



Fire Engine / Ladder Truck

Invitation for Bids # FI-19-01

General Information		
Project Timeline	Products shall be delivered within 180 calendar Days of the City's issuance of a Purchase Order.	See Section 1.102
Evaluation of Proposals	Staff	See Section 1.105
Question Due Date	May 20, 2019	See Section 1.106
Proposals will be accepted until	2:00 p.m. on June 4, 2019	See Section 1.106
5% Proposal Security / Bid Bond	Not Applicable	Not Applicable
100% Payment and Performance Bonds	Not Applicable	Not Applicable

THE CITY OF PEMBROKE PINES
PURCHASING DIVISION
8300 SOUTH PALM DRIVE
PEMBROKE PINES, FLORIDA 33025
(954) 518-9020



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ATTACHMENTS

Attachment A: Contact Information Form

Attachment B: Non-Collusive Affidavit

Attachment C: Proposer’s Qualifications Statement

Attachment D: Sample Insurance Certificate

Attachment E: Specimen Contract - **Continuing Purchase Agreement**

Attachment F: Vehicle Inventory List



SECTION 1 - INSTRUCTIONS

1.1 NOTICE

Notice is hereby given that the City Commission of the City of Pembroke Pines is seeking sealed proposals for:

IFB # FI-19-01

Fire Engine / Ladder Truck

Solicitations may be obtained from the City of Pembroke Pines website at <http://www.ppines.com/index.aspx?NID=667> and on the www.BidSync.com website.

If you have any problems downloading the solicitation, please contact the BidSync Support line at 1-800-990-9339.

If additional information help is needed with downloading the solicitation package please contact the Purchasing Office at (954) 518-9020 or by email at purchasing@ppines.com. The Purchasing Office hours are between 7:00 a.m. - 6:00 p.m. on Monday through Thursday and is located at 8300 South Palm Drive, Pembroke Pines, Florida 33025.

The City requires all questions relating to the solicitation be entered through the "Ask a Question" option tab available on the BidSync website. Responses to the questions will be provided online at www.bidsync.com. Such request must be received by the "Question Due Date" stated in the solicitation. The issuance of a response via BidSync is considered an Addendum and shall be the only official method whereby such an interpretation or clarification will be made.

Proposals will be accepted until 2:00 p.m., Tuesday, June 4, 2019. Proposals must be submitted electronically at www.BidSync.com. The sealed electronic proposals will be publicly opened at 2:30 p.m. by the City Clerk's Office, in the City Hall Administration Building, 4th Floor Conference Room located at 601 City Center Way, Pembroke Pines, Florida, 33025.

1.2 PURPOSE

The City of Pembroke Pines is seeking proposals to provide the Fire Department with a Fire Engine / Ladder Truck that will meet their needs.

1.3 SPECIFICATIONS

1.3.1 Aerial Certification

Each bidder shall submit evidence of compliance to NFPA 1901 Standard for Aerial Ladder Fire Apparatus, in its latest edition, Sections 18-20 and 18-21, regarding structural and stability requirements. Evidence of a minimum 2.5 to 1 factor of structural safety based on the results of analytical, experimental, and structural analysis shall be



provided with the bid. The analysis shall be performed and verified by a third party registered professional engineer. Submission of "in-house" certifications do not meet the requirements of this section. Failure to comply with this requirement will render the bidder's proposal unresponsive and ineligible for contract award.

1.3.2 Certificate of Insurance

Each bidder shall furnish, with their proposal, a Certificate of Product Liability Insurance for a minimum of ten (10) million dollars. Failure to provide this documentation shall render the proposal non-responsive and the bid shall be rejected. This certificate shall be from the prime builder only. Certificates submitted from various sub-contractors in order to total the ten million dollar minimum will not be acceptable as meeting the requirements of this section.

If one of the major portions of the apparatus (i.e. chassis, aerial, or body) is not designed, fabricated, and assembled by the prime builder, a separate Certificate of Liability Insurance for a minimum of ten (10) million dollars must be provided by each additional contractor.

The Certificate must be made out to the Purchaser and must be original. Submission of a non-original Certificate or a Certificate provided that is not made out to the Purchaser will not meet the requirements of this section.

1.3.3 Intent of Specifications

It is the intent of these specifications to clearly describe the furnishing and delivery to the Purchaser, a complete apparatus equipped as specified. The primary objective of these specifications is to obtain the most acceptable apparatus for service in the Fire Department. These specifications cover specific requirements as to the type of construction and tests the apparatus must conform, together with certain details as to finish, material preferences, equipment and appliances with which the successful bidder must conform.

The design of the apparatus must embody the latest approved automotive design practices. The workmanship must be of the highest quality in its respective field. Special consideration shall be given to service access to areas needing periodic maintenance, ease of operation, and symmetrical proportions. Construction must be heavy-duty and ample safety factors must be provided to carry loads as specified. The construction method employed will be in such a manner as to allow ready removal of any component for service or repair.

The apparatus shall conform to the National Fire Protection Association Standard for Automotive Fire Apparatus, number 1901, in its most recent edition, unless otherwise specified in this document. Only the specified firefighting support equipment listed in these specifications shall be provided.



The apparatus shall further conform to all Federal Motor Vehicle Safety Standards. No exception.

Each bidder shall furnish satisfactory evidence of their ability to design, engineer, and construct the apparatus specified and shall state the location of the factory producing the apparatus. They shall also substantiate they are in a position to render prompt and proper service and to furnish replacement parts for the apparatus.

Each bid must be accompanied by a set of detailed contractor's specifications consisting of a detailed description of the apparatus and equipment proposed. All bid proposal specifications must be in the same sequence as the advertised specification for ease of comparison. These specifications shall include size, location, type, and model of all component parts being furnished. Detailed information shall be provided on the materials used to construct all facets of the apparatus body. Any bidder who fails to submit detailed construction specifications, or who photo copies and submits these specifications as their own construction details will be considered non-responsive and shall render their proposal ineligible for award. No exception.

Bids will be addressed and submitted in accordance with the instructions provided on the cover sheet. The words "Fire Apparatus Proposal", the date, and bid opening time shall be stated on the front of the bid envelope.

It shall be the responsibility of the bidder to assure that their proposal arrives at the location and time indicated. Late proposals, telegrams, facsimile, or telephone bids will not be considered. No exception.

All bidders are required to detail the payment terms for apparatus on the bidder's proposal page. Any required prepayments or progress payments must be explained in detail.

1.3.4 ISO Compliance

The manufacturer shall operate a Quality Management System meeting the requirements of ISO 9001:2000.

The International Organization for Standardization (ISO) is a recognized world leader in establishing and maintaining stringent manufacturing standards and values. The manufacturer's certificate of compliance affirms that these principles form the basis for a quality system that unswervingly controls design, manufacture, installation, and service.

The manufacturer's quality systems shall consist of, but not be limited to, all written quality procedures (aka QOP) and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts products or processes. In addition, all apparatus assembly processes shall be documented for traceability and reference. The manufacturer shall also engage the services of a certified third party for testing purposes where required.



If the manufacturer operates more than one manufacturing facility each facility must be ISO certified.

By virtue of its ISO compliance the manufacturer shall provide an apparatus that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.

A copy of the manufacturer's certificate of ISO compliance for each manufacturing facility shall be provided with the bid.

1.3.5 Single Source Manufacturing - Aerial

In order to protect the Purchaser from divided warranty responsibility between chassis, aerial, and body manufacturers, proposals will only be considered from apparatus builders who design, fabricate, and assemble the complete apparatus at their own facilities. This shall include the cab shell, chassis assembly, aerial device, and complete body structure. Private labeling of another manufacturer's chassis, aerial, or body will not meet the requirements of this section.

1.4 FRAME ASSEMBLY

1.4.1 Frame Rail Construction

The chassis frame shall utilize an integral torque box type design. The integral torque box shall combine the chassis frame and aerial torque box into a single structure. The integral torque box shall provide an optimized design that lowers vehicle center of gravity, eliminates the need to torque aerial frame attachment bolts, and permits under-slung outriggers to maximize body compartmentation.

The 20.5" high x 34.25" wide torque box shall be fabricated of 100,000-psi minimum yield, high strength, low alloy steel. The main channels, top, bottom and integral bulkheads of the torque box shall be made from .5" plate. Certified welders shall construct the torque box. The design shall utilize 100% welded joints for a totally sealed box. Skip welding shall not be acceptable. Complete Finite Element Analysis and strain gauge testing shall be employed to verify minimum safety factors for road traveling (5:1) and aerial operation (2.5:1).

The completed torque box shall have the following attributes:

Resistance to bending moment 29,955,000 in. lbs.

Section modulus 295.54 cu. in.

The frame section immediately forward of the torque box shall have the following attributes:

Resistance to bending moment 9,371,000 in. lbs.

Section modulus 93.713 cu. in.



The torque box shall incorporate a stainless steel schedule 40 4" water pipe through the torque box for the aerial waterway discharge. In addition, the torque box shall have two-(2) 4" conduits full length to encapsulate the hydraulic, air and electrical lines.

The entire assembly shall be sand blasted and painted black before chassis assembly. A full lifetime warranty against defects in materials or workmanship shall be supplied by the apparatus manufacturer.

The custom chassis frame shall have a **WHEEL ALIGNMENT** in order to achieve maximum vehicle road performance and to promote long tire life. The alignment shall conform to the manufacturer's internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery upon request.

1.4.2 Coated Fasteners

The custom chassis frame assembly shall be assembled using GEOMET 720 coated fasteners for corrosion resistance.

1.5 AXLE OPTIONS

1.5.1 Shock Absorbers Front

Koni model 90 shock absorbers shall be provided for the front axle. The shocks shall be three way adjustable.

The shocks shall be covered by the manufacturer's standard warranty.

1.5.2 Rear Axles

The vehicle shall utilize a Meritor RT-50-160, 54,000 lb. or a Meritor RT-58-185, 60,000 lb. capacity rear tandem axle with single reduction hypoid gearing. The axle shall be equipped with oil-lubricated wheel bearings with Meritor oil seals.

An Inter-Axle Differential (IAD) shall be provided for the rear axles. The IAD shall allow for speed differences between the forward and rear axles in a tandem while also providing equal pulling power from each axle of the tandem. The IAD shall be controlled by a switch accessible by the driver.

1.5.3 Front Axle

The vehicle shall utilize a Dana D-2200W drop beam front axle with a rated capacity of 24,000 lbs. It shall have 71" kingpin centers. The axle shall be of I-beam construction and utilize grease-lubricated wheel bearings. The vehicle shall have a nominal cramp angle of 42 degrees including front suction applications.



The front axle hubs shall be made from ductile iron and shall be designed for use with 10 hole hub-piloted wheels in order to improve wheel centering and extend tire life.

The front springs shall be parabolic tapered, minimum 4" wide x 54" long (flat), minimum four (4) leaf, progressive rate. The springs shall have Berlin style eyes and rubber maintenance free bushings on each end with an additional standard wrap at the front eye. The capacity shall be 24,000 lbs. at the ground.

Tapered leaf springs provide a 20% ride improvement over standard straight spring systems. Supporting documentation/data shall be provided upon request.

The vehicle shall be equipped with a Sheppard integral model M-110 power steering gear, used in conjunction with a power assist cylinder. The steering assembly shall be rated to statically steer up to a maximum front axle load of 24,000 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall operate mechanically should the hydraulic system fail.

1.6 SUSPENSIONS

1.6.1 Rear Suspension

The vehicle shall be equipped with a Ridewell Dynalastic rear suspension. The suspension shall consist of center trunnions, compensators, elastomer springs, and independent torque arms. Cross tubes and torque rods shall also be provided to maintain proper alignment during cornering and to absorb driving and braking forces. The suspension shall be rated for the maximum axle capacity.

A 4 year pro-rated warranty shall be provided as standard.

1.7 TIRE OPTIONS

1.7.1 Front Tires

The front tires shall be two (2) Michelin 425/65R22.5 tubeless type 20 PR radial tires with XFE highway tread. The tires with wheels shall have the following weight capacity and speed rating:

Max front rating 22,800 @ 65 mph. Max front rating with Alco aluminum wheels - 24,400 @ 65 MPH (intermittent fire service rating if GAW is over 22,800)

The wheels and tires shall conform to the Tire and Rim Association requirements.

1.7.2 Rear Tires

The rear tires shall be Michelin 12R22.5 tubeless type 16 PR radial tires with XZE highway tread or Michelin 315/80R22.5 tubeless type depending on the rear axle. The tires with wheels shall have the following weight capacity:



54,000 lbs. (tandem duals) @ 75 MPH or 70,792 lbs. @ 65 MPH respectively. The wheels and tires shall conform to the Tire and Rim Association requirements.

1.7.3 Tire Pressure Monitoring System

A PressurePro pressure monitoring system shall be provided for a tandem rear axle unit. The system shall include externally mounted sensors (model SEN-200) on the valve stem of each wheel with a recessed mounted remote monitor (model PPMA) provided inside the cab. The monitor shall be wired to the apparatus 12V electrical system and a cabled antenna (model ABPCA-SMA) shall be provided under the apparatus.

1.7.4 Intermittent Tire Service Rating

The front and / or rear tires shall be provided with and intermittent emergency vehicle service rating. Tires rating shall conform to manufacturers` service rating as applicable.

1.8 BRAKE SYSTEMS

The Vehicle will be equipped with a “Vista Brake Lock System” for vehicles with air brakes. The system will prevent unauthorized use and render the vehicle immobile, unless the operator inputs the security code which will be necessary to operate the vehicle. The operator will simply pull the air brake knob to activate the system. This system addresses major safety concerns and can be retrofitted to any existing vehicle, as well as, new manufacture.

1.8.1 Front Brakes

The front axle shall be equipped with Dana ADB22X 17 inch disc brakes. A 3 year/unlimited miles parts and 3 year labor brake warranty shall be provided as standard by Dana. The warranty shall include bushings and seals.

1.8.2 Rear Brakes

The rear axles shall be equipped with Meritor DiscPlus EX225H 17 inch disc brakes with a maximum rated capacity of 54,000 lbs. The brakes shall be covered by the manufacturer`s standard warranty which is two years, unlimited mileage and parts only.

Pembroke Pines will give preference to Meritor DiscPlus EX225H 17 inch disc brakes but we will consider S-Cam, 16.5 x 8-5/8 with auto slack adjusters.

1.8.3 Brake System

The vehicle shall be equipped with air operated brake system. The system shall meet or exceed the design and performance requirements of current FMVSS-121 and test requirements of current NFPA 1901 Standard.



Each wheel shall have a separate integral brake chamber. A dual treadle valve shall split the braking power between the front and rear systems.

The air system shall be provided with a rapid build-up feature, designed to meet current NFPA 1901 requirements. A 1/4" brass quick-release air inlet with male connection shall be located inside the driver door on the left side of the cab. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging into the wet tank.

A pressure protection valve shall be installed to prevent use of air horns or other air operated devices should the air system pressure drop below 80 psi.

Two (2) air pressure needle gauges, for front and rear air pressure, with warning light and buzzer shall be installed at the driver's instrument panel.

One (1) reservoir shall serve as the wet tank and a minimum of one (1) tank shall be supplied for each of the front and rear axles. The total system shall carry a sufficient volume of air to comply with FMVSS-121.

The following tank sizes shall be installed:

Tank Sizes in Cubic Inches

Suspension	Wet	Front	Rear	Rear Extension	Total
34-54K	1738	1738	2988	0	6464
58K	1738	1738	2988	1738	8202

An automatic drain valve shall be installed on the wet tank. All other tanks shall be equipped with manual drain valves. Drain valve cables shall be extended to the rub-rail to allow easy operation of the drain valves.

A Wabco ABS system shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to axles and all electrical connections shall be environmentally-sealed, water-, weather-, and vibration-resistant.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall sense approaching wheel lock and instantly modulate brake pressure up to five (5) times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual circuit design. The system circuits shall be configured in a diagonal pattern. Should a malfunction occur, that circuit shall revert to normal braking action. A warning light at the driver's instrument panel shall indicate malfunction to the operator.



The system shall consist of a sensor clip, sensor, electronic control unit, and solenoid control valve. The sensor clip shall hold the sensor in close proximity to the tooth wheel. An inductive sensor consisting of a permanent magnet with a round pole pin and coil shall produce an alternating current with a frequency proportional to wheel speed. The unit shall be sealed, corrosion-resistant and protected from electro-magnetic interference. The electronic control unit shall monitor the speed of each wheel sensor and a microcomputer shall evaluate in milliseconds wheel slip.

A deviation shall be corrected by cyclical brake application and release. If a malfunction occurs, the circuit shall signal the operator and the malfunctioning half of the system shall shut down. The system is installed in a diagonal pattern for side to side control. The system shall ensure that each wheel is braked in optimum efficiency up to five (5) times a second.

The system shall also interface with the application of the auxiliary engine, exhaust, or driveline brakes to prevent wheel lock.

To improve service trouble-shooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started and a dash-mounted light shall go out once the vehicle is moving above 4 MPH.

A 3 year/300,000 mile parts and labor Anti-Locking Braking System (ABS) warranty shall be provided as standard by Meritor Automotive.

1.8.4 Park Brake Release

One (1) Bendix-Westinghouse PP-5 parking brake control valve shall be supplied on the engine cover within reach of the driver and officer..

1.8.5 Park Brake Release Guard

A park brake release guard shall be provided over the release control. The guard shall be constructed of 14 gauge brushed stainless steel.

1.8.6 Electronic Stability Control

The apparatus shall be equipped with a G4 6S6M Electronic Stability Control (ESC) system that combines the functions of Roll Stability Control (RSC) with the added capability of yaw - or rotational – sensing.

RSC focuses on the vehicle's center of gravity and the lateral acceleration limit or rollover threshold. When critical lateral acceleration thresholds are exceeded, RSC intervenes to regulate the vehicle's deceleration functions. The added feature of ESC is to automatically intervene to reduce the risk of the vehicle rotating while in a curve or taking evasive action, prevents drift out through selective braking, and controlling and reducing vehicle speed when lateral acceleration limits are about to be exceeded.



Intervention by the system occurs in three forms - engine, retarder and brake control. The ESC system uses several sensors to monitor the vehicle. These include a steering wheel angle sensor, lateral accelerometer, and yaw position sensor. ESC constantly monitors driving conditions and intervenes if critical lateral acceleration is detected or if the vehicle begins to spin due to low friction surfaces. The system provides control of engine and retarder torque as well as automatically controlling individual wheels to counteract both over steer and under steer.

To further improve vehicle drive characteristics, the unit shall be fitted with Automatic Traction Control (ATC). This system shall control drive wheel slip during acceleration from a resting point. An extra solenoid valve shall be added to the ABS system. The system shall control the engine and brakes to improve acceleration slip resistance. The system shall have a dash mounted light that shall come on when ATC is controlling drive wheel slip.

3 year/300,000 miles parts and labor warranties for ESC, RSC, and ATC shall be provided as standard by Meritor Automotive.

1.8.7 Brake System Fittings

All air brake system hoses on the chassis shall be connected by use of compression fittings. Includes air lines in the chassis cab and accessories (if equipped).

1.9 INSPECTIONS AND PENALTIES

The awarded proposer shall allow three trips for four people to the plant; one trip for a pre-build meeting, one for a mid-point inspection and the other trip for final inspection.

1.9.1 Pre Construction & Mid Point Inspection

A pre-construction meeting shall be held to finalize the details of the truck.
A mid-point inspection shall be performed at the factory by the dealer/customer.

1.9.2 Final Inspection

A final inspection shall be performed at the factory prior to shipment to dealer/customer.

1.10 TESTING COMPLIANCE STANDARD

1.10.1 Hose Bed Capacity

The hose bed shall have the capacity to store 600' of 5" Ponn Conquest double jacketed hose and 300' of 3" Ponn Conquest hose from the driver side to the officer side.



1.10.2 Overall Height Restriction

The apparatus shall have an overall height restriction of 12'.

1.10.3 Overall Length Restriction

The unit shall have an overall length restriction of 47'.

1.10.4 NFPA Compliance

The supplied components of the apparatus shall be compliant with NFPA 1901, 2016 edition.

1.10.5 Equipment Capacity

Equipment allowance on the apparatus shall be 2500 lbs. This allowance is in addition to the weight of the hoses and ground ladders listed in the shop order as applicable.

1.11 BUMPER TRAYS

1.11.1 Recessed Bumper Tray

Hose tray constructed of 3/16" aluminum diamond plate shall be recessed into the front bumper extension with floor/bottom slotted to allow drainage (no slats). The tray shall extend full width of the bumper as applicable based on outboard options. The tray shall have multiple depth and each area shall be deep enough to accommodate reels, rescue tools and equipment or other options as applicable per customer specific requirements. Frame extensions shall be notched to provide approximately 6" tray depth above the frame rails.

1.11.2 Lid, Bumper Tray

Raised diamond plate lid with dual chrome grab handles, rubber hood latches and gas shocks. The lid shall be full width (as applicable based on outboard options) and high enough to accommodate reels, rescue tools and equipment as applicable per customer specific requirements. Front edge of lid shall follow contour of bumper. Overlap edge of bumper and front edge of lid shall have a uniform gap of .75".

1.12 BUMPERS

1.12.1 Bumper

The vehicle shall be equipped with a one piece 12" high bumper, made from 10 gauge polished stainless steel. The bumper shall have two (2) stiffening ribs and two (2) rubber impact strips. The bumper ends shall be tapered 15 degrees to provide bumper swing clearance.



1.12.2 Bumper Extension

The bumper extension shall be approximately 24" from the face of the cab as required.

1.12.3 Bumper Gravel Shield

The extended front bumper gravel shield shall be made of 3/16" (.375") aluminum tread plate material.

1.12.4 Rear Bumper

A horizontal bumper shall be provided across the lower rear of the apparatus. The bumper shall be constructed from 4" x 4" steel tube. Includes no step tags. No rub rail or cover plate and rear marker lts attached to lower rear body surface. Note rear bumper to be painted job color with Boston style corners cut at 30 degree angle on each end.

1.13 WHEEL OPTIONS

1.13.1 Front Wheels

The vehicle shall have two (2) polished (on outer wheel surfaces only) Alcoa aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

1.13.2 Front Wheel Trim Package

The front wheels shall have stainless steel lug nut covers (for use with aluminum wheels) or chrome plated plastic (for use with steel wheels). The front axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel universal baby moons. All stainless steel baby moons shall carry a lifetime warranty plus a 2 year re-buffing policy. There shall be two (2) baby moons and twenty (20) lug nut covers.

1.13.3 Rear Wheels

The vehicle shall have eight (8) polished (on outer wheel surfaces only) Alcoa aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

1.13.4 Rear Wheel Trim Package, Tandem Axle

The rear wheels shall have stainless steel lug nut covers (chrome plated steel lug nut covers not acceptable), or American made chrome plated plastic lug nut covers. The rear



axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel, spring clip band mount high hats, DOT user friendly. All stainless steel high hats shall carry a lifetime warranty plus a 2 year rebuffing policy. There shall be four (4) high hats and forty (40) lug nut covers.

1.13.5 Valve Stem Extensions

Each inside rear wheel on the rear axles shall have valve stem extensions.

1.14 AIR SYSTEM OPTIONS

1.14.1 Air Dryer

The chassis air system shall be equipped with a Meritor/Wabco System Saver 1200 air dryer located under the cab. The air dryer shall utilize a single spin-on desiccant cartridge.

1.14.2 Air Compressor

A Gast 110 volt air compressor model 3HBB-32-M300AX or the equivalent Kussmaul shall be provided. The compressor shall be connected to the chassis air system to maintain the air pressure in the air brake system while the vehicle is not in use. A pressure switch shall automatically start the compressor when the pressure drops, and shall shut it down when the pressure is restored.

1.14.3 Air Inlet

A 1/4" brass quick-release air inlet with a male connection shall be provided. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging air directly into the wet tank of the air brake system. It shall be located driver door jamb.

1.14.4 Isolated Air Reservoir

The air system shall have an additional 1738 cu. in. isolated reservoir. The supply side of the reservoir shall be equipped with a check valve and an 85 psi pressure protection valve.

Specified options shall be plumbed to the isolated air tank.

1.14.5 Auxiliary Air Tank Plumbing

The auxiliary air tank shall be plumbed to the following optional accessories, if equipped: Chassis air horns, brake system air outlet, air reel, light tower, air primer and or customer/dealer supplied pneumatic add-on(s).



1.14.6 Air Lines

Air brake lines shall be constructed of color coded nylon tubing routed in a manner to protect them from damage. Brass fittings shall be provided.

1.14.7 Air Horns

Dual air horns shall be provided, connected to the chassis air system. The horns shall be mounted through the front bumper. The front bumper shall have two (2) holes punched to accommodate the air horns. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure.

1.15 ENGINES & TRANSMISSIONS

1.15.1 Transmission Selector

A push-button transmission shift module, Allison model 29538373, shall be located to the right side of the steering column within easy reach of the driver. The shift position indicator shall be indirectly lit for after dark operation. The shift module shall have a "Do Not Shift" light and a "Service" indicator light. The shift module shall have means to enter a diagnostic mode and display diagnostic data including oil life monitor, filter life monitor, transmission health monitor and fluid level. A transmission temperature gauge with warning light and buzzer shall be installed on the cab instrument panel.

1.15.2 Transmission Fluid

The transmission fluid shall be TranSynd, Shell Spirax S6ATF A295, or equivalent synthetic.

1.15.3 Vehicle Speed

Electronic speed limiting set at 60 MPH as required by NFPA 1901.

1.15.4 Engine/Transmission Package

- Engine

The vehicle shall utilize a Cummins X12 engine as described below:

- 500 Horsepower
- Six (6) cylinder
- Variable Geometry Turbocharged
- Charge Air Cooled (CAC) 4-cycle diesel
- Cummins XPI high pressure fuel injection system
- Fuel cooler (air to liquid)
- 720 cu.in. (11.8 liter) displacement



- 500 gross BHP at 1800 RPM and a peak torque of 1695 lb.ft. at 1000 RPM with a governed RPM of 2000
- Bore and stroke shall be 5.2 x 5.67
- Engine lubrication system shall have a minimum capacity, to include filter, of 49 quarts
- Cooled Exhaust Gas Recirculation (EGR)
- Delco-Remy 39 MD-HD 12 volt starter
- 26 cubic foot per minute air compressor
- Single module after treatment system consisting of a oxidation catalyst and diesel particulate filter and selective catalyst reduction system
- Ember separator compliant with current NFPA 1901 standard
- The engine shall be compliant with 2018 EPA Emission standards
-

The engine air intake shall draw air through the front cab grill. The intake opening shall be located on the officer (right) side behind front cab face with a plenum that directs air to the air filter. The air cleaner intake piping shall be made from aluminized steel tubing with flexible rubber hoses. The intake piping clamps shall be heavy-duty, constant-torque, T-bolt style to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine. The air cleaner shall be an 11" diameter K&N for lower restriction and high air flow. The filtration media shall be washable and easily accessed for service.

The air filter shall have a 3 year / 300,000 mile warranty.

The engine exhaust piping shall be a minimum of 4" diameter welded aluminized steel tubing. The muffler shall be mounted horizontally under the right-hand frame rail in back of the cab in order to minimize heat transmission to the cab and its occupants. The exhaust shall be directed away from the vehicle on the right side ahead of the rear wheels in order to keep exhaust fumes as far away as possible from the cab and pump operator position.

A 5-year/100,000 miles parts and labor warranty will be provided as standard by Cummins.

A copy of the Engine Installation Review stating the engine installation meets Cummins recommendations shall be provided as requested. The engine installation shall not require the operation of any type of "power-down" feature to meet engine installation tests.

1.15.5 Transmission

The vehicle shall utilize an Allison EVS4000P, electronic, 5-speed automatic transmission.



A transmission oil temperature gauge with warning light and buzzer shall be installed on the cab instrument panel to warn the driver of high oil temperatures that may damage the transmission.

The transmission shall have a gross input torque rating of up to 1850 lb. ft. and a gross input power rating of up to 600 HP.

The gear ratios shall be as follows:

- 1 - 3.51
- 2 - 1.91
- 3 - 1.43
- 4 - 1.00
- 5 - .74
- R - 4.80

The transmission shall be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the operator.

The transmission shall have a lubricant capacity of 51 quarts.

A water-to-oil transmission oil cooler shall be provided to ensure proper cooling of the transmission when the vehicle is stationary (no air flow).

The transmission shall contain two engine driven PTO openings located at the 1 and 8 o'clock positions. The automatic transmission shall be equipped with a power lock-up device. The transmission lock-up shall prevent down shifting of transmission when engine speed is decreased during pump operations, thereby maintaining a constant gear ratio. Transmission lock-up shall be automatically activated when placing pump in gear. Transmission lock-up shall be automatically deactivated when disengaging pump for normal road operation.

A 5-year/unlimited miles parts and labor warranty shall be provided as standard by Allison Transmission.

1.15.6 Automatic Shift to Neutral

The transmission shall be programmed to comply with NFPA 1901 and automatically shift to neutral upon application of the parking brake.

1.16 SECONDARY BRAKING

1.16.1 Jacobs Engine Brake

One (1) Jacobs engine brake shall be installed to assist in slowing and controlling the vehicle as required by NFPA 1901 for vehicles with gross vehicle weight ratings



(GVWR) of 36,000 lbs. or greater. An on-off control switch and a high-medium-low selector switch shall be mounted in the cab accessible to the driver.

When activated, the Jacobs engine brake shall cut off the flow of fuel to the cylinders and alter the timing of the exhaust valves. This shall transform the engine into a high-pressure air compressor, driven by the wheels, and the horsepower absorbed by the engine in this mode shall slow the vehicle. The selector switch allows the driver to select the amount of retarding power.

When the on-off switch is in the "on" position, the engine brake shall be automatically applied whenever the accelerator is in the idle position and the automatic transmission is in the lock-up mode. If the accelerator is depressed or if the on-off switch is placed in the "off" position, the engine brake shall immediately release and allow the engine to return to its normal function.

1.16.2 Transmission Programming

The transmission shall include the Allison 2nd gear Pre-Select feature. This option will direct the transmission to down shift to second gear when the throttle is released and the Jacobs engine brake (or Telma retarder wired to activate with release of throttle) is engaged. This feature is designed to increase brake life and aid vehicle braking.

1.17 COOLING PACKAGE

1.17.1 Engine Cooling Package/Radiator

The cooling system shall include an aluminum tube-and-fin radiator with a minimum of 1,408 total square inches of frontal area to ensure adequate cooling under all operating conditions. There shall be a drain valve in the bottom tank to allow the radiator to be serviced. A sight glass shall be included for quick fluid level assessment. The radiator shall be installed at the prescribed angle in order to achieve the maximum operational effectiveness. This shall be accomplished according to established work instructions and properly calibrated angle measurement equipment.

1.17.2 Silicone Hoses

All radiator and heater hoses shall be silicone. Pressure compensating band clamps shall be used to eliminate hose pinching on all hoses 3/4" diameter and larger. All radiator hoses shall be routed, loomed, and secured so as to provide maximum protection from chafing, crushing, or contact with other moving parts.

1.17.3 Coolant

The cooling system shall be filled with a 50/50 mixture of water and antifreeze/coolant conditioner to provide freezing protection to minus 40 (- 40) degrees F for operation in severe winter temperatures.



1.17.4 Coolant Recovery

There shall be a coolant overflow recovery system provided.

1.17.5 Charge Air Cooler System

The system shall include a charge air cooler to ensure adequate cooling of the turbocharged air for proper engine operation and maximum performance.

1.17.6 Charge Air Cooler Hoses

Charge air cooler hoses shall be made from high-temperature, wire-reinforced silicone to withstand the extremely high temperatures and pressures of the turbocharged air. The hoses shall incorporate a flexible hump section to allow motion and misalignment of the engine relative to the charge air cooler. Charge air cooler hose clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

1.17.6 Fan/Shroud

The fan shall be 30" in diameter with eleven (11) blades for maximum airflow and dynamic balance. It shall be made of nylon for strength and corrosion resistance. The fan shall be installed with grade 8 hardware which has been treated with thread locker for additional security. A fan shroud attached to the radiator shall be provided to prevent recirculation of engine compartment air around the fan in order to maximize the cooling airflow through the radiator. The fan shroud shall be constructed of fiber-reinforced high temperature plastic. The shroud shall be specifically formed with curved surfaces which improves air flow and cooling.

1.17.7 Transmission Cooler

The cooling system shall include a liquid-to-liquid transmission cooler capable of cooling the heat generated from the transmission. When a transmission retarder is selected, the cooler shall have an increased capacity to handle the additional heat load.

1.18 FUEL SYSTEMS

1.18.1 Fuel System

One (1) 65 gallon fuel tank shall be provided. The tank shall be of an all-welded, aluminized-steel construction with anti-surge baffles and shall conform to all applicable Administration (FHWA) 393.65 and 393.67 standards. The tank shall be mounted below the frame rails at the rear of the chassis for maximum protection. The tank shall be secured with two (2) wrap-around T-bolt type stainless steel straps. Each strap shall be



fitted with protective rubber insulation and shall be secured with Grade 8 hardware. This design allows for tank removal from below the chassis.

The fuel tank shall be equipped with a 2" diameter filler neck. The filler neck shall extend to the rear of the vehicle behind the rear tires and away from the heat of the exhaust system as required by NFPA 1901 Standard for Automotive Fire Apparatus. The open end of the filler neck shall be equipped with a twist-off filler cap with a retaining chain.

The tank shall be plumbed with top-draw and top-return fuel lines in order to protect the lines from road debris. Bottom-draw and/or bottom-return fuel lines are not acceptable. A vent shall be provided at the top of the tank. The vent shall be connected to the filler neck to prevent splash-back during fueling operations. A .50" NPT drain plug shall be provided at the bottom of the tank.

The tank shall have a minimum useable capacity of 65 gallons of fuel with a sufficient additional volume to allow for thermal expansion of the fuel without overflowing the vent.

A fuel pump shall be provided and sized by the engine manufacturer as part of the engine.

1.18.2 Fuel Line

All fuel lines shall be rubber.

1.19 ALTERNATOR

1.19.1 420 Amp Alternator

There shall be a 420 amp Leece Neville alternator installed as specified. The alternator shall be a Leece Neville brushless type with integral rectifier and adjustable voltage regulator with an output of 369 amps per NFPA 1901 rating (420 amps per SAE J56).

1.20 BATTERIES

1.20.1 Battery System

The manufacturer shall supply four (4) heavy duty Group 31 12-volt maintenance-free batteries. Each battery shall be installed and positioned so as to allow easy replacement of any single battery. Each battery shall be equipped with carrying handles to facilitate ease of removal and replacement. There shall be two (2) steel frame mounted battery boxes, one (1) on the left frame rail and one (1) on the right frame rail. Each battery box shall be secured to the frame rail with Grade 8 hardware. Each battery box shall hold (2) batteries. The batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for



extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections. The battery stud terminals shall each be treated with concentrated industrial soft-seal after cable installation to promote corrosion prevention. The positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification.

Batteries shall be placed on non-corrosive rubber matting and secured with hold-down brackets to prevent movement, vibration, and road shock. The hold-down bracket J-hooks shall be cut to fit and shall have all sharp edges removed. The batteries shall be placed in plastic trays to provide preliminary containment should there be leakage of hazardous battery fluids. There shall be two (2) plastic trays, each containing (2) batteries. Each battery tray shall be equipped with a rubber vent hose to facilitate drainage. The rubber vent hose shall be routed to drain beneath the battery box. The batteries shall be positioned in well-ventilated areas.

One (1) positive and one (1) negative jumper stud shall be provided. Batteries shall have a warranty of thirty-six (36) months that shall commence upon the date of delivery of the apparatus. Pembroke Pines Fire Rescue would prefer Interstate Batteries.

