TOWN OF GREENWICH
PURCHASING DEPARTMENT
101 Field Point Road
Greenwich, CT 06830
203 622-7881

NO.: 6963

ISSUE DATE: 3/4/13

DEADLINE DATE: 3/26/13

DEADLINE TIME: 3:00 P.M.

X REQUEST FOR BID

____ REQUEST FOR PROPOSAL

PREBID CONFERENCE: _____

TIME AND DATE: _____

LOCATION: _____

_____

ITEM/CATEGORY FIRE DEPARTMENT PUMPER

LOCATION TOWN OF GREENWICH

____ PREQUALIFICATION

X STANDARDS/SPECIFICATIONS (ATTACHED)

____ INSURANCE REQUIRED (SEE ATTACHED)

PLEASE NOTE:

1. Sealed Bids/Proposals are due at the Town of Greenwich Purchasing Department on date noted. NO bids/proposals will be accepted after the date and time specified above. Whether the bid/ proposal is sent by mail or commercial express service, the bidder/proposer shall be responsible for actual delivery of the bid/proposal to the PURCHASING DEPARTMENT before the deadline time. Bids/proposals received after the deadline time will not be considered. PLEASE CLEARLY INDICATE BID/PROPOSAL NUMBER ON LOWER LEFT-HAND CORNER OF ENVELOPE.
2. BIDS/PROPOSALS ARE NOT ACCEPTED BY FAX OR E-MAIL.
3. COMPANY NAME AND ADDRESS MUST CONFORM ON ALL DOCUMENTS INCLUDING INSURANCE DOCUMENTS. A POST OFFICE BOX ADDRESS IS NOT ACCEPTABLE.
4. Bid/Proposal number must appear on all bids and related correspondence.
5. The Town of Greenwich is exempt from Federal and State Taxes.
6. The Town will consider an alternate bid only if bidders have been permitted to provide an alternate bid. An alternate bid must be clearly identified as such in order to be considered by the Town.
7. Stated prices are to be FOB destination inside delivery, unless otherwise specified herein.
8. Terms and Conditions indicated on reverse.

Renata Michalski

Renata Michalski, Buyer

An Affirmative Action/Equal Opportunity Employer, M/F/H

Terms and Conditions

Bidders shall familiarize themselves with all provisions of the specifications and shall not at any time after submitting bid, dispute any of the specifications or assert that there was any misunderstanding in regard to the furnishing and delivering of the items called for in the proposal.

The Town of Greenwich reserves the right to issue addenda as needed on bids/proposals.

The Town of Greenwich reserves the right to reject any and all bids not deemed to be in the best interest of the Town of Greenwich, or to accept that bid which appears to be in the best interest of the Town of Greenwich. The Town of Greenwich reserves the right to waive any informalities in or reject any or all bids, or any part of any bid.

References to a particular trade name or manufacturer's catalog or model number are made for descriptive purposes to guide the bidder in interpreting the requirements of the Town of Greenwich. They should not be construed as, nor are they intended to exclude proposals on other types of materials, equipment and supplies. However, the bidder, if awarded a contract will be required to furnish the particular item referred to in the specification or description unless a departure or substitution is clearly noted and described in the proposal.

Respondents shall provide one proposal and bidders one bid price for each specified required line item with no more than one total lump sum bid, unless allowed to do otherwise by the solicitation.Respondents shall provide no more than one bid reply unless allowed by the solicitation. Bidders shall not include in their prices any Federal or State taxes from which the Town of Greenwich is exempt.

The successful bidder/s shall indemnify the Town of Greenwich against all losses, claims, actions and judgments brought or recovered against the contractor or the Town of Greenwich.

No proposal shall be received from, or contract awarded to, any person, firm or corporation who is in default or in debt to the Town of Greenwich for non-performance of any contract, or who is a defaulter as surety or otherwise from any obligation to the Town of Greenwich.

Bids must be signed in ink by the vendor. No bids shall be made in pencil. Any bids showing any erasures or alterations must be initialed by the bidder in ink. Failure to sign and give all information requested in the proposal may result in the bid being rejected.

Quantities as listed on the bid sheets are estimated for bidding purposes only. Award of contract shall be for the quantities actually ordered as needed during the contract period. However, the Town of Greenwich reserves the right to increase or decrease the quantities by 10%.

Unit prices quoted shall be net exclusive of all taxes, and must include all transportation, delivery and unloading costs; fully prepaid F.O.B. destination in place inside delivery. Debris, if any, removed.

The Town of Greenwich reserves the right to make awards on an item by item, total or lump sum basis. Where an award is made on an item by item basis, the unit price prevails. The Town reserves the right to make award in best interest of its own operation. All awards are contingent upon certification by the Town Comptroller that funds are available in appropriate accounts.

It is understood that prices shall hold firm and prevail for the actual quantities required or ordered as needed during the life of the contract whether more or less than estimated quantities. Unit prices shall not be subject to any increase during the life of the contract.

All deliveries are to be made within the time period specified in the bid proposal upon receipt of written purchase order or authorized verbal requests except as may be otherwise arranged by Supplier and Purchaser. Receipt of contract is not authority to ship. Emergency deliveries are to be made within twenty-four (24) hours from receipt of a telephone request from the Director of Purchasing and Supply. All deliveries are to be made on business weekdays between the hours of 9:00 A.M. and 4:00 P.M. except as may be otherwise arranged by the Supplier and Purchaser.

In the event deliveries are not made as specified to a Town delivery point, the Director of Purchasing and Supply shall reserve the right to purchase any such bid item on the open market and to charge any increase in price paid over the current contract price to the account of the vendor.

All bids will be awarded or rejected within sixty (60) days of bid opening date or for the stated period of validity, if different. Therefore, bidder agrees that prices will remain firm for acceptance for that period.

The contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. The contractor, however, will take affirmative action to insure that minority group members are employed and are not discriminated against during employment. Such actions shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection of training, including apprenticeship.

The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract of understanding, a notice advising the labor union or worker's representative of the contractors' commitments under this specification and under rules, regulations and orders promulgated by the State.

"Affirmative Action" means procedures which establish hiring and employment goals, timetables, and practices to be implemented, with good faith efforts, for minority group members.

"Minority Group Members" as identified in EEO-4 reports shall mean Black, Hispanic, Asian or Pacific Islanders, American Indian, and Alaskan Natives.

The contractor or subcontractor offers and agrees to assign to the public purchasing body all right, title and interest in and to all causes of action it may have under Section 4 of the Clayton Act, 15 U.S.C. Section 15, or under Chapter 624 of the General Statutes of Connecticut, arising out of the purchase of services, property or intangibles of any kind pursuant to a public purchase contract or subcontract. This assignment shall be made and become effective at the time the public purchasing body awards or accepts such contract, without further acknowledgment by the parties.

TOWN OF GREENWICH

REQUEST FOR BID #6963 DEADLINE: 3/26/13 AT 3:00 P.M.

FIRE DEPARTMENT PUMPER

The Purchasing Department of the Town of Greenwich on behalf of the Fire Department is seeking bids for one (1), and if funding is available for two (2), pumper trucks, as per the specifications of this Request For Bid.

Bidder is to provide two (2) copies of the Reply Sheets and all other materials submitted.

General Information

All vehicles furnished under this RFB shall be new and unused, and be a current model in production at the time of delivery. Accessories not specifically mentioned herein, but necessary to furnish a complete unit ready for use, shall be included. All assemblies, sub-assemblies and component parts shall be standard and interchangeable throughout the entire quantity of units as specified in this invitation to bid. The Town of Greenwich reserves the right to waive or take exception to these specifications if it is to the advantage or best interest of the Town.

Any reference in this RFB document to a specific manufacturer, model number or brand is meant to be a reference and not to indicate a preference of the Town.

Bidder shall maintain all necessary insurance requirements for this industry.

Bidder Reply

Bidders are to respond to this RFB by completing the attached Reply Sheets. All prices shall be complete and include all shipping and delivery costs to Greenwich, CT.

Bidders may indicate any bid exceptions and/or alternatives on the Reply Sheets. Deviations to the specifications shall be clearly and completely explained on the Reply Sheets. Bidders may include with their reply, documentation which illustrates how and why a substitution will perform as well or better than what is specified. However, bidder comments on the Reply Sheets must be clear and complete; an abbreviated comment such as "SEE LITERATURE" or "SEE ATTACHED" is not acceptable, and may disqualify a bidder's bid.

Issuance of Addenda

The Town of Greenwich reserves the right to amend this solicitation by addenda. Addenda will be posted to the Town's website (www.greenwichct.org/bids) up to 48 hours in advance of the bid/proposal's due date and time. **It is the bidder's responsibility to check the Town's website for addenda.** If in the Town's opinion revisions are of such a magnitude, the deadline for this solicitation may be extended in an addendum. In addition, addenda can change

specifications, reply sheets, and times and dates for pre-bid meetings as well as due dates/deadlines for questions and bids/proposals. **No notification of addenda issuance will be made other than on the Town's website.**

OSHA

All federal and State of Connecticut rules and regulations governing the latest Occupational Safety and Health Standards shall be adhered to. Vehicles must comply with current Federal Exhaust Emissions Standards. The vehicles must comply with federal and State of Connecticut standards for noise emission.

Modification or Withdrawal of Bids

WITHDRAWAL OF BIDS PRIOR TO DEADLINE

A bidder wishing to withdraw a bid prior to the deadline may do so by preparing a formal written request on company letterhead. The person who signs the letter must be the same person who signs the reply sheets. The Town will verify that the signature on the letter matches the signature on the reply sheets.

The Town will also verify the request to withdraw the bid by calling the bidder at the telephone number supplied on the reply sheets.

After the Town is satisfied that a request to withdraw a bid before the established deadline is valid, the bid will be returned to the bidder. The bidder may then withdraw completely from the bidding process, or may modify the bid and resubmit before the deadline.

WITHDRAWAL OF BIDS AFTER THE DEADLINE

If bid security is required and a bidder does not honor his/her bid for the specified time, the bid check shall become the property of the Town; or, if a bid bond was furnished, the bid bond shall become payable to the Town.

After the bid deadline has passed, the submitted bids become the property of the Town and are valid offers to be honored by the bidder for sixty (60) days or longer, as specified in the Request for Bid.

Bidders who do not honor their bids for the sixty (60) day (or as specified) period, shall be declared irresponsible bidders.

Packaging

Each bid must be sealed to provide confidentiality of the information prior to the submission date and time. The Town will not be responsible for premature opening of bids not properly labeled.

Price Guarantee

Bids will remain in effect for a minimum period of ninety (90) days from the deadline for submission of the bid.

Taxes

The Town of Greenwich is exempt from the payment of taxes imposed by the federal government and/or state of Connecticut, and such taxes shall not be in the bid prices.

Reservation of Rights

The Town of Greenwich reserves the right to reject any and all bids not deemed to be in the best interest of the Town, or to accept that bid which appears to be in the best interest of the Town. The Town reserves the right to waive any and all formalities or reject any or all bids or any part of any bid. The Town is intending to purchase all vehicles from one bidder but is not obligated to do so, and may engage more than one bidder if it is in the best interest of the Town.

Cancellation of Award/Contract

If bidder fails to perform or observe any material term or condition of the bid or order and such failure continues for thirty (30) days after bidder's receipt of written notice, the Town of Greenwich may cancel the order without liability for cancellation/termination charges.

SPECIFICATIONS

Specifications are attached as **Exhibit A**, pages 1-51.

Changes to the specifications in Exhibit A are attached as **Exhibit B**. Bidder is to provide pricing for the optional items based on these changes.

TOWN OF GREENWICH

REQUEST FOR BID #6963 DEADLINE: 3/26/13 AT 3:00 P.M.

FIRE DEPARTMENT PUMPER

REPLY SHEET (Page 1 of 6)

The award for the fire pumper truck, as per the specifications of this RFB, will be made to the lowest, responsive bidder based on the lowest Total Price for the Pumper Truck Requirements. Bidder shall list the prices for the Optional Items separately on the lines provided. Options will only be considered if the Town has sufficient funds and will not influence the award.

The Fire Department is intending to purchase one (1) pumper truck at this time using capital funds. However, the Fire Department may purchase two (2) pumper trucks if the bids for the pumper truck are within the department's capital budget. The Town is willing to prepay the cab and chassis portion of the cost of the total pumper to reduce the total cost of the Requirements portion of this bid. Therefore bidders shall take this cost reduction into consideration when providing the Total Price for the pumper truck. In addition bidders shall provide a Total Price, with a cost reduction, if two (2) pumper trucks are purchased.

