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1500 GPM SINGLE STAGE PUMPER SPECIFICATIONS

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1750 GPM SINGLE STAGE PUMPER SPECIFICATIONS

SECTION

1.0 INTENT

IT IS THE PURPOSE OF THIS SPECIFICATION IS TO DESCRIBE A SINGLE REAR AXLE, 1500-GALLONS PER MINUTE, SINGLE STAGE PUMPER APPARATUS WITH ENCLOSED SEATING FOR EIGHT (8) FIREFIGHTERS TO BE USED BY THE VILLAGE OF PORT CHESTER (VPC) THROUGHOUT THE VILLAGE AND IN CONTRACTED SERVICE AREAS. IT WILL BE A FRONT LINE APPARATUS AND SUBJECTED TO EXTENSIVE DAILY USE. THIS APPARATUS SHALL HAVE THE CAPABILITY & CAPACITY TO CARRY A FULL EQUIPMENT & PERSONNEL LOAD. IT SHALL BE DESIGNED TO CARRY SUPPLIES, MATERIAL, EQUIPMENT, & PERSONNEL IN A SAFE & SECURE MANNER.

Y ✓ N ___

THE APPARATUS WILL BE EXPOSED TO THE MOST SEVERE SERVICE. IT WILL BE USED EXTENSIVELY BY PCFD THROUGHOUT THE VILLAGE. IT IS REQUIRED THAT THE VENDOR, IN THE SELECTION OF THE COMPONENTS FOR USE IN THE VEHICLE, USE MATERIALS AND DESIGN PRACTICES THAT ARE THE BEST AVAILABLE IN THE INDUSTRY, FOR THE SEVERE SERVICE OPERATING CONDITIONS TO WHICH THE APPARATUS WILL BE SUBJECTED.

Y ✓ N ___

THE APPARATUS AND ITS SYSTEMS/COMPONENTS SHALL BE DESIGNED AND ENGINEERED TO WORK PROPERLY UNDER SEVERE CONDITIONS AND SHALL PERFORM ITS MISSION RELIABLY.

Y ✓ N ___

THE SELECTION OF ALL COMPONENTS SHALL BE MADE TO ENSURE MAXIMUM PERFORMANCE, SERVICE LIFE, RELIABILITY & SAFETY, NOT ONLY TO MEET THE MINIMUM REQUIREMENTS OF THE SPECIFICATION.

Y ✓ N ___

BIDS WILL BE ACCEPTED FROM A SINGLE SOURCE APPARATUS MANUFACTURER. THE CAB, CHASSIS, AND BODY MUST BE FABRICATED AND MANUFACTURED ON THE BIDDER'S PREMISES. ALL WARRANTIES RELATIVE TO THE CAB, CHASSIS, AND BODY DESIGN EXCLUDING COMPONENT WARRANTIES (ENGINE, TRANSMISSION, AXLES ETC) MUST BE FROM A SINGLE SOURCE MANUFACTURER AND NOT SPLIT BETWEEN MANUFACTURERS.

2.0 GENERAL REQUIREMENTS

2.1 The entire apparatus, with all appurtenances new, complete and ready for operation, shall be furnished and delivered under this specification and shall satisfy all requirements, herein.

Y ✓ N ____

2.2 All parts and components not specifically mentioned, which are necessary to furnish such complete apparatus, shall conform to the best practices known to the automotive and fire apparatus industries in design, strength, quality of material and workmanship.

Y ✓ N ____

2.3 Unit shall be manufacturer's latest, top-of-the-line design, highest quality and modified where necessary, to conform to these specifications and all surfaces shall be designed and manufactured to eliminate sharp edges and/or corners capable of producing an injury.

Y ✓ N ____

2.4 The apparatus shall be designed and the equipment mounted with due consideration to distribution of load between the front and rear axles so that all specified equipment, including a filled water tank, full complement of personnel, and fire hose shall be carried without damage to the apparatus. Weight balance and distribution shall be in accordance with recommendations of the National Fire Protection Association #1901 (latest edition) and current standard automotive practices.

Y ✓ N ____

2.5 Unit shall comply with all applicable Federal, State and local regulations, standards and laws relating to commercial vehicles, Fire Apparatus and NFPA #1901 at time of production.

Y ✓ N ____

2.6 Assembly shall be designed to facilitate repairs, maintenance, servicing and lubrication.

Y ✓ N ____

2.6.1 All gauges, valves, controls, inlets, outlets, drains and auxiliary appendages shall be labeled as directed by VPC.

Y ✓ N ____

2.6.2 The contractor shall be mindful of the location of all serviceable undercarriage equipment (filters, lubrication points, solenoids, fuses), allowing for ease of maintenance and replacement.

Y ✓ N ____

2.7 All replacement parts listed in these specifications shall be complete, modified and compatible with the apparatus contracted for.

Y ✓ N ____

2.8 Unit shall be diesel powered, with automatic transmission.

Y ✓ N ____

2.9 Vendor to supply a weight analysis of the front and rear axles of a fully loaded apparatus with bid proposal. Vendor shall use the NFPA 1901 standard equipment list for preparing this weight analysis. Y✓ N___

3.0 CAPACITIES AND DIMENSIONS

	Dimension	Minimum	Maximum
3.1	Wheelbase		183 inches
3.2	Overall length		344"
3.3	Cab Width (excluding mirrors and grab rails)	96"	101"
3.4	Body Width	96"	96"
3.5	Overall Height (including deck gun or other attached hardware		126"
3.6	Turning Radius (curb to curb)		29'
3.7	Angle of Departure	12°	
3.8	Angle of Approach	14°	
3.9	Ground Clearance (front bumper to front axle fully loaded)	15"	
3.10	Rated Pump Capacity		1500 gpm
3.11	Certified G.V.W.R		47,000 lbs
3.12	Water Tank Capacity	750 gallons	750 gallons
3.13	Foam Tank Capacity	30 gallons	30 gallons
3.14	1¾" Rear Hose Bed Storage Capacity	400 feet	400 feet
3.15	3" Rear Hose Bed Storage Capacity	1500 feet	1500 feet
3.16	1¾" Pre-connected Speed lays (2 beds)	200 feet ea.	200 feet ea.
3.17	1¾: Front Bumper Storage (2 beds)	100 feet ea.	100 feet ea.

Y✓ N___

4.0 ENGINE

4.1 The make and model of the engine that is required for this bid is a CUMMINS DIESEL, ISL. The engine shall be 543 c.u. and shall be rated at 425 horsepower @ 2100 R.P.M. and 1200 Ft. Lb. of torque at 1300 R.P.M.

Y✓ N___

4.2 The engine shall meet 2007 "50 state" emission requirements and the engine installation shall be approved by the engine manufacturer in writing. Maximum governed R.P.M. shall be 2200 R.P.M.

Y✓ N____

4.3 The engine shall be air quality compliant on all levels of exhaust emissions. The engine shall be free of any smoke emissions when it is received by the VPC. The exhaust system shall include a diesel particulate filer and a diesel oxidation catalyst system.

Y✓ N____

4.4 Provide an engine diagnostic plug and mount it in an easily accessible area on the apparatus. The exact mounting location shall be determined at the Pre-construction meeting.

Y✓ N____

4.5 The engine shall also be equipped with ODTIKER (or approved equal), "Stepless Spring Clamps", for all hoses on the engine, including heater hoses.

Y✓ N____

4.6 Provide an engine "High-Idle" switch, located on the dash, easily accessible by the driver. This switch shall raise the engine RPM to approximately 1100 RPM.

Y✓ N____

4.7 The "high idle" switch shall activate only when the transmission is in neutral and the parking brakes are set. It shall de-activate when the apparatus is put into the pump mode. The exact mounting location and the exact desired RPM shall be determined at the Pre-construction meeting.

Y✓ N____

4.8 All contractor-installed engine lubrication and hydraulic hoses are to meet SAE 100 R 5 specifications and be rated for temperatures at or above 300 degrees F, and be compatible with all petroleum products. The hoses shall be AEROQUIP Model FC 355 or approved equivalent.

Y✓ N____

4.9 All contractor-installed flexible engine fuel hoses shall be AEROQUIP Model FC 300 or approved equivalent.

Y✓ N____

4.10 The engine shall be equipped with a Jacobs C-Brake. The switch shall be mounted in the cab and include one (1) off-low-medium-high switch. The pump shift interlock shall be provided to prevent the brake from activating during pumping operations. An interface with the WABCO ABS brake controller shall prevent engine brake operation during adverse braking conditions.

Y✓ N____

4.11 The engine shall have a five (5) year or 100,000 mile warranty provided by the engine manufacturer. This warranty shall provide the same coverage for the Diesel Particulate /filter (DPF) that is an integral component of the exhaust emissions system. The engine manufacturer shall add a $100.00 deductable during the extended basic coverage period in years 3-5, with no deductable in the first 2 years of the warranty.

Y✓ N____

5.0 COOLING SYSTEM

5.1 Provide a cooling system designed to maintain the engine at acceptable operating temperatures per engine manufacturer's requirement regardless of ambient temperature. Apparatus manufacturer shall furnish engine manufacturer's written approval of the cooling and de-aeration system.

Y✓ N____

5.2 Provide a minimum radiator size of 1070 sq. in., bolted tank construction with de-aeration system. The drain shall be taken from the rear vertical face of the tank, located at the lowest possible location. Additional cooling system drains shall be provided at the lowest point in the cooling system to permit complete flushing of the system.

Y✓ N____

5.3 Provide a water filter, spin-on type, Fleetguard, or approved equal with shutoffs. Filter position shall be located to facilitate easy replacement, exact location to be determined at the Pre-construction Meeting.

Y✓ N____

5.4 Provide SILICONE rubber hoses, PUROSIL–70 or approved equal, including heater hoses. Clamps shall be made by ODTIKER, Stepless Spring Clamps, or approved equal.

Y✓ N____

5.5 Provide a KYSOR lightweight nylon cooling fan or approved equal.

Y✓ N____

5.6 Provide a two speed thermostatically controlled fan clutch, or approved equal. The fan shall automatically lock up when the vehicle is placed in the pump mode.

Y✓ N____

5.7 An engine cooler shall be included in the engine cooling system, installed in-line the discharge side of the pump, activated by a quarter turn valve installed in the pump operator's panel and clearly labeled.

Y✓ N____

6.0 FUEL SYSTEM

6.1 Provide a fuel system meeting the engine manufacturer's recommendations. The fuel system shall be certified by the engine manufacturer in writing.

Y✓ N____

6.2 The fuel tank shall be made of steel material.

Y✓ N____

6.3 Provide a tank capacity of sixty-five (65) gallons. Fuel tank shall have a fill located on the left side.

Y✓ N____

6.4 Provide fuel tank fill door, polished stainless steel. Additionally, provide adequate fuel drainage within the fill compartment to prevent fuel from draining down the side of body. The fuel cap shall have a retaining chain.

Y✓ N____

6.5 The fuel fill line shall be free of kinks and bends that will restrict the flow of fuel when the apparatus is being re-fueled.

Y✓ N____

6.6 Fuel tank shall be removable through (easily removed) access panels, body parts or frame members.

Y✓ N____

6.7 Fuel tank sending unit should be of the float arm type, and easily detachable without removing the fuel tank, or cutting holes in body. Access panels shall be provided to service fuel tank senders.

Y✓ N____

6.8 Fuel lines from frame to tank to be flexible, non collapsible lines with enough slack to allow tank to be moved so fuel lines can be disconnected.

Y✓ N____

6.9 Fuel shall be withdrawn from tank top through a standpipe.

Y✓ N____

6.10 Provide a return fuel cooler. Fuel cooler shall be an air to fuel type cooler.

Y✓ N____

6.11 Provide a fuel tank with a flush mount drain plug.

Y✓ N____

6.12 Provide an in-line brass shut–off, ¼- turn ball valve on suction side of the fuel tank plumbing, to isolate the fuel supply if needed. The exact location shall be determined at the Pre-construction meeting.

Y✓ N____

6.13 Provide a RACOR fuel filter / water separator, Model 1000 FG filter. The filter unit shall be easily accessible for removal of the filter element. Provide a warning light with buzzer to warn driver when fuel contamination level reaches a dangerous level. The warning light and buzzer unit shall be a model #RK20726. The warning system shall be installed on the dash, in plain sight of the driver. Exact location shall be determined at the Pre-construction meeting.

Y✓ N____

6.14 All flexible fuel hoses used for the fuel system shall be of the steel reinforced rubber/cloth jacket type with re-usable fittings.

Y✓ N____

7.0 AIR CLEANER

7.1 Provide a dry type air cleaner, approved by the engine manufacturer, in writing. Provide a remote mounted air inlet system using a moisture separator and spark arrestor.

Y✓ N____

7.2 Provide a Donaldson, mechanical air restriction indicator, Model RAX00-2325, mounted on the dash. The exact location shall be determined at the Pre-construction meeting.

Y✓ N____

8.0 EXHAUST SYSTEM

8.1 Provide the vehicle with an exhaust system meeting engine manufacturer's minimum back pressure requirements. Exhaust system shall be certified by engine manufacturer in writing and meet all 2007 Federal, State, and local emission regulations.

Y✓ N____

8.2 Exhaust flex tubing, if used, shall be stainless steel and not used to make bends exceeding 10 degrees.

Y✓ N____

8.3 All connections exclusive of engine fastener, use DONALDSON seal clamp or approved equal. "U" bolt muffler clamps are not acceptable.

Y✓ N____

8.4 The exhaust outlet pipe shall terminate vertically ahead of the water tank to a point above the body. The tail pipe shall be of stainless steel material. A tailpipe diffuser shall be provided to reduce the temperature of the exhaust as it exits.

Y✓ N____

8.5 Provide heat shielding around exhaust system where it passes by air intake piping, around any wiring loom, air line, fuel line, batteries, radio cables, or through the cab floor.

Y✓ N____

8.6 Adequate heat deflector shield shall be installed under compartment floors, and in the pump compartment area.

Y✓ N____

8.7 Any area of the exhaust system that might interfere with the removal of the transmission shall be "easily" removable.

Y✓ N____

9.0 AUTOMATIC TRANSMISSION

9.1 Provide an ALLISON "World" Automatic, Model EVS-3000 fully automatic transmission with six (6) speeds forward and one (1) reverse. The transmission shall be programmed to up-shift only to 5th gear when the normal drive range is selected. The transmission will go to 6th gear when the "Mode" button on the push button shifter pad is selected.

Y✓ N____

9.2 The transmission shall be installed to be in compliance with transmission manufacturer's requirements. The installation shall be certified in writing by the transmission manufacturer.

Y✓ N____

9.3 Provide a full function "Allison" push button pad, with a remote mode and display indicator readout. It shall be indirectly lit for night-time operations. The shifter is to be mounted on the console to the right-hand side of the operator so it does not interfere with the driver's ability to steer the apparatus.

Y ✓ N ____

9.4 Provide a transmission oil cooler independent of the engine coolant radiator. The transmission oil cooler shall be installed between the outlet side of the engine radiator and the inlet side of the engine cooling system and be of the full flow type.

Y ✓ N ____

9.5 High transmission oil temperature audible alarm and indicator light on the cab dash and at the pump panel. A transmission temperature gauge shall be provided in the cab dash.

Y ✓ N ____

9.6 The transmission dipstick shall be accessible through cab access hatch and color coded "Red" and properly labeled.

Y ✓ N ____

9.7 All hydraulic hoses shall be Parker™ braided hose or approved equal with reusable fittings for all medium pressure applications on automatic transmission and for transmission cooler applications.

Y ✓ N ____

9.8 The transmission shall include two (2) PTO ports located in the 3 o'clock and 9 o'clock positions.

Y ✓ N ____

9.9 The transmission manufacturer shall provide a five (5) year unlimited mileage warranty covering 100% parts and labor.

Y ✓ N ____

10.0 DRIVELINE - UNIVERSAL JOINTS

10.1 The Universal joints shall be Spicer 1710 Series, minimum, half-round style.

Y ✓ N ____

10.2 The drive shafts shall be dynamically balanced before installation.

Y ✓ N ____

10.3 The driveline installation shall be certified by the apparatus manufacturer in writing.

Y ✓ N ____

10.4 A splined slip joint with Glidecoat or equivalent coating shall be provided on the each drive shafts.

Y ✓ N ____

11.0 FRONT AXLE, SUSPENSION,AND STEERING

11.1 FRONT AXLE

11.1.1 The front axle shall be a Meritor MFS-20 or equivalent and shall have a rated capacity 20,000 pounds, minimum - GAWR axle capacity certified by axle manufacturer, with two (2) year warranty, 100% parts & labor. #1

Y___ N✓___

11.1.2 Front axle wheel bearings shall be oil lubricated. Oil seals with viewing windows for checking oil level shall be provided on each side.

Y✓___ N___

11.1.3 Double acting shock absorbers shall be installed for the front axle with polyurethane bushings.

Y✓___ N___

11.1.4 Shock absorbers shall be mounted in accordance with the shock absorber manufacturer's recommended angles.

Y✓___ N___

11.2 FRONT SUSPENSION

11.2.1 Front springs shall be simi-elliptical type with a minimum ground rating of 20,000 lb. #2

Y___ N✓___

11.2.2 Spring pins and shackle pins, non-rotating type, designed for ease of service and removal.

Y✓___ N___

11.2.3 All spring bushings provided with spiral groves and a center circular groove to permit grease to penetrate around the pins completely. Serrated pins with nuts are **not** acceptable.

Y✓___ N___

11.2.4 Access panels shall be provided in compartments (if/as necessary) to facilitate free access to shackle pins and hangers and to permit ready removal of springs.

Y✓___ N___

11.3 STEERING

11.3.1 The front steering gear shall be adequately sized for front axle loading. Ross #TAS-85, or equivalent, minimum. Hydraulic power assist. The system shall have the capacity to static steer when loaded to capacity. Capacity of fluid reservoir shall be four (4) quarts minimum. Reservoir to be equipped with power steering fluid filter.

Y✓___ N___

11.3.2 The steering wheel shall be capable of tilting and telescoping with an 18" steering wheel with horn button. The steering wheel shall be covered with absorbite padding. The steering column shall contain a self-canceling turn signal switch with four-way hazard switch on turn lever.

Y✓___ N___

11.3.3 The power steering cap shall be color-coded "BLUE" with stainless steel chain. Properly labeled.

Y ✓ N ___

11.3.4 All power steering hose shall be PARKER or equivalent with wire braid jacket & reusable fittings.

Y ✓ N ___

12.0 REAR AXLE, SUSPENSION AND TIRE CHAINS

12.1 REAR AXLE

12.1.1 Provide a Meritor RS26185 rear axle assembly, having a manufacturer's certified rating of not less than 27,000 lbs. capacity.

Y ✓ N ___

12.1.2 Rear axle differential ratio shall be geared to 65 M.P.H. at engine governed R.P.M.

Y ✓ N ___

12.1.3 Oil seals shall be provided on the rear axle.

Y ✓ N ___

12.1.4 The axle manufacturer shall provide a two (2) year unlimited parts and labor warranty for the axle.

Y ✓ N ___

12.1.5 Provide a driver-controlled differential lock (DCDL) that delivers maximum traction on slippery or poor road surfaces by allowing the driver to "lock out" main differential action and deliver equal power to each wheel end. This shall be activated by a switch with an indicator light mounted on the cab instrument panel, location to be determined at the Pre-construction Meeting.

Y ✓ N ___

12.2 REAR SUSPENSION

12.2.1 Rear axle suspension shall be semi-elliptical with a minimum ground rating of 27,000 lbs.

Y ✓ N ___

12.2.2 All spring bushings provided with spiral groves and a center circular groove to permit grease to penetrate around the pins completely. Serrated pins with nuts are **not** acceptable. Provisions for lubricating all bushings, without removal of body panels, and include 90-degree fittings where necessary for ease of lubrication.

Y ✓ N ___

12.2.3 Provide two (2) heavy -duty shock absorbers.

Y ✓ N ___

12.3 AUTOMATIC CHAINS

12.3.1 Provide and install "ONSPOT" automatic ice and snow chains to provide optimum traction in ice and snow conditions.

Y ✓ N ___

12.3.2 The chain wheel shall be provided with 6 chains per wheel.

Y ✓ N ___

12.3.3 The automatic chain system shall be electric over air activated with a switch within reach of the driver.

Y ✓ N ___

12.3.4 The system shall be designed to operate at speeds up to 35 mph.

Y ✓ N ___

12.3.5 Provide a pressure protection valve to protect the vehicles air system from loss of air due to a broken air line.

Y ✓ N ___

13.0 FRAME

13.1 Frame shall be of channel construction, with sufficient section modules and strength to preclude breakage from all road conditions. Additionally, a frame liner shall be provided for additional strength and to reduce deflection.

Y ✓ N ___

13.2 The frame shall not be altered (cut or notched) any further back from the rearmost front spring hanger other than to accommodate installation of the engine or radiator.

