Portsmouth Fire Department

Request For Proposals

Marine Unit Fire Fighting Vessel

RFP # 36-06

INVITATION FOR PROPOSAL

The City of Portsmouth, New Hampshire is seeking proposals for the building of one new thirty foot (30') marine fire-fighting vessel. Proposals shall be submitted on or before **2:00pm February 17, 2006** addressed to the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801.

Proposal specifications may be obtained from the City of Portsmouth web site: www.cityofportsmouth.com, by contacting the Purchasing Department at 1 Junkins Avenue, Portsmouth, New Hampshire 03801, or by calling the Purchasing Clerk at 603-610-7227. **Please continue below for the complete Request for Proposal.**

The City of Portsmouth reserves the right to reject any or all proposals, to waive technical or legal deficiencies, to accept any proposal that is in the best interest of the City and to negotiate the terms and condition of any proposal leading to execution of a contract.

If you have any questions please contact the Purchasing Department at: 603-610-7227.

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INTRODUCTION

The City has preliminarily surveyed the fire fighting vessel market. Based on its findings, the City is seeking proposals for the building of one thirty foot fire-fighting vessel.

Questions may be directed to Christopher J. LeClaire, Fire Chief, at 603-427-1515.

QUALIFICATIONS OF BUILDER

The builder must have an established reputation for reliability and quality in the field of fire-fighting vessel construction. Each builder shall furnish satisfactory evidence of its ability to construct the vessel proposed. Builder must complete "Builder's Qualification's Statement" to be submitted with the Proposal. Builder must submit the financial records requested.

Builder must have been in business continuously for a minimum of five (5) years.

PROPOSED FIRE-FIGHTING VESSEL

Important to the City's review is the durability, reliability, ease of use and quality of the vessel. The Proposal shall include complete specifications/construction details for the vessel and equipment proposed. Construction of the vessel shall be in accordance with the specification proposed and to the highest standards of marine construction. The vessel shall conform to all regulatory standards in effect at the time of construction.

Based on its preliminary survey of the market, the City anticipates that the best proposal will consist of a vessel with the specifications and features set forth in **Exhibit A** included as part of this Request for Proposal. To the extent that the vessel proposed does not have the features/specifications outlined in **Exhibit A**, the deviation must be noted and a brief explanation is encouraged.

DELIVERY AND POST-DELIVERY TRAINING

The Price Proposal Form should be completed to indicate the proposed delivery date. The City anticipates that the successful proposal will include a delivery date within 10 months of contract execution. Post-delivery training expectations are outlined in **Exhibit A**.

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SELECTION CRITERIA AND PROCESS

Proposals will first be evaluated and ranked on the following criteria: builders' qualifications; vessel's reputation for reliability; vessel's quality, features and ease of use for the conditions anticipated; delivery schedule; commitment to training; warranties; and such other criteria as the City may deem to be in its best interest.

Thereafter, the price proposals will be opened and compared. Review of the price proposals may result in re-ranking.

The selection committee shall review proposals and rank proposals within 45 days of opening. The City may request interviews and/or solicit additional information from builders submitting proposals. The City may elect to solicit opinions from third parties regarding the builder and the vessel proposed. The City may request the opportunity to review/operate a vessel similar to the one proposed.

The City will attempt to reach a contract with the first-ranked company. If negotiations with the first-ranked builder fail, the City will proceed to negotiate with the next highest ranked builder.

PROPOSAL REQUIREMENTS AND FORMAT

Each builder shall submit 2 copies of the Proposal. Proposals shall be submitted to the City of Portsmouth Purchasing Department, 1 Junkins Avenue, Portsmouth, New Hampshire 03801 no later than **2:00pm, February 17, 2006**. The price proposal form shall be submitted in a separately sealed envelope marked "Price Proposal". Proposals shall be identified prominently as follows: "Marine Unit Fire Fighting Vessel RFP # **36-06**."

Proposals shall follow the following format:

Part 1
Introductory Letter of Builder (no more than 3 pages).

Part 2
Builder's Qualifications consisting of the completed Builder's Qualification's Statement with the requested financials, list of litigated/arbitrated matters, proof of insurance, and such other information that the Builder elects to provide to assist in the City's evaluation of qualifications.

Part 3
Identify at least 5 communities using a marine fire-fighting vessel similar to the one proposed. For each community identified, please indicate the length of time the vehicle has been in use with that community.

