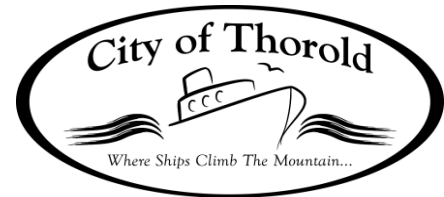


# Request for Proposal

## FOR SUPPLY OF ONE (1) MINI PUMPER 4X4 CREW CAB

TFES 2020-01

**THOROLD FIRE AND  
EMERGENCY SERVICES**



ISSUED DATE:

**Wednesday, July 22, 2020**

SUBMISSION DUE DATE:

**2:00 pm**

**Wednesday August 5, 2020**

All inquiries should be directed to:

**Terry Dixon, Fire Chief**  
905-227-6412 ext. 304  
[Terry.dixon@thorold.ca](mailto:Terry.dixon@thorold.ca)

## **CITY OF THOROLD FIRE AND EMERGENCY SERVICES**

### **REQUEST FOR PROPOSALS FOR SUPPLY OF ONE (1) MINI PUMPER 4X4 CREW CAB**

**RFP-TFES-2020-01**

#### **INFORMATION TO BIDDERS**

The City will only consider bids with a subject line clearly marked  
**“MINI PUMPER 4X4 CREW CAB”**

1. Submissions shall be emailed, prior to the Submission Deadline,  
to

Donna Delvecchio, City Clerk  
[Donna.delvecchio@thorold.ca](mailto:Donna.delvecchio@thorold.ca)

Until **August 5 2020 at 2:00 p.m. local time** for the purchase of one (1)  
Mini Pumper Crew Cab, as per the specifications.

2. Submissions will be opened immediately at 2:00 p.m. local time on  
August 5, 2020.
3. The supplier must state the time of delivery for the truck complete.  
Thorold Fire and Emergency Services is looking to have the truck  
delivered within 30 to 90 days of the closing date. Thorold Fire and  
Emergency Services is to be advised immediately of any necessary  
change in the stated time of delivery.
4. The bidder must submit relevant manufacturer's literature on the  
equipment with the Proposal.
5. The lowest, or any Proposal, will not necessarily be accepted.
6. Retain one set of documents for your records.

**CITY OF THOROLD FIRE AND EMERGENCY SERVICES**

**REQUEST FOR PROPOSALS FOR SUPPLY OF ONE (1) MINI PUMPER 4X4  
CREW CAB**

**RFP-TFES-2020-01**

I/We, the undersigned, agree to supply and deliver to the City of Thorold, not later than the time stated, the equipment as set out below for the following price:

1. One – **MINI PUMPER 4X4 CREW CAB** Fire apparatus as per specifications.

Make: \_\_\_\_\_

Model: \_\_\_\_\_

Year: \_\_\_\_\_

Expected Date of Delivery: \_\_\_\_\_

Net Price Delivered \$ \_\_\_\_\_

H.S.T. \$ \_\_\_\_\_

**TOTAL PRICE DELIVERED** \$ \_\_\_\_\_

4. (16 Towpath Street, Thorold, Ontario)  
Attention: Terry Dixon

Suggested additional extra items (including all taxes)

\$ \_\_\_\_\_

\$ \_\_\_\_\_

\$ \_\_\_\_\_

Truck will be delivered within \_\_\_\_\_ days maximum after order is placed with dealer.

**The City of Thorold Procurement Policy requires that the consideration of Canadian content in materials offered as part of any bid submission be identified wherever possible. Furthermore, preference shall be given in the award of any contract to that which has the greatest amount of Canadian content.**

**CITY OF THOROLD FIRE AND EMERGENCY SERVICES**

**REQUEST FOR PROPOSALS FOR SUPPLY OF ONE (1) MINI PUMPER 4X4  
CREW CAB RFP-TFES-2020-01**

A copy of the dealer's order to the manufacturer shall be delivered to the City of Thorold, c/o Terry Dixon, Fire Chief, when the order is placed.

\_\_\_\_\_  
Name of Signing Person (type or print)

\_\_\_\_\_  
Signature  
(I have binding authority)

\_\_\_\_\_  
Telephone Number

\_\_\_\_\_  
Position in Firm

\_\_\_\_\_  
Firm Name  
  
\_\_\_\_\_

ITEMS	DESCRIPTIONS	CONFORMITY		SPECIFICATIONS
		YES	NO	
<b><u>CHASSIS SPECIFICATION</u></b>				
	<b><u>Chassis, Crew Cab</u></b> 4x4 Crew Cab			
	<b><u>Warranty</u></b>  Basic ..... 36 month/36,000 miles Powertrain.....60 month/60,000 miles Corrosion Perforation . 60 month/unlimited mileage Roadside Assistance ..... 36 month/36,000 miles Diesel Engine.....60 month/100,000 miles  Front GAWR: 7,000 lbs. Rear GAWR: 13,500 lbs. GVWR: 19,500 lbs.			
	<b><u>Powertrain</u></b>  Turbo diesel engine * 220 amp dual alternator * 730 amp battery with run down protection * Engine oil cooler, transmission oil cooler . Automatic transmission with overdrive, lock-up, driver selection * Part-time four-wheel drive with electric shift-on-the-fly transfer case, auto locking hubs * Limited slip differential, ABS & driveline traction control, power take-off provision * 4.88 axle ratio * Stainless steel exhaust			
	<b><u>Steering and Suspension</u></b>  Hydraulic power-assist re-circulating ball steering * 4-wheel disc brakes with front and rear vented discs * HD ride suspension, with electronic stability * Non-independent front suspension * Front leading link suspension * Front anti-roll bar* HD front coil springs * HD front shocks * Rigid rear axle * Rear leaf suspension * HD rear anti-roll bar * HD rear leaf springs * HD rear shocks * Front and rear 19.5" x 6.00" polished forged aluminum wheels with chrome hub covers * 225/70R19.5 BSW AS front tires * AT rear tires			

<p><b><u>Safety</u></b></p> <p>4-wheel anti-lock braking system * Dual airbags, seat mounted driver and passenger side-impact airbags, airbag occupancy sensor * Front height adjustable seatbelts with front pre-tensioners</p>			
<p><b><u>Comfort and Convenience</u></b></p> <p>Air conditioning, 12V DC power outlets, retained accessory power * Analog instrumentation display includes tachometer, oil pressure gauge, engine temperature gauge, voltmeter gauge, oil temperature gauge, transmission fluid temp gauge, engine hour meter, systems monitor, redundant digital speedometer, trip computer, trip odometer * Warning indicators include oil pressure, engine temperature, battery, low oil level, low coolant, lights on, key, low fuel, low washer fluid, lighting malfunction, door ajar, service interval, brake fluid, turn signal on, transmission fluid temp * Steering wheel with tilt adjustment Variable intermittent front windshield wipers * Interior lights include dome light glove box</p>			
<p><b><u>Seating and Interior</u></b></p> <p>Seating capacity of 5 * 40-20-40 split-bench front seat with adjustable head restraints, delete center seat * 4-way adjustable driver seat * 4-way adjustable passenger seat * Full folding rear bench seat with fold-up cushion, 3 adjustable rear head restraints * Vinyl faced front seats with vinyl back material * Vinyl faced rear seats with carpet back material * Full cloth headliner, full vinyl/rubber floor covering, deluxe sound insulation, urethane gear shift knob</p>			