Y ✓ N ___

13.3 Frame shall be adequately braced & reinforced with heavy-duty cross members as required for loading and severe operating conditions. All cross members bolted in place with Grade "8" hardware.

Y ✓ N ___

13.4 Holes in the frame area for required, apparatus specific, components only. Holes shall be confined to the neutral/middle area of the web.

Y ✓ N ___

13.5 Body manufacturer shall be fully cognizant of all restrictions & requirements regarding frame/chassis as per FMVSS, DOT ICC, NFPA #1901 and other industry standards.

Y ✓ N ___

13.6 Frame rails and all components thereof shall be coated with a rust resistant paint, color black, including but not limited to: air tanks, axles, front brake calipers (except for slide pins), and all attached running gear, etc.

Y ✓ N ___

13.7 Frame rails shall be warranted against defects in design, material, or workmanship excluding accident or abuse, for the life of the vehicle.

Y ✓ N ___

14.0 FRONT BUMPER

14.1 The front bumper shall be manufactured with .25"minimum formed steel, approximately 10" high minimum, with 1 ½" minimum top and bottom flange. The corners shall be cut at 45°, and the sides shall extend approximately 19" to the face of the cab.

Y ✓ N ___

14.2 A gravel pan shall provided, constructed of bright aluminum treadplate, properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.

Y ✓ N ____

14.3 Two (2) hose trays, one (1) on each side, shall be placed in the bumper extension. These trays shall have the capacity to hold 100' of 1 ¾" double jacket cotton-polyester hose. Black rubber grating shall be provided at the bottom of the tray. Drain holes shall also be provided.

Y ✓ N ____

14.4 Two (2) black nylon hose hold-down straps with Velcro fasteners shall be provided, one (1) strap per hose tray. The hose straps will be 1 ½" minimum width.

Y ✓ N ____

15.0 FRONT AND REAR TOW EYES

15.1 Provide two (2) front tow eyes. They shall be mounted under the front bumper, attached to the frame.

Y ✓ N ____

15.2 The front tow eyes shall be painted job color red, cut plate design and shall be attached using minimum 5/8" grade eight (8) bolts. The tow eyes shall have round nominal 3" inside diameter holes. .These tow eyes shall have all edges cut with a small radius to prevent the chaffing of rescue ropes.

Y ✓ N ____

15.3 Provide two (2) rear tow eyes to be attached to the rear of the chassis frame at the rear of the body.

Y ✓ N ____

15.4 The rear tow eyes shall be painted job color red, cut plate design and shall be attached using minimum 5/8 grade eight (8) bolts. The tow eyes shall have round nominal 3" inside diameter holes. These tow eyes shall have all edges cut with a small radius to prevent the chaffing of rescue ropes.

Y ✓ N ____

16.0 FRONT TIRES AND WHEELS

16.1 Provide two (2) steel, disk type wheels, 22.5" x 9", minimum. #3

Y ____ N ✓

16.2 Provide two (2) MICHELIN, steel belted radial tires, 385 / 65 R 22.5 with a load range "J". Tread design shall be XDN-2. #4

Y ____ N ✓

16.3 Chrome lug nut covers on all front wheel lug nuts shall be provided.

Y ✓ N ____

16.4 Wheels are to be painted job color red.

Y ✓ N ____

17.0 REAR TIRES AND WHEELS

17.1 Provide four (4) steel, disk type wheels, 22.5" x 9" minimum

Y ✓ N ____

17.2 Provide four (4) MICHELIN, steel belted radical tires, 12R 22.5. Tread design shall be XDN-2. #5

Y___ N✓___

17.3 Provide valve extension stabilizer for dual wheels.

Y✓___ N___

17.4 Provide chrome rear lug nut covers.

Y✓___ N___

17.5 Outer rear wheels are to be painted job color red. Inner dual wheel shall not be painted.

Y✓___ N___

18.0 BRAKES AIR SYSTEM.

18.1 Complete system, inclusive of primary system, to have twelve (12) times the air volume of all service brake chambers (SAE J813) . The complete air brake system shall meet or exceed FEDERAL and NEW YORK STATE standards.

Y✓___ N___

18.2 Provide "Meritor WABCO" two (2) axle, four channel Anti- Locking braking system.

Y✓___ N___

18.2.1 An ABS warning light shall be installed on the driver's dash. The ABS light will blink to indicate system failures.

Y✓___ N___

18.2.2 Provide easy access to the ABS wheel sensors for replacement, and a convenient location and access for the wiring harness connections,

Y✓___ N___

18.2.3 The Wabco ABS system shall be warranted for three (3) years or 300,000 miles, parts and labor included.

Y✓___ N___

18.3 Provide a water cooled, engine oil lubricated brake Air Compressor, 18.7 CFM minimum, Wabco, or equivalent. The air intake for the compressor shall be taken off the engine air intake manifold.

Y✓___ N___

18.4 Total air capacity shall be 5100 cubic inches minimum. The system shall be protected by a heated air dryer and shall have a heated automatic moisture ejector on the wet tank. Quarter-turn drain valves shall be installed on the other tanks.

Y✓___ N___

18.5 To avoid head injury to mechanic personnel, all air tank support strap brackets shall be modified by removing any exposed material and radius the exposed corners.

Y✓___ N___

18.6 Provide a ¼ turn valve, female quick coupler, positioned on the left side of the body on the pump panel, for compressed air. This system shall be connected to the "wet" tank of the brake system and include an 85-psi pressure valve in the outlet line to prevent the brake system from losing all air. The exact location shall be determined at the Pre-construction meeting. A mating male fitting shall be provided and shipped loose.

Y ✓ N ____

18.7 Provide and install a WABCO, Model 1200 air dryer. The drain for tank condensation shall be clear of any hoses or electrical lines. Location to be determined at the Pre-construction meeting.

Y ✓ N ____

18.8 All air brake systems shall be plumbed with color coded nylon air brake tubing. All air brake fittings shall be "ALKON" AQ-DOT series push-in air brake fittings or approved equal. All nylon lines to be protected by chafe guard or loom as necessary.

Y ✓ N ____

18.9 All workmanship shall meet DOT FMVSS air brake performance standards, industry standards, and SAE Recommended Practices.

Y ✓ N ____

18.10 Provide one (1) air inlet with male coupling to allow station air to be supplied to the apparatus brake system through a shoreline has. This inlet shall be located in the drive side cab step area. A check valve shall be provided to prevent reverse flow of air. The inlet shall discharge into the "wet" tank of the brake air system. Provide a mating female coupling to be shipped loose.

Y ✓ N ____

18.11 An additional 1454 cubic inch air tank shall be provided for the use of powering air tools. An air tool outlet with a metering valve, located at the driver's side pump panel shall be provided.

Y ✓ N ____

18.12 SERVICE BRAKES

18.12.1 Front Brakes - Provide Meritor EX 225 disc brakes, or approved equal, with 17" heavy duty ventilated rotors, and air actuated automatic self adjusting slack adjusters.

Y ✓ N ____

18.12.2 Rear Brakes – Provide heavy duty "Meritor Q-Plus", 16.50" x 8.00" drum brakes with automatic slack adjusters on the rear axle.

Y ✓ N ____

18.13 BRAKE CHAMBERS

18.13.1 The air brake chambers shall be as provided with a mechanical facility for releasing the brake chamber if necessary. Provide a ¼" female pipe thread test plugs on all brake chambers

Y ✓ N ____

18.14 EMERGENCY / PARKING BRAKE

18.14.1 Provide a dual diaphragm type emergency brake. The emergency brake control valve shall be located at a position on the dash where both the driver and officer are capable of applying or releasing the emergency brake when sitting in their seat with the seat belts fastened. If the control valve can not be reached by the officer, a second auxiliary control valve shall be installed within reach of the officer with a protective cover. The officer's control valve shall be properly labeled and have a red light that will indicate when the brake is actuated. The exact location of the emergency brake control valve(s) shall be determined at the Pre-construction meeting.

Y ✓ N ___

18.14.2 The control valve shall be a Williams 674 valve, or approved equal with yellow handle. The emergency brakes shall be able to hold the vehicle fully loaded on a 32 percent grade to the point of traction.

Y ✓ N ___

19.0 TIRE PRESSURE MANAGEMENT SYSTEM

19.1 Provide a VECSAFE LED tire alert pressure management system that will monitor each tire's pressure. A chrome plated brass sensor shall be provided on the valve stem of each tire for a total of six (6).

Y ✓ N ___

19.2 The sensor shall calibrate the tire pressure when installed on the valve stem for pressures between 20 and 120 psi. The sensor shall activate an integral battery operated LED when the pressure of that tire drops 8 psi.

Y ✓ N ___

19.3 Removal of the cap from the sensor shall indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED shall immediately start blinking.

Y ✓ N ___

20.0 ELECTRICAL SYSTEM: CHASSIS ELECTRICAL

20.1 Provide a twelve (12) volt electrical system using the most current materials and techniques available to the industry. At minimum, the electrical system and its equipment shall comply with all applicable FMVSS requirements, including Federal Motor Carrier Safety Regulations (FMCSR) and shall also conform to all applicable SAE recommended standards and practices, whether or not specifically referenced in this document. NOTE: Multi-Plex systems are not acceptable. The electrical system shall be designed around a "conventional electrical system", using switches and relays.

Y ✓ N ___

20.2 All electrical and electronic components shall be selected to minimize electrical loads.

Y ✓ N ___

20.3 All electrical system components and wiring shall be readily accessible through access panels. All switches, indicators, and consoles shall be located and installed in such a manner that facilitates easy removal and servicing.

Y✓ N____

20.4 All exterior housings of lamps, electronic devices, and fixtures shall be corrosion resistant and weatherproofed.

Y✓ N____

20.5 All wiring, switches, relays terminals, and connectors shall have a direct current rating of not less than 125% of maximum current for which the circuit is protected.

Y✓ N____

20.6 All wiring shall be in accordance with SAE J 1128, Low Tension Primary Cable, type SXL or GXL, and wired to SAE J 1292, Automotive, Truck, Truck-Tractor, Trailer and Motor Coach Wiring. Voltage between the power source and using device shall not drop more than 10%.

Y✓ N____

20.7 All electronic devices and equipment installed which produces RFI shall have the proper filters, suppressors or shielding to prevent electromagnetic radiation and resultant interference to radios and other electronics.

Y✓ N____

20.8 The vehicle chassis and pump body/accessory electrical equipment shall be serviced by circuit(s) that are separate and distinct from each other.

Y✓ N____

20.9 All wiring shall be copper and conform to all the SAE J 1292 requirements, and shall have type GXL "cross linked" high temperature polyethylene or better insulation rated to 300 degrees Fahrenheit and conform to SAE J 1127 and J 1128.

Y✓ N____

20.10 Wires shall be permanently heat ink embossed with both number and function codes. Wiring shall be colored coded to identify wiring zones. The Function codes shall be descriptive, naming the circuit served.

Y✓ N____

20.11 The number code shall be completely referenced in a detailed wiring schematic provided with the vehicle. Wiring zones shall be done with color coded wiring.

Y✓ N____

20.12 The function and number code shall be embossed at a minimum of 4-inch intervals the entire length of the wire. Wiring code numbers that are paper or plastic, which are glued or otherwise attached to the wire, are not considered being permanent and will not be accepted.

Y✓ N____

20.13 All wiring, chassis and body, shall be securely fastened with metal wire locks & clipped to body members, properly routed and protected by rubber grommets or edge guard where passing through metal. All wiring shall be enclosed in protective loom or sheathing to prevent chafing. All wire connections/terminals shall be securely made and weather-tight. Solder/heat-shrink with sealer or crimp/heat-shrink with sealer on all connections/terminals. Crimps shall be made with the proper crimping tool. All wire junctions shall be made in a weather tight connections (Deutch gold tip connectors or equivalent) made for this purpose. All open or exposed terminals/connections shall be coated/sealed with "Liquid Electrical Tape" or equal.

Y✓ N____

20.14 Circuit connections shall be made on barrier style terminal blocks utilizing binding post screws to ensure positive mechanical connection.

Y✓ N____

20.15 To minimize the potential for wiring shorts and voltage drops all wiring terminals shall be tin plated, annealed, ETP copper with nylon high heat insulation

Y✓ N____

20.16 No splices shall be permitted except for connection of "OEM" pigtail type devices. Butt splices are permitted for connection of OEM pigtail devices. All connections shall be UL approved. Connection shall be machine applied to UL standards. The use of insulation displacement type connectors, such as "scotch lock" type fasteners is not acceptable.

Y✓ N____

20.17 All wiring installed by the manufacturer shall be sized to meet all load requirements for the particular circuit, plus an additional 25%.

Y✓ N____

20.18 To insure a strong ground path and reduce voltage drops, all "ground" wires shall be of the same size as the "power" feed wire required for the circuit. All ground wires shall be black in color. No wires other than the ground wires shall be colored black. All ground wires in the cab area (except for radio grounds) shall terminate in a common ground buss strip. The ground buss shall be located near the master electrical distribution panel. The random grounding of wires, where convenient for the manufacturer, is not acceptable.

Y✓ N____

20.19 A service loop of wire or harness shall be provided at all electrical components, terminals, and connection points. All low power relays shall be mounted for ease of serviceability with circuit identification on access panel.

Y✓ N____

20.20 All high current diodes shall be heat sink mounted.

Y✓ N____

20.21 Electrical components, electronic equipment and devices used and installed on the apparatus, in addition to all sub-systems, (chassis, warning systems, etc.), shall be electromagnetic radiation suppressed, filtered, or shielded to prevent interference to radio and telemetry equipment aboard the vehicle and surrounding area.

Y✓ N____

20.22 A compartment shall be provided in or under the cab to house the vehicles main 12-volt electrical circuits and components. All circuit breakers and relays shall be labeled and a location diagram on all circuit breaker panel covers shall be provided.

Y✓ N___

21.0 VEHICLE SWITCHES AND GAUGES: CAB

21.1 Provide a Battery Master On/Off Switch, to be located in the driver's door kick panel area. It shall be connected directly to the batteries and shall power-up the entire apparatus when turned on.

Y✓ N___

21.2 Provide an ignition switch that will power-up the following items only:

- Engine and starter.
- Dash board gauges for the engine.
- Windshield wipers.
- Heater.
- Air conditioning.

Y✓ N___

21.3 All other electrical equipment and lighting shall operate off the Battery Master On/Off Switch (not the ignition switch).

Y✓ N___

21.4 The 110 volt on-board battery charger shall be hooked up directly to the batteries and charge the batteries with the Battery Master On/Off Switch in either the "On" or "Off" position.

Y✓ N___

21.5 Headlights shall be connected directly to the Battery Master On/Off switch.

Y✓ N___

21.6 The pump panel lights shall be connected directly to the Battery Master On/Off Switch.

Y✓ N___

21.7 All interior cab lights and all compartment lights shall be connected directly to the Battery Master On/Off Switch.

Y✓ N___

22.0 INSTRUMENT PANEL

22.1 Instrument panels shall provide good line of sight for the operator when viewing instruments. The panels shall be one piece heavy gauge metal, and shall be hinged across the bottom or other means to allow access to the reverse side. A quick release locking latch shall be provided for easy access.

Y✓ N___

22.2 All instruments or gauges requiring pressure or vacuum lines shall have flexible connector hoses with enough slack to allow panel to be hinged or removed, for ease of access to the back side.

Y✓ N___

22.3 Instrument panel layout, including gauge descriptions, shall be submitted to the PCFD for approval prior to start of manufacturing.

Y✓ N___

22.4 All dash mounted switches shall use screw type connectors. No exceptions.

Y✓ N___

23.0 INSTRUMENT PANEL GAUGES AND SWITCHES

23.1 The following gauges shall be supplied and installed in the driver's instrument cluster.

- 23.1.1 Fuel gauge
- 23.1.2 Voltmeter: warning light and audible alarm indicating high or low voltage.
- 23.1.3 Main air: Red warning light and audible alarm
- 23.1.4 Applied brake air pressure
- 23.1.5 Engine oil pressure: Red warning light and audible alarm.
- 23.1.6 Engine coolant temperature: Red warning light and audible alarm
- 23.1.7 Transmission oil temperature: Red warning light and audible alarm
- 23.1.8 Speedometer with electric odometer.
- 23.1.9 Electric Tachometer
- 23.1.10 Engine Hourmeter
- 23.1.11 Low Coolant Indicator Light (amber) with audible alarm
- 23.1.12 Low Fuel Indicator Light with audible alarm

Y✓ N___

23.2 All switches, with the exception of starter, battery and rheostat switches, to be heavy-duty rocker type, two or three position as noted. All switches to have integral pilot.

Y✓ N___

23.3 The following switches shall be supplied:

- 23.3.1 Ignition, OFF/ON/START, with green indicator light
- 23.3.2 Headlight, ON/OFF,with control of dash and instrument lights through a rheostat location adjacent to headlight switch.
- 23.3.3 Engine Fast Idle.
- 23.3.4 2-speed Windshield Wiper Controls with intermittent control
- 23.3.5 Windshield Washer Controls.
- 23.3.6 Self Canceling Turn Signal Switch with Visual Indicators
- 23.3.7 Headlight Dimmer
- 23.3.8 Hazard Light Switch
- 23.3.9 Parking Brake Control with Red Indicator Light
- 23.3.10 Heater / Air Conditioning Controls

Y✓ N___

23.4 Emergency Warning Light Master ON/OFF switch to control a relay capable of switching the following switches

NOTE: The master switch shall be connected directly to the Battery Master On/Off Switch.

- Front light bar, ON/OFF/ON, to switch light to either full 360° rotation or 180° to front only.
- Rear flashing, red, ON/OFF.
- Front steady, red, ON/OFF.
- Rear rotating, amber, ON/OFF.
- Intersection lights, flashing, ON/OFF.
- Alternating flashing headlights, ON/OFF.

Y ✓ N ___

23.5 The following switches shall be hooked up to the Battery Master On/Off Switch directly. These switches shall be accessible to the driver and the officer.

- Horn, air/electric, ON/OFF/ON.
- Alley lights, RIGHT/OFF/LEFT.
- Right Scene Light,ON/OFF
- Left Scene Light, ON/OFF

Y ✓ N ___

23.6 Provide one (1) "Linemaster' Model 491 floor switche to be mounted on the floor in the front of the driver's seat for mechanical siren control. The exact location of floor switche shall be determined at the Pre-Construction meeting.

Y ✓ N ___

23.7 Provide "Instrument" lights, internal, non-glare with rheostat control.

Y ✓ N ___

23.8 The main switch panels shall have shielded lighting, with rheostat control.

Y ✓ N ___

24.0 BATTERIES

24.1 Provide two (2) sets of three (3) Group 31 Delphi#1150 – 700 CCA, or equivalent, 180 amp reserve capacity. Battery cable shall be 000 (triple 0) gauge, minimum. Positive (+) Red, Negative (-) Black, covered by protective loom.

Y ✓ N ___

24.2 Provide two (2) battery compartments. One on the left side of the apparatus and one on the right side of the apparatus. The exact location and size shall be determined at the Pre-Construction meeting.

Y ✓ N ___

24.3 Provide a "fixed" tray mounting for batteries (no roll out trays). Tray is to be Rhino coated or its equivalent. Batteries shall not be mounted above any wiring looms. Access to batteries shall be (1) tilting the cab and (2) through the cab floor via a hinged access panel that can easily opened and closed. Provide a latching device to secure the panel. The panel shall be sized to facilitate servicing and removal of all batteries.

Y ✓ N ___

24.4 The battery "hold down" (non-conductive material) bracket shall be designed to allow visibility to the battery charge indicating "eye" without moving or loosening the battery hold-down bracket.

Y ✓ N ___

24.5 Battery cables shall be installed to allow visibility to the battery charge indicating "eye" without loosening or removing any battery cables. Use three (3) leads to main cable, octopus type, one for positive and one for negative.

Y ✓ N ___

24.6 One (1) set of jumper studs with plastic color-coded covers shall be installed on the front side of the battery box on the driver's side. Provide room for easy jumper cable access. A tag shall be provided for positive/negative terminals.

Y ✓ N ___

25.0 ON-BOARD BATTERY CHARGER / AIR COMPRESSOR

25.1 Provide an on-board battery charging system / air compressor "KUSSMULL Pump Plus 1200" series with a fan and 40 amp charging capacity. The charger shall be connected to a shore power connection identical and adjacent to the 110 volt plug that the engine pre-heater uses.

Y ✓ N ___

25.2 Provide a display bar indicating the state of charge, exact location to be determined at the pre-construction conference.

Y ✓ N ___

25.3 The on-board charger / air compressor shall operate when the main battery control switch is on or off. Use a # 8 wire from the on-board battery charger to the batteries.

Y ✓ N ___

25.4 The location and position of the on-board battery charger/air compressor shall be determined at the Pre-construction Meeting. The charger/air compressor shall be installed so that the charge indicator can be viewed by opening the driver's door.

