



**Town of Preston  
389 Route 2 | Preston, Connecticut 06365**

### **NOTICE TO BIDDERS**

The Town of Preston Fire & Emergency Services hereby invites the submission of sealed bids from qualified Tanker suppliers and dealers for the purchase of a:

### **3000 Gallon Tanker**

Bid forms, specifications, and any addenda may be obtained at the Town of Preston Selectman's Office; 389 Route 2, Preston, CT 06365 where bids will be received until 6:00 PM on April 25, 2019 at which time they will be publicly opened and read aloud. Interested bidders may send direct questions by email prior to April 18, 2019 to [firechief@preston-ct.org](mailto:firechief@preston-ct.org).

Bids must remain firm for a period of 90 days following the date of the opening, and shall thereafter remain firm until the bidder provides written notice to the Town of Preston that the bid has been withdrawn. The successful bidder will expect and accept payment up to 45 days following delivery of the vehicles.

The Town of Preston reserves the right to waive any technical defects in bids, to reject any or all bids, and to make such awards, that in its judgment will be in the best interest of the Town of Preston even if such bid is not the low bid. The Town of Preston reserves the right to discuss the vehicles being bid with one or more bidders to make any modifications that are necessary based on these discussions as The Town of Preston deems to be in its best interest.

### **INSTRUCTIONS TO BIDDERS**

Inspect carefully all general and special provisions of this document.

Submit three (3) copies of your bid. All materials submitted to Town of Preston, Board of Selectmen's Office pursuant to this solicitation, become property of Town of Preston and will not be returned to the bidder.

Bids must be presented in a sealed envelope marked "3000 Gallon Tanker Bid" and addressed as follows:

Town of Preston  
Board of Selectmen  
389 Route 2  
Preston, CT 06365

Bids will remain firm for a period of 90 days following the date of the opening, and shall thereafter remain firm until the Bidder provides written notice to Town of Preston, Board of Selectmen that the bid has been withdrawn.

The Town of Preston will reject any late submissions, and is not responsible for notifying the bidder of any missing elements of the proposal. Bidders are also encouraged to include additional information about their company that will assist the Town of Preston in the review of bids especially as it relates to the location for any warranty work required.

#### PROPOSAL PROCEDURES AND REQUIREMENTS

All proposals must be submitted on and in accordance with forms provided with this document. All bids must include, as a minimum, the required information as detailed in these documents.

Where so indicated by the makeup of the Bid Forms, sums shall be expressed in clearly written (ink only) or typed figures. Pencil will not be accepted. Any corrections or changes on the submission forms made by the bidder should be initialed by the bidder, and must be clear and readable. Town of Preston reserves the right to interpret figures where lack of clarity of submission requires such action.

A bid shall include the legal name of bidder and shall be signed by the person or persons legally authorized to bind the bidder. All required signatures shall be handwritten in ink with the full name of the person executing same. Bidders must be authorized to do business in the State of Connecticut.

No alteration, erasure, or addition is to be made in the typewritten or printed matter. Any deviations from the conditions and specifications may constitute sufficient grounds for rejection of proposal.

Prices and information required, except signature of bidder should be typewritten for legibility. Illegible or vague bids may be rejected. All signatures must be written. Facsimile, printed, or typewritten signatures are not acceptable.

All bids received after the time stated in the Notice of Bidders will not be considered and the bid will be returned unopened.

# Town of Preston Fire & Emergency Services

## Specifications for 3000 Gallon Tanker

*Note: As used in this specification the location “left side or street-side” refers to the “driver’s side” of the vehicle, the location “right side or curbside” refers to the “passenger’s side” of the vehicle, unless specifically stated otherwise.*

### **TANKER:**

One (1) 3000-gallon elliptical tank with 1250 GPM pump on an International Chassis to be built as a new fire apparatus.

### **OVERALL DIMENSIONS:**

As Preston is a rural community with narrow roads and difficult to access dwellings, a compact apparatus is required. Due to limited space in the fire stations, the apparatus must stay within the following measurements:

Length overall:	31'
Height overall:	10'6"
Width overall:	9'

### **CHASSIS:**

The Chassis will be a two (2)-door International Base Model 7600 SBA 6X4.

### **FRAME RAILS:**

The frame rails will be 120,000 PSI yield, heat treated alloy steel that are 10.125" x 3.58" x 0.312".

There will be a frame reinforcement outer “C” channel of 120,000 PSI yield, heat treated alloy steel 10.813" x 3.892" x 0.312".

### **FRONT BUMPER:**

There will be a full-width, chrome plated 0.189" steel aerodynamic bumper installed on the front of the chassis with chrome bumper guides.

### **TOW HOOKS FRONT:**

There will be two (2) frame-mounted steel tow hooks installed on the front of the chassis.

### **ENGINE:**

The engine will be a Navistar N13, EPA 10, SCR; 475 HP @ 1700 RPM; 1700 lb-torque @ 1000 RPM; 2100 RPM governed speed.

Engine will include:

- Cold starting equipment, automatic with engine ECM control system
- Cruise control, controls integral with steering wheel
- Compacted Graphite Iron engine block
- Electronic Governor
- Oil Pan, of laminate steel composite
- Wet type cylinder sleeves
- Dual Element Air Cleaner
- A two-speed with residual torque device (disengaged fan speed), direct drive type Horton
- Drivemaster Nylon fan. A fan cooling ring with fan shroud effects, engine mounted.
- An aluminum welded, with front to back cross flow system radiator with 1593 Sq. in 3 core low temperature. And a 1012 Sq in. Charge Air cooler.

### **TRANSMISSION:**

An Allison 4000 EVS\_P automatic transmission 5-speed with overdrive transmission will be used. It will have:

- A Close Ratio, with 5th Generation Controls
- Oil level sensor
- Provision for PTO
- Oil filter that is transmission mounted
- Magnet in oil pan
- Synthetic Transmission Oil
- Oil cooler, Modine water to oil
- Allison Push Button type shift control
- Emergency Vehicle Series Allison Spare INPUT/OUTPUT including J1939 Based Auto Neutral

### **TRANSMISSION MODE PROGRAMMING:**

The transmission, upon start-up, will automatically select a (4) four-speed operation. The fifth speed overdrive will be available with the activation of the mode button on the shifting pad.

### **FRONT AXLE:**

Front axle will be non-driving. It will be a Meritor MFS-18-133A wide track, I-beam type 18,000 pound capacity.

### **FRONT SUSPENSION:**

The front suspension will use parabolic, taper leaf, 18,000-pound capacity. It will have appropriate shock absorbers and will use maintenance free spring pins with rubber bushings.

### **FRONT TIRES:**

The front tires will be Goodyear G751 MSA 315/80/R22.5, load range L, 20 ply tires or equivalent.

## **FRONT WHEELS:**

Front wheels will be polished Aluminum alloy, 22.5" 10 stud (285.75MM BC) Hub piloted. They will be mounted with flanged nuts and have metric mount 9.00 DC rims with steel hubs.

## **REAR SUSPENSION, TANDEM:**

A Hendrickson HMX-460-54 walking beam type with 54" axle spacing will be used for the rear suspension. It will have a 46,000-pound capacity and rubber bushings, transverse torque rods, less shock absorbers.

## **REAR AXLE, TANDEM:**

The rear axles will be Meritor RT-46-160 single reduction type with a 46,000-pound capacity and 200 wheel ends. It will have a gear ratio of 5.29.

It will have inter-axle differential power divider lock, controlled by an electric over-air with a cab mounted control with indicator light.

They will have two (2) magnetic rear axle drain plugs.

## **CROSSMEMBER, SUSPENSION:**

Stamped Steel Double Dogbone

## **REAR TIRES:**

The rear eight (8) tires will be Goodyear G182 RSD 11R22.5 load range H, 16 ply tires or equivalent.