<p><b><u>Exterior Features</u></b></p> <p>1 skid plate, side impact beams, front license plate bracket, fully stainless steel body material * Black fender flares * Black side window moldings, black front windshield molding * Black door handles * Chrome grille * 4 doors * Driver and passenger power remote black heated convex spotter folding manual extendable trailer outside mirrors with turn signal indicators * Front chrome bumper with front tow hooks * Aero-composite halogen fully automatic headlamps with multiple headlamps, delay-off feature * Additional exterior lights include cab clearance lights, remote activated perimeter/approach lights * Chrome tubular side steps * Clear coat monotone paint.</p>			
<p><b><u>CAB PAINT</u></b></p> <p>The cab on the vehicle shall be painted by the factory.</p>			
<p><b><u>BACK-UP CAMERA</u></b></p> <p>The chassis shall be supplied with a rear back-up camera system. The camera shall be mounted immediately below the hose bed.</p>			
<p><b><u>CAB CONSOLE</u></b></p> <p>A heavy-duty angled console shall be installed in the cab between the driver and officer seats. The console shall be finished in black powder coat for durability and low reflection. The console shall be designed with a versatile mounting rail system that accommodates commercially available panels for installation of items such as radio equipment. The design shall allow for a total of sixteen (16) inches of mounting space. This option requires the center seating position to be removed from the cab.</p> <p>The console shall contain the following items as standard:</p> <ul style="list-style-type: none"> <li>• Siren control head in a 3" Equipment Mounting Plate</li> <li>• Pump Shift in a 4" custom laminate panel.</li> <li>• Three (3) Blank 3" Filler Plates</li> </ul> <p>The following items shall be installed on the console:</p> <ul style="list-style-type: none"> <li>• Two (2) microphone clips</li> </ul>			

<p><b><u>DRIVELINES</u></b></p> <p>Universal joints and driveshaft's shall be modified for mid ship pump installation. The driveshaft slip joints shall be coated to reduce sliding friction and thrust under high torque loads. Shafts shall be balanced to prevent vibration.</p>			
<p><b><u>FRONT BUMPER / BRUSH GUARD / WINCH RECEIVER</u></b></p> <p>The front of the chassis shall be equipped with a Fab Fours, model number FS11-S2550-1, heavy duty plate 'ranch' style bumper. The black painted assembly features a full replacement bumper with full grill guard and bolt on 2" receiver for portable winch operation.</p>			
<p><b><u>ELECTRONIC SIREN</u></b></p> <p>A Whelen electronic siren control, model 295SLSA1 full feature with 17 Scan-Lock siren tones including Radio Rebroadcast, Public Address, Manual, Wail, Yelp, Air Horn, Electronic Mechanical Siren tones and Piercer tones and hard-wired microphone, shall be provided.</p>			
<p><b><u>SIREN SPEAKER</u></b></p> <p>Behind the grille there shall be a Whelen model SA315 100-watt siren speaker.</p>			
<p><b><u>BATTERY CHARGER</u></b></p> <p>A PRO MARINER / ON BOARD SOLUTIONS, 1240, advanced electronic 4-step battery charger/power supply with a 40- amp output shall be installed, under the driver's seat.</p> <p>Since shoreline power is not always stable the charger shall be equipped with Auto-Ranging AC Input to automatically accept global voltages of 90 VAC to 270 VAC at 45-440 Hz.</p> <p>Field Selectable - Use with lead/acid or gel batteries (AGM factory option). Select length of absorption charge cycle based on size of batteries.</p>			



<p>In the 4-step charging system the charger will provide the following sequence.</p> <p>Step 1: Fast Charge - Charger will deliver its maximum amperage rating to the connected batteries for the fastest charge (current regulation mode) until battery voltage is raised to 14.6V (lead acid factory setting). At this time, the ProTech will shift to step 2.</p> <p>Step 2: Absorption Charge - Maximizes charge and holds voltage (voltage regulation mode) at 14.6V (lead acid factory setting) for 1 to 4 hours (selectable based on battery size), while letting the batteries determine the number of amps they can accept. This mode creates activity in the batteries, reducing sulfate buildup, and conditions the batteries for an extended life. After the programmed 1 to 4 hours have elapsed, the ProTech will shift to step 3.</p> <p>Step 3: Float Mode - A precision 13.3V (lead acid factory setting) finishing voltage that maintains each battery (step-down voltage regulation mode), which is perfect for short or long storage periods and will never overcharge your batteries. ProTech will deliver its full rated output for house loads including: lighting, electronics and pumps.</p> <p>Step 4: Recycle - If there are very large loads on the battery while the charger is on, the unit will recycle to the first step, ensuring that batteries stay fully charged.</p> <p>One-Year Warranty - Includes lifetime repair guarantee. Certified to - UL Marine 1236/SA</p> <p>The charger shall be mounted on the ceiling of the L1 compartment.</p>			
<p><b><u>PUMP FRAME AND PUMP PIPING</u></b></p> <p>The pump cage framework assemblies that are to be precision manufactured from strong corrosion free heavy wall stainless steel tubing. The framework is to mount to the truck frame through a mounting design complimented with iso-mount elastomer cushions. The result shall be a mounting system that allows for the twisting movement of the truck frame without undue stress loading of the pump module.</p> <p>Side panels are to be stainless steel. Brushed, mirror polished or power coated are acceptable for the side panels</p> <p>The valve control placements on a control module shall result in a neat and orderly layout. Open the access door on a side control module and peer inside. The horizontal control rods appear neat and orderly.</p> <p>The gauge panel door shall be an expansive double wall stainless door supported by a 3/8-inch diameter hinge pin.</p>			

<p>Inside the access door, there shall be a clean well build appearance. Stainless steel piping, stainless steel panels, and a stainless-steel framework. Pipe threads are not allowed on plumbing larger than 1-1/2 inch in diameter. The pump module design shall employ Victaulic coupling connections in the pump module to save time when servicing a component. Installation of components without</p> <p>Apparatus taking exception to any portion of this requirement will not be acceptable.</p>			
<p><b><u>PUMP COMPARTMENT</u></b></p> <p>For durability, the pump compartment shall be constructed entirely of brushed stainless steel.</p>			
<p><b><u>RUNNING BOARDS</u></b></p> <p>The running board step surface shall be covered in Laser Grip stainless steel meeting the current revision of NFPA 1901 for step requirements. Bolt on running boards and support structure shall be provided to provide field service of the running board without major repairs to the pump compartment in the event of an accident.</p>			
<p><b><u>PUMP SERVICE ACCESS</u></b></p> <p>The intake panels on the sides of the pump module shall be fastened with quick release latches to provide access to the pump at the intake piping area.</p> <p>The floor of the cross lays shall be removable for access to the top of the pump module.</p>			
<p><b><u>PUMP CONTROL PANEL</u></b></p> <p>All pump controls and gauges shall be located at the left (street) side of the apparatus and properly identified. The layout of the pump control panel shall be ergonomically efficient and systematically organized.</p> <p>All push-pull valve controls shall have quarter turn locking control rods with chrome plated zinc tee handles. Guides for the push-pull control rods shall be chrome plated zinc castings securely mounted to the pump panel. Push-pull valve controls shall be capable of locking in any position. The control rods shall pull straight out of the panel and shall be equipped with universal joints to eliminate binding.</p>			

## **PUMP PANEL IDENTIFICATION TAGS**

The identification tag for each valve shall be recessed in the face of the control handle. All discharges shall have color-coded metal identification tags, with each discharge having its own unique color scheme. Color-coding shall include the labeling of the outlet and the drain for each corresponding discharge.

## **PUMP PANEL FINISH**

All stainless panels used in the construction of the pump house shall have a brushed finish.

## **CONTROLS AND GAUGES**

The following shall be provided on the pump and gauge panels in a neat and orderly fashion. The gauge panel shall include the following

## **PRESSURE GOVERNOR, MONITORING, and MASTER PRESSURE DISPLAY**

Fire Research InControl series TGA400-A00 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1-3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 data bus or independent sensors. Outputs for engine control shall be on the J1939 data bus or engine specific wiring.

