



Greater Round Lake Fire Protection District

FIRE APPARATUS SPECIFICATIONS 2018 PUMPER

1 INTRODUCTION

1-1 GENERAL REQUIREMENTS

- 1-1.1 The Greater Round Lake Fire Protection District, a municipal corporation, is seeking sealed proposals from qualified vendors and/or manufacturers to supply one (1) new 2018 model year pumper fire apparatus that meets or exceeds the minimum specifications provided herein. The proposed pumper shall meet or exceed the latest edition of NFPA 1901-2016, Standard for Automotive Fire Apparatus. All construction, installation, wiring, etc. must be completed at the chassis and/or body manufacturer's construction facility. Dealer installed equipment, warning lights, accessories or the like, will not be accepted. Experimental or demonstrator vehicles will not be considered.
- 1-1.2 The Fire District expects that the unit being proposed is complete in all material and operational respects. Items not specifically mentioned in these minimum specifications, but required to build a NFPA 1901-2016 compliant pumper, or to build the apparatus with the proper fit and finish expected of new fire apparatus shall be included within the proposal and the price quoted.
- 1-1.3 Vendors shall supply two (2) sets of detailed specifications and blue print drawings with their proposals detailing the design, method of construction, materials, interior/exterior dimensions, finishes and warranties to which the apparatus furnished under this proposal must conform and other related information that will assist the District in determining the pumper fire apparatus that will best serve its needs.
- 1-1.4 Any exceptions to the minimum specifications presented herein must be clearly described on the exception page(s) by page number and paragraph, otherwise, it will be considered that all vehicles offered will be in strict compliance with and/or exceed the minimum specifications. Vehicles that fail to meet the minimum specifications and detailed proposal will not be considered and /or accepted.
- 1-1.4 Some items have been specified by brand name or model number. These items have been carefully selected because of their reliability, compatibility with present equipment, and local availability of parts. Exceptions need to be listed on EXCEPTION PAGE.
- 1-1.5 All information requested on the proposal form must be completed by the bidder.
- 1-1.6 Sealed proposals for the Pumper Fire Apparatus will be accepted until 2:00 p.m. local time on April 16 , 2018. Proposals will be opened and read aloud at this time. All proposal packages shall be clearly marked **"PUMPER FIRE APPARATUS"** on the front. Sealed proposals must be sent or delivered to:



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Chief Greg Formica
Greater Round Lake F.P.D.
409 W. Nippersink Road
Round Lake, Illinois 60073

1-1.7 By signing the proposal form, the bidder acknowledges that said proposal is made without any understanding, agreement or connection with any other person, firm or corporation submitting a bid for the same purpose and that said bid is in all respects fair and without collusion or fraud. The Board of Trustees of the Greater Round Lake Fire Protection District reserves the right to accept or reject any or all proposals, waive any informality and accept the proposal which it deems most favorable to the interests of the District. No proposals shall be withdrawn for a period of sixty (60) days after the bid opening without the consent of the District.

1-1.8 Questions concerning these specifications or proposal requirements should be directed to Chief Engineer Bruce Hill at (847) 546-6001.

1-2 COMPLETION DATE

1-2.1 Bidders shall indicate in their proposal the number of calendar days for delivery of the completed apparatus from the date of bid acceptance by the Purchaser.

1-3 WARRANTY

1-3.1 Copies of the manufacturer's warranty(ies) for the chassis, pump, body, paint, electrical system and related components shall be included with the proposal. The warranty period(s) shall not commence until initial acceptance of the completed apparatus has occurred.

1-4 DESIGN REQUIREMENTS

1-4.1 Specified design features of the apparatus have been carefully selected because of their safety, integrity and consistency with existing apparatus. It is expected that all bidders will adhere to the approximate compartment, pump panel and accessory layout requested.

1-4.2 All aspects of the vehicle shall be properly engineered with priority given to firefighter safety, as well as ease of operation and maintenance of the apparatus. The vehicle shall be free from hazardous protrusions, angles or sharp corners, which might bring injury to a firefighter or equipment. Previously delivered units will be judged for compliance to these factors.

1-4.3 All water, air, fuel, hydraulic and/or oil lines on the chassis and apparatus shall be properly located and secured to prevent scuffing or abrasion. Durable type grommets and loom material shall be used to protect the lines wherever a line passes through the apparatus body or frame rail sections.



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- 1-4.4 All grease fittings, bleeders, filler plugs, drains and checkpoints shall be located so as to be easily accessible. No special tools shall be required to access these components for normal service or maintenance of the vehicle.
- 1-4.5 All parts and components on the vehicle shall be positioned for ease of inspection, and recognition of wear or failure. Easily removable access or cover plates shall be provided for all items requiring periodic service or adjustment. Access panels shall be of the hinged or quick disconnect design-allowing ease of access.
- 1-4.6 Design of the apparatus shall be such that no disassembly of the body or any of its parts is required for normal maintenance or inspection.
- 1-4.7 During the construction process, all components of the chassis and apparatus shall be protected against rain, snow or other adverse weather conditions.

1-5 ACCEPTANCE TESTS AND REQUIREMENTS

- 1-5.1 Acceptance tests on behalf of the District shall be prescribed and conducted before delivery or within 10 days after delivery, by the manufacturer's representative, in the presence of such person or persons as the District may designate.
- 1-5.2 The completed apparatus must meet all pre-delivery and acceptance tests as specified in the latest edition of NFPA 1901-2016.
- 1-5.3 The completed apparatus and pump shall be inspected and tested by Underwriters Laboratories in accordance with the latest edition of NFPA 1901-2016 at the manufacturer's facility.
- 1-5.4 In the event the apparatus fails to meet the test requirements on delivery, the manufacturer shall immediately cause corrective action to be undertaken. Initial acceptance of the completed apparatus by the District will not occur until the unit meets these requirements. Failure of the manufacturer to promptly correct any deficiencies shall be sufficient grounds for the District to reject the apparatus.

1-6 DOCUMENTATION

- 1-6.1 The manufacturer must supply at time of delivery, at least one copy of:
- 1-6.2 Engine manufacturer's certified brake horsepower curve showing the maximum no load governed speed.
- 1-6.3 Manufacturer's record of pumper construction details.
- 1-6.4 Pump manufacturer's certification of hydrostatic test and suction capability.
- 1-6.5 The certification of inspection and testing by the Underwriter's Laboratories Incorporated.



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- 1-6.6 A copy of the apparatus manufacturer's approval for stationary pumping applications.
- 1-6.7 Weight documents from a certified scale showing actual loading on the front axle, rear axle, and overall vehicle (with water tank full but without personnel, equipment, or hose).
- 1-6.8 At least two copies of the complete operation and maintenance manual, electrical schematics and "as built" drawings covering the completed apparatus as delivered, including the pump and fire fighting equipment delivered with the apparatus.
- 1-6.9 A test data plate shall be provided at the pump operator's position, which gives the rated discharges and pressures together with the speed of, the engine as determined by the manufacturer's test for this unit. Plate must comply with requirements of the latest edition of NFPA 1901-2016.
- 1-6.10 A permanent data plate shall be affixed in the drivers compartment specifying and quantity and type of the following fluids used in the vehicle. Plate must comply with requirements of the latest edition of NFPA 1901-2016.
 - 1. Engine Oil
 - 2. Engine Coolant
 - 3. Chassis Transmission Fluid
 - 4. Pump Transmission Lubrication Fluid
 - 5. Pump Primer Fluid
 - 6. Drive Axle Lubrication Fluid
 - 7. Front Axle Bearing Lubricant
 - 8. Power Steering Fluid
 - 9. Cab-tilt Mechanism Fluid
 - 10. Transfer Case Fluid
 - 11. Ladder Rack Fluid
 - 12. Generator System Lubricant
- 1-6.11 Permanent placards shall be affixed and visible to all seated occupants instructing the occupants to wear their seat belts.

1-7 DELIVERY AND INITIAL ACCEPTANCE

- 1-7.1 The completed apparatus shall be delivered to the District Headquarters by the manufacturer or their representative. The manufacturer is responsible for the vehicle until delivery and initial acceptance occurs.
- 1-7.2 Initial acceptance of the completed apparatus will only occur after a complete inspection of the vehicle is performed by representatives of the District to determine completeness, workmanship and compliance with these specifications and the manufacturer's proposal and successful completion of delivery acceptance tests as presented in the latest edition of NFPA 1901-2016.