## **REAR WHEELS:**

Rear wheels are to be dual polished Aluminum alloy, 22.5" 10 stud (285.75MM BC) Hub piloted. They will be mounted with flanged nuts and have metric mount 8.25 DC rims with steel hubs.

## **BRAKE SYSTEM:**

The air brake system will be a dual system. It will have color-coded nylon hoses. There will be dust shields on the front and rear brakes.

There will be gauges in the instrument cluster showing pressure in both systems.

There will be a parking brake control valve with yellow knob mounted on the dash.

There will be quick release valves.

There will be Haldex automatic slack adjustors on the front and rear brakes.

There will be a Spring Brake Modulator valve with a relay valve.

There will be a Bendix AD-9 with heater Air Dryer.

There will be manual drain valves with pull chains on air tanks.

There will be a Bendix Anti-lock Brake system that has an Electronic Stability Program (4-channel) and automatic traction control.

There will be a 15.9 CFM air compressor.

The front brakes will be 16.5" x 6" Air Cam with 24" Sq. in long stroke chambers.

The rear brakes will be 16.5" x 7" Air Cam with 30/30 Sq. in long stroke and spring actuated parking brake chambers.

### **STEERING SYSTEM:**

It will have a telescoping, tilting steering column.

It will have a two (2)-spoke, 18" diameter steering wheel.

It will have a dual power Sheppard M-100/M-80 steering gear.

### **EXHAUST SYSTEM:**

The exhaust system will be a switchback horizontal after-treatment device that is frame mounted on the right side under the cab. It will include a short horizontal tailpipe frame mounted on the right side behind the cab.

### **ENGINE COMPRESSION BRAKE:**

There will be a Jacobs Engine Compression brake with a dash mounted selector switch.

### **EXHAUST REGEN SWITCH:**

There will be a three (3)-position, momentary-lighted on/off switch mounted on the dash that inhibits DPF Regeneration when the switch is moved to the *on* position when the engine is running and resets when ignition is switched *off*.

### **CAB ELECTRICAL SYSTEM:**

The cab's 12-volt electrical system will include:

- DATA LINK connector for vehicle programming and diagnosis in the cab
- Hazard light switch, which is push on/off and mounted on the steering column
- Integral turn signal, headlight dimmer switch
- Power windows
- Parking light integral with the front turn signals
- Key operated starter switch
- Turn signal switch to be self-canceling with lane change feature
- Turn signals, front LED, including side marker light, fender mounted
- Windshield Wiper switch with 2-speed and intermittent feature, integral with turn signal switch
- Cowl-mounted, single-motor, electric windshield wipers
- There will be a control to force windshield wipers to the slowest intermediate speed when the parking brake is applied and left on for a set amount of time
- Wiring will be color coded and continuously numbered.
- Two (2)-disc style electric horn
- A USB-style charging port

- A cigar-type receptacle without plug and cord power source
- An NFPA-compliant system that has audible/visual alarms. DATA Recorder/Seat Belt indicator will be mounted in the center overhead console
- Back of the cab will have sealed connectors for tail/amber turn/marker/backup/accessory power/ground/rear stop/turn lights along left frame rails
- The stop lights will be wired to come on when Jacobs Brake System activates
- The headlight system will be a long life halogen, two (2)-light system or LED equivalent
- There will be amber-steady LED, flush-mounted clearance lights mounted on the cab
- There will be six (6) switched body circuits with dash mounted two (2)-position switches. One (1) power module with six (6) channels, 20 amps each. The switches will control the power modules through Multiplex wiring and will be rear frame mounted.
- All fuses, except for 5-amp fuses, will be replaced with manual reset SAE type III breakers

#### **BATTERY SYSTEM:**

There will be four (4) maintenance-free 12-volt 2600 CA Total batteries.

A brushless Leece-Neville BLP4006HN, 12-volt, 325 amp, pad-mounted alternator will be installed.

The starter will be a Mitsubishi Electric 105P 12-volt starter with Soft Start.

There will be a cab-mounted battery switch located in an area not susceptible to accidental activation. It should disconnect the PDC, not the charging circuits. It will have a dash-mounted indicator light with minimal flash back to the driver.

#### **FUEL TANK:**

A top draw, bright aluminum, D Style, 50 US gallon total capacity, 19" depth fuel tank will be mounted on the left side under the cab. It will have a Quick Connect Outlet.

It will have a bottom drain.

The fuel inlet will be labeled diesel fuel only.

#### **FUEL/WATER SEPARATOR:**

A RACOR fuel/water separator will be installed in the fuel system. It will be capable of being drained and will have a "Water in Fuel" light on dash.

#### **DEF TANK:**

There will be a 9.5-gallon Diesel Exhaust Tank mounted on the left side under the cab with a bright aluminum finish.

**FENDER EXTENSIONS:**

There will be rubber fender extensions installed on the cab fenders.

**INSULATION:**

There will be insulation under the hood for sound abatement.

**GRILLE:**

There will be a chrome stationary grille with an Ember Screen that is mounted to grille and cowl.

**HOOD:**

The hood will be a three (3)-piece construction, including long-hood, fiberglass-tilting hood.

**CAB CONVENTIONAL:**

The cab will be a two (2)-door cab with the following:

- Arm rests that are molded to each door panel
- White dome light, cab rectangular, door activated with push on/off switch at lens, timed theater dimming, integral to console, center mounted
- Coat hook located on rear wall
- Tinted glass
- Grab handle interior, "A" post-mounted on passenger side
- Grab handles interior, front side of "B" post on each side
- Upper-edge, above-window ledge sheet metal to be painted the exterior color

**GRAB HANDLES:**

There will be two (2) safety-yellow interior grab handles.

**GAUGE CLUSTER:**

The following gauges will be present in instrument cluster:

- Electronic speedometer
- Engine OIL pressure
- Water temperature
- Fuel level gauge
- DEF level gauge
- Transmission fluid temperature
- Tachometer



- Voltmeter
- Air Cleaner Restriction “Filter Minder” indicator with reset
- Washer fluid level
- Odometer that displays miles, trip miles, engine hours, and fault code readout
- Warning system with visible and audible alarms for low fuel, low oil pressure, high engine coolant temperature, low battery voltage, and low DEF level
- An instrument panel display of fault codes in gauge cluster

#### **SEATBELT WARNING PREWIRE:**

Seatbelt switches and seat sensors for all seats will be wired to the DATA Recorder/Seatbelt warning system in the overhead console.

#### **CAB INTERIOR TRIM:**

The “A” posts will be covered with molded plastic trim.

Cab interior trim panels with cloth and molded plastic will be used to cover exposed interior sheet metal.

Dash and Engine covers will have sound insulation.

There will be premium floor matts and sound dampening patches.

Under the driver’s side instrument panel, there will be a molded plastic lower dash closeout panel.

There will be an overhead, molded-plastic console with storage pocket on the passenger side (with retainer net). Provisions should be made to install an Audiovox Voyager heavy duty back-up camera monitor over the driver side, radio pocket, and reading lights.

Courtesy lights will be mounted in both door panel map pockets.

Both doors will have cloth insert on bolster door trim panels.

There will be rubber black floor covering.

There will be a headliner of soft padded cloth.

Instrument panel trim will be molded plastic with black center section.

Each door will have a molded-plastic, full-length storage pocket with carpet texture.

There will be sun visors.

#### **CAB MOUNTING SUSPENSION:**

The cab will NOT have an air bag-type suspension.

### **DRIVER'S SEAT:**

A national 2000 NFPA-compliant air suspension seat that has a high back with integral head rest will be supplied. It will be black vinyl and will have a three (3)-point lap and shoulder seatbelt.

### **PASSENGER SEAT:**

A national 2000 NFPA-compliant, non-air suspension seat that has a high back with integral head rest will be supplied. It will be black vinyl and will have a three (3)-point lap and shoulder seatbelt.