Part 4
Provide copies of all warranties being offered for the vessel.

Part 5
Describe the training program, identify all manuals to be provided, and identify any other support that may be offered as part of the proposal.

Part 6
Provide detailed vessel specifications and drawings.

Completed Price Proposal Form to be submitted in a separate, sealed envelope with the Proposal.

RESERVATION OF RIGHTS

The City reserves the right to undertake such investigation as it deems necessary to evaluate the qualifications of the builder and to evaluate the proposal submitted. Builders may be requested to execute releases for information. Failure to provide a release upon request will result in disqualification.

The City reserves the right to waive any irregularities in any proposal and to reject any or all proposals if in the City's best interest to do so.

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Builder's Qualifications Statement

Builder Name: _____

Principal Place of Business: _____

Number of Years in Business under Present Name: _____

If in business less than 10 years under present name please disclose any prior business identity and date(s) of transition: _____

Where organized/state of incorporation: _____

Is the organization registered to do business in the state of New Hampshire and if so please identify your registered agent for service of process: _____

_____

Location of All Facilities: _____

- **(attach additional sheets as necessary)**

Please describe the extent and nature of the work performed by builder (ex: specialize in fire-fighting and emergency vessels or construct a wide range of vessels).

_____
_____
_____
_____
_____
_____
_____

The solvency of builder is a concern of the City. Builder **must submit** an audited financial statement from a nationally recognized accounting firm from the most recent fiscal year. The City is prepared to maintain the confidentiality of the financial statement to the extent permitted by law if requested by the manufacturer and the statement is clearly marked confidential. Financial statements designated confidential will be returned at the completion of the selection process. Failure to submit such a statement may result in rejection of a proposal.

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Please list on a separate page all litigation or arbitration commenced by or against your company within the last 7 years regarding any marine fire fighting vessel (claims of defectiveness, breach of any warranty, breach of contract, personal injury actions). Identify the parties, the date commenced, a brief description of the claim, and the Court or forum in which the claim was adjudicated and resolution/status.

Provide proof of existing levels of product liability insurance.

Signed under the pains and penalty of perjury this _____ day of _____, 2006.

By:_____

Its: _____

_____ personally appeared before me and swore that he/she is a duly authorized representative of _____ and that the foregoing statements are true and correct to the best of his/her knowledge and belief.

Dated:_____ _____

Notary Public/Justice of the Peace

My commission expires:_____

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Price Proposal Form

1. Price Proposal for the building of one thirty foot (30') marine fire fighting vessel $_____ as proposed in the specifications submitted. Price should be inclusive of all delivery, mounting, training, instruction manuals and other costs and fees.

Price in Words:_____

2. Please feel free to submit with this form any additional pricing information for equipment or features not included in the City's specifications but which may be of interest to the City.

Location of Facility for final inspection: _____

Delivery Date within ____ days of order (no later than 10 months days from execution of contract)

Please feel free to identify any additions or reductions to the price proposed if the delivery date is altered, if payment is made in advance of delivery etc.

_____
_____
_____
_____
_____
_____

Name of Business _____

By: _____

Its Authorized _____

(Title)

Dated: _____

EXHIBIT A - SPECIFICATIONS

I. GENERAL

1. A qualified representative shall provide training to the City in the operation, care, and maintenance of the vessel and supplied equipment at the builder's site.
2. Contract shall include the delivery of the vessel by water to the City's Marine Unit's base. Delivery in good order and signing of the acceptance document at the PFD Marine Unit base shall constitute Final Acceptance.
3. Any and all design changes shall be documented in writing and be approved by the City prior to any new work taking place.

II. WORKMANSHIP and STANDARDS

All work is to be done to high-quality marine construction standards. All welding will be in accordance with welding procedures approved by the American Bureau of Shipping, Rules for Building, and Classing High Speed Aluminum Vessels. The hull construction shall be welded, all welds continuous inside and outside all seams. All weld spatter, soot, and construction scars will be removed or faired. All sharp edges and corners are dressed to prevent hazards to personnel and equipment. The vessel shall be constructed of quality marine grade materials.

III. CONSTRUCTION REQUIREMENTS

A. GENERAL

1. The builder shall provide engineering services, for such time as may be necessary for the technical supervision of the assembly, testing and certification of the vessel. All cost for inspection, testing, plan review, and approval shall be at the Builder's expense.