The following continuous displays shall be provided:

- Pump discharge; shown with four daylight bright LED digits more than 1/2" high
- Pump Intake; shown with four daylight bright LED digits more than 1/2" high Pressure / RPM setting; shown on a dot matrix message display
- Pressure and RPM operating mode LEDs
- Throttle ready LED
- Engine RPM; shown with four daylight bright LED digits more than 1/2" high Check engine and stop engine

- warning LEDs
- Oil pressure; shown on a dual color (green/red) LED bar graph display
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- Transmission Temperature: shown on a dual color (green/red) LED bar graph display
- Battery voltage; shown on a dual color (green/red) LED bar graph display.

The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and night time operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

- High Battery Voltage
- Low Battery Voltage (Engine Off)
- Low Battery Voltage (Engine Running) High Transmission Temperature
- Low Engine Oil Pressure
- High Engine Coolant Temperature Out of Water (visual alarm only)
- No Engine Response (visual alarm only)

The program features shall be accessed via push buttons and a control knob located on the front of the control panel.

There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

Inputs to the control panel from the pump discharge and intake pressure sensors shall be electrical. The discharge pressure display shall show pressures from 0 to 600 psi. The intake pressure display shall show pressures from -30 in. Hg to 600 psi.

The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi.

<p>Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.</p> <p>The pressure governor, monitoring and master pressure display shall be programmed to interface with a specific engine.</p>			
<p><b><u>PRESSURE GAUGES</u></b></p> <p>Each line pressure gauge shall be mounted immediately above the control for the corresponding valve. The individual line <i>pressure</i> gauges for the discharges shall be 2-1/2" in diameter with white dial face gauges with black lettering and markings. The gauges shall be a compound style gauge with a vacuum/pressure range of 0 - 400 psig.</p> <p>The gauges shall be fluid filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation to -40 degrees F. The cases shall be temperature compensated with an internal breathing diaphragm to permit fully filled cases and to allow a rigid lens with a distortion free viewing area. The gauge accuracy for the gauge shall be plus or minus 2% mid-scale, plus or minus 3% balance, per ANSI B40.1, Grade 1A.</p> <p>To prevent internal freezing and to keep contaminants from entering the gauge, the stem and bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.</p> <p>All line pressure gauges shall be mounted adjacent to the corresponding discharge control tee handles.</p> <p>All gauges must display both PSIG and KPA</p>			
<p><b><u>LED GUAGE LIGHTING</u></b></p> <p>The 2-1/2" pressure gauges shall be equipped with LED back lighting.</p>			
<p><b><u>PUMP PANEL LIGHTING</u></b></p> <p>The pump operator's panel shall be supplied with a LED light system. LED strip lights with a stainless-steel hood shall be mounted across the top of the pump panel gauges and controls.</p> <p>LED strip lights with a stainless-steel hood shall be provided on each side of the pump module above the side panels.</p>			

<p>All pump module lighting shall illuminate when the parking brake is engaged. There shall be a white/red color selector switch in the cab that controls the color of this lighting.</p>			
<p><b><u>WATER TANK INDICATOR</u></b></p> <p>Fire Research TankVision model WLA300-A00 tank indicator kit shall be installed. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive blue label.</p> <p>The program features shall be accessed from the front of the indicator module. The program shall support self- diagnostics capabilities, self-calibration, and a data link to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.</p> <p>The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall place on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.</p>			
<p><b><u>PUMP MANUFACTURER AND MODEL</u></b></p> <p>The pump shall be a Hale DSD model midship pump.</p>			
<p><b><u>PUMP CONSTRUCTION AND ASSEMBLY</u></b></p> <p>The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance specs as outlined by the latest NFPA Pamphlet No. 1901. Pump shall be free from objectionable pulsation and vibration.</p> <p>The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI. All moving metal parts in contact with water shall be of high-quality bronze or stainless steel. Pump body shall be vertically split on a single plane for easy removal of entire impeller assembly including wear rings and bearings without disturbing piping or the mounting of the pump in chassis. Pump shaft to be rigidly</p>			

<p>supported by three bearings for minimum deflection. The bearings shall be heavy-duty, deep groove ball bearings in the gearbox and they shall be splash lubricated.</p> <p>Pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machined, hand ground, and individually balanced. The vanes of the impeller intake eyes shall be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.</p> <p>Removable, non-corrosive material clearance rings shall be provided.</p> <p>The pump shaft shall be heat-treated, electric furnace, corrosion resistant stainless steel. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of gearbox.</p>			
<p><b><u>PUMP TRANSMISSION</u></b></p> <p>The pump transmission shall be assembled and tested at the pump manufacturer's factory. Pump transmission shall be of sufficient size to withstand up to 16,000 lbs. ft. of torque in road operating conditions. The pump transmission shall be designed with ample capacity for lubrication reserve and to maintain the proper operating temperature.</p> <p>The transmission drive shafts shall be of heat-treated chrome nickel steel and at least 2-3/4 inches in diameter on both the input and output drive shafts. They shall withstand the full torque of the engine. All gears drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated, shaved, hardened and ground to give an extremely accurate gear for long life, smooth quiet running, and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust.</p> <p>The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected. If gearbox is equipped with a power shift, the shifting mechanism shall be a heat-treated, hard-anodized aluminum power cylinder, with stainless steel shaft. An in-cab control for rapid shift shall be provided that locks in road or pump.</p> <p>Three green warning lights shall be provided to indicate to the operator when the pump has completed the shift from Road to Pump position. Two green lights to be located in the truck driving compartment and one green light on pump operator's panel adjacent to the throttle control. All lights to have appropriate identification/instruction plates.</p>			

## **PUMP RATING AND TEST REQUIREMENTS**

The pump shall be of a size and design to mount on the chassis rails of commercial and custom truck chassis, and have the capacity of 1500 gallons per minute (U.S. GPM), NFPA 1901 rated performance. The pump shall deliver the percentage of rated discharge at pressures indicated below:

- 100 percent of rated capacity at 150 pounds net pressure
- 70 percent of rated capacity at 200 pounds net pressure
- 50 percent of rated capacity at 250 pounds net pressure
- 100 percent of rated capacity at 165 pounds net pressure

The entire pump shall be assembled and tested at the pump manufacturer's factory. The pump shall be driven by a driveline from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance.

## **ALTITUDE REQUIREMENTS**

The apparatus shall be designed to meet the specified rating at 0 to 2000' altitude.

## **PRIMING PUMP**

The priming pump shall be a positive displacement vane type, oil-less, electrically driven, and conform to standards outlined in NFPA 1901. One priming control shall both start the priming motor and open the priming valve.

## **PNEUMATIC PUMP SHIFT**

The pump shift shall be air operated and shall incorporate an air double action piston to shift from road to pump and back. A manual or electric operated pump shift mechanism is not acceptable. The pump shift switch shall be mounted in the cab and identified as "AIR PUMP SHIFT" and include instructions permanently inscribed on the pump shift switch plate. The in-cab operating valve uses a spring-loaded locking collar to prevent it from accidentally being moved.



<p>The pump shift control assembly shall incorporate an indicating light system, which will notify the operator when the shift has been completed to PUMP and when the chassis transmission is in correct pumping gear.</p> <p>The switch that activates the lights must be mounted on the pump transmission and positioned so that the pump shift arm activates the switch only when the shift arm has completed its full travel into PUMP position. An additional indicator light shall be provided adjacent to the throttle control at the pump operator's panel to indicate a completion of the pump shift.</p>			
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**MECHANICAL SEAL**

The fire pump shall be provided with a mechanical pump seal. One (1) only required on the suction, inboard, side of the pump. The mechanical seal shall be two inches in diameter and shall be spring loaded, maintenance free and self- adjusting. Mechanical seal construction shall be a carbon sealing ring, stainless steel coil spring, Viton rubber boot, and a tungsten carbide seat with Teflon backup seal.

