement of the floor area in front of the front seat pedestals side to side and front to rear for the driver and the officer shall be provided.

Pages which outline the cab measurements: _____

Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab.

The interior of the cab shall be insulated to ensure the sound (dbA) level for the cab interior is within the limits stated in the current edition of NFPA 1901.

The vehicle shall use a tilt and telescopic steering column to accommodate various size operators. An 18" padded steering wheel with a center horn button shall be provided.

Cab Doors

There shall be reflective signs on each cab door in compliance with all NFPA requirements.

Four (4) side-opening cab doors shall be provided. Doors shall be constructed of a 3/16" (0.188") aluminum plate outer material with an aluminum extruded inner framework to provide a structure that is as strong as the side skins.

Cab Instruments and Controls

Windshield wipers with separate electric motors shall be provided for positive operation. Cab controls shall be located on the cab instrument panel in the dashboard on the driver's side where they are clearly visible and easily reachable. Emergency warning light switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided:

- Master battery switch/ignition switch (rocker with integral indicator)
- Starter switch/engine stop switch (rocker)
- Heater and defroster controls with illumination
- Marker light/headlight control switch with dimmer switch
- Self-canceling turn signal control with indicators
- Windshield wiper switch with intermittent control and washer control
- Master warning light switch
- Transmission oil temperature gauge
- Air filter restriction indicator
- Pump shift control with green "pump in gear" and "o.k. to pump" indicator lights
- Parking brake controls with red indicator light on dash
- Automatic transmission shift console
- Electric horn button at center of steering wheel
- Cab ajar warning light on the message center enunciator

Controls and switches shall be identified as to their function by backlit wording adjacent to each switch, or indirect panel lighting adjacent to the controls.

Fast Idle System

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

Electrical System

The cab and chassis system shall have a centrally located electrical distribution area. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An automatic thermal-reset master circuit breaker compatible with the alternator size shall be provided. Automatic-reset circuit breakers shall be used for directional lights, cab heater, battery power, ignition, and other circuits. An access cover shall be provided for maintenance access to the electrical distribution area.

(2) Two 6 place, constantly hot fuse panels and ground for customer-installed radios and chargers shall be provided with (1) behind the officer's seat and (1) in the right rear compartment. Radio suppression shall be sufficient to allow radio equipment operation without interference.

A Vehicle Data Computer (VDC) shall be supplied within the electrical system to process and distribute engine and transmission Electronic Control Module (ECM) information to chassis system gauges, the message center, and related pump panel gauges. Communication between the VDC and chassis system gauges shall be through a 4 wire multiplexed communication system to ensure accurate engine and transmission data is provided at the cab dash and pump. The VDC shall be protected against corrosion, excessive heat, vibration, and physical damage.

Cab Crashworthiness Requirement

The apparatus cab shall meet and/or exceed relevant NFPA 1901 load and impact tests required for compliance certification with the following:

Side Impact Dynamic Pre-Load per SAE J2422 (Section 5).

Frontal Impact per SAE J2420.

The cab shall meet all requirements to the above cab crash worthiness; **NO EXCEPTIONS.**

A copy of a certificate or letter verifying compliance to the above performance by an independent, licensed, professional engineer shall be provided upon request.

For any or all of the above tests, the cab manufacturer shall provide either photographs or video footage of the procedure upon request.

Seat Mounting Strength

The cab seat mounting surfaces shall be third party tested and in compliance with FMVSS 571.207.

Seat Belt Anchor Strength

The cab seat belt mounting points shall be third party tested and in compliance with FMVSS 571.210.

ISO Compliance

The manufacturer shall ensure that the construction of the apparatus cab shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer`s Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus cab that is built to exacting standards, meets the customer`s expectations, and satisfies the customer`s requirements.

Raised Roof

The rear portion of the cab roof shall be raised 10-12”.

Cab Grille

The front cooling air intake grille shall be constructed of stainless steel mesh and supported by a polished stainless steel frame.

Cab Rear Door Windows

The rear cab door windows shall be manually operated to raise and lower.

Cab Front Door Windows

The front windows of the cab shall be manually operated to raise and lower.

Cab Door Locks

The cab shall have keyed door locks provided on exterior doors to secure the apparatus.

Cab Door Panels

The inner door panels shall be made from 14 gauge brushed finish stainless steel for increased durability. The cab door panels shall incorporate an easily removable panel for access to the latching mechanism for maintenance or service.

Cab Door Exterior Latches

All cab doors shall have heavy duty exterior door latches.

Cab Door Reflective Material

Reflective Red/Fluorescent Yellow Green 3M Diamond Grade material striping shall be supplied on each of the cab doors. The stripes shall run from the lower outer corner to the upper inside corner of the panel, forming an "A" shape when viewed from the rear. The material shall meet NFPA 1901 requirements for size (96 square inches) and reflectivity.

Cab Door Area Lighting

There shall be four (4) clear LED lights provided to illuminate the cab step well area. Each light shall be activated by the cab door ajar circuit.

Cab Mirrors

Two (2) west coast style mirrors shall consist of a large 7" x 16" flat and 4" x 6" wide angle convex with stainless steel break-away mounts. The adjustment of the main sections of the mirror and the heater control shall be through switches accessible to the driver.