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1-7.3 Housing the vehicle within District facilities shall not constitute initial acceptance of the apparatus.

1-8 PAYMENT TERMS

1-8.1 The District will pay 90% of the agreed contract price by District check upon initial acceptance of the completed apparatus as defined in Section 1-7.

1-8.2 10% of the agreed contract price shall be withheld by the District for a period of at least 30 days. During this period, the manufacturer or their representative must correct any deficiencies discovered by the District.

1-8.3 The District will pay the remaining 10% of the agreed contract price at time of final acceptance.

1-8.4 The successful bidder or dealer may not apply or enforce any lien during the period from delivery to final acceptance. Further, the successful bidder or dealer shall not use this contract to obligate the Greater Round Lake Fire Protection District in any manner, nor will the District accept any obligations beyond the terms set forth above.

1-9 PRE-CONSTRUCTION CONFERENCE

1-9.1 A pre-construction conference shall be conducted, either at the apparatus manufacturer's factory or other acceptable location, at which time all final designs and equipment mounting locations will be approved, prior to any sheet metal being cut.

1-10 INSPECTION TRIPS

1-10.1 Representatives of the District reserve the right to inspect the construction of the apparatus at any time during normal business hours.

1-10.2 The manufacturer shall notify the Fire Chief a minimum of seven (7) days before finish paint is applied to allow for an inspection visit.

1-10.3 Representatives of the District shall make a pre-delivery inspection visit of the completed apparatus at the manufacturer's facility.

1-11 TRAINING

1-11.1 Fire Department personnel shall be instructed as to the proper use and maintenance of the entire apparatus including, but not limited to, chassis, fire pump system, the apparatus and all equipment.



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2 CAB AND CHASSIS

2-1 DESCRIPTION

2-1.1 The cab and chassis must be a custom fire service pumper chassis, four door, capable of carrying six (6) personnel.

2-1.2 The cab roof shall be designed flat. A raised roof over the rear portion of the cab is not desired.

2-1.3 A custom chassis manufactured by the body builder will be accepted as well as the Spartan Metro Star MFD with the classic designed front appearance.

(OPTION B)

B2-1 A Spartan Metro Star ELFD to enclose the top mount pump panel. List all exceptions and options on the EXCEPTION PAGE

2-2 CARRYING CAPACITY

2-2.1 The GAWR and GVWR of the chassis shall be adequate to carry the fully equipped apparatus including full water and other tanks, the specified hose load, equipped personnel weight, ground ladders, and a miscellaneous equipment allowance of 3000 pounds.

2-2.2 The height of the fully loaded vehicle's center of gravity shall not exceed the chassis manufacturer's maximum limit.

2-3 FUEL TANK

2-3.1 The fuel tank shall have a minimum capacity of fifty (50) gallons.

2-3.2 The fuel tank shall be mounted under the frame, behind the rear axle, so the tank can be easily dropped and removed for service purposes. Strap mounting studs through the rail, hidden behind the body, shall not be acceptable.

2-3.3 The tank shall have a vent port to facilitate rapid filling without "blow-back". A roll over ball check vent shall be installed.

2-3.4 A 2" fill port shall be available for left hand fill.

2-3.5 A drain plug shall be centered in the bottom of the tank.

2-3.6 The fuel gauge-sending unit shall be located to allow its replacement without removal of body components.



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2-4 FRONT BUMPER ASSEMBLY

- 2-4.1 The chassis frame rails shall extend a minimum of 21" ahead of the front cab sheet to provide a deep well bumper extension and front suction.
- 2-4.2 A one piece, painted red stainless steel front bumper shall be provided. The bumper shall be a 12" high wrap-around type. With a red & white chevron to match rear.
- 2-4.3 A 3/16" aluminum tread plate apron shall be installed between the bumper and the front face of the cab. Stainless steel bolts shall be used to attach the apron to the bumper flange. A suction hose well, with approximate dimensions of 30" wide by 16" long by 12" deep, shall be fabricated in the center with drain holes and be capable of holding 25' of 6" soft suction hose. The apron and hose well will be RINO LINED red to match the cab.
- 2-4.4 Two (2) heavy-duty chrome plated tow hooks shall be installed under the bumper and bolted directly to the chassis frame with grade "8" bolts.

2-5 AIR HORNS

- 2-5.1 Dual Grover Stutter Tone 24" air horns shall be recessed in the front bumper on the left hand side. The horns shall be supplied from the chassis air system through a 3/8" or larger airline "teed" equal distance from each horn.
- 2-5.2 Air horns shall be activated by a roof-mounted lanyard accessible by both the officer and engineer. This lanyard must be installed in such a manner that pulling the lanyard in a downward direction pulls the horn switch at the proper angle.
- 2-5.3 The horn ring on the steering wheel shall also activate the air horns.

2-6 AXLES AND SUSPENSION

- 2-6.1 The manufacturer shall determine the appropriate size front and rear axles to carry the intended load and required reserve.
- 2-6.2 The chassis will be equipped with power steering.
- 2-6.3 The front and rear axle wheel bearings shall be oil lubricated with an oil level visual inspection window.
- 2-6.4 The chassis will be equipped with a suspension system designed and rated for the completed vehicle's loaded capacity and reserve.
- 2-6.5 The bidder's proposal shall include the make and model of the axles proposed as well as a description of their suspension system.



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2-7 TIRES AND WHEELS

- 2-7.1 The two (2) front tires shall be Michelin 315/80R 22.5 20-ply "L" tubeless radial XZA1 highway tread with 22.5 x 9.00, ten (10) stud disc wheels. The tires shall be highway speed rated of at least 65 miles per hour. Tires and wheels shall be rated to meet or exceed the front axle weight rating.
- 2-7.2 The four (4) rear tires shall be Michelin 315/80R 22.5 20-ply "L" tubeless radial XZA1 highway tread with 22.5 x 9.00, ten (10) stud disc wheels. The tires shall be highway speed rated of at least 65 miles per hour. Tires and wheels shall be rated to meet or exceed the rear axle weight rating.
- 2-7.3 The front and rear wheels shall be Alcoa polished aluminum. Wheel lug studs shall be painted to match the color of the vehicle
- 2-7.4 Tire pressure monitoring system

2-8 STEERING COLUMN AND WHEEL

- 2-8.1 The steering column shall be a tilt and telescopic type with an 18" steering wheel. The steering wheel shall be covered with black absorbent padding.
- 2-8.2 The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch on turn lever.

2-9 BRAKES

- 2-9.1 The front brakes shall be disk brakes.
- 2-9.2 Rear brakes shall be disk brakes.
- 2-9.3 An anti-lock braking system (**ABS**) shall be installed on the front and rear axles for safer vehicle control during braking and reduced stopping distance in skid applications.
- 2-9.4 A dash mounted anti-lock lamp shall be provided to notify the driver of a system malfunction.
- 2-9.5 A momentary test switch shall be installed to test the system for diagnostic code.
- 2-9.6 A rapid build-up air brake system shall be provided. It shall include three (3) air reservoirs with a minimum capacity of 4,100 cu. in. of air.



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- 2-9.7 A parking brake on the spring-actuated chambers on the rear axle brakes with a push-pull valve on the instrument panel shall be installed.
- 2-9.8 The rear axle spring brakes are to automatically apply in case of air pressure drop below 60 PSI with a mechanical means for releasing the spring brake chambers.
- 2-9.9 Manual drains shall be installed on all reservoirs of the air brake system.
- 2-9.10 A dual air system plumbed with color-coded reinforced nylon tubing air lines shall be installed.
- 2-9.11 The air compressor on the engine shall be rated as being capable of producing a minimum of 16.5 CFM. It shall be gear driven, engine oil pressure lubricated and cooled by the engine cooling system. The air system shall be capable of building enough air pressure to release the spring brake within 30 seconds.
- 2-9.12 A spin-on desiccant air dryer with an automatic heated moisture ejector shall be installed in the air brake system.
- 2-9.13 A standard male airline connection shall be installed in the driver's door step well near the AC shoreline connection. This connection shall supply air from the station air compressor to all chassis air reservoir tanks. An in-line pressure check valve shall be installed at each reservoir tank to prevent air leakage when the station airline is disconnected or damage to the air coupling or piping occurs.