### **HVAC:**

An International Blend-Air with integral heater and defroster HVAC system will be installed. It will have silicone heater hoses, heater hose clamps (Breeze Belleville Washer-type) and use HFC-134A refrigerant.

It will have an HVAC fresh air filter.

### **GRAB HANDLE:**

There will be two (2) chrome, towel bar-type grab handles mounted on the left and right sides of the cab behind the doors. They will have rubber anti-slip inserts.

### **CAB MIRRORS:**

There will be two (2) (one on each cab door) mirrors installed. They are to be Lang Merka type with a 7.55" x 14.10" rectangular head and integral convex mirror. They will be break away type, with 102" inside spacing. They will have thermostatically controlled heated heads. They will be power adjustable. They will have LED clearance lights. They will have bright finish heads and arms with black brackets.

### **FIRE PUMP:**

A Hale DSD Series 1250 GPM Midship Pump will be installed on the apparatus. It will be sized and designed so that it mounts on the chassis rails.

It will have a 1250 GPM, NFPA 1901-rated performance.

The pump must be able to deliver the following capacities:

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

Using 20 feet of the appropriate size suction hose and strainer, the dry pump will be able to take suction and discharge water with a 10' lift within thirty (30) seconds.

The pump will be assembled and tested at the pump manufacturer's facility.

A drive line from the truck transmission will be used to drive the pump impeller. Sufficient horsepower and RPM will be provided by the truck's engine to meet or exceed the pump's rated performance.

The pump will be mounted on the frame rails with extra heavy-duty brackets and grade 8 bolts. It will be positioned so that the drive shafts are properly aligned, providing the same angular velocity at each end, and minimizing vibration even at full capacity of the pump.

Following NFPA 1901 (latest version), the pump will be fully tested at the factory of the manufacturer. The complete pump, suction, and discharge passages will be hydrostatically tested to 600 PSI. The pump will have no objectionable vibrations or pulsations.

Fine grain alloy cast iron with a tensile strength of 30,000 PSI minimum will be used for the pump body and related parts. All parts that move and are in contact with water will be of high-quality bronze or stainless steel.

For ease of removal of the impeller, including the wear rings and bearings without disturbing piping or mounting of the pump, the pump body will be split along a single plane.

Two (2) heavy-duty roller or ball bearings in the gear box will support the pump shaft rigidly. They will be splash lubricated.

On the inboard side of the pump, a mechanical seal is required. It must be 2" in diameter, spring loaded, maintenance-free, and self-adjusting. It will be constructed of a carbon sealing ring, stainless steel coil spring with a tungsten carbide seat.

An accurately machined, hand-ground, and individually-balanced pump impeller made of hard, fine grain bronze of the mixed flow design will be used. It will have vanes of the impeller intake eyes that are of sufficient size and designed to provide ample reserve capacity at minimum horsepower.

A heat-treated, electric furnace, corrosion-resistant, stainless steel pump shaft will be used. It must be sealed with a double-lip oil seal that keeps road dirt and water out of the gear box.

#### **GEARBOX:**

It will have a gearbox that is designed to provide ample capacity of lubrication reserve and to maintain the proper operating temperature.

Gearbox drive and tail shafts will be heat-treated, chrome-nickel-steel shafts. It will utilize an air-operated system to switch between road and pump.

Precision ground, highest quality heat-treated chrome-nickel-steel gears will be used. To provide for longer life, smooth operation, and higher load carrying capability, bores are to be ground to size and all teeth integrated and hardened making an extremely accurate gear.

The apparatus manufacturer will select the pump ratio to provide maximum performance utilizing the engine and transmission of the chassis.

Two (2) manuals that cover the pump and other working parts of the pump will be provided with the apparatus at the time of delivery.

#### **PRIMING PUMP:**

An air-driven priming pump will be supplied with manual and auto priming functions.

#### **PUMP SHIFT:**

The pump shift will be an electric over-air system. It will have an electric switch mounted on the cab dash.

It will use air from the chassis air system to shift from road to pump. A complete shift will be indicated by a green light.

There will be an electric lockup in the transmission that locks it in the proper pump gear.

A name plate indicating which position the transmission should be placed in for pump operation will be affixed to the dash, easily read by the driver.

Two (2) green lights will be located in the cab. One (1) to be labeled "PUMP ENGAGED" that illuminates when the apparatus has successfully been shifted into pump. One (1) will be labeled "OK TO PUMP" and will illuminate when the transmission is shifted into the proper gear for pumping. One (1) "THROTTLE READY" light will be mounted on the pump operator's panel next to the pump throttle control.

#### **DRIVE LINES:**

The original OEM Chassis drive shafts will be reworked to incorporate the pump installation. If the shafts need to be lengthened, new shafts will be utilized; shafts are not to be extended. The tubes will be drawn over mandrel design made for drive shafts. The welds will be electrically mig welded by a certified welder or driver shaft fabrication machine. They will be checked for straightness and balanced.

#### **AUXILIARY SUCTION INLETS:**

There will be two (2) 2 1/2" NST-gated inlets on each side of the pump panel. An Akron 2-1/2", 1/4-turn ball valve will be installed behind the pump panel. They will have chrome swivels, removable strainers, and male plug caps (with retainer cables) will be supplied. A separate drain piped toward the ground will be installed between the swivel and valve.

#### **CURBSIDE DISCHARGES:**

One (1) 2 1/2" discharge will be installed on the curbside of the apparatus. It will have an Akron 2 1/2", 1/4 turn, full-flow, drop out, self-locking type, and will be controlled from the pump operator's panel. It will have easily operated controls. It will have 2 1/2" NSTM, 30-degree, chrome elbow with 2 1/2" NST female to 1 1/2" NST male adaptor and 1 1/2" cap (with retainer cables).

One (1) 4" discharge will be installed on the curbside of the apparatus. It will be a gate valve controlled from the pump operator's panel. It will have a Kochek 30-degree elbow, swivel rocker lug female to 5" Storz connection.

## **STREETSIDE DISCHARGES:**

Two (2) 2-1/2" discharges will be installed on the streetside of the apparatus. Akron 2 1/2", 1/4 turn, full-flow, drop out, self-locking type and controlled from the pump operator's panel. They will have easily operated controls. They will have 2 1/2" NSTM, 30-degree chrome elbows with 2 1/2" NST female to 1 1/2" NST male adaptors and 1 1/2" caps (with retainer cables).

## **SUCTION INLETS:**

There will be (1) 6" non-gated suction on the driver's side pump panel of the apparatus. It will have a removable strainer.

There will be one (1) 6", non-electric gated suction inlet on the right-side pump panel of the apparatus. It will have a chrome cap with long handles. It will have a removable strainer.

## **DRAIN VALVES:**

There will be Class 1, 1/4-turn drain valves installed on all discharges at 1 1/2" and larger. No cable-actuated drain valves will be accepted.

## **MASTER DRAIN:**

There will be a bronze, rotary-type master drain mounted on the pump operator's panel. It will drain all pump passages, including the relief valve. No cable-actuated drain valves will be accepted.

## **TANK TO PUMP:**

There will be one (1) Akron 3", 1/4-turn, full flow ball valve with 4" plumbing installed. The valve will be controlled from the pump operator's panel.

There will be a check valve in the tank to pump line, preventing unintentional back-filling of the tank through the tank to pump line as per NFPA 1901.

## **PUMP TO TANK:**

There will be one (1) Akron 3", 1/4-turn ball valve for the pump-to-tank line installed on the pump discharge. The control handle will be installed on the pump operator's panel.

There will be a check valve in the pump-to-tank line preventing unintentional back-filling of the pump through the pump-to-tank line.

A flexible hose and stainless steel fittings will be used to connect it to the tank.

## **PUMP PIPING:**

Heavy duty, stainless steel piping or Class 1 reinforced rubber hose will be used for all piping.