Cab Canopy Windows

There shall be a fixed window provided between the front and rear doors on the driver's and officer's side of the cab.

Window dimensions shall be a minimum of 18"W x 20"H

Handrails

Cab door assist handrails shall be installed at each cab door entrance.

Rear Cab Wall Construction

The rear cab wall shall be constructed with the use of 3/16" aluminum diamond plate.

Air Conditioning

The vehicle shall be equipped with Air Conditioning and have controls within reach of the driver and officer.

Complete specs of the HVAC System proposed shall be included with the proposal specifications. These can be found on pages: _____ of the proposal.

Seating

All seats shall be Seats, Inc. 911 or Bostrom. Seats shall have cloth material covers. Both driver's and officer's seats shall be air ride.

Seating for six (6) shall be supplied:
 Driver, Officer, Rear Facing Driver's Side, Rear Facing Officer's Side, and two (2) rear wall flip down attendant seat.

The manufacturer shall provide a proposal to locate all SCBA's in a location other than the cab seats. If no acceptable alternative is provided, the Rear Facing Driver's side and Rear Facing Officer's side seats will be Seats Incorporated 911 SCBA seats equipped with a "Hands-Free" auto clamp style bracket in its backrest. Brackets with manual restraints shall not be acceptable.

Medical Cabinet

There shall be a medical cabinet forward facing on the rear wall of the crew cab. The medical cabinet shall be floor to ceiling in height and as wide as possible allowing adequate room for occupants in the fold down seats. The depth will allow movement between the engine cover and the cabinet.

The manufacturer provided dimensions are located on page: _____

Three (3) vertically adjustable shelves shall be provided and installed in the medical cabinet. There shall be a locking roll up door provided to secure contents.

There shall be (1) white LED strip light installed on the left side of the interior cabinet door opening and (1) white LED strip light installed on the right side of the interior cabinet door opening. The lighting shall be controlled by an automatic door switch.

Medical cabinet shall have a finish to match the cab.

Cab Interior Color

Cab instrument panel, overhead console, trim panels, headliner, and door panels shall be gray.

Computer Tray

A universal mounting base for laptop computers shall be provided for the officer's position to act as a writing surface or laptop computer rest.

Sun Visors

Translucent sun visors shall be provided for the driver and officer.

Cab Dash

All cab dash areas shall be constructed of aluminum. The dash at both sides and the center shall be aluminum painted to match the cab interior. Dash panels made of aluminum shall not be accepted.

Overhead Console

A full-width front overhead console shall be mounted to the cab ceiling for placement of siren/radio heads and for warning light switches.

Cab Dome Lights

An LED dome light assembly with one (1) white lens and one (1) red lens shall be installed. The white light shall activate with appropriate cab door and light assembly switch, the red light activates with light assembly mounted switch only.

There shall be two (2) mounted in the front of the cab, one (1) in the driver and one (1) in the officer ceiling. There shall be two (2) mounted in the rear of the cab, one (1) in the driver side and one (1) in the officer side ceiling.

Q2B Switch, Officer's Dash

A heavy duty metal push-button switch shall be installed on the officer's side dash to operate the Q2B siren.

Auto-Eject Battery Charger Receptacle

The battery charger receptacle shall be Auto-Eject

Horn Button Switch

A two (2) position rocker switch shall be installed in the cab accessible to the driver and properly labeled to enable operator to activate the OEM traffic horn or air horn from the steering wheel horn button.

Air, Horns Switch Officer's Side

A heavy-duty metal push-button switch shall be installed on the officer's side dash to operate the air horns.

Headlights

The front of the cab shall have four (4) LED headlights. The headlights shall be mounted on the front of the cab in the lower position. The headlights shall be day time operational.

Battery Charger/Air Compressor

A 40amp battery charger and air compressor with automatic battery charger shall be installed.

Antenna Base

There shall be (2) standard "NMO" type antenna bases mounted on the cab roof with a weatherproof connector. High efficiency, low loss coaxial cables routed to the instrument panel area.

Cab Turn Signals

There shall be a pair of Whelen M6 LED (Light Emitting Diode) turn signal light heads with populated arrow pattern and amber lens mounted upper headlight bezel and wired with weatherproof connectors.

DPF Regeneration Override

A momentary override switch shall be provided for the Diesel Particulate Filter (DPF) regeneration. The switch will inhibit the regeneration process until the switch is reset or the engine is shut down and restarted. The switch shall be located within reach of the driver.

Body Construction

The body shall be constructed entirely of aluminum. The body shall be constructed of heavy duty aluminum. Consideration shall be made to construction which will provide the greatest life expectancy and strength. Detailed specifications of body construction can be found on pages _____ of the proposal specifications.

The body shall have seven (7) compartments minimum. Each compartment will have a minimum capacity of 500 lbs. This apparatus shall be multi-purpose, and may require that all SCBA be stored in a body compartment, so compartment space shall be judged at a premium.

There shall be five (5) adjustable shelves and three (3) slide-out floor mounted trays provided. The shelves and trays shall have a capacity of 500 lbs.