2-10 ENGINE

- 2-10.1 A Cummins ISL9 450 HP turbocharged air to air after cooled engine shall be provided.
- 2-10.2 A wiring harness shall be supplied to permit secondary gauges and engine monitoring at the pump panel.
- 2-10.3 A spin on engine coolant filter with shut-off valve shall be provided.
- 2-10.4 An engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge shall be part of the engine's lubrication system.
- 2-10.5 The fuel system shall have a fuel water separator as a primary filter and a secondary filter as approved by the engine manufacturer.
- 2-10.6 A Jacobs brake engine compression brake with cutout relay when in pump mode shall be installed. The engine brake will activate upon release of accelerator when in operation mode. Dash mounted switches with "On/Off" and "High/Med/Low" functions shall be installed
- 2-10.7 Air intakes must be at least 36 inches of the ground to prevent engine damage from flooded streets



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2-11 TRANSMISSION

- 2-11.1 Allison dual mode 5 speed automatic transmission, GEN V 3000 EVS for fire service with 4th gear lock up for pump operation. The Allison GEN V 3000 EVS is an approved transmission for the engine and fire service.
- 2-11.2 The transmission will have two (2) 10-bolt PTO pads.
- 2-11.3 The transmission shall be equipped with an air to oil transmission cooler located below the radiator allowing a single depth core and efficient cooling package. The transmission cooler shall be mounted in a manner to allow maximum approach angle by not protruding below the frame more than an inch. The transmission cooler shall be constructed completely of aluminum with welded side tanks. The transmission shall have two (2) internal oil filters.
- 2-11.4 An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and reach.
- 2-11.5 The transmission, upon start-up, will select four- (4) speed operation. By pressing the "mode" switch on the shift pad (mode on) provides five- (5) speed overdrive.
- 2-11.6 All copies of the manufacturer's warranty shall be included with the bid from. The warranty period(s) shall not commence until initial acceptance of the completed apparatus has occurred.

2-12 AIR CLEANER

- 2-12.1 The air cleaner shall be dry type with a replaceable element, it shall have an outside air intake with an ember separator filter and an indicator light in the warning light cluster to show when the air cleaner element requires replacement.

2-13 RADIATOR

- 2-13.1 The radiator shall be a cross-flow design constructed completely of aluminum with welded side tanks. The radiator shall be located below the charge air cooler to allow a single depth core and efficient cooling system. The radiator shall have a complete de-aeration system capable of removing entrained air from the system. The radiator shall also be equipped with a drain cock to drain the coolant for serviceability. The cooling system shall be equipped with a separate tank that allows the system to be filled. The tank will include a sight glass to monitor the coolant level.
- 2-13.2 The cooling package shall have extended life coolant installed. The use of coolant additives will not be allowed, as this is part of the extended life coolant makeup. Engines equipped with coolant filters will be supplied without coolant additives.



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2-13.3 All radiator hoses shall be silicone with stainless steel constant torque clamps.

2-14 COOLING SYSTEM

2-14.1 The engine cooling system shall incorporate a heavy-duty fan, installed on the engine and include a shroud.

2-14.2 Recirculation shields shall be installed to ensure that air that has passed through the radiator is not drawn through it again.

2-14.3 The cooling system shall have sufficient capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed to meet or exceed the engine and transmission manufacturer and EPA requirements.

2-15 EXHAUST SYSTEM

2-15.1 The exhaust system shall be installed under the frame with the discharge to the right side forward of the rear tires. Will include adapter for Plymovent Exhaust System.

2-16 CHASSIS ELECTRICAL SYSTEM

2-16.1 A single starting system shall be installed per NFPA 1901. The electrical system shall be 12 volt with six (6) 950 CCA batteries with 210 minute reserve capacity.

2-16.2 Wiring shall be the appropriate gauge for the intended load, with a 25% reserve. All wires in the chassis shall be circuit numbered and function coded. In addition, the SAE wiring will be color-coded. The wiring shall be protected by high temperature flame retardant loom. Multiplex electrical systems are not desired.

2-16.3 The starting system shall be supplied with the following:

- Master Disconnect Switch
- Ignition Switch
- Starter Button
- Indicator for Battery "ON"
- Indicator for Ignition "ON"

2-16.4 Battery jumper studs, or other access, shall be provided to allow the vehicle to be jump-started or cab to be raised in an emergency due to battery failure.



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2-17 INSTRUMENTS

2-17.1 An ergonomically designed instrument panel shall be provided. The instrument panel shall contain the following red backlit gauges and LED indicators, all within clear view of the driver.

- Tachometer
- Hour Meter
- Speedometer with Odometer/Trip Odometer
- Dual Air Pressure Gauge
- Oil Pressure
- Coolant Temperature
- Transmission Temperature
- Volt Meter

2-17.2 The instrument panel shall contain indicator lamps informing the driver of the following:

- Low Air Alarm
- Low Engine Oil Pressure
- High Engine Coolant Temperature
- High Transmission Temperature
- Air Filter Restriction
- Low Fuel Level
- Stop Engine
- High or Low voltage
- Parking Brake Set
- Directional Left and Right Indicators
- Check Engine
- Check Transmission
- ABS Brakes
- High beam headlight on

2-17.7 AUDIBLE WARNING SYSTEM FOR THE FOLLOWING:

- Low Air Alarm
- Low Engine Oil Pressure
- High Engine Coolant Temperature
- High Transmission Temperature
- High and Low Voltage
- Stop Engine

2-17.8 Auto-reset thermal circuit breakers shall be installed to protect chassis circuits.



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2-18 SWITCH CONSOLES

- 2-18.1 The chassis shall be designed to include switch control consoles for operation of essential chassis functions as well as emergency lights, radios and electronic sirens.
- 2-18.2 Switch consoles shall not be an add-on type.
- 2-18.3 The driver's side panel shall include ignition and starter switches, headlight switch with instrument lamp dimmer, intermittent windshield wiper/washer switch and secondary braking device rocker switches.
- 2-18.4 The center switch control panel shall include rocker switches for auxiliary applications. A Unitrol 330-5 warning light control switch is preferred for warning light control.
- 2-18.5 The officer's side switch panel shall be a blank panel with no switches to accommodate flush mounted radio and intercom devices.
- 2-18.6 Switches shall have engraved backlit escutcheons that describe the switch's function.

2-20 ALTERNATOR

- 2-20.1 A Leece-Nevelle 270 amp 12 volt alternator with integral regulator and #10 screw AC terminals shall be properly installed.

2-24 INTERIOR CAB LIGHTING

- 2-24.1 White LED dome lamps shall be installed in the ceiling and shall illuminate by both manual switch activation and by opening any cab door. The lighting should provide adequate coverage to illuminate the inside of the cab for entry/exit and other tasks.
- 2-24.2 A LED map light shall be provided convenient to the officer.
- 2-24.3 A LED work light shall be provided and installed under the engine tunnel.

2-25 SEATING

- 2-25.1 The driver's seat shall be a Seats, Inc. 911 "Universal" 4-way air suspended type with air control valve located at lower front of seat. A rubber bellows shall enclose the suspension mechanism.
- 2-25.2 The officer's seat and two (2) rear facing seats shall be a Seats Inc. 911 "ABTS" SCBA style seats for the quick donning of an air pack shall be provided. Air pack brackets Ziamatic Model # QM-EZL. A removable padded vinyl cover shall be supplied over the SCBA cavity.
- 2-25.3 Each seat shall be equipped with an integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly.



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2-26 EXTERIOR CAB DETAILS

- 2-26.1 The cab shall be two-tone painted (white over red) with a finished break line approximately 1.5" below the cab side windows and down to the top of the grill on the cab front fascia. The vehicle paint colors are to match existing department apparatus. The paint shall be applied to the paint manufacturer specifications. (Red = PPG #71528 or Siekens #FLNA 3024, White = Dupont #90443 or Siekens #FLNA 4226)
- 2-26.2 Cab underside and door interiors shall be undercoated with a ten (10) year warranty certificate against perforation issued in the Fire Department's name.
- 2-26.3 Four (4) 18" knurled anti-slip one piece stainless steel exterior assist handles shall be installed, one (1) behind each cab door.
- 2-26.4 Two (2) West Coast power/heated style mirrors shall be provided. A convex mirror shall be provided below, and separate from, each west coast mirror.
- 2-26.5 Full width wheel well liners shall be installed on the cab. Wide, polished, stainless steel fenderettes shall be installed.
- 2-28.6 Heavy-duty black rubber mud flaps shall be furnished and installed behind the rear wheels of the vehicle. Mud flaps shall extend the full width of the rear duals.
- 2-28.7 The front face of the apparatus shall include a four light, chrome plated lighting cluster on each side of the chassis. Each cluster shall include one (1) standard automotive low/high beam rectangular headlights, one (1) standard automotive high beam rectangular headlights, A Whelen 60A00TAR amber LED turn signal, populated arrow shape, and Whelen 600 series super-LED warning lights as specified in section 5-13.1.
- 2-28.8 All required ICC clearance lighting shall be LED.