Sweep type elbows will be used to minimize friction loss. In areas where vibration or chassis flexing may occur, victuals or rubber couplings will be used.

Non-hardening thread sealing compound will be used on all threaded joints.

All lines will be drained through either the master drain valve or an individual 1/4-turn drain valve. Each gated suction intake and discharge 2 1/2" or larger will have one (1) individual 1/4-turn drain valve.

A hydrostatic test, both pressure and vacuum, will be done on the entire pump assembly, including all valves, piping, and suction lines. The vacuum test will develop 22 inches of vacuum, held for 5 minutes, without a loss of more than 10 inches of vacuum.

#### **VALVES:**

Akron Brass 8000 series, full flow style with stainless steel ball valves will be used for all 1" or larger in-line valves.

All in-line valves will be easily operated from the pump operator's panel. The design and installation of these controls will allow easy operation without distortion and will be able to be adjusted if needed.

There will be a slo-clod option with a hydraulic deceleration option when opened or closed, per NFPA 1901.

These valves will be warrantied for ten (10) years.

#### **SUCTION PRESSURE RELIEF:**

There will be an Elkhart suction pressure relief valve installed on the suction side of the pump. It will be set at 125 PSI but will be adjustable. It will be constructed of cast brass with a stainless steel spring and rubber seat. The outlet will be placed so that it does not subject any personnel to high pressure water streams. This outlet will use 2 1/2" piping with a 2 1/2" NPTF x 2 1/2" NSTM adaptor. It will be labeled "PRESSURE RELIEF DO NOT CAP."

#### **HEAT EXCHANGER:**

There will be a supplementary heat exchanger that is constructed of bronze with tubing and an open/close valve on the operator's panel installed. It will be designed to allow water from the discharge side of the pump to cool the coolant that is circulating through the engine without intermixing. This heat exchanger will be connected to the drain valve, preventing damage caused by freezing.

#### **PUMP HOUSE ENCLOSURE:**

#### **CONSTRUCTION:**

The pump house framework will be constructed with type 304 stainless steel and 16-gauge stainless steel will be bolted to the framework to close in the forward side of the pump house. Aluminum, 0.125" thick and clad with black non-glare vinyl, will cover the streetside of the pump house. There will be a polished stainless steel hinge used to vertically hinge the instrument panel. To allow for ease of service and maintenance, retainers will be provided. There will be two (2) 1/4-turn quick release latches used to hold the instrument panel in the normal operating position.

Aluminum, 0.125" thick and clad with black non-glare vinyl, will cover the curbside of the pump house. There will be a polished stainless steel hinge used to vertically hinge the top section panel. To allow for ease of service and maintenance, retainers will be provided. There will be two (2) 1/4-turn quick release latches used to hold the top section panel in the normal operating position.

#### **HOSE BED/DUNNAGE:**

Over the pump panel, there will be a hose bed area constructed of 3/16" aluminum sheeting. The cross-lay section will be divided into four (4) sections:

- Two (2) cross-lay sections with a 3/16" aluminum hose bed divider. These cross-lays will be able to hold 200' of 1 3/4" double jacketed fire hose (four (4) 50' sections) single stacked. They will be plumbed with 2" piping with a 2" valve that is terminated in the cross-lay hose bed with a 1 1/2" NSTM swivel connection.
- One (1) cross-lay section with a 3/16" aluminum hose bed divider. This cross-lay will be able to hold 200' of 2 1/2" double jacketed fire hose (four (4) 50' sections). They will be plumbed with 3" piping with a 3" valve terminated in the cross-lay hose bed with a 2 1/2" NSTM swivel connection.
- The fourth section will be dry hose-lay and be capable of holding 250' of 3" double jacketed fire hose.

Two (2) embossed, non-skid aluminum, diamond plate covers with stainless steel piano hinges will be installed over the cross-lay areas. The doors will have no latches and lift toward the cab. The doors will be strong enough to work off of without being damaged. Rubber stops will be installed to prevent damage to the cab. There will be reinforcement to the front and rear hose bed wall to enhance operation.

As per NFPA 1901, black vinyl covers that are quick release will be installed over each side of the cross-lays.

#### **HANDRAILS:**

On each side of the pump house light shield, there will be one (1) NFPA non-slip handrail installed. Matching chrome stanchions will be used to mount the hand rails and secure them from rotation. These stanchions will be mounted to the apparatus with molded rubber gaskets and stainless steel bolts and nylon lock nuts. To provide additional support, a center stanchion will be installed.

#### **PUMP HOUSE LIGHTING:**

There will be two (2) pump house LED clear work lights with internal switches mounted inside the pump house near the top.

There will be one (1) stainless steel light bracket (formed into a drip rail) installed on the curbside and streetside of the pump house. There is to be three (3) LED panel work lights installed in this bracket. The rear section of each light will illuminate when the parking brake is applied, as a step light. The other sections will be controlled from a work light switch on the pump operator's panel.

## **RUNNING BOARDS:**

There will be two (2) running boards installed, one (1) on the streetside and one (1) on the curbside of the pump house. They will be fabricated from non-slip aluminum diamond plate and extend the full width of each pump panel area. They will be aligned with the outside edge of the apparatus body.

Two (2) LED recessed lights will be installed in the front face of the apparatus compartments to illuminate each running board when the parking brake is applied.

## **PUMP OPERATOR'S PANEL:**

Only gauges that have a white face with black lettering and liquid filled will be used for all pressure and compound gauges.

The panel will have the following:

- One (1) 4 1/2" master pressure gauge, 0-400 PSI
- One (1) 4 1/2" master vacuum gauge, 300-400 PSI
- One (1) 2 1/2" individual pressure gauge for each 1 1/2" or larger discharge and/or pre-connect, 0-400 PSI
- One (1) water level readout
- One (1) Auto/Manual priming control switch
- One (1) Class 1, Total Pressure Governor
- One (1) set of UL test ports for pressure and vacuum
- One (1) auxiliary engine cooler control valve (heat exchanger)
- One (1) rocker style pump panel work light switch with indicator light
- One (1) primer control
- All discharge and/or pre-connect controls
- One (1) tank fill/pump bypass valve control
- One (1) Suction gate control
- One (1) tank-to-pump valve control
- One (1) stainless steel pump panel light and shield assembly
- One (1) master drain control
- One (1) auxiliary suction control
- One (1) auto-eject receptacle with bar graph display
- One (1) WARNING: DEATH OR SERIOUS INJURY MAY OCCUR if proper operating procedures are not followed label
- One (1) pump performance plate

All discharge port and suction inlet openings will have a polished stainless steel trim plate installed to allow access for service and repairs.

## **PUMP PRESSURE ENGINE GOVERNOR (TPG):**

There will be a Class 1, Total Pressure Governor (TPG) installed on the pump operator's panel. It will be designed to control the engine fuel to maintain a desired pump pressure or engine speed setting.

Additionally, the TPG will display engine information such as battery voltage, coolant temperature, oil pressure, and RPM.



The display will have a 4-1/2" weather-resistant housing.

If set in the "pressure mode," the TPG will operate as a pressure governor for the discharge side of the pump. It will be set at 150 PSI and will be adjustable as needed by the fire department.

#### **COLOR CODED IDENTIFICATION TAGS:**

There will be color-coded identification plates installed for each control valve, gauge, and discharge outlet. Preconnects, 1 1/2", will be yellow and white. Preconnects, 2 1/2", will be gray. These will be in accordance with NFPA 1901.

#### **PUMP CERTIFICATION TEST – UL:**

The pump will have a certification test by Underwriters Laboratories at the manufacturer's on-site testing facility.