There shall be one (1) swing out tool board provided. The tool board shall have a capacity of 400 lbs.

Driver's Side Compartments
(Width x Height x Depth)
upper and lower if split depth

Officer's Side Compartments
(Width x Height x Depth)
To Be Split Depth (due to ladder tunnel)

L1: _____ cu. Ft. _____

R1: _____ cu. Ft. _____

L2: _____ cu. Ft. _____

R2: _____ cu. Ft. _____

L3: _____ cu. Ft. _____ R3: _____ cu. Ft. _____

Rear Compartment: _____ cu. Ft. _____

Total Usable Compartment Space (this does not include ladder tunnel, hosebed, crosslay/speedlay storage, or any pump module dunnage area)

_____ cubic feet

Bidder shall state the proposed location for four (4) SCBA in brackets in a body compartment.

Ladder Storage Tunnel

A tunnel shall be supplied on the officer's side of the body between the water tank and upper compartments. The tunnel shall hold a 24' extension ladder, a 14' roof ladder with hooks, a 10' folding attic ladder with shoes, two (2) 10' pike poles, and one backboard. The tunnel shall be configured such that the ladders do NOT protrude into the pump module area.

Tailboard Step

A tailboard step shall be provided at the rear of the body. The tailboard shall be in accordance with NFPA in both step height and stepping surface. The maximum rear step height to the tailboard shall not exceed 24". This shall be detailed in the proposal specifications and on the proposal drawing.

Rear Access Handrails

Handrails shall be provided at the rear of the body to assist ground personnel accessing the tailboard step and hosebed area in accordance with NFPA Requirements.

Roll Up Compartment Doors

Each compartment shall include a roll-up door including a guard/drip pan designed to protect the roll-up door from damage when in the retracted position. Roll up doors shall be painted to match body. Amdor or ROM doors are preferred. Proposer shall state the type of the roll-up doors in their proposal. Roll-up door info is found on pages _____ of the proposal specifications.

Runningboard Suction Trays

A running board suction hose storage tray shall be provided each in the driver side running board and officer side running board. The bottom of the tray shall have removable aluminum slats and drain holes to allow water drainage from hose stored in the tray. Bidder shall state the method of restraint provided in accordance with NFPA.

Hose Bed Cover

A cover constructed of Black 18 oz. PVC vinyl coated polyester shall be installed over the apparatus hose bed.

Rear Hose Bed Cover

A cover constructed of heavy-duty black nylon cargo netting shall be installed at the rear apparatus hose bed. The bottom of the cargo netting shall be mechanically attached to the hose bed. The cover shall be attached to comply with the latest edition of NFPA 1901.

Speedlay Cover - Sides

A pair of covers constructed of heavy-duty black nylon cargo netting shall be installed over the side openings of the apparatus speedlay. One pair per opening shall be provided.

The covers shall be secured in place to comply with the latest edition of NFPA 1901.

Pump Module

A pump module shall be provided and located forward of the body. The pump module design and mounting shall be separate from the body to allow the pump module and body to move independently of each other in order to reduce stress from frame twisting and vibration. Bidder shall state the material used to construct the pump module. If the pump module is constructed of steel, all steel members, both inside and outside of the pump module, shall be painted so that they will not rust.

Running Boards

The pump module shall include a running board on each side of the pump module. The running boards shall be in accordance with NFPA in both step height and stepping surface. The maximum step height to each running board shall not exceed 24".

Pump Panels

The driver and officer side pump panels shall have a black painted finish.

Hinged Gauge Panel

The driver side upper gauge panel(s) shall be hinged to provide access to panel mounted electrical connections.

Pump Access Door

The officer side pump module shall include an upper horizontally-hinged pump access door.

The door shall have a painted finish the same color as the pump panels and of the same material.

Pump Panel Tags

Color coded pump panel labels shall be supplied to be in accordance with NFPA 1901 compliance.

Hose Reel Blow-Out Valve

A valve shall be installed between the chassis air system and the hose reel. This valve shall be mounted at the pump operator area. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag There shall be a check valve in the air line to prevent water from entering the chassis air system.

Booster Reel Rollers

A booster reel roller assembly shall be provided.

Air Horn Switch

A heavy duty weatherproof push-button switch shall be installed at the pump operator`s panel to operate the air horns.

Removable Poly Speedlay Trays [Qty: 2]

The speedlay areas shall include storage trays. The trays shall be constructed of 1/2" PT2E polypropylene. The floor of the tray shall be slotted to prevent the accumulation of water and allow for ventilation of wet hose. The trays shall have vertical slots on each end to facilitate in grabbing the tray during loading and unloading.

The tray shall also have horizontal slots on the upper sides to facilitate in carrying the tray.

Backboard and Stokes Basket Storage

The manufacturer shall provide storage for two (2) backboards and one (1) stokes basket. The preferred location is above the speedlays forward of the pan.

Storage Pan

A storage pan shall be provided in the upper pump module area. The pan shall be removable to service items in the pump module below. Holes shall be provided in the corners of the pan to facilitate drainage of water.

Folding steps shall be provided on each side, front of body, to provide access to the storage pan.

Light shields above left and right pump panels shall be designed to support a person's weight and protect the pump panel lights.