REQUIREMENTS:

1. One (1) Pumper Truck: to include prepayment by the Town of the cab and chassis

   TOTAL PRICE for one $ _____

2. Two (2) Pumper Trucks: to include prepayment by the Town of the cab and chassis

   TOTAL PRICE for two $ _____

OPTIONS:

Optional Item #1 $_____

Optional Item #2 $_____

Optional Item #3 $_____

Bidder's Company Name _____

Authorized Signature _____

TOWN OF GREENWICH

REQUEST FOR BID #6963 DEADLINE: 3/26/13 AT 3:00 P.M.

FIRE DEPARTMENT PUMPER

REPLY SHEET (Page 2 of 6)

Optional Item #4	$_____
Optional Item #5	$_____
Optional Item #6	$_____
Optional Item #7	$_____
Optional Item #8	$_____
Optional Item #9	$_____
Optional Item #10	$_____
Optional Item #11	$_____
Optional Item #12	$_____
Optional Item #13	$_____
Optional Item #14	$_____
Optional Item #15	$_____
Optional Item #16	$_____
Optional Item #17	$_____
Optional Item #18	$_____
Optional Item #19	$_____

Bidder's Company Name _____

Authorized Signature _____

TOWN OF GREENWICH

REQUEST FOR BID #6963 DEADLINE: 3/26/13 AT 3:00 P.M.

FIRE DEPARTMENT PUMPER

REPLY SHEET (Page 3 of 6)

Optional Item #20 $_____

Optional Item #21 $_____

Optional Item #22 $_____

Optional Item #23 $_____

Optional Item #24 $_____

Optional Item #25 $_____

Optional Item #26 $_____

Optional Item #27 $_____

Optional Item #28 $_____

Optional Item #29 $_____

Optional Item #30 $_____

Optional Item #31 $_____

Optional Item #32 $_____

Prices will remain firm for _____ days after bid opening.

Bidder's Company Name _____

Authorized Signature _____

TOWN OF GREENWICH

REQUEST FOR BID #6963 DEADLINE: 3/26/13 AT 3:00 P.M.

FIRE DEPARTMENT PUMPER

REPLY SHEET (Page 4 of 6)

EXCEPTIONS

Bidder shall indicate below any exceptions to the specifications and/or language of this RFB document:

_____

_____

_____

_____

_____

_____

REFERENCES

Bidder shall list below the names and telephone numbers of at least three customers/references for which they have provided products and services similar to the ones described in this RFB:

REFERENCE	CONTACT NAME	TELEPHONE #

Bidder's Company Name _____

Authorized Signature _____

TOWN OF GREENWICH

REQUEST FOR BID #6963 DEADLINE: 3/26/13 AT 3:00 P.M.

FIRE DEPARTMENT PUMPER

REPLY SHEET (Page 5 of 6)

Non-collusion Language

In submitting this bid/proposal, the undersigned declares that this is made without any connection with any persons making another bid/proposal on the same contract; that the bid/proposal is in all respects fair and without collusion, fraud or mental reservation; and that no official of the Town, or any person in the employ of the Town, is directly or indirectly interested in said bid/proposal or in the supplies or work to which it relates, or in any portion of the profits thereof.

Compliance with Ethics Code

In submitting this bid, the undersigned further declares that it has not, and will not, induce or attempt to induce any Town of Greenwich employee or officer to violate the Greenwich Code of Ethics in connection with its offer to provide goods or services under, or otherwise in the performance of, such contract.

The undersigned further understands that the above declarations are material representations to the Town of Greenwich made as a condition to the acceptance of the bid/proposal. If found to be false, the Town of Greenwich retains the right to reject said bid/proposal and rescind any resulting contract and/or purchase order and notify the undersigned accordingly, thereby declaring as void said bid/proposal and contract or purchase order.

BIDDER'S COMPANY NAME _____

ADDRESS _____

_____

TELEPHONE # _____ **FAX #** _____

E-MAIL ADDRESS _____

WEB SITE _____

AUTHORIZED SIGNATURE _____

PRINT NAME _____

TITLE _____

STATE OF CT TAXPAYER ID # _____

FEDERAL TAXPAYER ID # _____

INCORPORATED IN THE STATE OF _____ **Corporate Seal** ☐ **Yes** ☐ **No**

TOWN OF GREENWICH

REQUEST FOR BID #6963 DEADLINE: 3/26/13 AT 3:00 P.M.

FIRE DEPARTMENT PUMPER

REPLY SHEET (Page 6 of 6)

Non-collusion Language (continued)

The Greenwich Code of Ethics can be found at www.greenwichct.org. Relevant provisions of the Code of Ethics state as follows:

2. DEFINITION. (1) Indirect interest, without limiting its generality, shall mean and include the interest of any subcontractor in any prime contract with the town and the interest of any person or his immediate family in any corporation, firm or partnership which has a direct or indirect interest in any transaction with the town. (2) Substantial financial interest shall mean any financial interest, direct or indirect, which is more than nominal and which is not common to the interest of other citizens of the town. (3) Town officer shall mean and include any official, employee, agent, consultant or member, elected or appointed, of any board, department, commission, committee, legislative body or other agency of the town. (4) Transaction shall mean and include the offer, sale or furnishing of any real or personal property, material, supplies or services by any person, directly or indirectly, as vendor, prime contractor, subcontractor or otherwise, for the use and benefit of the town for a valuable consideration, excepting the services of any person as a town officer.

3. GIFTS AND FAVORS. No town officer or his immediate family shall accept any valuable gift, thing, favor, loan or promise which might tend to influence the performance or nonperformance of his official duties.

4. IMPROPER INFLUENCE. No town officer having a substantial financial interest in any transaction with the town or in any action to be taken by the town shall use his office to exert his influence or to vote on such transaction or action.

By signing below, the undersigned declares that he/she has read the non-collusion language contained herein and agrees to abide by its contents:

AUTHORIZED SIGNATURE

PRINT NAME _____

COMPANY NAME _____

SPECIFICATIONS

Chassis:

GVW
To be determined by manufacturer.

Wheel Base
Not to exceed 182 inches. The engineering shall incorporate the shortest wheelbase possible while maintaining a safe design.

OAL: Not to exceed 360 inches.
OAH: Not to exceed 122 inches with apparatus unloaded of equipment and water.
OAW: Not to exceed 96 inches.

Frame

The chassis shall be constructed using a heavy duty frame designed to support weight of the apparatus and the intended load under extreme use. The bidder shall indicate their construction design and materials used in detail.

Engine

The chassis shall be powered by a Cummins ISX11.9 diesel engine as described below. The Greenwich Fire Department would like the bidder to request exemption from federal emissions regulations in accordance with 40 CFR Parts 85, 86, and 1039 of the Federal Register. These sections outline the revisions and procedures which allow dedicated emergency vehicles relief to the emissions regulations. This will enable the apparatus to perform mission critical life-saving work without risk that abnormal conditions of the emission control system will lead to decreased engine power, speed or torque.

Model: ISX11.9
Number of Cylinders: Six
Bore and Stroke: 5.11 x 5.91 in
Displacement Liter (Cu. In.): 11.9 (729)
Rated BHP: 500 @ 1800 RPM
Torque:1645 ft.lb. @ 1200 RPM
Governed RPM: 2100
Oil Capacity / Type: 12 gallons / SAE CJ-4
Fuel Requirement: Ultra low sulfur diesel (15 ppm max.)

Standard equipment on the engine shall include the following:

Cooled Exhaust Gas Recirculation system
Fan – 32", 11 blade
Charge air cooling
High pressure, common rail fuel system
Fuel filter with check valve and water separator
Fuel strainer

Governor – electronic, interact system
Injectors – electronically controlled full authority injection
Lube oil cooler – integral
Lube oil filter – full flow
Starting motor – 12 volt
Turbocharger – variable geometry type
Air compressor – 18.7 CFM

A shoreline air inlet shall be provided and located on the driver's side of the cab near the driver's door adjacent to the electrical shoreline connection. The connection shall provide an inlet to the wet tank. The shoreline inlet shall be terminated with a Kussmaul Auto Air Eject Model # 091-28

A heavy duty engine air cleaner shall be provided. It shall be installed in a location so that the filter element can be easily serviced.

A fast idle switch shall be installed to allow the operator to increase the engine RPM while the vehicle is stationary and idling with an increased electrical load. The switch shall be located within easy reach of the driver in a seated position.

Exhaust

The engine exhaust system shall be a horizontal design constructed from heavy-duty truck components. Flexible couplings shall be utilized to absorb the torque and vibration of the engine. The outlet shall be directed to the forward side of the rear wheels, exiting the right side, with a straight tip, and be able to accommodate the the existing Nederman Station Exhaust System with no modifications to the station equipment. A Nederman magnet shall be installed on the body of the apparatus per Nederman specification to retain the Nederman exhaust hose while the apparatus is parked in the station. A heat-absorbing sleeve shall be used on the exhaust pipe in the engine compartment area to reduce stored heat, providing protection for the alternator, and also to protect hands when checking or adding oil in the engine compartment.

Exhaust Heat Shields - Heat shields shall be provided as needed to prevent damage to body and wiring from excessive exhaust temperatures. The exhaust pipe shall be wrapped in multi-layered insulation blankets, from just aft of the turbo down to inlet side of the DPF. Each blanket shall have a fiberglass inner layer and a silicone impregnated fiberglass cloth outer layer

The cab shall receive foil back insulation blanket under the crew floor to reduce floor temperatures.

All harnesses and cables, in proximity to exhaust system components, shall be protected with insulation.

Transmission

An Allison, Model 4000 - EVS, electronically controlled, 5 speed automatic transmission with integral fluid filter shall be provided. A transmission cooler shall be installed in the radiator bottom tank. A warning light and buzzer shall be provided on the cab dash to alert the driver should the transmission overheat.

The transmission shall include the following: an oil life monitor, a filter life monitor, and a transmission health monitor. Also on the shift pad shall be installed a digital, double-digit display that identifies the level of transmission oil. The display shall identify the oil level as "Ok", "Lo" or "Hi", also indicating the number of quarts lo or hi.

The transmission shall include the following emergency vehicle specifications:

Maximum gross input power: 600 hp
Maximum gross input torque: 1850 ft.lb.
Input speed range: 1700 to 2300 rpm
Direct gear lock-up: 4th @ 1.00 to 1.00
Overdrive gear and ratio: 5th @ 0.74 to 1.00

Gear ratios shall be as follows:

1st	3.51 to 1
2nd	1.91 to 1
3rd	1.43 to 1
4th	1.00 to 1
5th	0.74 to 1
Rev	-4.80 to 1

The Allison 4000-EVS transmission shall be delivered from the factory with Allison "Transynd" synthetic ATF.

Touch pad control shift module shall be mounted to the right of the driver on the console within easy reach and be indirect lighted for after dark operation.

The transmission shall be programmed as a 5-speed with 5th gear (overdrive) selected by mode button only.

The transmission shall automatically shift into neutral whenever the chassis parking brake is applied. This feature shall bypass automatically when the apparatus is used for pumping duty.

Note – The top road speed of the apparatus shall be 68 MPH at the governed engine speed.

Driveline

Drivelines shall be built with heavy-duty metal tubes and utilize heavy-duty universal joints with "half round" end yokes. A quick disconnect strap and bolt design type end joint shall allow the driveline to be easily disassembled and dropped straight down for ease of service and maintenance. They also shall be dynamically balanced by the truck manufacturer before installation in the chassis. A splined slip joint is to be provided in each shaft assembly.

Driveline drop guards shall be provided where necessary to prevent damage to the apparatus should the driveshaft fail.

Engine Brake

A Jacobs engine brake shall be installed with controls within easy reach of the driver. Brake shall automatically be actuated when the accelerator pedal is released. The engine brake shall be wired in conjunction with the rear brake lights so that they are activated when the engine brake is engaged. It shall have a three position switch; "LOW", "MEDIUM" and "HIGH" along with an "OFF" and "ON" switch to control the engine brake. The switches shall be located in the cab within easy reach of the driver. The brake shall be programmed to aggressively slow the vehicle in all gears.

Fuel System:

Fuel Tank

The fuel tank shall be of an all welded construction and shall be baffled to prevent surging. Ths tank shall have a usable draw of 65 gallons and shall be vented. The tank shall be equipped with a .50 NPT bottom drain. The fuel system shall conform to all applicable FHWA standards. A fuel line shutoff valve shall be provided near the tank to prevent fuel from draining back while changing fuel filters. The fill inlet shall be on the driver' side of the body.

Fuel Pump

An auxiliary 12 volt fuel pump shall be included in the fuel system. The electric pump shall permit re-priming of the fuel lines and engine. The pump may be manually operated with a switch located on the cab dash. A guard for the switch shall be provided to prevent accidental operation.