Y ✓ N ___

26.0 STARTER

26.1 Provide a 12 volt, heavy-duty starter. Provide accessibility for removal and replacement. Access to the starter shall be free of any electrical conduits, hydraulic lines, or plumbing.

Y ✓ N ___

27.0 ATERNATOR

27.1 Provide a 12 volt, 340 ampere alternator. Alternator shall produce a minimum of 120 amps at idle, internally rectified.

Y ✓ N ___

27.2 Alternator shall be pad mounted and serpentine belt driven.

Y ✓ N ___

28.0 LOAD MANAGEMENT SYSTEM

28.1 The apparatus shall be equipped with a Class 1 "Total System Manager" (TSM) for performing electrical load management. The TSM shall have 16 programmable outputs to supply warning and load switching requirements. Outputs 1 – 12 shall be independently programmed to activate during the response mode, or scene mode, or both.

Y✓ N___

28.2 These outputs can also be programmed to activate with the ignition or master warning switch and be able to sequence loads ON or OFF at exact intervals and shed pre-selected loads as required with priority. An output shall provide a low voltage alarm that activates at the NFPA required 11.8 volts.

Y✓ N___

28.3 The "Total System Manager" shall be reverse polarity and short circuit protected and be enclosed in a metal enclosure to enhance EMI / RFI protection. The exact programming of the TSM shall be determined at the Pre-construction Meeting.

Y✓ N___

29.0 CAB, CHASSIS, AND BODY LIGHTING

29.1 All lighting required by applicable FMVSS, DOT, and NFPA standard(s) shall be supplied, LED type unless otherwise specified.

Y✓ N___

29.2 Provide four (4) sealed beam halogen headlights, mounted in chrome or stainless steel bezels. Headlights are to be mounted below the lower zone warning lights. Dimmer switch shall be steering column mounted.

Y✓ N___

29.3 Provide two (2) Britax™ Model #429 AMBER/RED marker lights to be mounted on each side on the lower rear-most portion of the body

Y✓ N___

29.4 Provide two (2) fully enclosed, halogen type, under cab engine area work lights with, with switch that activates both lights when the cab is raised. These lights shall be connected to the Battery Master On/Off Switch. Additionally, provide one (1) fully enclosed halogen type light in the pump house area, switched on the light.

Y✓ N___

29.5 Provide the following lights for Tail, Stop, Turn signal and Back up lighting. Manufactured by WHELEN or approved equal. They shall be LED type installed in chrome bezels.

- Two (2) ea. minimum. Front Turn Signal amber: (with Arrow sequence).
- Two (2) ea. minimum. Rear Turn Signal amber: (with Arrow sequence).
- Two (2) ea minimum Turn Signal, amber, to be mounted on the side of the cab, location to be determined at Pre-construction conference.
- Two (2) ea. minimum. Rear Tail /Stop Lights.
- Two (2) ea. minimum. Halogen Back Up Lights

- Two (2) ea. Truck-Lite Model Par 36, 4" clear LED, mounted under the body directly in front of the rear wheels, for illuminating the rear tire contact area, switched on the driver's control panel.

Y✓ N____

29.6 Provide a factory style turn signal switch. It shall be self-canceling in the steering column type.

Y✓ N____

29.7 Provide seven (7) LED cab clearance lights. These lights will be mounted on top of the cab, in front of the light bar.

Y✓ N____

29.8 Provide LED clearance / running lights. These running lights shall be located around the apparatus (As per D.O.T. Requirement),minimum three (3) per side, and shall be either red or amber in color depending on the location.

Y✓ N____

29.9 Provide pump operator's panel lighting. Provide non glare waterproof lighting on both sides of apparatus. Light on/off switch shall be located on the engineer's panel. The switch shall be wired to the Battery Master On/Off Switch, not the ignition switch.

Y✓ N____

29.10 Provide two (2) "FRC Optimum Lamphead", OPA100-H15, 150 Watt, 12 Volt, HID lampheads. These lights shall be on the cab roof, (as far forward as possible) facing to the sides. The light head shall swivel 450 degrees left or right.

Y✓ N____

29.10.1 These lights shall be independently controlled by an on/off switch located on the cab dash, accessible to the driver and the officer.

Y✓ N____

29.11 Provide one (1) additional "FRC Optimum Lamphead, OPA851-H15, 150 Watt, 12 volt, HID lamphead, to be mounted on a contoured roof mount, centered above the front windshield on the front of the cab.

Y✓ N____

29.11.1 This light shall be controlled by an on/off switch located on the cab dash, accessible to the driver and the officer.

Y✓ N____

29.12 Provide two (2) adjustable map lights integral switches. The map light shall be hooked up to the battery ON/OFF switch directly. The mounting location shall be on the cab ceiling, to be determined at the Pre-construction meeting.

Y✓ N____

29.13 The cab interior lighting shall consist of the following.

29.13.1 Two (2) red/white dome lamp shall be located over front seats (driver and officer) and two (2) additional red/white dome lamps will be centrally located above the rear seating area, exact location to be determined at the pre-construction meeting. These four (4) lights shall come on when any cab door is open, regardless of the position of the master battery switch. Additionally, the red and white lights shall have

manually operated on/off switches, operable only when the Battery Master On/Off Switch is in the "on" position.

Y✓ N___

29.13.2 A clear dome lamp with individual switches shall be located in the headliner, over the engine tunnel to serve as a tunnel surface light. This light will be operable only when the master battery switch is in the "on" position.

Y✓ N___

29.13.3 A courtesy light at each cab door will be provided, controlled by the door switches, which will be battery hot at all times.

Y✓ N___

29.14 Provide "On Scene Solutions" LED strip lighting or approved equal to be mounted vertically on each side of the compartment door jam and all other compartments with doors or hatches.

NOTE: Use a COLE HERSE 9299 compartment light switch. Each compartment light should come on when the compartment door is opened and the Master Battery Switch is turned ON. Each compartment light must operate independently.

Y✓ N___

29.15 Provide an "Open Compartment or Passenger Door" warning light. 2" in diameter red flashing indicator light, located in the driver's area. The light shall be illuminated automatically whenever any passenger or equipment compartment door is open.

NOTE: The warning light shall be hooked up to the Battery Master ON/OFF switch. The exact mounting location shall be determined at the Pre-construction Meeting.

Y✓ N___

29.16 Provide a "DO NOT MOVE APPARATUS" light with audible warning to illuminate per NFPA requirements. The alarm shall activate when the parking brake is released.

Y✓ N___

29.17 Provide "Truck-Lite" Perimeter Model 60 lights. Lighting shall be designed to provide illumination on areas under the driver and crew riding area exits, which shall be activated automatically by the door jam switch when exit doors are opened. The lights shall be located one (1) under each crew cab door, one (1) under each pump panel running board, one (1) under each side rear compartment, and one (1) each side under rear platform (total 10).

Y✓ N___

29.18 Provide one (1) 6" Unity AG deck light with swivel mount at the front of the hose bed, centered. A switch shall be provided on the light head. The light shall be furnished with a 6,000 candle power halogen flood bulb.

Y✓ N___

29.19 Provide one (1) pair of "Code 3" model 41, 50 watt scene lights mounted on the rear of the body to the outside, with prismatic inner lens to direct the light downward 15 degrees and mounted with a flange. The lights will be controlled with a switch on the driver's side switch panel.

Y✓ N____

29.20 Provide two (2) auxiliary 12 volt power supply outlets with cover, located in the front dash board area. Auxiliary 12 volt power supply outlets shall provide power to run cellular telephones, etc. during emergency operations. The exact mounting location shall be determined at the Pre-construction meeting.

Y✓ N____

30.0 VEHICLE EMERGENCY LIGHTING PACKAGE

30.1 Provide for a vehicle emergency lighting system. The warning lights are to be controlled by single master switch and function specific switches. Final determination as to type, design and location of switching is to be determined at the Pre-construction meeting.

Y✓ N____

30.2 The emergency lighting package be provided by WHELEN Engineering Company unless otherwise specified, and be certified by them to meet all emergency lighting requirements as stated in the latest edition of NFPA. The emergency lighting package will consist of the following items:

Y✓ N____

30.2.1 A Whelen Freedom, Model FN88QLED lightbar will be mounted on the cab roof. The length of the lightbar will be 88". All lenses will be clear and the lightbar will include the following:

- Six (6) red flashing forward facing LED modules.
- Two (2) clear flashing forward facing LED modules.
- Two (2) red flashing front corner LED modules.
- One (1) red flashing driver side facing LED module.
- One (1) red flashing officer side facing LED module.

Y✓ N____

30.2.2 . The clear warning lights on the light bar will be turned off when the parking brake is set.

Y✓ N____

30.2.3 Provide two (2) rear flashing Red Whelen 600 Series Linear-Super LED's with alternating flasher, to meet NFPA lower rear zone lighting requirements. One (1) on each side at the rear of the apparatus, directly above the tail/stop lights. These lights shall have "red" lens and chrome plated bezel. The lights shall flash alternately. The exact location of these lights shall be determined at the Pre-construction Meeting.

Y✓ N____

30.2.4 Provide two (2) Forward Facing Red, Whelen Linear-Super LED's Series 600 with alternating flash to be mounted in headlight , with headlight mount kit. Mount one on each side below the windshield. These lights

are to be mounted in the same headlight cluster as the "white" lights referenced in 30.2.5.

Y✓ N___

30.2.5 Provide two (2) facing flashing white Whelen Linear-Super LED's Series 600. Install alternating flashing white lights on the inside of the above "flashing "red" lights. These flashing white lights shall be hooked up to the alternating flashing headlight on/off switch on the master panel. These lights are to me mounted in the same headlight cluster as the "red" LED lights referenced in 30.2.4.

Y✓ N___

30.2.6 Provide Intersection Lights "Flashing". These lights shall be Whelen Linear-Super LED's, "Red", with chrome plated bezels, one (1) on each side on the bumper extension, one (1) each side to the rear of the rear cab doorsand one (1) on each side of the rear body, in the rear wheel well area. Exact location shall be determined at the Pre-construction meeting.

Y✓ N___

30.2.7 Provide two (2) red/amber 900 Series Whelen Super LED with flange kits, one each side as high and outside as possible on the rear face of the vehicle. The exact mounting location shall be determined at the Pre-construction meeting.

Y✓ N___

30.2.8 Provide four (4) red 900 Series Whelen Super LED with flange kits, two (2) each side of the body (side front and side rear).

Y✓ N___

30.2.9 Provide at the rear of the apparatus, one (1) "WHELEN" Model TAM65 LED arrow stick, with arrow indicators. The arrow stick shall be recessed mounted in the rear panel below the hose bed. The arrow stick control head model # TACTLD1 shall be located in the driver area of the cab. The exact location of the arrow stick and control head shall be determined at the Pre-construction meeting.

Y✓ N___

30.2.10 Provide Alternating Flashing Headlights system. Code 3, #710. This system shall operate when the headlights are in low-beam position and shall flash the high-beam lights only. The flashing headlights shall cancel when you switch to the high-beam position or apply the parking brake.

Y✓ N___

31.0 AUDIBLE WARNING SYSTEMS AND BACK-UP SAFETY SYSTEMS

31.1 Provide two (2) a GROVER # 1512-2024S Air Horns 21 ½" long, with chrome plated bell. Mount recessed in each side of the front bumper. Use a 12 gauge two conductor shielded cable for the hook-up. Exact location to be determined at the Pre-construction meeting. These horns shall be operated with the horn ring on the steering wheel. Provide a two-position selector switch for the driver to select either electric horn or air horn on the steering wheel horn ring.

Y✓ N___

31.2 Provide one (1) Electronic Siren Loudspeakers #SA314 with cast aluminum trim rings and with a Whelen electronic siren control head, #295HFS3. The siren speaker shall be enclosed in a box, recessed into the front bumper side, driver's side. Control for the electronic siren will be on the control head only. The electronic siren control head shall be mounted on a swivel mount hanging from the headliner between the driver and the officer.

Y ✓ N ____

31.3 Provide and install one (1) Federal Model Q2B mechanical siren with chrome plated housing recessed in the center of the front bumper in a way to not obstruct tilting of the cab. A siren brake shall be provided, accessible to the driver. Provide foot switch control for driver on a slightly raised platform. The exact location of the foot switch shall be determined at the Pre-Construction meeting.

Y ✓ N ____

31.5 Provide audible back-up alarm that will safely withstand vibration, moisture, steam cleaning, and pressure washing, properly mounted at the rear of the body, with automatic activation when the vehicle transmission is placed in "reverse" gear. This alarm shall provide 87-112 db.

Y ✓ N ____

31.6 Provide a "Safety Vision" Model 620 color rear view camera with color LCD monitor on swivel mount. The camera will feature a built in microphone, activated with the camera.

Y ✓ N ____

31.6.1 Camera system will be operated from the vehicle's 12 volt system.

Y ✓ N ____

31.6.2 One (1) camera faces rearward and gives a clear and unobstructed view from the rear of the apparatus while backing. This camera shall be mounted on the back of the vehicle, protected from foot traffic. This camera will activate when the apparatus transmission is shifted into reverse and stays activated until the transmission is shifted into another position.

Y ✓ N ____

31.6.3 Monitor will be clearly visible within reach of the driver when seated in the cab. Final position of the monitor will be determined at the Pre-construction meeting.

Y ✓ N ____

32.0 CHASSIS, CAB EXTERIOR

32.1 Provide a fully enclosed "Tilt" type cab forward, with 10" minimum raised roof design and four (4) full length doors, curved windshield design, with provisions for seating eight (8) persons, two (2) in front cab, four (4) in forward facing jump seats mounted on the rear wall of the cab, and two (2) in rear facing "jump" seats. The cab shall be air conditioned. The cab structure shall be made of steel or equivalent strength aluminum reinforced welded roll-cage construction utilizing a minimum 3" wide rectangular steel or equivalent strength aluminum tube sub-frame.

Y✓ N___

32.2 Provide a Cab "Tilt" system consisting of two (2) hydraulic hoist cylinders one (1) on each side of the cab, mounted to each frame rail and to bottom of the cab. The cab shall pivot from two (2) front mounted pivot points, one (1) on each side of the cab.

Y✓ N___

32.2.1 The hydraulic system shall be electric over hydraulic with a minimum four (4) quart fluid reservoir and a manual override system which will allow the cab to be tilted manually in case of an electrical failure. Hydraulic pump motor shall be "Heavy Duty" type, and rated 10% over the needed capacity for the system.

Y✓ N___

32.2.2 The cab shall normally raise to its full height in a maximum of 60 seconds. The cab shall also lower in a maximum of 60 seconds. Both of these requirements are using the normal electrical cab tilt system.

Y✓ N___

32.2.3 Provide a mechanical override system that is capable of raising the cab to its fully raised position in a maximum of five minutes. The manual pump must be located in a place for easy access. A demonstration of this capability will be required prior to the acceptance of the apparatus by the Fire Department. Mount the cab override hand pump in the pump house behind an access door on the right side pump house panel.

Y✓ N___

32.2.4 The cab tilt system shall automatically "lock" both sides of the cab in the "down" position when the cab is fully in the "down" position. Also the hydraulic system shall "unlock" the cab locks when "raising" the cab. The raising and lowering of the cab shall be controlled from a removable remote control cable, approximately ten (10) feet long. The remote control cable shall plug into a receptacle at the front portion of the apparatus.

Y✓ N___

32.2.5 The exact location of the receptacle shall be determined at the Pre-construction meeting. The remote control cable shall allow the operator to safely stand away from the apparatus and walk to each side and view the surrounding cab area when it is being tilted.

Y✓ N___

32.2.6 Provide a "built-in" positive mechanical device to "automatically" lock the cab in the tilted position when the cab is tilted to its full height.

Y✓ N___

32.2.7 The cab shall be capable of tilting to at least a 90° angle where it will provide unobstructed access to remove either engine and/or radiator with an overhead hoist.

Y✓ N___

32.4 ENGINE HOOD / TUNNEL

32.4.1 Provide an engine enclosure to be constructed of Aluminum and lined with acoustical noise barrier insulation that keeps the DBA noise level within the limits specified in the current edition of NFPA 1901. The insulation shall be backed with expanded metal.

Y✓ N____

32.4.2 The enclosure shall be tapered from bottom to top to allow more elbow and shoulder room for the driver and officer. The hood shall be covered with 40 oz. Vinyl material to reduce engine heat and noise. The color of the vinyl material shall be "black" (to match the seat material).

Y✓ N____

32.4.3 An access door shall be provided at the rear of the engine enclosure for routine fluid checks of engine oil, transmission fluid, power steering fluid and radiator water.

Y✓ N____

32.4.4 Provide a raised aluminum component mounting plate to be located on top of the engine enclosure. This mounting plate shall cover the entire engine enclosure and shall be rhino-coated or suitable substitute. The exact design configuration of this mounting plate will be determined at the Pre-construction meeting.

Y✓ N____

32.5 CAB DOORS

32.5.1 Provide four (4) full length cab doors, with bolted hinges and readily adjustable hardware. All hinge-to-cab mounting points shall have weldnuts, or cage nuts, not tapped holes into the door frame tubing. Provide 6" wide 3-ply rubberized nylon door strap stop material manufactured by Sawyer Industries or approved equal.

Y✓ N____

32.5.2 Cab door weather stripping shall be attached in a manner that will provide maximum protection from foot traffic damage.

Y✓ N____

32.5.3 Door panels shall be covered with a padded leather grain vinyl material, grey in color. All door panels shall be fastened to door with nutserts and NYLOK screws.

Y✓ N____

32.5.4 Each cab entry door shall be equipped with electrically operated windows. A master window control panel will be located on the driver's door for control of each window. Individual control of all other doors will be by single control switch on each door.

Y✓ N____

32.5.5 Any sheet attachments shall also be fastened in the same manner as the door panels. Doors shall have adequate clearance when the apparatus racks to prevent interference between doorframe, and latching hardware. Door latch shall meet FMVSS No. 206 standards.

Y✓ N___

32.5.6 Stainless steel protection shall be provided around door frame to protect finish from seat belt contact.

Y✓ N___

32.5.7 Provide four (4) slip-resistant handrails 1.25" diameter x 18" long minimum. Handrails shall be mounted to the exterior of the cab, two (2) each side to the rear of the cab doors.

Y✓ N___

32.5.8 Provide a chrome plated grab handle on the inside of each cab door. The exact location of the grab handles shall be determined at the Pre-construction meeting.

Y✓ N___

32.5.9 All cab doors will be equipped with door locks, "lockable" with key. Doors shall be keyed alike and three (3) keys shall be provided with vehicle.

Y✓ N___

32.6 CAB ROOF EXTERIOR

32.6.1 Cover the entire outside of cab roof (top), with 1/8" aluminum diamond plate material. The cab roof shall be capable of supporting a minimum of 500 lbs. of weight.

Y✓ N___

32.6.2 Provide cut out areas in the diamond plate where antenna bases are to be installed. These cutouts in the diamond plate shall be cut to allow water to drain out of these antenna base locations

Y✓ N___

32.7 ANTENNAS AND ANTENNA MOUNTING

32.7.1 Three (3), two-way radio MATM antenna bases shall be furnished and installed to be located in the following locations.

- One (1) antenna base on the cab roof, approximately 30" from center, above the right side rear cab door.
- One (1) antenna base on the cab roof, approximately 30" from center, above the left side rear cab door.
- One (1) antenna base installed on the cab roof, center.

Y✓ N___

32.7.2 Appropriate antenna wiring shall be provided running to the compartment under Officer's seat. Each wire to be labeled to show the antenna base it is attached to.

Y✓ N___

32.8 WINDSHIELD, VISIBILITY, WINDSHIELD GLASS

32.8.1 Provide a tinted automotive windshield. The windshield shall be laminated safety plate of a curved two-piece design.

Y✓ N___

32.9 DOOR GLASS.

32.9.1 Provide retractable tinted automotive safety type door glass in all four (4) doors. Door glass shall be mounted in a reinforced stainless steel channel.

Y✓ N___

32.10 CAB SIDE GLASS

32.10.1 Each cab side shall have one tinted automotive safety type fixed window mounted in rubber, between doors, to allow maximum vision.

Y✓ N___

32.11 RAISED CAB FRONT FACING WINDOW

32.11.1 Provide windows across the front of the raised portion of the cab.

Y✓ N___

32.12 MIRRORS

32.12.1 Provide two (2) "Moto Mirror Plus" dual axis electric "West Coast" style mirrors, flat glass approximately 15" high x 7" wide mirrors. The mirrors shall be aerodynamically designed to reduce wind buffeting, the housings shall be chrome. Parabolic convex mirrors shall be provided, approximately size 7" x 7".

Y✓ N___

32.12.2 Mirrors shall be mounted in such a manner as to eliminate mirror vibration when the apparatus is stopped with the engine at idle and the transmission in either a forward or reverse gear. A demonstration of this shall be done prior to the delivery of the apparatus to the VPC.