1.21 CHASSIS OPTIONS

1.21.1 Engine Fan Clutch

The engine shall be equipped with a thermostatically controlled engine cooling fan. The fan shall be belt driven and utilize a clutch to engage when the engine reaches a specified temperature and / or the water pump is engaged (if equipped).

When disengaged, the fan clutch shall allow for improved performance from optional floor heaters, reduced cab interior noise, increased acceleration and improved fuel economy.

The fan shall be equipped with a fail-safe engagement so that if the clutch fails the fan shall engage to prevent engine overheating.

1.21.2 Drivelines

Drivelines shall have a heavy duty metal tube and shall be equipped with Spicer 1810 series universal joints to allow full-transmitted torque to the axle(s). Drive shafts shall be axially straight, concentric with axis and dynamically balanced.

1.21.3 Front Tow Eyes

Two (2) 3/4" thick heavy duty steel tow eyes shall be securely attached to the chassis frame rails at the front of the apparatus. They shall be mounted down below the bumper / cab.



121.4 Rear Tow Eyes

Two (2) heavy duty tow eyes made of 3/4" (0.75") thick steel having 2.5" diameter holes shall be bolted directly to the rear of the frame to allow towing (not lifting) of the apparatus. The tow eyes shall be protruding into the rear compartment or out the rear of the body. The tow eyes shall be painted chassis black.

1.21.5 Hot Shift PTO

Power take-off for the automatic transmission shall be a 6 bolt mounted hydraulic shift with a switch located in the cab. Hydraulic shift will allow the PTO to be shifted while the unit is in motion and without having to shut down the water pump.

1.21.6 Bottom Port Aerial Hydraulics

The aerial hydraulics shall be provided off of the bottom port of the Allison EVS4000/4500 transmission.

1.21.7 DEF Tank

A diesel exhaust fluid (DEF) tank with a five (5) gallon capacity shall be provided. The DEF tank shall include a heater fed by hot water directly from the engine block to prevent the DEF from becoming too cool to operate correctly per EPA requirements. The tank shall include a temperature sensor to control the heater control valve that controls the feed of hot water from the engine to the DEF tank heater. A sender shall be provided in the DEF tank connected to a level gauge on the cab dash. The tank shall be located left side below rear of cab.

1.21.8 Power Steering Cooler

A heat exchanger (cooler) shall be installed to maintain desired power steering fluid temperature. The cooler shall be a model DH-073-1-1 with air / oil design rated at 6300 BTU/HR @10 GPM. The cooler shall be mounted in front of the radiator and plumbed with #10 lines.

1.22 CAB MODEL

1.22.1 Cab Size – Medium 58" Cab

The vehicle shall be distinguished by an all-welded aluminum and fully enclosed tilt cab. The cab shall be designed exclusively for fire/rescue service and shall be pre-engineered to ensure long life. It shall incorporate an integral welded substructure of high-strength aluminum alloy extrusions that creates an occupant compartment that is essentially a protective perimeter. The end result is a distinctive structure that is aesthetically appealing, functionally durable, and characterized by increased personnel safety.



The cab shall be constructed from 3/16" (0.188") 3003 H14 aluminum alloy plate roof, floor, and outer skins welded to a high-strength 6063-T6 aluminum alloy extruded sub frame. Wall supports and roof bows are 6061 T6 aluminum alloy. This combination of a high-strength, welded aluminum inner structure surrounded on all sides by load-bearing, welded aluminum outer skins provides a cab that is strong, lightweight, corrosion-resistant, and durable.

The inner structure shall be designed to create an interlocking internal "roll-cage" effect by welding two (2) 3" x 3" x 0.188" wall-thickness 6063-T5 aluminum upright extrusions between the 3" x 3" x 0.375" wall-thickness 6061-T6 roof crossbeam and the 2.25" x 3" x 0.435" wall-thickness 6063-T6 sub frame structure in the front. An additional two (2) aluminum upright extrusions within the back-of-cab structure shall be welded between the rear roof perimeter extrusion and the sub frame structure in the rear to complete the interlocking framework. The four (4) upright extrusions -- two (2) in the front and two (2) in the rear -- shall be designed to effectively transmit roof loads downward into the sub frame structure to help protect the occupant compartment from crushing in a serious accident. All joints shall be electrically seam welded internally using aluminum alloy welding wire.

The sub frame structure shall be constructed from high-strength 6061-T6 aluminum extrusions welded together to provide a structural base for the cab. It shall include a side-to-side 3" x 1.5" .375 thick C-channel extrusion across the front, with 3/4" x 2-3/4" (.75" x 2.75") full-width cross member tubes spaced at critical points between the front and rear of the cab.

The cab floor shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate welded to the sub frame structure to give the cab additional strength and to help protect the occupants from penetration by road debris and under-ride collision impacts.

The cab roof shall be constructed from 3/16" (0.188") 3003 H14 aluminum treadplate supported by a grid of fore-aft and side-to-side aluminum extrusions to help protect the occupants from penetration by falling debris and downward-projecting objects. Molded fiberglass or other molded fiber-reinforced plastic roof materials are not acceptable.

The cab roof perimeter shall be constructed from 4" x 6-5/8" (4" x 6.625") 6063-T5 aluminum extrusions with integral drip rails. Cast aluminum corner joints shall be welded to the aluminum roof perimeter extrusions to ensure structural integrity. The roof perimeter shall be continuously welded to the cab roof plate to ensure a leak-free roof structure.

The cab rear skin shall be constructed from 3/16" (0.188") 3003 H14 aluminum plate. Structural extrusions shall be used to reinforce the rear wall.

The left-hand and right-hand cab side skins shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate. The skins shall be welded to structural aluminum extrusions at the top, bottom, and sides for additional reinforcement.

The cab front skins shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate. The upper portion shall form the windshield mask, and the lower portion shall form the cab front. Each front corner shall have a full 9" outer radius for strength and appearance. The left-hand and right-hand sides of the windshield mask shall be welded to



the left-hand and right-hand front door frames, and the upper edge of the windshield mask shall be welded to the cab roof perimeter extrusion for reinforcement. The cab front shall be welded to the sub frame C-channel extrusion below the line of the headlights to provide protection against frontal impact.

1.22.2 Cab Exterior

The exterior of the cab shall meet or exceed the following. The exterior of the cab shall be 94" wide x 130" long to allow sufficient room in the occupant compartment for up to eight (8) fire fighters. The cab roof shall be approximately 101" above the ground with the flat roof option. The back-of-cab to front axle length shall be a minimum of 58". Front axle fenderette trim shall be brushed aluminum for appearance and corrosion resistance. Bolt-in front wheel well liners shall be constructed of 3/16" (0.188") composite material to provide a maintenance-free, damage-resistant surface that helps protect the underside of the cab structure and components from stones and road debris. A large stainless steel cooling air intake grille with an open area of no less than 81% shall be at the front of the cab.

The cab windshield shall be of a two-piece replaceable design for lowered cost of repair. The windshield shall be made from 1/4" (0.25") thick curved, laminated safety glass with a 75% light transmittance automotive tint. A combined minimum viewing area of 2,700-sq. in. shall be provided. Forward visibility to the ground for the average (50th percentile) male sitting in the driver's seat shall be no more than 11 feet 7 inches from the front of the cab to ensure good visibility in congested areas.

1.22.3 Cab Mounts and Cab Tilt System

The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements. Mounting points shall consist of two (2) forward-pivoting points, one (1) on each side; two (2) intermediate rubber load-bearing cushions located midway along the length of the cab, one (1) on each side; and two (2) combination rubber shock mounts and cab latches located at the rear of the cab, one (1) on each side.

An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one (1) on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation.

Safety flow fuses (velocity fuses) shall be provided in the hydraulic lift cylinders to prevent the raised cab from suddenly dropping in case of a burst hydraulic hose or other hydraulic failure. The safety flow fuses shall operate when the cab is in any position, not just the fully raised position.

The hydraulic pump shall have a manual override system as a backup in the event of an electrical failure. Lift controls shall be located in a compartment to the rear of the cab on



the right side of the apparatus. A parking brake interlock shall be provided as a safety feature to prevent the cab from being tilted unless the parking brake is set.

The entire cab shall be tilted through a 42-45 degree arc to allow for easy maintenance of the engine, transmission and engine components. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab.

In the lowered position, the cab shall be locked down by two (2) automatic, spring-loaded cab latches at the rear of the cab. A "cab ajar" indicator light shall be provided on the instrument panel to warn the driver when the cab is not completely locked into the lowered position.

1.22.4 Cab Interior

The interior of the cab shall be of the open design with an ergonomically-designed driver area that provides ready access to all controls as well as a clear view of critical instrumentation. It shall be equipped with an extreme weather insulation package or the maximum possible insulation to isolate engine and exterior noises. In order to ensure maximum cooling/heating capacity, additional insulation shall be provided inside the cab. The insulation package shall include 1" Polyester foam with Mylar facing for the front wall, rear wall, side walls, and ceiling, 1" closed cell foam insulation below the front and rear facing seat risers and Reflectex (or equal) inside each cab door.

The engine cover between the driver and the officer shall be a low-rise contoured design to provide sufficient seating and elbow room for the driver and the officer. The engine cover shall blend in smoothly with the interior dash and flooring of the cab. An all-aluminum sub frame shall be provided for the engine cover for strength. The overall height of the engine enclosure shall not exceed 23" from the floor at each side and 27" in the center section. The engine cover shall not exceed 41" in width at its widest point. The rear portion of the engine cover shall be provided with a lift-up section to provide easy access for checking transmission fluid, power steering fluid, and engine oil without raising the cab. The engine cover insulation shall consist of 3/4" dual density fiberglass composite panels with foil backing manufactured to specifically fit the engine cover without modification to eliminate "sagging" as found with foam insulation. The insulation shall meet or exceed DOT standard MVSS 302-1 and V-0 (UI subject 94 Test). All cab floors shall be covered with a black rubber floor mat that provides an aggressive slip-resistant surface in accordance with current NFPA 1901.

The rear engine cover area shall be covered with molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black with a pebble grain finish for slip resistance.



A minimum of 57.25" of floor-to-ceiling height shall be provided in the front seating area of the cab and a minimum of 55.25" floor-to-ceiling height shall be provided in the rear seating area. A minimum of 36" of seated headroom at the "H" point shall be provided over each fenderwell.

The interior side to side dimensions shall be 87" from wall padding to wall padding and 89.5" from door to door.

The floor area in front of the front seat pedestals shall be no less than 24" side to side by up to 25" front to rear for the driver and no less than 24" side to side by up to 27" front to rear for the officer to provide adequate legroom.

Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab.

All exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

The interior of the cab shall be insulated to ensure the sound (dbA) level for the cab interior is within the limits stated in the current edition of NFPA 1901. The insulation shall consist of 2 oz. wadding and 1/4" (0.25") foam padding. The padding board shall be backed with 1/4" (0.25") thick reflective insulation. The backing shall be spun-woven polyester. Interior cab padding shall consist of a rear cab headliner, a rear wall panel, and side panels between the front and rear cab doors.

The vehicle shall use a seven-position tilt and telescopic steering column to accommodate various size operators. An 18" padded steering wheel with a center horn button shall be provided.

Storage areas, with hinged access doors, shall be provided below the driver and officer seats. The driver side compartment shall be approximately 20" deep x 12" wide x 3.5" high and the officer side compartment shall be approximately 14" deep x 12" wide x 11" high (height will be reduced with air or electric seat). Note: With RollTek option the compartments may be occupied by air bag system components.

The front cab steps shall be a minimum of 8" deep x 24" wide. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The rear cab steps shall be a minimum 12" deep x 21" wide. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The rear steps shall incorporate intermediate steps for easy access to the cab. The steps are to be located inside the doorsill, where they are protected against mud, snow, ice, and weather. The step surfaces shall be aluminum diamond plate with a multi-directional, aggressive gripping surface incorporated into the aluminum diamond plate in accordance with current NFPA 1901. A black grip handle shall be provided on the interior of each front door below the door window to ensure proper hand holds while entering and exiting the cab. An additional



black grip handle shall be provided on the left and right side windshield post for additional handholds.

1.22.5 Cab Doors

There shall be reflective signs on each cab door in compliance with all NFPA requirements.

Four (4) side-opening cab doors shall be provided. Doors shall be constructed of a 3/16" (0.188") aluminum plate outer material with an aluminum extruded inner framework to provide a structure that is as strong as the side skins.

Front cab door openings shall be approximately 36" wide x 71.5" high, and the rear cab door openings shall be approximately 33.75" wide x 73" high. The front doors shall open approximately 75 degrees, and the rear doors shall open approximately 80 degrees.

The doors shall be securely fastened to the doorframes with full-length, stainless steel piano hinges, with 3/8" (0.375") diameter pins for proper door alignment, long life, and corrosion resistance. Mounting hardware shall be treated with corrosion-resistant material prior to installation. For effective sealing, an extruded rubber gasket shall be provided around the entire perimeter of all doors.

Stainless steel paddle-style door latches shall be provided on the interiors of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening as required by NFPA 1901.

The front door windows shall provide a minimum viewing area of 530 sq. in. each. The rear door windows shall provide a minimum viewing area of 500 sq. in. each. All windows shall have 75% light transmittance automotive safety tint. Full roll-down windows shall be provided for the front cab doors with worm gear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable.

1.22.6 Cab Instruments and Controls

Two (2) pantograph-style windshield wipers with two (2) separate electric motors shall be provided for positive operation. Air-operated windshield wipers are not acceptable because of their tendency to accumulate moisture, which can lead to corrosion or to freezing in cold weather. The wipers shall be a wet-arm type with a one (1) gallon washer fluid reservoir, an intermittent-wipe function, and an integral wash circuit. Wiper arm length shall be approximately 28", and the blade length approximately 20". Each arm shall have a 70 degree sweep for full coverage of the windshield.

Cab controls shall be located on the cab instrument panel in the dashboard on the driver's side where they are clearly visible and easily reachable. Emergency warning light switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided:



- Master battery switch/ignition switch (rocker with integral indicator)
- Starter switch/engine stop switch (rocker)
- Heater and defroster controls with illumination
- Marker light/headlight control switch with dimmer switch
- Self-canceling turn signal control with indicators
- Windshield wiper switch with intermittent control and washer control
- Master warning light switch
- Transmission oil temperature gauge
- Air filter restriction indicator
- Pump shift control with green "pump in gear" and "o.k. to pump" indicator lights
- Parking brake controls with red indicator light on dash
- Automatic transmission shift console
- Electric horn button at center of steering wheel
- Cab ajar warning light on the message center enunciator

Controls and switches shall be identified as to their function by backlit wording adjacent to each switch, or indirect panel lighting adjacent to the controls.

1.22.7 Fast Idle System

A fast idle system shall be provided and controlled by the cab-mounted switch. The system shall increase engine idle speed to a preset RPM for increased alternator output.

1.22.8 Electrical System

The cab and chassis system shall have a centrally located electrical distribution area. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An automatic thermal-reset master circuit breaker compatible with the alternator size shall be provided. Automatic-reset circuit breakers shall be used for directional lights, cab heater, battery power, ignition, and other circuits. An access cover shall be provided for maintenance access to the electrical distribution area.

A 6 place, constantly hot and 6 place ignition switched fuse panel and ground for customer-installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference.

All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color-coded and functionally-labeled every 3" on the outer surface of the insulation for ease of identification and maintenance. The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather-resistant. All harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion.



A Vehicle Data Computer (VDC) shall be supplied within the electrical system to process and distribute engine and transmission Electronic Control Module (ECM) information to chassis system gauges, the message center, and related pump panel gauges.

Communication between the VDC and chassis system gauges shall be through a 4 wire multiplexed communication system to ensure accurate engine and transmission data is provided at the cab dash and pump. The VDC shall be protected against corrosion, excessive heat, vibration, and physical damage.

Two (2) dual rectangular chrome plated headlight bezels shall be installed on the front of the cab. The low beam headlights shall activate with the release of the parking brake to provide daytime running lights (DRL) for additional vehicle conspicuity and safety. The headlight switch shall automatically override the DRL for normal low beam/high beam operation.

1.22.9 Cab Crashworthiness Requirement

The apparatus cab shall meet and/or exceed relevant NFPA 1901 load and impact tests required for compliance certification with the following:

- Side Impact Dynamic Pre-Load per SAE J2422 (Section 5).

Testing shall meet and/or exceed defined test using 13,000 ft-lbs of force as a requirement. The cab shall be subject to a side impact representing the force seen in a roll-over. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame.

Cab testing shall be completed using 13,776 ft-lbs of force **exceeding** testing requirements.

Quasi-static Roof Strength (proof loads) per SAE J2422 (Section 6) / ECE R29, Annex 3, paragraph 5.

Testing shall meet and/or exceed defined test using 22,046 lbs of mass as a requirement. Testing shall be completed using platen(s) distributed uniformly over all bearing members of the cab roof structure.

Cab testing shall be completed using 23,561 lbs of mass **exceeding** testing requirements. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and doors shall remain closed.

Additional cab testing shall be conducted using 117,336 lbs of mass **exceeding** testing requirements by **over five (5) times**. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and the doors shall remain closed.



1.22.10 Frontal Impact per SAE J2420

Testing shall meet and/or exceed defined test using 32,549 ft-lbs of force as a requirement. The cab shall be subject to a frontal impact as defined by the standard. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame.

Cab testing shall be completed using 34,844 ft-lbs of force **exceeding** testing requirements.

Additional cab testing shall be conducted using 65,891 ft-lbs of force **exceeding** testing requirements by **over two (2) times**.

The cab shall meet all requirements to the above cab crash worthiness; **NO EXCEPTIONS**.

A copy of a certificate or letter verifying compliance to the above performance by an independent, licensed, professional engineer shall be provided upon request. For any or all of the above tests, the cab manufacturer shall provide either photographs or video footage of the procedure upon request.

1.22.11 Seat Mounting Strength

The cab seat mounting surfaces shall be third party tested and in compliance with FMVSS 571.207.

1.22.12 Seat Belt Anchor Strength

The cab seat belt mounting points shall be third party tested and in compliance with FMVSS 571.210.

1.22.13 ISO Compliance

The manufacturer shall ensure that the construction of the apparatus cab shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus cab that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.

1.23 CAB ROOF TYPE



1.23.1 Raised Rear Cab Roof (Split)

The outboard roof of the rear crew area shall be raised 12" allowing the rear cab doors to be extended up providing improved egress. The forward end of the raised roof shall be tapered for a streamlined appearance. The interior of the raised cab roof areas shall be provided with padded headliner material to match the center cab ceiling.

The center of the cab roof shall include a 1.5" deep waterway clearance notch from front to rear minimizing overall travel height of the vehicle. The center cab roof notch shall not affect the interior cab ceiling or cab structure.

1.24 CAB BADGE PACKAGE

1.24.1 Logo Package

The apparatus shall have manufacturer logos provided on the cab and body as applicable.

1.25 CAB DOOR OPTIONS

1.25.1 Rear Cab Door Position

The cab rear doors shall be moved to the rear of the wheel opening. This door placement facilitates easier entry and egress by reducing the rear facing seat protrusion into the door opening.

Rear door position to the 58" or (medium cab).

1.25.2 Cab Front Door Windows

Driver and officer door windows shall have the support pillar located toward the front of the window. There shall be a vent that can be opened and closed within the window itself, located towards the front.

1.25.3 Cab Door Locks

Each cab door shall have a manual operated door lock actuated from the interior of each respective door. Exterior of each cab door shall be provided with a barrel style keyed lock below the cab door handle.

1.25.4 Cab Door Locks

The cab shall have CH751 keyed door locks provided on exterior doors to secure the apparatus.

1.25.5 Cab Door Front Windows



Driver and Officer door windows. Includes electric roll-down actuation. Each door to have individual control at door position and the driver door is to have master control for all power window locations.

1.25.6 Cab Door Panels

The inner door panels shall be made from 14 gauge brushed finish stainless steel for increased durability. The cab door panels shall incorporate an easily removable panel for access to the latching mechanism for maintenance or service.

1.25.7 Exterior Cab Door Latches

All exterior cab door latches shall be paddle style.

1.25.8 Cab Door Area Lighting

There shall be four (4) clear LED lights provided to illuminate the cab step well area. Each light shall be located on each cab door in the inboard position. Each light shall be activated by the cab door ajar circuit.

1.25.9 Cab Door Rear Windows

Rear crew cab door windows with rear fixed panel. Includes electric roll-down actuation. Each door to have individual controls. For use with paddle style door latching. The rear of the window opening shall have a fixed glass panel approximately 5" wide to allow the forward section of glass to roll down completely ahead of the door latching hardware.

1.25.10 Cab Door Reflective Material

Reflexite V98 Red/Fluorescent Yellow Green reflective striping shall be supplied on each of the cab doors. The stripes shall run from the lower outer corner to the upper inside corner of the panel, forming an "A" shape when viewed from the rear. The material shall meet NFPA 1901 requirements for size (96 square inches) and reflectivity.

1.25.11 Cab Cabinet Door Trim

An anodized aluminum trim shall be located at the vertical edge of the over cab wheel exterior compartment opening. The trim shall provide added protection of the painted surface of the cab when equipment is placed or removed from the compartment.

1.25.12 Cab Compartment Door Trim

An anodize aluminum trim shall be located at the bottom edge of the cab exterior compartment openings. The trim shall provide added protection of the painted surface of the cab when equipment is placed or removed from the compartments.



1.26 CAB STEP OPTIONS

1.26.1 Cab Step

An auxiliary step below the cab door shall be provided. The step shall be constructed of .188" aluminum tread brite. The step surface shall be provided with an aggressive skid-resistant surface and have an open back. The step shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (0.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

The step shall be located driver's front door, officer's front door, driver side rear door, officer side rear door.

Steps under front cab doors shall not interfere with approach angle.

1.27 MIRRORS

1.27.1 Mirror Extension

There shall be a 2" extension provided for each Ramco mirror.

1.27.2 Cab Mirrors

Two (2) Ramco model 6001FFR remote controlled aluminum mirrors shall be installed. The mirrors shall incorporate a full face main section with a convex mirror with housing model CAS750, mounted to the top. The adjustment of main sections shall be through dash mounted switches. Location: mounted on front corners of cab.

1.28 MISC EXTERIOR CAB OPTIONS

1.28.1 Cab Canopy Window

There shall be a fixed window provided between the front and rear doors on the officer's side of the cab.

Window dimensions shall be as follows:

44" C/A cab (short cab): 16"W x 24.5"H

58" - 80" C/A cab (medium - extended): 26.69"W x 24.5"H

1.28.2 Front Mud Flaps

Black linear low density polyethylene (proprietary blend) mud flaps shall be installed on the rear of the cab front wheel wells. The design of the mud flaps shall have corrugated ridges to distribute water evenly.



1.28.3 Handrails (18")

Cab door assist handrails shall consist of two (2) 1.25" diameter x 18" long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer door openings one each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2" from the mounting surface to allow a positive grip with a gloved hand.

1.28.4 Handrails (36")

Cab door assist handrails shall consist of two (2) 1.25" diameter x 36" long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer rear door openings one each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2" from the mounting surface to allow a positive grip with a gloved hand.

1.28.5 Rear Cab Wall Construction

The rear cab wall shall be constructed using formed 3/16" (.188") aluminum smooth plate interlocking in aluminum extrusions. A rear cab wall overlay constructed of 3/32" (.090") diamond plate shall be provided over the smooth plate.

1.28.6 Cab Wheel Well

The cab wheel well shall be increased in size to provide additional clearance for larger tires. The fender trim shall be adjustable in and out to better accommodate various wheel / tire offsets.

1.28.7 Receptacle Mounting Plate

A mounting plate shall be provided for the battery charger receptacle, battery charger indicator and if applicable the air inlet, etc. The plate shall be constructed of 14 gauge brushed finish stainless steel and be removable for service access to the receptacle(s) and indicator.

1.28.8 Glass Tint

The cab shall be equipped with dark tint glass. The glass shall have 20% light transmittance (+/- 10%) in the rear and 30% light transmittance (+/- 10%) in the front. The dark tint shall be provided for the following windows (as equipped):

- Window on cab sides between front and rear door
- Front door glass
- Rear door glass



- Rear cab wall glass
- Vista roof glass

1.29 HVAC

1.29.1 Air Conditioning

An overhead air-conditioner / heater system with a single roof mounted condenser shall be supplied.

The unit shall be mounted to the cab interior headliner in a mid cab position, away from all seating positions. The unit shall provide ten (10) comfort discharge louvers, four (4) to the back area of the cab and six (6) to the front. These louvers will be used for AC and heat air delivery. Two (2) additional large front louvers shall be damper controlled to provide defogging and defrosting capabilities to the front windshield as necessary. The unit shall consist of a high output evaporator coil and heater core with one (1) high output dual blower for front air delivery, and two (2) high performance single wheel blowers for rear air delivery.

A serviceable filter shall be installed on the A/C evaporator. The filter shall consist of a steel perimeter frame with a foam filter.

The control panel shall actuate the air-distribution system with air cylinders, which are to be separated from the brake system by an 85-90 psi pressure protection valve. A three-speed blower switch shall control air speed.

The condenser shall be roof mounted and have a minimum capacity of 65,000 BTU's and have dual fans with a built in receiver drier.

Performance Data: (Unit only, no ducting or louvers)

AC BTU: 55,000

Heat BTU: 65,000

CFM : 1300 @ 13.8V (All blowers)

The compressor shall be a ten-cylinder swash plate type Seltec model TM-31HD with a capacity of 19.1 cu.in. per revolution.

The system shall be capable of cooling the interior of the cab from 100 degrees ambient to 75 degrees or less with 50% relative humidity in 30 minutes or less.

1.29.2 Heat, Supplemental

A single 40,000 BTU water heater shall be supplied in the front area of the cab. The unit shall heat the lower section of the driver's and officer's footwell.



Dual 23,000 BTU water heaters with diamond plate covers shall be supplied in the rear of the cab to heat the rear cab lower section.

Dual climate control will be achieved via dual switches installed on a front instrument panel. On units with optional multiplex display climate control, the floor heaters shall be controlled through the HVAC screen in the display.

1.29.3 HVAC Control Location

Heating and air conditioning controls shall be located in the center dash area.

1.30 SEATS

1.30.1 Cab Seats

All cab seats shall be Bostrom brand.

1.30.2 Seat, Driver

One (1) H. O. Bostrom 400 Series Sierra Air- 100RX4 suspension seats with high back styling shall be supplied for the driver position.

Features shall include:

- Air-100 suspension assembly with weight, height and ride adjustment.
- Built in lumbar support.
- 4" vertical suspension motion.
- 5" fore and aft adjustment.

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

1.30.3 Seat, Officer

One (1) H. O. Bostrom 400 Series Sierra Air- 100RX4 suspension seats with high back SCBA storage for the officer's position shall be supplied.

Features shall include:

- Removable "Store-All" side cushions.
- Auto-pivot and return headrest to open for improved exit with SCBA.
- 12.5" wide SCBA cavity to store leading SCBA Brands.
- Built in lumbar support.
- Replaceable seat, side and headrest cushions.

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with



the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

1.30.4 Seat, Rear Facing

One (1) Bostrom 400 Series tanker 450 SCBA high back SCBA storage seats shall be provided in the rear facing position over the officer side wheel well.

Features shall include:

- Removable "Store-All" side cushions.
- Auto-pivot and return headrest to open for improved exit with SCBA.
- 12.5" wide SCBA cavity to store leading SCBA Brands.
- Built in lumbar support.
- Replaceable seat, side and headrest cushions.

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

1.30.4 Seat Cover Material

All seats shall have vinyl seat cover material.

1.30.5 Seat Fabric Color

All seats shall be gray in color.

1.30.6 Seating Capacity Tag

A tag that is in view of the driver stating seating capacity of five (5) personnel shall be provided.

1.30.7 Bostrom SecureAll Locking System

The H.O. Bostrom SecureAll™ SCBA Locking System shall be one bracket model and store all U.S. and international SCBA brands and sizes while in transit or for storage on fire trucks. The bracket shall be easily adjustable; all adjustment points shall utilize similar hardware and adjustments shall be made with one tool.

The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the tank in-place for a safe and comfortable fit in seat cavity. Firefighters shall simply push the SCBA unit against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions.

The SecureAll™ bracket shall fit in all H.O. Bostrom Tanker SCBA seats including ABTS and non-ABTS seats and all flip-up ABTS and non-ABTS seats. Additional seat



depth shall not be required for proper bracket fit; changes to the shroud back shall not be required for proper mounting of the bracket.

The standard release handle shall be integrated into the seat cushion for quick and easy release and shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.

The H.O. Bostrom SecureAll™ system meets NFPA 1901 standards and requirements of EN 1846-2.

The bracket(s) shall be located officer's seat, rear facing officer's side.

1.30.8 Bostrom SecureAll Locking System

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The standard release handle shall be integrated into the seat cushion for quick and easy release and shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.

The H.O. Bostrom SecureAll™ system meets NFPA 1901 standards and requirements of EN 1846-2.

The bracket(s) shall be located inboard driver's side rear wall, inboard officer's side rear wall, center rear wall.

1.30.9 Rear Wall Bench Seat

Two (2) Bostrom SCBA seat backs and a two (2) person bench style seat bottom with a single cushion shall be mounted centered on the rear wall of the cab.

Under the bench there will be storage space accessible from both the front and the sides. The compartment will be secured by webbing.

Features shall include:



- Removable "Store-All" side cushions.
- Auto-pivot and return headrest to open for improved exit with SCBA.
- 12.5" wide SCBA cavity to store leading SCBA Brands.
- Built in lumbar support.
- Replaceable seat, side and headrest cushions.

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

There shall be two (2) provisions provided for mounting of the rear heaters under the bench seat. Ventilation shall be provided on each side of the provisions for the heaters.

1.31 MEDICAL CABINETS

1.31.1 Medical Storage Cabinet Finish

The medical storage cabinet(s) shall have a Zolatone gray finish. The finish shall be applied to the interior, exterior, shelves (if equipped) and trays (if equipped) of the cabinet.

1.31.2 Medical Storage Cabinet

There shall be one (1) medical storage cabinet provided over the driver side wheel well of the cab. The medical storage cabinet shall be constructed of 1/8" (.125") smooth aluminum plate. The medical storage cabinet shall be approximately 42" high x 22"(25" Quest) wide x 28" deep.

There shall be two (2) adjustable shelves provided in the medical storage cabinet. The shelves shall be constructed of 1/8" (.125") smooth aluminum plate. Each shelf shall have a 1" front and rear lip for strength and reinforcement. The shelves shall be sized to the interior dimensions of the medical storage cabinet.

The medical storage cabinet shall be accessible externally of the cab by a locking double pan door.

The exterior door shall be constructed using a box pan configuration. The outer door pan shall beveled and shall be constructed from 3/16" (0.188") aluminum plate.

The exterior door shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly



to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The exterior door shall be securely attached to the apparatus cab with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the cab and exterior door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have a gas shock-style hold-open device.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

1.32 MISC INTERIOR CAB OPTIONS

1.32.1 Cab Interior Color

Cab instrument panel, overhead console, trim panels, headliner, and door panels shall be gray.

1.32.2 Sun Visors

Lexan sun visors shall be provided for the driver and officer matching the interior trim of the cab and shall be flush mounted into the underside of the overhead console.

1.32.3 Air Horn Lanyard

There shall be a "Y" style lanyard mounted in the center of the cab that allows the driver and officer to operate the air horns. The lanyard shall activate an electrical air switch.

1.32.4 Mounting Plate on Engine Cover

An equipment mounting plate shall be provided between the driver and officer on the chassis engine cover. The plate shall be mounted to the engine cover forward of the access door spaced approximately 1/2" up to provide clearance for equipment mounting hardware. The plate shall be constructed of 3/16" aluminum plate and have a swirl finish.

1.32.5 Engine Cover

The engine cover shall blend in smoothly with the interior dash and flooring of the cab. The upper left and right sides shall have a sloped transition surface running front to rear providing increased space for the driver and officer.

The engine cover and engine service access door cover shall be molded 18 lb/cu. ft. (+/- 0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of



noise and heat from the engine. The cover shall be black and feature a pebble grain finish for slip resistance.

1.32.6 Ballistic Gear – Severe Duty Aluminum Compartment

The rear of the engine cover shall have a storage compartment constructed from .125" smooth aluminum plate painted to match the cab interior. A piano hinged access panel shall be provided on top of the storage compartment to provide easy access to components within.

The Severe Duty Aluminum Compartment shall be equipped with a .125" aluminum plate lift-up door opening rearward. The door will also have a 5/8" lip to stop items rested on from sliding off of it. A push button latch shall be provide to securely hold contents of box.

1.32.7 Cab Dash - Severe Duty

The center and officer side dash shall be constructed from .125" smooth aluminum plate painted to match the cab interior. A hinged access panel shall be provided on top of the center dash to provide easy access to components within. The officer side dash shall be notched and provided with a glove box suitable for a 3" binder.

Glove box shall be equipped with a .125" aluminum plate lift-up door. A cable retaining device shall be provided to reduce the door opening to a 45 degree angle. A push button latch shall be provide to securely hold contents of box. A angle note pad holder constructed of .125" smooth aluminum shall be provided on top of the access door.

The lower kick panels below the dash to be constructed from .125 aluminum diamond plate. The panels shall be removable to allow for servicing components that may be located behind the panels.

1.32.8 Overhead Console

A severe duty forward overhead console, air conditioning plenum and rear facing blower cover shall be provided. Each overhead console section shall be constructed of aluminum smooth plate painted to match the cab interior. The console shall be installed using stainless steel fasteners.

1.32.9 Rear Engine Cover

The rear engine cover shall be provided with a reduced profile for increased legroom on the forward facing rear inboard seats.



1.33 CAB ELECTRICAL OPTIONS

1.33.1 Cab Dome Lights

A Weldon LED dome light assembly with one (1) white lens and one (1) red lens and plastic housing shall be installed. The white light activates with appropriate cab door and light assembly switch, the red light activates with light assembly mounted switch only.

There shall be two (2) mounted in the front of the cab, one (1) in the driver and one (1) in the officer ceiling.

There shall be two (2) mounted in the rear of the cab, one (1) in the driver side and one (1) in the officer side ceiling.

1.33.2 Auto-Eject Battery Charger Receptacle

The battery charger receptacle shall be a Kussmaul 20 amp NEMA 5-20 Super Auto-Eject #091-55-20-120 with a cover. The Super Auto-Eject receptacle shall be completely sealed and have an automatic power line disconnect.

The receptacle shall be located outside driver's door next to handrail and the cover color shall be Yellow.

1.33.3 Horn Button Switch

A two (2) position rocker switch shall be installed in the cab accessible to the driver and properly labeled to enable operator to activate the OEM traffic horn or air horn from the steering wheel horn button.

1.33.4 Hourmeter

A pump hourmeter shall be provided and mounted in the cab visible to the driver.

1.33.5 English Dominant Gauge Cluster

The cab operational instruments shall be located in the dashboard on the driver side of the cab and shall be clearly visible. The gauges in this panel shall be English dominant and shall be the following:

- Speedometer/Odometer
- Tachometer with integral hour meter
- Engine oil pressure gauge with warning light and buzzer
- Engine water temperature gauge with warning light and buzzer
- Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)
- Fuel gauge
- Transmission oil temperature gauge



1.33.6 Headlights

The front of the cab shall have four (4) headlights. The headlights shall be mounted on the front of the cab in the lower position. The headlights shall be day time operational.

1.33.7 Battery Charger with Remote

A Kussmaul Auto Charger 1200 battery charger with remote mounted bar graph display shall be installed.

The battery charger shall be completely automatic with an output of 0-40 amp @ 12 volts DC and an input current requirement of 10 amps @ 120 volts AC.