Cooling System

A heavy-duty cooling system shall be provided. The cooling system shall be designed so that the circulated water at the top of the radiator will no rise above 210 degrees when operating the apparatus under maximum load, grade, and speed, regardless of atmospheric temperature. Construction details of the bidders cooling system shall be provided.

The cooling system radiator shall be of sufficient size to meet the engine manufacturer's cooling requirements for the engine specified.

Fan Clutch - A pneumatically operated, thermostatically controlled, clutch shall be provided for the engine cooling fan. The clutch shall be of a failsafe design, in that it shall fail in the "on" mode and thus prevent overheating in the event of component or air line failure. Manufacturer shall also wire the clutch so that it remains "on" in the pumping mode to prevent water pressure fluctuations.

Coolant Overflow Reservoir - A coolant overflow reservoir shall be provided and located in the engine compartment.

Silicone Hoses - All hoses in the cooling system shall be silicone type with stainless steel constant torque clamps.

Alternator

A C.E. Niehoff Heavy-duty brushless alternator with externally mounted integral regulator shall be provided provided and installed.

Front Axle and Equipment:

Front Axle

A heavy-duty front axle shall be provided. The front axle rating shall be determined by the manufacturer's engineer and provided in the bid proposal. A higher capacity axle shall be used to improve the durability and service life.

The front axle shall have iron hubs.

Front Suspension

The front suspension shall be a heavy duty semi-elliptical leaf spring system. The leaf spring material, length, width, thickness, and number of leafs shall be designed as to match the gross axle weight rating of the apparatus.

Heavy-duty telescoping shock absorbers shall also be provided on the front axle.

Front Brakes

The front axle shall be provided with heavy-duty air disc brakes with internal automatic adjustment, sealed synchronized twin pistons and robust sealing of slide pins for environmental protection. The air disc brakes shall have 17" rotors and a fully sealed lever mechanism with variable mechanical ratio. A visual indicator of brake wear shall also be provided.

Steering

A heavy duty power steering system shall be provided. The system shall incorporate two steering gear boxes. The system shall be designed to maintain a normal operating temperature even during instances of extreme turning. Steering box mounting points shall be reinforced to ensure against frame flex while turning the wheel when the vehicle is stationary. All power steering lines shall have wire braided lines with crimped fittings.

The steering wheel and column shall be tilting and telescopic to improve fit for a wide range of drivers.

The design of the apparatus shall provide for the tightest turning radius possible. The curb to curb turning radius of the apparatus shall be provided by the bidder.

A full alignment of the apparatus shall be completed prior to delivery.

Rear Axle and Equipment:

Rear Axle

A heavy-duty rear axle shall be provided. The rear axle rating shall be determined by the manufacturer's engineer and provided in the bid proposal. A higher capacity axle shall be used to improve the durability and service life. The rear axle gear ratio shall be provided by the bidder.

The rear axle shall have iron hubs.

Rear Suspension

The rear suspension shall be a heavy duty semi-elliptical leaf spring system. The leaf spring material, length, width, thickness, and number of leafs shall be designed as to match the gross axle weight rating of the apparatus.

Heavy-duty shock absorbers shall also be provided on the rear axle.

Rear Brakes

The rear axle shall be provided with heavy-duty air disc brakes with internal automatic adjustment, sealed synchronized twin pistons and robust sealing of slide pins for environmental protection. The air disc brakes shall have 17" rotors and a fully sealed lever mechanism with variable mechanical seal. A visual indicator of brake wear shall also be provided.

The axle shall be certified and purchased complete from the axle manufacturer for the specific application. Brake chamber brand and size shall be determined by the axle manufacturer.

Onspot Automatic Snow Chains

Onspot automatic snow chains shall be provided in front of the rear axle of the vehicle. An electric switch shall be mounted in the cab in reach of the driver to provide 12 volts to an air solenoid mounted on the vehicles frame. Compressed air to the solenoid from the vehicle's on board air system shall activate the chains. When the chains are deactivated, the solenoid exhausts the air provided to the chain units and self-contained return springs bring the chain wheels back to their nested position.

Wheels:

The wheels shall be steel disc type and hub piloted. Wheels shall be painted job color. Chrome plated nut covers shall be furnished. Stainless steel "Baby Moon" type hub caps shall be provided on both the front and real wheels

Tires:

Front Tires

Front tires shall be two (2) Michelin 425/65R22.50 radials, 20 ply all-position XZY3 wide base tread, rated for

22,800 lb maximum axle load and 65 mph maximum speed..

Rear Tires

Rear tires shall be four (4) Michelin 315/80R22.50 radials, 20 ply XDN2 Grip traction tread, rated for 33,080 lb maximum axle load and 75 mph maximum speed.

Tire Pressure Management

RealWheels LED Tire Watch valve caps shall be provided and installed on each wheel. Caps shall be self calibrating and provide a visual indication when the tire pressure is below the manufacturer's recommended level. Caps shall be mounted with RealWheels extensions where necessary to ensure caps can be visually inspected from a standing position next to the apparatus.

Braking – General

The service brake system shall be full air type and meet or exceed the current FMVSS-121 requirements. The bidder shall provide details of the braking system specified.

Brakes – Air Compressor

An 18.7 cfm air compressor shall be furnished. The air compressor shall be gear driven off the engine.

Brakes – Air Dryer

An air dryer shall be installed in the air brake system. It shall have a minimum capacity of 30 CFM air flow. Dryer shall be equipped with an integral, automatic, 12 volt heated moisture ejector which is thermostatically controlled. System shall include a pressure controlled check valve installed between the wet tank and the secondary air reservoir.

Anti-Lock Braking System (ABS)

The apparatus shall be provided with an anti-lock braking system. The bidder shall provide the details of the ABS system specified.

Vehicle Stability Control/Compliance

In compliance with NFPA 1901-2009 Edition standard 4.13.1, the vehicle, as specified, shall be equipped with an electronic vehicle stability control system that is designed to minimize the vehicle's potential for rollover in a turning at speed maneuver.

Automatic Traction Control/Deep Mud and Snow Mode

Automatic Traction Control, working in concert with the ABS system, shall be provided which shall reduce wheel slip on acceleration on wet or slippery road conditions. A light shall illuminate on the driver's dash when

the drive wheels slip during acceleration.

A deep snow and mud option switch shall be provided in addition to the ATC option. This function increases available traction on extra soft surfaces like snow, mud or gravel by slightly increasing the permissible wheel spin.

Vogel Lubrication System

A Vogel Lubrication System shall be specified as and option. See the options section of this specification.

Front Bumper:

A heavy duty 10-1/4" high x 1/4" thick painted steel bumper shall be mounted to the front of the chassis and be fabricated in the factory of the bidder. The bumper shall be channel shaped with 2" flanges and its ends shall be angled 45 degrees for a distance of 5".

A bumper extension shall be installed at the front of the cab. The front of the bumper shall be approximately 18" from the front face of the cab. A gravel pan made of 3/16" aluminum treadplate shall be installed between the front bumper and the cab. The bumper extension shall be designed and constructed so that the apparatus can be pulled, lifted, and towed by the extension.

A gravel pan shall be furnished between the bumper and the cab face. The pan shall be a diamond plate material and properly supported from the underside to prevent flexing and vibration.

Two (2) painted tow hooks shall be furnished below the bumper securely attached to the bumper support.

Front Bumper Suction

The front bumper shall accommodate a chrome swivel type front suction/intake pipe and be terminated on the passenger side above the bumper extension. The pipe shall terminate with a 6" NST male fitting with strainer. A 6" NST female to 5" Storz adapter with cap and wire retaining cable shall be provided. Bidder shall note any modification to the front bumper to accommodate the front suction. See pump section for additional details.

Front Bumper Discharge

A pump discharge shall be be furnished and protrude from the front bumper gravel pan. This discharge shall terminate on the driver's side with a 90 degree swivel elbow and 1.5" male fitting. Bidder shall note any modification to the front bumper to accommodate the front discharge. See pump section for additional details.

Front Bumper Attack Line

The front bumper shall accommodate 150' of 1.75" DJ attack hose. This hose is intended be stored on top of the gravel pan as a hi-rise pack across the width of the bumper. A smooth surface for the hose shall be secured to the top of the gravel pan to avoid abrasion of the hose. Three (3) straps with a mechanical latching mechanism

shall be provided to secure the 150' of 1.75" DJ hose to the gravel pan. Bidder shall note any modification to the front bumper to accommodate the attack line.

Front Bumper Winch

See the Options section of this specification for details on the front bumper winch.

Mechanical Siren

The front bumper shall be furnished with a Q2B siren. The location and configuration of the mechanical siren shall be determined by the bidder. The bidder shall provide the design details. See electrical section for additional details.

Electronic Siren Speakers

The front bumper shall accommodate two (2) 100 watt electronic siren speakers. The location and configuration of the electronic siren speakers shall be determined by the bidder. The bidder shall provide the design details. See electrical section for additional details.

Front Bumper Air Horns

The front bumper shall accommodate two (2) Grover 1510 chrome air horns. The location and configuration of the air horns shall be determined by the bidder. The bidder shall provide the design details. See electrical section for more details.

No Cab Tilt Obstructions

All items mounted on the front bumper shall be configured as to not interfere with tilting the cab for engine access.

Cab

The cab shall be a heavy-duty 4-door crew cab constructed from stainless steel. The cab shall be constructed and designed specifically for the fire service and shall be manufactured by the chassis builder. The cab shall be well constructed to provide roll cage strength and safety.

The cab shall be a medium sized cab with a flat roof. The distance from the back wall of the cab to the center of the front axle should measure between 62" and 67".

The construction techniques, dimensions, and material details for the cab sub-frame, floor, side walls, back wall, roof, doors, and frontal crash area shall be provided by the bidder.

Aluminum Cab Option

See "Optional Items" section at the end of the specification.

Crash Test

Bidder shall supply a list of crash tests that the specified cab is certified to.

Cab Tilt

The cab shall tilt a minimum of 45 degrees for normal servicing of the engine and other equipment. The tilt cab locking system shall be a two-point type that locks automatically when the cab is lowered into its nested position. The lifting system shall be a heavy-duty electric over hydraulic two cylinder system with means for manual override in the even of power failure. All necessary primary and secondary safety equipment shall be provide to prevent the cab from dropping in the event of system failure. Details of the cab tilt system shall be provided by the bidder.

Cab Front Details:

Windshield/Windshield Wipers

The windshield shall be of tinted automotive laminated safety plate glass with a curved two-piece design. The windshield shall have approximately 2900 square inches of visual area. Right and left hand windshield glass shall be symmetrical and interchangeable from side to side to minimize spare parts stock and expense.

One (1) wet arm operated windshield wiper shall be provided for each plate of windshield glass for accessibility and optimum windshield wiping surface areas. Wipers shall have more than one speed with intermittent wiping feature. One (1) control switch shall be provided and located within easy reach of the driver. The switch shall combine the on/off (automatic park position),speed selection, intermittent and washer functions in one control.

A sufficiently sized windshield wiper reservoir shall be provided and be able to be filled without tilting the cab. A visual inspection of the windshield wiper fluid shall be possible without tilting the cab.

Cab Sides Details:

Cab Doors

The cab doors shall be constructed of the same material as the cab. All cab doors shall be barrier clearing and designed so that they extend from the roof to the cab floor. The cab steps shall located below each door and exposed to the exterior of the cab.

The interior and exterior door handles are to be heavy-duty flush mounted paddle style with a keyed lock incorporated in the exterior handle and lever control lock incorporated in the interior handle. Heavy-duty door stops shall be provided to control the range of motion of the door. The door's latch locking mechanism shall make it impossible to lock oneself out of the cab unless locked with the supplied key. Doors shall be hung on stainless steel full length hinges securely attached to cab and door. The hinges for each door shall be of one piece heavy duty stainless steel construction. Doors shall meet FMVSS 206. The doors shall be designed so as to allow the windows to go completely down.

The cab inner door panels shall be removable and designed for extreme duty. Each cab door inner panel shall have a minimum of 96 square inches of reflective material installed to alert traffic when doors are open in accordance with NFPA standards.

Detail of door construction shall be provided by the bidder.

Cab Door Windows

A retractable window with automotive type tempered safety glass shall be provided in all four (4) cab doors. All glass shall be lightly tinted. The window assembly shall be weather tight when in the closed position.

All windows shall electrically fully open and close. The power window units shall be heavy-duty for extreme use. The windows shall fully open and fully close in the opening. A switch shall be provided at each door to control each window. The driver shall have switches that control all the door windows. Switch locations shall be that they do not interfere with a passenger in full protective clothing while in the seated position.