Y✓ N___

32.12.3 Mirrors shall be heated, with on-off control switch located on the driver's control panel, with timer to de-activate the heating mechanism after 5 minutes of operation.

Y✓ N___

32.13 WINDSHIELD WIPERS

32.13.1 Provide windshield wipers with washer capability. The windshield washer fluid reservoir will be located in an easily accessible location. The windshield wiper controls shall have intermittent, slow, and fast cycle function capability.

Y✓ N___

33.0 CHASSIS, CAB INTERIOR

33.1 Provide a chassis cab with a interior floor to ceiling (head liner) height of a minimum of 59". Head liner material shall color match seat material color. The rear passenger roof shall be raised a minimum of 10".

Y✓ N___

33.2 Provide two (2) black padded sun visors approximately 7" x 30", one (1) on the driver's side and one (1) on the passenger's side.

Y✓ N___

33.3 All cab fascias shall be flat faced design to provide ease of maintenance and constructed out of aluminum (no plastic). All painted surfaces in the cab will be painted with black vinyl texture paint.

Y✓ N___

33.4 STEERING COLUMN

33.4.1 The upper steering column is to be fully adjustable (both tilt and telescoping). A self-canceling directional turn signal switch is to be mounted on the steering column with a four way flasher switch.

Y✓ N___

33.5 DRIVER, OFFICER, AND CREW SEATING

33.5.1 The chauffeur's seat shall be an air suspension Seats Inc. #911 knee action air-ride high-back style seat.

Y✓ N___

33.5.2 The officer's seat shall be a high-back Seats Inc. #911 SCBA seat. The SCBA cavity shall be adjustable front to back in ½" increments to accommodate different size SCBA bottles.

Y✓ N___

33.5.3 Provide two (2) Seats Inc. #911 SCBA front facing jump seats, to be mounted across the back wall of the cab in the center positions. The SCBA cavity shall be adjustable front to back in ½" increments to accommodate different size SCBA bottles.

Y✓ N___

33.5.4 Provide two (2) Seats Inc. #911 front facing jump seats with flip dpwn seat bottoms, to be mounted across the back wall in the outboard positions. No SCBA storage cavity will be provided with these seats.

Y✓ N___

33.5.5 Provide two (2) Seats Inc. #911 SCBA rear facing jump seats, to be mounted in the outboard position adjacent to the engine enclosure. The SCBA cavity shall be adjustable front to back in ½" increments to accommodate different size SCBA bottles.

Y✓ N___

33.5.6 All seat coverings shall be manufactured using black Imperial 1200 material.

Y✓ N___

33.5.7 All seat mounting & restraint systems shall incorporate a three (3) point seat belt and shall be in compliance with all applicable FMVSS, DOT, NFPA requirements

Y✓ N___

33.5.8 Five (5) Seat Backs (one officer, four rear seats), shall be equipped with

Ziamatic model ULLH SCBA bracket holders with Lock and Load strap to hold the bottle in the bracket. Brackets shall be "one size fits all" style.

Y✓ N___

33.6 Floor material shall be multi-layer mat consisting of .25" thick sound absorbing closed cell foam, a heavy weight sound barrier, a .06" thick non-slip vinyl wear surface with a pebble grain finish, held in place with adhesive and aluminum cornering trim.

Y✓ N___

33.7 A permanent plate shall be mounted in the driver's compartment which specifies the quantity and type of fluid required for the engine, cooling system, transmission , pump transmission, pump primer, and drive axle.

Y✓ N___

33.8 A permanent plate in plain view of the operator shall indicate the true traveling height of the vehicle.

Y✓ N___

33.9 FIRECOM INTERCOM SYSTEM

33.9.1 Provide four (4) "Firecom" headset receptacles in the headliner adjacent to the driver's seat, the officer's seat, and the two (2) front facing SCBA seats inside the cab, to be connected to the "Firecom" communications control box located adjacent to the officer's position, exact location to be determined at the Pre-construction meeting.

Y✓ N___

33.9.2 The "Firecom" intercom system shall have the appropriate wiring pre-installed to terminate in the radio compartment under the officer's seat to allow for the communications system to integrate into the 2-way radio system.

Y✓ N___

33.9.3 A headset receptacle (UH-10 receptacle) shall be provided on the pump operator's panel, exact location to be determined at the Pre-construction meeting.

Y✓ N___

33.9.4 Provide two (2) UH-10 headsets (driver and officer), and two (2) UH-20 headsets (rear seats).

Y✓ N___

33.10 Provide AM/FM radio with four (4) speakers in cab. Location of radio and speakers will be determined at the Pre-construction meeting. This radio shall be integrated into the "Firecom" headset system.

Y✓ N___

33.11 A record book storage box with writing console/lid, shall be provided on the right hand side of the cab dash. Box shall be approximately 1 ½ " deep x 9.5" wide x 15.5" long constructed of aluminum brushed finish. Provide a tube type pen holder. Lid shall be hinged and include two (2) spring slips (full width) and latch. Bottom to have lip to hold an open binder. Box shall be illuminated by flexible neck light mounted on dash

to the left hand side of the storage box. Final location subject to VPC approval.

Y✓ N___

33.12 A map/book rack constructed of metal shall be installed on the engine doghouse. This rack shall hold 3-ring binders and maps with Final design and location to be approved by the VPC.

Y✓ N___

34.0 SEAT BELTS AND SEAT BELT MONITORING SYSTEM

34.1 Seatbelts shall be made by INDIANA MILLS, or approved equal, and have the "KOMFORT-LOK" feature.

Y✓ N___

34.2 The driver and passenger seat belts in the cab area and the rear front facing seats shall have combination lap and shoulder belts.

Y✓ N___

34.3 The shoulder belt portion of the seat belts shall be provided with a 7" seat belt pillar height adjustment.

Y✓ N___

34.4 All seat belts and seat belt mountings shall be certified to meet all FMVSS safety standards.

Y✓ N___

34.5 Provide a Vehicle Data Recording (VDR) system capable receiving and storing vehicle information including the following.

- Time
- Date
- Vehicle Speed
- Acceleration
- Deceleration
- Engine Speed
- Engine Throttle Position
- ABS Event
- Seat Belt Monitoring System - The system shall include an audible alarm that shall be activated when the parking brake is released and a seat belt violation is detected. The following LED indicators will be visible to the driver and officer.
    - Seat Occupied and Buckled — Green
    - Seat Occupied and Unbuckled — Red
    - No Occupant and Buckled — Red
    - No Occupant and Unbuckled — Not Illuminated

Y✓ N___

34.6 Provide a digital speedometer read out for the officers seating area. The digital read out display shall provide vehicle road speed and shall be mounted in plan view for the officer. The exact type, size and location of the readout display shall be determined at the Pre-construction meeting.

Y✓ N___

35.0 FRONTAL IMPACT AND SIDE ROLL PROTECTION

35.1 Provide frontal air bags for protection of the driver and the officer in a frontal collision.

Y✓ N____

35.2 Provide a side roll protection system for the driver and the officer that senses a side roll, uses a microprocessor-controlled sensing device that lowers and locks the seat down, deploys an inflatable air curtain, and tightens the seat belts to the occupants.

Y✓ N____

36.0 RADIO COMPARTMENT AND CAB COMPARTMENTATION

36.1 Provide one (1) front Officers seat base radio compartment. Compartment shall be as large as space will permit. A lift-up door (polished aluminum, stainless, or treadplate) with turn latch will be provided. The compartment will be painted to match cab interior.

Y✓ N____

36.2 This cabinet will also be used as an electrical distribution area for radio 12 volt electrical system. Exact location to be determined at the Pre-construction meeting.

Y✓ N____

36.3 Provide one (1) 12- volt supply cable labeled "A" Hot Lead, directly from the battery. Use one (1) **RED** 4 Ga. THHN stranded wire from the battery to a "TRC Co" Model 02-805 Circuit Breaker. The circuit breaker shall be located in the battery compartment. The exact location shall be determined at the Pre-construction meeting.

Y✓ N____

36.4 A second 4 Ga. THHN stranded **BLACK** wire is to be run from the battery's negative terminals. This wire is the ground source for the electronics and must **not** be connected to the chassis in any way. Run both 4 Ga. wires from the batteries to the communication cabinet using split loom assuring wire is protected from sharp surfaces, extreme heat sources and any foot traffic. There can be **NO** splices in these cables. All cable runs are to be secured with tie wraps or cable clamps. Leave at lease three (3) feet of extra ground cable in the radio cabinet to be connected to a ground buss by the radio installer.

Y✓ N____

36.5 Connect the "A" Hot Lead to a "Push-Pull" type switch rated at 70 amps. The exact location of the "A" Hot lead switch shall be determined at the Pre-construction meeting.

Y✓ N____

36.6 Provide a second 12 volt power cable to terminate in the radio cabinet. Leave three (3) extra feet of cable in the cabinet. This cable shall be labeled as "Ignition switched hot". This wire shall be brown in color and be 18 gauge in size. The vehicle IGNITION switch should control this wire.

Y✓ N____

36.7 Provide a fully enclosed cable race way for the antenna cables in the right side

vertical wall of the apparatus. This race way shall be adjacent to the radio cabinet location. The cables shall be free floating in the raceway to facilitate replacement of cables if necessary.

Y ✓ N ___

36.8 Provide five (5) Zico UHH-1 helmet holder brackets to be mounted in the cab. The brackets shall provide quick access and secure storage of helmets. The brackets location shall be determined at the Pre-construction conference.

Y ✓ N ___

37.0 CAB ARRANGEMENT AND CONTROLS

37.1 Align steering wheel with the center of the driver's seat. The steering wheel horn button shall have the following labels included with the manufacturer's emblem.

- First Row PCFD
- Second Row Engine
- Third Row 58

Y ✓ N ___

37.2 The fire pump shift control lever shall be located in the cab at a location easily accessible by the driver. The pump shift lever shall have a positive locking device to lock it into pump position or road position.

Y ✓ N ___

37.3 The fire pump shift control mechanism shall be pneumatically operated, with a manual override feature located on the pump panel.

Y ✓ N ___

37.4 The exact location of the fire pump shift control lever shall be determined at the Pre-construction meeting.

Y ✓ N ___

37.5 Brake treadle shall be as close to the throttle treadle as needed to permit maximum speed and full brake operation from full throttle position, but be far apart enough to prevent both treadles from accidentally being applied simultaneously.

Y ✓ N ___

38.0 CAB AIR CONDITIONING / HEATER AND DEFROSTER

38.1 Provide a high performance air conditioning system to cool the crew cab. The A/C system shall have a minimum 19.1 cubic inch compressor. The air conditioning system shall use R-134A refrigerant.

Y ✓ N ___

38.2 The air conditioning system must use a "gravity" drain system to drain the condensation from the A/C unit.

Y ✓ N ___

38.3 The air conditioning system shall be able to cool down the cab from an outside temperature of 100 degrees Fahrenheit with 50 percent humidity at 1200 rpm within 30 minutes or less.

Y ✓ N ___

38.4 An independent drive belt system shall be used to operate the air conditioning compressor. A dual belt system along with an all metal adjustable idler pulley

with a minimum of 4" outside diameter shall be used. A Poly "V" belt shall be used to operate the compressor.

Y ✓ N ____

38.5 When performing the initial A/C charge of 134A, install a "Inferred" tracer die in the system for leak detection.

Y ✓ N ____

38.6 Provide a minimum 29,000 BTU front heater / defroster with 3 speed blower control and minimum 21,000 BTU rear auxiliary heater with 3 speed blower control. The front controls shall be adjacent to the driver and the rear controls shall be adjacent to the crew seating area in the rear area of the cab.

Y ✓ N ____

38.7 Provide two (2), 6" diameter electric fans, one (1) mounted on each side in the front cab area with their own on/off switch. These fans shall be wired to the battery master on/off switch. The exact location shall be determined at the Pre-construction meeting.

Y ✓ N ____

38.8 Cab shall be insulated using minimum 1" insulation where possible.

Y ✓ N ____

39.0 BODY – COMPARTMENTS

39.1 General requirements for body and side panels shall be fabricated from weldments of formed sections of .125", 5052-H32 aluminum. Body shall be independently mounted to allow flexing of frame without subjecting body panels to exceptional torsional stresses.

Y ✓ N ____

39.2 A 1/8" bright aluminum tread plate cover shall be installed over the compartments. Side edges of cover shall have 45 degree outward bend to provide drip protection over any compartment doors which are immediately below.

Y ✓ N ____

39.3 Body width shall be a maximum of 96" at the outside dimension of compartments.

Y ✓ N ____

39.4 Prior to assembly, if bolted construction, prime all flanges and joints in body with ALUMILASTIC or approved equal, rust protection.

Y ✓ N ____

39.5 All fasteners used on the exposed faces of the body including inside of compartment, shall be either of truss head or step bolt type.

Y ✓ N ____

39.6 Provide on the front of the body, right and left side, adequate fold down steps with hand holds to provide safe access to the top of the body. The exact style, size, and location of the steps and hand holds shall be determines at the Pre-construction meeting.

Y ✓ N ____

39.7 COMPARTMENTS- GENERAL CONSTRUCTION

39.7.1 The compartments shall be fabricated from weldments of formed sections of .125", 5052-H32 aluminum.

Y ✓ N ____

39.7.2 All closed compartments shall be properly weather stripped with replaceable extruded type seal, to be watertight and dust proof (no vents).

Y ✓ N ____

39.7.3 All compartments shall have a "sweep" out floor construction.

Y ✓ N ____

39.7.4 Install extruded aluminum drip molding over all body compartments.

Y ✓ N ____

39.7.5 In compartments requiring adjustable shelves use Unistrut adjustable shelf track or approved equal. Fasten Unistrut track in compartments at the top and bottom of the track. Do not bolt the Unistrut track in the middle of the compartment. This will impede the adjustability of the shelf from top to bottom.

Y ✓ N ____

39.7.6 Adjustable shelving will be manufactured with brushed aluminum with 2" sides, front back, and both sides. Weight capacity of the shelves shall be 500 lbs.

Y ✓ N ____

39.7.8 All adjustable shelves shall be designed so that they will be capable of the full movement (up and down) without interfering with the compartment doors or handle hardware when the doors are closed.

Y ✓ N ____

39.7.9 In compartments requiring roll-out trays, aluminum "SlideMaster" roll out trays or approved equal shall be used. These trays shall be rated at a minimum of 500 lbs. The roll out tray shall be equipped with ball bearing rollers for a smooth operation. The tray shall lock in the "in" or "out" position, and extent out 70% of the compartment depth.

Y ✓ N ____

39.7.10 All shelving, trays, and exposed compartment floors shall have "Dri Deck" interlocking tiles installed on the surface.

Y ✓ N ____

39.8 <u>ROLL-UP COMPARTMENT DOOR CONSTRUCTION REQUIREMENTS</u>

39.8.1 All roll-up compartment doors shall be "Robinson/Roll-O-Matic Shutter" doors, with full width lift bar type handles, and the automatic "Door Ajar" switch option.

Y ✓ N ____

39.8.2 All roll-up doors and all door framing material shall be silver anodized finish.

Y ✓ N ____

39.8.3 Provide roll-up door protective pans in the top of each compartment,

complete with drain tubes that will carry moisture to the ground.

Y ✓ N____

39.8.4 All compartment doors shall be provided with "On Scene Solutions LED lighting system" (Strip Lighting). (Reference Section 29.14).

Y ✓ N____

39.9 RIGHT SIDE STORAGE COMPARTMENTS

Note – All dimensions referenced in this section are approximations, recognizing that there may be design, engineering, and construction differences that may exist with each potential bidder.

39.9.1 Provide one (1) full height equipment storage compartment forward of the rear axle, with an approximate opening size 47" wide and 50" tall. The interior usable size of this compartment will be approximately 50" wide, 55 inches tall, and 25 inches deep (full height).

Y ✓ N____

39.9.1.1 ROM roll-up doors shall be provided for this compartment.

Y ✓ N____

39.9.1.2 Provide one (1) roll-out tray for the bottom of this compartment.

Y ✓ N____

39.9.1.3 Provide two (2) full depth adjustable shelves for this compartment.

Y ✓ N____

39.9.2 Provide one (1) 25" deep" compartment above the rear wheels with an opening size of approximately 57" wide by 25" tall. The interior usable size of this compartment will be approximately 60" wide, 30" tall, and 25" deep.

Y ✓ N____

39.9.2.1 ROM roll-up doors shall be provided for this compartment.

Y ✓ N____

39.9.2.2 Provide (1) 24" deep adjustable shelf for this compartment.

Y ✓ N____

39.9.3 Provide one (1) full height equipment storage compartment behind the rear axle, with and opening size of approximately 49" wide and 50" tall. The interior usable dimension will be approximately 52" wide, 55" tall, and 25" deep (full height). The bottom portion (approximately 26" tall) will be open transversely where possible to the left side storage compartment.

Y ✓ N____

39.9.3.1 ROM roll-up doors shall be provided for this compartment.

Y ✓ N____

39.9.3.2 Provide one (1) roll-out tray for the bottom of this compartment.

Y ✓ N____

39.9.3.3 Provide three (3) 24" deep adjustable shelves for the upper portion of this compartment.

Y✓ N____

39.9.4 Provide storage for two (2) SCBA air bottles in the wheel well area. An insert shall be provided to prevent the bottles from rolling around within the compartment.

Y✓ N____

39.10 LEFT SIDE STORAGE COMPARTMENTS

Note – All dimensions referenced in this section are approximations, recognizing that there may be design, engineering, and construction differences that may exist with each potential bidder.

39.10.1 Provide one (1) full height equipment storage compartment forward of the rear axle, with an approximate opening size 47" wide and 50" tall. The interior usable size of this compartment will be approximately 50" wide, 55 inches tall, and 25 inches deep (full height).

Y✓ N____

39.10.1.1 ROM roll-up doors shall be provided for this compartment.

Y✓ N____

39.10.1.2 Provide two (2) "Ziamatic" SQCH-44-H horizontal wheel chock storage brackets or approved equal, to be mounted directly under this front left-side storage compartment.

Y✓ N____

39.10.2 Provide one (1) 25" deep" compartment above the rear wheels with an opening size of approximately 57" wide by 25" tall. The interior usable size of this compartment will be approximately 60" wide, 30" tall, and 25" deep.

Y✓ N____

39.10.2.1 ROM roll-up doors shall be provided for this compartment.

Y✓ N____

39.10.2.2 Provide (1) 24" deep adjustable shelf for this compartment.

Y✓ N____

39.10.3 Provide one (1) full height equipment storage compartment behind the rear axle, with and opening size of approximately 49" wide and 50" tall. The interior usable dimension will be approximately 52" wide, 55" tall, and 25" deep (full height). The bottom portion (approximately 26" tall) will be open transversely where possible to the right side storage compartment.

Y✓ N____

39.10.3.1 ROM roll-up doors shall be provided for this compartment.

Y✓ N____

39.10.3.2 Provide one (1) roll-out tray for the bottom of this compartment.

Y✓ N____

39.10.3.3 Provide three (3) 24" deep adjustable shelves for the upper

portion of this compartment.

Y✓ N____

39.10.4 Provide storage for two (2) SCBA air bottles in the wheel well area. An insert shall be provided to prevent the bottles from rolling around within the compartment.

39.10.5 Provide one (1) fuel tank fill with access door (with fill cap retainer) behind rear wheels, in the dead area between the curved fenderwell and the front panel of the rear compartment.

Y✓ N____

39.11 REAR STORAGE COMPARTMENTS

39.11.1 Provide one (1) rear storage compartment accessible from the rear tailboard position. The opening for this compartment will be approximately 35" wide and 35" tall. The usable area shall include the transverse portion of the side compartments, and the area behind the water tank as tall as space permits.

Y✓ N____

39.11.1.1 ROM roll-up doors shall be provided for this compartment.

Y✓ N____

39.11.1.2 Provide one (1) roll-out tray for the bottom of this compartment.

Y✓ N____

39.11.1.3 Provide one (1) full depth adjustable shelf above the transverse section of this compartment.

Y✓ N____

39.12 TOP-ACCESS COMPARTMENTS

39.12.1 Provide two (2) top-access compartments, to be located on top of the side compartments. These compartments shall be approximately 22" deep, 21" wide, and run the full length of the body. These shall be constructed with the same material as the body and be equipped with a top opening aluminum tread plate hinged cover, which may be divided into two sections.

Y✓ N____

39.12.2 A Piano hinge shall run the full length of the compartment and be located at the outboard side so that the compartment interior is accessible from the hose bed.

Y✓ N____

39.12.3 Gas cylinder type stays shall be provided to hold the cover open.

Y✓ N____

39.12.4 There shall be a watertight seal around the underside of the cover(s), and if two covers are used, they shall be of an overlap design, with it necessary to open one cover to open the other cover.