1.33.8 12 Volt (or 24 Volt) Outlet

A plug-in type receptacle for hand held spotlights, cell phones, chargers, etc. shall be installed In cab driver side on 3 x 3 post rear facing just above engine cover (or seat riser if in a Hush), driver side dash, officer side dash, map box, officer side rear cab wall in or below seat support structure as space allows. The receptacle shall be wired battery hot.

1.33.9 Battery Charger Location

The battery charger shall be located behind officer's seat.

1.33.10 Air Compressor Location

The air compressor shall be located up high in driver side wheel well medical cabinet offset forward.

1.33.11 Cab Turn Signals

There shall be a pair of Whelen M6 LED (Light Emitting Diode) turn signal light heads with populated arrow pattern and amber lens mounted upper headlight bezel and wired with weatherproof connectors.

1.33.12 Cab USB Charging Port

A dual USB charging port for cell phones, chargers, etc. shall be installed In cab driver side on 3 x 3 post rear facing just above engine cover (or seat riser if in a Hush), driver side dash, officer side dash, driver side rear cab wall in or below seat support structure as space allows, officer side rear cab wall in or below seat support structure as space allows, driver side interior backwall of map box. The receptacles shall be wired battery hot.



1.33.13 DPF Regeneration Override

A momentary override switch shall be provided for the Diesel Particulate Filter (DPF) regeneration. The switch will inhibit the regeneration process until the switch is reset or the engine is shut down and restarted. The switch shall be located within reach of the driver.

1.33.14 Cab Headlights

FireTech model FT-4x6-4KIT LED headlights shall be provided. Headlights shall include low beam, high beam, elliptical beam and an integrated halo ring park lamp.

1.34 BODY SPEC

1.34.1 Aerial Equipment Body

- Performance

The aerial body shall be designed to permit the reloading of fire hose without raising the aerial from the stored position. This requirement is preferred to the effective operation of the apparatus when pumper operations are required. Alternatives will be considered, however preference will be given to manufactures with this fire hose reloading design.

The apparatus body shall be constructed entirely of aluminum extrusions with interlocking aluminum plates. Manufactures using a formed aluminum body will be considered however Pembroke Pines Fire Rescue will give preference to an extruded modular aluminum body due to the high strength-to-weight ratio of aluminum, corrosion-resistant body structure, easy damage repair, and lighter overall body weight to allow for increased equipment carrying capacity.

The apparatus shall incorporate a rescue style body design to maximize compartment space. The rescue style left and right side body shall combine upper and lower compartments to provide more efficient use of body storage capacity.

The entire vehicle shall be constructed of aluminum extrusions. Body designs that incorporate steel sub-frames connected to aluminum compartments are not as corrosion-resistant and not acceptable.

1.34.2 Body Mainframe

The body mainframe shall be entirely constructed of aluminum. The complete framework shall be constructed of 6061T6 and 6063T5 aluminum alloy extrusions welded together using 5356 aluminum alloy welding wire.

The mainframe shall incorporate a series of vertical frame components connected in series. Each vertical frame assembly shall be constructed with 3" x 3" extrusions welded together in a square frame configuration. The open center shall permit the installation of a



tunnel for ground ladder storage. The mainframe shall be held together from front to rear by two (2) solid 1/2" x 3" aluminum braces on each side of the vertical frame components. The braces shall also serve as the connection point between the torque box and body frame. The body side compartments shall be connected and supported by the extruded aluminum mainframe assembly.

1.34.3 Body Side Assemblies

The left and right side body assemblies shall be framed with 6063T5 1 1/2" x 4" 3/16" wall extrusions. The left side body compartments shall be framed to make full height compartments ahead and behind the wheel well opening. The body side assemblies shall be designed so that the compartment walls are not required to support the body. The compartments shall be interlocked and welded to the side assembly extrusions.

The top of the body side assemblies shall be supplied with embossed diamond plate covers with polished corners to minimize maintenance and provide service access to electrical components.

1.34.4 Stabilizer Openings

The body shall be designed to accommodate a four (4) stabilizer aerial system. One (1) opening shall be supplied behind the rear axle as close to the wheel well opening as possible to maximize rear angle of departure and to prevent the stabilizer pads from contacting the ground during driving. The second set shall be mounted just behind the pump compartment. The openings shall be framed in aluminum extrusions. A stabilizer cover made from treadplate shall be supplied on the extendable stabilizer. The cover shall provide a pleasing appearance and mounting location for a red stabilizer warning light as outlined in NFPA 1901.

The stabilizer openings shall be supplied with clear lights to illuminate the stabilizers and the ground surrounding the openings. The lights shall illuminate when any stabilizer is moved from the stored position.

1.34.5 Body Mounting System

The body shall attach to the integral torque box with grade 8 bolts connected through steel mounts welded on the side of the torque box. To isolate dissimilar metals a 1/4" fiber-reinforced rubber dielectric barrier between the aluminum body and steel torque box shall be supplied. Body designs that weld to the aerial torque box or chassis frame rails shall not be acceptable due to the stress imposed on the vehicle during road travel and aerial operations.

1.34.6 Rear Body Design

The rear body shall be designed to provide ground ladder storage, hose deployment, and service access to aerial components. The center rear of the body shall be open for ground



ladder storage. The area below the ground ladder storage shall be for a waterway inlet (if applicable), the stabilizer control panel and have access doors to hydraulic components.

The aerial master control panel that is located on the rear of the body shall consist of a master switch, interlock light, and indicators that illuminate when each stabilizer is deployed. The stabilizer controls shall be divided into two (2) boxes located one (1) each side on the rear body so the operator may observe the stabilizers being deployed on each side of the apparatus as outlined in NFPA 1901.

1.34.7 Side Aerial Access Staircase

A single access staircase shall be supplied on the driver's side of the apparatus to the aerial turntable. The staircase shall incorporate a pocket-style drop-down step in the body rubrail to reduce ground to staircase step height when the unit is up on jacks. The angled staircase shall be supplied with extruded aluminum handrails on both sides of the staircase frame.

1.34.8 Water Tank Mounting System

The body design shall allow the booster tank to be completely removable without disturbing or dismounting the apparatus body structure. The water tank shall rest on top of a 3" x 3" frame assembly covered with rubber shock pads and corner braces formed from 3/16" angled plate to support the tank.

The booster tank mounting system shall utilize a floating design to reduce stress from road travel and vibration. To maintain low vehicle center of gravity, the water tank bottom shall be mounted within 5" of the frame rail top. Designs that store ground ladders under the water tank and raise center of gravity shall not be acceptable.

1.34.9 Compartments

All body compartment walls and ceilings shall be constructed from 1/8" formed aluminum 3003 H14 alloy plate. Each compartment shall be modular in design and shall not be part of the body support structure.

Compartment floors shall be constructed of 1/8" aluminum diamond plate welded in place. Compartment floors that are over 15" deep shall be supported by a minimum 1.5" x 3" x 1/8" walled aluminum extrusions. The compartment seams shall be sealed using a permanent pliable silicone caulk. A series of louvers shall be supplied to facilitate ventilation of each compartment. Each louver shall be 3" wide by 3/4" tall and 1/2" deep.

1.34.10 Handrails

Access handrails shall be provided at all step positions, including, but not limited to, the rear corner tailboard and installed to NFPA 1901 15.8. All body handrails shall be constructed of maintenance-free, corrosion-resistant, extruded aluminum. Handrails shall



be a minimum of 1.25" OD and shall be installed between chrome end stanchions at least 2" from the mounting surface to allow for access with a gloved hand. The extruded aluminum shall be ribbed to assure a good grip for personnel safety.

The handrails shall be installed as follows:

- Two (2) 48" handrails, one (1) each side, located on the aerial access stair case.

1.34.11 Steps, Standing, and Walking Surfaces

The maximum stepping distance shall not exceed 18", with the exception of the ground to first step. The ground to first step shall not exceed 24". The ground to first step shall be maintained when the stabilizers are deployed by an auxiliary set of steps installed at the aerial access staircase. All steps or ladders shall sustain a minimum static load of 500 lbs. without deformation as outlined in NFPA 15.7.2.

All exterior steps shall be designed with a minimum slip resistance of 0.52 when tested wet using the Brungraber Mark II tester in accordance with the manufacturer's instructions.

1.34.12 Apparatus Warning Labels

A label shall be supplied on the rear body to warn personnel that riding in or on the rear step is prohibited as outlined in NFPA 1901 15.7.5. A label shall be applied to both sides of the apparatus and the rear to warn operators that the aerial is not insulated.

1.34.13 Rubrail

The body shall have a rubrail along the length of the body on each side and at the rear. The rubrail shall be constructed of minimum 3/16" thick anodized aluminum 6463T6 extrusion. The rubrail shall be a minimum of 2.75" high x 1.25" deep and shall extend beyond the body width to protect compartment doors and the body side.

The rubrail shall be of a C-channel design to allow marker and warning lights to be recessed inside for protection. The top surface of the rubrail shall have a minimum of five (5) serrations raised .1" high with cross grooves to provide a slip-resistant edge for the rear step and running boards. The rubrail shall be spaced away from the body using 3/16" nylon spacers. The ends of each section shall be provided with a rounded corner piece. The area inside the rubrail C-channel shall be inset with a reflective material for increased side and rear visibility.

1.34.14 Pump Compartment

The pump operator's control panel and pump compartment shall be located at the front of the body. The operator's controls and gauges shall be located on the left side (street side) of the apparatus. The compartment shall be designed following NFPA 1901 15.6.



A side running board formed from 1/8" aluminum diamond plate shall be provided and shall extend the full length of the pump module on each side of the apparatus. The running board shall be bolted to the pump compartment for rigidity and to provide easy removal for replacement in the case of damage.

1.34.15 ISO Compliance

The manufacturer shall ensure that the construction of the apparatus aerial body shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus aerial device that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.

1.35 BODY COMPT REAR

1.35.1 Rear Body Panels

The rear body panels shall be smooth 1/8" un-painted aluminum plate to facilitate rear body striping. The panels shall be bolt-on for a clean appearance and easier repair in the event of damage.

1.36 AERIAL BODY OPTIONS

1.36.1 Driver Side Compartments

The driver's side of the body shall have extended height rescue style compartments and provide 120.7 cubic feet or more of storage, which exceeds the minimum NFPA 1901 Chapter 8.5 requirement of 40 cubic feet.

There shall be one (1) compartment (L1) over the forward stabilizers. The compartment shall be approximately 31" wide x 28" high x 17" deep (upper) and 31" wide x 29" high x 14" deep (lower) and contain approximately 15.82 cubic feet of storage space. The door opening shall be approximately 31" wide x 57" high.

There shall be one (1) compartment (L2) behind the forward stabilizers. The compartment shall be approximately 48" wide x 14.5" high x 17" deep (upper) and 48" wide x 54.5" high x 25.5" deep (lower) and contain approximately 45.45 cubic feet of storage space. The door opening shall be approximately 48" wide x 69" high.

There shall be one (1) compartment (L3) over rear wheels. The compartment shall be approximately 50.5" wide x 18" high x 26" deep and contain approximately 13.68 cubic feet of storage space. The door opening shall be approximately 50.5" wide X 18" high.



There shall be one (1) compartment (L4) over rear wheels. The compartment shall be approximately 52.5" wide x 18" high x 20" deep and contain approximately 10.94 cubic feet of storage space. The door opening shall be approximately 52.5" wide x 18" high.

There shall be one (1) compartment (L5) over the rear stabilizer. The compartment shall be approximately 69.5" wide x 15" high x 18" deep (upper), 19.25" wide x 27.5" high x 23" deep (lower forward), 33.5" wide x 27.5" high x 14" deep (lower center), 16.75" wide x 27.5" high x 23" deep (lower rearward) and contain approximately 31.50 cubic feet of storage space. The door opening shall be approximately 69.5" wide x 42.5" high.

There shall be one (1) compartment (L6) down low ahead of the rear stabilizer with a horizontally-hinged single pan door constructed of the same material / finish as the body wheelwells. The compartment shall be approximately 15.5" wide x 8" high x 23" deep and contain approximately 1.65 cubic feet of storage space. The door opening shall be approximately 15.5" wide x 8" high.

There shall be one (1) compartment (L7) down low behind the rear stabilizer with a horizontally-hinged single pan door constructed of the same material / finish as the body wheelwells. The compartment shall be approximately 15" wide x 8" high x 23" deep and contain approximately 1.60 cubic feet of storage space. The door opening shall be approximately 15" wide x 8" high.

1.36.2 Officer Side Compartments

The officer's side of the body shall have extended height rescue style compartments ahead of the rear wheel and provide 88.55 cubic feet or more of storage.

There shall be one (1) compartment (R1) over the forward stabilizers. The compartment shall be approximately 31" wide x 28" high x 16" deep (upper) and 31" wide x 29" high x 14" deep (lower) and contain approximately 15.32 cubic feet of storage space. The door opening shall be approximately 31" wide x 57" high.

There shall be one (1) compartment (R2) behind the forward stabilizers. The compartment shall be approximately 48" wide x 14.5" high x 16" deep (upper) and 48" wide x 54.5" high x 26" deep (lower) and contain approximately 45.80 cubic feet of storage space. The door opening shall be approximately 48" wide x 69" high.

There shall be one (1) compartment (R3), ahead of the rear stabilizer. The compartment shall be approximately 15.5" wide x 32.5" high x 23" deep and contain approximately 6.71 Cubic feet of storage space. The door opening shall be approximately 15.5" wide x 32.5" high.

There shall be one (1) compartment (R4), over the rear stabilizer. The compartment shall be approximately 31" wide x 20.5" high x 14" deep and contain approximately 5.15 Cubic feet of storage space. The door opening shall be approximately 31" wide x 20.5" high.



There shall be one (1) compartment (R5), behind the rear stabilizer. The compartment shall be approximately 36" wide x 32.5" high x 23" deep and contain approximately 15.57 Cubic feet of storage space. The door opening shall be approximately 36" wide x 32.5" high.

The hosebed shall be located on the right side of the apparatus and contain 44.59 cubic feet. The hosebed shall measure 22" deep by 17" wide and 206" long and will be capable of holding 600' of 5" Ponn Conquest hose and 300' of Ponn Conquest 3" hose.

The hosebed compartment deck shall be constructed entirely from maintenance free, extruded aluminum. Extrusions shall have an anodized ribbed top surface for maintenance free service life. The aluminum slats shall be a combination of three (3) 3/4" x 2-3/4" and one (1) 3/4" x 7-1/2" extrusion riveted into a one-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose. The hosebed compartment shall be free of sharp edges and projections to prevent hose damage. The compartment deck design shall incorporate a track for the installation of adjustable hosebed dividers. The track shall hold the nut straight, so only a Philip's head screwdriver is required to adjust the divider from side to side.

The inboard hosebed side shall consist of 3/16" aluminum plate welded, from the backside, into a framework of 3" x 3" x 3/16" and 1-1/2" x 3" x 3/16" aluminum slotted extrusions. The plate shall be welded both vertically and horizontally for high rigidity. The outboard hosebed side shall be double wall construction. The outer body wall shall be constructed of 1-1/2" x 4" x 3/16" aluminum extrusions with 3/16" aluminum plate welded flush with the outer surface. The 3/16" outer plate shall be re-inforced with 1" x 1-1/2" 3/16" aluminum extrusions for rigidity. An .090 aluminum plate liner shall be installed to prevent damage to the outer painted body side from hose couplings.

1.36.3 Double Crosslay Hosebed

Two (2) crosslay hosebeds shall be provided at the front area of the body. Each of the two (2) crosslay sections shall have a capacity for up to 200' of 2.0" double-jacket fire hose double stacked and preconnected to the pump discharge. The crosslay decking shall be constructed entirely of maintenance-free 3/4" x 2-3/4" hollow aluminum extrusions.

Stainless steel rollers with nylon guides set in aluminum extrusions shall be installed horizontally and vertically on each end of the crosslay to allow easy deployment of the hose and help protect the body paint.

1.36.4 Dunnage Pan

A dunnage pan constructed of 3/16" (.188") aluminum treadplate shall be located rearward of the crosslays. The dunnage pan shall be sized to maximize available storage space.



1.36.5 Outrigger Covers

Two (2) piece outrigger covers constructed of .125" aluminum treadplate shall be provided for the jack leg openings. One piece of the cover shall be sized to cover just the extending outrigger in order to require a minimal amount of set-up space. The second piece of the cover shall be fixed and mounted to the body to cover the remaining outrigger opening.

1.36.6 Rear Pike Pole Storage

Pike poles storage shall be provided at the rear of the body for six (6) pike poles. The storage area shall be labeled for two (2) 6` poles, two (2) 8` poles, and two (2) 12` poles. The pike poles shall be secured by either "J" slotted locking tubes and/or hinged door(s) that matches the rear body finish.

1.36.7 Upper Dunnage Area Extension

The upper dunnage area shall be provided with an extension to increase it's storage capacity. The extension shall be approximately 34`` long x 58`` wide tapering in height from 12.75`` at the front to 8`` high across the rear. Coupled with the body's integral open storage area of 36`` long x 55`` wide x 14`` deep, the upper dunnage area contains approximately 27 cu. ft. of open storage space. The walls of the dunnage area extension shall be constructed of aluminum diamond plate.

1.36.8 Ladder Tunnel Doors

A pair of 3/16" (.188) aluminum smooth plate doors with D-ring style handles shall be installed for access to the rear ladder tunnel. Each door shall open a full 90 degrees to allow easy removal of ground ladders. The doors shall match the rear body finish.

1.36.9 Rear Control Doors

The driver/officer jack and master control switch panels at the rear of the body shall be provided with access doors. The doors shall have the same finish as the rear of the body.

1.36.10 Wheelwell Compartments

Four (4) wheelwell storage compartments located two (2) each side in the body wheelwell shall be provided.

The compartments shall be approximately 24" wide x 6" high x maximum depth permissible without interference with hydraulic line(s) reservoir(s) etc and shall include drain holes to prevent the accumulation of water. A gasketed drop down door shall be installed on each compartment constructed from aluminum plate. The door finish shall match the body wheelwell. Each door shall utilize a stainless steel hinge and include two (2) push button latches.



The doors shall be wired to the hazard light in the cab per NFPA.

1.36.11 Auxiliary Ground Pads

Four (4) auxiliary ground pads shall be provided. The pads shall be 26" x 26" x 1/2" thick aluminum plate with a 20 degree formed handle with cutout for hand hold. The pads shall be stored in double brackets holding two (2) pads each that are welded below the body.

1.37 DOORS

1.37.1 Single Compartment Door

A single compartment door shall be constructed using a box pan configuration. The outer door pan shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pan shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.

The compartment door shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have a gas shock-style hold-open device.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): R3, R4, R5

1.37.2 Single Compartment Door

A single compartment door shall be constructed using a box pan configuration. The outer door pan shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pan shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.



The compartment door shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have gas shock-style hold-open devices.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): L3, L4

1.37.3 Roll Up Compartment Door

A ROM brand roll up door with satin finish shall be provided on a compartment up to 45" tall. The door(s) shall be installed in the following location(s): L5.

The Robinson door slats shall be double wall box frame and manufactured from anodized aluminum. The slats shall have interlocking end shoes on each slat. The slats shall have interlocking joints with a PVC/vinyl inner seal to prevent any metal to metal contact and inhibit moisture and dust penetration.

The track shall be anodized aluminum with a finishing flange incorporated to provide a finished look around the perimeter of the door without additional trim or caulking. The track shall have a replaceable side seal to prevent water and dust from entering the compartment.

The doors shall be counterbalanced for ease in operation. A full width latch bar shall be operable with one hand, even with heavy gloves. Securing method shall be a positive latch device.

A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation.

The door opening shall be reduced by 2" in width and approximately 8-9" in height depending on door height.

1.37.4 Roll Up Compartment Door

A ROM brand roll up door with satin finish shall be provided on a compartment greater than 45" tall. The door(s) shall be installed in the following location(s): L1, L2, R1, R2.



The Robinson door slats shall be double wall box frame and manufactured from anodized aluminum. The slats shall have interlocking end shoes on each slat. The slats shall have interlocking joints with a PVC/vinyl inner seal to prevent any metal to metal contact and inhibit moisture and dust penetration.

The track shall be anodized aluminum with a finishing flange incorporated to provide a finished look around the perimeter of the door without additional trim or caulking. The track shall have a replaceable side seal to prevent water and dust from entering the compartment.

The doors shall be counterbalanced for ease in operation. A full width latch bar shall be operable with one hand, even with heavy gloves. Securing method shall be a positive latch device.

A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation.

The door opening shall be reduced by 2" in width and approximately 8-9" in height depending on door height.

1.37.5 Drip Pan

A ROM drip pan shall be supplied for each roll-up door. The drip pan shall be made from a high strength aluminum alloy. The splashguard and end caps shall be made from extruded and injection molded high-impact plastic. Drip pan location(s): L1, L2, L5, R1, R2.

1.37.6 Keyed Latch

A locking D-ring with two (2) #1250 keys shall be installed on a box pan compartment door.

A locking D-ring shall be located on the following door(s): L3, L4, R3, R4, R5.

The roll-up door shall be provided with locking mechanism. Two (2) #1250 keys shall be provided for the roll-up compartment door.

A locking roll-up door shall be provided in the following location(s): L1, L2, L5, R1, R2.

1.38 SHELVES

1.38.1 Permanent Shelf [Qty: 4]

There shall be a permanent mounted aluminum shelf provided for a compartment as specified. The shelf shall be at the offset (unless otherwise specified) within the compartment.



The shelf shall be constructed of 3/16" (.187") smooth aluminum plate. The shelf shall have a minimum 2" front lip for added strength and reinforcement and to accommodate optional plastic interlocking compartment tile systems.

The shelf shall be capable of holding 100 lbs.

1.38.2 Adjustable Shelf [Qty: 4]

There shall be an aluminum adjustable shelf provided for a compartment as specified. The shelf shall be constructed of 3/16" (.187") smooth aluminum plate. The shelf shall have a minimum 2" front and rear lips to accommodate optional plastic interlocking compartment tile systems and shall be capable of holding 100 lbs on compartments with tracks mounted on back wall (compartments up to approximately 12" deep) or shall be capable of holding 250 lbs with tracks mounted on forward and rearward walls.

The shelf shall be sized, width and depth, to match the size and location in the compartment.

1.39 TRAYS / TOOLBOARDS

1.39.1 Roll-Out Tray [Qty: 4]

There shall be a floor mounted roll-out tray provided in a compartment as specified. The roll-out tray shall be constructed of 3/16" (.187") smooth aluminum plate with a sanded finish and welded corners for increased strength and rigidity. The tray shall be sized in width and depth as applicable.

For greater tray accessibility, the drawer slides shall feature one hundred percent extension. The tray shall utilize a gas spring to secure the tray in the open or closed position.

The tray shall have a total capacity of 500 lbs.

1.39.2 Roll-Out Tray [Qty: 2]

There shall be an adjustable roll-out tray provided in a compartment as specified. The roll-out tray shall be constructed of 3/16" (.187) smooth aluminum with welded corners for strength and rigidity. The tray shall be sized in width and depth as applicable.

For greater tray accessibility, the drawer slides shall feature one hundred percent extension. The tray shall utilize a gas shock to hold the tray in an open or closed position.

The tray shall have a total capacity of 500 lbs.



1.39.3 Roll-Out Tilt Down Tray

A roll-out/tilt-down tray(s) shall be floor mounted in compartment(s) as specified. The tray(s) shall be constructed of 3/16" (.187") smooth aluminum plate with welded corners for increased strength and rigidity. The tray shall be sized in width and depth as applicable.

An Innovative Industries SlideMaster (model MT) aluminum tip down frame and channel assembly shall be provided for the tray(s) for the ease of operation and long service life. A positive twist lock shall be provided to secure the tray(s) in the stored position. The tray(s) shall roll-out approximately 90% from the stored position and shall tip 30 degrees downward from horizontal.

The capacity rating of the tray, in the extended position, shall be 200 lb. uniformly distributed load.

1.39.4 Runningboard Suction Tray

A running board suction hose storage tray (approx. 35"W) shall be provided and located in the officer side running board.

The tray shall be recessed mounted and constructed of 1/8" (.125") aluminum diamond plate (exterior) with a smooth surface interior. The bottom of the tray shall have removable aluminum slats and drain holes to allow water drainage from hose stored in the tray.

1.40 COVERS

1.40.1 Aluminum Cover Hose Bed

An aluminum cover shall be provided to protect fire hose stored in the hose bed. The hose bed cover shall be constructed of 1/8" aluminum tread brite and shall be two piece in design. Cover shall be hinged with full-length stainless steel knuckle hinges. For ease of use a pneumatic cylinder (gas shock) shall be used on each cover. Each cover shall also have a recessed handle.

Each cover shall have a single water and corrosion resistant switch that will activate the 2" red flashing door ajar light in the cab to alert the driver that a cover is open.

1.40.2 Rear Hose Bed Cover

A cover constructed of Red 18 oz. PVC vinyl coated polyester shall be installed at the rear apparatus hose bed. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 per square inch.

The top of the cover shall be mechanically attached to the rear hose bed cover extrusion. The lower portion of the cover shall be secured in place with heavy duty nylon straps to comply with the latest edition of NFPA 1901.



1.40.3 Crosslay Cover

A crosslay cover shall be provided for the crosslay storage area of the pump module. The crosslay cover shall be provided in compliance with NFPA 1901.

The crosslay cover shall be constructed from 3/16" (.187") aluminum treadplate. The cover shall include a full-length stainless steel 1/4" (0.25") rod piano-type hinge. The cover shall be hinged to open and not interfere with applicable plumbing components on the apparatus.

The crosslay cover shall include applicable grab handle(s) and two (2) butterfly style latches to secure the cover in the closed position.

1.40.4 Crosslay Cover Hinge

The crosslay cover shall be hinged along the forward edge of the crosslay area.

1.40.5 Crosslay Cover – Sides

A pair of covers constructed of Red 18 oz. PVC vinyl coated polyester shall be installed over the side openings of the apparatus crosslay. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 square inch.

The covers shall be secured in place to comply with the latest edition of NFPA 1901.

1.40.6 Running Board Tray Securing Strap

A heavy duty black nylon strap with an aluminum quick-release buckle shall be provided for the running board hose tray(s). The strap shall be attached to the inboard side of the tray as low as practical to allow cinching of strap for securing tray contents and shall not reduce the overall tray capacity.

Location: officer side running board.

1.40.7 Hold Open

Hold open device(s) shall be provided for aluminum crosslay (single or bi-fold) cover.

1.41 PUMP PANELS

1.41.1 Side Mount Pump Panels

The driver and officer side pump panels shall be constructed of 14 gauge stainless steel. Each panel shall have the ability to be removed from the module for easier access and for maintenance in the pump area.



1.41.2 Pump Access Door

The officer side pump module shall have a three (3) piece panel, one (1) above the discharge outlets, one (1) encompassing the discharges and intakes and one (1) low for bleeder valves.

The upper two (2) pump panel sections shall have a vertical stainless steel piano type hinge with 1/4" pins along the forward edge of the pump module. The hinges shall be "staked" on every other knuckle to prevent the pin from sliding. The panels shall have push button style latches to secure the panels in the closed position. The upper panel shall have one (1) pneumatic shock to hold the panel in the open position.

1.42 MISC PUMP PANEL OPTIONS

1.42.1 Pump Panel Tags

Color coded pump panel labels shall be supplied to be in accordance with NFPA 1901 compliance.

1.42.2 Air Outlet

A 3/8" female air hose fitting shall be mounted with a 3/8" valve. The fitting and valve shall be connected to the air reservoir tank.

Location: driver's side pump panel, officer's side pump panel.

1.43 PUMP MODULE OPTIONS

1.43.1 Backboard Storage Compartment

A compartment shall be provided for storage of up to three (3) backboards above the pump panel area. The storage area is to be fully enclosed with a vertical hinged diamond plate access door provided at each side for easy access from both sides of the apparatus. The doors shall be equipped with glove box style latches.

1.43.2 Air Horn Switch

A heavy duty weatherproof push-button switch shall be installed at the pump operator's panel to operate the air horns.

The switch shall be labeled "Air Horn".

Location: driver side pump panel.

1.44 WATER TANK

1.44.1 Booster Tank



The booster tank shall be T-shaped in configuration and shall have a minimum capacity of 300 gallons.

The booster tank shall be constructed of polypropylene material. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal.

The booster tank top, sides, and bottom shall be constructed of a minimum 1/2" (0.50") thick black UV-stabilized copolymer polypropylene. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The tank cover shall be constructed of 1/2" thick polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions.

The tank shall have a combination vent and manual fill tower with a hinged lid. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter (subject to change for specific design applications). The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 1/4" thick removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.

The booster tank shall have two (2) tank plumbing openings. One (1) for a tank-to-pump suction line with an anti-swirl plate, and one (1) for a tank fill line. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates per the tank fill inlet size.

The sump shall be constructed of a minimum of 1/2" polypropylene. The sump shall have a minimum 3" N.P.T. threaded outlet for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3" above the inside floor.

The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength.



Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with an I.D. of 3" or larger that is designed to run through the tank. This outlet shall direct the draining of overflow water past the rear axle, thus reducing the possibility of freeze-up of these components in cold environments. This drain configuration shall also assure that rear axle tire traction shall not be affected when moving forward.

The booster tank shall undergo extensive testing prior to installation in the truck. All water tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale.

Each tank shall be weighed empty and full to provide precise fluid capacity. Each tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.

A tag shall be installed on the apparatus in a convenient location and contain pertinent information including a QR code readable by commercially available smart phones. The information contained on the tag shall include the capacity of the water and foam (s), the maximum fill and pressure rates, the serial number of the tank, the date of manufacture, the tank manufacturer, and contact information. The QR code will allow the user to connect with the tank manufacturer for additional information and assistance.

The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.

1.45 TANK PLUMBING

1.45.1 Tank Fill 2 Akron Valve

One (1) 2" pump-to-tank fill line having a 2" manually operated full flow valve. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times. The fill line shall be controlled using a chrome handle with an integral tag.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.



All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

1.45.2 Tank to Pump, 3" Akron Valve

One (1) manually operated 3" Akron valve shall be installed between the pump suction and the booster tank in order to pump water from the tank. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

1.46 LADDER STORAGE / RACKS

1.46.1 Rear Ladder Storage

A ladder storage tunnel shall be provided beneath the aerial device frame work. There shall be access to the ladders via an opening at the rear.

The ladders will be held captive top and bottom by aluminum tracks and slide on friction reducing material. All ladders shall be removable individually without having to remove any other ladder.

The ladder tunnel shall hold: (1)PEL-35, (1)PEL-28, (1) PRL-20, (1)PRL-16 and (1)FL-10 (with rubber block feet and no handles).

1.47 HANDRAILS / STEPS

1.47.1 Slide-Out Platform

The slide-out platform shall be approximately 21" deep and shall be constructed of 1/8" aluminum treadplate. The platform shall be mounted under the apparatus body. The platform shall utilize a maintenance-free slide system incorporating stainless steel shoulder bolts that slide in slotted heavy wall aluminum angles. Notches shall be provided at each end of the slots to hold the platform in both the extended and retracted positions.

A chrome grab handle shall be provided on the front face of the platform for ease of operation.



Non-slip aluminum hand rail(s) with chrome plated stanchions shall be provided as best suited for use with the platform operation.

If applicable, NFPA pump throttle height requirement shall be measured from the top of the slide-out platform on all aerials and from the ground on side mounted pump operator panels on non-aerial apparatus.

Location: below driver side pump panel.

1.18 MISC BODY OPTIONS

1.48.1 Mud Flaps

Black mud flaps with logo shall be provided for the body wheel wells.

1.48.2 Hose Bed Divider

There shall be a hose bed divider provided the full fore-aft length of the hose bed.

The hose bed divider shall be constructed of 1/4" (0.25") smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divider shall have a 3" radius corner to protect personnel. The divider shall be natural finish aluminum for long-lasting appearance and shall be sanded and de-burred to prevent damage to the hose.

The divider shall be adjustable from side to side in the hose bed to accommodate varying hose loads.

1.48.3 Floor Matting

This unit shall have all applicable compartment floors, shelves, and trays covered with a heavy duty Turtle Tile brand Black floor matting.

1.48.4 Fuel Fill

A recessed fuel fill shall be provided at the driver side rear wheel well area.

1.48.5 Side Body Platework

The painted aluminum smooth plate body side panels shall be flush with the supporting extrusions.

1.48.6 Anodize Aluminum Trim

A anodize aluminum trim shall be located at the bottom edge of all body compartment openings with painted edge (as applicable). The trim shall provide added protection of the painted surface of the body when equipment is removed from the compartment.



1.48.7 Body Wheel Well

The body wheel well frame shall be constructed from 6063-T5 aluminum extrusion with a slot the full length to permit an internal fit of 1/8" (0.125") aluminum treadplate.

The fenderettes shall be bolt-on and shall be easily removable. The fenderette shall be constructed from .080" aluminum with a mirror finish. The fenderette shall be 2 1/2" (2.5") wide x 2 1/4" (2.25") tall with a 26 7/8" (26.875") radius. A "P" shaped rubber gasket shall be provided between the fenderette and wheel well body panel (as applicable).

The wheel well liners shall be constructed of a 3/16" (.187") composite material. The liners shall be bolt-on and shall provide a maintenance-free and damage-resistant surface.

1.49 SCBA BOTTLE STORAGE

1.49.1 SCBA Wheel Well Bottle Storage

The body wheel well area shall store up to eight (8) SCBA bottles- four (4) on the officer side and four (4) on the driver side. The bottles shall be secured in each storage area by a vertical hinged door which shall be secured in the closed position by a push button latch. The doors shall have a brushed stainless steel finish.

Each storage area shall provide individual storage of a bottle and shall not allow forward or rearward movement of the bottle. The bottle(s) shall be removable from the storage area without the bottle(s) coming into contact with any surface area of the wheel well (NO EXCEPTIONS).

1.49.2 SCBA Strap

Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon webbing formed in a loop. The strap(s) shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.

1.50 PUMPS

1.50.1 Pump Rating

The fire pump shall be rated at 1750 GPM.

1.50.2 Fire Pump System

The pump shall be a midship-mounted Hale QMAX single stage centrifugal pump. The pump shall be mounted on the chassis frame rails of commercial or custom truck chassis and have the capacity of 1,250 to 2,250 gallons per minute (U.S. GPM) NFPA 1901 rated performance, and shall be split-shaft driven from the truck transmission.



The entire pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 psi (207 MPa). All metal moving parts in contact with water shall be of high quality bronze or stainless steel. Pump body shall be horizontally split in two sections, for easy removal of impeller assembly including wear rings and bearings from beneath the pump without disturbing pump mounting or piping.

The pump impeller shall be hard, fine grain bronze of the mixed flow design and shall be individually ground and hand balanced. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body, and of wrap-around double labyrinth design for maximum efficiency.

The pump shaft shall be heat-treated, corrosion-resistant stainless steel and shall be rigidly supported by three (3) bearings for minimum deflection. The sleeve bearing is to be lubricated by a force fed, automatic oil lubricated design, pressure-balanced to exclude foreign material. The remaining bearings shall be heavy-duty, deep groove ball bearings in the gearbox and shall be splash-lubricated. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of the gearbox.

Two (2) 6" diameter suction ports with 6" NST male threads and removable screens shall be provided, one each side. The ports shall be mounted one (1) on each side of the midship pump and shall extend through the side pump panels. Inlets shall come equipped with long handle chrome caps.

1.50.3 Discharge Manifold

The pump system shall utilize a stainless steel discharge manifold system that allows a direct flow of water to discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion.

1.50.4 Pump Shift

The pump shift shall be pneumatically-controlled using a power shifting cylinder. The power shift control valve shall be mounted in the cab and be labeled "PUMP SHIFT". The apparatus transmission shift control shall be furnished with a positive lever, preventing accidental shifting of the chassis transmission.