- The following tests are the minimum: Pumping test: NFPA 16.13.2
- Pumping Engine Overload test: NFPA 16.13.3
- Pressure Control System Test: NFPA 16.13.4
- Priming System Tests: NFPA 16.13.5
- Vacuum Test: NFPA 16:13.6
- Water Tank-to-Pump Flow test: NFPA 16:13.7
- If fire pump is driven by the chassis engine: Engine Speed Advancement Interlock Test: NFPA 16.13.8
- Gauge and Flowmeter test: NFPA 16.13.9

There will be a plate that lists the rated discharges and pressures together with the speed of the engine, as determined by the tests, provided on the pump operator's panel. It will be completely engraved with all the information and attached to the vehicle prior to delivery. Upon acceptance and payment in full of the apparatus, the original UL test certificate will be provided.

#### **WATER TANK CAPACITY:**

An elliptical tank with a 3000-gallon capacity will be mounted on the apparatus.

#### **TANK CONSTRUCTION AND MOUNTING:**

The water storage tank of the apparatus will be custom made and elliptical in design to meet the needs of the Town of Preston Fire and Emergency Services. It will be made of ultra-high-impact polypropylene copolymer using a welded construction.

**Using any other material for the water tank will cause the bid to be rejected, no exceptions.**

It will be self-supporting with modular sections welded together. Each module will have 3/4" or 1/2" dividers and a 3/8"-thick shell with one (1) longitudinal and one (1) transverse partition creating a baffle system.

For safety the tank will have a baffle system that exceeds the current NFPA 1901 recommendations and reduces undesired water movement while traveling. The baffle system will be designed with transverse partitions and end walls that extend down to the bottom of the support sills to minimize water motion and turbulence while the vehicle is traveling will be placed in the design. There will be holes cut in to allow both air and water to pass through the baffles to facilitate efficient dumping of the water.

There will be 3/4"-thick polypropylene copolymer, channel-shaped, longitudinal sill supports welded to the underside of the tank barrel and the primary transverse partitions and end rails. There will be drain holes at the end of each section.

There will be a fill tower of no less than 480 square inches and 5" above the top of the shell. It will have a hinged cover. It will have a pull latch and sealed with a bulb type EPDM gasket. There will be a tether that holds the lid in the open position.

There will be a 6"-diameter polypropylene copolymer pipe internal overflow and venting system fitted into the fill tower. This vent/overflow system will be permanently open to the atmosphere to allow for automatic free entry and escape of air while filling or dumping. It will discharge behind the rear axle as per NFPA 1901. This feature is to allow dumping or filling quickly without having to manually operating the vent.

There will be a sump on the underside of the tank with a 3" NPTF clean-out port and an NPTF tank-to-pump suction connection. To avoid cavitation during rapid suction, there will be an anti-swirl plate mounted internally. The tank to pump connection will be on the front head of the tank.

There will be a discharge sump on the rear end of the tank, positioned below the bottom of the shell, that allows complete evacuation during dumping operations. A 3/4", polypropylene copolymer will be used to fabricate this sump and will accommodate the dump valve system.

To mount the tank to the stainless steel body framework, captive mounting brackets that are properly sized for the tank will be used. These brackets will utilize a cushioned isolator for positive and negative vertical retention. A 1" x 3" solid 60 D (durometer) hardness rubber sill cushion will separate the sub-frame from the chassis frame using a minimum of six (6) tie downs. "Springer" assemblies will be used on the two (2) front and rear tie downs, while the center tie downs will be firm. All tie down bolts will be 5/8" grade, eight (8) bolts minimum. **No exceptions.**

### **REAR FILLS (3"):**

There will be two (2), 3" stainless steel fill lines installed at the rear of the unit. Both fill ports should be easily accessed simultaneously without obstructions. There will be Akron #8830- P1S-FE3SS-TSC, 3", 1/4-turn ball valves, and terminate as 2-1/2" Storz. Storz 2-1/2" caps with chain retainers will be supplied.

## **REAR DUMP SYSTEM:**

There will be a dump system on the rear center of the water tank. It will use three (3) # 1050-34 manually operated stainless steel 10" Newton quick dumps. This rear manifold assembly will be made from the same material as the tank and will be integrated into the sump providing 100% water dump and enhancing the water flow. One (1) dump will face to the center rearward, one (1) left, and one (1) right. Manually operated, 36" stainless steel telescoping chutes will be provided on each side dump, and a 14" diamond plate flip-down chute will be provided for the center dump valve.

## **TANK EXTERIOR FINISHED (WRAPPED):**

The water tank exterior will be wrapped in stainless steel with a mirror finish. All welds are to be butt welded and polished. There will be 1" of insulation between the inner poly tank and the stainless steel wrap. To add strength, the top walkway of the tank will be reinforced with 16-gauge stainless steel, will be corrosion resistant, and conformed to the radius of the tank top. Stainless steel that is polished will be used to trim around the fill tower and dump manifold.

## **TANK TOP STEPS:**

There will be 4" x 16" long black grip tape steps placed on top of the tank, evenly spaced, from the tank ladder to the rear of the tank.

## **LADDER FOR TANK:**

There will be a ladder on the driver's side, from the top of the catwalk to the top of the tank. This will be mounted as to allow room for ladders to be installed over the rest of the catwalk. It will be made of 1" stainless steel tubing and knurled for safety.

## **ADDITIONAL 6" VENT/OVERFLOW:**

There will be an additional 6" diameter vent/overflow pipe run through the tank. It will extend from the fill tower through the tank bottom, behind the rear axles. This is not to interfere with dumping operations and will minimize traction loss of the rear wheels.

## **APPARATUS BODY AND CONSTRUCTION:**

An apparatus body that is independent of the apparatus chassis and tank will be made of stainless steel. A sub-frame will be built and attached to the chassis frame. Then the body sections will be welded to this sub-frame, forming a single integrated unit.

Stainless steel (14 gauge) will be used to form the body side panels. These panels will contour around the rear wheels.

There will be liners installed in the rear wheel wells that form a complete seal with the outside skirting.

## **TAILBOARD HOSE WELL:**

There will be a hose well installed in the rear tailboard of the apparatus. It will be able to hold two (2) single stacks of 3" double jacketed hose. It will be 36" long, 14" wide, and 6" deep. Two straps will be supplied to retain hoses in place.

Provisions will be made to retain a floating strainer, 6" gated wye, and a low-level strainer.

#### **REAR WHEEL WELL SCBA STORAGE:**

Two (2) SCBA storage compartments will be installed: one (1) in each rear wheel area between the wheels, which will hold a Scott Air-Pak 50. They will have a stainless steel door with hinges and latches. They will be decked with a rubber surface.

#### **REAR TAILBOARD:**

There will be a 24" tailboard that is integral to the body construction. It will have open grip grating. It will have supports on the ends of no less than 2" angle bracing. It will have a cross bracing of no less than 2" channel. There will be stainless steel protector trim on the rearmost edge of each support.

#### **SUCTION HOSE COMPARTMENTS:**

There will be a hard suction compartment provided under each side catwalk. They will be able to hold one (1) Kocheck 6" x 10' hard suction hose with NST fittings and one (1) 10' pike pole. It will be an integral part of the rear body construction and enclosed on all four (4) sides. It will have a stainless steel hinged door with latch on the beavertail end of the apparatus.

Two (2) Kocheck 6" X 10' hard suction hoses with NST fittings will be supplied with the apparatus.

#### **BODY COSMETICS:**

The area along each side of the apparatus body, above the storage compartments and body skirting, will be covered with aluminum diamond plate. This diamond plate is to be formed as to provide drip rail for the compartments.

There will be aluminum diamond plate affixed to the front outer face of the apparatus body compartments.

All diamond plate is to be attached using stainless steel screws and nylon washers.

A stainless steel rub rail, 1/4" x 2", will be installed along the bottom of the compartments and will skirt on both sides of the apparatus. Rub rails are to be chamfered and have tapered ends. Stainless steel hardware and rubber spacers that hold the rub rail away from the body are to be used to secure the rub rails.