2-27 MANUALS AND PARTS LIST

- 2-27.1 Two (2) chassis operator's manuals and parts list with wiring and air plumbing diagrams shall be provided. The wiring and plumbing diagrams shall be of the chassis model.
- 2-27.2 Two (2) engine operation and maintenance manuals and two (2)-transmission operation manuals shall be included.



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2-28 CAB TILT

- 2-28.1 The entire cab shall tilt 45 degrees to allow for easy maintenance of the engine and transmission.
- 2-28.2 The cab tilt actuation shall be with an electric over hydraulic lift pump with a control box on a pennant for safe visual operation.
- 2-28.3 Two cab tilt cylinders shall be provided with velocity fuses in each cylinder port.
- 2-28.4 A steel safety assembly shall be installed to prevent accidental cab lowering. The safety assembly shall fall over the lift cylinder when the cab is in the "up" position. A cable release system shall also be provided to clear the safety assembly from the lift cylinder when lowering the cab.

2-29 HVAC System

- 2-29.1 The vehicle shall be equipped with a combination heat, ventilation, air conditioning and defroster system. Controls shall be convenient to both the driver and officer. The system shall provide both heated and cooled air to the front and rear portions of the cab.
- 2-29.2 There shall be two (2) individually switched auxiliary windshield defogger fans installed in the center of the cab roof directly behind the windshield.

3 FIRE PUMP

3-1 Pump Overview

- 3-1.1 The pump shall be a midship Hale Qmax 1250 (or equivalent) Single Stage Centrifugal fire pump, U.L. Certified, including transfer case and all required components.
- 3-1.2 Two (2) "Anode Systems" as recommended by Hale shall be installed, one (1) on the intake side and one (1) on the discharge side.
- 3-1.3 A Hale TRV-L 120 Thermal Relief Valve system shall be installed. The warning indicator shall be installed on the top-control pump panel.
- 3-1.4 The body manufacturer shall be responsible for providing and installing all valves, piping, controls and pump related equipment to complete the apparatus.
- 3-1.5 Two copies of the pump operation and maintenance manuals shall be provided.

3-2 PUMP PERFORMANCE

- 3-2.1 The entire pump, suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the manufacturer's factory to the performance specifications as outlined by the newest NFPA 1901-2016. Pump shall be free from objectionable pulsation and vibration.



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3-3 PUMP PRIMING

- 3-3.1 The pump shall have a lubricated priming system installed that will provide a vacuum of 24" of mercury.
- 3-3.2 The primer will be activated by a spring-loaded push/pull control (PVG) mounted on the pump operator's panel.
- 3-3.3 A second spring-loaded push/pull control (PVG) will be installed to prime the front suction prior to opening the front suction valve.

3-4 PRESSURE RELIEF VALVES

- 3-4.1 A 2½" intake pressure relief/dump valve shall be bolted directly to the suction manifold of the pump. It shall be preset to 125 psi and be field adjustable. The adjustment controls shall be mounted behind the pump panel on the left of the apparatus.
- 3-4.2 The intake relief valve outlet shall be plumbed to terminate under the left side running boards. It shall be furnished with a 45° chromed discharge elbow with male NST threads and visible to the operator.
- 3-4.3 There shall be a permanent label affixed near the outlet that states, "**INTAKE RELIEF VALVE OUTLET DO NOT CAP**"
- 3-4.4 A wheel operated, TPM pressure relief valve system is incorporated into the discharge waterway of the pump. A removable strainer shall be incorporated between the discharge waterway and the pilot valve.
- 3-4.5 The relief valve shall be designed to remain closed until pump pressure reaches the pilot valve pressure setting. A bright indicator lamp shall be installed on the pump operator's panel to indicate valve actuation.

3-5 PUMP SHIFT

- 3-5.1 The pump transfer case shall be air shifted from the cab.
- 3-5.2 The pump shift control shall be located on or adjacent to the engine cover, near the transmission selector pad. This plate will prevent an accidental shift of the transmission. An identification plate shall be installed indicating road and pump position.
- 3-5.3 The transmission selector pad shall incorporate a stainless steel flip down plate that covers the selector pad.
- 3-5.3 Two (2) green indicator lamps shall be provided to alert the operator that the transfer case has fully shifted from road to pump position. One (1) indicator shall be located adjacent the pump shift control in the cab. The second indicator on the pump control panel shall be adjacent to the throttle. Both indicator lights shall have the appropriate identification plate.



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3-6 PUMP PIPING

- 3-6.1 Two (2) 6" master intake butterfly valves (MIV) shall be installed, one on each main suction inlet, behind the pump panel. These valves shall be electrically controlled from the top pump panel and shall provide visual indication, by word and light that the valves are either fully open or fully closed. Hand wheels for manual override shall be installed on the respective side pump panels.
- 3-6.2 Two (2) 2½" gated auxiliary inlets shall be installed behind the pump panels, one on each side of the pump, to the rear of the main 6" inlets. These inlets shall include 2½" ball valves and be piped directly to the suction side of the pump. Locking levers shall control the valves.
- 3-6.3 A 6" diameter front suction shall be installed and mounted through the front bumper extension on the right side. This suction shall utilize 6" schedule 40 black pipe that extends from the right front bumper to the right suction side of the pump. The piping shall incorporate the use of welded elbows. No threaded fittings shall be used. The piping shall be properly braced and utilize Victaulic fittings for easy removal, if necessary.
- 3-6.4 A 6" air operated centerline valve shall be installed in-line for the front suction and shall be controlled from the operator's panel.
- 3-6.5 A drains shall be installed in the lowest portions of the piping, enabling all water to be drained from the front suction. A push/pull rod shall be installed on this drain and terminate at the front bumper.
- 3-6.6 A 6" x 90° Chicksan swivel shall be connected to the front suction plumbing with a 6" NST male screened inlet. It shall be mounted above the front bumper extension decking and rotate a full 180° side to side. The Chicksan swivel shall have the capabilities to lock in any position. The swivel shall be mounted in a manner to prevent blocking the front lighting
- 3-6.7 A 3" tank to pump line shall be installed from the tank sump to the suction side of the pump. The piping shall be 3" in diameter with a 3" ball-type, full flow valve. It shall have the capacity to flow a minimum of 500 GPM. This flow shall be sustainable while pumping a minimum of 80 percent of the tank capacity. The valve shall be controlled from the pump operator's panel. The connection between the tank and pump shall be flexible.
- 3-6.8 Two (2) 1¾" speed lays shall be piped under the pump control panel, behind the pump operator's walkway, using 2" diameter pipe and terminate with 180° swivels with 1½" NST male threads. These discharges shall incorporate 2" full flow ¼ turn valves.
- 3-6.9 One (1) 2½" speed lay shall be piped under the 1¾" speed lays and incorporate 2½" diameter pipe and terminate with a 180° swivel with 2½" NST male threads. A 2½" full flow ¼ turn valve shall be used. The swivels mentioned in Sections 3-6.8 and 3-6.9 shall be installed to not interfere with the deployment of hose.