Y✓ N____

39.12.5 Four (4) positive locking latches (or approved equal) shall be provided

to hold the cover(s) closed.

Y✓ N___

39.12.6 Provide a minimum of two (2) handle for ease of opening these compartments.

Y✓ N___

39.13 COMPARTMENT VENTILATION SYSTEM

39.13.1 All compartments shall be ventilated using cross ventilation provided by 120-volt electric fans that are activated by a 120-volt timer. Ventilation shall be of a flow-through design that allows the fans to push heated air through ducting into all compartments.

Y✓ N___

39.13.2 Fans will be controlled by 120 volt timer. The timer/controller will be located in the same general area as the battery charger, and will take power from the shore power connection.

Y✓ N___

39.13.3 The fans and timer will be powered only when the apparatus is connected to the shore power.

Y✓ N___

40.0 REAR LONGITUDINAL HOSE BED

Y✓ N___

40.1 Provide an aluminum longitudinal hose bed (DO NOT PAINT), running fore and aft above the water tank and conforming to the following:

Y✓ N___

40.1.1 Hose bed shall be approximately 160" long, 46" wide, and tall enough to carry the following hose load, allowing for the ability to safely lay supply hose. The interior of the body shall be free from all sharp projections which might damage hose.

Y✓ N___

40.1.2 Hose bed capacity

- 1500 feet of 3" hose laid flat
- 400 feet of 1 ¾" hose laid flat

Y✓ N___

40.2 Provide three (3) longitudinal aluminum (no paint) hose bed dividers to separate the individual hose loads.

Y✓ N___

40.2.1 The dividers shall be fully adjustable by providing slide tracks at the front and rear of the hose bed.

Y✓ N___

40.2.2 The dividers shall be held in place by tightening two (2) 5/16" Phillips flathead bolts, or equivalent at the forward and rear ends of the partition. Mounting bolts shall turn into threaded slide blocks located below the track. Holes in the welded on partition legs shall be countersunk so that bolt head is flush with the surrounding surface and will not damage hose.

Y✓ N____

40.2.3 Each of the dividers shall have a rounded and smooth oval cut-out in the rear end to serve as a handle.

Y✓ N____

40.2.4 Basic partition shall be one piece design with a integral rolled 1" diameter, 360 degree, machine formed reinforcement at the top and at each end.

Y✓ N____

40.2.5 Bottom edge of partition shall have a 1-1/2" 90 degree reinforcement flange.

Y✓ N____

40.2.6 Forward and rear upper corners shall have a 1-1/8" welded, double plain, miter joint (forming a 30 degree angle) to eliminate sharp ends.

Y✓ N____

40.3 The hose bed shall be provided with removable aluminum slats to provide ventilation. Individual slats shall be 4-5/8" wide by ½" thick and have a corrugated or ribbed surface to help drain and dry the hose. Also, the aluminum slats shall be removable without removing the divider.

Y✓ N____

40.4 The cross-bed divider shall be provided in the forward 24" of the longitudinal hose bed. This area will be used for top-side storage and will not be covered.

Y✓ N____

40.5 The hose in the hosebed shall be restrained by black nylon web strap netting with quick release fasteners at the rear of the hosebed.

Y✓ N____

41.0 REAR STEP AREA, FENDERS, MUD FLAPS, HANDLES,

41.1 A fold-down rear step shall be located at the back of the body and shall be approximately 21" deep from the rearmost vertical surface of the body.

Y✓ N____

41.1.1 The rear step shall be constructed of 3/16" aluminum tread plate, supported by adequate sub-structure to support a minimum of 500 lbs. The platform shall be the same width as the rear hose bed.

Y✓ N____

41.2 FENDERS AND WHEEL WELLS

41.2.1 Provide polished stainless steel fenders around the wheel openings (front and rear wheels) bolted to the body.

Y✓ N____

41.2.2 There shall be no sharp objects protruding into the wheel well area which could cause injury while cleaning or doing other maintenance in this area.

Y✓ N____

41.2.3 Inner fender wheel wells, front and rear, shall be painted black.

Y✓ N____

41.3 MUD FLAPS

41.3.1 Provide mud flaps for the front and rear tires. They shall be mounted so that they are easily removable.

Y ✓ N ____

41.3.2 The mounting holes in the mud flaps shall be slotted to the top edge of the mud flap to prevent damage to the fender should the mud flap get caught on an obstruction when backing the apparatus.

Y ✓ N ____

41.4 BODY HANDRAILS AND RUBRAILS

41.4.1 Handrails shall be slip-resistant, NFPA compliant.
Handrails and handrail stanchions shall be chrome plated. They shall be bolted to the body with ¼" stainless steel hex head bolts. Stanchions shall have a rubberized gasket placed between them and the body surface they are mounted to. Bottom stanchions shall have a drainage hole in the bottom so moisture will not collect in the stanchions

Y ✓ N ____

41.4.2 Handrails shall be installed as follows.

41.4.2.1 One (1) each, approximately 36", shall be vertically mounted on the back of the hose body on each of the apparatus.

Y ✓ N ____

41.4.2.2 The above referenced handrails are minimums, with additional handrails to be provided to allow for safe access to the top of the apparatus as necessary.

Y ✓ N ____

41.4.3 Provide aluminum (or approved equal) rub rails, approximate size 3" wide, along the bottom edge of the body. These rails shall not be an integral part of the body to allow for easy replacement.

Y ✓ N ____

41.5 TOP ACCESS LADDER

41.5.1 Provide a "Ziamatic" model RL-2-6 Quic-Ladder or approved equal for access to the top of the vehicle. This ladder will be mounted to the left rear face of the equipment body.

Y ✓ N ____

41.5.2 Each step shall have a flat non-skid surface that is 3" deep x 15.5" wide.

Y ✓ N ____

41.5.3 A swing-out and down extension section at the bottom of the ladder shall be provided.

Y ✓ N ____

41.5.4 The ladder handrails shall be constructed out of 1 ¼" heavy-walled aluminum tubing that is covered by ribbed black neoprene tubing.

Y ✓ N ____

41.5.5 The ladder shall be slanted when deployed for easy access, and fold against the body for storage to reduce the overall length.

Y ✓ N ___

42.0 LADDER AND PIKE POLE STORAGE

42.1 Interior storage will be provided on the passenger side of the vehicle for the following ladders.

- One (1) Duo Safety, Series 900-A 24'two section aluminum extension ladder
- One (1) Duo Safety, Series 775-A 14'roof ladder

Y ✓ N ___

42.1.1 The ladders will be stored in a rack that extends through the top of the passenger side compartments. A partition with shall be installed on the side of the rack to allow for equipment storage and to conceal the ladders.

Y ✓ N ___

42.1.2 The ladder storage assembly shall be fabricated using stainless steel track channels to aid in loading and removal of ladders.

Y ✓ N ___

42.1.3 Access to the storage area will be provide through a door on the rear face of the equipment body. This door will be a vertically hinged treadplate door with a lift-and-turn latch to contain the ladders.

Y ✓ N ___

42.1.4 Provide long handle tool storage adjacent to the ladder storage compartment. An aluminum treadplate door with a lift-and-turn latch shall be provided.

Y ✓ N ___

42.2 Interior storage will be provided on the driver's side of the vehicle for the following equipment.

- One (1) Duo Safety Series 585-A 10' aluminum folding ladder.
- One (1) 6' pike pole
- One (1) 8' pike pole

42.2.1 Provide aluminum pike pole tubes to be recessed in the upper, inside portion of the body compartment on the driver' side.

Y ✓ N ___

42.2.2 Provide a stainless steel trough for the folding ladder, to be included in the body compartment on the driver's side.

Y ✓ N ___

42.2.3 Provide a vertically hinged aluminum treadplate door with a lift-and-turn latch.

Y ✓ N ___

43.0 WATER TANK / FOAM TANK

43.1 The water tank shall be manufactured by United Plastics Fabricating, Inc., and shall be a combined foam and water tank. Tanks shall carry a lifetime warranty , 100% parts and labor.

Y ✓ N ___

43.2 The water tank overflow shall be behind the rear wheels and designed not to spill water under normal operation.

Y ✓ N ____

43.3 The capacities of the water and foam tank are as follows:

43.3.1 Water tank: 750 gallons, minimum water, with a 1" PVC "hill" tank vent.

Y ✓ N ____

43.3.2 Foam tank: 30 gallons of Class "A" foam minimum.

Y ✓ N ____

43.4 Tank material shall be 1/2" thick polypropylene sheet stock.

Y ✓ N ____

43.5 Tank baffles shall be installed in tank to reduce water surge inside of tank, both for and aft and side to side.

Y ✓ N ____

43.6 Provide a tank drain plug and collection sump at tank bottom.

Y ✓ N ____

43.7 Provide top tank water fill and overflow, minimum 8" square hinge-type cap for water. This cap shall be clearly labeled "Water Fill" in bold blue letters.

Y ✓ N ____

43.8 Provide top tank filler for foam tank. It shall be mounted adjacent to water tank filler. Minimum dimensions for the fill port are, 8" x 8". This fill port shall be clearly labeled "Class "A" Foam Fill" in bold red letters.

Y ✓ N ____

43.9 Provide a water tank overflow capable of passing 600 gallons per minute and preventing overflow of water on a 23% grade. Overflow shall dump behind rear wheels. Plumbing to be integral with the tank.

NOTE: Make sure the tank overflow does not dump water on top of the rear axle breather vent. Water is to dump on the opposite side of rear axle breather vent. Construct the overflow down pipe well behind and below the rear axle. Construct the drain pipe out of a flexible material that can be easily accessed for repair or replacement without removing fuel tank or other components.

Y ✓ N ____

43.10 Water tank to pump outlet (dump line) shall match the plumbing size provided by the manufacturer, 3½" minimum. Y ✓ N ____

43.11 Tank shall be completely removable with minimal dismantling and disruption to the apparatus.

Y ✓ N ____

43.12 Tank mounting will be the responsibility of the apparatus manufacturer to properly engineer and mount the water tank as per the water tank manufacturers requirements. This will insure that the lifetime warranty on the water tank will be valid. Provide manufacturer's certification of tank installation.

Y ✓ N ____

44.0 GENERAL PUMP CAPABILITIES AND LAYOUT

44.1 This vehicle shall be equipped with a 1500 gpm single stage midship mounted centrifugal type pump

Y✓ N___

44.2 The vehicle shall have the ability to pump in both stationary mode or in the "pump and roll" mode.

Y✓ N___

44.3 "Pump and roll" mode shall be accomplished through the use of the main pump or through the use of a PTO driven auxiliary pump.

Y✓ N___

44.4 Main pump shall be driven by conventional pump transmission or through the use of a rear engine power take-off and clutch system that is a proven drive system throughout the rugged construction industry.

Y✓ N___

44.5 The pump shall be mounted in the chassis to allow chassis frame rails to flex independently without damage to the fire pump and plumbing.

Y✓ N___

44.6 The driver's side pump operator's panel shall be located inside the driver's side front compartment.

Y✓ N___

44.7 Side discharge outlets shall be located inside the forward compartments and/or forward of these compartments mounted low against the frame rails.

Y✓ N___

44.8 The left and right side fire pump panels shall be removable to provide complete access to the fire pump if applicable and plumbing, secured with 1/4" stainless steel bolts with caged nuts and lock washers or equal. #6

Y✓ N___

44.9 Side fire pump panels shall be constructed of 14 gauge brushed stainless steel.

Y✓ N___

44.10 PUMP PANEL LIGHTS

44.10.1 Pump panel shall be adequately illuminated using "On-Scene Solutions" LED strip lighting or approved equal.

Y✓ N___

44.10.2 Panel illuminating devices shall be designed to prevent accidental breakage.

Y✓ N___

44.10.3 All pump panel lights shall automatically turn on when apparatus is put in pump mode, and by a switch on the pump panel when not in pump mode.

Y✓ N___

44.10.4 Pump panel light shrouds shall be substantial enough to prevent accidental damage should somebody accidentally stand on it.

Y✓ N___

44.11 SPEEDLAY HOSE BEDS/TRANVERSE STORAGE COMPARTMENTS

44.11.1 Provide two (2) speedlay hose beds to be located between equipment body and the cab.

Y ✓ N ____

44.11.2 Each speedlay hose bed shall hold 200'-1¾" hose., pre-connected to a 1½" discharge gate, controls located on the pump operator's panel.

Y ✓ N ____

44.11.3 Each speedlay hose bed shall be plumped with 2" stainless steel piping and gated with a 2" quarter turn ball valve. The outlet shall be a 1½" National Standard hose thread with a 90 degree swivel located in the hose bed so that hose can be removed from either side of the vehicle.

Y ✓ N ____

44.11.4 Each speedlay hose bed shall be provided with a removable hose tray, which will be secured to a slide-out rolling tray with a positive latch mechanism. These trays will be manufactured using 1/2" thick polypropylene material, black in color.

Y ✓ N ____

44.11.5 Additionally, provide a slide-out rolling tray that the polypropylene hose trays will be secured to. The slide-out tray shall slide out of the vehicle on either side, two-thirds of its length. This tray will be constructed with aluminum material, sufficient in strength to carry the specified hose load.

Y ✓ N ____

44.11.6 Heavy black nylon webbing with quick-release buckles shall be provided to prevent accidental deployment of speedlay hose.

Y ✓ N ____

44.11.7 Provide a transverse storage compartment above the speedlay hose bed. This compartment shall be equipped with a compartment door on each side. The top of this compartment will be flush with the remainder body.

Y ✓ N ____

45.0 FIRE PUMP AND RELATED SYSTEMS

45.1 FIRE PUMP – Hale QMAX single stage or approved equal, in accordance with the following:

#7

Y ✓ N ____

45.1.1 Pump shall be manufacturer's latest design, single stage centrifugal fire pump. Pump shall be in compliance with all applicable requirements of the latest standards for automotive fire apparatus of the National Fire Protection Association.

Y ✓ N ____

45.1.2 Single stage centrifugal pump shall be certified to deliver the percentage of rated discharge from draft at pressure indicated below.

- 100% of rated capacity at 150 psi net pump pressure
- 75% of rated capacity at 200 psi net pump pressure
- 50% of rated capacity at 250 psi net pump pressure

Y✓ N___

45.1.3 The complete pump, both suction & discharge passages shall be hydrostatically tested to a pressure of 600 PSI. Pump shall be fully tested at pump manufacturer's facility to the performance marks outlined in the latest NFPA #1901. Pump shall be free from objectionable pulsation & vibration.

Y✓ N___

45.1.4 Testing shall include the full operational range and rating of the pump.

Y✓ N___

45.1.5 All Pump protective/relief devices shall be tested to full operating pressures.

Y✓ N___

45.1.6 The pump shall be equipped with a thermal relief valve that automatically monitors water temperature and is preset to open at 120 degrees. A warning light shall be provided on the pump panel

Y✓ N___

45.1.7 Pump system shall have an integral discharge manifold system that allows a direct flow of water to all discharge valve.

Y✓ N___

45.1.8 Pump body shall be fine-grained, gray iron. Body horizontally split in two sections for easy removal of the impeller shaft assembly. Pump body halves bolted together on a single horizontal face to minimize leakage and facilitate re-assembly. All passageways carefully matched to assure the very best hydraulic flow characteristics.

Y✓ N___

45.1.9 Impeller Shaft shall be rigidly supported at each end by oil or grease lubricated ball bearings. Bearings shall be protected from water & sediment by suitable stuffing boxes, flinger rings and oil seals.

Y✓ N___

45.1.10 Shaft seals shall be self-adjusting stainless steel spring loaded mechanical seals to eliminate leakage & routine maintenance.

Y✓ N___

45.1.11 Single stage design, impeller shall be bronze, accurately balanced both mechanically hydraulically, mixed flow design with reverse flow labyrinth type wear rings that resist water bypass & loss of efficiency due to wear.

Y✓ N___

45.1.12 Wear rings shall be bronze, easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

Y✓ N___

45.1.13 Provide sacrificial anoids to be placed in the pump intake side and one on the discharge side.

Y ✓ N ___

45.1.14 Provide a 3" pump to tank brass swing type check valve which will prevent backflow from the pump to the tank.

Y ✓ N ___

45.1.15 Provide five (5) year minimum parts warranty and two (2) year minimum labor warranty for the pump and drive system.

Y ✓ N ___

45.2 PUMP DRIVE UNIT

45.2.1 The pump drive unit will be one of the following two types.

45.2.1.1 Pump Transmission and Drive Unit – This unit will be of sufficient size to withstand the full torque of the engine in both road and pump operating conditions. All gears shall be of highest quality chrome nickel steel. Accurately cut spur design shall be provided to eliminate all possible end thrusts. The power shifting mechanism shall be heat-treated, hard anodized aluminum power cylinder with stainless steel shaft. In-cab control for rapid shift shall be provided that locks the unit in road or drive. Three indicator lights with identifying plates shall be provided to alert the operator when the drive unit has fully shifted from road to pump position, two in the cab and the other on the pump panel adjacent to the throttle. #8

Y ___ N ✓

45.2.1.2 Rear Engine Power Take Off - Pump gearcase shall be a pressure-lubricated gearcase to cool, lubricate, and filter the oil. The gearcase shall include an auxiliary PTO opening. The gearcase shall consist of two (2) gears to drive the pump impeller and one (1) to drive the auxiliary PTO. Activation of the stationary pump mode will be through a "water pump switch" on the cab switch panel. Two indicator lights will illuminate when the parking brake is set and the system is activated, one adjacent to the cab switch and one adjacent to the throttle on the pump panel.

Y ✓ N ___

45.3 PUMP AND ROLL SYSTEM

45.3.1 The "Pump and Roll" capability shall be accomplished in one of the following two methods.

45.3.1.1 Use of the main pump in conjunction with the rear engine power take off – Using this system, the main pump will be activated by a switch in the cab and the vehicle can be driven in

first gear. The operator shall apply foot throttle to increase pump pressure, but the vehicle must stay in first gear.
Y ✓ N___

45.3.1.2 Use of a transmission PTO port to drive an auxiliary pump – Using this system, a Hale AP35 single stage centrifugal booster pump rated at 350 gpm at 150 psi net pump pressure. The pump shall discharge into the discharge side of the QMAX pump. Pressure will be controlled by a throttle on the pump operator's panel. The 4" stainless steel suction manifold plumbed from the tank to the booster pump will be provided. #9
Y___ N ✓

45.4 LABELING

45.4.1 All controls, gauges, drains, etc. shall be permanently and clearly identified on operator's panel.
Y ✓ N___

45.4.2 Metal engraved color coded pump panel labels in brushed bezels shall be installed on all pump panels equipment and valves; same shall be bolted in place (screws or pop rivets not acceptable).
Y ✓ N___

45.4.3 Labels shall be deep etched, color coded rings for discharge and suction piping (except 6") & control handles, and verbiage tags for all labels and 6" inlets.
Y ✓ N___

45.4.4 Color selection shall be determined prior to installation by VPC.
Y ✓ N___

45.4.5 All valves shall be provided with color coded garnish rings. These shall also be provided on all inlets and discharges throughout the vehicle.
Y ✓ N___

45.4.6 All gate valve controls shall be located at pump operator's panel and they shall be clearly identified with labels subject to VPC approval.
Y ✓ N___

45.4.7 Color Schedule for Discharge Gates and Suction Inlets

Discharge Description	Size	Gate	Color
Left Side	2 ½"	Manual	White
Left Side	2 ½"	Manual	Yellow
Speedlay	2 ½"	Manual	Orange
Speedlay	2 ½"	Manual	Red
Right Side	4"	Electric	Blue
Right Side	2½"	Electric	Green
Rear Discharge	2½"	Manual	Brown

Front Discharge	2½"	Manual	Black
Deluge Gun	3"	Manual	Silver
Right Side Suction	6"	Electric	Lavender
Left Side Suction	6"	Electric	Lavender
'Right Side Aux Suction	2 ½"	Manual	Lavender
Left Side Aux Suction	2 ½"	Manual	Lavender

Y✓ N___

45.5 PRESSURE GOVENOR

45.5.1 The apparatus shall be equipped with an Electronic Engine/Pressure Governor System Fire Research Corp model "In Control TGA400". Auto preset for quick pressure & rpm changes. Maintains constant pressure control during pump operation. Large, bright digits. Engine idles when out of water. Hard wired to system at protected terminals, no splices or butt connectors. #10

Y___ N✓

45.5.2 The governor shall have a cavitation shut down feature.

Y✓ N___

45.5.3 The system shall meet all applicable provisions of current edition NFPA #1901.

Y✓ N___

45.6 INTAKE PRESSURE RELIEF

45.6.1 Intake Relief Valve, shall be supplied. Adjustable intake relief valve set at 125 psi. Valve shall allow full opening with a very small rise in intake pressure above preset.

Y✓ N___

45.7 PRIMER

45.7.1 Provide a positive displacement vane type priming pump conforming to standards outlined in current edition NFPA #1901.

