

# Arran-Elderslie Fire & Emergency Services

Date; July 31<sup>st</sup>, 2024

## Request For Proposal, Triple Combination Pumper

Dear Dealer: The Municipality of Arran-Elderslie Fire Service is looking to purchase a triple combination Pumper and take delivery **1<sup>st</sup> quarter 2026**. Arran-Elderslie Fire Chief is accepting Request for Proposals (RFP).

**Date Issued:** July 31<sup>st</sup>, 2024

**Deadline:** 11:00am on Tuesday, September 3<sup>rd</sup>, 2024

Proposals must be clearly marked and sealed **New Chesley Pumper Apparatus** and be delivered by way of hand delivered or courier mail (office hours 8:30am to 4:30pm):

ATTENTION: Steve Tiernan, Fire Chief

Municipality of Arran-Elderslie

1925 Bruce Road 10

Chesley, ON N0G 1L0

Phone (519) 270 3235

Some Considerations.

1. Commercial Freightliner chassis preferred.
2. Minimum 330 HP, Automatic Transmission.
3. Four door chassis, seating for five (three firefighters, officer, driver).
4. Minimum 1250 GPM, Waterous pump with Pump and Roll capability.
5. Class "A" Foam System, 20-gal foam tank, 950-lmp gal minimum water tank.
6. 2 rear 2 1/2" discharge.
7. Rear 6" Suction.
8. External Hydraulic Ladder system.
9. LED emergency lighting red and blue, LED scene lighting.
10. LED Light Tower.
11. Hard top aluminum hose bed covers.
12. Left Side Top Dunnage box with top opening lids (2 boxes).
13. Slide-out trays all compartments, extra shelving to be added once agreed upon.
14. 2 Compartments will have swing out tool boards.
15. Rollup compartment doors.
16. Red in colour..
17. Extended front bumper with 200 ft. 1 3/4 hose,
18. Piping for a deck gun, deck gun options to be discussed.

The following spec sheets gives insight to what Arran-Elderslie is looking for in a new unit. These sheets are for information only and if the dealer or manufacturer have a better idea or product available Arran-Elderslie would be open to suggestions, ideas, and discussions. Some upgrades maybe required prior to delivery such as shelving, lighting, other equipment.

Note: Not necessarily the lowest or any RFP will be accepted. If you are interested in this RFP.

Steve Tiernan  
Fire Chief/ CEMC  
Municipality of Arran-Elderslie

### **QUALITY AND WORKMANSHIP**

The manufacturer shall submit a report of quality and workmanship in the fire apparatus field at time of RFP.

### **DELIVERY (Not to be delivered before January 1<sup>st</sup>,2026)**

The apparatus will be delivered under its own power to ensure proper break-in of all components while the apparatus is still under warranty.

### **INFORMATION**

At time of delivery, complete operation and maintenance manuals covering the apparatus will be provided. A permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

### **SAFETY VIDEO**

At the time of delivery manufacturer will also provide one professionally produced apparatus safety video, in digital format. This video will address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus, including the following: vehicle pre-trip inspection, chassis operation, pump operation, and safety during maintenance.

### **PERFORMANCE TESTS**

A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power, nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus will meet NFPA 1901 acceleration requirements and NFPA 1901 braking requirements. The apparatus when fully loaded will not have less than 25% nor more than 50% on the front axle and not less than 50% nor more than 75% on the rear axle.

### **COMMERCIAL GENERAL LIABILITY INSURANCE**

Certification of general liability insurance coverage shall be enclosed.

### **ISO COMPLIANCE**

The manufacturer will operate a Quality Management System under the requirements of ISO 9001. These standards sponsored by the "International Organization for Standardization (ISO)" specify the quality systems that will be established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance will be included with the bid.

## **NFPA 2004 STANDARDS**

This unit will comply with the NFPA standards effective January of 2004.

Certification of slip resistance of all stepping, standing and walking surfaces will be supplied with delivery of the apparatus.

A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating.

The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications.

The manufacturer will designate, in writing, who is qualified to witness and certify test results.

## **INSPECTION CERTIFICATION**

The complete apparatus will be certified and tested to the ULC, *Automobile Fire Fighting Apparatus Standard*, CAN/ULC-S515-04, by Underwriters Laboratories Inc. / Underwriters Laboratories of Canada, and the vehicle will bear the ULC Mark, indicating compliancy to the standard.

## **INSPECTION TRIP(S)**

The bidder will provide two (2) factory inspection trip(s) for 2 customer representative(s). Trip one will be for the purpose of a preconstruction meeting to finalize any plans. and one (1) trip for final inspection.

The inspection trip(s) will be scheduled at times mutually agreed upon between the manufacturer's representative and the customer. All costs such as travel, lodging and meals will be the responsibility of the dealer.

## **WARRANTY**

The warranty shall cover the fire apparatus to be free from defects in materials or workmanship under normal use and service. The manufacturer shall be obligated under the warranty to repair or replace, as the warranty may elect, any parts thereof which are returned to the manufacturer with transportation costs prepaid, and as to which examination is disclose to the company's satisfaction to have been defective, provided such part, or parts will be returned to us not later than **one (1) year** for delivery of the apparatus. Such defective part or parts will be repaired or replaced free of charge and without charge for installation to the original purchaser.

This warranty will not apply to:

- 1) Normal maintenance and adjustments.
- 2) Any part which has been repaired or altered outside of the factory in any way so that, to affect the stability, nor which has been subject to misuse, neglect, or accident, nor to any part which will operate at any speed exceeding the factory rated speed, or loaded beyond the factory rated load capacity.
- 3) Commercial chassis and associated equipment furnished with the chassis, signaling devices, generators, batteries, or other trade accessories in which they are usually warranted separately by their respective manufacturers.

## **CHASSIS WARRANTY**

The chassis manufacturer will provide a **3 year 100,000 mile extended warranty**

Engine Min 330 HP - 5 years unlimited miles

Allison Transmission (3000 EVS and 3500 EVS) - 5 years unlimited miles

Cab Structure - 5 years unlimited miles  
Frame Rails and Cross members - 5 years unlimited miles  
Paint and Bright work - 2 year, 100,000 miles  
Axles - 2 years unlimited miles  
HVAC - 3 years, 100,000 miles  
Starter and Alternator - 3 years, 100,000 miles  
Cooling System - 3 years, 100,000 miles  
Steering - 3 years, 100,000 miles

## **CHASSIS**

The chassis will be a Freightliner, Model M2, 106 MD Conventional Chassis, supplied with the following equipment: (custom chassis optional)

## **SEATING CAPACITY**

The minimum seating capacity in the cab will be five (5) people.

## **WHEELBASE**

The wheelbase of the vehicle will be approximately 240".

## **GVW RATING**

The gross vehicle weight rating will be 38,300

## **FRAME**

The frame rails will be formed from 120,000 psi yield, heat treated alloy steel.

## **FRAME LINER**

A full-length channel inner liner will be provided.

## **FRONT AXLE**

Front axle will be an "I" beam type, made of forged steel. It will be an Meritor MFS-14-143A, with a ground rating capacity of 12,300 pounds.

## **FRONT SUSPENSION**

Spring mounted

Capacity at Ground: 14,600 pounds

Shock Absorbers: Double Acting

Shock absorbers will be provided on the front axle.

## **REAR AXLE**

The single reduction rear axle, Mercedes ARS- 23.4 R Series with a ground rating capacity of 26,000 pounds.

The brake chambers will be forward mounted, and the brakes will be 16.50" x 7.00", S-Cam type.

## **PARKING BRAKE**

The parking brake will be spring set and located on the rear axle service brake.

## **REAR AXLE RATIO**

The ratio of the rear axle will be provided by the chassis manufacturer. The maximum top speed will be 61 to 64 MPH

## **REAR SUSPENSION**

The rear suspension will be heavy duty Spring Ride with a capacity @ ground of 31,000 pounds.

## **ANTI-LOCK BRAKE SYSTEM**

The vehicle will be equipped with a Wabco, model 4S/4M, four (4) channel anti-lock braking system. The ABS will provide anti-lock braking control on both the front and rear wheels. It will be a digitally controlled system that utilizes microprocessor technology to control the anti-lock braking system. Each wheel will be monitored by the system. When any particular wheel begins to lockup, a signal will be sent to the control unit. This control unit then will reduce the braking of that wheel for a fraction of a second and then reapply the brake.