#### **DRIVER'S SIDE EXTENSION LADDER:**

A ladder rack will be provided on the streetside of the apparatus above the skirting. The ladder rack will be provided with a means to retain a 24' two-section aluminum extension ladder and a 14' aluminum roof ladder.

One (1) 24' Alco-Lite PEL-24 extension ladder is to be supplied.

One (1) 14' Alco-Lite PRL-14 roof ladder is to be supplied.

## **FENDERETTES:**

There will be polished stainless steel fenderettes installed around the rear wheel wells. They are to have black vinyl reinforced trim and will be attached with stainless steel bolts and lock washers. The holes are to be drilled and tapped into the body.

## **COMPARTMENTS:**

Two (2) compartments will be installed in the body. One (1) on the driver's side in front of the rear wells and one (1) on the passenger's side in front of the rear wells. These compartments will have an approximate interior dimension of 26" deep by 38" high by 60" wide.

These compartments will be supported underneath and on both ends. They will be secured to the body frame.

These compartments will be able to be easily swept out.

There will be proper ventilation for the compartments.

## **COMPARTMENT SHELVING/STORAGE:**

**ADJUSTABLE SHELF:** One (1) 3/16" aluminum adjustable shelf will be provided and installed in the curbside compartment, forward of the vertical divider. The shelf will be able to be adjusted the entire height of the compartment and will have a minimum of 1" high sides. It will be mounted to stainless steel uni-strut "c" channel which is securely fastened to the compartment walls.

**VERTICAL DIVIDER:** A 3/16" brushed aluminum vertical divider will be provided and installed in the curbside compartment dividing the compartment into two (2) halves.

There will be adjustable dividers for hose roll storage in the rear of the streetside compartment.

There will be 2 offset aluminum panels installed in the forward portions of the streetside compartment to allow for hanging of engineering supplies. Stainless steel hardware and rubber spacers will hold the panel away from the body: One (1) attached to the rear wall and one (1) attached to the forward side wall.

Mounting brackets will be supplied and attached to accommodate miscellaneous couplings.

Two (2) Streetlight Vulcan (PFES supplied) rechargeable flashlights will be installed in the streetside compartment and wired to be charged by the Kussmaul.

## **COMPARTMENT DOORS:**

They will be sturdy and rigid while keeping weight to a minimum. The inner surfaces will be stainless steel with a satin finish.

A full length 2" stainless steel continuous hinge with a 0.250" diameter pin will be used to mount doors.

A revolvable bent “D” ring non-locking stainless steel door handle latch assembly will be used.

A stainless steel door check will be installed on each door to hold the door in an open position. It will also act so as to absorb the excessive strain on the hinges and assist with the door closing.

Each compartment will be sealed along its perimeter with a closed cell rubber seal fastened to the door frame.

The free door of any two (2) door compartment will have a full-length, chain-style, pull latch on the inside of the door.

#### **COMPARTMENT DECKING:**

Each compartment will have black “Turtle Tile” installed with a 2” deep black tapered edge between the “Turtle Tile” and the compartment door.

#### **MUD FLAPS:**

Behind the rear wheels, there will be black rubber mud flaps installed. The manufacturer’s logo will be on them.

#### **BATTERY BOX ENCLOSURE:**

Aluminum diamond plate will be used to cover the battery box and entrance steps. This will be done in a manner which is safe and practical. To make a skid-resistant surface, all steps will have punched and raised surfaces.

#### **TOW EYES:**

There will be two (2) 3/4” by 6” rear tow eyes installed on the rear of the unit. They will be mounted under the rear dump system and attached to chassis frame rails directly. There will be 16-gauge stainless steel trim with rubber boot around each tow eye.

#### **CHASSIS MODIFICATIONS:**

Any chassis ignition keys will be attached to the cab dash as per NFPA standards.

All warning and information placards, as required by the current NFPA 1901 standards, will be installed.

#### **WHEEL DRESS-UP KIT:**

There will be stainless steel, high hat center caps and lug nut covers installed on all chassis wheels.

#### **TIRE PRESSURE INDICATORS:**

There will be, on every tire’s valve stem, a visual pressure indicator indicating when the air pressure in the tire is insufficient.

## **FOLDING STEPS:**

Two (2) cast folding steps will be mounted on the front face of both the driver's side and passenger's side compartments. Stainless steel bolts with nylon lock nuts and reinforcement plates will be used to securely hold them in place.

## **PORTA-TANK**

A 3000-gallon aluminum frame folding Porta-Tank will be furnished.

## **PORTA-TANK RACK:**

A stainless steel (polished to a satin finish) rack will be provided to hold the 3000-gallon folding porta-tank. It will have a lift assistance device. It will be installed on the curbside above the compartmentation. A warning light, labeled "Porta-Tank Rack," will be installed in the cab, visible by the driver.

Two (2) stainless steel wind deflectors will be installed on the rack, one (1) on the front, one (1) on the rear of the rack. A diamond tread cover will be installed on the outside of the rack. This cover will have reinforcing bars installed near the top and bottom, providing additional strength and durability.

## **ELECTRICAL SYSTEM:**

Only wiring harnesses that are the automotive type will be used. They are to be engineered for the builder's apparatus. They will meet the following:

- For no reason at all are diodes, resistors, or fusible links to be located in the wiring harness. These components will be in easy-to-locate-and-access junction boxes or main circuit breaker area.
- Will conform to SAE standards
- They will be stranded copper wire with cross linked polyethylene insulation that complies with SAE J1128
- Each wire will be stamped with function code throughout whole harness
- All wire end terminals, including locking bulkhead connectors, will be mechanically attached to the wire ends by terminal crimping tools
- All wiring harnesses will be wrapped in high abrasion and chemical resistant wire loom

## **LOAD MANAGER/SEQUENCER:**

There will be a load manager system that will monitor the electrical system and automatic shed loads in order of least importance (following NFPA restrictions) to maintain proper operating voltage.

There also will be a system to automatically sequence the emergency lights on and off one at a time when the master emergency light switch is turned on or off.

## **VEHICLE DATA RECORDER:**

There will be a vehicle data recorder installed on the apparatus that collects data for fire department training. It will collect the following data:

- Vehicle speed, acceleration, deceleration, engine speed, engine throttle position, ABS event, seat-occupied status, seat belt use, position of master emergency warning light switch, parking brake/service brake, time, date, engine hours
- Password protected by the owner of the apparatus
- Data is to be easily extracted by computer, using standard cables. Used with seat belt indicator system.

## **SEAT BELT WARNING SYSTEM:**

There will be a seat belt warning system installed to warn the driver when seat belts are not being used. It will be connected to the data recorder system.

## **CAB CONSOLE:**

One (1) electrical console will be installed between the two (2) cab seats. It will be made from 1/8" aluminum and have removable panels to allow for service. There will be a black non-glare vinyl covering on the top of the console.

## **ROCKER SWITCH PANEL:**

There will be a switch panel with rocker type switches. It will have a master switch and individual switches to allow the driver or officer to deactivate individual lighting as needed. It will be lighted, lettered, and conveniently mounted in the cab.

## **EMI/RFI PROTECTION:**

The apparatus design and construction will incorporate electromagnetic interference suppression in accordance with SAE J551 and NFPA 1901 standards. It will minimize interference to two-way radio units and frequencies the Town of Preston Fire and Emergency services uses.

## **WARNING LIGHTS:**

The following warning lights will be provided on the apparatus, and lights are to be controlled by a master emergency light switch in the cab. There will be a load manager and sequencer to control the emergency lights. The warning light system will meet current NFPA 1901 requirements:

### **ZONE A UPPER FRONT:**

One (1) Whelen #FN60QLED, 60" NFPA Edge Ultra Freedom LED light bar will be installed on the cab roof. It will have four (4) RED corner LEDs, eight (8) front facing LEDs (6 red/2 white), and Opti-Com in front center of bar. All white lights will shut off when parking brake is applied.