Cab Handrails and Grab Handles

Slip resistant hand rails and grab handles shall be at each door to assist with cab ingress and egress. Handrails and grab handles shall be heavy-duty and capable of being grabbed with a gloved hand. Hand rails and grab rails shall be located both interior and exterior and their locations shall be determined by the manufacture. Details on hand rail and grab rail construction and mounting locations shall be provided by the manufacturer.

Cab Mirrors

Two (2) Velvac 2010 Series chrome plated West Coast style mirrors shall be installed, one (1) on each side of the vehicle. The mirrors shall be four-way remotely controlled and heated for defrosting. The convex shall be a 8.5" Velvac 708560 heated mirror. All mirrors shall have a built-in temperature sensor that will automatically control the surface temperature of the mirror. One additional on/off switch that controls all mirrors shall be installed for mirror heat.

Cab Side Access Doors

See "Optional Items" section at the end of the specification.

Crew Cab Side Glass

There shall be a fixed side window on each side of the cab between the doors. They shall be tinted and be manufactured of automotive tempered safety glass. Each window shall be sized to provide maximum vision. Windows shall be weather tight.

Front Wheel Area

Heavy-duty mud flaps shall be securely installed at the rear of each front wheel.

Front wheel well liners shall be provided in each wheel housing. They shall be constructed of a durable material that is not susceptible to corrosion. They shall be removable but securely bolted to the cab.

Polished stainless steel fenderettes shall be securely mounted in the front wheel openings. Fenderettes shall be designed to reduce wheel splash along the sides of the cab and be installed as to not trap moisture.

Details regarding the front wheel area shall be provided by the bidder.

Cab Trim

Decorative molding shall be provided on the exterior of the cab for aesthetics. The bidder shall provided details as to the molding provided. The bidder shall determine the best location for the molding based on the specifications in the paint and graphics section.

Cab Back Details:

Exterior Back of Cab

Aluminum tread plate shall be installed on the exterior rear wall of the cab.

Cab Roof Details:

The cab roof shall be a flat roof and painted white as indicated in the paint section of this specification.

Cab Roof – Stokes Basket Storage

See "Optional Items" section at the end of the specification.

Two-Way Antenna Mounts

Up to four (4) antenna mounts shall be provided and installed for two-way radio equipment. The mounts shall be installed and made weather tight by the manufacturer. The mount cables shall be routed to areas determined by the Town of Greenwich. The antenna mount model numbers as well a cable routing locations will be determined at a later date.

Cab Interior:

The cab shall be configured to seat five (5) firefighters in personal protective gear including the driver.

Interior Finishes:

The cab interior finishes on all surfaces shall be designed for extreme duty. Interior finish shall be a hard surface where possible and not covered with vinyl or plastic type materials. Hard surfaces shall be finished with a product that has a high resistance to abrasion and absorb impact without surface damage. It shall also be

resistant to gasoline, diesel fuel, cleaning agents, and other chemicals that are likely to come in contact with these surfaces. All interior décor details shall be provided by the bidder.

ReadyReach Seat Belts

See "Optional Items" section at the end of the specification.

Driver's Seat

The driver's seat shall be an H.O. Bostrom Sierra Air-100 reclining high back seat with air suspension. A DOT approved 3-pt. shoulder harness shall be furnished that is red in color. The seat belts shall meet NFPA 1901 length requirements. The driver's seat shall be mounted at the NFPA regulated height.

Officer's Seat

The officer's seat shall be an H.O. Bostrom Tanker 450 SCBA seat. This seat shall have 5" horizontal adjustment. A DOT approved 3-pt. shoulder harness shall be furnished that is red in color. The seat belts shall meet NFPA 1901 length requirements.

One (1) NFPA compliant H. O. Bostrom "SecureAll" universal SCBA bracket shall be installed in the seat.

The officer's seat shall be held at the NFPA regulated height by a frame which creates an enclosed compartment. The seat shall be mounted in a location that provides maximum legroom for the officer. The compartment shall be designed to be as large as possible. The compartment shall have a front door with an opening designed as large as possible. This compartment will be used as a radio compartment. The bidder shall supply the compartment dimensions.

This compartment shall be provided with a four (4) stud bus bar to provide a 12 volt feed. The studs shall consist of a 12 volt direct stud, switched battery stud, switched ignition stud, and a grounding stud.

Crew Cab Seating

The rear crew cab section shall contain three (3) forward facing H.O. Bostrom 400CT SCBA flip-up passenger seats. The seats shall be installed on the rear wall of the cab. The seating configuration shall be spaced to allow maximum room for fire fighters in full turn out gear. A DOT approved 3-pt. shoulder harness shall be furnished at each seat that is red in color. The seat belts shall meet NFPA 1901 length requirements.

Three (3) NFPA compliant H. O. Bostrom "SecureAll" universal SCBA brackets shall be installed at each crew cab seat.

Seat Belts

All seat belts shall meet FMVSS and NFPA 1901 current edition requirements.

Seat Alarm System

A seat alarm system shall be installed in the cab, as mandated by NFPA 1901 14.1.3.10. The alarm system shall be activated anytime the parking brake is released or the automatic transmission is not in park. The system shall consist of an audible alarm that can be heard at all positions designated to be occupied while the vehicle is in motion and a visual display to the driver or officer showing the condition at each seating position.

The visual display shall give the following indications:

Affirmative Indication: Senses occupant and belt is buckled.
Negative Indication: Senses occupant and belt is unbuckled.
Negative Indication: Senses no occupant and belt is buckled.
Dark: Senses no occupant and belt is unbuckled.

Headliner

The cab shall be provided with a removable headliner for ease of servicing items above the headliner. The headliner shall be made more than one section so the entire headliner does not need to be removed for localized maintenance. The headliner shall also include acoustical insulation and be aesthetically pleasing. Detail of the headliner shall be provided by the bidder.

Engine Enclosure

An engine enclosure shall be provided and constructed to insulate heat and noise created by the engine. The engine enclosure shall be constructed with sufficient strength to allow for mounting of equipment on top of the enclosure.

An access door shall be provide in the engine enclosure to allow for routine fluid checks. The access door shall also provide heat and noise insulation from the engine. The access door shall not be located on a horizontal surface where it would take up prime mountings space.

Engine enclosure details shall be provided by the bidder.

Cab Storage Compartments

Two (2) outboard rear facing storage compartments shall be provided where the rear facing jump seats would traditionally be installed. Each compartment shall have a sweep out design. The width of each compartment shall be dictated by the distance between outside wall the the engine enclosure. The depth of the compartment shall be made as deep as possible without impeding the ability for firefighter to enter and exit the apparatus. The height of each compartment shall be approximately half the height of the cab from the cab floor to the ceiling. The intent is to provide storage but not obstruct the view of firefighters in the rear seats or make them feel enclosed in those seats.

Each compartment shall be provided with a heavy duty cargo net or webbing on the face of the compartment to retain the contents. The netting shall be easily removed with a gloved hand. The compartments shall be lit with an LED lighting strip and controlled by a switch in a convenient location to the compartment.

One (1) additional shelf shall be provided in each compartment. The shelf height shall be adjustable to any height within each compartment.

Details of the cab storage compartments shall be provided by the bidder.

Heater/Defroster/Air Conditioning

A front cab heater and defroster shall be provided. The heater and defroster shall be sized to easily defrost the windows and supply plenty of heat for the passengers. Defrosting vents shall be provided and directed at the windows. Heating vents shall be provided for the driver and officer located on both the dash and the kickplates at both positions. The unit shall be variable speed.

Rear heaters shall be provided and sized to easily heat the passengers in the crew cab. The unit shall be variable speed.

The cab shall be provided with air conditioning. The system shall be designed to sufficiently cool the cab while considering the heat of the outside air as well as the heat put off by the engine. The capacity of the air conditioning shall exceed the industry norm to ensure proper cooling. Vents and diffusers shall be at each riding seat.

Specific details on the design of the heater, defroster, and air conditioning systems shall be provided by the bidder.

Element Heated Windshield

See "Optional Items" section at the end of the specification.

Steering Wheel

An 18" steering wheel with center horn ring shall be provided. The upper steering column shall be of the tilt and telescopic type. A self-canceling directional switch shall be mounted on the steering column. The penetration of the steering shaft at the floor shall be sealed to prevent air exchange between the interior and exterior of the cab.

Sun Visors

Two (2) smoked Lexan sun visors shall be provided and located above the windshield, one on the driver's side and one on the officer's side. Visors shall be supported at both ends to prevent drooping.

<u>Items To Be Mounted:</u>

Pansonic ToughBook

A docking station/mounting bracket shall be provided by and installed by the bidder to accommodate a Town of Greenwich provided Panasonic ToughBook 31 laptop. The installation shall allow the officer easy view of the

screen and the ability to operate the unit while seated and belted without stretching. The installation shall not interfere with the driver's ability to view out the front or side windows and the mirrors.

See "Optional Items" section at the end of the specification.

Thermal Imaging Camera

A charging/mounting base for a thermal imaging camera will be provided by the Town of Greenwich and installed by the bidder at a location to be determined. The installation shall include the elecrical wiring of the unit.

4 Gas Meter

A charging/mounting base for a 4 gas meter will be provided by the Town of Greenwich and installed by the bidder at a location to be determined. The installation shall include the electrical wiring of the unit.

2-1/2 Gallon Water Extinguisher Mount

A bracket shall be installed to accommodate and retain a 2-1/2 gallon water extinguisher. The extinguisher shall be mounted in the cab in an area to be determined by the Greenwich Fire Department. The extinguisher shall be able to be quickly and easily removed from the apparatus from a standing position on the ground without entering the cab.

Irons Mount

A bracket shall be installed to accommodate a set of irons made up of a flat head ax and a halligan bar. The irons shall be mounted in the cab in an area to be determined by the Greenwich Fire Department. The irons shall be able to be quickly and easily removed from the apparatus from a standing position on the ground without entering the cab.

Hand Lights

5 Fire Vulcan LED Rechargeable Lanterns with charging bases shall be provided and installed in the cab at locations to be determined. See electrical section for additional details.

Map Box

A small map box shall be provided to accommodate two (2) binders with the mounting location to be determined by the Greenwich Fire Department.

Vehicle Dimensions Sign

A sign shall be provided at the front of the cab indicating the height of the completed apparatus in feet and inches, the length of the apparatus in feet and inches, and the gross vehicle weight rating of the apparatus in both pounds and tons.

Fire Pump

Pump House/Enclosure

A modular pump enclosure with side mount controls shall be installed between the cab and the apparatus body. The pump enclosure shall measure no more than 54" wide. The pump enclosure shall be independently mounted and furnished with flex joints between the cab and the body to allow for flexure of the chassis frame during road travel.

Removable panels, full height and width, shall be provided on the front and back from the pump enclosure. Pump access doors shall be provided on each side of the vehicle. Each door shall be hinged along the top and have components installed to hold hit open as well as latch it shut.

The pump enclosure shall be fabricated from the same material as the cab and body.

The construction techniques, dimensions, materials and mounting details for the pump enclosure shall be provided by the bidder.

Any plumbing or appliance which terminates on the exterior of the apparatus shall be finished to be aesthetically pleasing to the eye.

Pump House Hose Well Storage

A hose well shall be installed on the pump house on the passenger's side step. The well shall be capable of storing 25 feet of 5.00 inch supply line with couplings installed on each side. Construction details shall be provided by the bidder.

Pump

The pump shall be a Class "A" Midship Hale 2000 GPM Single Stage Model QMAX Centrifugal Fire Pump and be tested at the manufacturer's facility and certified by an independent organization. The pump shall deliver 100% of rated capacity at 150 PSI net pump pressure. Pump shall be manufactured in accordance with Hale Pump specifications.

Pump Anti-Corrosion System

An anti-corrosion system shall be installed to prevent galvanic corrosion with the pump. It shall consist of two sacrificial zinc anodes. One shall be installed on each of the 6" main inlets. Anodes shall be easily removable for inspection and replacement.

Thermal Relief Valve

A Hale model TRV120 thermal relief valve shall be furnished on the discharge manifold of the pump. It shall automatically monitor the pump water temperature and relieve water from the pump when the temperature

exceeds 120 degrees Fahrenheit. An indicator lamp shall illuminate when the relief valve is open. The relief valve shall be installed in accordance with Hale specifications.

Hale Mechanical Pump Seal

A mechanical seal shall be provided in place of a pump packing. One (1) is only required on the suctions side of the pump. The mechanical seal must be two (2) inches in diameter and shall be spring loaded, maintenance free and self adjusting. Mechanical seal construction shall be carbon sealing ring, stainless steel coil spring, Viton rubber boot and tungsten carbide seat with Teflon backup seal.