This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

The system will include Automatic Traction Control (ATC).

## **FRONT BRAKES**

The front brakes will be S-Cam, 16.50" x 5.00". The front brakes will be provided with Meritor™ automatic slack adjusters.

## **ENGINE EXHAUST BRAKE**

An engine exhaust brake will be installed with the control located on the instrument panel within easy reach of the driver.

## **AIR COMPRESSOR, BRAKE SYSTEM**

The air compressor will be a Wabco with 18.7 cubic feet per minute output. - Bendix AD-9 air dryer with heater

## **AIR INLET WITH AUTOMATIC EJECT**

A single air inlet with Kussmaul Air Eject will be provided. It will allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet will automatically disconnect the air line when the truck is started. It will be equipped with a male coupling and be located on the driver side pump panel. A check valve will be provided to prevent reverse flow of air. The inlet will discharge into the "wet" tank of the brake system. A mating female coupling will also be provided with the loose equipment.

## **ENGINE**

- Minimum 330 HP @ 2200 RPM, Make Cummins, or Detroit
- Number of Cylinders: Six (6)
- Governed rpm: 2200
- Turbocharger
- Charge Air Cooled
- Fuel System: Hydraulically Actuated, Electronically Controlled Unit Injectors (HEUI)

## **ENGINE ACCESSORIES**

- Air Cleaner: Dry type, with restriction indicator in cab
- Fuel Filters: Dual, with check valve
- Governor: Limiting speed type
- Lube Oil Cooler
- Lube Oil Filter: Full flow
- Starting Motor: 12-volt

- Fleet Guard Water Filter
- Oil Fill and Level Gauge

### **ENGINE WARRANTY**

The engine will come with a **five (5) year** or **100,000 mile** warranty provided by Engine Manufacturer.

### **RADIATOR**

- Pressurized System, Tube and Fin
- De-aeration Tank and Sight Glass
- Anti-Freeze Protection -30 Degrees Fahrenheit

### **AIR INTAKE, w/EMBER SEPARATOR**

The air inlet shall be equipped with a stainless-steel mesh to separate water and burning embers from the air intake system such that particulate matter larger than 0.039 in. (1.0 mm) in diameter cannot reach the air filter element.

This shall be in compliance with NFPA 1901 and 1906 standards.

### **EXHAUST SYSTEM**

The exhaust system will include a diesel particulate filter and a diesel oxidation catalyst to meet current EPA standards. The exhaust will terminate with a horizontal tailpipe and diffuser ahead of the passenger side rear wheels.

A heat deflector shield will be provided where the tail pipe is routed under any side compartmentation.

### **HIGH IDLE**

A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a preset engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation. The high idle will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided, adjacent to the switch. The light will illuminate when the above conditions are met. The light will be labeled "OK To Engage High Idle".

### **COOLANT LINES**

Gates, or Goodyear, rubber hose will be used for all engine coolant lines installed by bidder

Hose clamps will be the "constant torque type" to prevent coolant leakage. They will expand and contract according to coolant system temperature thereby keeping a constant clamping pressure on the hose.

### **FUEL TANK**

A 50-gallon fuel tank will be provided and mounted at the left-hand cab step. The rectangular tank will be constructed of aluminum.

### **TRANSMISSION**

An Allison, model 3000 EVS, electronic torque converting automatic transmission will be provided. A transmission temperature gauge or warning light will be installed on cab instrument panel.

## **TRANSMISSION SHIFT CONTROL**

A push button shift module will be mounted to right of driver. Shift position indicator will be indirectly lit for after dark operation.

The transmission will be a 5 speed. The transmission ratio's will be 1st - 3.49 to 1.00, 2nd - 1.86 to 1.00, 3rd - 1.41 to 1.00, 4th - 1.00 to 1.00, 5th - 0.75 to 1.00, R - 5.03 to 1.00.

## **TRANSMISSION COOLER**

A transmission oil cooler will be provided in the lower tank of the radiator.

## **TRANSMISSION WARRANTY**

The transmission shall have a **five (5) year/Unlimited mileage** warranty covering 100% parts and labor. The warranty to be provided by Allison Transmission and not apparatus builder.

## **DRIVELINE**

Drivelines will have a heavy-duty metal tube that is properly sized for the intended application. The shafts will have a splined slip joint.

## **STEERING**

Steering will consist of a hydraulically driven steering system.

## **TIRES, FRONT**

Front tires will be Michelin 12R22.50, highway tread with a published rating capacity of 14,780 pounds.

## **WHEELS, FRONT**

Wheels for the front axle will be 22.50" x 8.25" aluminum disc, ten (10)-hole pattern.

## **TIRES, REAR**

Rear tires will be Michelin 315/80R22.50, 20-ply XDY3 tread.

## **WHEELS, REAR**

The rear wheels will be 22.50" x 9.00" aluminum disc with a ten (10)-hole pattern.

## **COVERS, LUG NUT, CHROME**

Chrome top hat with front see through oil cap cover, lug nut covers will be supplied on front and rear wheels.

## **CAB**

The standard four (4) door cab will consist of the following:

### **Configuration**

M2 Business Class or equivalent aluminum day cab.

### **Exterior Styling**

Aerodynamic hood and windshield

Tinted Glass in all Windows

Aluminum cab

Fiberglass hood

Single motor electric windshield wipers with delay

**Interior**

Gray vinyl mats  
Gray Vinyl Upholstery  
Dual Sun-visors  
Fresh Air Heater and Defroster

**CAB ACCESS STEPS**

The cab steps will be provided that are constructed of aluminum and cover fuel tanks and other unsightly chassis components and are in line with truck body running boards.

**MIRRORS**

West Coast style heated, mirrors constructed from a molded composite material with a bright finish will be provided. An 8.00" convex mirror will be included. Vendor to provide costing on remote adjustable mirrors.

**BUMPER**

A 12.00", three (3)-piece, full-width, chrome plated steel bumper with collapsible boxed ends, will be attached to the front of the chassis frame. The front bumper will be extended to accommodate a hose well for 1.75" hose, it shall be plumbed with a 2.5' discharge coming out of the top of the bumper to provide the ability to attach a 2.5' to 1.5' gated wye valve with CSA threads. and an automatic drain valve to prevent freezing of the pipeline. The control valve and lever shall be located at the operator pump panel.

**BUMPER GAP**

The standard bumper furnished with the chassis shall be used.

**TOW HOOKS**

Two (2) painted, forged steel tow hooks will be provided.

**SEATING**

Seating inside the cab will consist of a Seats Inc. air-ride driver seat and a four (4) SCBA seats seat.

**SCBA HOLDERS as per NFPA**

To fit MSA G1 SCBAs 4500 PSI carbon fiber cylinders.

**SEAT BELTS (orange)**

All seating positions in cab and/or crew cab will have orange seat belts.

**ENGINE COMPARTMENT LIGHTS**

Two (2) engine compartment lights will be installed under the engine hood, of which the switches are an integral part.

**STEP LIGHTS**

There will be six (6) Ri-Tar, Model M27, clear, LED step lights provided. There will be one (1) light installed at each cab and crew cab door, one (1) light per doorstep. The lights will be activated when the adjacent door is opened.



## **AIR CONDITIONING**

An air conditioner will be provided with the chassis that is integral with the heater and defroster system, that also provides heat and air conditioning to the rear of the cab.

## **CENTER CONSOLE**

- Center console to include area for radios, iPad and a dunnage area for maps etc.
- Mount for Ipad for Captains position

## **CAB INSTRUMENTS**

- Engine Temperature Gauge and Warning Buzzer
- Engine Oil Pressure Gauge and Warning Buzzer
- Speedometer with Odometer
- Engine Tachometer
- Engine Hour meter
- Fuel Level Gauge
- Voltmeter: Low voltage red warning light and audible alarm
- Air Brake Pressure Gauge
- Air Restriction Indicator
- Circuit Breakers: For overload protection of electric circuits
- Windshield Wiper Control with intermittent feature
- Windshield Washer Controls
- Back up camera to be provided
- Cab console to include four (4) 110 volt outlets and two (2) USB outlets

## **OPTIONAL CAB AIR FILTRATION**

Vendor to provide costing and options for in cab air filtration.