Speedlay Preconnect Storage

Two (2) speedlay storage areas shall be provided on the pump module within easy reach from the ground. Each speedlay areas shall have a capacity of 200` of 1.75” double-jacket fire hose.

Manufacturer shall provide height from ground for each speedlay.

1200 Gallon Water Tank

A 1200 gallon (U.S.) maximum booster tank shall be supplied.

The booster tank shall be constructed of polypropylene material. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal.

The tank shall be built by United Plastic Fabricating, Incorporated or Poly-Built. Complete contractor specifications shall be included and can be found on pages _____ of the proposal specifications.

Valves

All valves shall be Akron, Elkhart, or TFT valves. The exact valve model and warranty information shall be provided in the proposal.

Plumbing

All plumbing shall be Schedule 10 stainless steel or high pressure flexible rubber hose (minimized to areas absolutely required)

Tank Fill 2 Akron Valve

One (1) 2” pump-to-tank fill line having a 2” manually operated full flow valve. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

Direct Tank Fill 2.5 Rear w/Gauge

A 2-1/2” rear direct tank fill shall be installed into the rear of the booster tank and shall be controlled by a rear mounted 2-1/2” manual valve. The valve shall be constructed of brass and be of the quarter turn ball type. It shall come equipped with a strainer, 2-1/2” chrome NST swivel, chrome plated 45 degree elbow, chrome plug and retainer device. With tank level gauge next to valve.

Tank To Pump

One (1) manually operated 3" valve shall be installed between the pump suction and the booster tank. It shall include flex hose with stainless steel hose clamps for connection to the 4" tank sump outlet . The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

Foam Tank

A minimum 20 gallon (U.S.) foam cell for Class A foam shall be supplied. The foam cell shall be integral to the water tank but NOT make the water capacity less than 1000 gallons.

Hard Suction Hose Storage

Hard Suction Hose shall be stored in a manner that protects the hose from UV exposure.

The storage area shall be capable of storing two (2) 6" x 10` hard suction hoses.

Hose Bed Folding Steps

LED lighted folding steps shall be positioned to the driver side rear of the body. The steps shall be NFPA compliant for access to the hose bed storage area and in step height and surface area. The steps shall be staggered stepped as applicable with tailboard depth, not applicable with recessed step mounting.

One (1) hand rail shall be installed (as applicable) in compliance with current NFPA.

Hose Bed

The area above the booster tank shall have a hose storage area provided. Each slat shall have all sharp edges removed and have an anodized ribbed top surface that shall prevent the accumulation of water and allow for ventilation of wet hose.

The hose bed design shall incorporate adjustable tracks in the forward area and the rearward area of the hose bed for the installation of an adjustable divider(s). The adjustable tracks shall hold an adjustable divider(s) mounting nut straight, so only a Philips head screwdriver is required to adjust a divider(s) from side to side (as is practical with other hose bed mounted equipment).

The hose bed shall be easily removable to allow access to the booster tank below.

Hose Bed Dividers

There shall be a hose bed divider provided the full fore-aft length of the hose bed.

The hose bed divider shall be constructed of 1/4" (0.25") smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divider shall have a 3" radius corner to protect personnel. The divider shall be natural finish

aluminum for long-lasting appearance and shall be sanded and de-burred to prevent damage to the hose.

The divider shall be adjustable from side to side in the hose bed to accommodate varying hose loads.

There shall be a hand hole cut-out(s) on the trailing edge of each hose bed divider. The cut-out(s) is specifically sized for use in adjusting of the hose bed divider.

Fuel Fill

A recessed fuel fill shall be provided at the driver side rear wheel well area.

Rub Rail

The pump module area and body shall have rub rails mounted along the sides and at the rear. The rub rail shall be C-channel in design.

SCBA Strap

Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment.

SCBA BOTTLE STORAGE

Storage for ten (10) SCBA Bottles or extinguishers shall be provided in the body wheel well areas. The storage compartments shall be constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

The door shall cover the recessed fuel fill if located in the wheel well adjacent to the SCBA storage.

U-shaped trough made out of aluminum smooth plate with rubber insert shall be provided to store SCBA bottles.

Pump Rating

The fire pump shall be rated at 1500 GPM.

Fire Pump System

The pump shall be a midship mounted Waterous CSU 1500-2250 single stage centrifugal pump. The pump shall be mounted on the chassis frame rails and shall be split-shaft driven.

Two (2) 6" diameter suction ports with 6" NST male threads and removable screens shall be provided, one each side. The ports shall be mounted one on each side of the

midship pump and shall extend through the side pump panels. Inlets shall come equipped with long handle chrome caps.

Discharge Manifold

The pump system shall utilize a stainless steel discharge manifold system that allows a direct flow of water to all discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion.

Pump Shift

The pump shift shall be pneumatically controlled using a power shifting cylinder.

Test Ports

Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump.

Pump Certification

The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. The pump shall be tested at the manufacturer`s facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in current NFPA 1901.

Speed Counter Electronic, Waterous

The test connection shall be installed on the pump panel to electronically verify the vehicle engine speed displayed on the electronic tachometer.