Pump Shift

An air operated shift system shall be provided that allows the shift arm position to be changed by means of an in-cab mounted switch. It shall engage either the pump drive gear or the truck drive shaft gear. A three position positive lock air shift shall be provided.

Transmission Lock Up

The direct gear transmission lockup for the fire pump operation shall engage when the pump shift control lever in the cab is activated and the transmission shift is changed to drive.

Pressure Governor and Monitoring Display

To control the pump, the apparatus shall be equipped with a Class 1 Total Pressure Governor Plus engine/pump governor/throttle system that is connected directly to the Electronic Control Module mounted on the engine. The features and installation shall be in accordance with Class 1 specifications.

Pump Priming System

The pump primer shall be a Hale model ESP. It shall be a positive displacement, vane type, driven by a 12 V electric motor. The vacuum pump shall be self lubricating and not require an oil reservoir. The motor shall be totally enclosed to prevent dust, dirt, and water from entering.

The priming valve shall be a Hale Model SPV. It shall be operated by a pull lever on the pump control panel.

Pump Piping

All suction and discharge lines shall used schedule 10 or thicker stainless steel pipe or heavy-duty pressure/vacuum hose with stainless steel end fittings. Where vibration or chassis flexing may damage or loosen piping, the pipe shall be equipped with victaulic or rubber couplings.

A stainless steel discharge manifold shall be used to feed the discharges, 2-1/2" or less, as required by the plumbing layout.

All water carrying pressure gauge lines are to be flexible polypropylene tubing to prevent breakage from

vibration.

All suction inlets and discharges shall be equipped with National Standard Threads (NST).

Any threaded fitting shall be sealed with a heavy-duty Teflon anaerobic pipe sealant. It shall be in a liquid form with a consistency of grease.

All pump piping shall be well supported to ensure cracking does not occur from vibrations incurred traveling over the road or during pumping operations.

Master Drain

A master drain valve shall be provided and installed. The drain assembly shall be constructed of brass and stainless steel with individually sealed ports for low point drainage of the fire pump and auxiliary devices.

Drains

A Class One 3/4" quarter turn ball drain or bleed off valve shall be provided for each gated hydrant inlet or discharge outlet. The valves shall be mounted in an accessible location and be properly labeled. The water discharge from the valve lines shall be routed so it is exhausted below the chassis frame rails.

Valves

All direct and in-line valves shall be Akron model 8600 or 8800 heavy-duty swing out brass valves designed for operating pressures to 250 PSI.

Pump Control Panel

All pump controls and gauges shall be located on the driver's side of the apparatus with color coded identification plates in accordance with these specifications.

Pump gauges and controls shall be arranged to be user friendly. Each pump control will be immediate below the corresponding gauge.

The pump panel shall be well lit for nighttime operations with three (3) quality Truck-Lite brand LED light units. Lighting shall be protected by a light shield. One of the three lights shall illuminate when the apparatus is placed in pump. The other lights shall be controlled by a weatherproof switch at the driver's side pump panel.

The pump panel shall be finished with an extremely durable black material that is easy to maintain. The bidder shall provide details on their proposed finish.

Controls for all inlet and outlets shall be the push-pull type, unless otherwise stated. All inlet and outlet push-pull valve control handles shall be the "T" handle design with a recess in the face for an identification plate. Handles and panel escutcheons shall have a polished chrome plated finish and shall have labels describing the function of the control handle.

Discharge valves that are remote mounted in the pump system piping shall have a ¼ turn locking device on the push-pull control.

A 2" weather proof fuel gauge shall be mounted on the pump panel indicating the amount of fuel in the tank. The gauge shall be mounted in a well lit area for night operations.

A momentary push button shall be located on the pump control panel to activate the air horns. The button shall be labeled "Air Horns".

A water tank level gauge shall be provided on the pump control panel. The gauge shall provide an accurate level of the volume of water in the booster tank. The gauge shall be illuminated by LED indicator and provide for a 180 degree viewing angle. LED's shall flash when the water is at ¼ tank. Details on the water tank level gauge shall be provided by the bidder.

A foam tank level gauge shall be provided on the pump control panel. The gauge shall provide and accurate level of the volume of foam in the foam tank. he gauge shall be illuminated by LED indicator and provide for a 180 degree viewing angle. LED's shall flash when the water is at ¼ tank. Details on the foam tank level gauge shall be provided by the bidder.

Additional Water Tank Level Gauges

See "Optional Items" section at the end of the specification.

Pressure & Vacuum Gauges

All gauges shall be liquid filled and of quality construction by a reputable manufacturer. All gauges shall be located on the main pump panel on the driver's side pump enclosure.

The two (2) master gauges shall be 6.00" in diameter and have a pressure range of 30-0-400. Each gauge body and bezel shall be of stainless steel construction with black lettering on white faces. The pump master pressure and vacuum gauges shall be mounted adjacent to each other on the pump control panel.

An individual line pressure gauge shall be provided and installed for each discharge larger than 1.50". All the individual line pressure gauges for 1.50" and larger discharges shall be 3.50" in diameter and have a pressure range of 0-400. Each gauge body and bezel shall be of stainless steel construction with black lettering on white faces.

Combination Pressure Gauges with Flow Meters

See "Optional Items" section at the end of the specification.

<u>Pump Intakes:</u>

Main Intakes

A 6.00" manifold inlet shall be provided on each side of the apparatus at the pump enclosure panel. Removable die cast zinc strainers shall be provided in each side inlet to provide cathodic protection for the pump and thus reduce corrosion in the pump. Each inlet shall extend past the pump panel and allow for 8" minimum clearance to the outside edge of the running board.

Two (2) Hale MIV-M master intake valves shall be provided. They shall be controlled by a manual hand wheel on the side of the pump panel. The hand wheel control shall be on the same side panel of the pump enclosure as the MIV valve. The shall have a pressure relief valve that is factory set to 125 PSI and field adjustable from 75-250 PSI. They shall provide overpressure protection even when the intake valve is closed. The outlets of the pressure relief valves shall discharge flow away from the pump operators position. The valve shall be capable of priming and drafting operations. The outboard priming tap shall be used to allow for pre-priming the suction hose so firefighting operations are not lost when switching from tank to draft operations.

Two (2) 6" FNST X 5" Storz 30 degree elbows with long handles shall be provided for the main pump inlets.

Two (2) 5" Storz caps with retaining wire shall be provided and installed.

Two (2) 6" NST long handled chrome plated caps shall be provided for the main pump inlets.

Auxiliary Intakes

A 2.50" gated hydrant inlet shall be provided on each side of the apparatus at the pump enclosure panel. The valve shall be located behind the panel and shall be provided with a swing valve control extending through the panel. The valve shall be of the drop out type. The inlet shall terminate with a chromed 2.50" NST female swivel adapter and screen. A 2.50" chromed plug and retaining chain shall be provided for each auxiliary intake.

Front Intake

The apparatus shall be provided with 5.00" piped front intake to be located at the officer's side front bumper. The front intake shall terminate with a chrome swivel type fitting and be terminated on the officer's side above the bumper extension. The pipe shall terminate with a 6" NST male fitting with strainer. The bidder shall determine the best way to configure the front intake to allow for the other components specified for the front bumper. Design and construction details shall be provided by the bidder. See front bumper section for additional

The front bumper inlet shall be controlled by a 5.00" butterfly valve with manual hand wheel on the driver's side of the main pump panel. A pressure relief valve shall be installed and factory set at 125 PSI and field adjustable from 75-250 PSI. The outlet of the pressure relief valve shall discharge away from the pump operators position.

One (1) 6.00" NST Female X 5" Storz adapter with a 5" Storz cap and retaining wires shall be furnished on the front bumper intake.

Tank to Pump Line

A 3.00" tank to pump valve shall be installed between the water tank and the pump. The valve shall be a quarter turn ball type and drop out design constructed of bronze. The control handle shall be a a chrome push/pull locking T type and will be installed at the driver's side pump panel. A check valve shall be installed between the pump and the valve to prevent water from flowing back into the tank.

Pump Discharges:

Tank Fill

There shall be a a 2.00" pump to tank fill line installed with a 2" in line bronz valve. Valve shall be controlled at the driver's side pump panel with a chrome push/pull locking T handle.

Recirculating Line

A .50" pump to tank recirculating line shall be provided with a control on the driver's side pump panel.

Front Bumper Discharge

A pump discharge shall be be furnished and protrude from the front bumper gravel pan. This discharge shall terminate on the driver's side with a chrome 90 degree swivel elbow and 1.5" male fitting. The location of the discharge shall not interfere with the hose load intended to be laid flat on top of the gravel pan spanning most of the width of the bumper. The discharge shall be plumbed from the pump with 2.00" and 2.50" plumbing. It shall have a manual full flow quarter turn valve with push/pull locking T type chrome handle at the driver's side pump panel. A pressure gauge as specified shall be provided on the driver's side pump panel.

Driver's Side Discharges

Two (2) 2.50" discharges, each with a pump mounted, quarter turn ball valve and pressure gauge as specified, shall be mounted on the driver's side pump panel. Each valve shall be capable of being locked or unlocked at the valve from the control panel at any position between open or close and shall operate freely up to maximum pump discharge pressure. Each valve shall be mounted with the body behind the pump panel and bolted to the discharge manifold of the pump.

Two (2) 2.50" FNPT X 2.50" MNST chrome plated adapters shall be provided for the driver's side 2.50" discharges.

Two (2) 2.50" FNST X 2.50" MNST 45 degree chrome plated elbows shall be provided for the driver's side 2.50" discharges.

Two (2) 2.5" FNST X 1.50" MNST chrome plated adapters with 1.50" chrome plated caps and retaining chains shall be provided for the driver's side 2.50" discharges.

Passenger's Side Discharges

One (1) 2.50" discharge with a pump mounted, quarter turn ball valve and pressure gauge as specified, shall be

mounted on the passenger's side pump panel. The valve shall be capable of being locked or unlocked at the valve from the control panel at any position between open or close and shall operate freely up to maximum pump discharge pressure. The valve shall be mounted with the body behind the pump panel and bolted to the discharge manifold of the pump.

One (1) 2.50" FNPT X 2.50" MNST chrome plated adapter shall be provided for the driver's side 2.50" discharge.

One (1) 2.50" FNST X 2.50" MNST 45 degree chrome plated elbow shall be provided for the driver's side 2.50" discharge.

One (1) 2.5" FNST X 1.50" MSNT chrome plated adapter with 1.50" chrome plated cap and retaining chain shall be provided for the driver's side 2.50" discharge.

One (1) 4.00" discharge shall be provided on the passenger's side pump panel. The outlet shall be piped from the discharge side of the pump through an Akron 4.00" handwheel controlled valve with 4.00" piping. The valve shall be pump panel controlled in conjunction with with a pressure gauge as specified.

One (1) 4.00" FNPT x 4.00" MNST adapter shall be provided for the 4.00" passenger's side discharge.

One (1) 4.00" FNST x 5.00" Storz 30 degree elbow shall be provided for the 4.00" passenger's side discharge.

One (1) 5.00" Storz cap and retaining chain shall be provided for the 4.00" passenger's side discharge.

Rear Discharges

There shall be one (1) 2.50" discharge located on the **rear** of the apparatus on the **left** side. The discharge shall be low enough where a firefighter does not have to climb the truck to make a connection. It shall be plumbed with 2.50" pipe and gated with a 2.50" quarter turn ball valve of an in-line dropout design with the control and pressure gauge located on the pump panel. A 2.50" FNPT x 2.50" MNST adapter shall be provided. A 2.50" FNST x 2.50" MNST 45 degree elbow shall be provided. A 2.50" FNST x 1.50" MNST adapter and a 1.50" cap and retaining chain shall be provided for this discharge.

There shall be one (1) 2.50" discharge located on the **rear** of the apparatus on the **right** side. The discharge shall be low enough where a firefighter does not have to climb the truck to make a connection. It shall be plumbed with 2.50" pipe and gated with a 2.50" quarter turn ball valve of an in-line dropout design with the control and pressure gauge located on the pump panel. A 2.50" FNPT x 2.50" MNST adapter shall be provided. A 2.50" FNST x 2.50" MNST 45 degree elbow shall be provided. A 2.50" FNST x 1.50" MNST adapter and a 1.50" cap and retaining chain shall be provided for this discharge.

Hose Bed Discharges

See "Optional Items" section at the end of the specification.