## **EMERGENCY SWITCH PANEL**

An emergency switch panel will be provided in the cab. The switch panel will be located overhead and on the cab instrument panel. Optional the manufacturer may have a better placement for the control panel. All emergency switches shall be in one cluster. With one master switch

## **SKID PLATE**

A 1/8" removable steel skid plate will be fastened to the bottom side of the fuel tank hangers.

## **BATTERY SYSTEM**

A single starting battery system will be provided consisting of two (2)-12 volt, 1100 CCA, maintenance-free, group 31 batteries.

The batteries system will have a total of 2200 CCA.

## **MASTER BATTERY SWITCH**

A master battery switch, to activate the battery system, will be provided inside the cab within easy reach of the driver. The master battery disconnect switch will be wired between the starter solenoid and the remainder of the electrical loads on the apparatus. A green "battery on" indicator light, visible from the driver's position will be provided.

## **BATTERY CHARGER/ 120-volt INLET SHORE LINE**

A 120-volt electric inlet auto eject with internal battery saver will be provided. A display bar graph indicating the state of charge will be included.

The battery saver circuit will be capable of supplying up to three (3) amps for external loads such as hand-lights or auxiliary radio batteries. The air inlet will be installed to maintain the air system pressure when the vehicle is not in use. The battery charger will be wired to the 120-volt shoreline to activate automatically when power is connected. Battery charger will be located in the front left body compartment. The battery charger indicator will be located on the driver's seat riser.

## **ALTERNATOR**

The alternator will have a capacity of 12-volt 270 amp.

## **ELECTRONIC LOAD MANAGEMENT**

A Kussmaul Load Manager 2 will be provided on the apparatus. The device is an electronic load management (ELM) system that monitors the vehicles 12-volt electrical system, and automatically reduces the electrical load in the event of a low voltage condition and by doing so, ensures the integrity of the electrical system. The ELM will monitor the vehicle's voltage while at the scene (parking brake applied). It will sequentially shut down individual electrical loads when the system voltage drops below a preset value. Two (2) separate electrical loads will be controlled by the load manager. The ELM will sequentially re-energize electrical loads as the system voltage recovers.

## **AMP DRAW REPORT**

The Dealer will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus will provide the following:

- 1) Documentation of the electrical system performance tests.
- 2) A written load analysis, which will include the following:
  - A) The nameplate rating of the alternator.
  - B) The alternator rating under the conditions specified per: Applicable NFPA 1901 or 1906  
(Current Edition).
  - C) The minimum continuous load of each component that is specified per: Applicable NFPA 1901 or 1906 (Current Edition).
  - D) Additional loads that, when added to the minimum continuous load, determine the total  
Connected load.
  - E) Each individual intermittent load. All the above listed items will be provided by the manufacturer per the applicable NFPA 1901 or 1906 (Current Edition).

## **EXTERIOR LIGHTING**

Exterior lighting will meet or exceed Federal Department of Transportation, Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements in effect at this time. Front headlights will be halogen type and comply to all FMVSS requirements.

Five (5) clearance/marker lights will be installed across the leading edge of the cab.

### **WARNING LIGHTS (Cab Face)**

A pair of red and blue flashing LED lights will be provided mounted on the cab face or grille. The color of these lights will be red left side blue right side.

A switch will be provided inside the cab on the switch panel for actuation.

These lights will be installed with a chrome plated ABS plastic flange.

### **BACK-UP ALARM**

An ECCO, Model SA917-PM2, solid state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum five (5) dBa above surrounding environmental noise levels.

### **DIGITAL MANUAL, BODY PARTS ONLY**

A custom parts manual for the manufacturer's installed parts only will be provided in digital format with the completed unit.

The manual will contain the following:

- Job number
- Part numbers with full descriptions
- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in Alphabetical order
- Instructions on how to locate a parts

The manual will be specifically written for the body model being purchased. It will not be a generic manual for a multitude of different bodies.

### **MANUALS, SERVICE**

A digital format service manual supplement containing parts and service information on Manufacturer's installed components will be provided with the completed unit.

The manual will be specifically written for the unit being purchased. It will not be a generic manual for a multitude of different units. Hard copy will be accepted.

### **MANUAL, CHASSIS OPERATION**

One (1) chassis operation manual will be provided with the completed unit.

### **ELECTRICAL WIRING DIAGRAMS**

Two (2) electrical wiring diagrams, prepared for the model of chassis and body, will be provided.

### **WATER TANK**

Booster tank will have a capacity not less than 950 imperial gallons and be constructed of polypropylene plastic by United Plastic Fabricating, Incorporated.

Tank joints and seams will be nitrogen welded inside and out.

Tank will be baffled in accordance with NFPA Bulletin 1901 requirements.

Baffles will have vent openings at both the top and bottom to permit movement of air and water between compartments.

Longitudinal partitions will be constructed of .38" polypropylene plastic and will extend from the bottom of the tank through the top cover to allow for positive welding.

Transverse partitions will extend from 4.00" off the bottom of the tank to the underside of the top cover.

All partitions will interlock and will be welded to the tank bottom and sides.

Tank top will be constructed of .50" polypropylene. It will be recessed .38" and will be welded to the tank sides and the longitudinal partitions.

Tank top will be sufficiently supported to keep it rigid during fast filling conditions.

Construction will include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two (2) of the dowels will be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes.

A sump that is 8.00" long x 8.00" wide x 6.00" deep will be provided at the bottom of the water tank. Sump will include a drain plug and the tank outlet.

Tank will be installed in a fabricated cradle assembly constructed of structural steel.

Sufficient cross members will be provided to properly support bottom of tank. Cross members will be constructed of steel bar channel or rectangular tubing.

Tank will "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, will be placed on all horizontal surfaces that the tank rests on.

Stops or other provision will be provided to prevent an empty tank from bouncing excessively while moving vehicle.

Mounting system will be approved by the tank manufacturer.

Fill tower will be constructed of .50" polypropylene and will be a minimum of 10.00" wide x 16.00" long. Fill tower will be furnished with a .25" thick polypropylene screen and a hinged cover and latch.

An overflow pipe, constructed of 6.00" schedule 40 polypropylene, will be installed approximately halfway down the fill tower and extend through the water tank and dump to the rear of the rear axle.

## **WATER TANK WARRANTY**

The tank will have a **lifetime** warranty.

If the tank manufacturer determines that the tank problem has rendered the truck out-of-service, the tank manufacturer will dispatch a service technician **WITHIN 48 HOURS (2 DAYS)** to repair the tank.

## **MAIN HOSE BED**

One (1) longitudinal hose bed to be located above the tank and rear truck body with two (2) adjustable hose dividers constructed of .250 aluminum. Dividers will have rounded upper rear corners with hand holes. Main hose bed to accommodate 800ft of 4" hi volume hose and 500ft of 2.5" hose and 800ft of 1.75". The hose bed to have noncorrosive removable recycled plastic flooring designed for ventilating hoses. Acorn nuts will be installed on all bolts in the hose bed which have exposed threads.

Flat surfaces will be sanded for uniform appearance or constructed of brushed aluminum.

## **HOSE BED COVERS**

The hose bed to have heavy duty reinforced lift up aluminum doors with vinyl split flaps at the rear, front and rear grab rails and heavy-duty air props to hold the doors open and to assist in opening of doors.

## **RUNNING BOARDS**

Running boards will be fabricated of .125" bright aluminum tread plate.

Each running board will be supported by a welded 2.00" square tubing and channel assembly, which will be bolted to the pump compartment substructure.

Running boards will be 12.75" deep and spaced .50" away from the pump panel.

A splashguard will be provided above the running board tread plate.

## **TAILBOARD**

Rear step will also be constructed of .125" bright aluminum tread plate and spaced .50" from the body, as well as supported by a structural steel assembly.

The rear tailboard will be 21" deep.

The exterior side will be flanged down and in.

Flanges will not be notched.

Entire rear surface between the beavertails will be covered with bright aluminum tread plate to protect the painted surface when removing hose.