Steamers

The pump 6" steamer intakes shall be mounted approximately 1" from the pump panel to back of cap when installed.

Pump Seal, Mechanical

A mechanical seal shall be supplied with the pump and shall include an alternate seal housing that shall be equipped with self-adjusting, maintenance-free, mechanical shaft seals which eliminates the need for packing.

Master Drain Valve

A manual master drain valve shall be installed on the pump panel. The master pump drain assembly shall consist of a master drain with a rubber disc seal. The master drain shall have a rubber seal to prevent water from running out on the running board.

Pump Cooler

The pump shall have a 3/8" line installed from the pump discharge to the booster tank to allow a small amount of water to circulate through the pump casing in order to cool the pump during sustained periods of pump operation when water is not being discharged. The pump cooler line shall be controlled from the pump operator's panel by a Innovative Controls 1/4 turn valve with "T" handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag

Auxiliary Engine Cooler Control

The auxiliary engine cooler shall be controlled from the pump operator's panel by an Innovative Controls 1/4 turn valve with "T" handle. The 1/4 turn handle grip shall feature built-in color-coding label and a verbiage tag.

1/2" lines shall be installed from the pump discharge via the valve to the cooler and back to the pump intake to allow a small amount of water to circulate through the engine cooler.

Trident Primer

A Trident air operated priming system shall be installed. The unit shall be of all brass and stainless steel construction and designed for fire pumps of 1,250 GPM (4,600 LPM) or more. Due to corrosion exposure no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design with 3/4" NPT connection to the fire pump.

Left Intake 2.5 Akron Valve

One (1) 2-1/2" suction inlet with a manually operated 2-1/2" valve shall be provided on the left side pump panel.

Right Intake 2.5 Akron Valve

One (1) 2-1/2" gated suction inlet with a manual operated valve shall be installed in the right side pump panel with the valve body behind the panel. The valve control shall be located at the intake and shall visually indicate the position of the valve at all times.

Intake Relief Valve

The pump shall be equipped with a cast brass, variable pressure setting suction side relief valve. The valve shall be normally closed and shall limit pressures in the pumping system. When excessive intake pressures are received, the water shall be directed below the body to an area visible to the pump operator. The outlet shall terminate with a male 2-1/2" NST threaded fitting.

Left Front 2.5 Hose Bed Akron Valve

One (1) 2-1/2" preconnect outlet with a manually operated valve shall be supplied to the lower left of the apparatus hose bed. The pre-connect shall consist of a 2-1/2" heavy-duty hose coming from the pump discharge manifold to a 2-1/2" adapter.

Deck Gun 3" Discharge Akron Valve

One (1) 3" deck gun discharge outlet with a manually operated valve and 3" stainless steel pipe shall be provided above the pump compartment.

Discharge 2.5 Front Bumper Akron Manual

One (1) 2-1/2" pre-connect outlet with a manually operated valve shall be supplied to the extended front bumper. The pre-connect shall consist of a 2-1/2" heavy duty hose coming from the pump discharge manifold to a 2-1/2" mechanical swivel hose connection to permit the use of the hose from either side of the apparatus and located above the bumper area located on top of the gravel shield.

Double Speed Lay Valve Controls

One (1) double speed lay discharge shall be provided. Each speed lay section shall include one (1) 2" brass swivel with a 1-1/2" hose connection to permit the use of the hose from either side of the apparatus.

The speed lay piping shall consist of two (2) 2" heavy duty hoses coming from the pump discharge manifold to the 2" swivel. The discharges shall include a manually operated valve.

Left Panel 2.5 Discharge Valves

Two (2) 2-1/2" discharge outlets with a manually operated valves shall be provided at the left hand side pump panel. Outlets will include a chrome plated 45 degree elbow.

Right Panel 2.5 Discharge Valve

One (1) 2-1/2" discharge outlet with a manually operated valves shall be provided at the right side pump panel. Outlets will include a chrome plated 45 degree elbow.

Right Panel 3 Discharge Valve

One (1) 3" discharge outlet with a manually operated valve shall be provided at the right side pump panel.

The discharge shall be equipped with a device that shall not allow the valve to open or close in less than three (3) seconds.

Deck Gun Location

Deck gun piping shall be positioned centered in deck gun channel. This location shall allow for optimal operation of a deck gun monitor once installed.

Extend-A-Gun

A Task Force Tips 18" Extend-A-Gun piping shall be supplied for the deck gun discharge to allow for raising and lowering the deck gun monitor.

The Extend-A-Gun shall include a raised monitor sensor connected to the door ajar light. (No Exception to this model)

Push/Pull Control

The apparatus pump panel shall be equipped with Side Mount Valve Controls.

Bleeder Drain Valve

The bleeder/drain valves shall 3/4" ball brass drain valves with a chrome-plated 1/4 turn handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve.

Booster Hose Reel

A booster reel shall be provided and located in the dunnage pan offset to officer side. A 12 volt electrical motor shall be provided and will rewind the reel with a chain and sprocket drive mechanism. All electrical switch connections shall be coated to protect against moisture. The booster reel shall have a capacity for up to 200` of 1" booster hose.