**ANODE SYSTEM**

To reduce the effect of galvanic action the pump shall be equipped with two alloy (2) anodes. One anode is to be installed on the inlet (suction) side of the system and one anode is to be installed on the pressure (outlet) side of the system.

The anode brass cap is to be drilled with a 1/8" diameter hole to provide an indicator when the anode alloy element is to be replaced.

**THERMAL PROTECTION**

The pump shall be equipped with a TRV-L, thermal protection device, which monitors the water temperature of the pump and relieves water when the temperature inside the pump exceeds the preset value of the relief valve (120 degrees F / 49 degrees C).

The TRV shall automatically dump a controlled amount of water to the atmosphere when the pump water temperature exceeds the preset value. The valve shall automatically close when the water temperature cools to below the preset value.

<p>An aluminum composite panel placard with a visual warning lamp and test button shall be provided on the operator's panel. The warning light shall illuminate when the Thermal Relief Valve is open and discharging water.</p>			
<p><b><u>SUCTION PRESSURE RELIEF VALVE</u></b></p> <p>A pressure relief valve shall be provided. The valve shall have an easy to read adjustment range from 90 to 300 PSI in 90, 125, 150, 200, 250, 300 PSI increments. For corrosion resistance the cast aluminum valve shall be hardcoat anodized with a powder coat interior and exterior finish. The valve shall be configured for either a Waterous or Hale pump.</p> <p>The discharge side of the intake relief valve shall be plumbed to the right side below the running boards, away from but, visible to the pump operator, and shall terminate with an unthreaded pipe.</p> <p>The adjustment control shall be located behind the street side pump panel.</p>			
<p><b><u>MASTER DRAIN</u></b></p> <p>The apparatus shall be equipped with a Class 1 Manual Master Pump Drain for draining of the lower pump cavities, volute and selected water-carrying lines and accessories. The all brass and stainless-steel construction allows for operation up to 600 psi.</p>			
<p><b><u>THIRD PARTY PUMP TEST</u></b></p> <p>The pump shall undergo third party pump test with line and/or low voltage requirements of NFPA 1901 prior to delivery of the completed apparatus. The TUV acceptance certificate shall be furnished with the apparatus on delivery.</p>			
<p><b><u>FIRE PUMP WARRANTY</u></b></p> <p>Standard 5-year warranty (Parts and Labor for the first two years, parts only years 3 - 5) See Hale warranty for full details.</p>			

<p><b><u>ELECTRONIC PUMP MANUALS</u></b></p> <p>Two (2) sets of electronic fire pump service and operation manuals shall be provided with the completed apparatus.</p>			
<p><b><u>LEFT SIDE STEAMER INLET</u></b></p> <p>There shall be one (1) steamer inlet furnished on the left side pump panel. The suction inlet shall have 6" NH thread. The suction inlet shall have a removable strainer provided inside the external inlet.</p> <p>An Akron revolution Valve model 7983 6" NH F X 6"NH M with drain and an Akron revolution adapter model 4060 4" Storz x 6"NH shall be provided</p>			
<p><b><u>LARGE DIAMETER CAP</u></b></p> <p>A six (6) inch chrome plated cap with long handles shall be supplied. The cap shall be capable of withstanding 500 PSI and be trimmed with the apparatus manufacturer's logo in the center of the cap.</p>			
<p><b><u>RIGHT SIDE STEAMER INLET</u></b></p> <p>There shall be one (1) steamer inlet furnished on the right-side pump panel. The suction inlet shall have 6" NH thread. The suction inlet shall have a removable strainer provided inside the external inlet.</p>			
<p><b><u>LARGE DIAMETER CAP</u></b></p> <p>A six (6) inch chrome plated cap with long handles shall be supplied. The cap shall be capable of withstanding 500 PSI and be trimmed with the apparatus manufacturer's logo in the center of the cap.</p>			

<p><b><u>LEFT SIDE INTAKE</u></b></p> <p>There shall be an intake located on the left (street) side of the pump and shall contain:</p> <p>A 2-1/2" intake shall be provided. The inlet shall have a 2-1/2" quarter-turn swing-out valve. The inlet shall be provided with a 2-1/2" CSA female swivel that extends through the pump panel.</p> <p>The inlet valve shall have a swing type control handle located adjacent to the valve.</p> <p>One (1) 2-1/2" chrome plated rocker lug plug with chain shall be supplied</p>			
<p><b><u>LEFT SIDE DISCHARGE #2</u></b></p> <p>The second from the forward discharge on the left (street) side of the pump panel shall contain:</p> <p>A 2-1/2" discharge shall be provided. The discharge outlet shall have a 2-1/2" quarter-turn swing-out valve. The discharge shall be provided with chrome plated 30-degree discharge elbow with 2-1/2" CSA male threads that extends through the pump panel.</p>			
<p><b><u>DISCHARGE CAP</u></b></p> <p>One (1) chrome plated, Class 1, 2-1/2" rocker lug cap with lug vent and chain shall be furnished.</p>			
<p><b><u>RIGHT SIDE FRONT DISCHARGE</u></b></p> <p>The forward discharge on the right (curb) side of the pump panel shall contain:</p> <p>A 3" discharge shall be provided. The discharge outlet shall have a 3" quarter-turn swing-out valve. The discharge shall be provided with chrome plated 30-degree discharge elbow with 3" NST male threads that extends through the pump panel.</p>			

**DISCHARGE CAP and ADAPTER**

One (1) 3inch NST to 4 inch Storz adapter shall be provided. A 4inch storz cap and shall be provided for the adapter.

**RIGHT SIDE REAR DISCHARGE**

The second from the forward discharge on the right (curb) side of the pump panel shall contain:

A 4" discharge shall be provided. The discharge outlet shall have a 4" quarter-turn swing-out valve. The discharge shall be provided with chrome plated straight discharge with 4" NST threads that extends through the pump panel.

Control of the outlet shall be accomplished using an electric controller. There shall be an LED indicator on the controller to indicate the valve position.

**STORZ ADAPTER**

One (1) 4" NHFemale swivel thread 30-degree down to 4" Storz hard coated aluminum adapter shall be provided.

One (1) 4" Storz cap and lanyard with a suction gasket shall be provided.

**PUMP CROSSLAYS**

There shall be two (2) hose storage crosslay areas mounted on top of the pump module. They shall be arranged in a double stack design with a divider in the center. Each hose storage area shall be provided with dimensions of 9" wide x 57" deep x 13" tall [4 cu. ft. each].

**DISCHARGE VALVES**

There shall be one (1) discharge outlet in each hose storage compartment.

The discharge outlet shall have a 2" quarter-turn swing-out valve with a push pull type control handle adjacent to the valve.

The discharge shall be provided with a swivel head with 1-1/2" NPSH male threads that extend through the hose compartment floor.