Inside surface of each beavertail in the hose bed area will be covered with stainless steel to protect the paint finish.

The remaining inside surface of the beavertails will be covered with bright aluminum tread plate.

## **TOW EYES (Rear)**

Two (2) tow eyes will be installed below the rear tailboard compartment.

The tow eyes will be properly reinforced so that the truck can be pulled from the eyes.

## **COMPARTMENTATION**

Body and compartments will be fabricated of .125", 5052-H32 aluminum with a tensile strength range of 31,000 to 38,000 psi.

Side compartments will be an integral assembly with the rear fenders.

Circular fender liners will be provided for prevention of rust pockets and ease of maintenance.

Compartment flooring will be of the sweep out design with the floor higher than the compartment door lip.

The compartment door opening will be framed by flanging the edges in 1.75" and bending out again .75" to form an angle.

Drip protection will be provided above the doors by means of bright aluminum extrusion or formed bright aluminum tread plate.

The top of the compartment will be covered with bright aluminum tread plate rolled over the edges on the front, rear and outward side. These covers will have the corners "TIG" welded.

Side compartment covers will be separate from the compartment tops.

Front facing compartment walls will be covered with bright aluminum tread plate.

All screws and bolts which protrude into a compartment will have acorn nuts on the ends to prevent injury.

## **EXTERIOR CABINETS (ROADSIDE FRONT TO REAR)**

**Note; If the manufacturer has a better idea or layout for maximum compartment space please submit.**

Front L (1) 38" W x 24" D x 65"H - with two(2) pull out tool boards

Center L (2) 60" W x 24" D x 31"H - with one (1) shelf Cabinet will have 120 volt electrical outlets (2)

Rear L (3) 47" W x 24" D x 65"H two (2) shelves one (1) pull out tray and a swing out tool board.

All compartments equipped with roll up doors.

## **EXTERIOR CABINETS (CURB SIDE - FRONT TO REAR)**

Front R (1) 38" W x 24" D x 65"h - with two (2) shelves, one (1) pull out tray

Center R (2) 60" W x 24" D x 31"H - with one (1) shelf

Rear R (3) 47" W x 24" D x 65"H two (2) shelves one (1) pull out tray and a swing out tool board.

All compartments equipped with roll up doors.

Upper portion of these compartments may have to shallower to allow for international ladder storage.

## **REAR COMPARTMENT**

Rear compartment at tail board to have slide out try.

### **All exterior storage cabinets shall include the following:**

- Interlocking noncorrosive PVC turtle tiles matting or equal on all cabinet floors and adjustable shelving and roll out trays.
- All shelving to be full 100% heavy duty adjustable aluminum Unistrut tracking with spring loaded bolts.
- All floors to be sweep out type with no lips.
- All cabinets to be free of sharp edges or ungainly protrudes which will interfere with storage of equipment.
- All roll out trays and shelves to be constructed of .188 (3/16") aluminum.

*\* all fixtures and brackets in storage cabinets to be bolted in place so they can be easily removed or relocated  
if required to are- alien existing equipment or install new equipment in cabinets.*

## **TOP DUNNAGE BOX**

Vendor to provide options for top left hand side dunnage compartment (2 sections)

## **LADDER STORAGE RACKS**

Ladder system will be external and hydraulic in nature. The truck shall accommodate. one (1) 24' ladder, one (1) 14' roof ladder. Rear ladder and storage will include one (1) 12' folding attic ladder and two (2) New York roof hook mounting tubes.

## **SUCTION HOSE STORAGE**

Storage racks to be provided for one (1) 6" X 10' lightweight flexible suction hose to be located on the hydraulic ladder system and one (1) 6" X 10' lightweight flexible internal coming from the rear.

## **AIR BOTTLE STORAGE**

A total of four (4) air bottle compartments will be provided, two (2) each side of the body. Ahead and rear of the rear wheel wells each compartment will hold three (3) air bottles at total of twelve (12). The air bottle compartment will be in the form of a aluminum round tube to accommodate different size air bottles. An overlap door on each of the four (4) compartments with latch will be provided to contain the air bottles.

## **RUB RAIL**

Bottom edge of the side compartments will be trimmed with a bright aluminum high visibility extruded rub rail.

Trim will be 2.12" high with 1.38" flanges turned outward for rigidity. The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.

## **BODY FENDER CROWNS**

Stainless steel fender crowns will be provided around the rear wheel openings. These fender crowns must be wide enough to prevent splashing onto the body from the 315/80R22.5 tires on a 30,000# rear axle.

A rubber welting will be provided between the body and the crown to seal the seam and restrict moisture from entering.

A dielectric barrier will be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.

## **AGGRESSIVE WALKING SURFACE**

All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards.

## **LOUVERS**

Louvers will be stamped into compartment walls to provide the proper airflow inside the body compartments and to prevent water from dripping into the compartment. Where these louvers are provided, they will be formed into the metal and not added to the compartment as a separate plate.

## **HANDRAILS**

The handrails will be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface.

Chrome plated end stanchions will support the handrail. Plastic gaskets will be used between end stanchions and any painted surfaces.

Drain holes will be provided in the bottom of all vertically mounted handrails.

- Two (2) handrails will be provided, one above each side pump panel.
- One (1) vertical handrail, not less than 29.00" long, will be located on each rear beavertail.
- One (1) full width horizontal handrail will be provided below the hose bed at the rear of the apparatus

## **UNDERBODY SUPPORT SYSTEM**

Due to the severe loading requirements of this pumper a method of body and compartment support suitable for the intended load will be provided.

The backbone of the support system will be the chassis frame rails which is the strongest component of the chassis and is designed for sustaining maximum loads.

The support system will include .25" formed vertical and horizontal steel angle supports bolted to the chassis frame rails with .625" diameter bolts.

A full frame will be mounted on the top of these supports which will result in a 400 pound equipment support rating per lower side compartment and a 500 pound equipment support rating for the rear tailboard compartment.

The "floating substructure" will be separated from the horizontal members with neoprene elastomer isolators. These isolators will reduce the natural flex stress of the chassis from being

transmitted to the body. The isolators will have a broad load range, proven viability in vehicular applications, be of a fail-safe design and allow for all necessary movement in three (3) transitional and rotational modes. The neoprene isolators will be installed in a modified "V" three (3)-point mounting pattern to reduce the natural flex of the chassis being transmitted to the body.

## **TESTING OF BODY DESIGN**

Body structural analysis will be fully tested. Proven engineering and test techniques such as finite element analysis, stress coating and strain gauging have been performed with special attention given to fatigue, life and structural integrity of the body and substructure.

The body will be tested while loaded to its greatest in-service weight.

The criteria used during the testing procedure will include:

- Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb.
- Making a 90-degree turn, while driving at 20 mph to simulate aggressive driving conditions.
- Driving the vehicle on at 35 mph on a "washboard" road.
- Driving the vehicle at 55 mph on a smooth road.
- Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement.

Evidence of actual testing techniques will be made available upon request.

## **BODY WARRANTY**

The manufacturer will submit with the RFP the outlines of the truck manufactures warranty plan for the truck body and components.

## **OVERALL, HEIGHT/WEIGHT LABEL**

A label, indicating the overall height and weight of the vehicle, will be provided front dashboard area easily visible to driver in the cab.

## **REAR ACCESS LADDER**

A rear ladder shall be provided to access the hose beds area is desired. Folding steps acceptable.

## **FRONT TRUCK BODY ACCESS STEPS**

Bright finished, non-skid folding steps will be provided at the front of the rear body corners to access the top of the truck the pump panel left and right. The steps can be used as a hand hold with two openings wide enough for a gloved hand these steps will not interfere with the telescopic scene lights.

## **PUMP**

Pump will be a Waterous pump, minimum 1250 Imp gpm with Pump and Roll capability.

Pump will be Welded bolt flange centre of the impeller eye, class "A" type.

Pump will deliver the percentage of rated discharge at pressure indicated below:

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

Pump body will be close-grained gray iron, bronze fitted, and will be horizontally split in two (2) sections on a horizontal plain for easy removal of the entire impeller shaft assembly (including wear rings).