Y✓ N___

45.7.2 Priming control shall be located on the pump operator's panel.

Y✓ N___

45.7.3 Primer shall be oil-less type, environmentally safe design.

Y✓ N___

45.8 PUMP BYPASS COOLING SYSTEM

45.8.1 One (1) multi turn bypass valve to allow water flow from discharge side of. pump to water tank for pump cooling, properly labeled as required by VPC

Y✓ N___

45.8.2 Cooling system shall be adequate for pump while in stand-by mode in pump.

Y ✓ N ____

45.9 FIRE PUMP PLUMBING

45.9.1 All piping shall be installed to eliminate water and/or air traps. Long radius bends shall be used whenever possible to help reduce turbulence and friction loss.

Y ✓ N ____

45.9.2 All piping shall be designed to facilitate maintenance, servicing and repair. Provide Victaulic joint connections for pipe runs where it may be necessary to access components for removal. All piping that supports valves shall be solidly mounted so the valve does not turn.

Y ✓ N ____

45.9.3 Discharge piping to the rear of vehicle shall be equipped with Victaulic connections and secured to frame or body sheet metal.

Y ✓ N ____

45.9.4 Brass or stainless piping material shall be used throughout the system, sized to provided sufficient water flow to required outlets. Flexible synthetic rubber hoses with high-tensile polyester braid shall be used where necessary.

Y ✓ N ____

45.9.5 All gauge lines shall be of flexible polypropylene tubing.

Y ✓ N ____

45.9.6 The pump and attached fixed piping shall be painted job color red,

Y ✓ N ____

45.9.7 All discharge and suction valves shall be easily accessible for repair or servicing. Valve located behind panels shall have easily removable panels to access these valves.

Y ✓ N ____

45.10 PUMP AND PLUMBING DRAINS AND BLEEDERS

45.10.1 All piping shall be equipped with suitable drains. Individual drain lines for discharges shall be extended with a hose to drain below the chassis frame.

Y ✓ N ____

45.10.2 One (1) master pump drain control shall be provided on pump panel.

Y ✓ N ____

45.10.3 Each gated intakes and discharges shall be equipped with Akron Style #57, or equivalent 3/4" drain valve, with flexible drain tubes, exact location to be determined at the Pre-construction meeting..

Y ✓ N ____

45.11 DISCHARGE VALVES AND OUTLETS

45.11.1 All ball valves shall be Akron Brass 8000 series heavy-duty style with a stainless steel ball and a simple tow-seat design unless otherwise noted.

No lubrication or regular maintenance is required on the valve.
Y✓ N____

45.11.2 Right Side 2½" Discharge Valve

45.11.2.1 Provide one (1) "Akron" 2½" "Model 9304" electric control discharge valve with manual override located on the right side pump panel. This outlet will terminate with a male 2½" National Standard hose threads and chrome rocker cap and chain.
Y✓ N____

45.11.2.2 Electric controller with valve position indicator light shall be located on the pump operator's panel.
Y✓ N____

45.11.3 Right Side 4" Discharge Valve

45.11.3.1 Provide one (1) "Akron" 4" "Model 9304" electric control discharge valve with manual override located on the right side pump panel. These outlets will terminate with a male 4" National Standard hose threads and a 5" Storz connector with cap.
Y✓ N____

45.11.3.2 Electric controller with valve position indicator light shall be located on the pump operator's panel.
Y✓ N____

45.11.4 Left Side 2½" Discharge Valves

45.11.4.1 Provide two (2) "Akron" 2½" swing out discharge valve located behind the left side pump panel. These outlets will terminate with a male 2½" National Standard hose threads and chrome rocker cap and chain.
Y✓ N____

45.11.4.2 Manual swing handles located on the pump operator's panel that operate in a vertical up and down motions will be supplied.
Y✓ N____

45.11.5 Rear 2½" Discharge Valve and Outlet

45.11.5.1 Provide one (1) "Akron" 2½" discharge valve behind the left side pump panel. 2½" discharge plumbing to the rear of the apparatus hose bed, on center, will terminate with a 45 degree chrome plated elbow with male 2½" National Standard hose threads, and chrome rocker cap and chain.
Y✓ N____

45.11.5.2 Manual swing handle located on the pump operator's panel that operate in a vertical up and down motion will be supplied.
Y✓ N____

45.11.6 Front 2½" Discharge Valve and Outlet

45.11.6.1 Provide one (1) "Akron" 2½" discharge valve behind the left side pump panel. 2½" discharge plumbing to the front of the apparatus centered in the bumper extension will terminate with male 2½" National Standard hose threads, and chrome rocker cap and chain.

Y ✓ N ___

45.11.6.2 Manual swing handle located on the pump operator's panel that operate in a vertical up and down motion will be supplied.

Y ✓ N ___

45.11.6.3 Automatic drains shall be provided at all low points in the plumbing for this outlet.

Y ✓ N ___

45.11.7 Speedlay Controls

45.11.7.1 Each speedlay hose bed shall be plumped with 2" stainless steel piping. Gate control with a 2" quarter turn ball valve will be provided on the pump operator's panel. The outlet shall be a 1½" National Standard hose thread with a 90 degree swivel located in the hose bed so that hose can be removed from either side of the vehicle.

Y ✓ N ___

45.11.8 Provide four (4) 2½" to 1½" adaptors with caps, chrome plated.

Y ✓ N ___

45.12 <u>6" SUCTION INLETS</u>

45.12.1 Provide two (2) 6" pump manifold inlets (one (1) each side. The suction inlets shall include removable die cast zinc screens that are designed to provide cathodic protection for the pump.

Y ✓ N ___

45.12.2 The pump inlets shall be located on the pump operator's panel.

Y ✓ N ___

45.12.3 These inlets will be supplied with National Standard Threads with chrome long handle caps.

Y ✓ N ___

45.12.4 Provide two (2) big flow inlet valves, to be attached to the 6" inlets. Built in pressure relief and air bleeders shall be provided with the valves. Valves shall be electrically operated with indicators located on the pump operator's panel. Manual override shall be provided.

Y ✓ N ___

45.13 <u>AUXILIARY SUCTION INLETS</u>

45.13.1 Provide two (2) auxiliary 2½" suctions (one each side). Valves shall be "Akron 2½" 8000 SERIES with direct valve operation

through the panel. Intake fitting shall be chrome 2½" female swivels with strainer, bleeder, and rocker lug plug with chain (chrome plated).

Y✓ N___

45.13.2 All suction inlets shall be supplied strainers of bronze or other approved corrosive-resistant and non-deteriorating material.

Y✓ N___

45.13.3 Quarter turn drain valves will be supplied for these inlets.

Y✓ N___

45.14 MAIN TANK FILL

45.14.1 One (1) multi turn bypass valve to allow water flow from discharge side of. pump to water tank for pump cooling, properly labeled as required by PCFD. This valve will serve as a tank refill and a pump re-circulation line (reference 45.8.1).

Y✓ N___

45.14.2 Valve is to be accessible for service from the pump panel or upper storage area above pump house. The tank fill line hose shall be high pressure, 2" steel braided, flex hose.

Y✓ N___

45.15 DUMP VALVE (TANK TO PUMP)

45.15.1 Provide one (1) tank dump valve "Akron" 3", valve flange type. Provide easy access for service.

Y✓ N___

45.16 DECK MONITOR

45.16.1 Provide "Elkhart" #8294-043578 "Scorpion" monitor shall be installed on the deluge riser. .

Y✓ N___

45.16.2 The monitor shall include an Elkhart model 284A, Elk-o-Lite 3½" stream shaper.

Y✓ N___

45.16.3 Electric 12 volt controls shall be provided for the monitor. A remote control shall be installed on the pump operator's panel with an additional tethered control included, mounting location to be determined at the Pre-construction conference.

Y✓ N___

45.16.4 An Elkhart #SM-2000E electronically controlled Select-O-Matic master stream nozzle shall be provided.

Y✓ N___

45.16.5 A 3" monitor riser shall be provided above the pump in such a manner that a monitor can be mounted and used effectively. 3" piping shall be installed securely so no movement develops when the line is charged. A 2½" gated valve shall be installed and controlled at the pump operator's panel The outlet will provide 1000 gpm minimum.

Y ✓ N___

45.16.6 The monitor riser plumbing shall include an 18" Elkhart Electrically Actuated Extender. This riser will allow the operator to raise the monitor 18". The controls shall be mounted on the pump operator's panel and will include a "Do not move the vehicle" light inside the cab when the monitor is not in its home position.

Y ✓ N___

45.17 CLASS "A" FOAM SYSTEM

45.17.1 Provide a "Foam Pro" #2002 or equivalent foam proportioning system capable of proportioning Class "A" and Class "B" foam concentrates. This system shall automatically balance and proportion foam solutions from 0.1% to 9.9% regardless of variations in water pressure and flow. #11

Y ✓ N___

45.17.2 The system shall have the ability to deliver the foam solutions at accuracies that meet or exceed the NFPA requirements at a pump rating of 250 PSI.

Y ✓ N___

45.17.3 Provide a digital electronic control display and control system to be located on the pump operator's panel. The control system shall have foam injection pre-set capability, which can be changed by the operator as desired. The operator shall have the ability to easily change the rate of injection as necessary. This control panel shall have the ability to control all functions of the foam system, including foam injection foam pick-up, and foam tank refill.

Y ✓ N___

45.17.4 An external foam pick-up shall be provided to enable the use of a foam agent that is not stored in the vehicle's foam tank. This pick-up connection shall be a 1" male connection with a chrome-plated cap, integrated into a 2" clean-out fitting. located on the operator's pump panel. A strainer shall be provided that is easily accessible by removal of the 2" cleanout cap.

Y ✓ N___

45.17.5 A 1" pick-up hose with an end for insertion into a foam container shall be provided. This hose shall have the ability to connect to the pick-up connection on the pump panel.

Y ✓ N___

45.17.6 The foam system shall supply foam to the following discharge gates.

- Both speedlay discharge gates
- Rear 2½" discharge gate
- Front 2½" discharge gate
- Deluge Monitor

Y ✓ N___

45.17.7 The ability to flush the entire foam shall be supplied.

Y ✓ N___

45.17.8 Provide one (1) "FRC Tankvision" foam tank level indicator to be mounted on the on the pump operator's panel.

Y ✓ N ____

46.0 PUMP CONTROL – OPERATOR'S PANEL

46.1 Design and layout of pump panel shall be approved by VPC prior to construction. Panel shall be located on the driver's side of the apparatus in the front compartment.

Y ✓ N ____

46.2 All gauges, controls, and instruments shall be clearly identified, subject to PCFD approval.

46.2.1 Electronic pressure governor that includes engine pressure, suction pressure, and engine gauge panel (reference section 45.5)

46.2.2 Water tank level gauge, indicator, "FRC Tankvision" equipped with "FRC"sensors and cables, and remote sender to power two (2) sets of Whelan four (4) Model 500, LED's with flange mount on the "C" post of the cab with the following color indicators.

- Top light – blue, indicating full tank
- Middle top – amber, indicating ¾ full
- Middle bottom – amber, indicating½ full
- Bottom – Red, indicating ¼ full solid, and flashing when empty

46.2.3 Provide "Foam A" level indicator, "FRC Tankvision" equipped with "FRC sensors and cables.

46.2.4 Primer control

46.2.5 Foam system controls

46.2.6 UL test points

46.2.7 Wired remote and wireless remote for deck monitor

46.2.8 Air horn switch

46.2.9 Scene light switches

46.2.10 Panel light switch

46.2.11 Pump shift indicator lights

46.2.12 Thermal relief valve indicator light (reference 45.1.6)

46.2.13 One additional water tank level gauge to be provided in the cab.

Y ✓ N ____

46.3 The remainder of the pump panel, full width, shall include all pump controls and gauges.

46.3.1 Provide Auxiliary cooling control.

46.3.2 Provide tank-to-pump control.

46.3.3 Provide pump to tank fill control.

46.3.4 Provide 4" minimum master compound and pressure gauges. Gauges to be manufactured by "Class 1", silicon filled with white faces and black lettering. Pressure range shall be 30"-0-600#. Approved equal will be considered.

46.3.5 Provide individual pressure gauges for all discharge gates.

46.3.5.1 All individual "line" pressure gauges shall be "Class 1" interlube filled, 2" in diameter, with white faces and black lettering. Approved equal will be considered

46.3.5.2 All discharge gauges shall register pressures from 0-400 PSI.

46.3.5.3 All discharge gauges to be equipped with color coded bezels and labels as referenced in section 45.4.7.

Y ✓ N ____

46.4 Provide one(1) "University MM-2F" radio speaker mounted adjacent to the pump panel. Use a 12 gauge 2 conductor shielded cable to make the connection between the speaker and the radio compartment.

Y ✓ N ____

47.0 GENERAL CONSTRUCTION REQUIRMENTS

47.1 All piping, wiring and tubing shall be neatly installed, secured where necessary, and protected from mechanical damage.

Y ✓ N ____

47.2 All welding shall be neat and have uniform beads. All welding spatter shall be removed. Any torch cut metal shall have cuts ground smooth.

Y ✓ N ____

47.3 All exposed, sharp corners of structure members shall be ground to a minimum radius of 2" or one-half the material width, whichever is less.

Y ✓ N ____

47.4 All sound attenuating material shall be securely fastened to mating panel with systems and adhesives recommended by the attenuating material manufacturer. Materials that might be affected by fan blast shall be enclosed in frames and covered with screening.

Y ✓ N ____

47.5 Tapped holes, stud welded fasteners, nutcerts, etc., shall be used where necessary to permit items to be removed by one person where he/she cannot reach the opposite side of the fastener. No self tapping fasteners or aluminum nut-certs shall be used.

Y ✓ N ____

47.6 Aluminum diamond plate or stainless steel covering shall be used in all areas that have high exposure to paint finish damage under normal use.

NOTE These areas include, but are not limited to, surfaces adjacent to walking or steeping surfaces, equipment mounting locations, body side of jump seat areas, and areas subject to hose coupling damage.

Y ✓ N ____

48.0 FINISH, PAINT, REFLECTIVE STRIPE AND LETTERING

48.1 All sharp edges, burrs, etc., shall be ground or filed to a smooth radius. Underside of fenders, running boards and inside compartments shall have no protruding sheet metal screws or other sharp objects to hamper vehicle cleaning.

Y ✓ N ____

48.2 All doors shall be fitted, then removed and painted separately to ensure finish paint behind the hinges and seals.

Y ✓ N ___

48.3 The exterior and interior of the cab shall be painted before doors are mounted or any assembly is started in ensure a finished painted surface beneath trim items.

Y ✓ N ___

48.4 All surfaces, including the underside and backside, shall be properly cleaned and primed before finish is applied. All surfaces to be painted shall be primed with a minimum of two (2) coats of primer which is hand applied to the chemically treated surface to provide a strong corrosion protective base coat and fill to smooth the surface.

Y ✓ N ___

48.5 The following parts shall not be painted: Fuel system, cooling system, electrical system, fuel lines, throttle, cables, wiring, hoses, hose clamps, grease fittings, adjustment nuts, clevises and rods, and brake caliper pins.

Y ✓ N ___

48.6 All adjustment nuts, clevises, linkage connections, etc., shall be cadium, zinc, or chrome plated unless base metal is rust resistant.

Y ✓ N ___

48.7 The complete exterior of the apparatus shall be painted with polyurethane with the highest quality. Prior to the apparatus being painted, manufacturer shall provide color samples for approval. The current color scheme used by the VPC shall be used as follows.

Y ✓ N ___

48.7.1 Frame and chassis shall be job color red. The fire pump and associated plumbing shall be painted job color red. NOTE: VPC requires that the frame, chassis, pump, and plumbing be painted with the same quality as the exterior body panels, including two coats of primer and clear coats.

Y ✓ N ___

48.7.2 Cab exterior to be painted job color red, exact design and color to be determined at Pre-construction conference.

Y ✓ N ___

48.7.3 Body and all exposed surfaces on pump module shall be painted job-color red.

Y ✓ N ___

48.7.4 Interior compartment surfaces shall be painted with a gray splatter finish for ease of cleaning and to make it easier to touch up scratches and nicks.

Y ✓ N ___

48.7.5 All exposed surfaces in cab shall be painted black.

Y ✓ N ___

48.8 Upon completion of the color coats, a clear coat finish shall be applied to the entire exterior of the vehicle.

Y ✓ N ___

48.9 <u>REFLECTIVE STRIPE</u>

48.9.1 Provide a 6" white reflective affixed to the perimeter of the vehicle. exact design to be determined at the Pre-construction meeting.

Y ✓ N ____

48.9.2 Provide rear chevron reflective striping on the rear face of the vehicle. The colors shall be yellow and ruby red. Each stripe shall be 6" wide. This striping shall meet current edition NFPA #1901. Exact design will be determined at the Pre-construction meeting.

Y ✓ N ____

48.9.3 Provide reflective stripping on interior door panels , 6" wide, ruby red in color. This striping shall meet current edition NFPA #1901.

Y ✓ N ____

48.10 LETTERING

48.10.1 Provide 80 genuine gold leaf lettering, 3" high, with outlining and shading.

Y ✓ N ____

48.10.2 A pair of emblems, 14" to 17" in diameter, featuring a customer designed emblem shall be installed on the cab doors. The design to be color imaged.

Y ✓ N ____

48.10.3 Two (2)maltese crosses, comprised of genuine gold leaf material, shall be provided and installed on the cab doors.

Y ✓ N ____

49.0 CHROME PLATING AND TRIM

49.1 All stripping, molding, and similar trim shall be chrome plated or stainless steel and shall be acceptable to the VPC.

Y ✓ N ____

49.2 All chrome plating shall be of the highest quality decorative type as described in "A" Guide to the Application of ASTM-AES Metal Finishing Standards as to Achieve Quality", as published by the Metal Finishing Suppliers Association, Inc. and shall comply with Table II, class 4 "Service" "Very Severe.

Y ✓ N ____

50.0 APPARATUS WARRANTY

50.1 The warranty period shall commence 2 months from the date the vehicle leaves the manufacturer's facility or when the vehicle is placed into service, whichever is sooner.

Y ✓ N ____

50.1.1 In this section (50.0 – Apparatus Warranty), "Contractor" is defined as the manufacturer or their designated authorized dealer, to be named in the purchase contract.

Y ✓ N ____

50.2 Apparatus shall be warranted against failure due to faulty design, materials, workmanship, and mounting, barring accidents or abuse. All warranty shall include parts and labor.

Y ✓ N ___

50.3 Except where longer periods of warranty are specified, all equipment, materials, and labor furnished or performed under the Contract shall be satisfactory for their intended purpose and shall be free of all defects in the design, materials, and workmanship for a minimum period of one (1) year from and after final acceptance under the Contract.

Y ✓ N ___

50.4 Upon receipt of written notice from the VPC of defective equipment, materials, or workmanship, the affected item or parts thereof shall be redesigned, repaired, or replaced to meet the vehicle's original performance standard.

Y ✓ N ___

50.5 The vehicle's original performance standard is the minimum acceptable performance threshold that will be accepted by the VPC following warranty repairs.

Y ✓ N ___

50.6 All costs associated with such redesign, repair, replacement and testing , including, but not limited to, the removal, replacement, and installation of equipment and materials necessary to gain access, shall be done by the Contractor.

Y ✓ N ___

50.7 The Contractor warrants such redesign, repair, or replacement work against defective design, materials and workmanship for the remainder of the warranty period or a period of one (1) year (whichever is greater) from and after the date of acceptance thereof.

Y ✓ N ___

50.8 Should the Contractor fail to properly make the necessary redesign, replacement, and test, the VPC may perform or cause to be performed the same at the Contractor's expense.

Y ✓ N ___

50.9 <u>WARRANTY PERIOD</u>

50.9.1 Each bidder shall supply as a part of their bid package a copy of their warranties that they propose to provide, and in no case shall it be less than one (1) year.

Y ✓ N ___

50.10 If the apparatus is removed from the Fire Department's property, repair procedures must be diligently pursued by the contractor's representative and the Contractor shall assume risk of loss while the apparatus is under contractor's control.

Y ✓ N ___

50.11 In the event the manufacturer offers any extended warranty not specified herein, bidder shall state the terms of such warranty or warranties and shall extend same to the VPC without additional cost to the VPC.

Y ✓ N ___

50.12 The warranty shall not apply to any part or component of the vehicle that has been

subject to misuse, negligence, accident, or that has been repaired or altered in any way so as to adversely effect its performance or reliability, except insofar as such repairs are made in accordance with the manufacturer's maintenance manuals with workmanship in accordance with recognized standards of the industry.

Y ✓ N ___

50.13 The warranty shall not apply to scheduled maintenance items such as tires, filters, or items furnished by the VPC.

Y ✓ N ___

50.14 The manufacturer shall have a warranty facility located within 120 miles VPC boundaries. This facility will be the single contact point for warranty service.