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- 3-6.10 One 3" discharge shall be located over the pump to the rear of the operator's panel. This discharge shall be flanged to adapt to a removable **AKRON MODEL 3422** deluge gun with stacked nozzle tips (supplied and installed by the body builder). The piping shall be reinforced to allow rated deck pipe flow without distortion and include a 3" full flow, ¼ turn slow close valve located in the pump compartment. The pump operator will operate the deluge gun from the pump operator's panel with complete control. The portable base for the deluge gun shall be shipped loose.
- 3-6.11 A 2" waterway shall be piped from the discharge side of the pump to the tank. This line shall be remotely controlled from the operator's pump panel and controlled by a 2" ball valve to allow for tank refilling.
- 3-6.12 Three (3) 2½" discharges shall be located, two on the left pump panel, one forward, one rear, and one on the forward right side pump panel. Each to include a full flow ¼ turn ball valve terminating with 2½" male NST, chromed 30° elbows, cap and chains.
- 3-6.13 A 3" NST male discharge shall be installed on the right side pump panel, to the rear of the 2 ½" discharges previously described. This discharge shall be piped with a 3" full flow, slow close, ¼ turn valve controlled from the pump operator's panel. A 45°, 3" NST female by 5" Storz fitting shall be supplied and attached to this discharge. The Storz fitting shall include a cap and chain.
- 3-6.14 A Hannay motorized hose reel with 200' of 1" hard rubber booster hose shall be mounted over the pump compartment to the rear of the pump operator's panel on the left hand side of the vehicle. The reel shall be installed with 200' of red rubber booster hose and Akron model 4802 pistol grip nozzle. Chrome rollers, with momentary push button switch, in a rubber weatherproof cover, shall be installed on both sides of pump panel to activate the rewind motor control relay. A Zico (or equivalent) nozzle mount for the nozzle with pressure hose clip shall be installed on the left side pump panel as directed by the Fire Department.
- 3-6.15 A central drain shall be installed below the pump to allow for draining of the pump and the pre-connected waterways. The central drain shall be operated from the pump operator's panel.
- 3-6.16 All discharge and suction valves, piped through the pump panels, shall include a separate drain valves mounted below each valve.
- 3-6.17 Unless otherwise specified, all valves are to be Akron swing-out style.
- 3-6.18 All discharge and suction valves are to be located within the pump enclosure.
- 3-6.19 A remote engine cooler and heat exchanger will need to be installed per the newest edition of NFPA 1901 and the pump manufacturer's specification. The controls shall be installed on the pump panel.



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3-6.20 Upon completion of the body the manufacturer shall test the completed pump and piping system in accordance with NFPA standards and furnish an Underwriter's Laboratory certificate of compliance.

3-7 PUMP OPERATOR'S PANELS

3-7.1 The pump operator's panel shall be constructed above the fire pump in a top control configuration. The pump panel shall be constructed of aluminum with removable aluminum cover. The pump panel shall be constructed and configured to be similar to the District's existing top control pumpers.

3-7.2 The contractor shall furnish complete and detailed drawings of the operator's pump panel layout along with the left and right side removable pump panels. These drawings shall be submitted to the Fire Chief prior to construction for approval.

3-7.3 The pump operator's panel shall be constructed in two planes. The upper plane shall contain all suction and discharge gauges, along with other specified gauges.

3-7.4 The lower plane shall contain the discharge pressure relief valve, and all controls needed to operate the pump. All discharge and suction controls are to be of the lever type. The control levers shall be locking style.

3-7.5 The control levers are to be parallel with each other and be in-line with the appropriate discharge gauge on the upper plane.

3-7.6 Identification of all controls will be color coded per the newest edition of NFPA 1901.

3-7.7 The pump panel shall be illuminated by a minimum of three (3) LED lights installed under a stainless steel shield. Both the right and left side pump panels shall be illuminated in the same manner. All of these lights shall be switched at the operator's panel.

3-7.8 The pump panel shall include the following gauges and controls:

- Auxiliary engine cooler controls
- All valve controls
- Central drain valve controls
- Class One Enfo III engine monitoring system
- UL test outlets (pressure and suction)
- Vernier throttle (manual)
- Radiator fill control
- Pressure relief valve control and light

- Pump engagement light
- Front suction control
- Main side suction controls
- Primer controls (2)
- One (1) air horn evacuation button
- IC Products LED tank gauge showing Full, $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{4}$ and Empty tank levels



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- All gauges including:
 - Main pressure (30-0-600 PSI) 4 ½” gauge
 - Main suction (30-0-600 PSI) 4 ½” gauge
 - Ten (9) discharge (0-600 PSI) 2 ½” gauges
 - Chassis Fuel Gauge

3-7.9 All gauges shall be Class One liquid filled or equivalent.

3-7.10 All pump panels including the left and right side, shall be constructed for easy and quick removal by the purchaser for maintenance.

3-7.11 The deck gun and large diameter discharges shall have combination Class One pressure gauges with digital flow meters.

3-7.12 A Class One ENFO III engine monitoring system (or equivalent) shall be installed with the display mounted on the pump top control panel in a location clearly visible to the operator.

4 BOOSTER TANK

4-1 TANK DESCRIPTION

4-1.1 A United Plastic Fabricators, Inc. (UPF) tank shall be constructed of ½” thick polypropylene plastic and hold 800 gallons of water. This material shall be a non-corrosive stress-relieved thermo-plastic.

4-1.2 The booster tank shall be installed completely independent of the body compartments.

4-1.3 All joints and seams are to be nitrogen welded inside and out.

4-1.4 The top of the tank will be fitted with eyes of sufficient strength to afford easy removal of the tank, if necessary.

4-2 TANK FEATURES

4-2.1 Baffles shall form inner compartments within the tank of forty gallons or less. The baffles will have vent and air hole openings, both top and bottom to permit the movement of air and water between the compartments.

4-2.2 The longitudinal baffles shall be constructed of 3/8” polypropylene plastic and extend from the floor of the tank through the cover to allow for positive welding. The transverse baffles shall be constructed of 3/8” polypropylene plastic and extend from the floor of the tank to the underside of the top cover.



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- 4-2.3 All baffle partitions shall interlock with one another and be welded to both floor and the sides of the tank.
- 4-2.4 The tank shall have a combination vent and manual fill tower, which shall be located in the left front corner of the tank. The fill tower shall be constructed of ½” polypropylene plastic and shall be a minimum dimension of 8” x 8” on the outer perimeter. The fill tower shall be 18” in height and have a screened fill area, with a hinged lockable cover.
- 4-2.5 A tank overflow pipe shall run from approximately 6” below the top of the fill tower and discharge in the rear of apparatus behind the rear axle.
- 4-2.6 The tank cover shall be fabricated in three individual sections, allowing for easy removal and inspection.
- 4-2.7 A sump shall be located in the left front quarter of the tank with minimum dimensions of 10” x 10” x 8” with a ¾” thick bottom. The sump shall have a 3” threaded plug located at the bottom for a tank drain.
- 4-2.8 Openings shall be provided for the tank to pump and tank refill lines.
- 4-2.9 The tank shall be four point mounted to the chassis frame in a manner approval for vehicles transporting liquids.
- 4-2.10 The tank shall be completely removable without disturbing or dismantling the apparatus body structure.
- 4-2.11 The tank manufacturer shall completely guarantee the tank against leaks and defects in material and workmanship for the life of the vehicle (a minimum of twenty (20) years) and issue a warranty certificate to the Greater Round Lake Fire Protection District.
- 4-2.12 IC Products 14 LED tank gauge showing Full, ¾, ½, ¼ and empty tank levels sending unit.

5 PUMPER BODY

5-1 BODY CONSTRUCTION

- 5-1.1 The body shall be of prime commercial quality aluminum or stainless steel. Bidders are requested to price the unit with both an aluminum and stainless steel pumper body.
- 5-1.2 The exterior of the body shall be finished smooth with symmetrically rounded corners and edges, including rub rails, presenting a modern aerodynamic appearance.
- 5-1.3 The body shall be designed and built to provide impact and penetration resistance, with appropriate channel reinforcing to assure rigidity.



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- 5-1.4 All parts of the body and attachments shall be fastened together with stainless steel fasteners in a manner that shall preclude loosening of any bolts or screws and the cracking of welded joints.
- 5-1.5 The body shall be made of not less than .125 thick metal and be reinforced at all points where brackets are attached.
- 5-1.6 To the front of each side pump panel, shall be three speed lay preconnect troughs. The two upper speed lays shall be approximately 8" high by 15" wide, full width, to accommodate a minimum of 150' of 1 ¾" double jacketed fire hose and nozzle. The bottom speed lay shall be approximately 12" high by 15" wide to accommodate a minimum of 200' of 2 ½" double jacketed fire hose and nozzle.
- 5-1.7 A custom cover of diamond plate shall be installed along the walkway in front of the speedlays to facilitate for hose reloading. This cover shall have a secure fastening system.
- 5-1.8 The outer edges of the speed lays shall be protected by stainless steel to aid in quick deployment of hose. To reduce maintenance and paint chips, the sidewalls and bottom of the speed lay area shall be covered with a stainless steel overlay.