Pump will be designed for complete servicing from the bottom of the truck, without disturbing the pump setting or apparatus piping.



Pump case halves will be bolted together on a single horizontal face, to minimize chance of leakage and facilitate ease of reassembly. No end flanges may be used.

Discharge manifold of the pump will be cast as an integral part of the pump body assembly and will provide a minimum of three (3) 3.50" openings, for flexibility in providing various discharge outlets for maximum efficiency.

The 3.50" openings will be located as follows: one (1) outlet to the right of the pump, one (1) outlet to the left of the pump, and one (1) outlet directly on top of the discharge manifold.

Impeller shaft will be stainless steel accurately ground to size, and supported at each end by sealed, anti-friction ball bearings, for rigid precise support.

Bearings will be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. No special or sleeve type bearings will be used. Pump seals shall be those recommended by Waterous Manufacturing

Wear rings will be bronze and easily replaceable to restore original pump efficiency and eliminate the need to replace the entire pump casing due to wear.

### **PUMP TRANSMISSION**

The pump transmission will facilitate Pump and Roll capability. Vendor to provide options.

### **PUMP SHIFT**

Pump shift engagement will be made by actuated pneumatically (by air pressure), with a three (3) position air control switch located in the cab. A manual back-up shift control will also be located on the driver's side pump panel.

Two (2) indicator lights will be provided adjacent to the pump shift inside the cab. One (1) green light will indicate the pump shift has been completed and be labeled "pump engaged". The second green light will indicate when the transmission has been engaged, and that the chassis transmission is in pump gear. This indicator light will be labeled "OK to pump". Another green indicator light will be installed adjacent to the hand throttle on the pump panel and indicate either the pump is engaged, and the road transmission is in pump gear, or the road transmission is in neutral, and the pump is not engaged. This indicator light will be labeled "Warning: Do not open throttle unless light is on".

A manual pump throttle hand wheel will be provided on the pump panel.

### **AUXILIARY COOLING SYSTEM**

A supplementary heat exchange cooling system will be provided to allow the use of water from the discharge side of the pump for cooling the engine water. The heat exchanger will be cylindrical type and will be a separate unit. The heat exchanger will be installed in the pump or engine compartment with the control located on the pump operator's control panel. Exchanger will be plumbed to the master drain valve.

### **INTAKE RELIEF VALVE**

An Elkhart relief valve will be installed on the suction side of the pump preset at 125 psig.

Relief valve will have a working range of 75 psig to 250 psig.

Outlet will terminate below the frame rails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag. Control will be located behind an access door at the right (passenger's) side pump panel.

## **PRESSURE GOVERNOR**

A Class1 "Captain" pressure sensing governor (PSG) system will be provided. The PSG system will eliminate the need for a discharge pressure relief valve.

The pressure governor system will be connected directly to the engine mounted Electronic Control Module (ECM) or may be an integral part of the engine ECM. A pressure transducer will be installed in the water discharge manifold on the pump. The transducer continuously monitors pump pressure sending a signal to the pressure governor. The pressure governor then sends a signal to the engine ECM, which modulates fueling in order to maintain a set pressure or engine speed (within engine/pump operating capabilities). There will be no user serviceable items or maintenance required on the PSG system. The PSG system will not require a mechanical drive, oil, or air supply for a means of control. The pressure sensor governor system will be operable only after the vehicle parking brake has been set, the transmission is the pumping mode, and the fire pump has been engaged.

The pressure sensor governor system will have two (2) modes of operation: pressure mode or rpm mode. When in the pressure mode, the PSG system will automatically maintain the discharge pressure set by the operator regardless of flow (within engine/pump operating capabilities). In the rpm mode, the PSG system will automatically maintain a set engine speed, regardless of engine load (within engine operation capabilities).

A pump cavitation protection feature will be provided which will return the engine to idle should the pump cavitate.

A digital format describing the operation, of the pressure governor, and troubleshooting procedures will also be provided with the apparatus.

## **PRIMING PUMP**

The priming pump will be ULC approved and capable of pulling a vacuum through 20' of hard suction hose with a lift to 10' as per requirements of NFPA 1901. A single pull/push primer knob to be located at the operator panel, Primer to be displacement vane type pump with 12-volt electric motor.

Primer to be an oil-less priming system. (Air Primer)

## **TEST PLATE**

A main pump test plate will be provided at the left pump operator's panel that states the rated discharges and pressures as determined by the pump certification test.

## **HEAT ENCLOSURE**

A heat enclosure will be installed, trapping hot air radiated from the engine exhaust system, which will warm the fire pump. The enclosure will consist of a 12-gauge aluminum understructure, with easily removable panels for summer use. Also, a covering above the pump will be provided, so warm air cannot escape freely.

## **PUMP WARRANTY**

A **five (5) year** warranty will be provided for the pump.

## **PUMP MANUALS**

Two (2) pump manuals from the pump manufacturer will be furnished as well as in digital format with the apparatus. The manuals will cover pump operation, maintenance, and parts.

## **PLUMBING**

All inlet and outlet plumbing, 3.00" and smaller, will be plumbed with either stainless steel pipe or synthetic rubber hose reinforced with high-tensile polyester braid. Small diameter secondary plumbing such as drain lines will be stainless steel, brass, or hose. Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with Victaulic or rubber couplings. Plumbing manifold bodies will be ductile cast iron or stainless steel.

All lines to drain through either a master drain valve or will be equipped with individual drain valves. All individual drain lines for discharges will be extended with a hose to drain below the chassis frame.

All water carrying gauge lines will be of flexible polypropylene tubing.

## **PUMP PLUMBING WARRANTY**

Manufacture will provide.

## **MAIN PUMP INLETS**

A pump manifold inlet will be provided on each side of the vehicle and will be sized to the pump manufactures specs for a 1250 IMP, GPM. The suction inlets will include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.

The main pump inlets will have NH Threads with a long handle chrome cap.

## **VALVES**

All ball valves will be Akron Brass. The Akron valves will be the 8000 series heavy-duty style with a stainless-steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.

Valves will have a ten (10) year warranty.

## **INLET (Left side)**

On the left side pump panel will be one (1) - 2.50" auxiliary suction, terminating in 2.50" CSA Hose Thread. The auxiliary suction will be provided with a strainer, chrome swivel and plug.

The location of the valve for the one (1) inlet will be recessed behind the pump panel.

## **INLET (Right Side Optional)**

On the right-side pump panel will be one (1) - 2.50" auxiliary suction, terminating in 2.50" CSA

Hose Thread. The auxiliary suction will be provided with a strainer, chrome swivel and plug.

The location of the valve for the one (1) inlet will be recessed behind the pump panel.

## **INLET (Road, Curb, Rear)**

Suction inlets will be 6"

## **INLET CONTROL**

Control for the side auxiliary inlet(s) will be located at the inlet valve.

## **INLET BLEEDER VALVE**

A .75" bleeder valve will be provided for each side gated inlet. The valves will be located behind the panel with a swing style handle control extended to the outside of the panel.

The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders will be routed below the chassis frame rails.

### **TANK TO PUMP**

The booster tank will be connected to the intake side of the pump with heavy duty piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel.

Tank to pump line will run straight (no elbows) from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling will be included in this line to prevent damage from vibration or chassis flexing. A check valve will be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.

***Note: the piping must supply the pump with a minimum of 500 IGPM, failure to meet this requirement will mean immediate rejection of apparatus.***

### **TANK REFILL**

A 2.00" combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.

### **DISCHARGE OUTLETS (Left Side)**

There will be one (2) discharge outlets with a 2.50" valve on the left side of the apparatus, terminating with a male 2.50" CSA hose thread adapter.

### **DISCHARGE OUTLETS (Right Side)**

There will be one (1) discharge outlets with a 2.50" valve on the right side of the apparatus, terminating with a male 2.50" CSA hose thread adapter.

### **DISCHARGE OUTLET (Rear)**

There will be two (2) discharge outlet piped to the rear of the hose bed, on passenger's side, installed so proper clearance is provided for spanner wrenches or adapters. Plumbing will consist of 2.50" CSA piping along with a 2.50" full flow ball valve with the control from the pump operator's panel.