### **ZONE A LOWER FRONT:**

Four (4) Whelen 50\*02Z\*R, 500 series, red with clear lenses, super-LED warning lights will be installed with chrome flanges. They will be mounted on the grill: two (2) on the left and two (2) on the right. Stainless steel backing plates will be used to mount them.

### **ZONE B LOWER DRIVER'S SIDE:**

Two (2) Whelen C7L\*C, red with clear lenses, super-LED warning lights will be installed with chrome flanges. They will be mounted one (1) between the front wheel and the front of the vehicle and one (1) behind the rear wheels. One (1) Whelen 50\*02Z\*R, 500 series, red with clear lense, super-LED warning light will be mounted in the mid-body area, front of the rear wheels.

### **ZONE C UPPER REAR:**

Two (2) Whelen #L31HRFN, with red LEDs and clear lenses, super-LED beacon warning lights will be installed on pedestals. One (1) on each side of the top of the rear of the tank. The pedestals will be fully enclosed as to hide wiring. Care will be taken to mount the pedestal as low on the tank as possible.

### **ZONE C LOWER REAR:**

Two (2) Whelen #60\*02FCR, 600 series, red in color, super-LED warning lights will be installed on each side of the rear of the vehicle.

### **ZONE D PASSENGER SIDE:**

Two (2) Whelen C7L\*C, red with clear lenses, super-LED warning lights will be installed with chrome flanges. They will be mounted one (1) between the front wheel and the front of the vehicle and one (1) behind the rear wheels. One (1) Whelen 50\*02Z\*R, 500 series, red with clear lense, super-LED warning light will be mounted in the mid-body area, front of the rear wheels.

### **SIREN:**

An electronic siren, Whelen model 295HFSA7 surface mount remote siren, will be mounted in the cab near the driver. It will be interconnected to the OEM horn ring with a horn/siren switch. It will have a PA microphone, radio rebroadcast, public address, manual, air horn, wail, yelp, and piercer tones.

### **SIREN SPEAKER:**

There will be two (2) Whelen 100 watt speakers, model #SA315P, mounted in the front bumper of the apparatus.

### **MECHANICAL SIREN:**

One (1) Federal Signals #Q2B-NN siren will be mounted in the front bumper. It will have control switches mounted on the floor of the cab, one (1) on driver's side and one on passenger's side. It will be wired so as to only activate when emergency lights are activated. There will be a siren brake switch in the cab of the apparatus.

**AIR HORNS:**

One (1) pair of chrome air horns will be mounted on the hood, one (1) on each side.

**AIR HORN ACTIVATION:**

Controls for activation of the air horns will be installed in the cab, allowing for both the driver and officer to use.

**AIR PROTECTION VALVE:**

There will be an air protection valve installed. It will prevent the air horns from being activated if the air pressure in the brake system drops below 80 PSI, per NFPA standards.

**BACK-UP CAMERA SYSTEM:**

A back-up camera system will be installed on the apparatus. It will have a color display mounted in the cab, with a minimum size of 7". It will be mounted in a position so as to not obstruct the driver's view of the road, i.e. a flip-down over the visor. The camera will be mounted on the rear of the vehicle. It will turn on when the vehicle is placed in reverse. It will have an integral speaker/microphone system that will permit the driver to communicate with the backup person.

**FRONT SCENE LIGHTS:**

Two (2) Double Pioneer slim lights with white housing will be mounted to the front of the cab and wired to a switch in the cab labeled front scene.

**FRONT SIDE SCENE LIGHTS:**

Two (2) Whelen, Pioneer PCP3 Max Dual Floodlight/Spotlight combination side mount push-up outer body will be mounted on each side of the apparatus near the pump panel. They will be wired to the side scene light switch in the cab.

**REAR SIDE SCENE LIGHTS:**

Two (2) Whelen Pioneer PFP1 Plus flood lights with white housing and chrome flanges will be mounted on the upper rear corner of the tank. They will be mounted on the rear emergency warning light bracket. There will be no exposed wiring. They will be wired to the side scene light switch in the cab.

**REAR SCENE LIGHTS:**

Two (2) Whelen Pioneer PFP1 Plus flood lights with white housing and chrome flanges will be mounted on the upper rears. They will be mounted on the rear emergency warning light bracket. There will be no exposed wiring. They will be wired with both an override switch mounted in the cab so they can be illuminated at any time and so they illuminate when the unit is placed in reverse.

**TANK TOP LIGHTING:**

One (1) clear LED light will be mounted on top of the tank to illuminate the walk area between the tank access ladder and manhole cover. It will come on when the parking brake is engaged.

### **REAR TAILBOARD WORK LIGHTS:**

Two (2) clear LED work lights will be mounted so as to illuminate the rear beaver tail as “work lights” and aimed toward the center of the area. They will activate when the parking brake is applied.

### **GROUND/STEP LIGHTS:**

There will be four (4) clear LED underbody lights mounted on the apparatus. They will be wired to a switch in the cab console. They will only activate when the parking brake is applied.

They will be mounted as follows:

- Two (2) under the pump panel running boards
- One (1) on each side of the unit
- Two (2) under the rear tail board
- One (1) on each side.

They will be fully enclosed and have no exposed wiring.

### **CAB ENTRY/EXIT LIGHTING:**

There will be one (1) clear LED light mounted under each cab door step. They will be mounted at an approximate angle of 30 degrees. They will be wired to illuminate when either cab door is opened.

### **COMPARTMENT LIGHTING:**

The rear body compartments will have LED strip (rope) lighting down both sides and across the top. They will activate automatically when the compartment doors are opened.

### **CLEARANCE/MARKER/ID LIGHTS:**

Clearance/marker/identification lights and reflectors that meet current DOT requirements will be installed.

Three (3) red mini LED marker lights will be installed in the rear light bracket. One will be centered on the apparatus and others spaced 6” to 12” apart.

Red LED combination reflector/marker lights will be mounted in the lower rear side body section with rubber shock absorbing grommets.

On the rear tailboard, there will be red reflectors mounted as far apart as possible. The front (amber) reflector/marker lights will be wired to the turn signals.

There will be midpoint amber LED marker lights that flash with the turn signal installed on each side of the body. Preferably not mounted below running boards.

## **STOP/TURN/BACK-UP LIGHTS:**

### **Stop Tail Lights**

Two (2) Whelen 600 series, red LED stop-tail lights are to be mounted, one (1) on each side of the rear body.

### **Turn-Signal Lights**

Two (2) Whelen 600 series, amber LED turn-signal lights are to be mounted, one (1) on each side of the rear body.

### **Back-up Lights**

Two (2) Whelen 600 series, clear LED back-up lights are to be mounted, one (1) on each side of the rear body.

All the above lights will be mounted in Whelen #PLAST4V, chrome plated housings.

## **LICENSE PLATE HOLDER:**

A Cast Products #LP0005-1-A with LED light will be surface mounted on the rear of the apparatus. It will be aluminum with bright finish edges.

## **ENGINE COMPARTMENT LIGHT:**

There will be one (1) LED switched, light mounted in the engine compartment to provide illumination when servicing the unit.

## **HAZARD LIGHT:**

There will be a cab-mounted hazard light. It will illuminate automatically if any of the following conditions occur when the parking brake is released:

- (1) Any cab or compartment door is open
- (2) Porta-Tank rack is not in stowed position
- (3) Any other device is opened, extended, or deployed that would create a hazard, cause damage to the apparatus if the apparatus is moved.

This light will have a tag marked "**DO NOT MOVE APPARATUS WHEN LIGHT IS ON.**"

## **BACK-UP ALARM:**

There will be one (1) Type D (87 db) back-up alarm that meets SAE J994 and NFPA 1901 standards. This will be wired to activate when the unit is placed into reverse. There will be an automatic resetting override system that allows the driver to disable so the driver can hear his backer.