Pump Pressure Governor

The apparatus shall be equipped with an electronic pressure governor (EPG). The EPG will operate as an engine/pump pressure governor/throttle system that is connected directly to the Electronic Control Module (ECM) mounted on the engine. The EPG is to operate as a pressure sensor (regulating) governor (PSG).

The pressure governor shall be equipped with a vernier style control with a large control knob.

The control shall display engine RPM, oil pressure, engine temperature and voltage along with providing critical warnings. The warning levels for oil pressure, high engine temperature, low voltage and high voltage shall be independently programmable.

LED FOAM TANK LEVEL GAUGE

One (1) foam tank level gauge shall be located at the pump operator`s panel to provide a high-visibility display of the foam tank level. Ten (10) high-intensity light emitting diodes (LEDs) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

REAR TANK LEVEL GAUGE

An additional water tank level gauge shall be located at the officer rear to provide a high-visibility display of the water tank water level. Ten (10) high-intensity light emitting diodes (LED`s) on the display module shall have a 3 dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

LED WATER TANK LEVEL GAUGE WITH PSTANK

One (1) water tank level gauge shall be located at the pump operator`s panel to provide a high-visibility display of the water tank level. Ten (10) high-intensity light emitting diodes (LEDs) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. System calibration shall be accomplished via supplied magnet. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.

In addition to the pump panel mounted lights there shall be one (1) Whelen PSTank series LED (Light Emitting Diode) strip light installed each side as specified.

The system shall be controlled by an Innovative Control tank level driver module that is integral of the NFPA required pump panel mounted tank level light assembly.

The additional tank level system shall be interlocked through the parking brake assembly so as not to be on while the vehicle is in motion.

The remote strip light shall be arranged as follows:

- Full Green
- 3/4 Blue
- 1/2 Amber
- 1/4 Red

Location of Whelen PSTank Strip Lights: each side of cab rear of front doors.

2.5" Pressure Gauges

The valve discharge gauges shall be 2 1/2" diameter pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure

proper operation from -40F to +160F. Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

A polished chrome-plated stainless steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauges shall display a range from 0 to 400 psi with black graphics on a white background.

4" Master Pressure Gauges w/Bezel

The master intake and master discharge gauges shall be a minimum of 4" diameter. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge.

The gauge on the left shall be the master pump intake gauge and display a range from 30" vac to 400 psi with black graphics on a white background. The gauge on the right shall be the master pump discharge gauge and display a range from 0 to 400 psi with black graphics on a white background.

Foam System

A Class 1 SmartFoam 2.1A, Husky 3, Aquis, or FoamPro direct-injection foam-concentrate proportioning system with a minimum 2.1 gpm foam concentrate pump shall be integrated into the apparatus to provide foam proportioning. The pump shall be capable of handling Class A or B foam concentrate and be operated by a full-function panel mounted digital display. The system shall automatically proportion foam solution at rates from 0.1 percent to 3.0 percent.

Foam System Plumbing

The specified foam system shall be plumbed to 1.5 first speedlay, 1.5 second speedlay, officer's side front jump line.

Foam Tank Refill System

A foam pump shall be provided. The system shall include a self-priming pump that shall fill at up to 5 GPM for a single cell. The system shall be controlled by a control panel.

A cam-lock quick-connect port shall be provided on the pump panel as applicable and shall connect with a clear wand suction hose for use with 5-gallon pail drafting operations. The suction hose shall be stored as required on the unit by the department and shall be equipped with integral strainer to prevent intake of unwanted debris.

The control and quick-connect shall be located driver's side pump panel.

Electrical System

The apparatus shall incorporate a multiplex 12 volt electrical system. The system shall have the capability of delivering multiple signals via a CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA 1901 standards.

The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.

The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The over-current protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.

Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1901. The following data shall be monitored:

- Vehicle speed MPH
- Acceleration (from speedometer) MPH/Sec.
- Deceleration (from speedometer) MPH/Sec.
- Engine speed RPM
- Engine throttle position % of full throttle
- ABS Event On/Off
- Seat occupied status Occupied Yes/No by position
- Seat belt status Buckled Yes/No by position
- Master Optical Warning Device Switch On/Off
- Time: 24 hour time
- Date: Year/Month/Day

Occupant Detection System

There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.

The audible warning shall activate when the vehicle's park brake is released and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and

the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.

The visual warning shall consist of a graphical representation of each cab seat in the multiplex display screen that will continuously indicate the validity of each seat position.

The system shall include a seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness.

Electrical Connection Protection

The vehicle electrical system shall be made more robust by the application of a corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body. If equipped with an aerial device, the exposed connections on the aerial components shall also be protected.

The coating shall use nanotechnology to penetrate at the molecular level into uneven surfaces to create a protective water repellant film. The coating shall protect electrical connections against the environmental conditions apparatus are commonly exposed to.

Light Bar

A Whelen Freedom IV Series 72" LED light bar model F4X7, or equivalent, with eight (8) LED modules shall be provided; two (2) front corner mounted LED modules, four (4) forward facing LED modules and two (2) side facing LED modules (with front vista windows) or two (2) rear corner LED modules (without front vista windows).

No rear facing LEDs.

The light bars shall have clear lenses.