There shall be one (1) 2.50" discharge located on the **left front** of the apparatus hose bed. It shall be plumbed

with 2.50" pipe and gated with a 2.50" quarter turn ball valve of an in-line dropout design with the control and pressure gauge located on the pump panel. A 2.00" FNPT x 2.50" MNST adapter shall be provided on the discharge. (1) 2.50" FNST x 1.50" MNST shall be provided for the left front hose bed discharge.

There shall be one (1) 2.50" discharge located on the **right front** of the apparatus hose bed. It shall be plumbed with 2.50" pipe and gated with a 2.50" quarter turn ball valve of an in-line dropout design with the control and pressure gauge located on the pump panel. A 2.00" FNPT x 2.50" MNST adapter shall be provided on the discharge.

Crosslay Bed and Discharges

There shall be three (3) crosslay hose beds provided on the top front of the pump module. The bottom of each crosslay shall be designed to be as low as possible to allow easy access for firefighters to safely pull hose without strain or climbing the apparatus. Crosslay dividers shall be adjustable towards the front and rear so that each bays width can be changed.

The crosslay hose bed shall be covered and also provided with an easy to use hose restraint system in accordance with NFPA. The cover shall be durable enough to accommodate a firefighter who may step on it while accessing the stokes basket. The cover shall also provide plenty of room to pack hose when in the open position.

The construction details for the crosslay area shall be provided by the bidder.

Front Crosslay

The front crosslay shall be capable of holding 250' of flat packed 1.75" double jacketed fire hose in a single stack. The crosslay width shall be adjusted wide enough so that a 1.50" TFT or 1.50" Fire Chief nozzle will not get wedged in the bay during deployment. The crosslay shall contain a 1.50" discharge plumbed with 2" high pressure hose and/or piping and gated with a 2.00" valve. The discharge shall terminate with a 1.50" MNST swivel. The valve control shall be installed on the main driver's side pump panel. The front crosslay bed and corresponding gauge bezel and valve handle shall be colored BLUE.

Middle Crosslay

The middle crosslay shall be capable of holding 250' of flat packed 1.75" double jacketed fire hose in a single stack. The crosslay width shall be adjusted wide enough so that a 1.50" TFT or 1.50" Fire Chief nozzle will not get wedged in the bay during deployment. The crosslay shall contain a 1.50" discharge plumbed with 2" high pressure hose and/or piping and gated with a 2.00" valve. The discharge shall terminate with a 1.50" MNST swivel. The valve control shall be installed on the main driver's side pump panel. The middle crosslay bed and corresponding gauge bezel and valve handle shall be colored GREEN.

Rear Crosslay

The rear crosslay shall be capable of holding 250' of flat packed 1.75" double jacketed fire hose in a single stack. The crosslay width shall be adjusted wide enough so that a 1.50" TFT or 1.50" Fire Chief nozzle will not get wedged in the bay during deployment. The crosslay shall contain a 1.50" discharge plumbed with 2" high

pressure hose and/or piping and gated with a 2.00" valve. The discharge shall terminate with a 1.50" MNST swivel. The valve control shall be installed on the main driver's side pump panel. The middle crosslay bed and corresponding gauge bezel and valve handle shall be colored WHITE.

Deluge Riser/Monitor

A 3.00" deluge riser shall be installed above the pump in such a manner that monitor can be mounted and used effectively. Piping shall be installed securely so no movement develops when the riser is charged. The riser shall be gated and controlled at the driver's side pump panel.

An Akron Model 3416 monitor shall be properly installed on the deluge riser. The monitor shall include both a fixed mounting base and a portable base with one (1) 5.00" storz inlet. The monitor shall be painted to match the body. The monitor, while mounted to the apparatus, shall be designed so the stream can clear the body and cab. If necessary, the bidder shall specify and manually operated telescoping riser to accomplish this and allow effective use.

A set of Akron Model 2499 Quad Stacked deluge tips shall be be provided. The tip sizes shall be 1.375", 1.50", 1.75", and 2.00". This shall include an Akron 3488 stream shaper.

An Akron Model 1755 Turbo Master Stream adjustable gallonage and adjustable stream tip shall be provided.

Foam System

See "Optional Items" section at the end of the specification.

Booster Tank

The booster tank shall have a capacity of 750 U.S. Gallons and be constructed of polypropylene plastic by United Plastic Fabricating, Incorporated. Tank fabrication, support of the tank, and mounting of the tank shall be completed using the best construction practices for extreme duty. The mounting practices shall be approved by the tank manufacturer. Tank shall be baffled in accordance with NFPA Bulletin 1901 requirements. Bidder shall provided materials, design, and construction details regarding the booster tank and how it is supported and mounted on the apparatus.

A fill tower shall be constructed of .50" polypropylene and shall be a minimum of 8" wide x 14" long. Fill tower shall be furnished with a .25" thick polypropylene screen and hinged cover. A overflow pipe, constructed of 4" schedule 40 polypropylene, shall be installed approximately halfway down the fill tower and extend through the water tank and dump to the rear of the rear axle.

Foam Tank

A forty five (45) gallon "B" foam tank shall be be incorporated into the water tank. These 45 gallons shall be in addition to the amount of water specified. A fill tower shall be provided and large enough to allow for easy pouring of 5 gallon foam containers into the tank. The fill tower shall be provided with an easy opening, hinged, and latching cover. Within the fill tower shall be an anti-foaming fill pipe. The fill tower shall be designed to

facilitate complete interior flushing as required. The fill tower shall be equipped with a pressure/vacuum vent that enables the tank to compensate for changes in pressure or vacuum when filling or withdrawing foam concentrate.

Body

The body shall be a heavy-duty rescue style body constructed from stainless steel. The body shall be constructed and designed specifically for the fire service. The body and substructure shall be well constructed to allow a minimum 500 lb rating per compartment and provide years of reliable service.

The construction techniques, dimensions, and material details for the body substructure and body, including compartments shall be provided by the bidder.

Aluminum Body Option

See "Optional Items" section at the end of the specification.

Overall Body Length

The body length shall be determined by the specified overall length of the apparatus less the the length of the front bumper, cab, and pump enclosure. The bidder shall provide the overall dimensions of the body.

Rear Wheel Area

The body shall be provided with wheel inner liners, fender panels, and fenderettes. Construction details shall be provided by the bidder.

Wheel Chocks

Two (2) NFPA compliant heavy-duty aluminum folding wheel chocks with storage brackets shall be provided and installed on the apparatus. The awarded bidder shall work with the Greenwich Fire Department to determine the final mounting locations.

Compartments

All compartments shall be designed to provide as much usable space as possible.

All compartments shall be of a sweep out design where the floor is higher than the sill.

All compartments shall be vented in accordance with requirements of the current edition of NFPA 1901.

All compartments shall have protective grid mats on each floor, tray, or shelf where equipment can be stored.

All compartments shall be provided with sill protectors where necessary to protect the painted surfaces of the body.

The interior of all compartments shall be finished with a product that has a high resistance to abrasion and absorb impact without surface damage. It shall also be resistant to gasoline, diesel fuel, cleaning agents, and other chemicals that are likely to come in contact with these surfaces. Details to be provided by the bidder.

Driver's Side Compartments:

Driver's Side Front Compartment

There shall be one (1) compartment ahead of the rear wheels. This compartment shall be full height and full depth. The compartment width shall be determined by the rear wheel location. The bidder shall supply compartment dimensions.

One (1) roll out fixed mounted tray shall be provided. The tray shall have edges on all four sides and able to support a 500 lb load. The tray shall be mounted on the floor of the compartment.

One (1) roll out adjustable height tray shall be provided . The trays shall have edges on all four sides and able to support a 250 lb load.

One (1) adjustable height shelf shall be provided. The shelf shall be able to support a 500 lb load.

The manufacturer will work with the Greenwich Fire Department to mount equipment to be located in this compartment. In some cases fabrication or 3rd party mounting brackets maybe required. Details to be discussed at a pre-construction meeting.

Driver's Side Center Compartment

There shall be one (1) compartment above the rear wheels. This compartment shall be full height and depth. The compartment width shall be determined by the manufacturer. The bidder shall supply the compartment dimensions.

Two (2) roll out and drop down trays shall be provided. The trays shall have edges on all four sides and able to support a 200 lb load.

The manufacturer will work with the Greenwich Fire Department to mount equipment to be located in this compartment. In some cases fabrication or 3rd party mounting brackets maybe required. Details to be discussed at a pre-construction meeting.

Driver's Side Rear Compartment

There shall be one (1) compartment behind the rear wheels. This compartment shall be full height, full depth. The lower rear portion of this compartment shall transverse to the rear compartment. The compartment width shall be determined the rear wheel location and the overall length of the apparatus. The bidder shall provide compartment dimensions.

One (1) roll out fixed mounted tray shall be provided. The tray shall have edges on all four sides and able to support a 500 lb load. The tray shall be mounted on the floor of the compartment.

One (1) roll out adjustable height tray shall be provided . The trays shall have edges on all four sides and able to support a 250 lb load.

One (1) adjustable height shelf shall be provided. The shelf shall be able to support a 500 lb load.

This compartment will provide storage for extrication equipment. The manufacturer will provide and install brackets to mount a combination tool, spreader, cutter, and three (3) ram units. The mounting locations will be determined with input from the Greenwich Fire Department.

An electrical box shall be wired to this compartment and capable of supplying a 220V Hurst Trimo pump provided by the Greenwich Fire Department. This pump shall be mounted in this compartment and plumbed to the specified reels. See electrical section for more details.

Two (2) heavy-duty hydraulic reels shall be installed in the upper portion of this compartment for the Hurst equipment. Each reel shall be supplied with one hundred (100) feet of heavy-duty dual flow 1/4" I.D. 5000 PSI hydraulic hose that is compatible with Hurst low pressure rescue systems. Minimum burst pressure shall be four times the working pressure of 5000 PSI. The reels shall be supplied with and terminate with a Hurst Streamline connector. The reel shall be provided with a 12V DC electric rewind system and equipped with a push button control in an area where the operator can safely view the rewind operation. Heavy-duty captive rollers shall be furnished on each reel.

The manufacturer will work with the Greenwich Fire Department to mount equipment to be located in this compartment. In some cases fabrication or 3rd party mounting brackets maybe required. Details to be discussed at a pre-construction meeting.

SCBA Bottle Storage

There shall be two (2) wheel well compartments, one (1) located in front of the rear wheels and one (1) located behind the rear wheels. Each compartment shall be capable of storing two (2) Scott 30 minute SCBA bottles. The compartment shall be designed to provide no damage or wear on the stowed SCBA bottles. The compartment shall be provided with a durable door and latching system that is easy to operate with a gloved hand. The construction techniques, dimensions, and material details shall be provided by the bidder.

<u>Passenger's Side Compartments/Ladder Rack</u>

Passenger's Side Front Compartment

There shall be one (1) compartment ahead of the rear wheels. This compartment shall be full height and full depth. The compartment width shall be determined by the rear wheel location. The bidder shall supply compartment dimensions.

One (1) roll out fixed mounted tray shall be provided. The tray shall have edges on all four sides and able to

support a 500 lb load. The tray shall be mounted on the floor of the compartment.

One (1) roll out adjustable height tray shall be provided . The trays shall have edges on all four sides and able to support a 250 lb load.

One (1) adjustable height shelf shall be provided. The shelf shall be able to support a 500 lb load.

The manufacturer will work with the Greenwich Fire Department to mount equipment to be located in this compartment. In cases some fabrication or 3rd party mounting brackets maybe required. Details to be discussed at a pre-construction meeting.

Passenger's Side Center Compartment

There shall be one (1) compartment above the rear wheels. This compartment shall be full height and depth. The compartment width shall be determined by the manufacturer. The bidder shall supply the compartment dimensions.

Two (2) roll out and drop down trays shall be provided. The trays shall have edges on all four sides and able to support a 200 lb load.

The manufacturer will work with the Greenwich Fire Department to mount equipment to be located in this compartment. In some cases fabrication or 3rd party mounting brackets maybe required. Details to be discussed at a pre-construction meeting.

Passenger's Side Rear Compartment

There shall be one (1) compartment behind the rear wheels. This compartment shall be full height, full depth. The lower rear portion of this compartment shall transverse to the rear compartment. The compartment width shall be determined the rear wheel location and the overall length of the apparatus. The bidder shall provide compartment dimensions.

One (1) roll out fixed mounted tray shall be provided. The tray shall have edges on all four sides and able to support a 500 lb load. The tray shall be mounted on the floor of the compartment.

One (1) roll out adjustable height tray shall be provided . The trays shall have edges on all four sides and able to support a 250 lb load.

One (1) adjustable height shelf shall be provided. The shelf shall be able to support a 500 lb load.