<p><b><u>CROSSLAY HOSE GUIDES</u></b></p> <p>Brushed stainless steel hose guides shall be provided on the left and right side of each hose bed.</p>			
<p><b><u>CROSSLAY HOSEBED COVER</u></b></p> <p>A vinyl coated nylon hose bed cover shall be provided over the crosslay hose beds. The vinyl crosslay cover shall be Midnight Black in color.</p>			
<p><b><u>ELKHART BALL VALVES</u></b></p> <p>All discharge ball valves shall be Elkhart heavy duty swing out valve with stainless steel ball unless specified otherwise.</p>			
<p><b><u>TANK TO PUMP</u></b></p> <p>The tank to pump piping shall be capable of delivering water to the pump at a rate of five hundred (500) gallons per minute. This flow shall be sustained while pumping to a minimum of 80% of the certified tank capacity with the apparatus on level ground. The tank to pump line shall run from the pump to the front face of the water tank and down into the tank sump. A rubber coupling shall be included in this line to prevent damage from vibration or chassis flexing. The tank to pump line shall be 3" I.D. piping with a 3" ball valve.</p>			
<p><b><u>TANK REFILL</u></b></p> <p>A 2" tank refill line shall be provided using a 2" quarter-turn full flow ball valve controlled from the pump operator's panel with a manual locking handle. The tank refill shall be plumbed with high pressure flexible piping and high-pressure flexible piping stainless steel couplings.</p>			
<p><b><u>PURCHASE INTENT</u></b></p> <p>The apparatus being purchased is expected to have an 18 to 20-year service life. Based on this requirement, the department is extremely concerned that the apparatus remains structurally sound and the outward appearance remains in a "like new" condition, with minimal maintenance and upkeep, throughout the intended service life.</p>			

<p>Aluminum apparatus bodies and differing construction designs will be reviewed and considered ONLY if the builder / manufacture provides in the respondent specifications adequate proof that procedures and materials employed in the design prevent corrosion over the intended service life. Burden of proof is on the bidder and final determination of acceptability will be solely determined by the department.</p> <p>The entire body design shall be of a laser machined, bolted design to allow for ease of removal for repair or replacement, without cutting welds.</p>			
<p><b><u>APPARATUS BODY DESIGN AND CONSTRUCTION</u></b></p> <p>The apparatus body shall be built of stainless steel and shall be designed exclusively for Fire Service use. The overall body width shall be 95 inches wide. All metal work shall be free of sharp edges, objects or corners. No exceptions are allowed to this requirement.</p> <p>The body design shall be fully tested with proven engineering and test techniques such as finite element analysis, stress coating, and strain gauging. Engineering and test techniques shall have been performed with special attention given to fatigue life and structural integrity of compartments and body support system.</p> <p>The apparatus body shall be designed with the use of parametric modeling engineering software to ensure proper design of panel cuts and alignment of holes in mating parts. The entire apparatus body shall be a precision laser machined, bolted construction, properly reinforced with integral flanges eliminating the need for additional structural shapes. Hose body fabrications shall be free of all internal projections which might injure personnel or fire hose.</p>			
<p><b><u>MODULAR BODY REQUIREMENTS</u></b></p> <p>The body shall be completely modular in design allowing transfer of body components to a new chassis in the event of an accident or wear. Body components shall be removable from chassis without cutting or bending. The modular design shall also facilitate ease of repair or replacement of major or minor body parts. The mounting of the apparatus body shall be separate and distinct from the water tank mounting and the pump module mounting.</p> <p>All body panels are to be laser machined on a CAM controlled laser to ensure accuracy (+/- .010"). This shall greatly enhance assembly and matching of repair parts. The body compartment floors, rear walls and roof areas shall be constructed of 12-gauge stainless steel. The vertical front and rear walls are designed with 14-gauge stainless steel. These</p>			

<p>front and rear walls are designed as a structural beam with the inclusion of the design.</p> <p>Interior stainless-steel panels shall be #4B finish to eliminate the need for high maintenance painted surfaces in the compartments. All exterior stainless-steel panels shall have #4B finish.</p> <p>The entire body shall be fabricated using precision holding fixtures to ensure accurate dimensions. Body front and rear vertical flanges shall be triple broken, providing a mounting area for rear hand rails. Major body components shall consist of right and left body sides, and rear facing compartments.</p>			
<p><b><u>COMPARTMENT ROOF CONSTRUCTION</u></b></p> <p>Each compartment top shall have a bolt in 12-gauge stainless roof section for supporting roof loads of up to 500 pounds per square foot without permanent roof deformation. The stainless roof sections shall attach the compartment rear wall and compartment vertical sides through a fastened joint creating a full perimeter compartment attachment of the stainless roof section.</p>			
<p><b><u>COMPARTMENT INTERIOR FINISH</u></b></p> <p>For better interior visibility, to reflect light better, ease of maintenance and prevent the masking of poor welds and questionable workmanship the interior of the body compartments shall remain uncoated.</p>			
<p><b><u>BEVELED REAR TAILBOARD</u></b></p> <p>A rear tailboard 8" deep shall be provided at the rear from "Laser Grip" stainless steel. The tailboard shall provide recessed for the rear ICC marker lights. It shall be bolted to the rear support structure. The corners of the rear bumper shall be beveled back to reduce the rear bumper swing of the vehicle.</p>			
<p><b><u>CHASSIS FRAME EXTENSION</u></b></p> <p>There shall be a rear three (3) inch x four (4) inch x 1/4-inch wall ASTM A-500 grade B rectangular tubing frame extension to provide frame support for the rear of the apparatus body.</p>			



<p>Two vertical mounting plates are to be welded to the tubing to provide a drop frame connection to the truck chassis. This extension assembly is to be bolted to the truck chassis with eight (8) 1/2 grade 8 bolts with hardened flat washers to form an integral part of the truck frame assembly.</p>			
<p><b><u>RECEIVER HITCH</u></b></p> <p>There shall be a Class IV receiver hitch assembly as an integral part of the chassis rear frame extension that is located at the rear of the apparatus below the rear step.</p>			
<p><b><u>EXTENSION PAINT FINISH</u></b></p> <p>The rear frame extension assembly and hitch assembly is to be black powder coated prior to installation.</p>			
<p><b><u>COMPARTMENT DESIGN AND CONSTRUCTION</u></b></p> <p>All compartments shall be manufactured from 12-gauge stainless steel with the vertical front and rear corner walls from 14-gauge, shall be of sweep out design and shall be bolted together. Stainless recessed round head bolts and stainless aircraft style "ESNA" nuts shall be applied with proper torque rating for each fastener. This type of construction shall greatly enhance the strength and ease of parts replacement in the event of damage and future modifications. Wherever possible, body bolts shall be hidden from plain view for appearance and ease of apparatus cleaning.</p>			
<p><b><u>COMPARTMENT VENTILATION</u></b></p> <p>Each compartment shall be provided with a louver to provide adequate ventilation.</p>			
<p><b><u>VENT FILTRATION</u></b></p> <p>There shall be filters provided for compartments L1, L3, R1 and R3. The protective louver covering the filter shall be removable to allow for filter changing.</p>			

<p>The filter shall be 100% virgin nylon fiber in an open web design that is USDA approved. The filter shall be chemically treated with Dimethyl Benzyl Ammonium Saccharinate to aid in the reduction of bacteria and fungi.</p>			
<p><b><u>WATER TANK CAPACITY</u></b></p> <p>The water tank shall be rectangular shaped, and shall have a capacity of 300 – 400 US gallons.</p>			
<p><b><u>TANK LID &amp; FILL TOWER</u></b></p> <p>The tank shall have a combination vent and fill tower. The fill tower shall be constructed of 1/2" thick Polyprene &amp; Mac226 and shall be a minimum dimension of 8"x 8" outer perimeter. The tower shall be located in the center front the tank unless otherwise specified by the purchaser. The tower shall have a 1/4" thick removable Polyprene &amp; Mac226; screen and a Polyprene &amp; Mac226 hinged-type cover. Inside the fill tower, there shall be a combination vent overflow pipe. The vent overflow shall be a minimum of schedule 40 pipe with a minimum ID of 4" that is designed to run through the tank, and shall be piped behind the rear axle beneath the tank.</p> <p>The tank cover shall be constructed of recessed 1/2" thick Polyprene &amp; Mac226, stress relieved, UV stabilized material. A minimum of two lifting dowels shall be drilled and tapped to accommodate the lifting eyes.</p>			
<p><b><u>OVERFLOW AND VENT PIPE</u></b></p> <p>The fill tower shall be fitted with an integral 4" ID, Schedule 40 PVC combination overflow/vent pipe running from the fill tower through the tank to a 4" coupling flush mounted into the bottom of the tank to allow water to overflow beneath the chassis.</p>			
<p><b><u>BODY MODULE CAPACITIES AND HOSEBED HEIGHT</u></b></p> <p>The total capacity of the body module exterior compartments shall be 139 cubic feet.</p> <p>The total capacity of the body hosebed shall be approximately 40 cubic feet.</p> <p>The hosebed shall be approximately 44" from the bumper.</p> <p>The body shall have an overall length of 108".</p>			