**TRAFFIC ADVISOR:**

A Whelen TAM65 LED traffic advisor will be mounted on the rear of the apparatus. The control will be mounted in the cabs radio pocket.

**WATER LEVEL GAUGE:**

There will be a Whelen PSTANK water level gauge mounted on the rear of the tank above the dump system. It will use LED lights and be visible clearly from 180 degrees. When the water level reaches below 25%, the LEDs are to begin flashing to indicate refill required. It will be of the self-calibration feature so as to be able to be used on any tank configuration.

**WATER LEVEL GAUGE PUMP PANEL:**

There will be Whelen PSTANK remote gauges mounted on each side of the pump panels.

**WATER LEVEL GAUGE CAB:**

There will be a tank remote gauge mounted on the dash in the cab.

**AIR COMPRESSOR/BATTERY CHARGER:**

A 120-volt air compressor/battery charger will be installed on the apparatus. It will be a Kussmaul #091-53-12-REMOTE-B1-S-KIT model. It will maintain the apparatus's batteries and air pressure when the apparatus is not in use. There will be a Kussmaul Super Auto-EJECT receptacle installed on the driver's side pump panel, and it will have a waterproof spring-loaded cover plate. It will release the plug when the starter solenoid is activated.

**LETTERING:**

White SCOTCHLITE lettering with black shadowing (P-22) will be used on both sides of the hood and each side of the rear of the body.

Additional lettering will be gold leaf and include Preston City Fire Department EST 1942 on the cab doors, Preston City on the front of the hood, Preston City Fire Department and P-22 on the rear of the tank. Exact size and location of the lettering will be determined by the Town of Preston Fire and Emergency Services Truck Committee at the time of contract.

**SCOTCHLITE STRIPE:**

A SCOTCHLITE stripe 1" x 4" x 1" with a clear polyurethane coating will be located 360 degrees around the apparatus. Exact size and location of the stripe will be determined by the Town of Preston Fire and Emergency Services Truck Committee at the time of contract.

**CHEVRON STRIPING:**

There will be Chevron striping on the rear lower body of the apparatus, 6" wide red/white diamond grade reflective striping will be installed in an inverted "V" pattern.

**ANTI-CORROSION PROTECTION:**

The apparatus body will be designed to minimize the association of different metals. An anti-corrosion coating will be used between two different metals when it is unavoidable to use two different metals.

A dispersion of metallic zinc will be used to prevent corrosion by electrolysis between the two metals.

The anti-corrosion coating will be used on all stainless steel screws that pass through aluminum.

#### **CHASSIS PAINT FINISH:**

All exterior chassis components, such as mirrors, trim, handrails, and bumpers, will be removed before painting. The chassis exterior will be thoroughly sanded, solvent cleaned, primed, and finished, holding to the standards set forth by the PPG fleet finish guidelines (or similar) before the mounting of the body to assure full coverage of all surfaces. The chassis frame and undercarriage components will be painted black.

#### **PAINT CAB RED:**

The cab will be painted red PPG #FBCH-71096-ALT

#### **BODY PAINT:**

The body will be painted to match the cab. To ensure complete coverage of metal treatment and paint to the exterior surfaces of the body, the body exterior will have no mounted components. The body will be thoroughly sanded, solvent cleaned, primed, and finished with paint before the mounting of the body to ensure full coverage of all surfaces. Compartment doors will be painted separately to assure proper paint coverage on the body, door jambs, and door edges. The body will be red in color and match the cab.

#### **ANTENNAS AND MOUNTING:**

Four (4) high quality antennas with NMO mounts will be installed as per professional installer recommendation. The cables will be run to the floor mounted center console.

#### **PORTABLE RADIOS:**

Power will be provided in the cab console for two portable radio chargers to be charged by the Kussmaul.

#### **RECHARGABLE FLASHLIGHTS:**

One (1) Streetlight Vulcan rechargeable flashlight (PFES supplied) will be installed on the cab console and wired to be charged by the Kussmaul.

#### **WHEEL CHOCKS:**

One (1) pair of Zico #SAC-44 wheel chocks will be furnished. They will be mounted on the driver's side (under the compartment) in front of the wheels.

#### **HELMET STORAGE:**

Two (2) helmet storage brackets, Zico #UHH-1, will be installed in the cab.

**TOUCH-UP PAINT AND SPARE FASTENERS:**

The manufacturer will supply a two (2)-ounce container of touch-up paint. It will be supplied when the apparatus is delivered. It will have paint brand and number marked on it for future use.

Assorted spare fasteners of the types and sizes used to construct the apparatus will be furnished at the time of delivery.

**DELIVERY:**

This apparatus will be driven from the factory to the Town of Preston, providing a test run. Prior to final delivery the unit will be serviced, including oil change and checking of all apparatus systems.

**WARRANTY:**

There will be a warranty of at least one (1) year for parts and labor provided by the manufacturer.

**MANUALS:**

Owner's manuals, maintenance manuals, and electrical manuals will be provided. The following documents will be part of these manuals:

- Electrical Schematics
- Pump Plumbing Schematics
- Hydraulic Schematics (if applicable)

**PROPOSAL DRAWINGS:**

A detailed scale drawing will be provided with each bid. It will show all top, front, rear, left, and right side views with all dimensions, features, and options.

**APPROVAL DRAWINGS:**

A detailed drawing will be provided for approval by the Town of Preston Fire and Emergency Services Truck Committee. It will show all top, front, rear, left, and right side views with all dimensions, features, and options.

**FINAL INSPECTION:**

The manufacturer will provide two inspection trips at the manufacturer's factory. This will be for four (4) representatives of the Fire Department Truck Committee. The Town of Preston Fire and Emergency Services reserves the right to schedule inspection trips to the factory throughout the assembly process.

**TRADE IN OF PRESENT UNIT:**

The bidder will provide a quote for trade-in value of the present 1993 International/US Tank 3000 Gallon Tanker.

## **ADDITIONAL ITEMS TO BE SUPPLIED WITH THE APPARATUS:**

- 1 There will be (4) 50' NST sections of yellow 1-3/4" double jacketed hose supplied. (Pre-connect)
- 2 There will be (4) 50' NST sections of white 1-3/4" double jacketed hose supplied. (Pre-connect)
- 3 There will be (4) 50' NST sections of white 2-1/2" double jacketed hose supplied. (Pre-connect)
- 4 There will be (5) 50' NST sections of white 3" double jacketed hose supplied. (Hose bed)
- 5 There will be (2) 50' NST double jacketed 3" red hose supplied (Tailboard)
- 6 Two (2) Kocheck 2½"X 2½" male to female NST gate valves with crank handles are to be supplied. (Tailboard)
- 7 Two (2) Kocheck K45-3 SPO complete, one (1) style K05 Hydrant wrench & (2) K01 spanner wrenches w/holder will be supplied and installed one on each side of the pump panel.
- 8 Two (2) Kocheck KS34 (4) STORZ spanner with holder will be supplied and installed one on each side of the pump panel.
- 9 One (1) Akron AK-448 universal spanner wrench and holder will be supplied and mounted on the rear of the apparatus.
- 10 Two (2) Portable radios and chargers (Kenwood NX 5300) are to be supplied and installed in the cab and wired to be charged from the Kussmaul.
- 11 Radios will be supplied and installed
  - a. One (1) Kenwood TK-690 HBK
  - b. One (1) Kenwood TK-790 HBK
  - c. One (1) Kenwood 9BHHDB (this is a dual band with single head configuration).
  - d. One (1) Kenwood NX-5800 remote head
  - e. One (1) Pyramid SVR-200 repeater

**FINAL PAGE**

3-12-2019