5-2 PUMP OPERATORS WALKWAY

- 5-2.1 A transverse walkway shall be constructed between the rear of the cab and the front of the pump operator's panel and speedlays. The walkway shall be constructed of aluminum tread plate. The back of the cab will be RINO LINED to match the paint of the cab.
- 5-2.2 The walkway shall start at the rear of the cab and extend 26" to the pump panel. The width of the walkway shall be a minimum of 90" wide. The steps on the walkway shall have a 12" maximum height
- 5-2.3 Incorporated into the walkway area shall be a minimum if two LED lights recessed into the pump side of walkway, at the walkway level.

5-3 BATTERY COMPARTMENT

- 5-3.1 Unless provided as part of the cab structure, the pump operator's walkway shall incorporate two (2) roll out battery trays on the right and left side of the apparatus built into the step.
- 5-3.2 The battery compartment shall be built to be self- draining and to accommodate the cleaning of the batteries.
- 5-3.3 The battery compartment shall be secured with positive latches using bent "D" ring handles that match the remainder of the body.



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5-4 PUMPER BODY SUB-FRAME

- 5-4.1 Due to the greater weld strength and endurance limits of steel, the apparatus body shall be supported by means of a steel sub-frame.
- 5-4.2 The manufacturer shall supply detailed information as it pertains to the sub-frame construction.

5-5 COMPARTMENTS

- 5-5.1 All compartments shall be constructed to provide the maximum utilization of available space.
- 5-5.2 Directly under the speed lays on the right hand side of the vehicle, a compartment will be constructed to accommodate the hydraulic cab jack pumping unit and control. This compartment will have a latched door, with a bent "D" ring handle to match the compartments on the rest of the apparatus.
- 5-5.3 Compartment A, the forward low side compartment to the rear of the left side pump panel shall be approximately 56" wide x 33" high x 28" deep. This compartment will have a clear door opening of 53" W x 30" H x 28" D. This compartment shall have split doors.
- 5-5.4 Compartment B shall be the forward upper high side left compartment. This compartment shall have an approximately size of 61" W x 34" H x 12" D. A clear door opening size for each shall be 59"W x 30"H x 14" D. The door shall be of lift up design and include a gas charged assist cylinder on each side of the door.
- 5-5.5 Compartment C shall be the second left hand upper high side compartment. This compartment shall have the same specification as compartment B.
- 5-5.6 Compartment D shall be the rear left side compartment. This compartment shall be approximately 42"W x 68"H and have a clear door opening of 40"W x 62"H. Open to Compartment E and I making all three a transvers compartments. This compartment shall have three adjustable shelves mounted in a track attached to the sidewalls. The lower portion of the compartment shall be equipped with a slide out tray.
- 5-5.7 Compartment E shall be the rear center compartment. The approximately size shall be 54" H and transvers. This compartment will have a Robinson roll up door (or equivalent) with a clear opening of approximately 42"W x 48"H. The lower portion of the compartment shall be equipped with a slide out tray capable of holding hydraulic rescue tools.
- 5-5.8 Compartment F shall be the forward right side lower compartment. This compartment shall have the same dimensions and specifications as compartment A.



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- 5-5.9 Compartment G and H shall be the right upper high side compartments. These compartments shall have the same dimensions and all specifications for B and C shall apply.
- 5-5.10 Compartment I shall be the right side rear compartment. This compartment shall have the same dimension and specification as compartment D.
- 5-5.11 Compartment J shall be constructed inside the cab, on the rear wall, facing forward. This compartment shall have approximate exterior dimensions of 40" wide by 36" high by 24" deep with a clear door opening of approximately 33" wide by 30" high by 22" deep. One (1) full size adjustable shelf shall be provided inside this compartment. A roll-up door with positive latching system shall be installed.
- 5-5.11 All compartment floors shall be the sweep out design. A light gauge stainless steel wrapping shall be installed to the outer floor edges to assist in the elimination of paint chipping.
- 5-5.12 All compartments shall provide adequate ventilation.
- 5-5.13 Each compartment door shall be fitted with a continuous stainless steel piano type hinge. Door latch assemblies shall be two point style slam latches. Door latches when assembled shall be separated from painted surfaces by a gasket.
- 5-5.14 Each door shall be fitted with a door seal to keep each compartment dry and free of road debris.
- 5-5.15 Each vertically hinged compartment door shall be equipped with a spring loaded over the center hold open device. The spring will permit the slide to pass over center and hold the door at 90° to the body .the door shall be self-closing when pushed past the mid-point of its swing.
- 5-5.16 The entire rear surface area around the rear roll up door will be a red & white chevron that will match the existing fleet of the Greater Round Lake Fire Department.
- 5-5.18 The aluminum tread plate shall be installed on the top and all forward facing compartment surfaces. All outboard edges shall be angled and extended over the compartment outer panels to form a drip eave and scuff rail. Inboard edges are to be formed upwards and sealed against leakage. This will be RINO LINED to match red paint
- 5-5.19 Bright finished aluminum tread plate shall be formed into running boards along the side of the vehicle from the front of the rear compartments to the rear of the cab. These running boards shall not extend below the lower body plane.
- 5-5.20 A rear step shall be fabricated from bright aluminum tread plate between the rear cabinets, aft of the rear compartment. This step shall be approximately 70" wide and 16" deep.



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5-5.21 The rear wheel opening of the vehicle shall be designed to enhance the appearance of the vehicle and trimmed with brushed aluminum or chrome fender skirts. The wheel wells shall provide adequate space for tire chains and tire removal.

5-5.22 Compartment B will have latching swing out tool boards with PAC brackets.

5-6 HYDRAULIC LADDER RACK

5-6.1 An electrically operated hydraulic ladder rack shall be mounted on the right side of the body to the forward and aft sides of the upper high side compartments. Center arm ladder rack construction will not be accepted.

5-6.2 The ladder rack shall allow for operation by one person. Latching devices that secure the ladder rack in the travel position shall release automatically when the system is activated.

5-6.3 The ladder rack shall hold (1) 24' fiberglass extension ladder, (1) 12' fiberglass roof ladder, (1) 10' folding ladder, (2) 10' lengths of 6" maxi flex hard suction hose, (2) 8' pike poles and (1) collapsible water main wrench. The rack must contain appropriate mounting brackets, hardware and assemblies to match existing apparatus. (Photo provided.)

5-6.4 A single activation weatherproof switch shall be located on the right side pump panel to operate the ladder rack. The switch shall be located as approved by the District and so as to not endanger the operator.

5-6.5 An electrical interlock shall be provided to prevent lowering the ladder rack when the vehicle is in motion or the compartment doors on the right side are open.

5-6.7 The hydraulic plumbing system shall incorporate a safety device to prevent the racks from falling in the event of a hydraulic failure while in operation or while the vehicle is in motion.

5-6.8 In the lowered position, the ladder rack shall allow full compartment door opening for access to all compartments.

5-6.9 Flashing red warning lights shall be installed on both ends of the ladder rack and shall activate whenever the racks are not in the travel position.



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5-7 HOSEBED

- 5-7.1 A hosebed will be furnished to accommodate 1000' of 5" double jacketed supply hose, 1000' of 2 ½" double jacketed fire hose, and 600' of 2 ½" double jacketed fire hose with 100' of 1-3/4' attack hose and nozzle attached.
- 5-7.2 The hosebed dimensions shall be approximately 23" high by 70" wide by 140" deep.
- 5-7.3 The hosebed shall contain two (2) aluminum hose bed dividers and fastened to an adjustable unistrut style track. Both dividers shall be reinforced to prevent deformation in the middle. One divider shall be used to rest the hosebed cover doors, located in the center of the hosebed. The other divider will be located to the right of center and will have a 1" clearance from the hose bed doors.
- 5-7.4 The flooring of the hosebed shall be constructed of aluminum or recycled plastic grating and easily removable.
- 5-7.5 The hosebed shall be designed to use the maximum depth and width between the outer compartments.
- 5-7.6 The hosebed shall be covered by two (2), hinged, box pan style doors capable of supporting 500 pounds on each cover. The exterior surface of the hosebed covers shall be bright finished aluminum diamond tread plate. The interior of the covers will be covered with bush aluminum to hide the structural supports of the doors and to prevent couplings from catching. These doors shall be hinged with continuous piano style hinges. Pneumatic hold open devices, or other similar system, shall be incorporated into the design. The doors shall be positively latched while in the traveling position.