2. The vessel shall be constructed in accordance with and comply with all applicable United States Coast Guard Rules and Regulations, Code of Federal Regulations 46, American Boating and Yachting Council and American Bureau of Shipping Welding standards. The most stringent standard and or code shall be selected and be used in constructing the vessel.

3. All parts of the vessel shall be constructed of materials appropriate for the environment in which the vessel will operate.

4. There shall be a fully insulated cabin floor to quiet sea noise and maintain cabin temperature.

4. The vessel shall be designed so that the various systems and parts are readily accessible for inspection, adjustment, maintenance, lubrication and repair. Placement of equipment whenever possible shall allow for its removal from the vessel without having to disturb permanently installed structural members, or equipment shall be situated to allow for in-place overhaul and repair.

5. Access and lightening holes shall be arranged clear of concentrated loads or areas of high stress.

6. Vessel shall have a field of vision from the helm suitable for safe navigation in all operating conditions and compliant with ABYC visibility standards.

7. Vessel shall be equipped with a wheelhouse and forecabin. Cabin shall be enclosed and engineered for a three- person crew to allow for the largest deck space possible. All doors to cabin shall be weather tight.

8. The City shall approve all drawings before commencement of Construction/Production Schedule. Drawings shall include details of dash, cabin, and deck layout.

9. Vessel design shall maximize storage in all areas and include storage under decks, and in cabin. A "V" berth area shall be able to incorporate the installation of an approved marine sanitation device and related plumbing.

B. DRAFT REQUIREMENTS and HULL CONFIGURATION

1. The fireboat draft will not exceed 20 inches in depth.

2. The hull design will be a deep “V’ bottom and designed so as to reduce roll-out in high speed turns to the maximum extent practical.

3. The vessel shall be extremely stable so that list is minimized during asymmetrical static loading. The vessel shall meet NFPA Class ‘A’ heeling requirements.

4. During initial takeoff acceleration, the ride should be flat and not upward, with a trim angle not to exceed 6 degrees.

5. Appropriate push knees will be incorporated into the bow design and not adversely impact visibility or appreciably affect performance. The push knee bow design shall also incorporate an anchor locker with a safe secure method of securing the anchor. The push knee box design shall act as a crumple zone in the event of a forward impacting collision.

C. PILOTHOUSE

1. The pilothouse will be fully enclosed and fitted out with fixed windows, sliding windows, and a door leading out to the rear deck that can be closed protecting the crew from outside elements. All windows shall be constructed of safety glass. The pilothouse will be outfitted with a control console forward and to the starboard side. All vessel

controls, gauges, etc. are installed in the control console within immediate reach of the helmsman. The cabin has good overhead clearance of 6'6'' minimum. Preference is for side sliding windows.

2. Cabin windows shall provide 360-degree unobstructed visibility from the helm with the cabin door open or closed. Preference is for tinted safety glass with the exception of the front windows for night visibility. All windows and aft cabin door shall be weather tight, and locking. Rear cabin door shall have an integral stainless lockset for vessel security.

3. There shall be 1X 18-20" cabin hatches (Boman or equal) installed in the main cabin roof. The main hatch shall provide visibility for the roof mounted monitor, ventilation and added safety as an escape route.

4. Cabin windshield shall be slanted forward for better visibility and glare reduction.

5. Cabin and forward berth shall be constructed and sound insulated to provide adequate acoustic insulating of cabin spaces.

6. The pilothouse will include a designated berth/seat on the port side of the cabin to secure a patient on a backboard or litter. This seat shall have a hinged top and be secured when open or closed. The berth/locker shall have sliding doors on the inboard face of the locker so that supplies can be reached when a patient is atop the berth. There will be at least three safety straps provided to secure the patient on this berth. The cuddy shall provide a dedicated space to hold two SCBA's and two spare bottles.

7. Cabin shall have rubber stress matting throughout.

8. Vessel's forward cuddy area shall have seat/storage spaces to port & starboard to seat four persons or be capable of accommodating two backboards, the area shall also be equipped with mechanical ventilation. Forward of the P&S seats there shall be an open storage area for loose light stowage of personal gear etc, and have a hanging bar above for hanging turnout gear. This area shall be capable of draining into the forward bilge to drain wet hanging gear.

9. Vessel shall have a fully clad interior. All cladding shall meet USCG fire rating requirements. Cladding shall be gray color, easily cleaned and maintained and be fully removable. Fasteners shall be trimmed to match the cladding color.