### **DISCHARGE OUTLET 4" STORZ**

There will be a 4" storz discharge on the right hand (curb side) pump panel, this outlet will be equipped with a slow opening gate valve and hand wheel.

### **DISCHARGE CAPS & ELBOWS**

Chrome plated, 45-degree elbow with rocker lug, caps with chains will be furnished for all side and rear discharge outlets.

### **OUTLET BLEEDERS**

A .75" bleeder valve will be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.

The valves will be located behind the panel with a twist style handle control extended to the outside of the side pump panel. The handles will be chrome plated and provide a visual indication of valve position. The twist handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders will be located at the bottom of the pump panel. They will be properly labeled

identifying the discharge they are plumbed in to. The water discharged by the bleeders will be routed below the chassis frame rails.

### **DISCHARGE OUTLET CONTROLS**

The discharge outlets will incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism will indicate the position of the valve.

If a hand wheel control valve is used, the control will be a minimum of a 3.9" diameter chrome plated hand wheel with a dial position indicator built into the center of the hand wheel.

### **DELUGE RISER**

A 3.00" deluge riser will be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping will be rigidly braced and installed securely so no movement develops when the line is charged. The riser will be gated and controlled at the pump operator's panel. The deluge riser will have male National Pipe Threads for mounting the monitor. Monitor and nozzle options will be discussed with the successful bidder.

### **FRONT BUMPER DISCHARGE/HOSE BED**

Front discharge will be 2 ½" discharge on top of the bumper with a 90 degree elbow and CSA hose thread. Hose bed will have a weather proof lid and compartment will hold 200' of 1.75" double jacketed hose.

### **CROSSLAY HOSE BEDS**

Two crosslays with 1.50" outlets will be provided. Each bed to be capable of carrying 200 feet of 1.75" double jacketed hose and will be plumbed with 2.00" i.d. pipe and gated with a 2.00" quarter turn ball valve. Outlets to be equipped with a 1.50" CSA hose thread 90-degree swivel located in the hose bed so that hose may be removed from either side of apparatus.

The crosslay controls will be at the pump operator's panel.

The center crosslay dividers will be fabricated of .25" aluminum and will provide adjustment from side to side. The divider will be unpainted with a DA finish. Vertical scuff plates, constructed of stainless steel, will be provided at the front and rear ends of the bed on each side of vehicle. crosslay bed flooring will consist of removable perforated brushed aluminum.

### **CROSSLAY HOSE RESTRAINT**

A vinyl cover will be provided on the ends of two (2) crosslay (s) to secure the hose during travel.

### **CROSSLAY COVER**

A slip proof aluminum hinged cover will be provided over the crosslay hose beds and will allow for walking on.

### **FOAM SYSTEM**

There will be a Foam Pro, direct injection foam proportioning system furnished and installed on the apparatus.

The system will be a single agent system suitable for handling Class "A" foam concentrate only.

The foam system will be plumbed to two crosslays and the front bumper 1.5 hose well.

The proportioning operation will use paddlewheel style water flow meter in a waterway that feeds a discharge manifold. The flow meter installation will be such that the unit will have the water flow capabilities listed below, when generating foam solution (as published by Foam-Pro).

Maximum Accuracy Flow Range 15 - 520 gpm

Maximum Operating Flow Range 5 - 625 gpm

The proportioning system will be capable of the maximum flows listed below at set foam percentages. The unit will not restrict the water flows at any given setting, however exceeding the published flows will result in a lower percentage than is indicated at the control module.

0.3% setting - Maximum Flow = 533 gpm

0.5% setting - Maximum Flow = 320 gpm

1.0% setting - Maximum Flow = 160 gpm

The foam system will be installed in accordance with the manufacturer recommendations.

The system will be equipped with a control module. It will be installed on the pump operator's panel and enable the pump operator to perform the following functions:

Activate the foam system.

Set foam percentage from 0.1% to 1%.

Flash a "low concentrate" warning light when the foam concentrate tank runs low.

Stop foam pump after two minutes if concentrate tank is still low.

The foam system will have a 12volt, 1/3 hp electric motor driven positive displacement piston type foam concentrate pump with a rated capacity of .01 to 1.6 gpm with operating pressures up to 400 psi.

A full flow check valve will be provided in the discharge piping to prevent foam contamination of the fire pump and water tank.

A 5 psi opening pressure check valve will be installed in the concentrate injection line to prevent foam siphoning into the discharge manifold.

## **FOAM TANK**

The foam tank will be an integral portion of the polypropylene water tank. The cell will have a capacity of 20 gallons of foam with the intended use of Class "A" foam. The brand of foam stored in this tank will be to be determined. The foam cell will not reduce the capacity of the water tank. The foam cell will have a screen in the fill dome and a breather in the lid.

## **FOAM TANK DRAIN**

The foam tank drain will be a 1.00" drain valve located inside the pump compartment accessible through a door on the passenger's side pump panel.

## **PUMP COMPARTMENT**

The pump compartment will be separate from the hose body and compartments so that each may flex independently of the other. It will be a fabricated assembly of steel tubing, angles and channels which supports both the fire pump and the side running boards.

The pump compartment will be mounted on the chassis frame rails with rubber biscuits in a four-point pattern to allow for chassis frame twist.

Pump compartment, pump, plumbing and gauge panels will be removable from the chassis in a single assembly.

## **PUMP MOUNTING**

Pump will be mounted to a substructure which will be mounted to the chassis frame rail using rubber isolators. The mounting will allow chassis frame rails to flex independently without damage to the fire pump.

## **PUMP CONTROL PANELS (Left Side Control)**

All pump controls and gauges will be located at the left (driver's) side of the apparatus and properly identified. **Gauges are to be internally lit in nature.** Layout of the pump control panel will be ergonomically efficient and systematically organized. The pump operator's control panel will be removable in two (2) main sections for ease of maintenance: The upper section will contain sub panels for the mounting of the pump pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable). Sub panels will be removable from the face of the pump panel for ease of maintenance. Below the sub panels will be located all valve controls and line pressure gauges. corresponding gauges shall be located directly above control valve handles in a straight orderly horizontal line. The lower section of the panel will contain all inlets, outlets, and drains.

All push/pull valve controls will have 1/4 turn locking control rods with polished chrome plated zinc tee handles. Guides for the push/pull control rods will be chrome plated zinc castings securely mounted to the pump panel. Push/pull valve controls will be capable of locking in any position. The control rods will pull straight out of the panel and will be equipped with universal joints to eliminate binding.

## **IDENTIFICATION TAGS**

The identification tag for each valve control will be recessed in the face of the tee handle.

All discharge outlets will have color coded identification tags, with each discharge having its own unique color. Color coding will include the labeling of the outlet and the drain for each corresponding discharge. All line pressure gauges will be mounted directly above the corresponding discharge control tee handles and recessed within the same chrome plated casting as the rod guide for quick identification. The gauge and rod guide casting will be removable from the face of the pump panel for ease of maintenance. The casting will be color coded to correspond with the discharge identification tag.

All remaining identification tags will be mounted on the pump panel in chrome plated bezels.

The pump panel on the right (passenger's) side will be removable with lift and turn type fasteners. Trim rings will be installed around all inlets and outlets.

The trim rings for the side discharge outlets will be color coded and labeled to correspond with the discharge identification tag.

## **PUMP PANEL CONFIGURATION**

The pump panel configuration will be arranged and installed in an organized manner that will provide user friendly operation.

## **PUMP AND GAUGE PANEL**

The pump and gauge panels will be constructed of stainless steel. The passenger's side pump panel will be removable and fastened with swell type fasteners.

## **PUMP PANEL GAUGES AND CONTROLS**

The following will be provided on the pump and gauge panels in a neat and orderly fashion:

- Class 1 Enfo 4 System: With LED display of the engine oil pressure, engine temperature and engine rpm. A warning alarm will be provided for these items.
- Tachometer: Electric
- Voltmeter

Also provided at the pump panel will be the following:

- Master Pump Drain Control
- Check Transmission Warning Indicator Light
- Stop Engine Warning Indicator Light
- Check Engine Warning Indicator Light.
- Pump Hour Meter
- Air-horn button

## **PUMP COMPARTMENT HEATER**

A hot water heater will be installed in the pump compartment.