One (1) heavy-duty hydraulic reel shall be installed in the upper portion of this compartment for the Hurst equipment. The reel shall be supplied with one hundred (100) feet of heavy-duty dual flow 1/4" I.D. 5000 PSI hydraulic hose that is compatible with Hurst low pressure rescue systems. Minimum burst pressure shall be four times the working pressure of 5000 PSI. The reel shall be supplied with and terminate with a Hurst Streamline connector. The reel shall be provided with a 12V DC electric rewind system and equipped with a push button control in an area where the operator can safely view the rewind operation. A heavy-duty captive roller shall be

furnished on the reel.

One (1) heavy-duty electric reel for live electrical cable shall be installed in the upper portion of this compartment. The reel shall be supplied with one hundred and fifty (150) feet of yellow 10/3 gauge electric cable. The reel shall be provided with a 12V DC electric rewind system and equipped with a push button control in an area where the operator can safely view the rewind operation. A heavy-duty captive roller shall be furnished on the reel. The cord shall be supplied with a spherical molded plastic cable stop. See Electrical section for more details.

The manufacturer will work with the Greenwich Fire Department to mount equipment to be located in this compartment. In some cases, fabrication or 3rd party mounting brackets maybe required. Details to be discussed at a pre-construction meeting.

SCBA Bottle Storage

There shall be two (2) wheel well compartments, one (1) located in front of the rear wheels and one (1) located behind the rear wheels. Each compartment shall be capable of storing two (2) Scott 30 minute SCBA bottles. The compartment shall be designed to provide no damage or wear on the stowed SCBA bottles. The compartment shall be provided with a durable door and latching system that is easy to operate with a gloved hand. The construction techniques, dimensions, and material details shall be provided by the bidder.

Ladder Rack

The ground ladders shall be mounted above the side compartments on a swing down ladder rack. The rack shall be of heavy-duty construction. The rack shall be well secured to the apparatus at pivot locations to be determined by the manufacturer. The rack shall lock in place when stowed not be able to move forward and backward nor side to side when traveling over the road. When lowered, the rack shall be at a reasonable height to safely remove the ladders from the rack.

The rack shall utilize a 12V electric over hydraulic lowering and stowing system. The system shall allow the ladders to be lowered in short time. The system shall be controlled by a guarded toggle switch located in a safe area where the operator can view the ladder rack in motion. Interlocks shall be installed on the system where necessary to prevent accidents and injuries.

A warning light shall be provided in the cab and in view of the driver, The warning light shall activate when the parking brake is disengaged and the rack is either in motion or in the down position. Warning lights shall also be installed on both ends of the rack itself for when the rack is in use. Reflective striping shall be installed where necessary. The ladder rack shall be painted job color.

The rack shall be capable of stowing one (1) 24' aluminum 2-section extension ladder, one (1) 14' aluminum roof ladder, and one (1) 10' aluminum folding attic ladder.

Ladder brackets shall be installed to secure the ladders to the racks. Nylon wear strips and anything else required to prevent wear to the ladders while stowed on the rigs shall be provided.

The rack shall have three (3) tubes installed to accommodate pike poles. Two (2) tubes shall accommodate 6 foot pike poles. One (1) tube shall accommodate a 10 foot pike pole.

All details on the proposed ladder rack shall be provided by the bidder.

Rear Compartment

There shall be one (1) compartment at the rear of the apparatus. This compartment shall be transverse the right and left side rear compartments. The dimensions of this compartment shall be determined by the manufacturer and provided by the bidder.

One (1) roll out fixed mounted tray shall be provided. The tray shall have edges on all four sides and able to support a 500 lb load. The tray shall be mounted on the floor of the compartment.

A heavy-duty tail board shall be provided in front of the rear compartment and between each side rear compartment. The tail board shall support firefighters working in full turnout gear and be designed with a non-slip surface. The tail board shall not allow for any standing water to accumulate.

Roll Up Compartment Doors

The side and rear compartment doors shall be a heavy-duty aluminum constructed AMDOR brand roll-up door. The doors shall incorporate a magnetic door ajar and LED compartment lighting system within the compartment. The latching system shall be a full width, one piece, lift bar enabling operation with one gloved hand. The finish on the doors anodized to eliminate oxidation and rusting. Removable protective shields shall be installed inside the compartment to protect the roll up door when in the open position.

All side compartment roll up doors shall be painted job color. The rear facing roll up door shall have a reflective surface as indicated in another section of the specification.

Addition details regarding the roll up door shall be provided by the bidder.

Hose Bed

The hose bed shall be designed to be as low as possible to prevent firefighter injury while retrieving the hose.

The hose bed shall be constructed in strength and size to accommodate fifteen hundred (1500) feet of 5.00" large diameter hose in the center, four hundred (400) feet of 3.00" double jacketed supply hose on the passenger side, and four hundred (400) feet of 2.50" doubled jacketed attack hose on the driver's side.

The hose bed shall have a removable grated floor to allow for ventilation. The surface of he hose bed shall be smooth and free of sharp objects to prevent damage to the hose.

The hose bed shall be provided with two (2) constant thickness dividers to separate the individual hose loads. The dividers shall be adjustable on slide tracks at the front and rear of the hose bed. Adjusting hardware shall be

free of sharp edges that could damage the hose.

The hose bed shall be furnished with a heavy-duty flexible vinyl coated cover. The cover shall secure the hose from unintentional deployment while the vehicle is under way. The rear of the cover shall be weighted and and able to be secured to close the back opening of the hose bed. The method to secure the opening shall be easy to disengage at time of alarm.

The areas on the rear wall below the hose bed that subject to damage by hose shall be protected with a durable surface. Details shall be provided by the bidder.

Body Steps

Body steps shall be installed on the front of the body on both the driver's side and the passenger's side.

Body steps shall be installed on both sides of the rear of the body.

The quantity of steps required in each location shall be determined by the height of the body and step height regulations set forth by NFPA. Each step shall be a heavy-duty folding step meeting regulations set forth by NFPA. The bidder shall supply details of their proposed steps.

Hand/Grab Rails

Hand/Grab rails shall be constructed and provided on the body where necessary to meet NFPA requirements. Details on the construction and locations of proposed hand/grab rails shall be provided by the bidder.

Rub Rails

Rub rails shall be provided along lower portion of the body on both sides and the rear. The rub rail shall be both aesthetically pleasing to the apparatus and offer protection to the body and finish of the apparatus. Rub rail details shall be provided by the bidder.

Hard Suction

Two (2) lengths of light weight 6.00 inch hard suctions shall be provided. Each length shall have a 6.00 inch NST male fitting on one end, and 6.00 inch NST long handled swivel female fitting on the other end. The length of each hose shall be determined by the body length and/or storage limitations.

The bidder shall determine the best location to store both lengths of hard suction. The bidder shall provide details on the proposed storage location(s).

<u>12 Volt Electrical System – Multi-Plex</u>

General

The apparatus shall be equipped with an NFPA complaint heavy-duty 12-volt multi-plex electrical system. All

12-volt electrical equipment installed by the apparatus manufacturer shall conform to all modern automotive practices. All electrical wiring and components installed on the apparatus shall be suitable for use in severe duty emergency vehicle applications.

All insulted wire and cable shall conform to SAE J1127 SGX or STX for low voltage battery cable, and SAE J1128 SXL, GXL, or TXL for low voltage primary cable. The bidder shall describe in detail the wire construction and methods of installation. These details shall also include the methods of connecting wires and what measures will be taken to seal exposed connections to withstand the environmental elements. Additionally, the bidder shall also describe protective steps to prevent wires from chaffing, melting, and other damage where routed through holes, near hot operating parts, and other areas on the apparatus.

All wiring shall be uniquely identified by a circuit number and color coding. The identification shall be referenced in a provided wiring diagram. It shall be easy to identify each circuit along the entire length of the circuit.

Power distribution centers shall be used to eliminate voltage drops. Power distribution centers shall be located in areas that are accessible and protected from the environmental elements.

Wiring harnesses from/to major power and signal distribution areas of the apparatus shall include spare wires for future expansion of the system.

All serviceable electrical components shall be readily accessible for maintenance or replacement.

Circuit Protection

All circuits shall be protected by a device sized to 125% of the anticipated load to prevent wire and component damage when subjected to extreme current overload. Automatic reset circuit breakers, manual reset circuit breakers, and automotive type fuses shall be adhere to all applicable SAE International standards.

Automated Electrical Load Management System

The apparatus shall be equipped with an automated load management system that monitors battery system voltage and sheds electrical system loads if a low voltage condition develops. If the current load demand exceeds the alternator output, the load manager shall shut down individual load as required to maintain a minimum system voltage of 11.8 VDC at the battery. The load-shed sequence of equipment shall be provided by the bidder. The bidder shall also provide detailed information about their proposed load management system.

Information Center

A display screen shall be located in the cab to provide information on all electrical aspects of the apparatus. Information displayed shall be seatbelt status, door ajar status, critical warnings, audible alarms, equipment not stowed warnings, etc. The bidder shall describe in detail the capabilities of their proposed information center.

Data Recorder

A vehicle data recorder shall be provided in accordance with NFPA requirements. The bidder shall provide detailed information on the vehicle data recorder specified.

EMI/RFI Protection

State-of-the-art electrical system design and components shall be utilized to ensure the suppression of radiated and conducted EMI (electomagnetic interference) and RFI (radio frequency interference) emissions that may cause communication and navigation radio reception interference. The bidder shall provide information on their proposed system.

Electrical System Performance Testing

An operational test shall be conducted to ensure that all installed electrical equipment is properly connected and is in working order. The apparatus alternator shall be tested with a continuous electrical load applied and engine running up to the manufacturer's governed speed for a minimum of 2 hours. Additionally, all warning lights shall run continuously during the 3 hour NFPA pump certification test. Activation of the load management system shall be permitted during the test. Excessive battery discharge or a system voltage of less than 11.8 volts dc at the battery for more than 120 seconds shall be considered a test failure.

Electrical System Diagnostics

The apparatus shall be provided with on-board electrical system diagnostics and an interface for off-board diagnostics. The on-board diagnostic system shall be capable of providing information on the ABS System, Engine Controller, and Information Center. A 9-Pin SAE J1939 and J1587 off-board diagnostic connector shall be provided for remote communication and trouble shooting. A troubleshooting guide shall be provided with the apparatus to assist with interpretation of the diagnostic signals.

Cab Dash Instrumentation, Indicators, & Audible Alarms

Driver's Instrumentation

Cab dash instrumentation shall be provided with all the necessary instruments for the operation of the apparatus. Instrumentation shall be of high quality construction. Illumination shall be provided for all controls, switches, instruction plates and gauges. The bidder shall provide a list of all instrumentation provided and a description of their appearance.

A heavy-duty ammeter shall be provided with the cab dash gauges. The ammeter scale shall read from -500 amps to +500 amps indicating the charge status of the engine alternator.

Driver's Indicator Lights

An indicator panel shall be provided for the driver for both engine notifications and driving operations. The bidder shall provide a list of all indicator lights proposed and a description of their appearance.

Audible Alarms

Audible alarms shall sound to alert the operator of any condition that needs immediate attention. In addition to engine related audible alarms, an alarm shall sound to alert the operator to hazards such as the ladder rack being down or a door being open. The bidder shall consider all hazards associated with the apparatus and provide a list of conditions where an audible alarm will sound.

Driver's and Officer's Controls

All switches and controls needed to operate the apparatus shall be accessible to the driver while in a seated position. All switches shall be rocker style and include an illuminated label to identify its purpose and an integral indicator light to advise that the switch has been energized.

Certain controls, such as the HVAC control panel shall be accessible by both the driver and the officer. The bidder shall provide a list of all the proposed controls and work with the Town of Greenwich Fire Department to identify their locations during a pre-build discussion or meeting.

Emergency Lighting and Switch Panel

All emergency lights and work area lighting control switches shall be mounted in a removable panel located in the overhead position on the driver's side of the cab. The light switches shall be rocker style with an internal indicator light to show when the switch is energized. All switches shall be properly identified by an illuminated label for night driving.

A master warning light switch and individual switches shall be provided to allow a selection of emergency lighting to be utilized.

The configuration of switches shall allow all forward facing emergency lights to be turned off while all rear facing emergency lights remain on for use on limited access roadways.

Load Sequencer

Upon activation of the emergency master switch, a sequential switching device shall automatically energize emergency warning devices to minimize damaging voltage fluctuations due to sudden addition or removal of large current demands on the electrical system. The apparatus emergency warning devices shall turn or off in .5 second intervals.