**APPARATUS BODY HOSEBED**

The hose bed shall be constructed in such a manner that will prevent damage to fire hose. The hosebed shall comply with the current NFPA requirements. The interior of the hosebed shall be free of projections such as nuts, sharp edges or brackets that may damage hose. The hosebed and walls shall be manufactured from stainless steel. No exceptions to this requirement are allowed.

An aluminum extrusion shall be installed over the rear opening of the hosebed to protect the body from wear. The hosebed bottom shall be fitted with removable slatted, ribbed 6" heavy-duty extruded aluminum floorboards.

**ADJUSTABLE HOSE BED DIVIDERS**

Two adjustable hosebed divider shall be provided. The divider shall be fabricated from thick smooth aluminum plate.

There shall be two hand hold openings provided. One (1) at the rear in a vertical position and one (1) approximately 24 inches in from the rear in a horizontal position.

**HOSEBED COVER**

A black vinyl hosebed cover shall be provided and designed to cover the entire main hosebed area. The cover shall be installed with "stretch cord type" fasteners along each side of the hosebed. A weighted flap shall be incorporated into the rear edge of the cover.

The hosebed cover rear flap shall have a positive locking device to meet the requirements of NFPA.

**LEFT SIDE COMPARTMENT DIMENSIONS**

**FORWARD OF WHEEL WELL**

There shall be one (1) rescue style, full height, full depth compartment ahead of the rear wheels. The compartment dimensions shall be 35-1/2" wide x 57" high x 22" deep with the door closed. The door opening shall be 26-1/2" wide x 49-1/2" tall.

## **ABOVE WHEEL WELL**

There shall be one (1) high side full depth compartment centered over the rear wheels. The compartment dimensions shall be 44" wide x 40" high x 22" deep with the door closed. The door opening shall be 42" wide x 34-1/2" tall.

## **REAR OF WHEEL WELL**

There shall be one (1) rescue style, full height, full depth compartment behind the rear wheels. The compartment dimensions shall be 23-1/2" wide x 57" high x 22" deep with the door closed. The door opening shall be 19" wide x 49-1/2" tall.

## **ROLLUP DOOR CONSTRUCTION - LEFT SIDE**

All left side compartments shall be provided with Gortite roll up doors. The roll up doors shall be constructed of double-sided aluminum extrusions connected with a ball and socket joint. The extrusions shall be 1-3/8" wide x 3/8" thick and shall be painted to match the job color. A flexible EDPM extrusion shall be provided between each slat to insure a weather tight seal. Aluminum extrusions shall be individually replaceable without disassembling the entire door by removing push out clips on each end.

Side channels for each door to ride in shall be provided with seals to prevent dirt and moisture from entering the exterior compartment. A single piece top drip rail shall be provided with a seal to prevent dirt and moisture from entering the compartment when the door is fully closed. The bottom of each door shall also be provided with a seal. All nonmetallic parts shall be glass filled nylon.

The left side door latches shall be non-locking stainless steel lift bars and shall be provided with a magnetic door ajar switch system.

## **FENDER SIDE SKIRTS**

There shall be stainless steel fender side skirts located in the area of the rear wheels. The design of the fender sides shall be a minimal length to provide maximum compartment space in the apparatus.

## **FUEL FILL - SIDE BODY**

The fuel fill shall be located in the rear fender area on the apparatus body. The spring-loaded fuel fill door shall have "Diesel Fuel" laser cut in the face of the door.

**BODY FENDERS - POLISHED**

The apparatus body fenders shall be made from 16-gauge polished stainless steel and shall be rolled, die stamped and fully removable. The stainless-steel fenders and stainless fender liners shall be fastened with stainless bolts and ESNA nuts to the outer fender panel.

**REAR AXLE MUD FLAPS**

Two (2) black, anti-sail, mud flaps shall be mounted behind the rear wheels.

**RIGHT SIDE COMPARTMENT DIMENSIONS**

**FORWARD OF WHEEL WELL**

There shall be one (1) rescue style, full height, full depth compartment ahead of the rear wheels. The compartment dimensions shall be greater than 34" wide x 56" high x 20" deep with the door closed. The door opening shall be greater than 25-1/2" wide x 48-1/2" tall.

**ABOVE WHEEL WELL**

There shall be one (1) high side full depth compartment centered over the rear wheels. The compartment dimensions shall be 44" wide x 40" high x 22" deep with the door closed. The door opening shall be 42" wide x 34-1/2" tall.

**REAR OF WHEEL WELL**

There shall be one (1) rescue style, full height, full depth compartment behind the rear wheels. The compartment dimensions shall be 23-1/2" wide x 57" high x 22" deep with the door closed. The door opening shall be 19" wide x 49-1/2" tall.

**ROLLUP DOOR CONSTRUCTION - RIGHT SIDE**

All right-side compartments shall be provided with Gortite roll up doors. The roll up doors shall be constructed of double-sided aluminum extrusions connected with a ball and socket joint. The extrusions shall be 1-3/8" wide x 3/8" thick and shall be painted to match the job color. A flexible EDPM extrusion shall be provided between each slat to insure a weather tight seal.

Aluminum extrusions shall be individually replaceable without disassembling the entire door by removing push out clips on each end.

Side channels for each door to ride in shall be provided with seals to prevent dirt and moisture from entering the exterior compartment. A single piece top drip rail shall be provided with a seal to prevent dirt and moisture from entering the compartment when the door is fully closed. The bottom of each door shall also be provided with a seal. All nonmetallic parts shall be glass filled nylon.

The left side door latches shall be non-locking stainless steel lift bars and shall be provided with a magnetic door ajar switch system.

### **REAR COMPARTMENT DIMENSIONS**

There shall be one (1) full height compartment at the rear of the body. It shall have approximate dimensions of 48" wide x 33-1/2" high x 42" deep. The door opening shall be 45-1/2" x 24" tall.

### **ROLLUP DOOR CONSTRUCTION - REAR**

The rear compartment shall be provided with a Gortite roll up door that shall be constructed of double-sided aluminum extrusions connected with a ball and socket joint. The extrusions shall be 1-3/8" wide x 3/8" thick with satin anodized finishing. A flexible EDPM extrusion shall be provided between each slat to insure a weather tight seal. Aluminum extrusions shall be individually replaceable without disassembling the entire door by removing push out clips on each end.

Side channels for the rear door to ride in shall be provided with seals to prevent dirt and moisture from entering the exterior compartment. A single piece top drip rail shall be provided with a seal to prevent dirt and moisture from entering the compartment when the door is fully closed. The bottom of the door shall also be provided with a seal.

All non-metallic parts shall be glass filled nylon. The rear door latch shall be a non-locking stainless steel lift bar and shall be provided with a magnetic door ajar switch system.

### **REAR BODY REFLECTIVE CHEVRON STRIPING**

The rear-facing vertical surfaces of the rear taillight panels and the rear body inset area beside the full height rear door(s), visible from the rear of the apparatus, including the rear compartment door(s), shall be equipped with six (6) inch wide retroreflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees.