Y ✓ N ___

50.15 Any warranty repair or issue will be the responsibility of the contractor no matter if there are other companies or sub-contractors used in the manufacturing process of the apparatus. VPC will only deal with the designated contractor. It will be the contractor's responsibility to repair or replace any problems that exist with the apparatus.

Y ✓ N ___

50.16 If a problem exists with a component part (i.e. Cummins engine, Allison transmission, etc.) it will be the contractor's or an authorized dealer's responsibility to coordinate repairs at the respective component manufacturer's warranty facility for the duration of the manufacturer's warranty period, not the components warranty period.

Y ✓ N ___

50.17 Should the vehicle not be drivable, road service not be available, and repairs cannot be completed in the field, it is the contractor's responsibility to coordinate transportation of the apparatus to a location where repairs can be completed. Costs associated with towing the vehicle as a result of an approved warranty claim are the responsibility of the contractor during the manufacturer's warranty period, not the components warranty period.

Y ✓ N ___

50.18 NOTIFICATION OF DEFECTS

50.18.1 The VPC will survey needed repairs to determine if they are a potential warranty repair. If the VPC detects a potential defect within the warranty period as defined herein, it shall promptly notify the Contractor's representative in writing or fax. The Contractor shall make available a fax machine to receive notifications of defect. This fax machine must be available to receive faxes 24 hours per day 7 days per week, including all weekends and holidays.

Y ✓ N ___

50.19 CONTRACATOR ACKNOWLEDGEMENT/RESPONSE

50.19.1 By the end of the next business day, 4:00 PM Eastern Time, after receipt of notification, the Contractor's representative shall present an action plan to the VPC.

Y ✓ N ___

50.19.2 At that time the status of warranty coverage on the subsystem or component shall be mutually resolved between the VPC and the Contractor.

Y✓ N____

50.19.3 When warranty repairs are required, the VPC and the Contractor's representative shall agree within one (1) business day following acknowledgement, on the most appropriate course for the repairs and the exact scope of the repairs to be performed under the warranty.

Y✓ N____

50.19.4 If no agreement is obtained within the specified period, the VPC reserves the right to perform the repairs and commence appropriate legal proceedings.

Y✓ N____

50.20 WARRANTY PERFORMANCE

50.20.1 The contractor shall be required to acknowledge notification of needed warranty repairs by the end of the next business day, between 6:30 AM and 4:00 PM Eastern time by telephone.

Y✓ N____

50.20.2 If the contractor does not acknowledge by the end of the next working day by 4:00 PM Eastern Time, it will be assumed as approval for the VPC to repair the vehicle or obtain warranty repairs from outside vendor repair facility utilizing qualified emergency vehicle technicians.

Y✓ N____

50.20.3 The VPC shall be compensated an area average hourly rate of $80.00 for labor inclusive of transportation and parts replaced one for one.

Y✓ N____

50.20.4 Defective parts will be labeled and retained by the VPC until parts are replaced. Contractor shall take full responsibility for returning any defective parts to his supplier.

Y✓ N____

50.20.5 If repairs are performed by the VPC, reimbursement for labor will be submitted to the Contactor through a warranty claim.

Y✓ N____

50.20.6 Business days shall be defined as Monday through Friday 6:30 AM to 4:00 PM Eastern Time, excluding Holidays.

Y✓ N____

50.21 REPAIRS BY CONTRACTOR

50.21.1 The Contractor or its designated representative shall be required to perform warranty-covered repairs.

Y✓ N____

50.21.2 When the vehicle is out of service because of a warranty defect, the Contractor's representative must initiate repairs by the end of two (2) business days after notification of needed repairs by the VPC (exception reference 50.21.4).

Y ✓ N ___

50.21.3 The VPC shall make the vehicle available to complete repairs in a timely manner in accordance with the Contractor's repair schedule. Time extensions may be granted at the sole discretion of the VPC.

Y ✓ N ___

50.21.4 Should a repair be delayed awaiting the arrival of parts, needed repairs shall commence no later than the next working day following the arrival of the parts. A parts delivery receipt will be used to determine when the parts arrived at the warranty facility.

Y ✓ N ___

50.21.5 The Contractor shall be responsible for transporting the non-drivable vehicle in need of repairs to and from the VPC facility to the point of warranty repair during the manufacturer's warranty period, not the components warranty period.

Y ✓ N ___

50.21.6 Upon completion of any and all warranty repairs (emergency or non-emergency), the warranty facility shall provide a completed invoice of the repairs made. A complete inspection and testing of all repairs shall be made. A repair invoice describing the type of repairs and testing results shall be given to the VPC and copies archived at the warranty center. Invoice must describe complaint, type of repairs, parts replaced, and diagnostic results. The invoice shall be delivered or faxed to the VPC upon the completion of repairs.

Y ✓ N ___

50.21.7 The VPC may, at its option, visit Contractor's repair site to monitor and review repairs on VPC vehicles. The service center shall, on any given day during the repair of any VPC vehicle, be able to give a daily progress report and estimated completion time for repairs.

Y ✓ N ___

50.22 FIELD REPAIRS (NON-EMERGENCY), WARRANTY

50.22.1 The manufacturer shall have available, a mobile repair technician that can facilitate non-emergency repairs at the Fire Station. These repairs will normally be completed without removing the unit from service. Non-emergency repairs will be requested through a VPC representative.

Y ✓ N ___

50.22.2 Non-warranty repairs initiated by the mobile repair technician not covered by warranty will not result in compensation by the VPC

unless pre-approved by pre-designated authorized agent of the VPC.

Y✓ N___

50.23 The manufacturer may schedule "In and Out" repairs at the warranty facility. These repairs must be scheduled through the VPC office. The intent of the repairs is to allow the apparatus to only be out of service for the duration of the repairs, not to exceed one working day.

Y✓ N___

50.24 EMERGENCY REPAIRS (WARRANTY)

50.24.1 The Manufacturer shall have a mobile repair technician available during normal business days, to initiate and complete emergency repairs as requested.

Y✓ N___

50.24.2 Emergency repairs are considered repairs that will enable the VPC to place a disabled unit back in service within 24 hours (i.e. starters, alternators, etc).

Y✓ N___

50.24.3 Repairs shall be made during normal business. hours if possible If the contractor is unable to respond and complete emergency repairs, the VPC will initiate and complete the repairs at the contractor's expense.

Y✓ N___

50.25 All replacement parts shall be new unless approved by the VPC. No rebuilt replacement parts will be accepted unless prior approval is obtained from the VPC personnel.

Y✓ N___

50.26 Additional Contractor's Financial Responsibility

50.26.1 In the event of a breach of the warranty requirements (i.e. work is not commenced on the vehicle within two business days) causing a vehicle to be out of service for repairs, the Contractor will be responsible for all costs associated with the repairs completed by a 3rd party repair facility.

Y✓ N___

50.27 The VPC may elect to initiate and complete repairs that are covered by warranty for the following reasons:

50.27.1 Failure of the contractor to acknowledge the VPC's notification of needed warranty repairs by end of next business day.

50.27.2 Failure of the contractor to initiate repairs by the end of 2 business days after notification of needed repairs by the VPC.

50.27.3 Failure of the contractor to initiate repairs the next working day following receipt of repair parts.

50.27.4 Emergency repairs that become necessary after hours, weekends, and holidays, and a contractor's mechanic is not available.

Y✓ N___

50.28 The VPC may request that the Contractor supply new parts for warranty-covered repairs performed by the VPC. These parts shall be shipped prepaid to the VPC from any source selected by the Contractor within three (3) working days of receipt of the request for said parts.

Y✓ N___

50.29 REIMBURSEMENT FOR PARTS & LABOR

50.29.1 The VPC shall be reimbursed by the Contractor for labor associated with the diagnosis and correction of defect(s). These repairs shall be pre-authorized by the Contractor. (reference 50.29.4)

Y✓ N___

50.29.2 The amount shall be determined by multiplying the number of person-hours actually required to diagnose and correct the defects by the current hourly wage rate (for certified technician) plus overtime, benefits and the cost of towing the vehicle if such action was necessary.

Y✓ N___

50.29.3 The diagnostic time shall be capped at a maximum of one (1) hour, except in the case of electrical problems or failure of the vehicle diagnostic system.

Y✓ N___

50.29.4 Should the VPC initiate repairs without notifying the contractor, the VPC will only be reimbursed for the parts.

Y✓ N___

50.30 Upon delivery of the vehicle, the builder shall provide a complete list of part numbers and serial numbers for components installed on each vehicle to include, but not limited to:

- Engine.
- Transmission.
- Alternator.
- Starter.
- A/C Compressor.
- Drive Axle.
- Power Steering Unit.
- Brake Air Compressor

Y✓ N___

51.0 SERVICE AND PARTS MANUALS

51.1 Manufacturer to provide two (2) custom parts manuals for the complete fire apparatus in hard copy upon delivery. Additionally, one (1) compact disk (CD) to

include all of the information from the above referenced custom parts manual shall be provided.

Y✓ N____

51.1.1 The custom parts manual will contain the following information

- Job number
- Part numbers with the full descriptions
- Table of contents
- Parts section shall be sorted in functional groups reflecting major systems, components, or assemblies.
- Parts section sorted in alphabetical order, including all emergency lighting, running lighting, and cab lightings.
- Instructions on how to locate parts

Y✓ N____

51.1.2 The custom parts manual shall be specifically written for the chassis and body model being purchased. No generic manuals will be accepted.

Y✓ N____

51.2 Manufacturer to provide two (2) chassis service manuals in hard copy containing parts and service information on major components . Additionally, one (1) compact disk (CD) to include all of the information from the above referenced chassis service manual shall be provided.

Y✓ N____

51.2.1 The chassis service manual will contain the following information.

- Job number
- Table of contents
- Troubleshooting
- Suspension information
- Brakes
- Engine
- Tires
- Wheel
- Cab
- Electrical, DC
- Air System
- Plumbing
- Appendix

Y✓ N____

51.2.2 The chassis service manual will be specific to the chassis being purchased. Generic chassis service manual will not be accepted.

Y✓ N____

52.0 OPERATOR'S MANUAL / LOGBOOK

52.1 The manufacturer shall supply two (2) standard operator's manuals in hard copy and CD.

Y✓ N____

52.2 The manual shall cover all aspects of apparatus operation, pumping, maintenance,

lubrication and fluid used and capacities used in all components. A complete pictorial shall be included to identify all lubrication points and oil drain locations and filters. A sample Operator's Manual / Logbook will be provided upon request.

Y✓ N___

53.0 INSPECTION TRIPS

53.1 PRE-CONSTRUCTION MEETING

53.1.1 Within thirty (30) days after the contract has been awarded, the manufacturer shall participate in a Pre-construction meeting at which time the entire specifications for the apparatus will be reviewed by both the manufacturer and the VPC.

Y✓ N___

53.1.2 The meeting shall be held at a mutually agreed upon time at a Fire Department facility to be determined.

Y✓ N___

53.2 APPARATUS "MID-MANUFACATURING" INSPECTION TRIP

53.2.1 A mid-manufacturing inspection take place, preferably upon completion of the cab, chassis, and body, but prior to the body being installed on the chassis.

Y✓ N___

53.2.2 Three (3) VPC members will attend this inspection trip, for whom all expenses including travel, food, and lodging shall be paid by the manufacturer.

Y✓ N___

53.3 FINAL "PRE-DELIVERY"INSPECTION TRIP

53.3.1 Upon completion of the unit, but prior to the unit leaving the manufacturer's facility, the unit will be inspected for compliance with the contract documents and specifications.

Y✓ N___

53.3.2 Three (3) VPC members will attend this inspection trip, for whom all expenses including travel, food, and lodging shall be paid by the manufacturer.

Y✓ N___

53.4 If the apparatus does not meet specifications, the infractions, if minor, can be corrected while the inspectors remain at the manufacturer's facility. If the problems are not readily correctable, the inspectors may return at a mutually agreed upon time, again at the expense of the manufacturer.

Y✓ N___

53.5 Should the manufacturer request that VPC members participate in developmental work during the manufacturing process of the apparatus at the manufacturer's facility, all expenses shall be paid for by the manufacturer, including travel, food

and lodging. If any developmental inspection trips are required, they would be in addition to the previously mentioned inspection trips.

Y ✓ N___

54.0 CHANGE ORDERS

54.1 Any and all Change Orders shall be submitted to the VPC in writing for approval. Change orders shall include cost of the proposed change. No changes will be implemented without written approval of VPC.

Y ✓ N___

55.0 FINAL ACCEPTANCE, DELIVERY, AND TRAINING

55.1 When inspectors approve the apparatus at the manufacturer's plant, it shall be shipped to the manufacturer's warranty facility under it's own power for any repairs that might be needed, cleaning and lubing, prior the delivery to the VPC.

Y ✓ N___

55.2 When the apparatus arrives at the warranty facility, the VPC will perform a final inspection and performance tests as specified. The manufacturer shall have a mechanic assist the VPC in these tests. Until final acceptance, the ownership of the apparatus shall remain with the contractor.

Y ✓ N___

55.3 The contractor shall complete all necessary transfer documents for licensing the vehicle in New York state..

Y ✓ N___

55.4 The vehicle shall be delivered with a current New York State heavy duty truck inspection with proper identification applied to the front bumper.

Y ✓ N___

55.5 Prior to acceptance, contractor shall furnish a certified vehicle weight slip with delivery of the vehicle showing front axle, rear axle, and total weight.

Y ✓ N___

55.6 After the vehicle has passed all operational tests required, and all identified problems have been fixed, final acceptance by the VPC will then be made. Payment for this apparatus will be processed upon final acceptance of the vehicle by the Fire Department.

Y ✓ N___

55.7 Upon delivery, manufacturer or an authorized representative shall provide a minimum of 24 hours of training, schedule to be agreed upon by the VPC and the successful bidder, to include driver orientation, pumping, and new apparatus familiarization, at the VPC facility.

Y ✓ N___

56.0 LOOSE EQUIPMENT

56.1 Supply upon delivery two (2) "Ziamatic" SAC-44-E folding aluminum alloy wheel chocks, or approved equal.

Y ✓ N___

56.2 Supply the following ladders manufactured by Duo Safety Ladder Corporation, to be delivered with the apparatus.

- 24' 2-Section Extension Ladder, Series 900-A
- 14' Roof Ladder, Series 775-A
- 10' Folding Ladder, Series 585-A

Y✓ N____

56.3 25 pieces of each small/common fastener (nut-cert, machine screws) along with a source list of these items.

Y✓ N____

57.0 ON-BOARD HYDRAULIC GENERATOR, 120 VOLT LIGHTS AND ELECTRICAL SYSTEM

57.1 Provide "Harrison" 10kW hydraulic AC generator.

Y✓ N____

57.1.1 The generator shall be mounted on a heavily reinforced, powered coated, tray in the storage area in the forward portion of the longitudinal hose bed. The tray shall be of solid bottom with sides to prevent hydraulic fluid residue from coming in contact with the water tank. Drains shall be provided that allow any liquid that builds up on the tray to drain to the ground without coming in contact with any components on the vehicle.

Y✓ N____

57.1.2 Generator housing must be properly grounded to the chassis using a separate, adequately sized cable, not through the mounting hardware.

Y✓ N____

57.1.3 Care must be taken not to restrict or block the air intake or discharge openings.

Y✓ N____

57.1.4 Oil Reservoir with 3 micron, maximum, Oil & Air filters. Provide easy access for filter servicing. Sight/Temperature gauge on reservoir shall be easily visible. Filler/Vent cap must be filtered type, easily accessible.

Y✓ N____

57.1.5 There shall be a Chelsea™, or equivalent, Hot Shift Power-Take-Off, with over speed protection, installed on the Transmission PTO opening.

Y✓ N____

57.1.6 Install a matching Hydraulic Pump, capacity as recommended by Harrison.

Y✓ N____

57.1.7 Power-take-off control located on the cab console shall include an AMBER indicator light, labeled "PTO ENGAGED", a RED indicator light labeled "PTO OVERSPEED and a GREEN indicator light shall be provided and located on the cab dash labeled "OK TO OPERATE GENERATOR". This light shall only be energized when the chassis transmission has been placed in neutral, the chassis parking brake has been applied, and the generator PTO has been engaged. Switch with GREEN pilot light, for power to the generator.

Y✓ N____

57.1.8 All hoses shall be of the size pressure rating & length recommended by Harrison. All hydraulic hoses must be pressure rated in excess of systems operating pressures. High pressure hoses double braided, minimum. Low pressure hose single braided minimum. All hoses continuous length, no splices or couplings. All hoses abrasion resistant type, covered end to end with a canvas type spray/wear guard, no split plastic conduit. All hydraulic hoses shall also be covered by chafe protection at all contact/friction/rub points or where passing through openings, this covering shall protect spray guard & hose from abrasion. Rubber lined clamps shall be used to properly secure hoses. At all openings hose must be protected by full grommets or edge-guard. Use of "tie wraps" shall be minimal, where used they must be wide heavy duty type.

Y✓ N____

57.1.9 All hoses routed as far away from exhaust components as possible.

Y✓ N____

57.1.10 All hose & tube assemblies shall be part number tagged or number stamped for ease of identification.

Y✓ N____

57.1.11 To properly monitor the electrical generator performance and load demands during operation, a combination Square-D circuit breaker and metering panel shall be installed. This panel shall incorporate, one (1) master Square-D circuit breaker with low voltage cutoff, Square-D individual load circuit breakers, and the digital metering devices in one (1) enclosure. The location of the metering panel shall be in front left side compartment. All circuits must be Ground Fault Interrupt (GFI) Protected.

Y✓ N____

57.1.12 The installation shall be equipped with the following LCD or LED digital panel Instruments, to be located in the front left compartment.

Y✓ N____

57.1.12.1 One (1) Hour meter.

Y✓ N____

57.1.12.2 One (1) Fire Research™ Frog-3D, or equivalent, generator line frequency monitor, line voltage, phase to phase voltage & current draw with backlit display.

Y✓ N____

57.1.12.3 One (1) Electronic throttle step-up control.

Y✓ N____

57.1.12.4 One (1) PTO transmission high temperature warning.

Y✓ N____

57.1.13 The system wiring and generator installation shall conform to all applicable National Fire Protection Association Standards, Auxiliary Systems and NFPA 70, National Electric Code.

Y✓ N____

57.1.14 All electrical wiring shall be fine stranded copper type THW. The wire gauge shall be properly sized for circuit load and circuit breaker rating: 10 on 30 amp circuits, 12 gauge on 20 amp circuits, minimum.

Y ✓ N ____

57.1.15 Conduit: All 120/240 volt wiring in the apparatus body shall be enclosed in Sealtite or Corrlok, flexible moisture resistant reinforced conduit, with proper seal-tight connectors and hardware. Type "SO" cord is NOT acceptable substitute for conduit.

Y ✓ N ____

57.1.16 Labeling of Equipment: All circuit breakers shall be labeled. Metal engraved color coded labels shall be provided for all interior and exterior outlets, indicating Output Amperage, Voltage and Phase.

Y ✓ N ____

57.1.17 The AC generator system shall have the capacity to supply the electrical equipment and outlets as outlined below. Proper circuit breaker protection shall be installed as noted: **All Outlets/Circuits must have Ground Fault Interrupt (GFI) protection**. All circuit breakers GFI type.

Y ✓ N ____

57.1.18 Provide one (1) Hannay Series 1600 12-volt electric rewind cord reel, hard wired to a 240 volt circuit breaker, equipped with 200' of 10/3 copper cable.

Y ✓ N ____

57.1.18.1 Reel shall be located in the top "coffin" compartment above the front left body compartment. Access to the reel for maintenance shall be through the top "coffin" compartment.

Y ✓ N ____

57.1.18.2 The 12-volt electric rewind switch shall be located in a protected housing adjacent to the breaker box in the left front body compartment. A variable speed controller for the reel rewind system shall be located adjacent to this rewind switch.

Y ✓ N ____

57.1.18.3 At the end of the cord shall be a Hubbel L5-20, 20 amp, 120 volt twist lock connector body.

Y ✓ N ____

57.1.18.4 A portable junction box with two (2) 120 volt, 20 amp twist lock receptacles and two (2) 120 volt, 20 amp straight blade duplex (household) receptacles shall be provided. The outlets shall have spring loaded waterproof covers. The junction box shall be equipped with twist lock connector to attach to the cord reel.

Y ✓ N ____

57.1.18.5 The cord shall pay out from inside the top of the left front body compartment, through a 4-way stainless steel roller assembly and a ball stop for the cord end to prevent over winding.

Y✓ N___

57.1.18.6 The reel shall be painted gray in color.

Y✓ N___

57.1.19 Four (4) receptacles with weatherproof spring loaded covers shall be installed, one (1) each side in the forward most compartment, and one each side in the rear most compartment, exact locations to be determined at the Pre-construction conference. These receptacles shall be with NEMA L5-20, 120 volt 20 amp 3-prong twist lock receptacles.