Controls for the heater will be located at the pump operator's panel.

The pump compartment will be enclosed at the top to retain the heat generated by the heater inside the pump compartment.

A shutoff valve will be installed on both the intake and discharge side of the heater.

## **PUMP OVERHEAT INDICATOR LIGHT & DUMP VALVE**

A pump overheat indicator light (red flashing LED), and auto temperature exchange valve will be installed at the pump operator's panel. And when activated will allow for the exchange of cooler water to enter the pump from the water tank, the over heated water will be discharged to the water tank as not to waist water.

## **GAUGES, VACUUM and PRESSURE**

The pump vacuum and pressure gauges will be silicone filled.

The gauges will be a minimum of 4.00" in diameter and will have white faces with black lettering, with a pressure range of 30.00"-0-600#.

Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel.

Test port connections will be provided at the pump operator's panel. One will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and polished stainless-steel plugs. They will be marked with a label. This gauge will include a 10-year warranty against leakage, pointer defect, and defective bourdon tube.

## **PRESSURE GAUGES**

The individual "line" pressure gauges for the discharges will be lube filled.

They will be a minimum of 2.00" in diameter and have white faces with black lettering.

Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut. Gauges will have a pressure range of 30"-0-400#.

The individual pressure gauge will be installed as close to the outlet control as practical...

This gauge will include a 10-year warranty against leakage, pointer defect, and defective bourdon tube.



*NOTE: All gauges will be marked in pounds and kilopascals failure to comply will result in rejection.*

### **WATER LEVEL GAUGE and FOAM LEVEL GAUGE.**

An electronic water level gauge will be provided on the operator's panel that registers water level by means of five colored LED lights. The lights will be durable, ultra-bright five LED design viewable through 180 degrees.

The water level indicators will be as follows:

- 100% = Green
- 75% = Yellow
- 50% = Yellow
- 25% = Yellow
- Refill = Red

The light will flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights will flash sequentially when the water tank is empty.

The level measurement will be based on the sensing of head pressure of the fluid in the tank.

The display will be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design will provide complete protection from water and environmental elements. An industrial pressure transducer will be mounted to the outside of the tank. The field calibratable display measures head pressure to accurately show the tank level.

### **FOAM LEVEL GAUGE**

An electronic foam level tank gauge will be installed on the pump operator's panel. One (1) red light on the gauge will be provided to indicate when the foam concentrate drops to low level.

### **LIGHT SHIELD**

Illumination will be provided for controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus and the equipment provided on it. External illumination will be a minimum of 5 foot-candles on the face of the device. Internal illumination will be a minimum of 4 foot-lamberts.

Lights will be installed under a stainless-steel shield. One pump panel light will come on at the operator's panel when the pump is shifted into gear from inside the cab. This is to afford the operator some illumination when first approaching the control panel. The remaining lights to be actuated from a switch located on the pump panel.

### **ELECTRICAL**

All 12-volt electrical equipment installed by the apparatus manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run in loom or conduit where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will

be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements

such as temperature extremes, moisture and automotive fluids. Electrical wiring and equipment will be installed utilizing the following guidelines:

(1) All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.

(2) Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area is defined as any location outside of the cab or body.

(3) Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.

(4) Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation (of the plug).

(5) All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.

(6) All electrical terminals in exposed areas will have silicon (1890) applied completely over the metal portion of the terminal. All emergency light switches will be mounted on a separate panel installed in the cab. A master warning light switch and individual switches will be provided to allow pre-selection of emergency lights. The light switches will be "rocker" type with an internal indicator light to show when switch is energized. All switches will be properly identified and mounted in a removable panel for ease in servicing. Identification of the switches will be done by either printing or etching on the switch panel. The switches and identification will be illuminated. All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard, will be furnished.

Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments. An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests will be recorded and provided to the purchaser at time of delivery.

### **STEP LIGHTS**

Four (4) Ri-Tar, Model M27HW2 LED, step lights will be provided. One (1) step light will be provided on each side, on the front compartment face and two (2) step lights at the rear to illuminate the tailboard. These step lights will be actuated with the pump panel light switch.

### **REAR LIGHTING**

A pair three (3) lamp modules will be provided. Each module will include a stop-tail light, arrow directional light and backup light mounted in a polished aluminum housing. The lights will be mounted on the face of the rear body compartments.

Four (4) red reflectors will be provided. A license plate bracket will be mounted on the driver's side above the warning lights. A step lamp will illuminate the license plate. The three (3) identification lights located at the rear will be installed per the following: As close as practical to the vertical Centerline. Centers spaced not less than six (6) inches or more than twelve (12) inches apart. Red in color. All at the same height. The outside clearance lights located at the rear will be installed per the following: To indicate the overall width of the vehicle. At least one (1) each side of the vertical Centerline. All at the same height. As near the top as practical. To be visible from the rear and the side. Equivalent lighting packages as per the recommendation of the manufacturer may be acceptable LED lighting is preferred.

#### **"DO NOT MOVE APPARATUS" INDICATOR**

A flashing red indicator light (located in the driving compartment) will be illuminated automatically per the current edition of NFPA. The light will be labeled "Do Not Move Apparatus If Light Is On".

#### **OPEN DOOR INDICATOR LIGHT**

A red "open door" indicator light will be provided inside the cab, in clear view of the driver, to warn of an open compartment door.

#### **COMPARTMENT LIGHTING**

LED rope light/s will be provided in each enclosed compartment. Each light will encircle the inside of the door opening and illuminate the entire compartment. Opening the compartment door will automatically turn compartment lighting on.

#### **PUMP COMPARTMENT LIGHT**

A compartment LED lighting will be provided inside the pump enclosure.

#### **PERIMETER SCENE LIGHTS, CAB**

There will be a Truck-Lite, model 60, grommet mount weatherproof light provided for each cab door. Lighting will be designed to provide illumination on areas under the driver, officer, and

crew cab riding area exits, which will be activated automatically when the exit doors are opened and by the same means as the body perimeter lights.

The lighting will be capable of providing illumination at a minimum level of one (1) foot-candle on ground areas within 30.00" of the edge of the apparatus in areas which personnel climb in or out of the apparatus or descend from the apparatus to the ground level.

#### **PERIMETER SCENE LIGHTS, BODY**

There will be a total of four (4) Truck-Lite, model 60, grommet mount weatherproof lights provided on the apparatus. Two (2) lights will be provided under the rear step area and two (2) lights will be provided under the pump panel running boards. The lights will be spaced one (1) each side of apparatus and have a clear lens. The perimeter scene lights will be activated by a parking brake. The lighting will be capable of providing illumination at a minimum level of one

(1) foot-candle on ground areas within 30.00" of the edge of the apparatus in areas designed for personnel to climb onto the apparatus or descend from the apparatus to the ground level.

## **Brow Light**

A front of the cab Brow light will be mounted over the windshield as not to interfere with the emergency bar light. Light will be LED and vendor to provide candle power options. Preference will be given to a slim design I.E HiViz FireTech or Whelen.

## **SCENE LIGHTS**

Two (2) pair of LED scene lights will be installed 2 lights on each side of upper apparatus body, all will be flush mount LED with a minimum of 160,000 candle power. These lights will have eight-to-thirty-two-degree internal optics.

The lights will be controlled by the following:

From the switch panel, at the cab console one (1) for the right side and one (1) for the left side.

These lights will be installed

## **REAR SCENE LIGHTS**

One (1) pair of LED scene lights will be installed upper rear of apparatus body.

The lights will have eight-to-thirty-two-degree internal optics.

These lights will be controlled by the following options:

From the switch panel, at the cab console.

These lights will be provided with a flange..

## **TELESCOPIC SCENE LIGHT**

One LED light tower to be installed. Vendor to give light options with pricing.

## **AIR HORN SYSTEM**

Two (2) Stutter Tone air horns with 6.00" bell will be provided and located one (1) each side of the engine. The horn system will be piped to the air brake system wet tank utilizing .38" tubing. A pressure protection valve will be installed in-line to prevent the loss of air, in the air brake system.

## **AIR HORN CONTROL**

A lanyard rope pull control will be provided within reach of the driver and officer. Dash mounted push button acceptable, Emergency evacuation button to be installed on the pump panel (**foot buttons not acceptable**).