A green indicator light shall be located in the cab and be labeled "PUMP ENGAGED". The light shall not activate until the pump shift has completed its full travel into pump engagement position.

A second green indicator light shall be located in the cab and be labeled "OK TO PUMP". This light shall be energized when both the pump shift has been completed and the chassis automatic transmission has obtained converter lock-up (4th gear lock-up).



1.50.5 Test Ports

Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump.

1.50.6 Gearbox Cooler

A gearbox cooler shall be provided to maintain safe operating temperatures during prolonged pumping operations for pump rating 1500 GPM and over.

1.51 PUMP CERTIFICATION

1.51.1 Pump Certification

The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. The pump shall be tested at the manufacturer's facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in current NFPA 1901.

The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.

A piping hydrostatic test shall be performed as outlined in current NFPA 1901. The pump shall deliver the percentage of rated capacities at pressures indicated below:

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

A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-load governed speed of the engine.

A Certificate of Inspection certifying performance of the pump and all related components shall be provided at time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer's Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer.



1.52 PUMP OPTIONS

1.52.1 Steamers Flush

The pump 6" Steamer/Intake(s) shall be "Flush" mounted with cap installed close as possible/practicable to pump panel. Actual dimension will vary due to pump module width and options selected. The Flush option could result in panel scratching.

Example 72" or 76".

Location: driver's side, officer's side.

1.52.2 Zinc Anodes

The zinc anodes help prevent damage caused by galvanic corrosion within the fire pump. The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One anode will be located on the suction side and one will be located on the discharge side of the pump.

1.52.3 Vernier Engine Throttle

One (1) vernier type throttle shall be mounted on the pump operator's panel and shall be used to control the engine RPM. This system, specifically designed for fire apparatus, shall monitor and control the engine providing power to the fire pump. The system shall control the engine speed when the pump system has been placed into gear. The system shall monitor engine RPM and shall maintain the engines selected speed.

One (1) pump panel mounted "GREEN" indicator light shall be positioned above the throttle control on the pump operator's panel. The light shall be energized when the pump shift has been completed, chassis automatic transmission has obtained converter lock-up (4th gear lock-up), and the chassis parking brake is set.

An interlock system shall be provided to prevent the advancement of the engine speed until the apparatus parking brake is applied, the chassis transmission is in the proper gear, and the fire pump gearbox is properly engaged. When the above conditions have been met, the "OK TO PUMP" light shall be illuminated.

1.52.4 Throttle Selection Switch

A throttle selection switch shall be provided and mounted on the pump operator's panel. The switch shall be provided to allow the operator to toggle between the pump/throttle relief system and the pressure governor.

The throttle selection switch and pump discharge relief valve controller shall be provided as a back-up to the pressure governor.



1.52.5 Hale Pump Shift Override

One Hale (1) manual pump shift override shall be side panel mounted to engage the fire pump in the event of an air pressure failure. The pump shift shall be operated by a chrome handled push-pull cable.

1.52.6 Mechanical Pump Seal

The midship pump shall be equipped with a high quality, spring loaded, self-adjusting mechanical seal capable of providing a positive seal to atmosphere under all pumping conditions. This positive seal to atmosphere must be achievable under vacuum conditions up to 26 Hg (draft) or positive suction pressures up to 250 psi.

The mechanical seal assembly shall be 2 inches in diameter and consist of a carbon sealing ring, stainless steel coil spring, Viton rubber boot, and a tungsten carbide seat, with a Teflon back-up seal provided.

Only one mechanical seal shall be required, located on the first stage suction (inboard) side of the pump and be designed to be compatible with a one piece pump shaft (no exceptions). A continuous cooling flow of water from the pump shall be directed through the seal chamber when the pump is in operation.

1.52.7 Manual Master Drain

A manual master drain valve shall be installed and operated from the driver side. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal.

The manual master drain valve shall have twelve (12) individually-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.

The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.

1.52.8 Hale Pressure Relief Valve

A Hale pressure relief valve shall be provided and mounted on the pump operator's panel. The pump shall be equipped with an automatic pressure control device. A single bronze variable pressure setting relief valve shall be provided and be of ample capacity to prevent an undue pressure rise as outlined in NFPA 1901. The relief valve shall be normally closed and shall open against pump pressure. A relief valve control wheel with a control light to signal when open shall be mounted on the pump operator's panel.



1.52.9 Pump Cooler

The pump shall have a 3/8" line installed from the pump discharge to the booster tank to allow a small amount of water to circulate through the pump casing in order to cool the pump during sustained periods of pump operation when water is not being discharged. The pump cooler line shall be controlled from the pump operator's panel by a Innovative Controls 1/4 turn valve with "T" handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag

1.52.10 Trident Primer

A Trident air operated priming system shall be installed. The unit shall be of all brass and stainless steel construction and designed for fire pumps of 1,250 GPM (4,600 LPM) or more. Due to corrosion exposure no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design with 3/4" NPT connection to the fire pump. The primer shall be mounted above the pump impeller so that the priming line will automatically drain back to the pump. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass "wye" type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

The system shall create vacuum by using air from the chassis air brake system through a two-barrel multi-stage internal "venturi nozzles" within the primer body. The noise level during operation of the primer shall not exceed 75 Db.

1.52.11 Air Flow Requirements

The primer shall require a minimum of 15.6 cubic foot per minute air compressor and shall be capable of meeting drafting requirements at high idle engine speed. The air supply shall be from a chassis supplied "protected" air storage tank with a pressure protection valve. The air supply line shall have a pressure protection valve set between 70 to 80 PSIG.

1.52.12 Primer Control

The primer control shall have a manually operated, panel mounted "push to prime" air valve. The valve shall direct air pressure from the air brake storage tank to the primer body. To prevent freezing, no water shall flow to and from the panel control.

1.52.13 Primer Warranty

The primer shall be covered by a five (5) year parts warranty.



1.53 INTAKES

1.53.1 Left Intake 2.5 Akron Valve

One (1) 2-1/2" suction inlet with a manually operated 2-1/2" Akron valve shall be provided on the left side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2" NST female chrome inlet swivel, and shall be equipped with a chrome plated rockerlug plug with a retainer device.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

A 3/4" bleeder valve assembly will be installed on the left side pump panel.

1.53.2 Right Intake 2.5 Akron Valve

One (1) 2-1/2" gated suction inlet with a manual operated Akron valve shall be installed in the right side pump panel with the valve body behind the panel. The valve control shall be located at the intake and shall visually indicate the position of the valve at all times.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2" NST female chrome inlet swivel and shall be equipped with a chrome plated rockerlug plug with a retainer device.



All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

A 3/4" bleeder valve assembly will be installed on the right side pump panel.

1.54 INTAKE OPTIONS

1.54.1 Intake Pressure Relief

A18 Series - PRESSURE RELIEF VALVE - TFT's pressure relief valve is adjustable from 50 to 250 psi (3 to 14 bar) with easy to see 25 psi (2 bar) increments. The aluminum casting is plastic impregnated, hard coat anodized, and TFT powder coat finished inside and out for maximum corrosion protection. Works with Darley, Waterous, or Hale bolt hole patterns for direct use on pump flanges.

1.55 DISCHARGES AND PRECONNECTS

1.55.1 Front Jump Line 1.5 Akron Valve

One (1) 1-1/2" preconnect outlet with a manually operated Akron valve shall be supplied to the extended front bumper. The preconnect shall consist of a 2" heavy duty hose coming from the pump discharge manifold to a 2" FNPT x 1-1/2" MNST mechanical swivel hose connection to permit the use of the hose from either side of the apparatus.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

An air blow-out valve shall be installed between the chassis air reservoir and the front jump line. The control shall be installed on the pump operator's panel.

The discharge shall be supplied with a Class 1 automatic 3/4" drain valve assembly. The automatic drain shall have an all-brass body with stainless steel check assembly. The drain shall normally be open and automatically close when the pressure is greater than 6 psi.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.



1.55.2 Swivel Elbow, Polished Stainless Steel

There shall be a polished stainless steel swivel elbow provided for the front bumper discharge located on top of the bumper officer's side of center tray.

1.55.3 Single Crosslay Akron Valve [Qty: 2]

One (1) single crosslay discharge shall be provided at the front area of the body. The crosslay shall include one (1) 2" brass swivel with a 1-1/2" hose connection to permit the use of hose from either side of the apparatus.

The crosslay hose bed shall consist of a 2" heavy-duty hose coming from the pump discharge manifold to the 2" swivel. The hose shall be connected to a manually operated 2" Akron valve. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: crosslay 1 & 2.

1.55.4 Left Panel 2.5 Discharge Akron Valve [Qty:2]

One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be provided at the left hand side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.



All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: left side discharge 1, left side discharge 2.

1.55.5 Right Panel 2.5 Discharge Akron Valve

One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Right side 3" discharge (1)

1.55.6 Specification

Discharge 3 Right Panel Akron Handwheel

One (1) 3" discharge outlet with a handwheel operated Akron valve shall be provided at the right side pump panel.

The valve shall be an Akron 8600HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The handwheel valve control shall have the following features:

- Handwheel driven worm gear rotates a gear sector for smoother and easier operation under pressure.
- A 50:1 ratio



- 4" handwheel
- 12 1/2 turns for full open/close.
- Opening and closing speed complies with the current edition of NFPA.
- Portrait position indicator which shows the position of the valve ball to meet NFPA 1901.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: (location to be specified).

1.55.7 4" Waterway Discharge Electric Akron

A 4" diameter discharge with an electrically actuated Akron valve shall be provided from the pump to the aerial waterway.

The valve shall be 4" Akron 8800HD series with bronze flat ball and polymer seals for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the brass ball when in a throttle position with water flowing. The valve shall be of the unique Akron Swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing. The end of the discharge outlet shall be equipped with a chrome-plated, rocker-lug cap with a retainer.

The valve shall utilize an electric driven worm gear actuator. The valve may also be operated manually in case of electrical system failure.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

1.56 DISCHARGE OPTIONS

1.56.1 IC Push/Pull Control

The apparatus pump panel shall be equipped with Innovative Controls Side Mount Valve Controls. The ergonomically designed ¼ turn push-pull T-handle shall be chrome-plated zinc with recessed labels for color-coding and verbiage. An anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated zinc panel-mounting bezel with areas for color-coding and/or FOAM and CAFS identification labels.



1.56.2 Bleeder Drain Valve [Qty: 7]

The bleeder/drain valves shall be Innovative Controls ¾" ball brass drain valves with chrome-plated lift lever handles and ergonomic grips. Each lift handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve, also supplied by Innovative Controls. The color labels shall also include valve open and close verbiage.

1.56.3 Discharge/Intake Bezel

Innovative Controls intake and/or discharge swing handle bezels shall be installed to the apparatus with mounting bolts. These bezel assemblies will be used to identify intake and/or discharge ports with color and verbiage. These bezel are designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The specified assemblies feature a chrome-plated panel-mount bezel with durable UV resistant polycarbonate inserts. These UV resistant polycarbonate graphic inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

1.56.4 Akron Electric Valve 9333 Controller

An Akron Brass Style 9333 Valve Controller shall be provided with a five year manufacturer warranty. The display shall be a full color LCD display with a backlight and manual adjustment of the brightness as well as an auto-dimming option. The electric controls shall provide true position feedback, requiring no clutches in the motor or current limiting. The unit shall be sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. The controller will provide an LCD display showing valve position indication and have up to three preset locations that can be user set and easily recalled upon each use. Valve position indication will be determined from true position feedback and indicate the exact position of the valve.

Two additional buttons shall be available to be used for preset selection, preset activation and menu navigation.

Locate on pump operator panel to control waterway discharge.

1.57 PRESSURE GOVERNORS

1.57.1 Pump Pressure Governor

The apparatus shall be equipped with a Class 1 "TOTAL PRESSURE GOVERNOR" (TPG) Integrated pump control system. The TPG shall have a weatherproof color display. The TPG will operate as an engine/pump pressure governor/throttle system that is connected directly to the Electronic Control Module (ECM) mounted on the engine. The TPG is to operate as a pressure sensor (regulating) governor (PSG).



The TPG shall display engine RPM, oil pressure, engine temperature and voltage along with providing critical warnings. The warning levels for oil pressure, high engine temperature, low voltage and high voltage shall be independently programmable.

1.58 GAUGES

1.58.1 Hourmeter

A 2" weatherproof hourmeter shall be located on the pump operator's panel.
Transmission Oil Temp Gauge

A 2" weatherproof Transmission Oil Temp Gauge shall be pump panel mounted.

1.58.2 Transmission Oil Temp Gauge

A 2" weatherproof Transmission Oil Temp Gauge shall be pump panel mounted.

1.58.3 Fuel Gauge

A 2" weatherproof hourmeter shall be located on the pump operator's panel.

1.59 GAUGE IC 10 LED WATER TANK LEVEL

One (1) Innovative Controls brand water tank level gauge shall be located at the pump operator's panel to provide a high-visibility display of the water tank level. Ten (10) high-intensity light emitting diodes (LED's) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.

1.59.1 ENFO IV System

The apparatus shall be equipped with a Class 1 ENFO IV electronic system and engine operating information display/warning system mounted on the pump operator's panel. The gauge shall be a self-contained, weatherproof display, approximately 4.5" H x 6" W. Features:



- Engine RPM - engine RPM shall be displayed numerically.
- System voltage display and alarm - a display shall be provided to indicate voltage and an audible alarm warning of low voltage. If the system voltage drops below 11.9 volts (12V ignition), or below 23.8 volts (24V ignition), for more than 2 seconds the audible alarm shall activate and shall cause the display to alternate between the current value and "LO" to warn the operator.
- Engine temperature display and alarm - a display shall be provided to indicate engine temperature and an audible alarm warning of high engine temperature. If the engine temperature reaches 250 degrees F or higher the audible alarm shall activate and the display shall alternate between the current temperature and "HI" to warn the operator.
- Engine oil pressure display and alarm - a display shall be provided to indicate oil pressure and an audible alarm warning of low oil pressure. If the oil pressure drops to 10 PSI or lower the audible alarm shall activate and the display shall alternate between the current pressure and "LO" to warn the operator.

The connection to the apparatus shall be achieved by the use of a Deutsch four (4) position socket connector.

1.59.2 Flow Meter System

The apparatus shall be equipped with a Class 1 Flowminder on the specified discharge to digitally display the actual volume of water (in gallons per minute) being discharged through the specified line.

Flowminder shall consist of:

Weatherproof digital flow display with super-bright digits at least 1/2" high. The display shall read actual flow and shall switch to total flow when the totalizer button is depressed and held.

Flow transmitter mounted in the discharge line piping between the pump and the discharge outlet. The transmitter shall consist of a weather resistant black anodized housing with brass wetted parts with a double paddle wheel.

Connecting cables to connect the digital display to the flow transmitter and apparatus power.

Machined mounting hardware to hold the transmitter in position in the discharge line. The flow meter shall be checked and calibrated prior to delivery of the apparatus.

The Flowminder shall be installed in addition to the pressure gauge.

A Flowminder shall be provided for the following discharge(s): waterway discharge.
2.5 [Qty: 7]

The valve discharge gauges shall be 2 1/2" (63mm) diameter Innovative Controls pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear



scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40F to +160F. Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

A polished chrome-plated stainless steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauges shall display a range from 0 to 400 psi with black graphics on a white background.

1.59.3 4" Master Pressure Gauges w/Bezel

The master intake and master discharge gauges shall be 4"(101mm) diameter IC pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40F to +160F. Each gauge shall meet ANSI B40.1 Grade 1A requirements with an accuracy of +/- 1% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

The two master gauges shall be installed into decorative chrome-plated zinc mounting bezel that also incorporates a test port manifold and a graphic overlay that identifies the master intake and discharge gauges, the vacuum test port, and the pressure test port. The test port manifold is solid cast brass with chrome plated plugs. The master gauges shall be installed on the pump panel no more than 6 inches apart. The gauge on the left shall be the master pump intake gauge and display a range from 30" vac to 400 psi with black graphics on a white background. The gauge on the right shall be the master pump discharge gauge and display a range from 0 to 400 psi with black graphics on a white background.

1.59.4 Flow Meter Totalizer Button

The apparatus shall be equipped with a Class 1 Totalizer button. When the totalizer button is depressed and held it will give the total volume of water that has flow through each specified discharge that is equipped with a flowmeter.



.1.60 ELECTRICAL SYSTEMS

1.60.1 Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1901. The following data shall be monitored:

- Vehicle speed MPH
- Acceleration (from speedometer) MPH/Sec.
- Deceleration (from speedometer) MPH/Sec.
- Engine speed RPM
- Engine throttle position % of full throttle
- ABS Event On/Off
- Seat occupied status Occupied Yes/No by position
- Seat belt status Buckled Yes/No by position
- Master Optical Warning Device Switch On/Off
- Time: 24 hour time
- Date: Year/Month/Day

There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.

The audible warning shall activate when the vehicle's park brake is released and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.

The visual warning shall consist of a graphical display that will continuously indicate the validity of each seat position.

The system shall include a display panel with LED back-lit ISO indicators for each seating position, seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness.

The display panel shall be located Driver side of center dash electrical cover.

1.60.2 Occupant Detection System

There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.

- Electrical System

The apparatus shall incorporate a Weldon V-MUX multiplex 12 volt electrical system. The system shall have the capability of delivering multiple signals via a CAN bus. The



electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA 1901 standards.

The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.

The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The over-current protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.

1.60.3 Multiplex System

For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:

- The network system must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this application.
- Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.
- All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.
- Each module that controls a device shall hold its own configuration program.
- Each module should be able to function as a standalone module. No “add-on” module will be acceptable to achieve this form of operation.
- Load shedding power management (8 levels).
- Switch input capability for chassis functions.
- Responsible for lighting device activation.
- Self-contained diagnostic indicators.
- Wire harness needed to interface electrical devices with multiplex modules.
- The grounds from each device should return to main ground trunk in each sub harness by the use of ultrasonic splices.



1.60.4 Wiring

All harnessing, wiring and connectors shall be manufactured to the following standard / guidelines. No exceptions.

- NFPA 1901-Standard for Automotive Fire Apparatus
- SAE J1127 and J1127
- IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies. (Class 3 – High Performance Electronic Products)

All wiring shall be copper or copper alloys of a gauge rated to carry 125 of the maximum current for which the circuit is protected. Insulated wire and cable 8ga and smaller shall be SXL, GXL, or TXL per SAE J1128. Conductors 6ga and larger shall be SXL or SGT per SAE J1127.

All wiring shall be colored coded and imprinted with the circuit's function. Minimum height of imprinted characters shall not be less than .082" plus or minus .01". The imprinted characters shall repeat at a distance not greater than 3".

A coil of wire shall be provided behind electrical appliances to allow them to be pulled away from mounting area for inspection and service work.

1.60.5 Wiring Protection

The overall covering of the conductors shall be loom or braid.

Braid style wiring covers shall be constructed using a woven PVC-coated nylon multifilament braiding yarn. The yarn shall have a diameter of no less than .04" and a tensile strength of 22lbs. The yarn shall have a service temperature rating of -65 F to 194 F. The braid shall consist of 24 strands of yarn with 21 black and 3 yellow. The yellow shall be oriented the same and be next to each other.

Wiring loom shall be flame retardant black nylon. The loom shall have a service temperature of -40 F to 300 F and be secured to the wire bundle with adhesive-backed vinyl tape.

1.60.6 Wiring Connectors

All connectors shall be Deutsch series unless a different series of connector is needed to mate to a supplier's component. The connectors and terminals shall be assembled per the connector/terminal manufacturer's specification. Crimble/Solderless terminals shall be acceptable. Heat shrink style shall be utilized unless used within the confines of the cab.



1.60.7 NFPA Required Testing of Electrical System

The apparatus shall be electrical tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with delivery documentation per requirements of NFPA #1901. The following minimum testing shall be completed by the apparatus manufacturer:

1. Reserve capacity test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test fail.

2. Alternator performance test at idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

3. Alternator performance test at full load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded by excessive battery discharge, as detected by the system required in NFPA #1901 Standard, or a system voltage of less than 11.7 volts dc for a 12 volt nominal system, for more than 120 seconds, shall be considered a test failure.

4. Low voltage alarm test:

Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts dc for a 12 volt nominal system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

1.60.8 NFPA Required Documentation

The following documentation shall be provided on delivery of the apparatus:

Documentation of the electrical system performance tests required above.

A written load analysis, including:

- The nameplate rating of the alternator
- The alternator rating under the conditions
- Each specified component load
- Individual intermittent loads



1.60.9 Multiplex Display

The V-MUX multiplex electrical system shall include a text display.

The display shall have the following features:

- Rugged vacuum fluorescent technology
- Two twenty character lines
- Programmed to show door ajar status and diagnostic information
- The display shall be located center of dash.

1.60.10 Electrical Connection Protection

The vehicle electrical system shall be made more robust by the application of a corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body. If equipped with an aerial device, the exposed connections on the aerial components shall also be protected.

The coating shall use nanotechnology to penetrate at the molecular level into uneven surfaces to create a protective water repellant film. The coating shall protect electrical connections against the environmental conditions apparatus are commonly exposed to.

1.60.11 Smart Truck Technology

- User Interface

The apparatus can be equipped with a smart truck technology system designed specifically for first responder apparatus. The system shall interconnect major apparatus CAN networks including but not limited to the chassis J1939/OBD2 data, vehicle multiplex system, water pump pressure governor, electric valves and electric actuated deck gun. The system shall securely report real-time vehicle information from these systems via cellular data to a globally supported cloud computing service for storage and real time access via web dashboards. The dashboards shall be accessible by the department's computers, tablets and smartphones.

The smart truck technology installed on the apparatus shall provide real-time notification via text or e-mail when a check engine light is displayed. The notification shall include the fault code and brief explanation for the code to reduce down-time.

The system shall feature a truck down feature on the web-based user interface to allow instant notification of needed apparatus service to both the authorized dealership and OEM via text or e-mail.

The system shall provide remote diagnostics of vehicle subsystems such as VMUX, pressure governors, electric monitors and electric valves.



By use of the web based user interface, the system shall allow for over the air programming updates to various subsystems should the need arise.

The web-based user interface shall also provide the following:

- Fuel and DEF levels
- GPS tracking
- Data logging for apparatus multiplex system
- Easy access to the NFPA VDR data

The smart truck technology shall also feature seamless integration to the HAAS ALERT Safety Cloud providing Responder to Vehicle (R2V) alerts to motorists using navigation apps such as WAZE.

The system shall be designed with an open architecture to incorporate future growth with new technology partners designed to enhance fireground operations

1.60.12 Hardware / Vehicle Gateway

The vehicle gateway module shall be rugged in construction using a durable cast aluminum enclosure designed for emergency vehicle applications. The module shall have sealed Deutsch connectors providing four (4) CAN network ports, one (1) RS-485 port, one (1) Ethernet RJ45 port, embedded cellular modem, Bluetooth and GPS capability. The IoT Core Vehicle Gateway shall be capable of 2 way vehicle telemetry, supporting both remote diagnostics and remote over-the-air software updates

1.60.13 Antenna

A low profile cellular antenna shall be installed on the cab roof.

1.60.14 Data Plan

A 5 year data plan shall be provided with the initial vehicle purchase. At the end of the 5 year period the department shall be given the option to extend service.

1.61 LIGHT BARS

1.61.1 Front Light Bar Color(s)

The front light bar shall be provided with the following color LED modules: Red/White with clear lenses

If applicable, includes side facing light bars when colors are the same.



1.61.2 Light Bar Mounts

Whelen model MK9S short slide bolt brackets for flat surface mounting shall be provided on the front mini light bars.

1.61.3 Light Bars

A pair of Whelen Mini Freedom IV Series 21.5" LED light bars shall be provided. The light bars shall be installed side facing at the front cab corners. Each light bar shall contain two (2) corner LED modules forward facing, one (1) forward facing short LED module, two (2) side facing long LED modules and one (1) outboard rearward facing corner LED module.

The white LEDs (if equipped) shall be switched off in blocking right of way mode.

1.62 WARNING LIGHT PACKAGES

1.62.1 Lower Level Warning Light Package

Eight (8) Whelen M6RC Super LED red light heads with clear lens and two (2) Whelen M2RC Super LED red light heads with clear lens shall be provided.

The lights shall include chrome flanges where applicable. The lights shall be wired with weatherproof connectors and shall be mounted as close to the corner points of the apparatus as is practical as follows:

- Two (2) Whelen M6RC Super LED Red lights on the front of the apparatus facing forward
- Two (2) Whelen M6RC Super LED Red lights on the rear of the apparatus facing rearward
- Two (2) lights each side of the apparatus, one (1) Whelen M6RC Super LED Red each side at the forward most point (as practical), and one (1) Whelen M2RC Super LED Red each side at the rearward most point (as practical).
- One (1) Whelen M6RC Super LED Red light each side of the apparatus centrally located to provide mid ship warning light.

The side facing lights shall be located at forward most position, centered in rear wheel well, and side facing at rear of body in rubrail if equipped.

All warning devices shall be surface mounted in compliance with NFPA standards.

1.63 WARNING LIGHTS

1.63.1 Hazard (Door Ajar) Light

There shall be a 2" red LED hazard light installed as specified.



The light shall be located center overhead.

1.63.2 Upper Rear Warning Lights

Two (2) Whelen model L31H Super LED beacons with Red LED with Clear lens domes shall be supplied.

The lights shall be located above L2/R2 compartments offset rearward to supplement upper rear warnings to meet Zone C upper requirements.

1.63.3 Upper Rear Warning Lights

Whelen model B6LED beacons shall be supplied on polished aluminum mounts. Each unit shall consist of a red LED upper beacon with clear dome and a 700 series Red with clear lenses Super LED with clear lens.

The lights shall be located rear upper body on aerial style brackets to meet Zone C upper requirements.

1.63.4 Warning Lights

Two (2) Whelen M6 series Linear Super LED red light heads with red lens shall be provided.

The rectangular lights shall include chrome flanges where applicable.

Location: (1) each side of cab down low just ahead of rear doors.

1.64 DIRECTIONAL LIGHT BARS

1.64.1 Directional Light Bar Control Location

The directional light bar control head shall be located in the center overhead.

1.64.2 Directional Traffic Warning Light

One (1) Whelen model TAM83 LED Traffic Advisor™ with clear lenses shall be provided. The light bar shall include Eight (8) TIR3™ Super-LED® lamps.

The directional bar shall include a TACTLD1 control head. The control head shall include a remote flash control and end lamp enable/disable feature.

The light shall be installed at rear of body to direct traffic around the apparatus.
Dimensions: 2.875" high x 2.25" wide x 30.36" long.



1.65 SIRENS

1.65.1 Electronic Siren

A Federal PA300 siren model 690010 solid state electronic siren with attached noise-canceling microphone shall be installed. The unit shall be capable of driving a single high power speaker up to 200 watts to achieve a sound output level that meets Class "A" requirements.

Operating modes shall include Hi-Lo, yelp, wail, P.A., air horn and radio re-broadcast. The siren shall be recessed mounted in the cab.

1.65.2 Mechanical Siren

A chrome plated and pedestal mounted Federal Q2B-P coaster siren shall be installed on top of the front bumper extension. An electric siren brake switch shall be located in the cab accessible to the driver.

The siren shall be located driver side front bumper.

1.65.3 Electronic Siren Control Location

The electronic siren control shall be located in the center of center dash upper tier (recessed, if required).

1.66 SPEAKERS

1.66.1 Siren Speaker

One (1) Federal Signal model ES100 Dynamax 100 watt speaker shall be flush mounted as far forward and as low as possible on the front of the vehicle. A polished grille shall be provided on the outside of the speaker to prevent road debris from entering the speaker.

Speaker dimensions shall be: 5.5 in. high x 5.9 in. wide x 2.5 in. deep. Weight = 5.5 lbs. The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA 1901 requirements.

The speaker shall be located driver side front bumper, officer side front bumper.



1.67 DOT LIGHTING

1.67.1 License Plate Light

One (1) Truck-Lite model 15905 white LED license plate light mounted in a Truck-Lite model 15732 chrome plated plastic license plate housing shall be mounted at the rear of the body.

1.67.2 LED Marker Lights

LED clearance/marker lights shall be installed as specified.

- **Upper Cab**
Five (5) amber LED clearance lights on the cab roof.
- **Lower Cab**
One (1) amber LED side turn/marker each side of cab ahead of the front door hinge.
- **Upper Body**
One (1) red Truck-Lite LED clearance light each side, rear of body to the side.
- **Lower Body**
Three (3) red Truck-Lite LED clearance lights centered at rear, recessed in the rubrail.
One (1) red Truck-Lite LED clearance light each side at the trailing edge of the apparatus body, recessed in the rubrail.
One (1) amber Truck-Lite LED clearance light each side front of body just in front of rear wheels, recessed in the rubrail.
One (1) amber Truck-Lite LED clearance/auxiliary turn light each side front of body, recessed in the rubrail.
- **Aerial Platform**
 - Three (3) amber LED clearance lights centered on the front lower section of the aerial platform.

1.67.3 Marker Lights

One (1) pair of Britax model 427.203.12V amber/red marker rubber housed lights shall be provided. The lights shall be located on the rear body corners mounted in the down angle position. The red lenses shall be illuminated to the rear of the apparatus and the amber shall be illuminated to the front of the apparatus. The lights shall be wired to the marker light circuit.

1.67.4 License Plate Bracket

There shall be bracket fabricated from aluminum diamond plate, secured to rear of the body to accommodate a license plate.



1.67.5 Tail Lights

Three (3) Whelen model M6 series LED (Light Emitting Diode) lights shall be installed in a vertical 3 light housing each side at rear.

Light functions shall be as follows:

- LED red running light with red brake light in upper position.
- LED amber populated arrow pattern turn signal in middle position.
- LED clear back-up light in lower position.

A one-piece chrome plastic trim shall be mounted around the three (3) individual lights in a vertical position.

1.68 LIGHTS - COMPARTMENT, STEP & GROUND

1.68.1 Medical Cabinet Lighting

One (1) ROM V4 LED compartment light strip shall be mounted in the medical cabinet(s).

The light bar shall include super bright white LEDs mounted to circuit boards that have acrylic conformal coating for corrosion protection. The LED circuit boards shall be mounted to an extruded aluminum base with lexan lens. The light shall produce 250 lumens per foot and be waterproof up to 1 meter (3.3 feet).

The light shall be controlled by a compartment door switch.

1.68.2 Compartment Light Package

Two (2) ROM V4 compartment light strips shall be mounted in each body compartment greater than 4 cu. ft. Transverse compartments shall have four (4) lights located two (2) each side.

Each light bar shall include super bright white LEDs mounted to circuit boards that have acrylic conformal coating for corrosion protection. The LED circuit boards shall be mounted to an extruded aluminum base with lexan lens. The light shall produce 250 lumens per foot and be waterproof up to 1 meter (3.3 feet).

Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel.

The wiring connection for the compartment lights shall be made with a weather-resistant plug in style connector. A single water and corrosion-resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall allow the light to illuminate if the compartment door is open.



1.68.3 Ground Lights

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA requirements. The lights shall be TecNiq model T440 4" circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug in style connector. Ground area lights shall be switched from the cab dash with the work light switch. One (1) ground light shall be supplied under each side of the front bumper extension if equipped.

Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened.

1.68.4 Step Lights

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the steps around the apparatus in accordance with current NFPA requirements. The lights shall be TecNiq model T440 4" circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life (a smaller light may be used if space is limited). The wiring connections shall be made with a weather resistant plug in style connector.

The step lights shall be switched from the cab dash with the work light switch.

1.68.5 Cab Ground / Auxiliary Step Lights

The cab shall be equipped with a sufficient quantity of lights to properly illuminate the auxiliary steps and the ground areas below them in accordance with current NFPA requirements.

The lights shall be EON LED (Light Emitting Diode) with clear lenses. The wiring connections shall be made with a weather resistant plug in style connector. The lights shall be switched from the cab dash with the work light switch. The lights shall also be activated automatically when the exit doors are opened.
Ladder Tunnel Light [Qty: 2]

An EON LED light shall be provided to illuminate the ladder tunnel at the opening. The light shall be wired through the door ajar circuit on the ladder tunnel door.

1.69 LIGHTS - DECK AND SCENE

1.69.1 Scene Lights

Two (2) Whelen model M6ZC series Linear Super LED clear scene lights shall be provided.



Each shall have Linear Super LED diodes with internal light deflecting optics. The internal light deflecting optics shall redirect the light without the use of angle brackets.

The lights shall be located (1) each side at rear below pike pole compts and be controlled by a switch in cab accessible to driver (lights on sides of apparatus to be switched separately).

1.69.2 Crosslay Light

A Whelen LED light model PFBP12C shall be installed at the rear area of the crosslay to provide crosslay lighting per current NFPA 1901. The crosslay light shall be switched with work light switch in the cab.

1.69.3 Hosebed Light

A FireTech LED light model WL2000 shall be installed at the front of the hosebed to provide crosslay lighting per current NFPA 1901. The hosebed light shall be switched with work light switch in the cab.

1.70 LIGHTS - NON-WARNING

1.70.1 Pump Compartment LED Light

An LED light shall be provided in the pump compartment area for NFPA compliance. The light shall be wired to operate with the work light switch in the cab.

1.70.2 Map Light

A Federal "Little Light" map light shall be supplied. The map light shall be 12 volt with 18" flexible gooseneck with a on/off switch and matte black finish. It shall be located at officer's A post.

1.70.3 Pump Panel Light Package

Six (6) LED pump panel lights shall be provided. The lights shall be located three (3) each side under a light shield (as applicable with intermediate steps) directly above the left and right side pump panels. The lights shall be Tecniq EON with polished stainless steel housings. The light shields shall be formed from 14 gauge brushed finish stainless steel. The work light switch in the cab shall activate the lights when the park brake is set.

1.70.4 Engine Compartment Light

There shall be lighting provided to illuminate the engine compartment area in compliance with NFPA 1901. The light shall be an Optronics ILL22 Series LED that has a polycarbonate lense, sealed / waterproof housing and integral switch. The light wiring circuit shall activate when the cab is tilted and master power is switched on.



1.70.5 LED Backing Lights

A pair of TecNiq model E60-WS20-1 LED flush mount docking/backing lights shall be provided. Each light shall provide additional lighting for backing the vehicle and shall operate when the vehicle is placed in reverse.

The lights shall be located rear wheel well offset to rear.

Specifications:

Dimensions: 6.6" x 3.125" x 2.7"

LEDs: 1

Lumens: 2000

Voltage: 9 - 30 VDC

Current: 1.25A - 1.75A

Wire: 12"

Mounting: Surface mounted with two screws

LED Colors: White

1.71 CONTROLS / SWITCHES

1.71.1 Foot Switch

A heavy duty metal floor mounted foot switch shall be installed to operate the air horns. It shall be located officer's side.

1.71.2 Foot Switch

A heavy duty metal floor mounted foot switch shall be installed to operate the Q2B siren. It shall be located driver's side.

1.71.3 Additional Switch

A 12 volt switch shall be provided.

The switch shall be located driver rear of body for rear work lights, driver's switch panel for aerial 12v tip lights.

1.71.4 Three Way Switching

An additional momentary switch with circuitry shall be provided to allow on/off operation of specified device from remote locations. The remote switch shall be mounted accessible to driver for 12V flood light on front of platform.



1.72 CAMERAS / INTERCOM

1.72.1 Back-Up Camera

A Safety Vision back-up camera model SV-625B-Kit with a color monitor model SV-CLCD70BA shall be installed. The monitor shall be installed at the front of the cab visible at night and in bright sunlight to the driver. The camera shall be mounted up high at the rear of the vehicle to provide a wide angle rear view with audio. The system shall include a cable with metallic waterproof threaded o-ring seal connectors to ensure positive connection between video cable and camera to prevent unplugging due to vibration resulting in video loss to vehicle operator.