10. Helm seats shall have a minimum of 20 inches in width. The helm seat shall be an adjustable suspension type seat (Bostrom or equal) with fore and aft sliders provided. Armrests shall be operable. Fabric shall be heavy-duty and easily cleanable. The port navigator/fire fighting seat shall be a hinged back seat to allow for accommodation of a stokes or backboard.

11. Cabin shall provide at a minimum the following items: chart table with hinged clear Plexiglas top for chart mounting, underneath storage for charts, and a book shelf. Preference is that this shall be mounted aft of the helm seat. There shall be a large cabin sole deck hatch to access storage below the main cabin deck.

D. WORK DECK and EQUIPMENT

Deck area will be self-bailing with a non-skid safety surface. The rear deck will have a large work area to facilitate dive operations, fire operations, rescue operations, and medical operations.

1. There shall be six 12" welded cleats evenly spaced around the perimeter of the vessel.

2. Aluminum railings, minimum 1-1/2" will be used on the vessel for safety. The railing will extend from the bow, to aft of the foredeck, and surround the work deck.

3. There will be a removable dive ladder with swim platform for a dive use and survivor retrieval. The ladder shall float.

4. A hinged watertight hatch, (Freeman or equal), shall be provided to access the anchor locker. The anchor locker shall store the anchor, chain and rode. The anchor will be secured by an anchor bracket in the locker.

5. There shall be a hinged watertight hatch, (Freeman or equal), on the aft deck to provide quick access to the engine room. There shall be a large weathertight engine hatch that permits easy access for removal of engines and general servicing with rain gutters draining overboard. The hatch shall be supported with gas shocks or a lockable foot operated mechanical latch.

6. Hatches shall be provided with a positive locking device to prevent movement during rough conditions. Hatches shall be clear opening, for better access.

7. There shall be an aft stowage locker on the dive recovery deck, the hatch shall be lockable and be supported with gas rod shocks, this locker shall be large enough to stow a portable generator and or trash pump or dive tanks.

8. There shall be a open aft mounted console/control station mounted on the aft deck to starboard to provide the operator the ability in a short handed rescue operation to be by the crew deployed in the rescue to hear commands improve visibility and overall safety. The console shall be fitted with a temp gauge and alarm, engine, bucket controls and a RAM mike for the VHF.

9. There shall be an aft deck mounted 500 lb stainless steel davit with hand operated winch and cable and slewing lines and lock pin set. The davit shall be capable of lifting a 55-gallon drum of foam from side to the boat to the deck.

10. The aft recovery deck shall wrap around the stern and forward on both side of the boat to permit 3-4 backboards to be resting on the recovery deck at any one time. The deck shall have a non-skid finish and a small ledge or rail for handholds for swimmers.

11. There shall be a set of port & starboard survivor rails just above the waterline on either side of the hull starting from the transom forward. These rails shall be protected by the 3" rubrail.

E. ELECTRICAL

1. Wiring shall be installed as per ABYC and United States Coast Guard Rules and Regulations as a minimum. The builder shall provide an electrical schematic in the manual package. The schematic shall be a one-line diagram, follow the electrical runs as installed in the vessel, and match the labeling of the wiring runs. Wiring runs shall be concealed behind cabin walls, decorative cable trays, or loom. All hull contact points or penetrations shall be loomed or fitted with grommets, anti-chafe or bulkhead fittings to prevent damage to conductors that could lead to hull corrosion. Exposed wiring will not be accepted. All conductors will be sized according to their load and length, with respect to ABYC allowable voltage drop. In machinery space all connectors smaller than 10 AWG shall be of the heat shrink type to minimize the risk of corrosion. All connectors larger than 10 AWG shall be covered with a heat shrink. All connectors are to be of the crimp on type, wire nuts and splices will not be accepted.

2. All electrical equipment shall be arranged so it cannot be damaged by bilge water, if within 12" of the bilge, connections shall be watertight or contained in NMEA boxes.

3. Wiring runs shall have easy access through removable panels or cable trays. Proposers shall provide details of their standard wiring installation practice with proposals.

4. Manufacturer will perform an electrical load analysis to determine necessary capacity for all power sources and assure charging sources can supply adequate power required to maintain batteries in a charged state.