The white LEDs (if equipped) shall be switched off in blocking right of way mode.

The light bar shall be installed centered on the front cab roof.

Lower Level Warning Light Package

Eight (8) Whelen M6R Super LED red light heads and two (2) Whelen M2R Super LED red light heads shall be provided. Or Equivalent.

The lights shall include chrome flanges where applicable. The lights shall be wired with weatherproof connectors and shall be mounted as close to the corner points of the apparatus as is practical as follows:

- Two (2) Whelen M6R Super LED Red lights on the front of the apparatus facing forward
- Two (2) Whelen M6R Super LED Red lights on the rear of the apparatus facing rearward
- Two (2) lights each side of the apparatus, one (1) Whelen M6R Super LED Red each

side at the forward most point (as practical), and one (1) Whelen M2R Super LED Red each side at the rearward most point (as practical).

- One (1) Whelen M6R Super LED Red light each side of the apparatus centrally located to provide mid ship warning light.

The side facing lights shall be located at forward most position, centered in rear wheel well, and side facing at rear of body in rubrail if equipped.

All warning devices shall be surface mounted in compliance with NFPA standards.

Upper Rear Warning Lights

Two (2) Whelen model L31H Super LED beacons with Red domes shall be supplied.

The lights shall be located rear upper body on aerial style brackets to meet Zone C upper requirements.

Hazard (Door Ajar) Light

There shall be a 2" red LED hazard light installed as specified.

The light shall be located center overhead.

Directional Traffic Warning Light

One (1) Whelen TAL65 LED 36" long Traffic Advisor with amber lenses shall be provided. Or Equivalent

The directional light bar control head shall be located in the overhead console within reach of the driver.

Electronic Siren

A Whelen 295SLSA1 electronic siren shall be installed in the cab. The siren amplifier and control panel module shall include a rotary selector for six (6) functions, on/off switch, push button switch for manual siren or air horn tones, and noise canceling microphone.

The electronic siren control shall be located in the center overhead console offset to driver side.

Siren Speaker

One (1) 100 watt speaker shall be flush mounted as far forward and as low as possible on the front of the vehicle.

The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA 1901 requirements.

Mechanical Siren

A chrome plated and pedestal mounted Federal Q2B-P coaster siren shall be installed on top of the front bumper extension. An electric siren brake switch shall be located in the cab accessible to the driver.

The siren shall be located driver side front bumper.

License Plate Light

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

LED Marker Lights

LED clearance/marker lights shall be installed in accordance with DOT requirements.

Tail Lights

Three (3) Whelen model M6 series LED (Light Emitting Diode) lights, Or Equivalent, shall be installed in a vertical 3 light housing each side at rear.

Light functions shall be as follows:

- LED red running light with red brake light in upper position.
- LED amber populated arrow pattern turn signal in middle position.
- LED clear back-up light in lower position.

A one-piece chrome plastic trim shall be mounted around the three (3) individual lights in a vertical position.

Medical Cabinet Light

Two (2) LED compartment light strip shall be mounted in the medical cabinet.

The light shall be wired to a compartment door switch.

Compartment Light Package

Two (2) LED compartment light strips shall be mounted in each body compartment.

Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel.

Ground Lights

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA requirements. The lights shall be LED (Light Emitting Diode) with clear lenses mounted in a resilient

shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug in style connector.

Hose Bed Light

A LED light shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901. The hose bed light shall be switched with work light switch in the cab.

Scenelights

Two (2) LED shall be provided at the upper rear of the body. These should be approximately 6-9” lights. Whelen lights are preferred, but others which are equivalent shall be accepted.

Each light head shall produce 6,500 lumens. The lights heads shall be equipped with lenses that have gradient optics to enhance light output.

Lights shall be located (1) each side rear compartment face up high and switched in cab (side facing lights switched separately).

Engine Compartment Light

There shall be lighting provided in compliance with NFPA to illuminate the engine compartment area. The light wiring circuit shall activate when the cab is tilted and master power is switched on.

Pump Compartment Light

A light shall be provided in the pump compartment area for NFPA compliance. The light shall be wired to operate with the work light switch in the cab.

LED Pump Panel Light Package

LED lights shall be mounted under a light shield directly above each side pump panel. The work light switch in the cab shall activate the lights when the park brake is set.

Door Ajar Alarm

An audible alarm shall be provided through the multiplex display(s) in the cab wired into the door ajar or indicator.

Air Horn Foot Switch

A heavy duty metal floor mounted foot switch shall be installed to operate the air horns. It shall be located driver's side.

Hose Reel Button

A heavy duty rubber covered electric reel rewind button shall be installed to assist with rewinding the deployed hose.

Location: officer side pump panel.

Back-Up Camera

There shall be a back-up camera provided and mounted on the rear of the apparatus. The camera shall feature a wide angle lens, IR LED assisted illumination for enhanced low-light performance, non-corrosive mounting bracket, and stainless steel hardware. The camera shall be wired to a cab mounted display, interlocked with the chassis transmission. When the apparatus is placed in reverse the camera shall automatically be activated and when the transmission is placed in any other gear the screen shall return to the previously displayed screen.