1.72.2 Back-Up Camera Monitor Location

The back-up camera monitor shall be located on the driver's overhead.

1.72.3 Three-Way Intercom

A Fire Research ACT three-way intercom system shall be installed to provide communications between the turntable control station, the aerial tip and driver side pump panel. The intercom system shall include three (3) speakers and three (3) control modules; one (1) with a push-to-talk button at the turntable control station, one (1) with a push-to-talk button at the pump operator's panel and one (1) hands free at the aerial tip. The control modules shall have push-button volume control and a LED volume display. The hands free module shall constantly transmit to the other module unless the push-to-talk button is pressed.

The intercom shall have active noise cancellation and be designed for exterior use.

1.72.4 Intercom Wireless Cab

A FireCom wireless intercom package shall be installed within the cab interior. One (1) model 5100D digital intercom with touch pad adjustable volume with advanced digital noise reduction circuitry. The intercom uses a durable membrane switch plate to control volume and change radios.

This intercom provides hearing loss protection that can occur from exposure to high noise levels.

The system contains:

One (1) FireCom model 5100D single radio monitor shall be provided in the cab (two (2) year limited warranty).

Two (2) base transmit unit with radio/intercom only transmission, FireCom part number WB505R shall be included.



Up to ten (10) NFPA compliant headset hooks, FireCom part number 108-0678-00 shall be provided at each seated position.

- Headsets shall be ordered separately and are not included as part of the Intercom package.

1.72.5 Left and Right Side Turn Signal Cameras

Two (2) Safety Vision cameras shall be mounted on the front corners of the vehicle. They will provide a left or right view of the vehicle on the monitor, installed in the Cab when the corresponding turn signal is operated.

One (1) camera will be mounted on the left and one (1) on the right of the vehicle.

1.73 MISC ELECTRICAL

1.73.1 Back-Up Alarm

An electronic back-up alarm shall be supplied. The 97 dB alarm shall be wired into the chassis back-up lights to signal when the vehicle is in reverse gear.

12 Volt DC Power Distribution Module

A Blue Sea model 5032 12 place, split bus fuse block with ground, 12 volt DC power distribution module shall be provided. The module shall provide two isolated groups of six circuits, and shall be wired through switched hot and battery hot, and include a battery ground.

Location: behind officer's seat.

1.74 GENERATOR OPTIONS

1.74.1 Generator Pre-wire

110 Volt wiring (positive and negative) shall be provided for dealer installed 6.5 KW portable generator. Power cables shall also be provided from the breaker box to the generator mounting location. All cables shall be tagged "Generator".

Location: R2

1.75 BREAKER BOXES

1.75.1 Circuit Breaker Panel

An eight (8) place breaker box with up to six (6) appropriately sized ground-fault interrupter circuit breakers shall be supplied. The breaker box will include a master breaker sized according to the generator output which will occupy two (2) places. The breaker box will be located in the specified compartment, not to exceed 12' run of wire. Dimensions: 12.50" high x 8.88" wide x 3.80" deep.



Location: L1 back wall above jack access panel.

1.76 LIGHTS – QUARTZ

1.76.1 Cab Brow Light [Qty: 2] 11"

One (1) FireTech 12V LED double stacked flood light model FT-MB-2.9-W 11" long with a brow mount shall be provided. The light shall feature 18 LEDs` producing 6,210 usable lumens. The 90W 12V light shall draw 7.5 amps. A switch shall be provided, accessible to driver, for activation of light.

The light assembly shall be located driver and officer side front cab brow.

1.76.2 Cab Brow Light [Qty: 2] 35"

One (1) FireTech 12V LED mini-brow flood light model FT-MB-27-W 35" long shall be provided. The light shall feature 27 LEDs` producing 9,317 usable lumens. The 135W 12V light shall draw 11.25 amps. A switch shall be provided, accessible to driver, for activation of light.

The light assembly shall be located driver and officer side over rear cab door.

1.77 AERIAL MODEL

1.77.1 100 Ft. Rear Mount Elevating Platform

Elevating Platform Requirements

It is the intent of these specifications to describe a telescopic elevating platform of the open truss design that is compliant with NFPA 1901 (2016 edition) chapter 19 sections 19.7 through 19.12 and sections 19.17 through 19.25. Some portions of this specification exceed minimum NFPA recommendations and are to be considered a minimum requirement to be met.

The elevating platform shall consist of three (3) extruded aluminum telescopic ladder sections operating from approximately -6 degrees to 80 degrees and designed to provide continuous egress for firefighters and civilians from an elevated position to the turntable.

The elevating platform shall have a vertical height of not less than 100' at full extension and elevation. The measurement of height shall be consistent with NFPA 1901 section 19.7.2.

The rated horizontal reach shall be not less than 91'-6" The measurement of horizontal reach shall be consistent with NFPA 1901 19.7.3. The measurement shall be from the outer edge of the platform handrail at full extension to the centerline of turntable rotation.



The aerial shall be able to rotate 270 degrees at -6 degrees elevation, 300 degrees at -3 degrees elevation and a full 360 degrees at as low as 5 degrees of elevation (based on optional body equipment).

The aerial shall have a maximum stabilizer spread of 15'-6" from pin to pin with the stabilizers deployed to maximum extension. The aerial platform shall be rated to provide full operating capacities in up to 35 mph wind conditions.

1.77.2 Aluminum Elevating Platform

The aerial ladder shall exceed the requirements of NFPA 1901 19.7 Elevating Platform Requirements as detailed in these specifications. To ensure a high strength-to-weight ratio and an inherent corrosion resistance, the aerial device shall be completely constructed of high strength aluminum. All side rails, rungs, handrails, uprights, and K-braces shall be made of structural 6061T6 aluminum alloy extrusions. All material shall be tested and certified by the material supplier. All ladder sections shall be semi-automatically welded by inert gas shielded arc welding methods using 5356 aluminum alloy welding wire. Structural rivets or bolts shall not be utilized in the ladder weldment sections.

Due to the unpredictable nature of fire-ground operations, a minimum safety factor of 2.5 to 1 is desired. This structural safety factor shall apply to all structural aerial components including turntable and torque box stabilizer components. Definition of the structural safety factor shall be as outlined in NFPA 1901 A.19.20.1:

DL = Dead load stress. Stress produced by the weight of the aerial device and all permanently attached components.

RL = Rated capacity stress. Stress produced by the rated capacity load of the ladder.

WL = Water load stress. Stress produced by nozzle reaction force and the weight of water in the water delivery system.

FY = Material yield strength. The stress at which material exhibits permanent deformation.

$$2.5 \times \mathbf{DL} + 2.5 \times \mathbf{RL} + \mathbf{WL} \text{ equal to/less than } \mathbf{FY}$$

The minimum NFPA specification is exceeded in this paragraph by requiring safety margin above 2 to 1 while flowing water.

The stability factor or tip over safety margin shall be a minimum of 1.5 to 1 as defined by NFPA 1901 19.21.

An independent engineering firm shall verify the aerial safety factor. Design verification shall include computer modeling and analysis performed by an independent registered professional engineer. Verification shall include written certification from the independent engineering firm made available by the manufacturer upon request from the purchaser.

All welding of aerial components, including the aerial ladder sections, turntable, torque box and outriggers shall be performed by welders who are certified to American Welding Society Standards D1.1, D1.2 and D1.3 as outlined in NFPA 1901 19.22.3.1.



The weldment assemblies of each production unit shall be tested visually and mechanically by an ASNT certified level II non-destructive test technician to comply with NFPA 1901 19.22.2. Testing procedures shall conform to the American Welding Society Standard B1.10 Guide for non-destructive testing. Test methods may include dye penetrate, ultrasound, and magnetic particle where applicable.

Each ladder section shall consist of two (2) heavy extruded aluminum side rails and a combination of aluminum rungs, tubular diagonals, and two (2) full-length handrails. The rungs on all sections shall be K-braced for maximum lateral stability. This K-bracing shall extend to the center of each rung to minimize ladder side deflection.

The ladder rungs shall be designed to eliminate the need for rubber rung covers. The rungs shall be spaced on 14 inch centers and have integral skid-resistant surfaces as outlined in NFPA 1901 19.2.5. An oval-shaped rung shall be utilized to provide a larger step surface at low angles and more comfortable grip at elevated positions. The minimum design load shall be 500 pounds distributed over a 3-1/2" wide area per rung as outlined in NFPA 1901 19.2.5.4.

The aerial ladder shall exceed NFPA 1901 sections 19.2.6 and 19.2.8 governing the minimum ladder section width and handrail height. The following minimum dimensions shall be given preference by Pembroke Pines Fire Rescue in the construction of the aerial device:

Section	Width	Height
Base Section	45-1/4"	34-5/8"
Second Section	36-1/4"	30-3/8"
Fly Section	28-1/2"	26-9/16"

1.77.3 Firefighting Platform

The platform shall be entirely constructed of aluminum and mounted to the end of the fly section. The inside of the platform shall measure 37-1/4" long x 74-3/4" wide and contain a minimum of 18.9 square feet of floor space. This exceeds the minimum NFPA 1901 19.7.6 requirement of 14 square feet. A continuous railing with 42" high side rails shall be supplied on all sides of the platform. There shall be no openings below the handrail larger than 24" in either direction.

The platform shall be constructed using a perimeter pipe system to carry water and serve as a structural component of the platform. The design of the platform shall minimize the distance between ladder center line and platform bottom heat shield. This requirement is to provide maximum visibility for the driver. A 4" high kick plate and grated floor assembly shall be supplied on the platform floor. The grated floor shall prevent water accumulation in the platform. These requirements are detailed in NFPA 1901 19.7.6.3 through 19.7.6.5.

A reflective aluminum heat shield shall be supplied on the front, bottom, sides, and rear of the platform as outlined in NFPA 1901 19.7.6.6.



A step shall be supplied over the pipe system around the front and sides of the platform for easy egress. This step shall be 8" deep and provide an additional 6.5 square feet of platform floor space.

The platform shall have three (3) gates for entry and exit, exceeding the two (2) required by NFPA 1901 19.7.6.2.2 through 19.7.6.2.3. Two (2) of the gates shall be mounted on the front corners of the platform. The front gates shall be 20-1/2" wide with inward swinging spring-loaded doors. Each front door shall have an exterior mounted self latching handle. The third platform access shall be at the rear of the platform to enter from the ladder. A Fire Research Aerial Saver shall be mounted in the opening with a loop that extends under the bar. The bar shall slide up or in, but not out toward the base.

1.77.4 Fall Protection Anchors

There shall be six (6) anchorage points for fall protection provided in the platform. Four (4) anchors shall be rated at 450 pounds each for use with Class 1 travel restraint systems and two (2) anchors located on the rear wall rated at 900 pounds each for use with Class 2 fall restraints.

1.77.5 Platform Lifting Eyes

A pair of lifting eyes shall be provided below the rear of the platform. The lifting eyes shall allow for a load of 375 pounds each (750 pounds total).

1.77.6 Platform Water Curtain

A water curtain system shall be installed under the platform to provide a 75 GPM cooling stream beneath the platform as outlined in NFPA 1901 19.7.6.7. The nozzle shall be controlled from the base and tip control stations.

1.77.7 Platform Leveling System

An automatic platform leveling system shall be supplied as outlined in NFPA 1901 19.10.2. The system shall provide automatic leveling through a dual redundant hydraulic cylinder system. The system shall incorporate (4) hydraulic cylinders to level the platform. The lower cylinders shall be mounted between the aerial turntable and base section and the upper cylinders shall be mounted between the fly section and the platform. The system shall utilize oil exchange between the cylinders to provide smooth leveling at all operating positions. In addition to the automatic controls, the system shall include manual controls located at both the base and the platform to adjust platform pitch if needed. The system shall be supplied with load holding valves on the upper cylinders to prevent movement of the platform in the event of a ruptured hydraulic hose.



1.77.8 Aerial Finish

To reduce maintenance expense the aerial shall have a natural aluminum swirled finish. Visible inspection of all ladder weld joints shall be possible without having to remove paint or body filler to reveal the weld bead.

1.77.9 Ladder Extension Mechanism

Both power extension and retraction shall be furnished and meet the requirements of NFPA 1901 section 19.19, 19.20.3, and 19.5.3. Extension shall be by way of two (2) extending cylinders mounted on the side of the base section of the ladder.

Extension Cylinder Size:

Bore: 5"

Stroke: 77"

The cylinders shall operate through a block and tackle cable arrangement to extend and retract the ladder. Maximum extension of the ladder is to be automatically limited by the stroke of the cylinders. The normal operating cable safety factor shall be 5:1 and the stall safety factor shall be 2:1 based on the breaking strength of the cables. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used shall be 1 to 12. The cables shall be treated with Pre-Lube 6 for increased service life.

Ladder Cable Size:

1st section (4 cables 2 extend, 2 retract): 3/4" 6 x 19 galvanized cable

2nd section (4 cables 2 extend, 2 retract): 1/2" 6 x 19 galvanized cable

1.77.10 Ladder Slide System

The ladder assembly shall consist of three (3) separate weldments that shall extend and retract within each other. Polymer slide pads shall be utilized between each section to minimize friction. Four (4) interlocking load transfer stations shall be utilized at the end of each of the two (2) base ladder sections. The interlocking load transfer stations shall handle load transfer between ladder sections and encapsulate the slide pads.

The two (2) base ladder sections shall each be provided with six (6) slide cushions. The cushions are designed to limit movement between the ladder sections resulting in smoother operation and less wear on the ladder sections.

Aerial Extension Indicator

Reflective tape stripes shall be installed on the ladder top handrail of the base section to indicate extension in 5 foot increments. Numbers shall be supplied at 10 foot increments. A reflective dot on the base of the 2nd section shall provide a visual reference for the operator to estimate aerial elevation.

1.77.11 Elevating Platform Operating Positions

The elevating platform shall have two (2) control stations as outlined in NFPA 1901 19.9 with the lower controls capable of overriding the platform controls. The operator's lower position shall be located on the left side of the aerial turntable. The upper control console shall be located in the front center of the platform and shall include all of the operational,



aerial functions, and control switches (less the Intercom controls) as in the lower console. The centered console location shall allow easy access in and out of the left and right corner gates.

The consoles shall include lighting for night operations and controls shall all be labeled for easy identification of operation.

1.77.12 Load Indication System

Two (2) lighted elevation/safe load indicator diagrams shall be provided on the aerial ladder to indicate safe load capacity at any angle of elevation. One (1) shall be located on the lower right side of the base section, and one (1) shall be located upper left side of the fly section. The safe load indicators shall be 15`` x 15`` in size and clearly communicate aerial capacity in any one of the following conditions: tip load, tip load with water flowing, and distributed load at full extension. The charts shall identify capacity using graphic characters to indicate each 250 lb. increment. The charts shall be illuminated and contain warnings for electrocution hazards from power lines and lightning.

1.77.13 Operation Times

The aerial shall complete the NFPA 1901 19.7.5 time test in no more than 100 seconds, exceeding the NFPA minimum requirement of 150 seconds. This test involves raising the aerial from the bedded position to full elevation and extension and rotating to 90 degrees. This test is to begin with the stabilizers deployed.

Time to extend ladder (@60 degree elevation):	Maximum 45 seconds
Time to retract ladder (@60 degree elevation):	Maximum 45 seconds
Time to raise ladder (fully retracted, 0 to 75 degrees elevation):	Maximum 55 seconds
Time to raise ladder (fully extended, 0 to 75 degrees elevation):	Maximum 80 seconds
Time to lower ladder (fully retracted, 75 to 0 degrees elevation):	Maximum 50 seconds
Time to lower ladder (fully extended, 75 to 0 degrees elevation):	Maximum 75 seconds
Time to rotate 180 degrees (fully retracted at 10 degrees elevation):	Maximum 60 seconds
Time to rotate 180 degrees (fully extended at 10 degrees elevation):	Maximum 120 seconds

1.77.14 Elevating Platform Rated Capacity

The aerial device shall have a minimum rated capacity of 1250 lbs. consistent with NFPA 1901 19.8.1 and 19.8.2. The minimum rated capacity shall include 1000 lbs. in personnel allowance and 250 lbs. for equipment mounted at the tip of the aerial. The aerial device shall be rated in multiple configurations as outlined in 19.8.6.

The elevating platform shall be capable of delivering a 1250 GPM master stream from the platform while carrying a minimum of 500 lbs. as outlined in 19.8.4. A sign mounted at the base of the aerial shall communicate the following ratings in the unsupported fully extended configuration while maintaining a 2.5 to 1 safety margin as defined in NFPA 1901. The loads in each configuration are in addition to 305 lbs. of equipment mounted at the tip.

Condition #1- Tip load only, no water flowing



Elevation	Capacity	Pounds
-6 to 80 degrees	4 people	1000 lbs.
Condition #2- Distributed loads no water flowing (These include two people in the platform from -6 to 44 degrees and four people in the platform from 45 to 80 degrees)		
Elevation	Capacity	Pounds
-6 to 20 degrees	5 people	1250 lbs.
21 to 30 degrees	6 people	1500 lbs.
31 to 45 degrees	10 people	2500 lbs.
46 to 80 degrees	12 people	3000 lbs.
Condition #3- Platform tip load while flowing 1250 gpm with pre-piped waterway		
Elevation	Capacity	Pounds
-6 to 80 degrees	2 people	500 lbs

1.77.15 Hydraulic System

Hydraulic power for all operations shall be supplied by a chassis-mounted variable displacement pressure compensated pump for consistent and rapid response. The variable displacement piston pump shall be able to supply 30 GPM at a maximum pressure of 3000 PSI. The system shall operate between 1000 and 2500 PSI with flow controls to protect hydraulic components and incorporate a relief valve set at 2800 PSI to prevent over-pressurization.

An interlock device shall be provided to prevent activation of the aerial ladder hydraulic pump until either the transmission is placed in neutral and the parking brake is set, or the transmission is placed in drive and the rear driveline is disengaged as outlined in NFPA 19.17.3.

The hydraulic system shall be of the latest design and incorporate features to minimize heat build up and provide smooth control of the aerial ladder. The system shall meet the performance requirement in NFPA 19.19.6 and 19.19.7, which requires adequate cooling under 2 ½ hours of operations. To control operating system temperature, a hydraulic oil cooler shall be supplied. The air to oil cooler shall be mounted on the turntable so as not to reduce the cooling capacity of the engine. A 12-volt fan shall move air across a tube and fin radiator system. The cooler shall be mounted on the turntable ahead of the operator's console.

All hydraulic components that are non-sealing whose failure could result in the movement of the aerial shall comply with NFPA 19.19.1 and have burst strength of 4 to 1. Dynamic sealing components whose failure could cause aerial movement shall have a margin of 2 to 1 on maximum operating pressure per NFPA 19.19.1.1. All hydraulic hoses, tubes, and connections shall have minimum burst strength of 3 to 1 per NFPA 19.19.2.

The hydraulic system shall consist of a 60 gallon reservoir mounted to the torque box and plumbed to the hydraulic pump. The tank shall be supplied with a removable top to access the tank strainer filter. There shall be plumbing for a supply and return line and a tank drain on the reservoir. The reservoir cap shall be marked per NFPA 19.19.5.2. Gated valves under the tank shall facilitate filter changes. Connections on the bottom of the tank shall utilize flange fittings for ease of service.



The hydraulic system shall use 5w-20 multi-weight, SAE 32 grade oil and incorporate the following filters to provide dependable service:

Reservoir Breather:	10-micron
Magnetic Reservoir Strainer:	125-mesh
Pressure Filter (Torque Box):	3-micron
Return Filter:	10-micron

The aerial hydraulic system shall be designed in such a manner that a hydraulic pump failure or line rupture shall not allow the aerial or outriggers to lose position. Hydraulic holding valves shall be mounted directly on cylinders. To ensure reliable performance of holding valves, no hoses shall be permitted between a holding valve and cylinder.

The hydraulic system shall be designed with an auxiliary power unit meeting the guidelines of NFPA 1901 19.18.6. The auxiliary power unit shall be two (2) 12 volt pumps connected to the chassis electrical system. The pumps shall provide operation at reduced speeds to store the aerial device and stabilizers for road transportation. Self-centering switches shall be provided at the turntable and each stabilizer control station to activate the system. The system shall be designed to provide a minimum of five (5) minutes of hydraulic power to operate functions.

Hydraulic power to the ladder shall be transferred from the torque box by a hydraulic swivel.

1.77.16 Aerial Torque Box

The aerial shall utilize an integral torque box design. The integral torque box design shall serve to carry the chassis, body, and aerial device as an integrated system. The system design shall provide a lower center of gravity to enhance road performance, a mounting location for under-slung stabilizers, and additional space for body compartments. The strength of the torque box shall be a minimum 19 million-inch pounds resistance to bending moment. The stabilizers and turntable supports shall be welded directly to the torque box.

1.77.17 Stabilization

The unit shall be equipped with two sets of extendable crisscross under-slung stabilizers. The stabilizers shall have a spread of 15'-6" centerline to centerline of the stabilizer pads when fully extended. One set of stabilizers shall be mounted in the forward body area and a second set close to the rear axle to minimize impact on departure angle.

The stabilizers shall have a tip over safety margin of 1-1/2 times the rated load imposed by the aerial in any position the aerial device can be placed as outlined in NFPA 1901 19.21.2. The apparatus stabilization shall be accomplished without the assistance of the chassis suspension or tires in contact with the ground.

The aerial shall be able to sustain a 1-1/3 to 1 rated load on a 5 degree slope downward in the position most likely to cause overturning as outlined in NFPA 1901 19.21.3. The maximum ground slope the apparatus can be set up on is 14 percent. On the 14 percent slope the apparatus can be leveled within a 6 percent operating range for the apparatus.



The cylinders shall be supplied with dual pilot-operated check valves on each stabilizer cylinder to hold the cylinder in the stowed or working position should a charged line be severed at any point in the hydraulic system. The stabilizers shall level side to side, corner to corner and front to rear on uneven terrain. Stabilizers shall contain safety lock valves. This assures there will be no ``leak down`` of stabilizer legs. Mechanical pins are not required. This feature contributes to efficient set-up and field operation.

The stabilizer lift cylinders shall be sized to maximize ground penetration. The lift cylinders shall be mounted on the side of the torque box for protection and shall have the following dimensions:

Bore: 7"
Stroke: 12-1/2"

The stabilizer extension cylinders shall have the following dimensions:

Bore: 2"
Stroke: 54-3/4"

Each stabilizer that can be extended from the body shall be supplied with a red warning light as outlined in NFPA 19.21.4.4. A stabilizer extended warning light shall be supplied in the cab to warn the driver of an extended stabilizer condition as outlined in NFPA 1901 13.11. A floodlight shall be supplied in each stabilizer location to illuminate the stabilizer and ground. The light shall automatically turn on with the deployment of a stabilizer.

The stabilizer ground contact area for each foot pad shall be 10" x 14" without auxiliary pads and 26" x 26" with auxiliary pads deployed. The ground pressure shall not exceed 75 psi with auxiliary pads deployed when the apparatus is fully loaded and the aerial device is carrying its rated capacity in every position. This shall be accomplished with the stabilizer pads deployed, as outlined in NFPA 19.21.4.2.

1.77.18 Stabilizer Controls

Eight (8) electric solenoid valves shall control the stabilizers. The control switches shall be located at the rear of the apparatus so the operator may observe the stabilizers during deployment. An audible alarm with a minimum 87 dbA shall also sound while the stabilizers are in motion as required by NFPA 19.21.4.1. Stabilizer deployment shall be completed in less than 45 seconds.

There shall be an interlock that prevents the operation of the ladder until the stabilizers are down and properly set as outlined in NFPA 19.17.5. Four (4) micro-switches, one (1) on each jackleg, shall sense when all four (4) jack feet are in contact with the ground. This condition shall be indicated when all four (4) yellow jacks-down indicator lights are on and the green interlock light is on. When the apparatus has been leveled, a manual transfer switch shall be used to shift hydraulic power to ladder operations. The interlock system shall have a manual override with access through a door on the rear control panel.



To simplify leveling the apparatus, two (2) color-coded level indicators shall be supplied at the rear of the apparatus. One (1) indicator shall be for front to rear level and one (1) for side to side level.

1.77.19 Forward Aerial Support

The aerial ladder support shall be fabricated from steel components and be welded directly to the torque box chassis. The ladder support uprights shall be constructed from 7/8" thick steel plate. Bolt-in diagonal bracing shall be installed on the support structure in an "X" pattern to restrict to side movement. This design shall allow for a pre-determined amount of flex preventing premature failure that can be found in an overly rigid structure. The support shall be located behind the rear wall of the cab.

1.77.20 Turntable Support Assembly

The aerial ladder turntable assembly shall be mounted at the rear of the apparatus. The turntable support assembly shall be welded to the integral torque box for efficient transfer of aerial loads to the stabilizers and shall permit storage of ground ladders in the center rear of the apparatus. The complete turntable support assembly shall be multi-pass welded to the sides of the combination chassis frame torque box.

The turntable support assembly shall be a steel weldment constructed of four (4) vertical 1/2" x 6" x 6" square tubes with 1/2" x 5" x 5" square tubes welded around the top ends of the verticals.

A bearing mounting plate shall be welded to the top of the verticals and sides of the horizontals. The bearing mounting plate shall be 55-5/8" x 55-5/8" and shall have a 1-1/2" thickness. This bearing mounting plate shall be bulk-headed to a 3/4" steel plate that is welded to the bottoms of the horizontal tubing. The use of multi-pass welding shall be utilized wherever possible.

A 46-1/2" pitch diameter rotation bearing with a 3" face drive gear shall be bolted to the top of the bearing mounting plate with thirty (30) 7/8" grade 8 plated bolts. The gear tooth shall be involute stub tooth form.

1.77.21 Upper Turntable

The upper turntable assembly shall attach to the rotation bearing and the base of the ladder.

The turntable platform shall be a one-piece flanged steel plate that is a minimum of 96" in diameter and 3/8" thick. The right side of the turntable shall be modified to allow full access to the body's SideStacker hosebed. The working platform shall be covered with a non-skid material for operator safety.

Three (3) railings 42" high shall be provided along the outside of the turntable disc as outlined in NFPA 1901 19.18.1.



Two (2) padded Fire Research brand ManSaver safety bars shall be mounted to the turntable handrails. The bars shall lift up and inward (towards the ladder) permitting easy entrance to the ladder and control console.

The turntable assembly shall provide a mounting base for the ladder and elevating cylinders. The turntable assembly shall be bolted to the turntable bearing by thirty (30) 7/8" grade 8 plated bolts.

The ladder pivot point shall connect to the upper turntable assembly by two (2) 3" high strength pivot pins in heavy wall composite Teflon-lined bearings.

1.77.22 Elevation Mechanism

The aerial shall utilize dual 7" diameter elevating cylinders and shall attach to the upper turntable assembly and the base section of the ladder by 3" ID spherical bearings. The elevation system shall be designed following NFPA 1901 19.10.3. The elevation hydraulic cylinders shall be electronically controlled to come to a smooth, controlled stop at each end of travel. The elevation cylinders shall incorporate integral load holding valves which shall prevent aerial movement in the case of ruptured hydraulic lines to the cylinders. The hydraulic elevation cylinders shall also serve as a locking device to hold the aerial in the stored position for road travel.

1.77.23 Rotation Mechanism

The aerial shall be supplied with a hydraulically-powered rotation system as outlined in NFPA 1901 19.10.3. The two (2) high-torque hydraulic rotation motors shall provide continuous rotation under all rated conditions and be supplied with a spring-applied brake to prevent unintentional rotation. The high torque rotation drives shall operate through a dual reduction planetary gear box that drives a spur gear mated with the ring gear on the rotation bearing. The rotation gearboxes shall be rated at 120,000 in. lbs. each.

1.77.24 Aerial Electric Power

A hydraulic swivel shall be installed to provide hydraulic fluid transfer to the aerial ladder cylinders, electrical power to the aerial ladder, and water delivery to the pre-plumbed waterway while permitting continuous 360-degree rotation.

The swivel shall provide three (3) hydraulic circuits, twenty eight (28) electrical circuits, and one (1) 4" passage for water flow. Nine (9) of the electrical circuits shall be CAN bus capable. The swivel shall also be equipped with a rotary encoder to provide aerial position data to the microprocessor based control system.

The swivel shall be environmentally-sealed to prevent contamination of the hydraulic fluid.



1.77.25 Elevating Platform Water Delivery System

A 1250 GPM pre-piped waterway shall be supplied as outlined in NFPA 1901 19.12. The waterway shall telescope to the end of the third section to the platform water system. A waterway of 4'' internal diameter shall run through the turntable and a swivel joint to connect to the tubular aerial waterway. The tubular waterway shall run under the aerial ladder. The waterway tubes shall have the following sizes:

Base Section: 5'' OD
2nd Section: 4-1/2'' OD
Fly Section: 4'' OD

The tubes shall be constructed of 6063T6 anodized aluminum and shall be telescopic with the aerial ladder through sealed slip joints. The fly section waterway tubes shall be hard coated for wear resistance. The slip joints shall be designed with grease zerk fittings to facilitate lubrication.

A 1-1/2'' drain valve shall be installed and operated from the rear of the apparatus.

The water system shall be capable of flowing 1250 GPM at 100 PSI nozzle pressure at full elevation and extension. The friction loss between the tip and below the swivel shall not exceed 100 PSI while flowing 1000 GPM as outlined in NFPA 1901 19.12.1 and 19.12.2.

1.77.26 Waterway Relief Valve

An automatic relief valve preset at 250 PSI shall be installed in the aerial waterway to prevent over-pressurization of waterway system as outlined in NFPA 1901 19.12.8. The relief valve shall be mounted in the lower portion of the waterway where it enters the aerial torque box frame and dumps under the apparatus.

1.77.27 ISO Compliance

The manufacturer shall operate a Quality Management System meeting the requirements of ISO 9001:2000.

The International Organization for Standardization (ISO) is a recognized world leader in establishing and maintaining stringent manufacturing standards and values. The manufacturer's certificate of compliance affirms that these principles form the basis for a quality system that unswervingly controls design, manufacture, installation, and service. The manufacturer's quality systems shall consist of, but not be limited to, all written quality procedures (aka QOP) and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts products or processes. In addition, all apparatus assembly processes shall be documented for traceability and reference. The manufacturer shall also engage the services of a certified third party for testing purposes where required.



If the manufacturer operates more than one manufacturing facility each facility must be ISO certified.

By virtue of its ISO compliance the manufacturer shall provide an apparatus that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.

A copy of the manufacturer's certificate of ISO compliance for each manufacturing facility shall be provided with the bid.

1.78 AERIAL HYDRAULIC SYSTEM OPTIONS

1.78.1 Aerial Hydraulic Oil Level Gauge

A hydraulic oil level gauge shall be supplied for easy fluid level verification. The three-light system shall indicate full oil level with a green light, acceptable oil level with yellow light, and low oil level with a red light. The display shall be located on pump operator's panel.

1.78.2 Aerial Hydraulic Pump

The aerial hydraulic pump shall have a drive-through provision. This feature shall provide power to an additional hydraulic system from a common transmission power take-off port.

1.79 AERIAL CONTROLS

1.79.1 Platform Console Cover

A hinged cover shall be supplied to protect the platform control console. The cover shall be constructed of swirl finish aluminum plate and include a grab handle on the front to allow easy opening / closing. A gas spring shall be installed to hold the cover in the open and closed positions.

1.79.2 Aerial Control System

The aerial hydraulic system shall be equipped with a microprocessor based electric over hydraulic control system. The system shall utilize six (6) proportional control valves for aerial device movements. The electro-hydraulic valves shall permit the use of base and tip controllers and minimize hydraulic connections. The hydraulic system valve body shall be located under the ladder base step to provide as much turntable workspace as possible.

The switch modules on the console shall be CAN based for reliable operation. The system shall utilize 32-bit control module(s) rated for mobile applications.



The control system shall have manual overrides in the event of a system failure. The overrides shall be located on the turntable accessible by a door on the turntable step. The manual system shall be organized to match the base controllers and its function labeled.

1.79.3 Aerial Ladder Control Levers

The control system shall incorporate three (3) control levers at each control console. The controls shall be arranged as outlined in NFPA 19.17.7. The first lever from the left shall be the extension control (forward for extend and back for retract). The second lever shall be for rotation (forward for clockwise and back for counter clockwise). The third handle shall control elevation (forward for down and back for up). A ring around the control console shall be provided to prevent unintentional movement as outlined in NFPA 19.17.6.2.

1.79.4 Automatic Variable Speed Control

The aerial hydraulic system shall deliver variable rotation and elevation speeds based on platform position. The system shall allow the aerial to proportionately operate quicker, either through elevation or retraction, as the platform is brought in closer to the turntable centerline. This feature provides quicker ladder movement when not fully extended and/or elevated. The variable speed system also offers the operator more consistent platform movement speed (distance per second) regardless of platform location, equating to more predictable aerial control.

The aerial control system shall include electronic ramping to provide smooth acceleration and deceleration of aerial functions during sudden movements of the operator control levers. The control system shall also monitor the end of the stroke position of both the elevation and extension cylinders to bring the aerial to a smooth and controlled stop at the end of the cylinder stroke. The sensors shall be CAN based for accurate and reliable performance.

1.79.5 Aerial Speed Switch

The control system shall be provided with a slow speed (Creep) switch. This switch, when activated, shall reduce aerial operating speeds, allowing for pin-point platform placement. When in the creep mode, the ramping feature of the controls system shall be disabled allowing for precise aerial placement. When the creep speed switch is activated the chassis engine shall remain at idle speed.

1.79.6 Variable Ramping

A three (3) position switch shall be provided to select system ramping (ladder movement when initiating or ceasing movement of a control lever). The switch shall allow selection of normal (1/2 second), firm (1/4 second) or soft (3/4 second) ramping based on operator preference.



1.79.7 Cab / Body Protection

The aerial control system shall feature programming to prevent the aerial from contacting the cab and / or body. The system shall feature multiple zones to optimize operational envelop based on a specific apparatus configuration. When approaching a protected zone the aerial shall automatically ramp down in speed to come to a soft stop. An indicator shall be provided on the control system's display when the aerial reaches a protected zone. A momentary switch shall be provided to allow the aerial operator to by-pass the cab / body protection zone.

1.79.8 Display

A CAN based multifunction display shall be installed on the turntable and platform control consoles. The displays shall be a 3.2" backlit LCD to provide daylight readability and be IP67 rated. The displays shall contain four (4) integrated navigation buttons and communicate via J1939 protocol.

The displays shall provide the following information:

- Ladder extension (%)
- Ladder inclination in degrees
- Hydraulic system pressure
- Aerial hours
- Waterway flow
- Total waterway flow (with reset button)

The display shall be capable of showing system units in standard or metric values.

The background of the display shall change color based on status. Colors shall be blue/green for normal, yellow for caution and red for warning.

If equipped with breathing air the display shall provide the following additional information:

- Breathing air system max pressure (4500 psi)
- Visual and audible alarms (alarms at 20% and 5%)
- Unique alarm tone with ground level visual indicator
- Alarm mute capability
- Stow Switch

The control system shall also include a switch to deploy and stow the waterway monitor (if equipped with an electric monitor).

1.79.9 Emergency Stop Switch

An emergency stop switch shall be provided on the console that turns off the controllers and de-energizes the PTO in the event the aerial must be stopped immediately. The system shall include both visual and audible indicators that the switch has been activated.



1.79.10 Cradle Assist Switch

The control system shall also include a momentary switch to assist in stowing the aerial. The switch, in conjunction with moving the "down" aerial control lever shall cause the aerial to rotate to center and lower into the cradle. The system shall be operational when the aerial is below 30 degrees in elevation and 30 degrees left or right of center.

1.79.11 Cradle Alignment Light

A green light shall be provided at the turntable control console to indicate when the aerial is aligned for bedding.