5-8 SPARE AIR BOTTLE COMPARTMENTS

- 5-8.1 There shall be two (2) compartments, one (1) each side, installed in the rear wheel well area of the pumper body in front of the rear wheels. Each compartment shall measure approximately 18" wide by 9" high by 26" deep the opening 9"X 9". These compartments must each hold Two (2) Scott 2.2 air pack bottles.
- 5-8.2 A third SCBA spare bottle compartment, matching the prior description, shall be installed on the right side of the vehicle, just aft of the rear wheel.
- 5-8.3 Each air pack bottle compartment shall be equipped with sweep-out 8" diameter, lined on the bottom with a rubber mat to form a non-slip surface. Each compartment should tilt approximately 2 degrees downward.
- 5-8.4 Each air pack bottle compartment door shall be equipped with a positive latching device and weatherproof seal.
- 5-8.5 These compartments must be constructed and installed in compliance with NFPA 1901-2016



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5-9 MISCELLANEOUS BODY

- 5-9.1 Two (2) 30' stainless steel grab rails mounted in heavy duty chrome plated stanchion castings shall be installed vertically in the rear as specified by the District.
- 5-9.2 A fuel fill shall be installed behind a finished door that matches the SCBA spare bottle compartment doors in the left side of the body just aft of the wheel well opening. This fuel fill shall comply with Federal Motor Vehicle Standard and vented.
- 5-9.3 Provisions shall be made in the body for accessibility to the fuel tank for its removal and repair of fuel sending units.

5-10 FINISHING

- 5-10.1 The entire apparatus shall be corrosion protected and rust proofed.
- 5-10.2 All painted surfaces shall be properly prepped and primed according to the paint manufacturer's specifications and painted red to match existing apparatus. (PPG #71528 or Siekens #FLNA 3024)
- 5-10.3 All removable items such as wheels, brackets, compartment doors, hinges, lights and all diamond plate shall be removed and painted separately. All surfaces of the apparatus shall be finish painted, including, but not limited to, the underside of the apparatus, wheel wells and compartment interiors. Body assemblies that cannot be finish painted before assembly, including the "back" sides of compartments, shall be painted before final assembly.
- 5-10.4 Compartment interiors shall be primed and finished in a light colored paint.
- 5-10.5 All bolts and hardware used to fasten pre-painted parts or accessories shall be stainless steel and be separated from painted surfaces by a nylon washer.
- 5-10.6 Three (3) white reflective Scotchlite stripes, 1" – 5" – 1" wide respectively, shall be applied to the body and chassis after the paint has sufficiently hardened. The white Scotchlite stripes shall be placed on top of black Scotchlite strips 1 ½ X 5 ½ X 1 ½ providing a ¼" exposed black reflective border for the white tape. A ¾" paint gap shall exist between the 1" and 5" stripes and borders. The District shall approve the striping locations prior to application. Please refer to the photos provided.

5-11 GENERATOR/AC ELECTRICAL

- 5-11.1 Smart Power HR-20 PTO/Hydraulic generator with a rating of 20KW, two phase, 60 Hertz, with the option of full power, while the unit is either stationary or moving. The PTO shall be the "hot shift" style to allow engaging the PTO at any speed.
- 5-11.2 The generator power tray will be mounted above the pump on the right side of the vehicle. This tray shall have a clearance around the unit to provide a minimum of 300 square inches of free inlet as required by the manufacturer.



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- 5-11.3 The tray shall be ordered with the airflow direction upward or the up-draft model to allow for proper air exchange.
- 5-11.4 A minimum of 10" of access around the unit shall be provided for maintenance.
- 5-11.5 The hydraulic reservoir shall be installed in a manor that easy access for repairs and filling can be obtained.
- 5-11.6 Two (2)-control positions shall be provided to activate the Smart Power generator, one in the cab and one at the pump operator's panel.
- 5-11.7 The Smart Power digital monitor shall be installed on the pump panel for easy viewing by the pump operator.
- 5-11.8 The circuit breaker panel shall be installed in the left front lower **compartment A** and wired to the generator output. This breaker box shall be installed for the ease of future maintenance and contain a master disconnect breaker, two (2) 240 volt 30 amp breakers for the cord reels, a 240 volt breaker for an outlet in the rear compartment, and a 240 volt breaker sized appropriately for the light tower. A minimum of four (4) – 20 amp single-phase breakers shall also be provided.
- 5-11.9 Two motorized Hannay cord reels shall be mounted high in compartment D & I. The cord reels shall have 200' each of 10-4, 600 volt heavy duty SO power cord with a **CIRCLE "D" MODEL PF 51** lighted four outlet electrical box attached to the end. Each cord reel shall be wired for 240 volts and be separated into two separate circuits. The box shall have three (3) 110-volt outlets and one 240-volt outlet (**Hubbell twist lock**).
- 5-11.10 A full width stainless steel roller shall be installed for each cord reel. The use of guide rollers shall not be accepted.
- 5-11.11 A Command Light model CL602A-W4 light tower shall be mounted on the rear of the cab roof. This light shall have six (6) WHELEN PFP4 LED light heads attached.
- 5-11.12 The controls for the Command Light shall attach via a weatherproof connector installed at the base of the light tower in a location convenient to the pump operator.
- 5-11.13 A 120-volt AC outlet shall be installed on the front face of each side compartment, just aft of the pump panel. The outlets shall include Hubbell yellow weatherproof cover plates, part number 74CN23WO. The receptacles shall be Hubbell Model (check with department), 20-amp twist lock.
- 5-11.14 A **Hubbell** model (check with department), twist-lock outlet shall be installed on the back wall of compartment E below the cord reels.



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- 5-11.15 A 110-volt shoreline connector shall be installed inside the left front cab door well near the airline. This connector shall be a Hubbell model 61CM64 recessed male connector with cover.
- 5-11.16 The shoreline shall be connected to three (3) four gang standard duplex outlets mounted in the cab, one behind the driver's seat, one behind the officer's seat and the third in the rear cab utility compartment J.
- 5-11.17 All AC wiring shall be installed in liquid tight flexible conduit and utilize weatherproof junction boxes. All AC wiring shall meet National Electrical Code Standards.

5-12 BODY ELECTRICAL

- 5-12.1 All wiring for the apparatus body shall use heat resistant cross-linked polyethylene insulation within a weather resistant loom. Weatherproof grease shall be applied in the connectors that may be exposed to the elements. All wires in each harness shall be function coded at six-inch intervals. All wiring shall be capable of handling a minimum of 125% of the expected loaded requirements. At any point where a wiring harness passes through a body surface, a rubber or plastic grommet shall be installed. **THE USE OF PUSH-ON STYLE SPADE CONNECTORS OR BUTT TYPE SPLICE CONNECTORS SHALL NOT BE ACCEPTABLE.**
- 5-12.2 Multiplex electrical systems are not desired.
- 5-12.3 All wiring circuits on the apparatus shall be protected by automatic resetting circuit breakers.
- 5-12.4 All circuits exceeding 15 amps shall be relay controlled. The use of plug-in BOSCH style relays in circuits rated for over 20 amps shall not be accepted.
- 5-12.5 All compartments shall have interior LED lamps for nighttime operations. Lamps shall be recessed into body panels and shall be placed in positions to illuminate each shelf area. Switches that activate when the compartment door is opened shall control these lights.
- 5-12.6 The front cab face shall include DOT required low and high beam halogen headlights, Whelen 640CLTTR amber LED arrow turn signals and LED warning lights in attractive chrome bezels.
- 5-12.7 LED clearance and marker lights, along with reflectors shall be installed according to the Federal Motor Vehicle Code requirements.