<p>Each stripe in the chevron shall be a single-color alternating between red (3M #-82) and yellow (3M # -81).</p>			
<p><b><u>HARD SUCTION HOSE AND TRAYS - LEFT SIDE</u></b></p> <p>Two (2) stainless steel hard suction trays shall be installed on the top of the compartment on the left (driver's) side of the apparatus.</p> <p>Each tray shall be designed to accommodate hard suction hose in a nine (9) foot length. Two 6" NH thread clear hard suction hose to be included. The suction shall be held in place with straps attached to the tray with footman loops.</p> <p>Compartment Top Ladder Group - 8-Fold, 8-Roof, 14-2 Sec</p>			
<p><b><u>ROOF LADDER</u></b></p> <p>One (1) 8' aluminum channel rail roof ladder with folding roof hooks shall be provided with the apparatus.</p>			
<p><b><u>ATTIC LADDER</u></b></p> <p>One (1) 8' aluminum folding attic ladder shall be provided with the apparatus.</p>			
<p><b><u>EXTENSION LADDER</u></b></p> <p>One (1) 14' two-section solid beam, aluminum extension ladder shall be provided with the apparatus.</p>			
<p><b><u>APPARATUS COMPARTMENT LIGHTING</u></b></p> <p>Two (2) LED, armor protected, strip lights shall be provided one (1) each side of the compartment at the door frame for each body compartment. Each body door shall have an automatic compartment light switch.</p>			

<p>There shall be a white/red color selector switch in the cab that controls the color of this lighting.</p>			
<p><b><u>UNDERBODY LIGHTING</u></b></p> <p>Underbody ground lights shall be provided under the apparatus body. These ground lights shall be LED strips mounted in armor guards. The lights shall illuminate when the parking brake is set</p>			
<p><b><u>FOLDING STEPS</u></b></p> <p>Three (3) folding steps shall be provided on the left rear of the apparatus body.</p> <p>The folding step(s) shall include an integrated LED light beneath each step. This light shall illuminate when the apparatus ground lights are activated. The bottom of the step and step mounting shall include white reflective material to aide in locating the step when the vehicle ground lights are not activated.</p>			
<p><b><u>APPARATUS ICC MARKER LIGHTING AND REFLECTORS</u></b></p> <p>Three (3) red LED clearance lights shall be supplied, mounted in the rear of the apparatus.</p> <p>ICC lighting utilized and lighting positions shall be in conformance with FMVSS 108.</p> <p>There shall be a diamond shaped amber reflector mounted on each front corner of the apparatus body and a diamond shaped red reflector mounted on each rear corner of the body.</p>			



**REAR STOP/TAIL/TURN/BACKUP LIGHTS**

The rear of the apparatus shall be equipped with Whelen 600 Series lights. The top light in the assembly shall be a red LED stop/tail light, Whelen model C6BTT. The middle light set shall be an amber LED lamp with a populated arrow shape, Whelen model C6T.

The lower lights in the assembly shall be clear halogen backup lights, Whelen model 60J000CR.

A one-piece bright finished trim, Whelen PLAST3V, shall be mounted around the rear stop/tail/turn and backup lights on each side of the apparatus.

**BACK-UP ALARM**

A solid-state electronic backup alarm shall be installed on the rear of the apparatus and wired to the backup light circuit.

One (1) license plate mounting and LED light shall be provided. The light and bracket shall be located on the rear of the apparatus.

**BODY LED WORKLIGHTS**

Two (2) LED hosebed floodlights shall be provided. One (1) mounted at the front right corner and one (1) on the front left corner of the body. The lights shall be controlled from a switch on the lamp head.

**LEFT FRONT QUARTZ LIGHT**

The following light shall be provided mounted on the left front corner of the body:

Fire Research Focus model FCA100-D15 lamp head shall be provided. The lamp head mounting arm shall terminate in 3/4" NPT threads. Wiring shall extend from the lamp head mounting arm bottom.

The lamp head shall have one (1) quartz halogen 150-watt 12-volt bulb. The bulb will draw 12.5 amps and generate 2600 lumens.

The bulb shall be accessible through the front. The lamp head shall direct 50 percent of the light onto the action area while providing 50 percent to illuminate the working area. The lamp head angle of elevation shall be

adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamp head shall incorporate heat-dissipating fins and be no more than 5" deep by 3 3/8" high by 10" wide. Lamp head and mounting arm shall be powder coated white. The floodlight shall be UL listed as a scene light for fire service use.

Fire Research -ON option switch shall be installed on the lamp head. The weatherproof on-off toggle switch shall be mounted on the lamp head.

The light head shall be mounted on a side mount push up telescopic pole. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall rotate 360 degrees. The outer pole shall be a grooved aluminum extrusion and qualify as an NFPA compliant handrail. The pole mounting brackets shall have a 3 1/2" offset. Wiring shall extend from the pole bottom with a 4' retractile cord.

**RIGHT FRONT QUARTZ LIGHT**

The following light shall be provided mounted on the right front corner of the body:

Fire Research Focus model FCA100-D15 lamp head shall be provided. The lamp head mounting arm shall terminate in 3/4" NPT threads. Wiring shall extend from the lamp head mounting arm bottom.

The lamp head shall have one (1) quartz halogen 150-watt 12-volt bulb. The bulb will draw 12.5 amps and generate 2600 lumens. The bulb shall be accessible through the front. The lamp head shall direct 50 percent of the light onto the action area while providing 50 percent to illuminate the working area. The lamp head angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamp head shall incorporate heat-dissipating fins and be no more than 5" deep by 3 3/8" high by 10" wide. Lamp head and mounting arm shall be powder coated white. The floodlight shall be UL listed as a scene light for fire service use.

Fire Research -ON option switch shall be installed on the lamp head. The weatherproof on-off toggle switch shall be mounted on the lamp head.

The light head shall be mounted on a side mount push up telescopic pole. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall rotate 360 degrees. The outer pole shall be a grooved aluminum extrusion and qualify as an NFPA compliant handrail. The pole mounting brackets shall have a 3 1/2" offset. Wiring shall extend from the pole bottom with a 4' retractile cord.

STANDARD Shelf, Tray, Toolboard Package

<p><b><u>ALUMINUM SHELVES - ADJUSTABLE</u></b></p> <p>Four (4) adjustable aluminum shelves shall be provided with one (1) each installed in R1, L1, R3 and L3 compartments. The shelves shall have a flange 1-1/2" deep with a minimum material thickness of .190". Each shelf shall be adjustable in height and held in place by four (4) extruded uprights.</p>			
<p><b><u>ALUMINUM SHELVES - ADJUSTABLE</u></b></p> <p>Two (2) adjustable aluminum shelves shall be provided with one (1) each installed in R2 and L2 compartments. The shelves shall have a flange 1-1/2" deep with a minimum material thickness of .190". Each shelf shall be adjustable in height and held in place by four (4) extruded uprights.</p>			
<p><b><u>ALUMINUM SHELF - ADJUSTABLE</u></b></p> <p>One (1) adjustable aluminum shelves shall be provided and installed in the RR1 compartment. The shelf shall have a flange 1-1/2" deep with a minimum material thickness of .190". The shelf shall be adjustable in height and held in place by four (4) extruded uprights.</p>			
<p><b><u>ALUMINUM TRAYS - PULL OUT</u></b></p> <p>Four (4) heavy duty pullout trays shall be installed and shall be equipped with slides and a gas shock to hold the tray in both the in and out positions and shall be made from .190" aluminum with a maximum capacity of 250 pounds. One (1) each are to be installed on the floor of the L1, L3, R1 and R3 compartments.</p>			
<p><b><u>ALUMINUM TOOL BOARDS</u></b></p> <p>The rear wall of the L2 and the rear wall of the R2 compartments shall be covered with FoxTrax aluminum extrusion tool mounting board.</p>			
<p><b><u>CAB FORWARD ROOF MOUNTED LIGHTBAR</u></b></p> <p>A light bar shall be provided and is to be mounted on the roof of the cab,</p> <p>The light bar shall have both red and blue LED lights. The red to blue ratio should be 50/50.</p>			

These light bars fulfill the requirements for Upper Zone A and in combination with the upper rear warning devices fulfill the requirements for Upper Zones B, C, and D. Any clear warning light(s) in the light bar shall be disabled automatically for the "Blocking Right of Way" mode.