Alternating Headlights

The chassis high beam headlights shall alternately flash and shall be controlled by a switch inside the cab.

Back-Up Alarm

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

Whelen Pioneer 12V LED Flood Lights

Two (2) Whelen Pioneer Plus model PFH1P 12V LED light fixtures, or equivalent, shall be provided.

The lights shall be mounted on pull-up poles. The wiring shall be routed from the light head.

A hand tightened locking knob shall be provided to allow for easy adjustment of the pole height.

Location: driver side near pump panel, officer side rearward near pump panel.

Whelen Pioneer 12V LED Flood Light

A Whelen Pioneer Plus series 160 watt 12V flood light model PFH2 dual panel LED light head, or equivalent, shall be provided on a cab brow mount.

DOT Required Drive Away Kit

Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.

Two-Tone Paint

The cab shall have a two-tone paint break.

Paint Custom Cab

The apparatus cab shall be painted Red

Paint Cab Two-Tone Color

The upper section of the cab shall be painted Silver.

The paint process of the secondary cab color shall be the same as the primary color.

Paint Body Small

The apparatus body shall be painted Red

Paint Wheels

The exterior outer chassis wheels shall be painted to match the body color.

Cab Interior Paint

The interior of the cab shall be painted with a rubber type splatter paint (Zolatone, LineX or similar)

Reflective Stripe in Rubrail

The reflective stripe in the body rubrail shall be white.

Sign Kit for Engine Numbers

Three (3) painted stainless steel plates and holders shall be provided for department lettering. They shall be mounted on each side of the cab and on the rear of body. The plates shall be 10" by 12" in size.

Cab and Body Stripe

Striping shall match Troup County Fleet

Rear Body and Front Bumper 3M Diamond Grade Striping

Chevron style 3M Diamond Grade striping shall be provided on the rear of the apparatus and the front bumper. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels and doors inboard and outboard of the beavertails if applicable.

Designated Standing / Walking Area Indication

1" wide yellow perimeter marking consisting of individual Reflexite diamonds shall be applied to indicate the outside edge of designated standing and walking areas above 48" from the ground in compliance with 2016 NFPA 1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement.

Standard 1 Year Warranty

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

Lifetime Frame Warranty

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

10 Year 100,000 Mile Structural Warranty

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

10 Year Stainless Steel Plumbing Warranty

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

10 Year Paint and Corrosion Warranty

The apparatus manufacturer shall provide a 10-year limited paint and corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner.

The paint shall be prorated for 10 years as follows:

Topcoat & Appearance: Gloss, Color Retention, Cracking		Coating System, Adhesion & Corrosion: Includes Dissimilar metal corrosion, Flaking, Blistering, Bubbling	
0 to 72 months	100%	0 to 36 months	100%
73 to 120 months	50%	37 to 84 months	50%
		85 to 120 months	25%

Corrosion perforation shall be covered 100% for 10 years. Corrosion perforation is defined as complete penetration through the exterior metal of the apparatus.

The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. A copy of the warranty document shall be provided with the proposal.

25 Year Frame Rail Corrosion Warranty

The chassis manufacturer shall provide a 25 year corrosion warranty on the chassis frame rails. This warranty shall cover the chassis frame rails, including frame rail liners (if equipped), for a period of 25 years after the date on which the vehicle is delivered to the original purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions.

Approval Drawings

A general arrangement drawing depicting the vehicles appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views.

Vehicles requiring pump controls shall include a general arrangement view of the pump operator’s position, scaled the same as the elevation views.

Electronic Manuals

Two (2) copies of all operator, service, and parts manuals MUST be supplied at the time of delivery in digital format -NO EXCEPTIONS! The electronic manuals shall include the following information:

- Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, aerial (if applicable), installed components, and auxiliary systems.
- Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems.
- Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.
- Instructions regarding the frequency and procedure for recommended maintenance.
- Maintenance instructions for the repair and replacement of installed components.
- Parts listing with descriptions and illustrations for identification.
- Warranty descriptions and coverage.

The electronic document shall incorporate a navigation page with electronic links to the operator's manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each copy shall include a table of contents with links to the specified documents or illustrations.

The electronic document must be formatted in such a manner as to allow not only the printing of the entire manual, but to also the cutting, pasting, or copying of individual documents to other electronic media, such as electronic mail, memos, and the like.

A find feature shall be included to allow for searches by text or by part number.

These electronic manuals shall be accessible from any computer operating system capable of supporting portable document format (PDF). Permanent copies of all pertinent data shall be kept file at both the local dealership and at the manufacturer's location.

NOTE: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included.

Fire Apparatus Safety Guide

Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest possible ways of dealing with these situations.

Alternate Items Request

Please provide an alternate price for a commercial chassis. The commercial chassis should meet the same minimum specifications as the custom chassis. A detailed "Letter of Exceptions" listing the areas of non-compliance for the commercial chassis will be provided.

In addition to the standard 1 year warranty, we would consider purchasing additional 1 year warranties up to a total of 5 years. Please provide pricing if available.

Are discounts available for a multi vehicle purchase? Please provide details.

Are discounts available for partial pre-payments? Please provide details.

Estimated time of delivery after the award of the bid.