DC SYSTEMS

1. DC Electrical breaker panels shall have sufficient and properly sized breakers for all circuits. Breaker panels shall provide four additional breakers as spares for future additions to the vessel. All breaker panels shall be backlit and have indicating lights for each breaker, with the following as a minimum:

> Navigation lights; Restricted in Maneuvering lights; Wipers; Air; Cabin lights; Engine compartment & aft locker lights; Deck lights; Searchlight; Emergency lights; VHF radio; 12V outlets; Electronics; and Fire Pump.

2. A breaker shall control all DC house power; an overcurrent protection device with the required AIC rating shall protect the entire circuit.

3. Recessed red lighting shall be provided for safety on the swim platform.

5. The front windshields shall have a quality wiper system. A windshield washer system shall be provided.

6. The cabin will be outfitted with air circulation fans sufficient to provide reliable and timely windshield defrosting capability.

7. Cabin heat shall have adequate air movement and adjustable diffuser outlets to keep windshields clear when defroster is needed.

8. The vessel shall have a minimum of (2) 12VDC power outlets. Outlets will be mounted on the interior, one port, and one starboard.

9. There shall be a radar arch and hinged mast installed on the aft part of the cabin roof. The following items must be able to be mounted on the mast or arch: radar dome or array, siren speaker, emergency lights, restricted in maneuverability lights, spotlight, required navigational lights, and two halyards. The mast shall be capable of being lowered by a single person and permit the boat to operate at full speed in the down position safely. The mast height shall be tall enough to provide mandatory spacing between lighting. The arch shall be capable of accommodating an open array radar antenna.

10. Exterior lighting will be such to fully light up a scene for 360 degrees, and light up the work deck. Spotlight(s) will be used to locate objects at night.

11. Batteries shall be stored in secure, properly vented, corrosion resistant battery boxes. Battery boxes shall be fully accessible. Batteries shall be arranged in 3 banks, one for port engine, one for starboard engine, and one for house. Batteries shall be sized accordingly for their respective loads. The builder shall provide a load analysis to verify battery sufficiency. The propulsion engine alternators will be connected to the charging system using battery isolators, allowing each source (alternator or charger) to charge each battery bank, and protecting battery banks from cross draining.

12. Starting system shall be designed with an appropriate marine battery interconnect switch to allow for cross starting of each engine from port, starboard or house battery banks. 2-way switches will control power to the starter circuits. All switches shall be mounted in an accessible area.

AC SYSTEMS

1. AC Electrical breaker panels shall have sufficient and properly sized breakers for all circuits, and contain an amp meter and voltmeter. Breaker panels shall provide two additional breakers as spares for future additions to the vessel. Shore power ground shall run through a Galvanic isolator to aid in the prevention of corrosion. Each AC accessory shall be breakered separately. All breaker panels shall be backlit and have indicating lights for each breaker, with the following as a minimum: Main; Port Block Heater; Stbd Block Heater; Battery Charger; and Cabin outlet.

2. Engines shall be equipped with an AC block heater.

3. Vessel will have an AC battery charger to maintain battery level while dockside.

4. Cabin space shall be equipped with three 110-volt AC outlets.

5. There shall be two 1500 watt heaters installed, one in the main cabin and one in the engine room to keep the area warmed when the boat is at dock, or run with engine heaters when the boat is idling for long periods.

ELECTRONICS and NAVIGATION EQUIPMENT

The following marine electronic equipment shall be supplied and installed by the builder:

- Marine radios, two of
- Depth sounder (transducer/gauge/harness)
- Chart plotter / GPS including antenna, electrical supply and data cable runs
- Radar including antenna, electrical supply and data cable runs, radar and GPS shall be interfaced with cables, (the depth sounder, GPS-chartplotter, radar shall be an integrated system, Furuno Navnet or equal.) Two 7" color screen shall be provided. Electronics shall be mounted as per PFD requirements. The builder shall provide for building or recessing screens and other electronics into the dash or ceiling panels.
- Ritchie 4" compass
- Show Me LED Lit bar emergency lights
- Whelan siren and speaker

1. Vessel shall be provided with a dimmer to control gauge and compass brightness during night operation.

2. Navigation lighting will be determined by USCG regulations for vessels of this size and service and marine grade. Approved lights will be arranged to display the correct light signals for free running, anchoring and restricted maneuverability.

BILGE PUMPS

The vessel will be equipped with three independent bilge pumps located in separate compartments of the hull. The submersible pumps will have a minimum capacity of 2000 GPH each as rated by the manufacturer. Each pump will have a float switch and will be controlled by a toggle switch in the pilothouse. These switches will allow for automatic or manual activation of the pumps. Bilge pumps shall have an independent power feed and be controlled separately from the electrical panels.