**COMBINATION FRONT WARNING AND GROUND LIGHT**

There shall be two (2) Whelen M4 Series Model # M4V2R combination 180° warning/ground lights mounted on the front brush guard facing forward.

The warning light shall consist of two V-series Super-LEDs with clear TIR reflectors maximum illumination.

The ground light shall consist of three white Super-LEDs installed at 45° angle with a TIR reflector for supreme radiance.

**COMBINATION FRONT WARNING AND GROUND LIGHT**

There shall be two (2) combination 180° warning/ground lights mounted on the front brush guard facing to the side.

The warning light shall consist of two LEDs with clear TIR reflectors maximum illumination.

The ground light shall consist of three white Super-LEDs installed at 45° angle with a TIR reflector for supreme radiance.

**COMBINATION FRONT WARNING AND GROUND LIGHT**

There shall be two (2) Whelen M4 Series Model # M4V2R combination 180° warning/ground lights mounted on each side of the body in the forward wheelwell area.

The warning light shall consist of two LEDs with clear TIR reflectors maximum illumination.

The ground light shall consist of three white Super-LEDs installed at 45° angle with a TIR reflector for supreme radiance.

**REAR UPPER LEVEL WARNING / PERIMETER LIGHTS**

There shall be two (2) Whelen M4 Series Model # M4V2R combination 180° warning/perimeter lights mounted facing the rear, one (1) each side of the body in the upper position.

There shall be two (2) Whelen M4 Series Model # M4V2R combination 180° warning/perimeter lights mounted, one (1) mounted on the upper rear sides of the apparatus.

The warning light shall consist of two V-series Super-LEDs with clear TIR reflectors maximum illumination.

The perimeter light shall consist of three white LEDs installed at 45° angle with a TIR reflector for supreme radiance. Perimeter lighting is switched with the ground lighting.

**REAR UPPER LEVEL WARNING / PERIMETER LIGHTS**

There shall be two (2) Whelen M4 Series Model # M4V2R combination 180° warning/perimeter lights mounted facing the rear, one (1) each side of the body in the lower position.

The warning light shall consist of two V-series Super-LEDs with clear TIR reflectors maximum illumination.

The perimeter light shall consist of three white Super-LEDs installed at 45° angle with a TIR reflector for supreme radiance. Perimeter lighting is switched with the ground lighting.

**LED TRAFFIC ADVISOR**

One (1) LED Amber Traffic Director with cable, shall be mounted on the upper rear of the apparatus. The device shall consist of LED heads. Each head shall consist of independent rows of high-performance LED's.

The signal patterns of the device shall be progressive left, progressive right, center out, and emergency "All Flash."

The switch control box is to be mounted in the cab allowing for easy operation by the driver.

**WHEEL CHOCKS**

One pair of heavy duty, wheel chocks measuring 8" high x 7" wide x 11.8" long shall be provided with the apparatus. Worder 7HY HD Yellow Handled Extrusions are the requested chocks. The wheel chocks shall have a bright yellow powder coat finish for high visibility, safety and corrosion resistance. No exception shall be allowed to these requirements.  
Two chock holders shall be provided and mounted one on the drivers side of the apparatus.

**REFLECTIVE SAFETY STRIPE**

A 1" x 4" wide 3M brand Scotchlite reflective stripe shall be affixed to the perimeter of the vehicle. The striping shall be placed up to 60" above ground level and shall conform to NFPA reflectivity requirements. At least 60% of the perimeter length of each side and width of the rear, and at least 25% of the perimeter width of the front of the vehicle shall have reflective stripe.

**REFLECTIVE STRIPE COLOR**

The apparatus body striping shall be white reflective.  
The smaller accent stripe(s) shall be white reflective.

**WATER TANKWARRANTY**

The water tank is to be free from defects in material and workmanship for the normal service life of the apparatus in which the water tank is installed.  
If a tank has a defect in material or workmanship covered by the warranty, the tank manufacturer shall repair at their cost, by authorized personnel or authorized third parties. The tank manufacturer shall try to effectuate repair within 48 hours following initial notification of a covered defect. The tank manufacturer shall make a reasonable effort to repair tank at most convenient location to end user.  
The tank manufacturer shall reimburse all reasonable costs associated with rendering the tank accessible for repair, including, but not limited to, removal and reassembly of the hose bed floor.

## Bidders Information Form

Bidders must complete this form and include with the Bid Submission Please ensure all information is legible.

1.	<b>Company Name</b>	
2.	<b>Respondent's Main Contact Individual</b>	
3.	<b>Complete Mailing Address</b>	
4.	<b>Office Phone #</b>	
5.	<b>Toll Free #</b>	
6.	<b>Fax #</b>	
7.	<b>e-mail address</b>	
8.	<b>HST Account #</b>	

**Schedule of Items & Prices**  
**PRICING AND DELIVERY**

1. Pricing

Quantity	Description	Unit Pricing
1	Fire Truck, MINI PUMPER 4X4 CREW CAB	\$
HST		\$
<b>TOTAL (INCLUDING HST)</b>		\$

2. Delivery Schedule

Proponent to provide realistic delivery schedule as follows:

Delivery	Specify in Weeks
Total number of calendar weeks from receipt of Award of RFP until delivery to the Thorold Fire and Emergency Services, 16 Towpath St. Thorold, Ontario. L2V 2P6	



**SUB-CONTRACTORS/SUPPLIERS/SUB-CONSULTANTS**

Submit a list of sub-contractors/suppliers/sub-consultants to be used for the supply of the goods/services, or indicate "Not Applicable".

<b>Contact</b>	<b>Details</b>
Name:	Company Name:
	Type of Goods/Services provided:
Phone:	Address:
Email:	Years in Business:
Name:	Company Name:
	Type of Goods/Services provided:
Phone:	Address:
Email:	Years in Business:
Name:	Company Name:
	Type of Goods/Services provided:
Phone:	Address:
Email:	Years in Business:

## REFERENCES

Please list a minimum of three references where your company has provided similar goods or services within the last three years and indicate the goods/services provided.

Company Name and Phone Number	Contact Person(s)	Type of Goods/Services Provided
1.		Goods/Services:  Dates:
2.		Goods/Services:  Dates:
3.		Goods/Services:  Dates:
4.		Goods/Services:  Dates:

**Note:**

If insufficient space is provided in this, please provide the required information in the same format on a separate form attached to this RFP.

## Declaration of Accessibility Compliance

<b>Company Name:</b>	
<b>Print Name:</b>	
<b>Title:</b>	<b>Dated:</b>

I/ we acknowledge that as a Contractor/Consultant of the City of Thoroldr, we are bound to comply with all accessibility Standards under the Accessibility for Ontarians with Disabilities Act, 2005 as amended from time to time.

I/we declare that I/we have read, understand and will meet or exceed all enacted accessibility Standards as amended from time to time.

I/we further declare that I/we will undertake to ensure all sub-contractors hired by us in completion of our work will also comply with the above Standards.”