1.79.12 Turntable Console

The turntable console shall be formed from 1/8" (.125) aluminum diamond plate and be mounted to a tubular steel support. The console shall be a single-level design and include a side hinged diamond plate cover to protect all controls from the elements. The console shall include lighting for night operations and controls shall all be labeled for easy identification of operation.

1.79.13 Foot Switch

A foot pedal switch shall be provided at the turntable control station. The switch shall be a "full shield" style to prevent unintentional engagement. The foot pedal must be pressed to allow joystick control operation.

1.79.14 Platform Pivot Control

The platform leveling system shall be designed to tilt the aerial platform up or down from within the cab. The system shall include a platform level assist feature.

The system shall include a momentary switch accessible by the driver to allow pivoting of the platform up or down. The switch shall have an integral light with two (2) colors. Green illumination shall indicate the platform is in alignment with the ladder sections and red shall indicate the platform is out of alignment. A second momentary switch shall be provided that activates the system to automatically align the platform with the aerial ladder sections.

1.80 MONITORS

1.81.1 Monitor Finish

The aerial monitor(s) shall be painted job color.



1.81.2 Electric Monitor

The aerial platform shall come equipped with an Elkhart 7400 Scorpion EXM electrically controlled monitor. The monitor shall be made from Elkhart's Teflon impregnated, hard anodized Elk-O-Lite material with a dark gray as cast finish.

The monitor shall be equipped with an SM-2000E straight stream to fog nozzle capable of discharging up to 2000 gpm at 80 psi nozzle pressure.

The operational range of the electric monitor and nozzle shall have a horizontal sweep of 180 degrees (90 degrees either side of center) and a vertical sweep of 90 degrees (45 degrees above and below horizontal). The monitor shall be able to move in the horizontal and vertical axis simultaneously.

The monitor shall have sealed high torque motors with manual override capability. The monitor shall include a CAN based electronic control system.

A battery, which continuously charges from the vehicle power system, shall provide power for monitor movement. Systems which do not utilize a battery shall not be acceptable due to the higher incidence of failure with this type of system. **NO EXCEPTIONS.**

The monitor shall be installed on the center front of the platform. Control switches for horizontal movement, vertical movement and pattern selection shall be located at the aerial operator's panel.

The monitor shall be installed on the center front of the platform.

1.81.3 Monitor Tip Controls

In addition to the controls at the operator console, electric monitor directional and stream controls shall be installed in close proximity to the monitor in the platform.

1.81.4 Platform Monitor Valve

A 4" inline butterfly valve shall be installed in the platform piping directly below the monitor. The valve shall be controlled from inside the platform by a handwheel. The valve shall be of the slow closing type to prevent sudden pressure spikes.

1.82 AERIAL WARNING LIGHTS

1.82.1 LED Outrigger Lights (4)

Four (4) Truck-Lite model 91 LED outrigger warning lights with red lenses shall be provided.



The lights shall be surface mounted on the outrigger covers in compliance with current NFPA 1901.

1.82.2 Warning Lights on Front of Platform

Four (4) Whelen M6 Series Super LED light heads with RED diodes and red lenses shall be provided. The rectangular flashing lights shall be surface mounted low across the aerial platform and be wired to the upper level warning light package.

1.82.3 Warning Lights on Sides of Platform

The aerial platform shall be supplied with two (2) Whelen M6 Super LED warning lights. The LED lights shall activate with aerial master switch.

The lenses shall be Red and be located on the side of the ground pad brackets.

1.83 AERIAL LIGHTING

1.83.1 Ladder Climbing Lights

A Luma-Bar Pathfinder LED lighting system shall be provided to illuminate the climbing area inside both sides of each ladder section. The strip type lights shall be located above ladder rung level and directed toward the centerline of the ladder to reduce glare. The lights shall be mounted to a 1.25" x .5" x .125" extruded aluminum channel and wired to not be an obstruction during climbing. The lights shall be controlled with the ladder lights switch at the operators control console.

The LED lights shall be Blue.

1.83.2 120V LED Flood Light

A Whelen Pioneer Plus series 120V LED light fixture model PFP1AC dual panel light head shall be provided on a PBA106 bail mount. The rectangular extruded light fixture with die cast end caps shall measure 8-3/16" wide by 4-1/4" high by 3" deep and have a white powder coat finish. The light fixture shall have a single panel (4) clusters of LED lamps with molded vacuum metalized reflector that draws .625 amps and produce 5,500 usable lumens.

Location(s): right rear of platform facing down.

A weather-resistant switch shall be provided on the platform control panel to control the light when the aerial power circuit is activated.



1.83.3 Base Flood/Spot Light

A pair of 12V FireTech model FT-WL3500-FT-W LED flood/spot lights shall be provided on the base section of the aerial device. Includes hardwired switch at turntable console.

1.83.4 Flood Light

One (1) FireTech 15" 12V mini single stack flood light model FT-MB-12-TR-F-B 17.65" long with a trunnion mount shall be provided powder coated black. The light shall feature 12 LEDs` producing 4,435 usable lumens. The 60W 12V light shall draw 5 amps. A switch shall be provided, accessible in platform, for activation of light.

The light assembly shall be located right front corner of platform, left front corner of platform.

1.83.5 Whelen Pioneer LED 12V Flood Light

A Whelen Pioneer Plus series 12V floodlight model PFH1 single panel light head shall be provided on a PBH106U bail mount. The rectangular extruded light fixture with die cast end caps shall measure 8.35" wide by 4.25" high by 3" deep and have a white powder coat finish. The light fixture shall have eighteen (18) white Super-LEDs with molded vacuum metalized reflector that draws 6.5 amps and produce 8,875 usable lumens.

Location(s): center front of platform, right side, rear bottom (underneath) of the platform, pointed approx 30 degrees down and forward, left side, rear bottom (underneath) of the platform, pointed approx 30 degrees down and forward.

A weather-resistant switch shall be provided on the platform control panel to control the light when the aerial power circuit is activated.

1.83.6 LED Flood Light

Whelen Pioneer Plus, PFH2 12V LED light fixture(s) on a Whelen 3000 series pole shall be provided. The rectangular extruded light fixture with die cast end caps shall measure 14" wide by 4-5/8" high by 3" deep and have a white powder coat finish. The light fixture shall have a dual panel (4) clusters of LED lamps with molded vacuum metalized reflector that draws 12 amps at 12.8 VDC. The lights shall be provided with a locking swivel joint to allow the lights to be manually tilted up/down and locked in position by the operator. Handle standard.

The light assembly shall be externally mounted as specified. The pole shall allow for 360-degree rotation of the light. A locking knob shall hold the pole at the desired height.

Location: right rear of platform.



1.84 WATERWAY OPTIONS

1.84.1 Platform Preconnect

One (1) 2-1/2" discharge with an Elkhart 2-1/2" Elk-O-Lite valve shall be located at the front of platform next to monitor.

1.84.2 Waterway Inlet

One (1) 4" inlet shall be provided at the rear of the apparatus and shall be connected to the vertical pedestal waterway piping to supply water to the aerial waterway from an outside source.

All fabricated piping shall be constructed of a minimum of Schedule 10 stainless steel piping to help prevent corrosion. The threads shall be NST. A long handle chrome plated 4" NST cap shall be installed on the inlet.

1.84.3 Reducing Elbow for Aerial Discharge

One (1) 2-1/2" FNST x 2-1/2" MNST 45 degree chrome elbow shall be provided. One (1) 2-1/2" FNST x 1-1/2" MNST reducer shall be provided on the elbow. The elbow shall include a 1-1/2" chrome cap and chain. This shall allow the use of 2-1/2" or 1-1/2" hose from the platform / ladder tip outlet.

1.84.4 Waterway Pressure Gauge

The valve discharge gauges shall be 2 1/2"(63mm) diameter Innovative Controls pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40F to +160F.

Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

A polished chrome-plated stainless steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels.

The gauges shall display a range from 0 to 400 psi with black graphics on a white background.



1.85 MISC AERIAL ELECTRICAL

1.85.1 Aerial Tip Receptacle

A 110 volt twist lock 15 amp receptacle outlet shall be installed at the tip of the aerial device and wired into an apparatus breaker box with a 30 amp breaker. The breaker shall be fitted with a GFI protection feature. The receptacle box shall be fitted with a weather resistant cover.

1.86 BREATHING AIR

1.86.1 Aerial Breathing Air System

The aerial device shall be supplied with a breathing air system as outlined in NFPA 1901 19.7.7 and section 24.5. The air system shall hold a total of 444 cubic feet of air carried in single DOT 444 cubic foot cylinder rated at 4500 psi. The air tank shall be painted yellow and marked with a label that reads "High Pressure 4500 psi Breathing Air". The tank shall be mounted in accordance with NFPA 1901 24.5.7 and include a guard to protect the valve on the cylinder end.

All components of the piping system shall have a 3 to 1 safety margin. There shall be a high pressure regulator supplied at the base of the aerial to reduce the air pressure to no more than 125 psi up the aerial. All valves fittings and hoses shall be constructed of corrosion-resistant material. A pressure relief valve set at 1 1/2 times working pressure shall be supplied to relieve the air lines in the event of a pressure regulator failure. Two (2) 1/4" NPT outlets shall be provided in the platform for dealer/customer installed quick-connects.

An air mask box shall be provided to store breathing air masks at the tip as outlined in NFPA 1901 19.7.7.4.

A low air breathing alarm shall be provided as outlined in NFPA 1901 section 19.7.7.5. The low air warning system shall provide an audible and visual warning when the air volume is at or below 20 percent.

1.86.2 Breathing Air Outlet

One (1) 1/4" NPT outlet shall be provided at the turntable for dealer/customer installed quick-connect.

1.86.3 Breathing Air Outlets

Two (2) additional 1/4" NPT outlets shall be provided in the platform for dealer/customer installed quick-connects.

1.86.4 Ground Fill Hose



A 50 ft. length of air hose shall be provided to permit the capability of filling the breathing air tank(s) on the aerial device without having to remove them. The hose shall be rated at 7000 psi and comply with NFPA 1901 requirements for Fire Apparatus and CGA G7.1-1 Grade E Breathing Air Standards. The hose shall have a quick-connect fitting on each end.

1.87 AERIAL EQUIPMENT

1.87.1 Axe Bracket

An axe bracket shall be provided on the aerial ladder. The bracket shall be Zico model# H-AB blade guard and PAC TRAC model# 1004 clamp for the handle. The bracket shall be designed to hold a 6 lb. axe.

Location: right side inside of platform.

1.87.2 Lifting Eye / Tie-off Package

A lifting eye / tie-off package shall be provided on the aerial. The package shall consist of a pair of lifting eyes located one each side at the tip of the base section (below mainrail) and a pair of tie-off points located one each side at the base of the aerial.

The lifting eyes shall be welded one each side to the tip of the aerial's base section. The hole in the eye shall have chamfered edges and be designed to allow attachment of 2" webbing. The lifting eyes shall have a capacity of 2000 lbs. each / 4000 lbs. total (with the aerial fully retracted and no personnel in the platform or on the ladder).

The tie-off points shall be constructed of structural steel and be welded to the aerial's upper turntable trunnions. The tie-offs shall be designed to allow attachment of 2" webbing. The tie-off points shall have a capacity of 375 lbs. each / 750 lbs. total.

1.87.3 Hose Box

A hinged covered hose box shall be mounted at the platform. The box shall have sufficient capacity to hold 50' of 1-3/4" double jacket coupled Ponn Conquest fire hose and pistol type automatic nozzle. The box shall be located left side of platform.

1.87.4 Air Hose Box

A hinged covered hose box shall be mounted at the platform. The box shall have sufficient capacity to hold (2) sections of 50' of pressurized air line. The box shall be located right side of platform.



1.87.5 Rope Roller

A dual rope roller shall be provided to aid in rope rescue operations. The rope roller shall consist of a welded aluminum frame, two aluminum pulleys and a lifting handle. The assembly shall be portable allowing it to be placed in various locations along the ladder. The assembly shall be held in place between rungs through the use of two (2) 1/2" locking pins. The pulleys shall be rated for 250 lbs. each.

1.87.6 Rappelling Rope Guides

Rope guides shall be provided on the platform for use when rappelling. The guides shall be constructed of polished stainless steel and be located one each side on the upper front hand rail. Anchor points shall be provided each side down low on the rear of the platform for tying off the rappelling ropes. Load rating for each tie-off point shall be 375 pounds.

1.87.7 Pike Pole Mount

There shall be (2) two PAC TRAC positive locking brackets for 8` pike pole on ladder includes stop plate to prevent the pole from sliding. Location: right side of base horizontally mounted behind sign plate.

1.87.8 Stokes Basket Aluminum Box

An aluminum box shall be provided and attached to store a stokes basket to the aerial base section while not in use. The box shall hold a Ferno Model 71 stokes. The stokes basket box shall mount on the base section on the right side toward front. Stokes not included.

1.87.9 Stokes Basket Receiver

The platform shall have the capacity to receive a stokes basket at tip for rescue operations. Two welded removable structures shall be provided which shall fasten to the basket utilizing T-handle stainless steel locking pins. The locking pins shall be attached by stainless steel cables to the stokes frame assembly. Each welded assembly shall be supplied with a carabineer hook and Velcro straps to secure the stokes basket to the receiver.

The stokes receivers shall be able to be mounted in three (3) locations:

- Left side of platform with basket positioned front to rear
- Right side of platform with basket positioned front to rear
- Rear of platform with basket positioned side to side



1.88 AERIAL LADDER BRACKETS

1.88.1 Roof Ladder Bracket

A lift-out style roof ladder mounting bracket shall be installed on the outside of the ladder base section. The bracket shall be designed to hold a PRL-16 on left side of base section.

1.88.2 Parapet Roof Ladder Bracket

A bracket shall be provided on the aerial platform for attaching a ground ladder allowing roof access over a parapet.

1.89 SIGN PLATES

1.89.1 Aerial Sign Plate

Two (2) 12" x 144" x 1/8" (0.125") thick smooth aluminum plates shall be provided. The plates shall have 1" lips top and bottom for rigidity. Each sign plate shall be bolted on either side of the base section, approximately at the midpoint. The plates shall be provided to display the department's name or other information. The plates shall be painted Job Color as specified by the customer.

1.89.2 Turntable Sign Plate

A sign plate shall be installed on the rear of the aerial turntable. The sign plate shall be constructed of 1/8" smooth aluminum plate painted FLNA4006 White. The plate shall be a single piece design and shall not include hinges.

1.90 AERIAL TESTING

1.90.1 Third-Party Flow Test

A flow test shall be conducted to determine that the water system is capable of flowing 1,000 gpm at 100 psi nozzle pressure with the aerial device at full extension and elevation. When the aerial apparatus is equipped with a fire pump, the test shall be conducted using the onboard pump. Intake pressure for the onboard pump shall not exceed 20 psi.

In addition to the flow test, a hydrostatic test shall be done on the waterway system. The permanent water system, piping, and monitor shall be hydrostatically tested at the maximum operating pressure required to flow 1,000 gpm at 100 psi nozzle pressure at maximum elevation and extension.

These results shall be certified by an independent, third-party testing organization, per NFPA 16.13.1 through 16.13.1.3.



1.90.2 Aerial Certification

All certification shall be performed by a certification organization that is accredited for inspection and testing systems on fire apparatus in accordance with ISO/IEC 17020.

The aerial ladder shall be tested in compliance with the current editions of NFPA 1901 and NFPA 1911. All critical structural components of the aerial shall include 100% nondestructive testing (NDT) before assembly and body mounting. All NDT testing shall be performed by Level II or Level III technicians who have been certified in the test methods used in accordance with ANSI/ASNT CP-189.

Welds for structural load-supporting elements shall be performed by certified welders under the guidelines of AWS. Each aluminum ladder section shall be subjected to 100% NDT visual weld inspection followed by Liquid Penetrant NDT inspection as required to qualify suspected weld defect indications. Each steel ladder section shall be subjected to 100% Magnetic Particle NDT weld inspection to assure the structural integrity of the welds.

A 100% Magnetic Particle weld inspection shall be conducted on the torque box, aerial support structure, outriggers, outrigger support structure and all other structural ferrous aerial components. This test shall be performed to assure the structural integrity of the weldment.

After the aerial is assembled and installed on the vehicle, an operational inspection shall be made and the aerial shall be tested to comply with the applicable standards in the current editions of NFPA 1901 and NFPA 1911.

In addition to the above tests, the aerial shall successfully complete the following operational tests:

The completed apparatus shall be placed on a firm, level surface with the aerial stabilizers extended and down. The aerial shall lift a test weight equal to the rated tip load capacity, as specified herein, with the aerial at full extension, 0 degrees elevation, and rotated 90 degrees to either side of the truck chassis. The test weight shall be lifted from 0 degrees to 15-20 degrees. The test weight shall be suspended from a position equal to the position of the outermost rung of the fly section or the center of the platform when so equipped. The aerial shall lift the test weight smoothly and evenly with no twisting or jerking. This test shall be performed at the normal hydraulic system relief valve setting. No temporary adjustments to the relief valve shall be allowed.

The completed apparatus shall be placed on a firm, level surface with the aerial ladder stabilizers extended and down. A test weight equal to 1.5 times the aerial's rated tip load capacity, shall be suspended from a position equal to the position of the outermost rung of the fly section (or center of the platform when so equipped), with the aerial in the straight-ahead position. The aerial shall then be rotated a full 360 degrees around the vehicle with the aerial at full extension and at 0 degrees elevation (or high enough to clear vehicle-mounted equipment). The aerial and vehicle shall show no signs of instability. This test shall be performed with no water in the tank, or hose, ladders, or



removable equipment that would act as a counterbalance in order to simulate a worst-case condition.

The completed apparatus shall be placed on a firm surface having a minimum 5 degrees side slope with the aerial stabilizers extended and down. A test weight equal to 1.5 times the aerial's rated tip load capacity, shall be suspended from a position equal to the position of the outermost rung of the fly section (or center of the platform when so equipped), with the aerial in the straight-ahead position. The aerial shall then be rotated 90 degrees to the downhill side with the aerial at full extension, 0 degrees elevation (or high enough to clear vehicle-mounted equipment). The aerial and vehicle shall show no signs of instability, and all of the stabilizers shall remain firmly on the ground. This test shall be performed with no water in the tank, or hose, ladders, or removable equipment that would act as a counterbalance in order to simulate a worst-case condition.

The completed apparatus shall be placed on a firm, level surface with the aerial stabilizers extended and down. A test weight equal to 2.0 times the aerial's rated tip load capacity, shall be suspended from a position equal to the position of the outermost rung of the fly section (or center of the platform when so equipped), with the aerial in the straight-ahead position at full extension and at 8 degrees elevation (or high enough to clear vehicle-mounted equipment). After ten (10) minutes, the weight shall be removed, and the aerial shall be inspected for any abnormal twist or deflection.

The completed apparatus shall be placed on a firm, level surface with the aerial stabilizers extended and down. The aerial will be positioned at full extension at 0 degrees elevation at some position out of the travel rest and off the side or rear of the truck. For units without a pre-piped waterway to the tip, a test weight of 220# shall be applied horizontally and perpendicular to the tip of the aerial at the location of the outermost rung. The rotation brake shall not release nor shall the aerial's deflection exceed the manufacturer's accepted tolerances. For aerials with pre-piped waterways, a test weight of 350# will be applied at the location of water nozzle.

Upon satisfactory completion of all inspections and tests, an independent third-party inspection firm shall submit a certificate indicating that all specified standards have been met.

1.91 ELBOW

Chrome Elbow [Qty: 4]

A 2-1/2" FNST x 2-1/2" Male 3.187 x 6 thread per inch 45 degree chrome plated discharge elbow with a 2.5" Female 3.187 x 6 thread per inch chrome rocker lug cap with chain shall be supplied. The Female NST shall be a swivel rocker lug.



1.92 HAND TOOLS

192.1 Set of Irons

A set of Irons will be provided and mounted in a G-Rated mount within the platform.
Pick Head Axe [Qty:2]

Two (2) 6 lb. steel pick head axes with composite handles shall be supplied. One (1) shall be mounted to the platform ladder.

192.2 Pick Head Axe

Pick Head Axe [Qty:2]

Two (2) 6 lb. steel pick head axes with composite handles shall be supplied. One (1) shall be mounted to the platform ladder.

1.93 GROUND LADDERS

1.93.1 Alco Lite Roof Ladder [Qty: 2]

Two Alco-Lite PRL-16 16` one-section roof ladders shall be provided. One to go in the tunnel and one mounted to the base section of the platform ladder. [Qty: 2]

1.93.2 Alco-Lite Extension Ladder

- An Alco-Lite PEL-28, 28` aluminum two-section extension ladder shall be provided. [Qty: 1]
- An Alco-Lite PEL-35, 35` three-section extension ladder shall be provided. [Qty: 1]
- This unit shall be supplied with two [Qty: 2] Alco-Lite FL-10, 10` 6" long aluminum folding attic ladders with safety shoes. One to go in the tunnel and one mounted on the Platform ladder (top section). [Qty: 2]
- An Alco-Lite model PRL-20, 20` aluminum roof ladder shall be provided to go in the tunnel. A pair of folding 3/4" (0.75") steel roof hooks shall be attached to one end of the ladder, and a pair of steel spiked feet on the other end. The ladder shall meet or exceed the requirements of the current edition of NFPA 1931. [Qty: 1]
- An Alco-Lite FL-10, 10` A-frame & combination ladder shall be provided. The ladder will be secured either in the tunnel or on top of the body driver's side. [Qty: 1]



1.94 MISC LOOSE EQUIPMENT

1.94.1 Wheel Chocks

Two (2) Zico model AC-44 non-folding wheel chocks for up to 44" diameter tires shall be supplied and mounted under the vehicle Drivers Side.

1.94.2 DOT Required Drive Away Kit

Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.

1.94.3 Stokes Ferno Washington Model 71

A Ferno Washington Model # 71 orange stokes shall be supplied. The stokes basket shall include four orange nylon tie-down straps approximately four feet in length. The straps shall have a loop on one end with male/female seatbelt type buckles at the other end.

1.94.4 Backboard

A Ferno Millenia 18 inch wide Backboard shall be supplied for this vehicle.

1.94.5 FireCom Wireless Headset [Qty: 2]

One (1) FireCom model UHW505 under helmet wireless radio transmit headset shall be provided shipped loose.

The headset features shall include:

- IP-67 Rating - submersible; impervious to dust and water
- Microphones protected by a layer of waterproof material for outdoor use
- 2-stage microphone cover eliminates wind noise
- Flexible microphone boom
- Enhanced durability and comfort; designed to fit any head size
- Integrated sound dosimeter measures, monitors and limits noise exposure at all inputs to ensure compliance with hearing protection standards
- Sound suppressor reduces loud noise while enhancing other sounds
- Stereo Listen-Through microphones allow face-to-face conversation and situational awareness without removing hearing protection
- 20dB passive noise reduction rating (NRR)
- 24-hour rechargeable lithium-ion battery
- User-replaceable battery
- Energy-saver sleep mode: one year of shelf life without losing charge
- Auto-on powers on the headset on charging cable disconnect
- Power-on battery capacity LED indicator
- Audible and visual 2-stage low battery warning



- 110/220V DC battery charger included
- Heavy-duty 12V DC charging cable included

FireCom Wireless Headset [Qty: 2]

One (1) FireCom model UHW503 under helmet wireless intercom only headset shall be provided shipped loose.

The headset features shall include:

- IP-67 Rating - submersible; impervious to dust and water
- Microphones protected by a layer of waterproof material for outdoor use
- 2-stage microphone cover eliminates wind noise
- Flexible microphone boom
- Enhanced durability and comfort; designed to fit any head size
- Integrated sound dosimeter measures, monitors and limits noise exposure at all inputs to ensure compliance with hearing protection standards
- Sound suppressor reduces loud noise while enhancing other sounds
- Stereo Listen-Through microphones allow face-to-face conversation and situational awareness without removing hearing protection
- 20dB passive noise reduction rating (NRR)
- 24-hour rechargeable lithium-ion battery
- User-replaceable battery
- Energy-saver sleep mode: one year of shelf life without losing charge
- Auto-on powers on the headset on charging cable disconnect
- Power-on battery capacity LED indicator
- Audible and visual 2-stage low battery warning
- 110/220V DC battery charger included
- Heavy-duty 12V DC charging cable included

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1.95 EXTERIOR PAINT

1.95.1 Paint Break with Dip to Grille

The cab shall have a two-tone paint break. The break line shall be approximately 31.5 inches below the cab roof drip rail. The paint break shall include a dip down to the corners of the cab grille.

1.95.2 Paint Valve Ends

The valve ends shall be painted job color.

1.95.3 Painted Pump/Pre-Connect Module(s)

The apparatus pump/pre-connect module(s) shall be painted job color.



The paint process shall match what is applied to the body.

1.95.4 Paint Spray Out

A paint sample spray out of the cab two-tone paint colors will be provided for approval prior to painting.

1.95.5 Paint Custom Cab

The apparatus cab shall be painted Sikkens FLNA3225E-1 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The aluminum cab exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces. Cab doors and any hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on cab, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, hand rails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.



After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

1.95.6 Paint Cab Two-Tone Color

The upper section of the cab shall be painted As Specified.

The paint process of the secondary cab color shall be the same as the primary color.

1.95.7 Paint Body Large

The apparatus body shall be painted Sikkens FLNA3225E-1 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The aluminum body exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces of the body. Any vertically or horizontally hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on body, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All



hardware used in mounting steps, hand rails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

1.95.8 Aerial Paint

The lift cylinders, extension cylinders and upper turntable steelwork (less turntable) shall be painted to match the primary job color.

1.96 INTERIOR PAINT

1.96.1 Cab Interior Paint

The interior of the cab shall be painted Zolatone gray #20-64. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

1.97 LETTERING

- Scotchlite Letter [Qty: 172]
- Scotchlite letters upto 6" tall shall be applied.
- The exact size, color and location of the letters shall be as specified by the customer.
- Scotchlite Letter [Qty: 20]
- Scotchlite letters upto 12" tall shall be applied.
- The exact size, color and location of the letters shall be as specified by the customer.
- Lettering Shade and/or Outline [Qty: 190]
- Existing letters shall be shaded and/or outlined as specified by the customer to provide a contrast.

1.98 STRIPING

1.98.1 Reflective Tape on Jacks

The four outriggers that protrude beyond the side of the body shall be striped with white reflective tape. The tape shall be visible from the front or rear of the unit.

1.98.2 Reflective Stripe in Rubrail

The reflective stripe in the body rubrail shall be black.



1.98.3 Cab and Body Stripe

A single Scotchlite stripe, upto 6 inches in width shall be installed on the cab and body . The stripe shall have a hockey style, Z or S style or any other customer specific design style.

The stripe shall be NFPA compliant and the size, color and location shall be as specified by the customer.

Cab and Body Stripe [Qty: 2]

An additional Scotchlite stripe, upto 3 inches in width shall be installed on the cab and body.

The stripe shall be NFPA compliant and the design, size, color and location shall be as specified by the customer.

1.98.4 Pin Stripe

A 1/4" tape pin stripe, color as specified by the customer, shall be applied above and below the Scotchlite stripe.

1.98.5 Scotchlite Cab Stripe

Scotchlite cab stripe shall be 3/4" in width. Stripe shall be centrally located and shall contour with the cab, following the paint break. Color of the stripe shall be as specified by the customer.

1.98.6 Rear Sign Plate Scotchlite Striping

Chevron style printed sheet Scotchlite striping shall be provided on the sign plate at rear turntable handrails. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern.

1.98.7 Rear Body Reflective Striping

Chevron style Reflexite V98 striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels and doors inboard and outboard of the beavertails if applicable.

198.8 Designated Standing / Walking Area Indication

1" wide yellow perimeter marking consisting of individual Reflexite diamonds shall be applied to indicate the outside edge of designated standing and walking areas above 48" from the ground in compliance with 2016 NFPA 1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement.



1.99 GRAPHICS

1.99.1 Logo

A manufacturer logo with a grey background shall be provided on each of the rear vertical M6 tail light housings.

1.100 WARRANTY / STANDARD & EXTENDED

1.100.1 Standard 1 Year Warranty

The apparatus manufacturer shall provide a full 1-year standard warranty. All components manufactured by the apparatus manufacturer shall be covered against defects in materials or workmanship for a 1-year period. All components covered by separate suppliers such as engines, transmissions, tires, and batteries shall maintain the warranty as provided by the component supplier. A copy of the warranty document shall be provided with the proposal.

1.100.2 Lifetime Frame Warranty

The apparatus manufacturer shall provide a full lifetime frame structural warranty. This warranty shall cover all apparatus manufacturer designed frame, frame members, and cross-members against defects in materials or workmanship for the lifetime of the covered apparatus. A copy of the warranty document shall be provided with the proposal. Frame warranties that do not cover cross-members for the life of the vehicle shall not be acceptable.

1.100.3 10 Year 100,000 Mile Structural Warranty

The apparatus manufacturer shall provide a comprehensive 10 year/100,000 mile structural warranty. This warranty shall cover all structural components of the cab and/or body manufactured by the apparatus manufacturer against defects in materials or workmanship for 10 years or 100,000 miles, whichever occurs first. Excluded from this warranty are all hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the proposal.

1.100.4 10 Year Stainless Steel Plumbing Warranty

The apparatus manufacturer shall provide a full 10-year stainless steel plumbing components warranty. This warranty shall cover defects in materials or workmanship of apparatus manufacturer designed foam/water plumbing system stainless steel components for 10 years. A copy of the warranty document shall be provided with the proposal.



1.100.5 20 Year Aerial Device Structural Warranty

The aerial manufacturer shall provide a 20 year structural integrity warranty on the aerial device. This warranty shall cover structural components and shall be extended for a period of 20 years after the date on which the vehicle is delivered to the original purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions.

1.100.6 10 Year Paint and Corrosion Warranty

The apparatus manufacturer shall provide a 10-year limited paint and corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner.

The paint shall be prorated for 10 years as follows:

Topcoat & Appearance:

(Gloss, Color Retention, Cracking)

0 to 72 months 100%

73 to 120 months 50%

Coating System, Adhesion & Corrosion:

(Includes Dissimilar metal corrosion, Flaking, Blistering, Bubbling)

0 to 36 months 100%

37 to 84 months 50%

85 to 120 months 25%

Corrosion perforation shall be covered 100% for 10 years. Corrosion perforation is defined as complete penetration through the exterior metal of the apparatus.

The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. A copy of the warranty document shall be provided with the proposal.

UV paint fade shall be covered in a separate warranty supplied by Akzo Nobel (Sikkens) and shall be for a minimum of 10 years.

1.100.7 Meritor Rear Axle Warranty

A 5-year/unlimited miles, 5-year parts and 5-year labor rear drive single or rear drive tandem axle warranty shall be provided by Meritor Automotive.

1.100.8 Front Axle Warranty

A 5-year/unlimited miles, 5-year parts and 5-year labor front non-drive steer axle warranty shall be provided by Dana Corporation.

1.101 SUPPORT, DELIVERY, INSPECTIONS AND MANUALS

1.101.1 Training

The manufacturer shall provide three (3) days of training covering vehicle maintenance and operational familiarization.



This training shall be provided by a full time, manufacturer employee trainer who specializes in aerial training.

1.101.2 Pump Panel Approval Drawing

A detailed large scale approval drawing of the pump panel(s) shall be provided. The drawing shall be provided on an purchased unit prior to the construction process.

1.101.3 Approval Drawings

A general arrangement drawing depicting the vehicles appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views.

Vehicles requiring pump controls shall include a general arrangement view of the pump operator`s position, scaled the same as the elevation views.

1.101.4 Approval Drawings - Dash Panel Layout

A detailed large scale approval drawing of the dash/console panel layout shall be provided. The drawing shall be provided on an purchased unit prior to the construction process.

1.101.5 Electronic Manuals

Two (2) copies of all operator, service, and parts manuals **MUST** be supplied at the time of delivery in digital format -NO EXCEPTIONS! The electronic manuals shall include the following information:

- Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, aerial (if applicable), installed components, and auxiliary systems.
- Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems.
- Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.
- Instructions regarding the frequency and procedure for recommended maintenance.
- Maintenance instructions for the repair and replacement of installed components.
- Parts listing with descriptions and illustrations for identification.
- Warranty descriptions and coverage.

The electronic document shall incorporate a navigation page with electronic links to the operator`s manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each copy shall include a table of contents with links to the specified documents or illustrations.



The electronic document must be formatted in such a manner as to allow not only the printing of the entire manual, but to also the cutting, pasting, or copying of individual documents to other electronic media, such as electronic mail, memos, and the like.

A find feature shall be included to allow for searches by text or by part number. These electronic manuals shall be accessible from any computer operating system capable of supporting portable document format (PDF). Permanent copies of all pertinent data shall be kept file at both the local dealership and at the manufacturer's location.

NOTE: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included.

1.101.6 Fire Apparatus Safety Guide

Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest possible ways of dealing with these situations. This manual is NOT a substitute for the E-ONE's fire apparatus operator and maintenance manuals or commercial chassis manufacturer's operator and maintenance manuals.

1.102 PROJECT TIMELINE

Products shall be delivered within **180 calendar Days** of the City's issuance of a Purchase Order.

1.102.1 Future Purchases And "Tag On" Orders

The successful bidder shall accept "tag on" orders to this bid proposal for a period not to exceed three (3) years from the bid opening date. The successful bidder shall honor the priced quoted for a period of 90 days from the date of the bid opening. For the remainder of the year (275 days), the bidder shall agree to an economic price escalation of 1.5%. Future years beyond the initial first year shall have an economic price escalation of 3% as a normal course of business. Items outside the normal course shall include changes legislated by Federal, State or Local Governments that impact the cost to manufacture the truck. In addition, changes to NFPA 1901 that require additional cost shall be borne by the purchaser. These may include, but are not limited to changes that affect the major vendors of the fire apparatus industry such as pump manufacturer, seat manufacturer, electrical power supplies (generators) and power-train (engine & transmission).

The bidder shall honor the "tag on" order from any municipality within the United States or Canada.



1.102.2 Configuration Of “Tag On” Orders

In many cases the entity wishing to “tag on” to an existing order may require their apparatus to be configured differently from the original proposed apparatus. The bidder shall allow changes to the configuration within good engineering guidelines. The changes will be subject to current pricing in effect at the time of order. For example, a different engine may be required. This shall be considered a “change order” and the purchase price shall be adjusted up or down depending on the current option price.

1.103 PROPOSAL REQUIREMENTS

The following documents will need to be completed, scanned and submitted through www.bidsync.com as part of the bidder’s submittal. The proposer interested in responding to this solicitation must provide the information requested below. Submittals that do not respond completely to all requirements specified herein may be considered non-responsive and eliminated from the process.

1.103.1 Attachment A: Contact Information Form

- a. Attached is contact information form (Attachment A) where the vendor will enter their contact information and complete the proposal checklist. The Contact information form shall be electronically signed by the contact person authorized to represent the contractor. This form must be completed and submitted through www.bidsync.com as part of the bidder’s submittal.
- b. The vendor must provide their pricing through the designated lines items listed on the BidSync website.
- c. Please note vendors should be registered on BidSync under the name of the organization that they are operating as and it should match the organization name on the documents that they are submitting and utilizing when responding to the solicitation.
- d. The contact information form should contain an electronic signature of the authorized representative of the Proposer along with the address and telephone number for communications regarding the Proposal.
- e. Proposals by corporations should be executed in the corporate name by the President or other corporate officer accompanied by evidence of authority to sign. The corporate address and state of incorporation must also be shown.
- f. Proposals by partnerships should be executed in the partnership name and signed by a partner whose title and the official address of the partnership must be shown.