Y✓ N___

57.1.20 Provide a "Will-Burt" Night Scan Model NS 2.3-6000 OPT light tower. This light tower shall include four (4) 1500 watt flood lights and extends to 7.5'.

Y✓ N___

57.1.20.1 Controls for the light tower shall be a removable hand held controller located in the left front compartment.

Y✓ N___

57.1.20.2 The light tower will be installed with a position sensor that will activate a "do not move" light and an alarm when the vehicle's brake is released with the command light not in it's home position.

Y✓ N___

57.1.20.3 The light tower shall be installed in the passenger's side front hose bed area.

Y✓ N___

57.1.20.4 Provide a protective shield around the light tower to protect the light from overhead obstruction damage when it is in its stowed position.

Y✓ N____

58.0 HYDRAULIC RESCUE TOOL SYSTEM

58.1 Provide a 16' section of high pressure Hurst aramid braided hose. This shall be Hurst brand high pressure non-conductive hose, **no exceptions**. The hose is constructed of a polymeric tube core with abrasion resistant urethane orage cover. This hose will provide a 4:1 operational safety factor. The hose shall be one (1) continuous length without unions and shall be equipped with quick connection type fitting for connection to the power unit.

Y✓ N____

58.2 A Hurst Model 54R040 hydraulic hose reel shall be provide, exact location to be determined. The reel shall be operated by a 12 volt electric motor controlled by a rewind switch. The motor shall be protected by a circuit breaker and the rewind circuit shall be protected by a fuse. The switch shall be guarded to prevent accidental operation and installed at a height not to exceed 72 inches above the operators standing position.

Y✓ N____

58.3 The reel shall be provided with 100' of Hurst orange dual hydraulic hose. Surfaces where the hose comes into contact with the reel roller shall be constructed of stainless steel, chrome plated steel or plastic.

Y✓ N____

58.4 A captive roller assembly shall be provided to aid in the payout and loading of the hose onto the reel. A ball stop shall be provided to prevent the hose from being wound around the reel.

Y✓ N____

58.5 Provide two (2) gallons of Hurst Hydraulic Fluid.

Y✓ N____

59.0 PERFORMANCE REQUIREMENTS

59.1 A road test will be completed as part of the final inspection process. The vehicle shall be road tested with a fully loaded apparatus for a continuous run of ten (10) miles or more under all driving conditions. The vehicle shall demonstrate no loss of power or overheating during this road test and the vehicle shall run quietly and be free of abnormal vibration or noise throughout the duration of this test drive.

Y✓ N____

59.2 The vehicle shall meet or exceed the following parameters

59.2.1 The apparatus when fully loaded and equipped shall not have less that 25% nor more that 50% of the weight on the front axle, and not less that 50% nor more than 75% on the rear axle, and at no time exceeding the axle limitation.

Y✓ N____

59.2.2 The vehicle, fully loaded and equipped, shall be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.

Y ✓ N ____

59.2.3 The service brakes shall be capable of stopping the fully loaded and equipped vehicle in 35 feet and 20 mph on a level concrete highway.

Y ✓ N ____

59.2.4 The vehicle, fully loaded and equipped, shall be capable of obtaining a speed of 50 mph on a level concrete highway with the engine not exceeding its governed rpm.

Y ✓ N ____

59.3 The vehicle stability shall be demonstrated by performing like product testing on a tilt table. The vehicle shall be able to meet or exceed current edition NFPA #1901 vehicle stability standards. Actual like product testing must have been done. Calculations shall not be acceptable.

Y ✓ N ____

59.4 The proposed vehicle shall meet the applicable requirement of the current edition NFPA #1901 as stated at the time of contract execution. The Fire Department's specifications that do not comply with these standards shall be indicated in the proposal as "non NFPA". The vehicle shall be third-party Underwriter's Laboratory (UL) certified as current edition NFPA #1901 compliant.

Y ✓ N ____

59.5 The pump system shall be tested, approved, and certified to current NFPA #1901 standard by Underwriter's Laboratory (UL) at the manufacturer's expense. The test and certification documents will be provided at the final inspection and delivered with the vehicle.

Y ✓ N ____

59.6 The generator shall be tested, approved, and certified by Underwriter's Laboratory (UL) at the manufacturer's expense. The test and certification documents will be provided at the final inspection and delivered with the vehicle.

Y ✓ N ____

60.0 BID SUBMITTALS

60.1 Each bid shall be accompanied by a detailed set of "Contractor's Specifications" consisting of a detailed description of the apparatus and equipment proposed, and to which the apparatus furnished under contract shall conform These specification shall indicate size, type, model and make of all component parts and equipment.

Y ✓ N ____

60.2 The bid shall include three (3) sets of engineered drawings specific to this specification that includes five (5) views (left, right, front, back, top) with critical dimensions, lights, compartments, and other pertinent components.

Y ✓ N ____

60.3 Bids shall be prepared with pricing based on this specification. No exceptions to the specification will be allowed unless agreed upon by the VPC.

Y ✓ N ____

60.4 Bidders shall indicate compliance to the specification by initialing the "yes/no" portion of each paragraph. If "yes is initialed, this will indicate compliance. If "no" is initialed, this will be considered non-compliant. Any item in the specification where an exception or variation is taken must be checked "no" and a a detailed explanation with the clarification, variation, modification, or deletion shall be attached to the bid documents. The section number shall be listed as a reference.

Y✓ N____

60.5 A turning radius analysis of the proposed vehicle shall be submitted with the bid. This analysis shall provide the inside turning radius, outside turning radius, the curb to curb turning radius, and the wall to wall turning radius.

Y✓ N____

60.6 Vendor to supply a weight analysis of the front and rear axles of a fully loaded apparatus with bid proposal (reference section 2.9). If the weight analysis indicates the G.V.W. could be exceeded using the specified components, the bidder shall submit suitable alternatives to ensure the vehicle will not exceed the New York State weight limitations or the axle limitations as proposed in this specification.

Y✓ N____

60.7 The bid shall include certification by the engine manufacturer stating the approval of the engine installation in the chassis. This certification shall include the exhaust system installation approval.

Y✓ N____

60.8 The bidder shall provide, at the time of bid, an itemized printout of the expected amp draw of the entire vehicle's electrical system. Additionally, an itemized printout of the entire vehicle's electrical system shall be provided at delivery.

Y✓ N____

60.9 Each bidder shall supply as a part of their bid package a copy of their warranties that they propose to provide.

Y✓ N____

61.0 BID REQUIREMENTS

61.1 Some items in the specifications may exceed the NFPA standards and will be considered minimum for compliance.

Y✓ N____

61.2 The bid price must remain valid for a period of sixty (60) days from the date of bid opening.

Y✓ N____

61.3 Two (2) complete sets of bid documents must be submitted with the bid package, one marked "Original" and the other marked "Copy".

Y✓ N____

61.4 Any error, omission or inconsistency that is identified by the bidder shall be listed as such in the exceptions and a proposal to meet the intent of the specifications shall be listed.

Y✓ N____

61.5 All items listed in the specifications are to be considered mandatory. Any person bidding on this project must agree to price and perform all work, and furnish all equipment listed, including the options.

Y✓ N____

61.6 Tests

61.6.1 The required road and pump tests shall be conducted by the bidder at the manufacturer's facility prior to delivery to the purchaser in the presence of the accepting authority unless alternate arrangements are agreed upon prior to the beginning of the test.

Y✓ N____

61.6.2 In the event the apparatus fails to meet the test requirements on the first trial, second trails may be made at the option of the bidder within thirty (30) days of the date of the first trials.

Y✓ N____

61.6.3 Such trials shall be final and conclusive and failure to comply with these requirements a second time may be cause for rejections.

Y✓ N____

61.6.4 Permission to keep or store the apparatus in any building owned or occupied by the purchaser during the above specified period, with the permission of the bidder, shall not constitute acceptance, Insurance covering loss, theft, or liability shall remain the responsibility of the bidder until formal acceptance is completed.

Y✓ N____

61.7 Acceptance

61.7.1 Acceptance of the delivered apparatus and equipment will be made at completion of all required tests and receipt of all specified equipment. Equipment items not delivered at time of the tests, or construction not in conformance with the proposal will be cause for the accepting authority to withhold payment until delivery is complete and acceptable.

Y✓ N____

61.7.2 Bidders shall include with the bid the projected number of calendar days to manufacture and deliver the specified apparatus to the manufacturer's declared warranty service center. For the purposes of this section, the delivery date will be determined by the above referenced calendar days and will be the date the apparatus arrives at the manufacturer's declared warranty service center. Liquidated damages in the amount of $200.00 per calendar day, beginning the day after the declared delivery date, shall be deducted from the final payment until the apparatus arrives at the declared warranty service center.

Y✓ N____

61.7.3 The finished apparatus will be inspected by the VPC upon delivery for compliance with the specification, change orders, factory final inspection corrections, and previously authorized exceptions. Deviations will not be tolerated and will be cause for rejection of apparatus unless they were originally listed in the bidder's proposal and previously approved.

Y ✓ N ____

61.7.4 If after 30 days from the delivery inspection the apparatus is not brought up to compliance, the bidder may be considered in default of the contract, and the procedures to institute the provisions of the performance bond may be exercised.

Y ✓ N ____

61.8 Bidder Responsibility

61.8.1 The bidder of the specification shall have in operation a factory adequate and devoted to the manufacture of the vehicle herein specified. The intent of this specification is to ensure that a single source is responsibility for the vehicle proposed by the bidders.

Y ✓ N ____

61.8.2 Each bidder is required before submitting their proposal to be thoroughly familiar with the requirements contained herein. No additional allowances will be made because of a lack of knowledge of these requirements. It is the responsibility of the successful bidder to ascertain if any components of this specification are unsafe or do not meet the required standards of applicable local, state, and federal laws. Should there be any unsafe or poorly designed criteria contained herein, the bidder shall thoroughly explain them to the Village in the bid proposal.

Y ✓ N ____

61.8.3 The bidder shall disclose any pending or anticipated litigation between and bidder and any other party or parties that might affect this contract.

Y ✓ N ____

61.9 Pricing and Payment Terms

61.9.1 In order to take advantage of possible pre-payment discounts, the VPC will consider making partial payments for certain discounts. The bidder shall supply discounted payment options for chassis pre-payment of 25%, 50%, 75%, or 100% with this bid as well as the amount of full COD payment upon delivery and acceptance. Terms of full COD payment will be 100% after acceptance of the vehicle.

Y ✓ N ____

61.9.2 Bidder shall supply pricing for one (1) unit, and pricing for additional units should funding be available. Pricing shall include any applicable state and local taxes.

Y ✓ N ____

61.9.3 Should any of the discounted payment options be exercised by the Village, a fully paid invoice must be provided showing ownership of the paid component(s) at time of payment.

Y ✓ N ____

61.9.4 All certificates of origin are to be transferred to the VPC.

Y ✓ N ____

61.9.5 There will be no trade-in on units currently in service.

Y ✓ N ____

61.9.6 Pricing shall include a contingency in the amount of $5,000 in order to make changes as may be deemed necessary by the manufacturer and/or the VPC. The contingency amount will be included in the proposal and shall be added to the actual proposed price of the apparatus. At the time of the final acceptance of the apparatus by the VPC, any portion of this contingency money that has not been used shall be deducted from the final price. A full accounting of the fund shall be provided to the VPC with any remaining funds returned after 60 days from the date of delivery.

Y ✓ N ____

61.10 Whenever a brand or manufacturer's name is utilized in these specifications, it is included for descriptive purposes and to establish a level of quality. Products that are equivalent to those named may be proposed, providing that full supporting documentation is furnished establishing such equivalency. Simply providing manufacturers literature **WILL NOT** be considered justification for the substitution. All substitutions must be listed as exceptions for evaluation. The VPC representatives shall be the sole judge if the substitution is acceptable as an equivalent.

Y ✓ N ____

61.11 Evaluation and Exceptions

61.11.1 This is an engineer, design, construct, and deliver type specification and it is not the intention of the Village to write out any vendors or manufacturers of similar or equal equipment. This specification is written around the specific needs of this Village. Because of this, price will not be the only consideration in the making of the award for contract. Bid award shall be given to the vendor whose bid comes the closest to meeting these specifications at the most competitive price.

Y ✓ N ____

61.11.2 To assist the bid evaluators with the bid evaluation, the bidder shall check each item in the specification as "Yes" (compliant) or "No" (non-compliant). Any item in the specification where an exception or variation is taken must be checked "No". "Yes" answers on each item in the specification does not relieve the bidder of the requirements to submit an accurate proposal.

Y ✓ N ____

61.11.3 A complete set of contractor's specifications of the proposed apparatus must be submitted with the bid.

Y ✓ N ____

61.11.4 Any exception or variation (checked "No") in construction, performance, test or items of equipment, between the Purchaser's Specification and Bidder's Proposal shall be detailed and submitted with the Bidder's Proposal on a separate sheet in bid sequence citing the page and paragraph number. Bidder must explain in detail, and with full supporting data, how the proposed deviation meets or exceeds the specifications.

*******IMPORTANT NOTICE*******
FAILURE TO COMPLY WITH THIS REQUIREMENT WILL AUTOMATICALLY DISQUALIFY THE BID.

Y✓ N___

61.11.5 The purchaser reserves the right to determine which (if any) deviations are acceptable.

Y✓ N___

61.11.6 Three (3) general lay-out drawings, showing the front, rear, left, right and top view of a representative apparatus must be submitted with the bid for the purpose of comparison.

Y✓ N___

61.11.7 Discrepancies found in the contractor's specifications will be considered non-compliance.

Y✓ N___

61.11.8 The purchaser's specifications shall, in all cases, govern the construction of the apparatus, unless a properly documented exception or deviation was approved. THIS IS NOT AN RFP (Request for Proposal). ANY BID INDICATING THAT THE MANUFACTURER'S PROPOSAL SHALL SUPERSEDE THE PURCHASER'S SPECIFICATIONS WILL BE IMMEDIATELY REJECTED as taking total exception to the specifications.

Y✓ N___

61.11.9 Bids received will be evaluated by the Village. This evaluation will be based as a minimum on the following criteria:

- Completeness of the proposal, i.e., the degree to which the bidder responds to all requirements and request for information contained herein.
- Manufacturing time and delivery date
- Bidder's past performance on similar projects
- Bidder's design and engineering reliability factors
- Bidders logistical and service support
- Pricing

Y✓ N___

61.11.10 The Village seeks the highest level of safety, quality assurance and liability protection.

Y✓ N___

61.12 Any questions regarding the specification prior to the opening of the bids shall be submitted to the Village of Port Chester in writing. Clarifications or corrections to these specifications shall not be valid unless they are in written form and signed by the District's assigned authority. In order for the District to respond to all questions prior to the bid opening, questions must be received 10 days prior to the bid opening.

Y✓ N____

61.13 The finished apparatus will be inspected upon delivery for compliance with specifications and previously authorized exceptions or variations. Deviations from the original specification without authorized exceptions or variations will not be tolerated and will be cause for rejection of apparatus unless they were originally listed in the bidder's proposal.

Y✓ N____

61.14 No prototype or experimental apparatus will be accepted. The builder must demonstrate that he has successfully produced and sold apparatus, of the same design, and of the same material in the past two years. Total exception to bid specifications will be cause for immediate rejection.

Y✓ N____

61.15 The manufacturer must be satisfactory to the VPC, from the standpoint of experience, reliability and demonstrated ability to manufacture equipment, comparable as to size and type, as specified, for the past fifteen (15) years. A list of fire departments, with contact names and telephone numbers, who have purchased apparatus from the bidder over the past five years must be supplied along with the bid for physical evaluation.

Y✓ N____

61.16 The VPC reserves the right to reject any and all bids received, and accept any bid which, in its judgment, best serves the interest of the Village.

Y✓ N____

61.17 Bid Bond

61.17.1 Bonds shall be issued by a Surety Company that is listed on the U.S Treasury Departments list of acceptable sureties as published in Department Circular 570. The attorneys-in-fact that sign the bonds must file with the bonds a certified copy of their power-of-attorney to sigh such bonds.

Y✓ N____

61.17.2 A bid bond or certified check in the amount of ten percent (10%) of the bid shall be furnished with the bidder's proposal. The bond will insure that the bidder will enter into contract and submit a performance bond within 14 days of notice of award of contract. The successful bidder's Bid Bond will be returned or released after a contract is executed. In case of failure to comply within the stated time, the bid bond will be forfeited as liquidated damages because of the default. The bid bond or check of all other bidders will be returned after bids are opened and evaluated.

Y✓ N____

61.18 Performance Bond & Labor and Materials Bond

61.18.1 A performance bond & labor and materials bond in the amount of one hundred percent (100%) of the bid shall be furnished by the successful bidder within fourteen (14) days after receiving the official notice of award of contract. The successful bidder and the surety company shall agree to bind themselves, their successors, executors, administrators, and assigns, jointly and severally, to deliver the vehicle and equipment to these specification's intent. Bonds shall remain in force until each vehicle and its equipment has been delivered and accepted. Failure of the contractor to complete delivery according to the contract and specifications will be cause to begin action for forfeiture of performance bond & labor and materials bond. #12

Y ✓ N ✓

61.18.2 A Certified Check made payable to the Village in the amount of 100% of the contract price may be delivered in lieu of the performance bond and labor and materials bond.

Y ✓ N ___

61.18.3 The cost of the above referenced bonds shall be included in the bid price.

Y ✓ N ___

61.19 Liability

61.19.1 The successful bidder shall defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.

Y ✓ N ___

61.19.2 The successful bidder shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance: #13 + Attachment

Products/Completed Operation Aggregate: $2,000,000
Personal/Advertising Injury: $1,000,000
Each Occurrence: $1,000,000

Coverage shall be written on a commercial General Liability form. The policy shall be written on an occurrence form and shall include Contractual Liability coverage subject to the terms and conditions of the policy. The policy shall include owner as an additional insured as their interest may appear.

Y ✓ N ___

61.19.3 The successful bidder shall, during the performance of the contract keep in force at least the following minimum limits of commercial automobile insurance:

Each Accident: $1,000,000

Coverage shall be written on a Commercial Automobile form.

Y ✓ N ___

61.19.4 The successful bidder shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance: #13 + Attachment

Aggregate: $25,000,000
Each Occurrence: $25,000,000

The umbrella policy shall be written on an occurrence basis and at a minimum provide excess to the Bidder's General Liability, Automobile Liability and Employer's Liability policies. Owner shall be included as an additional insured on the General Liability policy as their interest may appear. The required limits can be provided by one or more polices provided all other insurance requirements are met. Coverage shall be provided by a carrier(s) rated A- or better by the Alfred M. Best Company, Inc. Bidder agrees to furnish owner with a current Certificate of Insurance with the coverage's listed above along with its bid. The certificate shall be made out to the purchaser. The Certificate of Insurance shall endeavor to provide that the owner be given 30 days advance notice of cancellation or nonrenewal change in coverage.

Y ✓ N ___

61.20 Factory Authorized Service Facility

61.20.1 The manufacturer shall have a factory authorized warranty facility located within 120 miles VPC boundaries. This facility will be the single contact point for warranty service.

Y ✓ N ___

61.20.2 The warranty facility shall have all equipment and tools necessary to safely and properly make any repairs needed per the component manufacturer's requirements. The warranty facility shall have a minimum of one (1) EV 1, Pump Manufacturer certified mechanics or an apparatus factory certified journeyman level mechanic to handle any necessary repairs. Proof of factory training will be required.

Y ✓ N ___

61.20.3 The warranty facility shall have a minimum of 2 years experience repairing and maintaining apparatus similar to the specified vehicle.

Y ✓ N ___

61.20.4 A profile of the warranty facility, complete with a list of mechanics that

would be performing apparatus repairs with their certifications shall be submitted with the bid. The bidder shall submit the location and recent photos of the service center and the mobile service unit(s) along with the bid.

Y ✓ N ____

VILLAGE OF PORT CHESTER
BID # 21-09
SPECIFICATIONS FOR
CUSTOM 1500 GPM SINGLE STAGE PUMPER

BID FORM

Project: Custom 1500 GPM Single Stage Pumper

Name of Bidder: _____

Street Address: _____

City/State/Zip: _____

Telephone/Fax: _____

Contact Person (Printed Name and Title): _____

TOTAL BASE BID:

_____ and 00/100 DOLLARS ($ .00)

(written in words)

Authorized Signature: _____

NON-COLLUSIVE BIDDING CERTIFICATIONS

The Contractor, by submission of this bid certifies that to the best of his knowledge and belief:

1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;

2. Unless otherwise required by law, the prices quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to the opening, directly or indirectly, to any other bidder or to any other competitor; and

3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

Certification of Contractor:

Dated: _____ Signed: _____

Print Name: _____

Title: _____