## **ELECTRONIC SIREN**

A "Federal electronic three tone siren with noise canceling microphone will be provided. Siren head will be located near the overhead switches.

The driver will have the option to control the siren or the chassis horns from the horn button by means of a selector switch.

## **SPEAKER**

There will be two (2) speakers recessed in the front bumper. Each speaker will be a 100-watt cast housing, inside-the-bumper mount. Each speaker will be connected to the siren amplifier.

## **LIGHTBAR**

A high intensity LED light bar will be installed with nighttime dimmer switch located on the control module. There will be red to the left half and blue to the right half.

*To meet NFPA requirements, all clear lights will be deactivated when the parking brake is applied.*

### **SIDE ZONE LOWER LIGHTING**

Four (4) flashing LED lights will be located at the following positions:  
Two (2) lights, one each side on the engine hood under 62".  
The color of these lights will be LED red left side, Blue on the right side.  
Two (2) lights, upper rear of apparatus.  
The color of these lights will be red left side, blue right.  
One (1) switch located in the cab on the switch panel will control these lights.  
These lights will be provided with a chrome plated ABS plastic flange

### **REAR ZONE LOWER LIGHTING**

Two (2) flashing "Super" LED warning lights will be located at the rear of the apparatus, required to meet or exceed the low-level optical warning and optical power requirements of NFPA.  
The color of these lights will be red left side blue right side.  
One (1) switch in the cab on the switch panel will control these lights.

### **WARNING LIGHTS (Rear of Hose Bed)**

Rear rotating lights, Whelen model RB6P, two (2) will be installed one (1) red left side Blue right side on each upper rear corner. On the same mounting bracket as the loading lights, with all wiring totally enclosed. These brackets will also support the clearance/marker lights.

### **TRAFFIC DIRECTING LIGHT**

There will be one (1) Whelen model TAL65 36.01" long x 2.84" high x 2.24" deep, LED traffic directing light installed at the rear of the apparatus  
The Whelen model TACTRLD1 control head will be included with this installation. This traffic directing light will be recessed with a tread-plate trim plate at the rear of the apparatus as high as practical. The traffic directing light controller will be located within the switch panel in the dashboard. The controller will be within easy reach of the driver. (Whelen Optional) manufacture to specify.

### **LOOSE EQUIPMENT**

The following equipment will be furnished with the completed unit:

- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts, and washers, as used in the construction of the unit.

### **SUCTION HOSE**

There will be Two (2) 4.5" X 10' with 4.5 NH couplings, light weight suction hoses provided.

- The Suction hose will be fitted with 4.5" NH threaded couplings male and female.
- Adapter to go from 6" suction inlet to 4.5NH to be provided.
- Hard suction hose strainer provided by Fire Department as required.

## **PISTON INTAKE VALVE**

There will be 2 (2) TFT 4.5"X 6" inlet piston valve with built in relief valve supplied, *(The inlet side of the valve to be 4.5" threaded to accommodate the suction hose, the pump side of the valve will accommodate the 6" intake manifold of the pump.)* NO EXCEPTIONS.

## **PAINT**

The exterior custom body painting finishing process as follows:

Manual Surface Preparation - All exposed metal surfaces on the custom body will be thoroughly cleaned and prepared for painting. Surfaces that will not be painted include all chrome plated, stainless steel, anodized aluminum, and bright aluminum tread-plate. Each imperfection on the exterior metal surface will be removed or filled and then sanded smooth for a smooth appearance. All seams will be sealed before painting.  
Chemical Cleaning and Treatment

The metal surfaces will be properly cleaned using a acid etching system. Surfaces are chemically cleaned to remove all dirt, oil, grease and metal oxides to ensure the subsequent coatings bond well. An ultra pure water final rinse will be applied to all metal surfaces, excluding

undercarriage components, at the conclusion of the metal treatment process. Sealer Primer Coat - A two (2) component sealer primer coat will be applied. Topcoat Paint - Two (2) coats of an automotive grade, two (2) component acrylic urethane paint, will also be applied.

All removable items such as brackets, compartment doors, door hinges, trim, etc. will be removed and painted separately to insure paint behind all mounted items. Body assemblies that can not be finish painted after assembly will be finish painted before assembly.

The chassis will be painted by the chassis manufacturer and will remain the commercial grade finish as provided. To ensure a good color match between the body and chassis, the apparatus manufacturer and chassis manufacturer will have a mutually pre-approved paint color program. The primary color of the apparatus will be dark red.

The use of a photo of previously purchased Arran-Elderslie apparatus will be used.

Prior to reassembly and reinstallation of lights, handrails, door hardware and any miscellaneous body items, an isolation tape or gasket material must be used to prevent damage to the finish painted surfaces (No Exceptions).

A nylon washer will be installed under each acorn nut or metal screw that is fastened directly to a painted body surface.

Vendor to supply costing on ceramic coating for any painted surface.

All aluminum surfaces that come in contact with components of another material will be properly prepared with gaskets, washers or material used to prevent electrolysis between the metals failure to comply will mean rejection of apparatus.

## **PAINT CHASSIS FRAME ASSEMBLY**

The chassis frame assembly will remain the color and paint quality as received from the chassis manufacturer.

The frame and components will not be repainted.

Components that are considered part of the "frame assembly" are frame rails, cross members, axles, suspension, steering gear and the fuel tank.

## **WARRANTY - PAINT AND CORROSION**

The bidder will submit a copy of the paint and corrosion warranty with tender for approval.

Failure to comply with this request will be cause for rejection of bid.

## **PAINT, COMPARTMENT INTERIOR**

The compartment interior will be painted with a gray spatter finish for ease of cleaning and to make it easier to touch up scratches and nicks.

## **REFLECTIVE BAND**

A 10.00" white reflective band will be provided across the front of the vehicle and along the sides of the body.

Chevroning will be provided at the rear of the apparatus (Red and Lime Green not Yellow) The reflective band provided on the cab face will be between the front grille and the front bumper. There will also be a reflective strip in the rub rail on the rear truck body.

## **REFLECTIVE STRIPE, CAB DOORS**

A ruby red reflective stripe will be provided on the interior of each cab door.

This stripe will be a minimum of 96 in sq and will meet the NFPA 1901 requirement.

## **LETTERING**

The Municipality will provide door decals for the front doors of the apparatus.

In addition, the station name will be overlaid in the white stripe on the front doors below the door decals.

## **OTHER CONSIDERATIONS**

*Payment in full for the apparatus will be forwarded when all terms and conditions of the contract including delivery have been met.*

*Arran-Elderslie is looking for a stock model truck as close to the aforementioned specifications as possible. Delivery of the completed truck will be discussed with the successful dealer. A timeline for delivery will be based on any modification required.*

### **Design Modifications**

*Modifications to the original accepted contract will not be permitted, unless approved by the Arran-Elderslie Fire Chief and will not inflate the original price agreed upon unless otherwise stated.*

### **Truck Preconstruction Meeting**

*A preconstruction meeting will be held prior to any construction of the apparatus to ensure that all the bases have been covered and or in the case of a stock model, an inspection prior to acceptance will be completed before leaving the manufacturing plant to the vender's location.*

### **Final Inspection**

*A final inspection will be conducted by the Fire Chief and his assistant prior to the apparatus leaving the plant for delivery.*

### **Licensing**

*The vehicle will be licensed by the truck dealer.*

### **Pre-Service Servicing**

*The Apparatus will be serviced at the dealer's location prior to delivery to the customer to ensure all parts and components of both the chassis and the truck are ready for service.*

### **Pre-Service Training**

*The dealer will supply six firefighters/ pump operators with a minimum of six (6) hours training on the safe operation of this piece of apparatus on a weeknight or weekend when it is suitable to meet with the six (6) firefighters.*

*Training will include:*

- 1. Pump Operations on the model of pump being supplied*
- 2. Foam Pro Operations*
- 3. Apparatus and Pump Maintenance*

### **NFPA and Transportation Regulations**

*The manufacturer will be responsible to ensure that all current regulation for motorized fire apparatus are met and or exceeded. At the time of manufacture.*