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- 5-12.8 Whelen CAST4V “LITE BLOX” quadruple series stop/tail/turn/back-up light assemblies in a cast housing shall be installed on the rear surface of the apparatus. These housings shall include, from top to bottom, Whelen 640CLTTR amber LED arrow turn signals, Whelen 640CLBRR red LED combination stop/tail lamps, and Whelen 60C00WCR clear LED back-up lights. The fourth light will be an LED warning light detailed later.
- 5-12.9 The pump operators walkway side running boards and rear step area shall be illuminated by the use of recessed lights. Ten (10) LED lights shall be mounted underbody below each cab and compartment door. These lights shall be activated any time the apparatus is running with the parking break set.
- 5-12.10 Two (2) Whelen 9SC0ENZR Gradient Opti-Scenelight, surface mount LED scene lights and 90FLANGC Flange Kit shall be mounted at the center of each side pump panel.
- 5-12.11 Two (2) Whelen 9SC0ENZR Gradient Opti-Scenelight, surface mount LED scene lights with 90FLANGC Flange Kit shall be mounted on the upper rear face of the apparatus between the beavertails. These lights shall also illuminate whenever the vehicle is in reverse.
- 5-12.12 The lights described in the two preceding sections shall be illuminated when the pump panel light switch is activated.
- 5-12.13 Two (2) complete wiring schematics shall be furnished upon delivery of the apparatus

5-13 WARNING EQUIPMENT

- 5-13.1 Whelen 60R02FCR and 60B02FCR red and blue LED lighthoods shall be installed in the front cab face below or adjacent to the front light group. The driver’s side shall be red while the officer’s side is blue. These LEDs will be synced to flash alternately and operate whenever the Unitrol 330-5 is in position 1, 2 or 3.
- 5-13.2 A red Whelen 6RBRC ROTA-BEAM with red color lens warning light in chrome bezel shall be mounted in the center of the cab front face below the windshield. The ROTA-BEAM will operate whenever the Unitrol 330-5 is in position 3 and the parking brake is released.
- 5-13.3 Whelen 60A02FCR LED lighthoods shall be mounted in the bottom of the CAST 4V LITE BOX cast aluminum housings on the rear surface of the apparatus. These LED will be amber. These LEDs will be synced to flash alternately in an “X” pattern with the lights specified in 5-13.4 and operate whenever the Unitrol 330-5 is in position 1, 2 or 3.



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- 5-13.4 Whelen 60R02FCR & 60B02FCR LED lighthoods shall be mounted in CAST 1V LITE BOX cast aluminum housings on the rear surface of the apparatus in the upper outside corners. These LEDs will be synced to flash alternately in an "X" pattern with the lights specified in 5-13.3 and operate whenever the Unitrol 330-5 is in position 2 or 3.
- 5-13.5 Whelen R316RRF and R316BBF Rota-Beam Super-LEDs assemblies. Shall be installed on the rear upper corners of the hose bed. The driver's side shall be red and the passenger side blue. The cruise lights will operate when the Unitrol 330-5 is in position 1. The Rota-Beam will operate whenever the Unitrol 330-5 is in position 2 or 3.
- 5-13.6 Whelen 70BR6FCR LED, ½ red ½ blue, side by side with clear outer lens shall be installed on each side of the apparatus on the sides of the front bumper extensions to provide intersection lighting. The red and blue colors shall flash alternately and be synced to the lights specified in 5-13.7 and 5-13.8. They will operate whenever the Unitrol 330-5 is in position 2 or 3.
- 5-13.7 Whelen 70BR6FCR LED, ½ red ½ blue, side by side with clear outer lens shall be installed in the sides of the cab over the front wheel well openings. The red and blue colors shall flash alternately and be synced to the lights specified in 5-13.6 and 5-13.8. They will operate whenever the Unitrol 330-5 is in position 2 or 3.
- 5-13.8 Whelen 70BR6FCR LED, ½ red ½ blue, side by side with clear outer lens shall be installed in the sides of the hose body over the rear wheel well openings. The red and blue colors shall flash alternately and be synced to the lights specified in 5-13.6 and 5-13.7. They will operate whenever the Unitrol 330-5 is in position 2 or 3.
- 5-13.9 A Whelen TAD8 eight lamp TIR3 Super-LED traffic advisor, 30.36" long, shall be installed directly above the rear Compartment E. The control head shall mounted in the cab convenient to both the driver and officer.
- 5-13.10 A custom Whelen Ultra-Freedom lightbar, 72" in length, shall be installed on the cab roof. The lightbar shall be configured according the Whelen Lightbar Wizzard attached to this specification. The Lightbar shall operate with a Unitrol 330-5 the lights will operate as followed. In position 1 the cruise lights. In positions 2 & 3 the roto beams and the two red and two blue LED flashing lights will activate. In position 3 the led Opticom Emitter will activate. The LED Opticom Emitter shall only operate with the Unitrol 330-5 switch in position 3 and the parking brake is released. The LED Opticom Emitter shall be completely disable when the parking brake is set.
- 5-13.11 All wiring for warning lighting shall be installed without splicing. Weatherproof connectors shall be utilized to connect LED lighthoods to control wiring. All lights will have programmable flash patterns and not connected to a flasher.



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- 5-13.12 A Federal Q2B mechanical siren, with electric brake, shall be installed on the front bumper extension on the driver's side. It shall be controlled by two (2) floor mounted Linemaster 491-S switch controls, one on the driver's side and one on the passenger side. The siren brake shall be activated by a momentary rocker switch located in the dash control panel, convenient to both the driver and officer. The siren shall be positioned so it won't interfere with the front lighting group.
- 5-13.13 A Federal model BP200-EF 200 watt electronic siren speaker shall be installed flush mount through the front bumper, on the passenger side to provide a symmetrical appearance to the air horns. This speaker shall be connected to a Whelen 295HFSC9 self-contained 200 watt dual full function siren, with removable mic mounted in the cab convenient to the officer.
- 5-13.14 A momentary push button in a weatherproof boot shall be installed on the pump operators top control panel to activate the chassis air horns when depressed.
- 5-13.15 A Whelen L32LRF LED red flashing light shall be installed inside the front of the cab visible to both the officer and driver. This light, along with an audible warning device, shall activate anytime the parking brake is released and a cabinet door is open, or the ladder rack or light tower are not properly stowed. This light shall be labeled: DO NOT MOVE APPARATUS.
- 5-13.16 One (1) back-up alarm, with a minimum decibel rating of 112 dB shall be installed.
- 5-13.17 A Whelen P36HHS PAR-36, Super-LED hand held combination spotlight/floodlight with On/Off switch will be mounted for easy reach of the officer.

6 SUPPLIED EQUIPMENT

- 6-1.1 The manufacturer or successful bidder shall supply the following equipment with the completed apparatus:
- (1) 24' Alco Lite fiberglass extension ladder model FEL-24 with mounting clamps
 - (1) 12' Alco Lite fiberglass roof ladder model FRL-12 with mounting clamps
 - (1) 10' Duo-Safety fiberglass folding ladder model 585-YG with mounting box
 - (2) 10' lengths of 6" "MAXI-FLOW" hard suction hose with long handled female swivel and rocker lug male couplings, NST thread with mounting brackets
 - (200') 1" booster hose, supplied and coupled in 50' lengths, coiled on the booster reel



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- (2) Leather head pike poles one 6' & one 8' High-Viz lime with American Hooks butt end.
- (1) Akron model 4802 booster nozzle and Zico mounting bracket
- (1) Akron model 3422 removable deluge gun with stream straightener, fixed base, portable base and stacked tips (2", 1-3/4" and 1-1/2" ID)



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PUMPER FIRE APPARATUS BID FORM

The undersigned bidder hereby proposes to manufacture and furnish a new, commercially produced, custom pumper fire apparatus and related equipment for use in the fire service in accordance with the Greater Round Lake Fire Protection District's specifications and the manufacturer's proposal incorporated herein. Any exceptions to the Greater Round Lake Fire Protection District's specifications are listed on the following exception page(s).

It is agreed by the undersigned that the signing and delivery of this bid represents the bidder's acceptance of the terms and conditions of the attached specifications and provisions and, if awarded this bid, will represent the agreement between parties.

Pumper Manufacturer:

Authorized Agent (Bidder):

Company Name

Company Name

Address

Address

City, State, Zip Code

City, State, Zip Code

Contact Person

Contact Person

Telephone Number

Telephone Number

Date of the bid opening: April 16, 2018 at 2:00 p.m. local time.

Total bid price for the delivery of one (1) custom pumper fire apparatus with **aluminum body** and related equipment per these specifications: \$ _____

Total bid price for the delivery of one (1) custom pumper fire apparatus with **stainless-stell body** and related equipment per these specifications: \$ _____

Delivery of the pumper, subject to all clauses of the attached specification, is to be made within _____ calendar days from the acceptance of the bid by the Greater Round Lake Fire Protection District.

Failure to deliver the completed pumper in the time quoted above, without the expressed permission of the purchaser, will constitute a breach of contract and said agreement may be voided.

Authorized Signature

Date



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EXCEPTION PAGE

List all exceptions by specification item number and completely describe exception taken.
(Additional pages may be used.)