1.103.2 Attachment B: Non-Collusive Affidavit

1.103.3 Attachment C: Proposer's Qualifications Statement

1.104 VENDOR REGISTRATION AND QUALIFICATION DOCUMENTS

The City has implemented a new process that is intended to make the bidding process easier for vendors that bid on multiple City projects. This process will require vendors to complete and submit the following standard forms and documents at any time prior to bidding on a project. In addition, the vendors will be able to utilize these same forms without the need to re-fill and re-submit the forms each time they bid on a City project.

Furthermore, please make sure to update this information on an as-needed basis so that all pertinent information is accurate, such as local business tax receipts, and any other relevant information.

These forms will be found under the "Vendor Registration" group of "Qualifications" on the BidSync website for the City of Pembroke Pines. Please note that the BidSync website requires bidders to complete all of these qualifications prior to being able to submit questions on any bids, therefore, please make sure to complete this information as soon as possible.

The following documents can be completed prior to the bidding process through the BidSync website and do not need to be attached to your submittal as the BidSync website will automatically include it.

1.104.1 Vendor Information Form

1.104. Form W-9 (Rev. October 2018)

- a. Previously dated versions of this form will delay the processing of any payments to the selected vendor.

1.104.3 Sworn Statement on Public Entity Crimes Form

1.104.4 Local Vendor Preference Certification

- a. If claiming Local Pembroke Pines Vendor Preference, business must attach a current business tax receipt from the City of Pembroke Pines
- b. If claiming Local Broward County Vendor Preference, business must attach a current business tax receipt from Broward County or the city within Broward County where the business resides.
- c. The Local Vendor Preference Certification form must be completed by/for the proposer; the proposer **WILL NOT** qualify for Local Vendor Preference based on their sub-contractors' qualifications.



1.104.5 Local Business Tax Receipts

1.104.6 Veteran Owned Small Business Preference Certification

- a. If claiming Veteran Owned Small Business Preference Certification, business must attach the “Determination Letter” from the United States Department of Veteran Affairs Center for Verification and Evaluation notifying the business that they have been approved as a Veteran Owned Small Business (VOSB).
- b. The Veteran Owned Small Business Preference Certification form must be completed by/for the proposer; the proposer **WILL NOT** qualify for Veteran Owned Small Business Preference based on their sub-contractors’ qualifications.

1.104.7 Equal Benefits Certification Form

1.104.8 Vendor Drug-Free Workplace Certification Form

1.104.9 Scrutinized Company Certification

1.105 EVALUATION OF PROPOSALS & PROCESS OF SELECTION

- A. Staff will evaluate all responsive proposals received from proposers who meet or exceed the bid requirements contained in the solicitation. Evaluations shall be based upon the information contained in the proposals as submitted.
- B. Staff will make a recommendation to the City Commission for award of contract.

1.106 TENTATIVE SCHEDULE OF EVENTS

Event	Time &/or Date
Issuance of Solicitation (Posting Date)	May 7, 2019
Question Due Date	May 20, 2019
Anticipated Date of Issuance for the Addenda with Questions and Answers	May 23, 2019
Proposals will be accepted until	2:00 p.m. on June 4, 2019
Proposals will be opened at	2:30 p.m. on June 4, 2019
Evaluation of Proposals by Staff	TBD
Recommendation of Contractor to City Commission award	TBD



1.107 SUBMISSION REQUIREMENTS

Bids/proposals **must be submitted electronically** at www.bidsync.com on or before 2:00 p.m. on June 4, 2019.

Please note vendors should be registered on BidSync under the name of the organization that they are operating as and it should match the organization name on the documents that they are submitting and utilizing when responding to the solicitation.

The vendor must provide their pricing through the designated lines items listed on the BidSync website. In addition, the vendor must complete any webforms on the BidSync website and provide any additional information requested throughout this solicitation. Any additional information requested in the solicitation should be scanned and uploaded. **Unless otherwise specified, the City requests for vendors to upload their documents as one (1) PDF document in the order that is outline in the bid package.**

The City recommends for proposers to submit their proposals as soon as they are ready to do so. Please allow ample time to submit your proposals on the BidSync website. Proposals may be modified or withdrawn prior to the deadline for submitting Proposals. BidSync Support is happy to help you with submitting your proposal and to ensure that you are submitting your proposals correctly, but we ask that you contact their support line at 1-800-990-9339 with ample time before the bid closing date and time.

PLEASE DO NOT SUBMIT ANY PROPOSALS VIA MAIL, E-MAIL OR FAX.



SECTION 2 - INSURANCE REQUIREMENTS

The CONTRACTOR shall indemnify and hold harmless the CITY and its officers, employees, agents and instrumentalities from any and all liability, losses or damages, including attorneys' fees and costs of defense, which the CITY or its officers, employees, agents or instrumentalities may incur as a result of claims, demands, suits, causes of actions or proceedings of any kind or nature arising out of, relating to or resulting from the performance of this Agreement by the CONTRACTOR or its employees, agents, servants, partners principals or subcontractors. The CONTRACTOR shall pay all claims and losses in connection therewith and shall investigate and defend all claims, suits or actions of any kind or nature in the name of the CITY, where applicable, including appellate proceedings, and shall pay all costs, judgments, and attorney's fees which may issue thereon. The CONTRACTOR expressly understands and agrees that any insurance protection required by this Agreement or otherwise provided by the CONTRACTOR shall in no way limit the responsibility to indemnify, keep and save harmless and defend the CITY or its officers, employees, agents and instrumentalities as herein provided.

CONTRACTOR shall not commence work under this Agreement until it has obtained all insurance required under this paragraph and such insurance has been approved by the Risk Manager of the CITY nor shall the CONTRACTOR allow any subcontractor to commence work on his subcontract until all similar such insurance required of the subcontractor has been obtained and similarly approved.

CERTIFICATES OF INSURANCE, reflecting evidence of the required insurance, shall be filed with the City's Risk Manager prior to the commencement of this Agreement. Policies shall be issued by companies authorized to do business under the laws of the State of Florida. The insurance company shall be rated no less than "A" as to management, and no less than "Class VI" as to financial strength according to the latest edition of Best's Insurance Guide published by A.M. Best Company.

Policies shall be endorsed to provide the CITY thirty (30) days notice of cancellation, material change or non-renewal of policies required under the contract. If the carrier will not agree to this notification, the CONTRACTOR or its insurance broker shall notify the CITY of any cancellation or reduction in coverage within seven days of receipt of insurer's notification of cancellation or reduction in coverage.

Insurance shall be in force until all obligations required to be fulfilled under the terms of the Agreement are satisfactorily completed as evidenced by the formal acceptance by the CITY. In the event the insurance certificate provided indicates that the insurance shall terminate and lapse during the period of this Agreement, then in that event, the CONTRACTOR shall furnish, at least fifteen (15) days prior to the expiration of the date of such insurance, a renewed certificate of insurance as proof that equal and like coverage for the balance of the period of the Agreement and extension thereunder is in effect. The CONTRACTOR shall not commence nor continue to provide any services pursuant to this Agreement unless all required insurance remains in full force and effect. CONTRACTOR shall be liable to CITY for any lapses in service resulting from a gap in insurance coverage.

The insurance requirements specified in this Agreement are minimum requirements and in no way reduce any liability the CONTRACTOR has assumed in the indemnification/hold harmless section(s) of this Agreement.



2.1 REQUIRED INSURANCE

- A. COMMERCIAL GENERAL LIABILITY INSURANCE** including, but not limited to: coverage for premises & operations, personal & advertising injury, products & completed operations, Liability assumed under an Insured Contract (including tort liability of another assumed in a business contract), and independent contractors. Coverage must be written on an occurrence basis, with limits of liability no less than:

1. Each Occurrence Limit - \$1,000,000
2. Fire Damage Limit (Damage to rented premises) - \$100,000
3. Personal & Advertising Injury Limit - \$1,000,000
4. General Aggregate Limit - \$2,000,000
5. Products & Completed Operations Aggregate Limit - \$2,000,000 **(mostly for construction or equipment sold to the CITY)**

Products & Completed Operations Coverage shall be maintained for two (2) years after the final payment under this contract. (Increase to 10 years for construction projects) (For construction projects also include: Designated Construction Project(s) General Aggregate Limit)

The City of Pembroke Pines must be shown as an additional insured with respect to this coverage. City's Additional Insured status shall extend to any coverage beyond the minimum requirements for limits of liability found herein.

- B. WORKERS' COMPENSATION AND EMPLOYERS LIABILITY INSURANCE** covering all employees, and/or volunteers of the CONTRACTOR engaged in the performance of the scope of work associated with this Agreement. In the case any work is sublet, the CONTRACTOR shall require the subcontractors similarly to provide Workers Compensation Insurance for all the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR. Coverage for the CONTRACTOR and his subcontractors shall be in accordance with applicable state and/or federal laws that may apply to Workers' Compensation Insurance with limits of liability no less than:

1. Workers' Compensation : Coverage A – Statutory
2. Employers Liability: Coverage B \$500,000 Each Accident
\$500,000 Disease – Policy Limit
\$500,000 Disease – Each Employee

If CONTRACTOR claims to be exempt from this requirement, CONTRACTOR shall provide CITY proof of such exemption along with a written request for CITY to exempt CONTRACTOR, written on CONTRACTOR letterhead.

Coverage shall be included for injuries or claims under the USL&H or Jones Act, when applicable.

2.2 REQUIRED ENDORSEMENTS

1. The City of Pembroke Pines shall be named as an Additional Insured on each of the General Liability policies required herein



2. Waiver of all Rights of Subrogation against the CITY
3. 30 Day Notice of Cancellation or Non-Renewal to the CITY
4. CONTRACTORS' policies shall be Primary & Non-Contributory
5. All policies shall contain a "severability of interest" or "cross liability" liability clause without obligation for premium payment of the CITY
6. The City of Pembroke Pines shall be named as a Loss Payee on all Property and/or Inland Marine Policies as their interest may appear.

CONTRACTOR shall name the CITY, as an additional insured on each of the General Liability policies required herein and shall hold the CITY, its agents, officers and employees harmless on account of claims for damages to persons, property or premises arising out of the services provided hereunder. Any insurance required of the CONTRACTOR pursuant to this Agreement must also be required by any subcontractor in the same limits and with all requirements as provided herein, including naming the CITY as an additional insured, in any work is subcontracted unless such subcontractor is covered by the protection afforded by the CONTRACTOR and provided proof of such coverage is provided to CITY. The CONTRACTOR and any subcontractors shall maintain such policies during the term of this Agreement.

The CITY reserves the right to require any other additional types of insurance coverage and/or higher limits of liability it deems necessary based on the nature of work being performed under this Contract.



SECTION 3 - GENERAL TERMS & CONDITIONS

3.1 EXAMINATION OF CONTRACT DOCUMENTS

Before submitting a Proposal, each Proposer should (a) consider federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost or performance of the work, (b) study and carefully correlate the Proposer's observations with the Proposal Documents; and (c) notify the Purchasing Manager of all conflicts, errors and discrepancies, if any, in the Proposal Documents.

The Proposer, by and through the submission of a Proposal, agrees that Proposer shall be held responsible for having familiarized themselves with the nature and extent of the work and any local conditions that may affect the work to be done and the services, equipment, materials, parts and labor required.

3.2 CONFLICT OF INSTRUCTIONS

If a conflict exists between the General Conditions and Instructions stated herein and specific conditions and instructions contained in specifications, the specifications shall govern.

3.3 ADDENDA or ADDENDUM

A formal solicitation may require an Addendum to be issued. An addendum in some way may clarify, correct or change the original solicitation (i.e. due date/time, specifications, terms, conditions, line item). Vendors submitting a proposal should check the BidSync website for any addenda issued. Vendors are cautioned not to consider verbal modifications to the solicitation, as the addendum issued through BidSync will be the only official method whereby changes will be made.

3.4 INTERPRETATIONS AND QUESTIONS

If the Proposer is in doubt as to the meaning of any of the Proposal Documents, is of the opinion that the Conditions and Specifications contain errors or contradictions or reflect omissions, or has any question concerning the conditions and specifications, the Proposer shall submit a question for interpretation or clarification. The City requires all questions relating to the solicitation be entered through the **"Ask a Question"** option tab available on the BidSync website. Responses to the questions will be provided online at www.bidsync.com. Such request must be received by the **"Question Due Date"** stated in the solicitation. Questions received after **"Question Due Date"** shall not be answered. Interpretations or clarifications in response to such questions will be issued via BidSync. The issuance of a response via BidSync is considered an Addendum and shall be the only official method whereby such an interpretation or clarification will be made.

BidSync Support is also available to assist proposers with submitting their proposal and to ensure that proposers are submitting their proposals correctly. Proposers should ensure that they contact the BidSync support line at 1-800-990-9339 with ample time before the bid closing date and time.

For all other questions related to this solicitation, please contact the Purchasing Division at purchasing@ppines.com.

3.5 RULES, REGULATIONS, LAWS, ORDINANCES and LICENSES

The awarded contractor shall observe and obey all laws, ordinances, rules, and regulations of the federal, state, and CITY, which may be applicable to the service being provided. The awarded firm shall have or be responsible for obtaining all necessary permits or licenses required, if necessary, in order to provide this service.



Bidder warrants by submittal that prices quoted here are in conformity with the latest federal price guidelines, if any.

3.6 WARRANTIES FOR USAGE

Whenever a bid is sought, seeking a source of supply for a specified time for materials or service, the quantities or usage shown are estimated only. No guarantee or warranty is given or implied by the City as to the total amount that may or may not be purchased from any resulting contracts. These quantities are for bidders information only and will be used for tabulation and presentation of bid.

3.7 BRAND NAMES

If and wherever in the specifications a brand name, make, name of manufacturer, trade name, or vendor catalog number is mentioned, it is for the purpose of establishing a grade or quality of material only. Since the City does not wish to rule out other competition and equal brands or makes, the phrase "OR EQUAL" is added. However, if a product other than that specified is bid, Bidders shall indicate on their proposal and clearly state the proposed substitution and deviation. It is the vendor's responsibility to provide any necessary documentation and samples within their bid submittal to prove that the product is equal to that specified. Such samples are to be furnished before the date of bid opening, unless otherwise specified. Additional evidence in the form of documentation and samples may be requested if the proposed brand is other than that specified. The City retains the right to determine if the proposed brand shall be considered as an approved equivalent or not.

3.8 QUALITY

All materials used for the manufacture or construction of any supplies, materials, or equipment covered by this bid shall be new, the latest model, of the best quality, and

highest grade workmanship, unless otherwise noted.

3.9 SAMPLES

Samples, when requested, must be furnished before, or at the bid opening, unless otherwise specified, and delivered free of expense to the City and if not used in testing or destroyed, will upon request within thirty (30) days of bid award be returned at the bidders expense.

3.10 DEVELOPMENT COSTS

Neither the City nor its representatives shall be liable for any expenses incurred in connection with the preparation, submission or presentation of a Bid in response to this solicitation. All information in the Bid shall be provided at no cost to the City.

3.11 PRICING

Prices should be stated in units of quantity specified in the bidding specifications. In case of discrepancy in computing the amount of the bid, the unit prices quoted will govern.

Bidder warrants by virtue of bidding that prices, terms, and conditions quoted in his bid will be firm for acceptance for a period of ninety (90) days from date of bid opening unless otherwise stated by the City or bidder.

3.12 DELIVERY POINT

All items shall be delivered F.O.B. destination, and delivery cost and charges included in the bid price. Failure to do so may be cause for rejection of bid.

3.13 TAX EXEMPT STATUS

The City is exempt from Florida Sales and Federal Excise taxes on direct purchase of tangible property.

3.14 CONTRACT TIME

By virtue of the submission of the Proposal, Proposer agrees and fully understands that



the completion time of the work of the Contract is an essential and material condition of the Contract and that time is of the essence. The Successful Proposer agrees that all work shall be prosecuted regularly, diligently and uninterrupted at such rate of progress as will ensure full completion thereof within the time specified. Failure to complete the work within the time period specified shall be considered a default.

In addition, time will be of the essence for any orders placed as a result of this bid. Purchaser reserves the right to cancel such orders, or part thereof, without obligation if delivery is not made at the time(s) or place(s) specified.

3.15 COPYRIGHT OR PATENT RIGHTS

Bidder warrants that there have been no violations of copyrights or patent rights in manufacturing, producing, or selling other goods shipped or ordered as a result of this bid, and seller agrees to hold the purchaser harmless from any and all liability, loss or expense occasioned by such violation.

3.16 PUBLIC ENTITY CRIMES

"A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list."

The Public Entity Crime Affidavit Form, attached to this solicitation, includes

documentation that shall be executed by an individual authorized to bind the Proposer. The Proposer further understands and accepts that any contract issued as a result of this solicitation shall be either voidable or subject to immediate termination by the City. In the event there is any misrepresentation or lack of compliance with the mandates of Section 287.133 or Section 287.134, respectively, Florida Statutes. The City in the event in such termination, shall not incur any liability to the Bidder for any goods, services or materials furnished.

3.17 CONFLICT OF INTEREST

The award of any contract hereunder is subject to the provisions of Chapter 112, Florida Statutes. Proposers must disclose with their Proposal the name of any officer, director, partner, proprietor, associate or agent who is also an officer or employee of CITY or any of its agencies. Further, all Proposers must disclose the name of any officer or employee of CITY who owns, directly or indirectly, an interest of five percent (5%) or more in the Proposer's firm or any of its branches or affiliate companies.

3.18 FACILITIES

The City reserves the right to inspect the Bidder's facilities at any time with prior notice.

3.19 ENVIRONMENTAL REGULATIONS

CITY reserves the right to consider Proposer's history of citations and/or violations of environmental regulations in determining a Proposer's responsibility, and further reserves the right to declare a Proposer not responsible if the history of violations warrant such determination. Proposer shall submit with the Proposal, a complete history of all citations and/or violations, notices and dispositions thereof. The non-submission of any such documentation shall be deemed to be an affirmation by the Proposer that there are no citations or violations. Proposer shall notify



CITY immediately of notice of any citation or violation that Proposer may receive after the Proposal opening date and during the time of performance of any contract awarded to Proposers.

3.20 SIGNATURE REQUIRED

All proposals must be signed with the firm name and by an officer or employee having authority to bind the company or firm by his signature. FAILURE TO PROPERLY SIGN PROPOSAL SHALL INVALIDATE SAME, AND IT MAY NOT BE CONSIDERED FOR AWARD.

The individual executing this Bid on behalf of the Company warrant to the City that the Company is authorized to do business in the State of Florida, is in good standing and that Company possesses all of the required licenses and certificates of competency required by the State of Florida and Broward County to provide the goods or perform the services herein described.

The signed bid shall be considered an offer on the part of the bidder or contractor, which offer shall be deemed accepted upon approval by the City Commission of the City of Pembroke Pines and in case of default on the part of the bidder or contractor after such acceptance, the City of Pembroke Pines may take such action as it deems appropriate including legal action for damages or specific performance.

3.21 MANUFACTURER'S CERTIFICATION

The City of Pembroke Pines reserves the right to request from bidder separate manufacturer certification of all statements made in the proposal.

3.22 MODIFICATION OR WITHDRAWAL OF PROPOSAL

The City recommends for proposers to submit their proposals as soon as they are ready to do so. Please allow ample time to submit your proposals on the BidSync

website. Proposals may be modified or withdrawn prior to the deadline for submitting Proposals.

3.23 PUBLIC BID; BID OPENING AND GENERAL EXEMPTIONS

All submittals received by the deadline will be recorded, and will subsequently be publicly opened on the same business day at 2:30 p.m. at the office of the City Clerk, 4th Floor, 601 City Center Way, Pembroke Pines, Florida, 33025.

All Proposals received from Proposers in response to the solicitation will become the property of CITY and will not be returned to the Proposers. In the event of Contract award, all documentation produced as part of the Contract shall become the exclusive property of CITY. Proposers are requested to identify specifically any information contained in their Proposals which they consider confidential and/or proprietary and which they believe to be exempt from disclosure, citing specifically the applicable exempting law.

Pursuant to Section 119.071 of the Florida Statutes, sealed bids, proposals, or replies received by a Florida public agency shall remain exempt from disclosure until an intended decision is announced or until 30 days from the opening, whichever is earlier.

Therefore, bidders will not be able to procure a copy of their competitor's bids until an intended decision is reached or 30 days has elapsed since the time of the bid opening.

However, pursuant to Section 255.0518 of the Florida Statutes, when opening sealed bids that are received pursuant to a competitive solicitation for **construction or repairs on a public building or public work**, the entity shall:

- (a) Open the sealed bids at a public meeting.



(b) Announce at that meeting the name of each bidder and the price submitted in the bid.

(c) Make available upon request the name of each bidder and the price submitted in the bid.

For solicitations that are **not** for **"construction or repairs on a public building or public work"** the City shall not reveal the prices submitted in the bids until an intended decision is announced or until 30 days from the opening, whichever is earlier.

3.24 RESERVATIONS FOR REJECTION AND AWARD

The City of Pembroke Pines reserves the right to accept or reject any and all bids or parts of bids, to waive irregularities and technicalities, and to request rebids. The City also reserves the right to award a contract on such items(s) or service(s) the City deems will best serve its interests. All bids shall be awarded to the most responsive/responsible bidder, provided the (City) may for good cause reject any bid or part thereof. It further reserves the right to award a contract on a split order basis, or such combinations as shall best serve the interests of the City unless otherwise specified. No premiums, rebates or gratuities permitted, either with, prior to, or after award. This practice shall result in the cancellation of said award and/or return of items (as applicable) and the recommended removal of bidder from bid list(s).

3.25 BID PROTEST

Any protests or challenges to this competitive procurement shall be governed by Section 35.38 of the City's Code of Ordinances.

3.26 INDEMNIFICATION

The Successful Proposer shall pay all claims, losses, liens, settlements or judgments of any nature whatsoever in connection with the subsequent indemnifications including, but not limited to,

reasonable attorney's fees (including appellate attorney's fees) and costs.

CITY reserves the right to select its own legal counsel to conduct any defense in any such proceeding and all costs and fees associated therewith shall be the responsibility of Successful Proposer under the indemnification agreement. Nothing contained herein is intended nor shall it be construed to waive City's rights and immunities under the common law or Florida Statute 768.28 as amended from time to time.

Additional indemnification requirements may be included under Special Terms and Conditions and/or as part of a specimen contract included in the solicitation package.

General Indemnification: To the fullest extent permitted by laws and regulations, Successful Proposer shall indemnify, defend, save and hold harmless the CITY, its officers, agents and employees, harmless from any and all claims, damages, losses, liabilities and expenses, direct, indirect or consequential arising out of or in consequential arising out of or alleged to have arisen out of or in consequence of the products, goods or services furnished by or operations of the Successful Proposer or his subcontractors, agents, officers, employees or independent contractors pursuant to or in the performance of the Contract.

Patent and Copyright Indemnification: Successful Proposer agrees to indemnify, defend, save and hold harmless the CITY, its officers, agents and employees, from all claims, damages, losses, liabilities and expenses arising out of any alleged infringement of copyrights, patent rights and/or the unauthorized or unlicensed use of any invention, process, material, property or other work manufactured or used in connection with the performance of the Contract, including its use by CITY.

3.27 DEFAULT PROVISION



In the case of default by the bidder or contractor, the City of Pembroke Pines may procure the articles or services from any other sources and hold the bidder or contractor responsible for any excess costs occasioned or incurred thereby.

The City shall be the sole judge of nonperformance, which shall include any failure on the part of the successful Bidder to accept the Award, to furnish required documents, and/or to fulfill any portion of the contract within the time stipulated. Upon default by the successful Bidder to meet any terms of this agreement, the City will notify the Bidder five (5) days (weekends and holidays excluded) to remedy the default. Failure on the Contractor's part to correct the default within the required five (5) days shall result in the contract being terminated and upon the City notifying in writing the Contractor of its intentions and the effective date of the termination. The following shall constitute default:

A. Failure to perform the Work required under the contract and/or within the time required or failing to use the subcontractor, entities and personnel as identified and set forth, and to the degree specified in the contract.

B. Failure to begin the Work under this Bid within the time specified.

C. Failure to perform the Work with sufficient Workers and equipment or with sufficient materials to ensure timely completion.

D. Neglecting or refusing to remove materials or perform new Work where prior Work has been rejected as non-conforming with the terms of the contract.

E. Becoming insolvent, being declared bankrupt, or committing act of bankruptcy or insolvency, or making an assignment renders the successful Bidder incapable of performing the Work in accordance with and as required by the contract.

F. Failure to comply with any of the terms of the contract in any material respect.

In the event of default of a contract, the successful Bidder shall pay all attorney's fees and court costs incurred in collecting any damages. The successful Bidder shall pay the City for any and all costs incurred in ensuing the completion of the project.

Additional provisions may be included in the specimen contract.

3.28 ACCEPTANCE OF MATERIAL

The material delivered under this proposal shall remain the property of the seller until a physical inspection and actual usage of this material and/or services is made and thereafter accepted to the satisfaction of the City and must comply with the terms herein, and be fully in accord with specifications and of the highest quality. In the event the material and/or services supplied to the City are found to be defective or do not conform to specifications, the City reserves the right to cancel the order upon written notice to the seller and return product to seller at the sellers expense.

3.29 LOCAL GOVERNMENT PROMPT PAYMENT ACT

The City complies with Florida Statute 218.70, Florida Prompt Payment Act.

3.30 SCRUTINIZED COMPANIES LIST

In accordance with Florida Statute 287.135, as amended, a company is ineligible to, and may not, bid on, submit a proposal for, or enter into or renew a contract with an agency or local governmental entity for goods or services if:

(a) Any amount of, at the time of bidding on, submitting a proposal for, or entering into or renewing such contract, the company is on the Scrutinized Companies that Boycott Israel List, created pursuant to s. 215.4725, or is engaged in a boycott of Israel; or



(b) One million dollars or more if, at the time of bidding on, submitting a proposal for, or entering into or renewing such contract, the company:

1. Is on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to s. 215.473; or

2. Is engaged in business operations in Syria.

By submitting a bid, proposal or response, the company, principals or owners certify that they are not listed on the Scrutinized Companies that boycott Israel List, Scrutinized Companies with activities in Sudan List, Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or is engaged in business operations in Syria.

3.31 PUBLIC RECORDS; TRADE SECRET, PROPRIETARY AND CONFIDENTIAL SUBMITTALS

The Proposer's response to this solicitation is a public record pursuant to Florida law, which is subject to disclosure by the City under the State of Florida Public Records Law, Florida Statutes Chapter 119.07 ("Public Records Law"). The City shall permit public access to all documents, papers, letters or other material submitted in connection with this solicitation and the Contract to be executed for this solicitation, subject to the provisions of Chapter 119.07 of the Florida Statutes.

Any language contained in the Proposer's response to the solicitation purporting to require confidentiality of any portion of the Proposer's response to the solicitation, except to the extent that certain information is in the City's opinion a Trade Secret pursuant to Florida law, shall be void. If a Proposer submits any documents or other information to the City which the Proposer

claims is Trade Secret information and exempt from Florida Statutes Chapter 119.07 ("Public Records Laws"), the Proposer shall clearly designate that it is a Trade Secret and that it is asserting that the document or information is exempt. The Proposer must specifically identify the exemption being claimed under Florida Statutes 119.07. The City shall be the final arbiter of whether any information contained in the Proposer's response to the solicitation constitutes a Trade Secret.

Any claim of confidentiality on financial statements must be asserted at the time of submittal. The firm must identify the specific statute that authorizes the exemption from the Public Records Law. Please note that the financial statement exemption provided for in Section 119.071(1)c, Florida Statutes only applies to submittals in response to a solicitation for a "public works" project.

EXCEPT FOR CLEARLY MARKED PORTIONS THAT ARE BONA FIDE TRADE SECRETS PURSUANT TO FLORIDA LAW, DO NOT MARK YOUR RESPONSE TO THE SOLICITATION AS PROPRIETARY OR CONFIDENTIAL. DO NOT MARK YOUR RESPONSE TO THE SOLICITATION OR ANY PART THEREOF AS COPYRIGHTED. ALL DOCUMENTS THAT THE FIRM PURPORTS TO BE CONFIDENTIAL, PROPRIETARY OR A TRADE SECRET SHALL BE UPLOADED TO THE BIDS SYNC WEBSITE AS A SEPARATE ATTACHMENT CLEARLY IDENTIFYING THE EXEMPTION BEING CLAIMED UNDER FLORIDA STATUTES 119.07.

The city's determination of whether an exemption applies shall be final, and the proposer agrees to defend, indemnify, and hold harmless the city and the city's officers, employees, and agent, against any loss or damages incurred by any person or entity as a result of the city's treatment of records as public records.



NON-COLLUSIVE AFFIDAVIT

BIDDER is the _____,
(Owner, Partner, Officer, Representative or Agent)

BIDDER is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

Such Bid is genuine and is not a collusive or sham Bid;

Neither the said BIDDER nor any of its officers, partners, owners, agents, representative, employees or parties in interest, including this affidavit, have in any way colluded, conspired, connived or agreed, directly or indirectly, with any other BIDDER, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted; or to refrain from bidding in connection with such Contract; or have in any manner, directly or indirectly, sought by agreement or collusion, or communications, or conference with any BIDDER, firm, or person to fix the price or prices in the attached Bid or any other BIDDER, or to fix any overhead, profit, or cost element of the Bid Price or the Bid Price of any other BIDDER, or to secure through any collusion conspiracy, connivance, or unlawful agreement any advantage against (Recipient), or any person interested in the proposed Contract;

The price of items quoted in the attached Bid are fair and proper and are not tainted by collusion, conspiracy, connivance, or unlawful agreement on the part of the BIDDER or any other of its agents, representatives, owners, employees or parties in interest, including this affidavit.

Printed Name/Signature

Title

Name of Company



PROPOSER'S QUALIFICATIONS STATEMENT

PROPOSER shall furnish the following information. Failure to comply with this requirement will render Bid non responsive and shall cause its rejection. Additional sheets shall be attached as required.

PROPOSER'S Name and Principal Address:

PROPOSER'S License Number:

(Please attach certificate of status, competency, and/or state registration.)

Number of years your organization has been in business

State the number of years your firm has been in business under your present business name

State the number of years your firm has been in business in the work specific to this solicitation:

Names and titles of all officers, partners or individuals doing business under trade name:

IF USING A FICTITIOUS NAME, SUBMIT EVIDENCE OF COMPLIANCE WITH FLORIDA FICTITIOUS NAME STATUTE.

Under what former name has your business operated? Include a description of the business. Failure to include such information shall be deemed to be intentional misrepresentation by the City and shall render the proposer non-responsive.

At what address was that business located?

Name, address, and telephone number of surety company and agent who will provide the required bonds on this contract:

Have you ever failed to complete work awarded to you. If so, when, where and why?

Have you personally inspected the proposed WORK and do you have a complete plan for its performance?

Will you subcontract any part of this WORK? If so, give details including a list of each sub-contractor(s) that will perform work in excess of ten percent (10%) of the contract amount and the work that will be performed by each subcontractor(s).

The foregoing list of subcontractor(s) may not be amended after award of the contract without the prior written approval of the Contract Administrator, whose approval shall not be reasonably withheld.

List and describe all bankruptcy petitions (voluntary or involuntary) which have been filed by or against the Proposer, its parent or subsidiaries or predecessor organizations during the past five (5) years. Include in the description the disposition of each such petition.

List and describe all successful Bond claims made to your surety (ies) during the last five (5) years. The list and descriptions should include claims against the bond of the Proposer and its predecessor organization(s).

List all claims, arbitrations, administrative hearings and lawsuits brought by or against the Proposer or its predecessor organizations(s) during the last (10) years. The list shall include all case names; case, arbitration or hearing identification numbers; the name of the project over which the dispute arose; and a description of the subject matter

of the dispute.

List and describe all criminal proceedings or hearings concerning business related offenses in which the Proposer, its principals or officers or predecessor organization(s) were defendants.

Are you an Original provider sales representative distributor, broker, manufacturer other, of the commodities/services proposed upon? If other than the original provider, explain below.

Have you ever been debarred or suspended from doing business with any governmental agency? If yes, please explain:

Describe the firm's local experience/nature of service with contracts of similar size and complexity, it the previous three (3) years:

The PROPOSER acknowledges and understands that the information contained in response to this Qualification Statement shall be relied upon by CITY in awarding the contract and such information is warranted by PROPOSER to be true. The discovery of any omission or misstatement that materially affects the PROPOSER's qualifications to perform under the contract shall cause the CITY to reject the Bid, and if after the award, to cancel and terminate the award and/or contract.

(Company Name)

(Printed Name/Signature)

ACORD CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD[YY])

PRODUCER

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE

INSURED

YOUR COMPANY NAME HERE

INSURER A:

INSURER B:

INSURER C:

INSURER D:

INSURER E:

Companies providing coverage**COVERAGES**

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DDYY)	POLICY EXPIRATION DATE (MM/DDYY)	LIMITS								
	GENERAL LIABILITY ☐ COMMERCIAL GENERAL LIABILITY ☒ CLAIMS MADE ☐ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ policy ☐ project ☐ loc	Must Include General Liability			EACH OCCURRENCE \$ FIRE DAMAGE (Any one fire) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$								
	AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ☐ NON-OWNED AUTOS				SAMPLE CERTIFICATE								
	GARAGE LIABILITY ☐ ANY AUTO			AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY: AGG \$									
	EXCESS LIABILITY OCCUR ☐ CLAIMS MADE ☐ DEDUCTIBLE ☐ RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$								
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				<table border="1"> <tr> <td>WC STATU-TORY LIMITS</td> <td>OTH-ER</td> </tr> <tr> <td>E.L. EACH ACCIDENT</td> <td>\$</td> </tr> <tr> <td>E.L. DISEASE - EA EMPLOYEE</td> <td>\$</td> </tr> <tr> <td>E.L. DISEASE - POLICY LIMIT</td> <td>\$</td> </tr> </table>	WC STATU-TORY LIMITS	OTH-ER	E.L. EACH ACCIDENT	\$	E.L. DISEASE - EA EMPLOYEE	\$	E.L. DISEASE - POLICY LIMIT	\$
WC STATU-TORY LIMITS	OTH-ER												
E.L. EACH ACCIDENT	\$												
E.L. DISEASE - EA EMPLOYEE	\$												
E.L. DISEASE - POLICY LIMIT	\$												
	OTHER												

Certificate must contain wording similar to what appears below

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCL

"THE CERTIFICATE HOLDER IS NAMED AS ADDITIONALLY INSURED WITH REGARD TO GENERAL LIABILITY"

CERTIFICATE HOLDER

ADDITIONAL INSURED; INSURER LETTER:

CANCELLATION

City of Pembroke Pines
601 City Center Way
Pembroke Pines FL 33025

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE, THE CERTIFICATE HOLDER SHALL BE ADVISED BY MAIL 30 DAYS WRITTEN LEFT.

City Must Be Named as Certificate Holder

AUTHORIZED REPRESENTATIVE



CONTINUING PURCHASE AGREEMENT

THIS AGREEMENT FOR PURCHASE OF _____
("Agreement") is dated this _____ day of _____, 20__ by and between:

CITY OF PEMBROKE PINES, a municipal corporation organized and operating pursuant to the laws of the State of Florida, with a business address of 10100 Pines Boulevard, Pembroke Pines, Florida 33026 (hereinafter referred to as the "CITY"),

and

_____, a _____, with a business address of _____
(hereinafter referred to as the "CONTRACTOR"). CITY and CONTRACTOR may hereinafter be referred to collectively as the "Parties."