ALARM SYSTEMS

1. The vessel will be equipped with a high water alarm and high temperature fire detection sensor installed in the machinery space. Alarms will activate visual and audible warning devices at the control station in the event of a dangerous condition.

CATHODIC PROTECTION DEVICES

1. The vessel will be equipped with a corrosion monitoring system. A multi level meter will be installed in the console, and connected to a reference cell and an anode in the hull. This system will provide the customer with an indication of the vessel's current level of cathodic protection

2. The drives will be fitted with zinc anodes provided by the manufacturer.

3. Anodes will be located on the hull to reduce the risk of corrosion. Anode mass will be calculated according to hull structure and installed components.

F. FENDERING and MOORING

1. A 3" 'D' rubber guard or permanent fenders will continue around the vessel.

2. Large cleats will be located port and starboard side and will be welded to the deck.

3. A heavy welded aluminum bow eye will be affixed to the stern for trailering.

G. PAINT, MARKINGS, and PREPARATION

1. Paint system shall be marine epoxy primers with polyurethane topcoats above the waterline and shall provide corrosion resistance from stray electrical current. The entire hull shall be sandblasted and prepared in accordance with the paint manufacture's specifications. Topcoats shall be free of runs and have a high gloss finish. Final paint dry film thickness shall be provided in accordance with paint manufacture's instructions.

2. The hull will be coated with epoxy coated primers and an Anti-fouling paint will be used on the hull below the waterline, jets or drives shall also be coated.

3. Two coats bottom paint over three coats underwater primer.

4. A Polyurethane finish on hull sides and topsides. A complete touch up kit shall be provided.

5. City shall provide all identifying decals for the vessel for installation by a qualified installer.

IV. FIRE MAIN SYSTEM and DISCHARGE OUTLETS

A. FIRE-FIGHTING CAPABILITY

1. The fireboat will be able to pump at a minimum, 1500 gallons per minute at NFPA required pressures, 150 PSI. Higher GPM is an objective. Water will be delivered from a minimum of four locations on the boat.

2. The main fire monitor will be operated electronically from inside the cabin. The fire fighting control center shall provide complete control of the fire pump and associated automated equipment. The control center shall provide maximum visual observation of fire fighting operations, while maintaining protection from smoke, heat, and weather. Piping shall not obstruct the vision of the operator or crew at anytime. Piping shall not be external to or exposed in the cabin.

3. Pump monitoring shall be provided and be adequate for the proper and safe operation of the pump. This shall include pump controls and discharge pressure gauge. All controls and gauges shall be mounted at the fire-fighting console to port of the helm station.

4. The pump shall have two 2 ½”-3” discharges shall be mounted on port & starboard gunwales on the aft deck. The 3” discharge piping shall be 3”-inch schedule 40 aluminum pipe with the main roof monitor supplied by 4” pipe.

5. The main monitor shall be an Elkhart brass 8294 Scorpion remote control monitor with electric nozzle and electric valve.

B. HYDRANT OUTLETS

The fireboat will be able to deliver water to a shore side dock or vehicle supply. The shore side supply will be provided through a 5” schedule 40 aluminum pipe and 5" storz coupling, on the port side aft at the transom.

C. FIRE-FIGHTING PUMPING SYSTEM

1. Power for the pump(s) will be supplied by the propulsion engines or a dedicated pump engine. The marine engine's horsepower must be able to drive a fire pump to deliver a minimum of 1500 GPM. Higher GPM is desired if possible. The pumping system shall meet NFPA 1925 requirements with the exception of fire main sizing as 1925 requirements far exceeds the monitor clear openings and hull space requirements.

2. All components shall have design pressure ratings greater than the maximum pump discharge pressure.

3. The suction arrangement for the pump shall include at least one sea chest with a screened inlet, a valved outlet, and cleanout access from the working deck or engine room.

4. Open area of the screen shall be at least twice the cross-sectional area of the suction pipe.

5. Piping shall be supported from the vessel structure to carry the load of the water-filled pipe plus a minimum of 50% overload supplied at the point of support.