RECITALS:

WHEREAS, the CITY advertised its invitation to bid No. _____ entitled _____
(hereinafter "ITB") which set forth the CITY's desire to hire a firm to provide _____:

WHEREAS, on _____, the responses to the ITB were opened at the offices of the City Clerk; and,

WHEREAS, on _____ the CITY awarded the ITB to CONTRACTOR and authorized the proper City officials to enter into this Agreement with CONTRACTOR to render provide the goods as required in the IFB; and,

WHEREAS, CITY and CONTRACTOR wish to enter into this Agreement to provide for the delivery of _____ to the CITY by CONTRACTOR; and,

WHEREAS, CONTRACTOR shall act as the primary provider of _____ to the CITY for the term of this Agreement;

NOW THEREFORE, in consideration of the mutual promises detailed herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:



ARTICLE 1 PURCHASE OF GOODS

- 1.1 CITY agrees to purchase and CONTRACTOR agrees to provide _____ (the "Commodities") subject of this Agreement.
- 1.2 CONTRACTOR shall provide the Commodities as identified herein and the CITY's IFB and CONTRACTOR's response thereto, collectively incorporated herein as **Exhibit "A"** and made a specific part hereof, according to the estimated quantities and schedule contained in **Exhibit "A"**.
- 1.3 The Parties acknowledge that this Agreement is a term contract and that CITY shall purchase and CONTRACTOR shall provide the Commodities on an as-needed basis upon written request of the CITY. Nothing contained herein or in any exhibit or amendment hereto, shall require the CITY to purchase the quantity of Commodities identified in **Exhibit "A"**.
- 1.4 As needed, the CITY shall submit a purchase order to the CONTRACTOR for a specified amount of Commodities. CONTRACTOR shall then provide the specified amount of Commodities in accordance with the purchase order, and submit to the CITY an invoice for those Commodities.
- 1.5 CITY agrees that CONTRACTOR shall be the primary provider of the Commodities, as further described on **Exhibit "A"**, and that CITY shall submit to CONTRACTOR a purchase order for the Commodities. By acceptance of CONTRACTOR's bid, CONTRACTOR agrees that it shall provide such Commodities upon receipt of purchase order from CITY and has the ability to fulfill such orders as CITY requires.
- 1.6 CONTRACTOR acknowledges that it has the capacity, ability and/or inventory to provide the Commodities to the CITY on an as-needed basis and in accordance with the estimated schedule and quantities listed in **Exhibit "A"**.

ARTICLE 2 TERM AND TERMINATION

- 2.1 CONTRACTOR shall provide the Commodities as identified herein and in **Exhibit "A"** attached hereto and made part hereof, for an initial _____ (____) **year period** commencing on _____ and ending on _____, and according to the estimated schedule contained in **Exhibit "A"**.
- 2.2 This Agreement may be renewed for _____ (____) **additional _____ (____) year terms** upon mutual written consent, evidenced by a written Amendment to this Agreement extending the term thereof.



2.3 *Termination for Convenience:* CITY may terminate this Agreement for convenience, upon _____ (_____) **business days** of written notice by the terminating party to the other party for such termination.

2.4 In the event CONTRACTOR abandons or terminates this Agreement or causes it to be terminated by CITY for any reason, CONTRACTOR shall indemnify CITY against any loss pertaining to this termination.

For purposes of this Agreement, termination by CITY for cause includes, but is not limited to, any of the following circumstances:

2.4.1 CONTRACTOR's failure to keep, perform and observe each and every provision of this Agreement and such failure continues for a period of more than _____ (_____) **days** after CITY's delivery of a written notice to CONTRACTOR's of such breach or default;

2.4.2 CONTRACTOR becomes insolvent;

2.4.3 CONTRACTOR takes the benefit of any present or future insolvency statute;

2.4.4 CONTRACTOR makes a general assignment for the benefit of creditors,

2.4.5 CONTRACTOR files a voluntary petition in bankruptcy or a petition or answer seeking an arrangement of its reorganization or the readjustment of its indebtedness under the Federal Bankruptcy laws or under any other law or statute of the United States or any state thereof;

2.4.6 CONTRACTOR consents to the appointment of a receiver, trustee or liquidator of all or substantially all of its property;

2.4.7 A petition under any present or future insolvency laws or statute is filed against CONTRACTOR and such petition is not dismissed within _____ (_____) **days** after its filing; or

2.4.8 Any assignment of this Agreement in whole or in part, or any of CONTRACTOR's rights and obligations hereunder.

ARTICLE 3 COMPENSATION AND METHOD OF PAYMENT

3.1 Unless stated otherwise on attached **Exhibit "A"**, CITY's sole compensation to CONTRACTOR for the provision of Commodities hereunder shall be _____ **Dollars (\$_____)** **per** _____. Upon delivery, the CITY shall make final inspection of the Commodities. If this inspection shows that the Commodities have been delivered in a satisfactory manner and in accordance with the specifications of this Agreement or purchase order submitted by the CITY, the CITY shall



receive the same. Final payment due the CONTRACTOR shall be withheld until inspection is made by the CITY and merits of performance evaluated. This total acceptance will be done in a reasonable and timely manner. Upon acceptance, CONTRACTOR shall submit to CITY an invoice for the Commodities provided and CITY, upon approval of the invoice, shall pay the same within _____ (____) days.

- 3.2 If any of the Commodities has to be rejected for any reason, the CONTRACTOR shall be required to repair or replace the Commodities to the satisfaction of the CITY. Warranty repairs may be accomplished on CITY property if space is available, at the discretion of the CITY. Title to or risk loss or damage to all Commodities shall be the responsibility of the CONTRACTOR until acceptance of the Commodities by the CITY, unless such loss or damages have been proven to be the result of negligence by the CITY.
- 3.3 Should the Parties renew the term of this Agreement pursuant to Section 2.2 herein, in the event that CONTRACTOR shall provide adequate evidence to CITY to substantiate a price increase, the purchase price of the Commodities contained in Section 3.1 above may be adjusted no more than on an amount equal to the increase in the "Consumer Price Index" or "CPI" for the current year as of two (2) months prior to the beginning of any renewal term of this Agreement. However, in no event shall the increase be greater than _____ percent (____ %) for each year subsequent to the initial term. The purchase price shall be subject to an annual CPI increase for each year of any renewal term. The purchase price due from the CITY shall never decrease.

The term "Consumer Price Index" is defined as the Consumer Price Index for all Urban Consumers, U.S. City Average (1982-84=100) All Items, published by the United States Department of Labor, Bureau of Labor Statistics. The increase in the CPI shall be computed by subtracting the CPI used to calculate the purchase price for the current year from the CPI reported on the U.S. Department of Labor, Bureau of Statistic's website available at <http://data.bls.gov/cgi-bin/surveymost?cu> for the month that is one hundred twenty (120) days prior to the first day of the upcoming year.

ARTICLE 4

WARRANTY OF COMMODITIES

- 4.1 The Commodities, and each individual good or item, including all components and all installed accessories and equipment, shall be guaranteed by the CONTRACTOR to be free of defective parts and workmanship. This warranty shall be for a period of _____ (____) days or the time designated in the standard factory warranty, whichever is longer. The warranty will be the same as that offered to the commercial trade and shall be honored by any of the manufacturer's authorized dealers. The warranty will cover parts, labor and any necessary shipping for repair or replacement of the Commodities, or each individual good or item, including all components and all installed accessories and equipment. The warranty shall start at the time of acceptance by the CITY.



- 4.2 CONTRACTOR warrants and guarantees that the Commodities, and each individual good or item, including all components and all installed accessories and equipment, shall be fit for the intended use of the Commodities and CONTRACTOR shall provide a warranty as to fitness of the Commodities for a period of _____ (____) days or the time designated in the standard factory warranty, whichever is longer. The warranty will cover parts, labor and any necessary shipping for repair or replacement of the Commodities, or each individual good or item, including all components and all installed accessories and equipment.

ARTICLE 5 INDEMNIFICATION

- 5.1 CONTRACTOR shall indemnify and hold harmless the CITY, its trustees, elected and appointed officers, agents, servants, assigns and employees, from and against any and all claims, demands, or causes of action whatsoever, and the resulting losses, costs, expenses, reasonable attorneys' fees, including paralegal expenses, liabilities, damages, orders, judgments, or decrees, sustained by the CITY or any third party arising out of, by reason of, or resulting from the CONTRACTOR's acts, errors, or omissions or consequence of the goods and/or Commodities furnished pursuant to this Agreement or those of any subcontractor, agents, officers, employees, or independent contractor retained by CONTRACTOR.
- 5.2 CONTRACTOR shall indemnify and hold harmless the CITY, its trustees, elected and appointed officers, agents, servants, assigns and employees, from and against any and all claims, demands, or causes of action whatsoever, and the resulting losses, costs, expenses, reasonable attorneys' fees, including paralegal expenses, liabilities, damages, orders, judgments, or decrees, sustained by the CITY or any third party arising out of, by reason of, or resulting from any alleged infringement of copyrights, patent rights and/or the unauthorized or unlicensed use of any invention, process, material, property or other work manufactured or used in connection with the performance of the Agreement, including the use of the Commodities by the City.
- 5.3 CITY reserves the right to select its own legal counsel to conduct any defense in any such proceeding and all costs and fees associated therewith shall be the responsibility of CONTRACTOR.
- 5.4 Upon completion of all Services, obligations and duties provided for in this Agreement, or in the event of termination of this Agreement for any reason, the terms and conditions of this Article shall survive indefinitely.
- 5.5 Nothing contained herein is intended nor shall be construed to waive City's rights and immunities under the common law or §768.28, Florida Statutes, as may be amended from time to time.

ARTICLE 6



INSURANCE

- 6.1 CONTRACTOR shall not commence performance hereunder until it has obtained all insurance required under this paragraph and such insurance has been approved by the Risk Manager of the CITY nor shall the CONTRACTOR allow any subcontractor to commence work on his subcontract until all similar such insurance required of the subcontractor has been obtained and similarly approved.
- 6.2 Certificates of Insurance reflecting evidence of the required insurance shall be filed with the City's Risk Manager prior to the commencement of this Agreement. These Certificates shall contain a provision that coverages afforded under these policies will not be cancelled until at least thirty days (30) prior written notice has been given to the CITY. Policies shall be issued by companies authorized to do business under the laws of the State of Florida. Financial Ratings must be not less than "A-VI" in the latest edition of "Best Key Rating Guide", published by A.M. Best Guide.
- 6.3 Insurance shall be in force until the obligations required to be fulfilled under the terms of the Agreement are satisfied. In the event the insurance certificate provided indicates that the insurance shall terminate and lapse during the period of this Agreement, then in that event, the CONTRACTOR shall furnish, at least forty-five (45) days prior to the expiration of the date of such insurance, a renewed certificate of insurance as proof that equal and like coverage for the balance of the period of the Agreement and extension thereunder is in effect. The CONTRACTOR shall not commence nor continue to provide any service pursuant to this Agreement unless all required insurance remains in full force and effect. CONTRACTOR shall be liable to CITY for any lapses in service resulting from a gap in insurance coverage.

6.4 REQUIRED INSURANCE

6.4.1 Comprehensive General Liability insurance to cover liability bodily injury and property damage. Exposures to be covered are premises, operations, products\completed operations, and certain contracts. Coverage must be written on an occurrence basis, with the following limits of liability:

A.	Bodily Injury	
	1.	Each Occurrence
		\$1,000,000
	2.	Annual Aggregate
		1,000,000
B.	Property Damage	
	1.	Each Occurrence
		1,000,000
	2.	Annual Aggregate
		1,000,000
C.	Personal Injury	
	Annual Aggregate	
		1,000,000



- D. Completed Operations and Products Liability shall be maintained for two (2) years after the final payment.
- E. Property Damage Liability Insurance shall include Coverage for the following hazards: X - explosion, C - Collapse, U - underground.

6.4.2 Worker's Compensation Insurance shall be maintained during the life of this contract to comply with statutory limits for all employees. The following limits must be maintained:

- | | | |
|----|-----------------------|---------------------------------|
| A. | Worker's Compensation | Statutory |
| B. | Employer's Liability | \$100,000 each accident |
| | | \$500,000 Disease-policy limit |
| | | \$100,000 Disease-each employee |

If CONTRACTOR claims to be exempt from this requirement, CONTRACTOR shall provide CITY proof of such exemption along with a written request for CITY to exempt CONTRACTOR, written on CONTRACTOR letterhead.

6.4.3 Comprehensive Auto Liability – coverage shall include owned, hired and non-owned vehicles.

- | | | |
|----|---------------------|-------------|
| A. | Bodily Injury | |
| | 1. Each Occurrence | \$1,000,000 |
| | 2. Annual Aggregate | \$1,000,000 |
| B. | Property Damage | |
| | 1. Each Occurrence | \$1,000,000 |
| | 2. Annual Aggregate | \$1,000,000 |

6.5 CONTRACTOR shall name the CITY, as an additional insured on each of the policies required herein and shall hold the CITY, its agents, officers and employees harmless on account of claims for damages to persons, property or premises arising out of the services provided hereunder.

6.6 Any insurance required of CONTRACTOR pursuant to this Agreement must also be required by any subcontractor in the same limits and with all requirements as provided herein, including naming the CITY as an additional insured, in any work that is subcontracted unless such subcontractor is covered by the protection afforded by the CONTRACTOR and provided proof of such coverage is provided to CITY. The CONTRACTOR and any subcontractors shall maintain such policies during the term of this Agreement.

ARTICLE 7

NON-DISCRIMINATION & EQUAL OPPORTUNITY EMPLOYMENT



- 7.1 During the performance of the Agreement, neither CONTRACTOR nor its subcontractors shall discriminate against any employee or applicant for employment because of race, religion, color, gender, national origin, sex, age, marital status, political affiliation, familial status, sexual orientation, or disability if qualified. CONTRACTOR will take affirmative action to ensure that employees are treated during employment, without regard to their race, religion, color, gender, national origin, sex, age, marital status, political affiliation, familial status, sexual orientation, or disability if qualified. Such actions must include, but not be limited to, the following: employment, promotion; demotion or transfer; recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. CONTRACTOR shall agree to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause. CONTRACTOR further agrees that he/she/it will ensure that subcontractors, if any, will be made aware of and will comply with this nondiscrimination clause.

ARTICLE 8 INDEPENDENT CONTRACTOR

- 8.1 This Agreement does not create an employee/employer relationship between the parties. It is the intent of the parties that the CONTRACTOR is an independent CONTRACTOR under this Agreement and not the CITY's employee for all purposes, including but not limited to, the application of the Fair Labor Standards Act minimum wage and overtime payments, Federal Insurance Contribution Act, the Social Security Act, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code, the State Workers' Compensation Act, and the State unemployment insurance law. The CONTRACTOR shall retain sole and absolute discretion in the judgment of the manner and means of carrying out CONTRACTOR activities and responsibilities hereunder provided, further that administrative procedures applicable to services rendered under this Agreement shall be those of CONTRACTOR which policies of CONTRACTOR shall not conflict with CITY, State, H.U.D., or United States policies, rules or regulations relating to the use of CONTRACTOR Funds provided for herein. The CONTRACTOR agrees that it is a separate and independent enterprise from the CITY, that it has full opportunity to find other business, that it has made its own investment in its business, and that it will utilize a high level of skill necessary to perform the work. This Agreement shall not be construed as creating any joint employment relationship between the CONTRACTOR and the CITY and the CITY will not be liable for any obligation incurred by CONTRACTOR including but not limited to unpaid minimum wages and/or overtime premiums.

ARTICLE 9 SIGNATORY AUTHORITY

- 9.1 CONTRACTOR shall provide CITY with copies of requisite documentation evidencing that the signator for CONTRACTOR has the authority to enter into this Agreement.



**ARTICLE 10
MERGER; AMENDMENT**

- 10.1 This Agreement constitutes the entire Agreement between CONTRACTOR and CITY, and negotiations and oral understandings between the parties are merged herein. This Agreement can be supplemented or amended only by a written document executed by both CONTRACTOR and CITY with the same formality and equal dignity herewith.

**ARTICLE 11
DEFAULT OF CONTRACT & REMEDIES**

- 11.1 CITY reserves the right to recover any ascertainable actual damages incurred as a result of the failure of CONTRACTOR to perform in accordance with the requirements of this Agreement, or for losses sustained by CITY resultant from CONTRACTOR failure to perform in accordance with the requirements of this Agreement.

**ARTICLE 12
BANKRUPTCY**

- 12.1 It is agreed that if CONTRACTOR is adjudged bankrupt, either voluntarily or involuntarily, then this Agreement shall terminate effective on the date and at the time the bankruptcy petition is filed.

**ARTICLE 13
DISPUTE RESOLUTION**

- 13.1 In addition to any other remedy provided hereunder, CITY, at its option, may use arbitration to resolve any controversy or claim arising out of or relating to this Agreement if arbitration is elected by CITY. Any controversy or claim arising out of or relating to this Agreement, or breach thereof, may be settled by arbitration in accordance with the rules of the American Arbitration Association and judgment upon the award rendered by the arbitrators may be entered into by any court having jurisdiction thereof. In the event arbitration is elected by CITY, such controversy or claim shall be submitted to one arbitrator selected by the CITY from the National Panel of The American Arbitration Association.

13.2 Operations During Dispute.

13.2.1 In the event that a dispute, if any, arises between CITY and CONTRACTOR relating to this Agreement, performance or compensation hereunder, CONTRACTOR shall continue to provide the Commodities in full compliance with all terms and conditions of this Agreement as interpreted by CITY regardless of such dispute.

13.2.2 Notwithstanding the other provisions in this Section, CITY reserves the right to terminate the Agreement at any time, whenever the subject goods and/or commodities provided by CONTRACTOR fail to meet reasonable standards of the trade or any warranty,



express or implied contained herein, after CITY gives written notice to the CONTRACTOR of the deficiencies as set forth in Section 2.4.1 of this Agreement.

ARTICLE 14 PUBLIC RECORDS

14.1 The City of Pembroke Pines is public agency subject to Chapter 119, Florida Statutes. The Contractor shall comply with Florida's Public Records Law. Specifically, the Contractor shall:

14.1.1 Keep and maintain public records required by the CITY to perform the service;

14.1.2 Upon request from the CITY's custodian of public records, provide the CITY with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in chapter 119, Fla. Stat., or as otherwise provided by law;

14.1.3 Ensure that public records that are exempt or that are confidential and exempt from public record disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and, following completion of the contract, CONTRACTOR shall destroy all copies of such confidential and exempt records remaining in its possession after the CONTRACTOR transfers the records in its possession to the CITY; and

14.1.4 Upon completion of the contract, CONTRACTOR shall transfer to the CITY, at no cost to the CITY, all public records in CONTRACTOR's possession. All records stored electronically by the CONTRACTOR must be provided to the CITY, upon request from the CITY's custodian of public records, in a format that is compatible with the information technology systems of the CITY.

14.2 The failure of Contractor to comply with the provisions set forth in this Article shall constitute a Default and Breach of this Agreement and the CITY shall enforce the Default in accordance with the provisions set forth in **Article 11**.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT

**CITY CLERK
10100 PINES BOULEVARD, 5th FLOOR
PEMBROKE PINES, FL 33026
(954) 450-1050**



mgraham@ppines.com

ARTICLE 15 MISCELLANEOUS

- 15.1 **Ownership of Documents.** Reports, surveys, studies, and other data provided in connection with this Agreement are and shall remain the property of CITY, whether or not the project for which they are made is completed.
- 15.2 **Legal Representation.** It is acknowledged that each party to this agreement had the opportunity to be represented by counsel in the preparation of this Agreement, and accordingly, the rule that a contract shall be interpreted strictly against the party preparing same shall not apply herein due to the joint contributions of both parties.
- 15.3 **Records.** CONTRACTOR shall keep such records and accounts and require any and all subcontractors to keep records and accounts as may be necessary in order to record complete and correct entries as to the provision of Commodities or purchases hereunder for which CONTRACTOR. Such books and records will be available at all reasonable times for examination and audit by CITY and shall be kept for a period of ____ (____) years after the completion of all work to be performed pursuant to this Agreement, or as otherwise required by Florida law. Incomplete or incorrect entries in such books and records will be grounds for disallowance by CITY of any fees or expenses based upon such entries.
- 15.4 **Assignments; Amendments.** This Agreement, and any interests herein, shall not be assigned, transferred or otherwise encumbered, under any circumstances, by CONTRACTOR without the prior written consent of CITY. For purposes of this Agreement, any change of ownership of CONTRACTOR shall constitute an assignment which requires CITY approval. However, this Agreement shall run to the benefit of CITY and its successors and assigns.
- It is further agreed that no modification, amendment, or alteration in the terms or conditions contained herein shall be effective unless contained in a written document executed with the same formality and of equal dignity herewith.
- 15.5 **No Contingent Fees.** CONTRACTOR warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for CONTRACTOR to solicit or secure this Agreement, and that it has not paid or agreed to pay any person, company, corporation, individual or firm, other than a bona fide employee working solely for CONTRACTOR any fee, commission, percentage, gift, or other consideration contingent upon or resulting from the award or making of this Agreement. For the breach or violation of this provision, CITY shall have the right to terminate the Agreement without liability at its



discretion, to deduct from the contract price, or otherwise recover the full amount of such fee, commission, percentage, gift or consideration.

- 15.6 **Notice.** Whenever any party desires to give notice unto any other party, it must be given by written notice, sent by certified United States mail, with return receipt requested, addressed to the party for whom it is intended and the remaining party, at the places last specified, and the places for giving of notice shall remain such until they shall have been changed by written notice in compliance with the provisions of this section. For the present, CONTRACTOR and CITY designate the following as the respective places for giving of notice:

CITY Charles F. Dodge, City Manager
City of Pembroke Pines
10100 Pines Boulevard
Pembroke Pines, Florida 33025
Telephone No. (954) 431-4884
Facsimile No. (954) 437-1149

Copy To: Samuel S. Goren, City Attorney
Goren, Cherof, Doody & Ezrol, P.A.
3099 East Commercial Boulevard, Suite 200
Fort Lauderdale, Florida 33308
Telephone No. (954) 771-4900
Facsimile No. (954) 771-4923

CONTRACTOR: **[CONTACT, TITLE]**
[VENDOR NAME]
[VENDOR ADDRESS]
[VENDOR CITY, STATE, & ZIP CODE]
Telephone No: _____
Facsimile No: _____
E-Mail: _____

- 15.7 **Binding Authority.** Each person signing this Agreement on behalf of either party individually warrants that he or she has full legal power to execute this Agreement on behalf of the party for whom he or she is signing, and to bind and obligate such party with respect to all provisions contained in this Agreement.
- 15.8 **Headings.** Headings herein are for the convenience of reference only and shall not be considered in any interpretation of this Agreement.
- 15.9 **Exhibits.** Each Exhibit referred to in this Agreement forms an essential part of this Agreement. The exhibits if not physically attached should be treated as part of this Agreement and are incorporated herein by reference.



- 15.10 **Severability.** If any provision of this Agreement or application thereof to any person or situation shall to any extent, be held invalid or unenforceable, the remainder of this Agreement, and the application of such provisions to persons or situations other than those as to which it shall have been held invalid or unenforceable, shall not be affected thereby, and shall continue in full force and effect, and be enforced to the fullest extent permitted by law.
- 15.11 **Extent of Agreement and Conflicts.** This Agreement represents the entire and integrated agreement between CITY and CONTRACTOR and supersedes all prior negotiations, representations or agreements, either written or oral.
- 15.12 **Waiver.** Failure of CITY to insist upon strict performance of any provision or condition of this Agreement, or to execute any right herein contained, shall not be constructed as a waiver or relinquishment for the future of any such provision, condition, or right, but the same shall remain in full force and effect.
- 15.13 **Disputes.** Any claim, objection, or dispute arising out of the terms of this Agreement shall be litigated in Broward County, Florida.
- 15.14 **Attorney's Fees.** In the event that either party brings suit for enforcement of this Agreement, each party shall bear its own attorney's fees and court costs, except as otherwise provided under the indemnification provisions set forth herein above.
- 15.15 **Scrutinized Companies.** CONTRACTOR, its principals or owners, certify that they are not listed on the Scrutinized Companies that Boycott Israel List, Scrutinized Companies with Activities in Sudan List, Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or is engaged in business operations with Syria. In accordance with Florida Statute 287.135, as amended, a company is ineligible to, and may not, bid on, submit a proposal for, or enter into or renew a contract with any agency or local governmental entity for goods or services if:
- 15.15.1 Any amount of, at the time bidding on, submitting a proposal for, or entering into or renewing such contract, the company is on the Scrutinized Companies that Boycott Israel List, created pursuant to s. 215.4725 or is engaged in a boycott of Israel; or
- 15.15.2 One million dollars or more if, at the time of bidding on, submitting a proposal for, or entering into or renewing such contract, the company:
- 15.15.2.1 Is on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to s. 215.473; or
- 15.15.2.2 Is engaged in business operations in Syria.

**THE REMAINDER OF THIS PAGE
HAS BEEN INTENTIONALLY LEFT BLANK.**



IN WITNESS OF THE FOREGOING, the parties have set their hands and seals the day and year first written above.

CITY:

CITY OF PEMBROKE PINES, FLORIDA

ATTEST:

MARLENE D. GRAHAM, CITY CLERK

By: _____
MAYOR FRANK C. ORTIS

APPROVED AS TO FORM:

OFFICE OF THE CITY ATTORNEY

CONTRACTOR:

[NAME OF CONTRACTOR]

By: _____
Name: _____
Title: _____

STATE OF _____)
COUNTY OF _____)

BEFORE ME, an officer duly authorized by law to administer oaths and take acknowledgments, personally appeared _____ as _____ of **[NAME OF CONTRACTOR]**, a company authorized to conduct business in the State of Florida, and acknowledged execution of the foregoing Agreement as the proper official of **[NAME OF CONTRACTOR]** for the use and purposes mentioned in it and affixed the official seal of the corporation, and that the instrument is the act and deed of that corporation.

IN WITNESS OF THE FOREGOING, I have set my hand and official seal at in the State and County aforesaid on this _____ day of _____, 20__.

NOTARY PUBLIC

(Name of Notary Typed, Printed or Stamped)

Vehicle Inventory List

WRENCH HOLDER	01519001	ELKHART	2	EA		
2.5 TRI-LOK HOLDER	01561004	ELKHART	9	EA		
POST TYPE MOUNT FOR 5-WAY MANIFOLD & HYDRANT VALVE	HPM-M-HV	HARRINGTON	2	EA		
5" STORZ CAP	HBC-50	HARRINGTON	2	EA		
5" STORZ X 6" NH FEMALE RIGID	HSFR50-60NH	HARRINGTON	2	EA		
5" FEMALE X 6" MALE REDUCER	H37-60NHM-50NH	HARRINGTON	2	EA		
5" STORZ CAP W/CHAIN	CC507	KOCHEK	2	EA		
STORZ SPANNER AND HOLDER SET	KS34	KOCHEK	2	EA		
DOUBLE HOLDER W/(2) K01 SPANNER WRENCHES	K46-2	KOCHEK	2	EA		
RL SWIVEL 5" FML X 6" ML	54R56	KOCHEK	2	EA		
HONDA PORTABLE GENERATOR	EU 300 HANDI	HONDA	2			
BUNKER GEAR HOOK	1029	PAC	2	EA		
TOOLOK-HEAVY DUTY	1003-HD	PAC	8	EA		
HOOK LOKS	1001	PAC	5	EA		
SLEDGE HAMMER HANGER/POCKET	1010-12	PAC	1	EA		
IRONS LOK	K5003	PAC	1	EA		
5" STORZ LOCK MOUNTS	SMP-50	RED HEAD	5	EA		
6" RAISED MOUNTING PLATE	RMP4916AC	SOUTH PARK	12	EA		
SIDE MOUNT BRACKET	ZSMA5201C	SOUTH PARK	2	EA		
CHROME AXE SHIELD/POCKET	ZAH5101C	SOUTH PARK	2	EA		
5" STORZ MOUNTING PLATE	ST89-HSMB-50	SOUTH PARK	1	EA		
FIRE VULCAN VEHICLE MOUNT SYSTEM - 12V DC - ORANGE	44401	STREAMLIGHT	4	EA		
TURTLE TILE	1212	TURTLE	150	EA		
ELBOW 5" STRZ X 3" NHF	AH3ST-NL	TFT	1	EA		
BOLT CUTTER MOUNT	BCB	ZICO	1	EA		
CHOC FOR UP TO 44' TIRE DIAMETER	SAC-44-E	ZICO	2	EA		
HORIZONTAL CHOC HOLDER	SQCH-44-H	ZICO	2	EA		
VARIABLE STRAPS	UMVS-1625-11	ZICO	1	EA		
VARIABLE STRAPS	UMVS-1116-11	ZICO	2	EA		
NOZZLE CUP MT. BRACKET	NCM-BB	ZICO	2	EA		
NOZZLE CUP MT.	NCM-1	ZICO	2	EA		
3FT PIKE POLE (FIBERGLASS) 1 TOOTH AMERICAN HOOK			1			
6 FT PIKE POLE(FIBERGLASS) 1 TOOTH AMERICAN HOOK			3			
8 FT PIKE POLE(FIBERGLASS) 1 TOOTH AMERICAN HOOK			2			
12 FT PIKEPOLE(FIBERGLASS) 1 TOOTH AMERICAN HOOK			2			
50 FT 1 3/4" PONS CONQUEST HOSE 1 1/2 NST ends		PONN CONQ.	7			
20 FT 5" PONS CONQUEST HOSE 5" Stortz Ends		PONN CONQ.	2			
300 FT 3" PONS CONQUEST HOSE 2 1/2" NST ends		PONN CONQ.	6			
600 FT 5" PONS CONQUEST HOSE 5" Stortz Ends		PONN CONQ.	6			
SHORT BREATHING HOSE (FOR BUCKET)			2			
2.5" ELBOWS (SWIVEL TYPE)			4			
1.5" CAPS			4			
2.5" FEMALE - 1.5" MALE REDUCER			4			
2.5" SPANNERS			6			
PICK HEAD AXE			2			
HALLIGAN 36" PROBAR			4			
FLAT HEAD AXE			3			
1.5 " NST DOUBLE FEMALE			1			
2.5 " NST INLINE VALVE (ACRON MODEL# AK-1828)			1			
2.5 " NST GATED WYE (KOCHEK MODEL# 26K1525)			1			
5" - 4" STORTZ REDUCER			1			
2.5"NST DOUBLE FEMALE			2			
2.5" NST DOUBLE MALE			2			
5" - 4" STORTZ REDUCER			1			
2.5" NST INTAKE PLUGS			2			
6" NST STEAMER CAP			1			
WATER THIEF (ACRON MODEL#45670 5300 LUMEN)			3			
SPANNERS - L.D.H.			12			
SALVAGE COVERS (Large)			6			
TEMPEST TECH SERIES VS-1 (BATTERY FAN)		TEMPEST	2			
K-12 SAW (K-970 FIRE/RESCUE SAW)			1			
3 FT CLOSET HOOK (FIBERGLASS)			1			
SLEDGE HAMMER (34")			1			
BOLT CUTTER (36")			1			
STREET MANIFOLD (KOCHEK MODEL# 51K0525)	51K0525	KOCHEK	1			
SQUEEGE			2			
SQUEEGE HANDLES			2			
PRY BAR/ WRECKING BAR - 48"			2			
FLAT HEAD SHOVEL			1			
SPADE SHOVEL			1			
COAL SHOVEL			1			
MILLER BOARD			1			
HOSE HOIST TOOL			1			
L.D.H. 5" BLIND CAP			2			
STACKTIP NOZZLE SET (2",1 3/4",1 1/2",1 3/8") FOR BUCKET			4			
STACKTIP NOZZLE SET (2 1/2",2 1/4", 2") FOR CABINET			3			
2 1/2" X 3 1/2" ADAPTOR			1			
BATTERY TRIPOD LIGHT WITH 5300 LUMENS	45670	Streamlite	3			

[Vendor view of bid](#)

[Chat](#) | [Bid Comments](#) | [Documents](#) | [Attachments](#) | [Items](#)

Bid #FI-19-01 - Fire Engine / Ladder Truck   

Time Left	Bid has ended.		
Bid Started	May 7, 2019 9:10:12 PM EDT		
Bid Ended	This bid closed on Jun 4, 2019 2:00:00 PM EDT		
Agency Information	City of Pembroke Pines, FL (view agency's bids)	Notifications	Report (Bidder Activity)
		# of suppliers that viewed	32  (View)
		Q & A	Questions & Answers Q&A Deadline: May 20, 2019 8:30:00 PM EDT
Bid Classifications	Classification Codes		
Required Vendor Qualifications	PP-SWORN, PP-LOCAL, PP-VOSB, PP-DRUGFREE, PP-SCRUTINIZED, PP-W9, PP-VENDORINFO, PP-EQUAL, PP-LBTR		
Bid Regions	Regions		
Bid Contact	see contact information		
Copy Bid	Click here to copy the bid and relist it as a new bid		
View Rules	Click here to change the rules for this bid.		
Bid Packet	 Packet for Bid FI-19-01 [download]		
Best and Final Offer:	Create		

Approval

View Approval Flow [View Approval Flow](#)
Approval Status Approved

Bid Comments

Contract Duration 3 years
Contract Renewal Not Applicable
Prices Good for 90 days
Budgeted Amount \$0.00 [\(change\)](#)
Standard Disclaimer Bids/proposals must be submitted electronically

Please note vendors should be registered on BidSync under the name of the organization that they are operating as and it should match the organization name on the documents that they are submitting and utilizing when responding to the solicitation. The vendor must provide the necessary information on the BidSync website and upload all of the requested documents listed in the PROPOSAL REQUIREMENTS section of this solicitation. Unless otherwise specified, the City requests for vendors to upload their documents as one (1) PDF document in the order that is outline in the bid package.

The City recommends for proposers to submit their proposals as soon as they are ready to do so. Please allow ample time to submit your proposals on the BidSync website. Proposals may be modified or withdrawn prior to the deadline for submitting Proposals. BidSync Support is happy to help you with submitting your proposal and to ensure that you are submitting your proposals correctly, but we ask that you contact their support line at 1-800-990-9339 with ample time before the bid closing date and time.

PLEASE DO NOT SUBMIT ANY PROPOSALS VIA MAIL, E-MAIL OR FAX.

However, please note that any required Bid Bond or Cashier's Check should be in a sealed envelope, plainly marked "BID SECURITY" (with the Solicitation Number and Title) and sent to the City of Pembroke Pines, City Clerk's Office, 4th Floor, 601 City Center Way, Pembroke Pines, FL 33025.

Bid Comments The City of Pembroke Pines is seeking proposals to provide the Fire Department with a Fire Engine / Ladder Truck that will meet their needs.

Documents

[Select All](#) | [Select None](#) | [Download Selected](#)

- ☐ 1.  [FI-19-01 Fire Engine-Ladder Truck.pdf](#) [\[download\]](#)
- ☐ 3.  [Attachment B - Non-Collusive Affidavit](#) [\[download\]](#)
- ☐ 5.  [Attachment D - Sample Insurance Certificate.pdf](#) [\[download\]](#)
- ☐ 7.  [Attachment F - Vehicle Inventory List.pdf](#) [\[download\]](#)

- ☐ 2.  [Attachment A - Contact Information Form.docx](#) [\[download\]](#)
- ☐ 4.  [Attachment C - Proposers Qualifications Statement](#) [\[download\]](#)
- ☐ 6.  [Attachment E - Specimen Contract - Continuing Purchase Agreement 2018-10-25.pdf](#) [\[download\]](#)

 = Included in Bid Packet  = Excluded from Bid Packet

Items

Item	Title	Offers	
FI-19-01--01-01	Fire Engine / Pumper Truck	Y	Info
FI-19-01--01-02	Pre-Payment Discount Option	Y	Info

Change Made On May 7, 2019 9:41:43 PM EDT

- Added Items** • [Pre-Payment Discount Option](#)
- Removed Items** • [Pre-Payment Discount Option](#)

Contractor Advertisements

[View All Ads](#)

There are no advertisements on this solicitation.

Questions? Contact a BidSync representative: 800-990-9339 or email: support@bidsync.com

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