6. Bracing shall be provided to resist nozzle reaction of discharge devices.

7. Drains shall be provided to all portions of the discharge and distribution piping.

8. Vessel shall have a means of flushing the piping system with fresh water.

9. All piping shall be hydrostatically tested at 200 PSI for not less than one hour.

10. All pump controls and gauges shall be mounted at helm. Master discharge gauge, vacuum gauge, pressure gauge, etc…

V. PROPULSION DRIVE SYSTEM

1. The vessel shall be powered by twin diesel engines, Cummins QSB5.9's or equal with a horsepower rating of 355 HP per side and will be driving two waterjets, Hamilton 241's or equal, with impellers matched to the engine and pump ratings and RPMs. There shall be a reversing marine gear suitable for the engine and jet size installed in the drive line. The builder shall provide and install engines and related accessories as per engine manufacturer's specifications for installation. Steering system shall comply with ABYC P-18, Steering systems for Outboard, Inboards, Stern drive and Water jet-drive Boats. The builder shall meet steering manufacture's specifications for installation and operation.

2. The vessel will have a continuous cruise speed of no less than 30 knots. This shall be reached with the vessel crewed with three members of the Department (each to be 250 pounds) and rescue and fire-fighting equipment.

3. There shall be a duplex sea strainer system installed to supply cooling water to the engines and marine gears. The system will permit clearing the strainers while underway.

4. The engine exhausts shall be muffled through an MCM aluminum waterlift muffler (copyright 2000) to prevent any chance of sinking in the event of a flame out before exiting the engine compartment. This will be a waiver to ABYC standards.

5. Emergency removable shaft guards shall be installed over moving engine/jet shafts. Shaft guards shall be painted red.

VI. AUXILIARY SYSTEMS

Fuel System

1. There will be dual aluminum fuel tanks that can hold up to 100 to 200 gallons of fuel. These tanks will be built and hydrostatically tested to the Safety Standards for Small Craft specifications. Fuel tanks will be suitably baffled, fitted with electric level gauges and isolated from the hull structure by neoprene or rubber padding. They will be strapped and supported by a support system.

2. Racor fuel filters shall be installed for each engine with fuel gauge(s) at helm station.

3. Engine room shall be separated from the fuel tanks by a watertight bulkhead.

4. Engine room bulkhead and hatches are acoustically and thermally insulated where possible.

Heating

1. The heating system shall be a Heatercraft or equal radiator type heater with heating water supplied by the engine(s). The system shall be capable of 40,000 BTU's of heat with defrost diffusers mounted on the dash consoles to keep windshields clear of condensation.

Fire Suppression System

1. There is also 1 X 15 lb. dry chemical fire extinguisher and 1 X 20 lb CO2 fire extinguisher be located on the boat as manual backup fire suppression.

VII. DESIRED WARRANTIES

1. Hull and deck: minimum 10 years on hull welded seams.
2. Engine: standard manufacturer's warranty.
3. Pump: three years standard manufacturer's warranty.
4. Jets: two years manufacturer's warranty.
5. Equipment: standard one year manufacturer's warranty.

VIII. TRIALS & INSPECTIONS

The builder shall include the cost for lodging and meals for 3 inspection visits for 3 persons during the project. The fireboat must successfully complete the trials listed below at the builders facility:

1. Maneuverability in various sea conditions.

2. Acceleration and deceleration maximum thrust.

3. Fire pump capabilities including master stream shape, GPM output, and effect on the boat while monitor is flowing maximum capacity of pump.

4. Testing of all equipment on vessel. The successful bidder shall make repairs, corrections, or re-designs, as appropriate, at no additional cost, if the boat fails the tests during seatrials.

5. These trials shall be at the builder's expense at its facility at a time mutually agreed upon.

6. Any deficiencies noted during the sea trials shall be corrected by the builder to prior delivery of the vessel. In the event that a materials deficiency is found during the sea trials, a second sea trial may be requested by the City prior to delivery and acceptance.

IX. DELIVERY & TRAINING

1. Delivery of the vessel will be expected within 10 months of the award of the contract, including travel time to the City's marine docking area. The City anticipates that the City crew and representatives of the builder will jointly navigate the vessel from Builder's location to the City in order to provide training opportunities.

X. MANUALS

1. Bidder shall provide two copies of the vessels service/parts manuals for the vessel as supplied to the builder by the equipments manufacturer. The manuals will contain a recommended spare parts listing. Systems covered shall be navigation, main propulsion, pumps, electrical, lubrication, fire-fighting systems, communication, and vessel-operating procedures.