Door Ajar/Hazard Indicator Light/Buzzer (Do Not Move Apparatus)

A Whelen "T0" Series 2" round flashing LED light with a chrome flange shall illuminate automatically whenever the apparatus parking break is not fully engaged and any of the following conditions exist: Any passenger or equipment door is in the open position. Any equipment/device permanently attached to the apparatus is deployed in a manner that is likely to cause damage to the apparatus if the apparatus is moving. (Ladder Rack or Light Tower/Mast)

This hazard warning light shall be identified by a label that reads, "Do Not Move Apparatus When Light Is On". The light shall be located in an area where both the driver and officer can notice it.

An audible alarm shall sound whenever the indicator light is active.

Dashboard Layout

The awarded bidder shall work with the Greenwich Fire Department to determine the final dashboard layout for the location of radios, siren controls, light switches, gauges, back up camera monitor, etc.

Officer Speedometer

An additional speedometer for viewing by the officer shall be specified as an optional item. See "Optional Items" section at the end of the specification.

Rear View Camera System

A Safety Vision rear view color camera system, model SV-CLCD70BA Kit shall be provided and installed to provide the driver with a view of the rear of the apparatus. The camera shall be mounted on the rear of the body in an area protected from damage. The monitor shall be mounted in the cab in an area to be determined following the dashboard layout discussion. The monitor shall turn on automatically when the vehicle is placed in reverse. The driver may also turn the camera on at anytime in the forward gears.

12 Volt Plugs/Receptacles

Four (4) high quality 12 volt power plug receptacles and covers shall be provided in the front of the cab and wired battery direct.

Road Temperature Monitoring System

A road temperature monitoring system shall be specified as an optional item. See "Optional Items" section at the end of the specification.

Batteries

Six (6) Heavy-duty 12V Group 31 1150 CCA batteries shall be installed with three on each side of the cab. Heavy-duty battery cables shall be provided and terminals shall be protected with an anti-corrosion compound.

Battery boxes shall be provided and mounted to the frame of the apparatus. They shall secure the batteries firmly, be well ventilated but enclosed to protect against road splash and debris. Battery mats shall be provided as well.

A pair of jumper cable studs with color coded covers shall be provide under the driver's side battery box.

Master Battery Switch

A heavy-duty master battery switch shall be provided between the battery positive buss bar and the remainder of the switched battery electrical loads on the apparatus. The switch rating shall be determined by the bidder. The switch shall be located near the driver's side front entrance.

Air Compressor/Battery Charger

A Heavy Duty Kussmaul Auto Charge Super Kit battery charger sized for the apparatus needs shall be provided and installed. It shall be installed behind the driver's side seat. If necessary, a removable cover shall be fabricated to protect this unit. The remote display for this unit shall be mounted in an area where it can be easily viewed. A Kussmaul 120VAC, 20 amp "Super Auto Eject" shoreline power connector shall be provided and installed for the battery charger. The connector shall be located near the driver's door in close proximity to the air shoreline auto eject.

Driving Lights

Exterior lighting shall meet or exceed Federal Department of Transportation, Federal Motor Vehicle Safety Standards and any Nation Fire Protection Association requirements in effect.

All lighting shall be LED unless otherwise indicated.

Headlights

Headlights shall be quad type, rectangular halogen with bright finished trim rings and bezels. The low beam headlights shall be located in the outer position.

Alternating Headlights

The apparatus high beam headlights shall flash alternately and be controlled by a rocker switch.

Front Directional Lights

There shall be two (2) Whelen 600 Series LED amber arrow directional signal lights located one on each side of the front of the apparatus. Lights shall be installed in a bright finished trim molding bezel. Light lens shall have an amber arrow shape and be programmed to flash when the signal is activated.

Marker Lights

TruckLite brand exterior LED marker lights shall be provided throughout the cab and body in accordance with all applicable laws and standards. The bidder shall supply details regarding marker light locations and model numbers.

Additional Side Directional/Marker Lights

TruckLite brand exterior LED directional/marker lights shall be installed on each side apparatus where necessary

to alert ajacent drivers that the turn signal is activated. The bidder shall supply the location and model number of each light used.

DOT Reflectors

High quality red and amber reflectors shall be placed on the cab and body as required by Federal standards.

Brake/Tail Lights

Two (2) Whelen Series 600 maximum intensity LED red brake/tail lights, model 60R00XRR, shall be mounted on the rear of the apparatus, one on each side. Bezels shall be provided.

Rear Turn Signal Lights

Two (2) Whelen Series 600 LED amber arrow turn lights, model 60A00TAR, shall be mounted on the rear of the apparatus, one on each side. The lights shall be an amber arrow and be programmed to flash. Bezels shall be provided.

Back Up Lights

Two (2) Whelen Series 600 maximum intensity LED backup lights, model 60C00WCR, shall be mounted at the rear of the apparatus, one on each side. Bezels shall be provided.

Perimeter/Ground Lighting

Cab & Body Step/Ground Lighting

The cab ground and step lights shall be activated with the cab door open switch. The body ground and step lights shall be activated with the parking.

Truck-Lite brand LED lighting shall be provided throughout the cab and body to accomplish step and ground lighting in accordance with NFPA requirements. The bidder shall provide details as to the mounting locations and model numbers used.

Miscellaneous Lights

Engine Compartment Work Light

One (1) Whelen Model 5SCA0CCR LED engine compartment work light shall be provided and wired to illuminate automatically when the cab is tilted. The light shall also be wired through the engine compartment access door switch, providing illumination of the fluid dip sticks and coolant overflow reservoir.

Pump House Work Lights

Two (2) LED work lights shall be installed in the pump house, one on each side of the apparatus. Each light

shall have a switch on it. The bidder shall detail the make, model, and mounting location of each light.

Hand Lights

Five (5) Streamlight Fire Vulcan LED model 44451 rechargeable hand lights with quick release shoulder straps shall be provided. The hand light shall be orange in color. The light chargers shall be 12V DC direct wired and mounted at locations to be determined by the Greenwich Fire Department. See cab section for more details.

Interior Lighting

Automatic Door Switches

Automatic door switches shall be provided for the white cab dome lights.

Dome Lights

Six (6) Weldon 8080-7000-13 red/clear LED lights with push button shall be mounted to the cab ceiling in a manner to provide the best light distribution in the cab. All lights shall be provided with bezel.

Map Light

A high quality adjustable gooseneck map light shall be provided and mounted for use in by the officer.

Emergency Lighting

The bidder shall design an emergency lighting package to adequately cover all required zones on the apparatus and exceed the current NFPA standards. The bidder shall utilize Whelen brand emergency lighting products to accomplish this. Lighting shall utilize LED technology. Where light bars are specified, the full potential of the light bar shall be utilized. The bidder shall provide details including the model numbers used and their mounting locations.

See "Optional Items" section at the end of the specification.

Opticom

A 3M Opticom Encoded emergency vehicle emitter shall be installed and controlled by a rocker switch in the cab. The Opticom emitter shall also turn off when the parking brake is engaged.

Traffic Advisor

A Whelen LED Traffic Advisor shall be mounted and recessed under the hose bed at the rear of the apparatus. The unit shall be mounted in a manner where damage to the unit would be difficult and unlikely. Controls for the advisor shall be located in the cab at and area to be determined by the Greenwich Fire Department.

Audible Warning Devices

Mechanical Siren

A federal 2QB siren with chrome plated housing shall be mounted on the front from bumper. Two foot switches shall be provided to activate the siren, one installed on the driver's side floor, and one installed on the officer's side floor. The switches shall be installed in locations where they will not be accidentally activated getting in and out of the apparatus or while the riding the apparatus. Two (2) siren brake switches shall be installed. One within reach of the driver in a seated position, and one within reach of the officer of in a seated position. See front bumper section for more details.

Electronic Siren

A Powercall Model DX5200 electronic siren shall be provided. The siren shall utilize the 200 watt output and be wired to both electronic siren speakers in the bumper. The siren controller shall be mounted in the cab in an area to be determined by the Greenwich Fire Department.

Electronic Siren Speakers

Two (2) Whelen Projector Series SA-315P, 100 Watt speakers shall be mounted in the front bumper as stated in the front bumper section of this specification. The speakers shall be provided with aesthetically pleasing grilles to conceal the unfinished look of the speakers. See front bumper section for more details.

Siren/Horn Selector Switch

There shall be a selector switch that shall allow the driver to switch activation of the automotive electric horn to the apparatus electric siren. The switch shall allow the standard steering wheel buttom to sound either the horn or the siren.

Air Horns

Two (2) Grover 1510 chrome air horns shall be provided and mounted in the front bumper. A pressure protection valve shall be installed in-line to prevent loss of all air from the vehicle air brake system. Two foot switches shall be provided to activate the air horns, one installed on the driver's side floor, and one installed on the officer's side floor. The switches shall be installed in locations where they will not be accidentally activated getting in and out of the apparatus or while the riding the apparatus. See front bumper section for more details.

Apparatus Horns

Dual automotive electric horns controlled by the steering wheel horn button shall be provided and installed.

Backup Alarm

A Preco Model 110, 112db constant output backup alarm that actuates when the truck is shifted into reverse shall be provided and installed.

Scene Lighting

Rear Deck/Pick Up Lights

There shall be two (2) Whelen PAR-36 Round Super LED Work Lights, Model PFBP12C white 12 Volt DC with swivel mounts provided at the rear of the hose bed, one on each side. The lights shall be controlled by a rocker switch in the cab within reach of the driver and a switch on the main pump panel. The lights shall also turn on when the truck is placed in the reverse gear.

Front Facing Scene Lights

There shall be two (2) Whelen Pioneer PFP2 12 volt DC LED floodlights provided on the front visor, one (1) on the driver's side and one (1) on the officer's side. These lights shall be angled slightly downward. These lights shall be controlled by a switch within reach of the driver in a seated position and a switch located on the main pump panel.

Side Facing Scene Lights

There shall be two (2) Havis Model KR-SB-3PFP2-I, 12 volt DC, floodlights with a through body mount, top raised pole installed, on on each side of the apparatus, in the pump house dunnage area. The light heads shall be Whelen Model PFP2 12 volt DC LED floodlights. The lights after installation shall not impede any other operation such as removing or packing hose in the crosslays. These lights shall be controlled by a switch within reach of the driver in a seated position and a switch located on the main pump panel. The sensor shall be wired to the information center and the Do Not Move Apparatus indicator so that an audible and visual alarm is present if the masts are still deployed and the parking brake is released.

Rear Facing Scene Lights

There shall be one (1) Havis Model KR-SB-8PFP2AC-TM tripod flood light with truck mounting brackets provided and installed on the driver's side rear body. The light fixture shall be a single 120 volt AC Whelen, Pioneer Series PFP2AC LED flood light with an on/off switch on the light head. A receptacle shall be provided near the base of the light for use while on board the apparatus. A 20 amp, 120 volt AC, twist lock plug with protective boot shall be provided.

See "Optional Items" section at the end of the specification.

120 Volt AC Electrical System

Hydraulic Generator

A Harrison brand hydraulic generator system shall be provided and installed on the apparatus. The unit shall be sized to provide adequate power to the anticipated electrical load of the equipment specified on the apparatus. Except where superseded by NFPA 1901, all components, equipment, and installation procedures shall conform to NFPA 70, National Electrical Code.

The unit shall be a hot shift PTO and capable of activating or deactivating the generator while the apparatus is in motion or in pump mode provided the engine speed is below the RPM's outlined by the manufacturer's specifications. A PTO extension shaft shall be provided and installed on the PTO that allows for mounting the generator pump behind the transmission. The generator shall be installed in the open area on top of the pump house.

The anticipated equipment to operate off this generator is as follows: Hurst Trimo Pump, Tempest Electric EB-16-VSG Variable Speed PPV fan, Sawzall, rear facing 120 tripod scene light, and various low draw battery chargers.

The bidder shall provide the model number of the Harrison generator proposed.

Circuit Breaker Panel Box

A circuit breaker panel box shall be installed in the driver's side front compartment.

Receptacles

One (1) 240 Volt AC, 30A outlet shall be provided. The wiring shall be 10/3 with a 30A twist lock receptacle. The outlet shall be located in the upper portion of the driver's side rear compartment. The purpose of the outlet will be to power a Hurst 240V Trimo Pump.

Three (3) 120 Volt AC, 20A, 3 wire receptacles shall be provided. Two (2) outlets shall be located in the cab interior at a location to be determined by the Greenwich Fire Department. One (1) outlet shall be located in the passenger's side rear compartment. A Kussmaul 091-134 Auto Interlock II power transfer relay shall be provided to automatically transfer the 120V from shoreline to generator power when the generator is started. When the generator is shutdown, the load is automatically returned to the shoreline. The receptacles shall be labeled accordingly.

One (1) heavy-duty electric reel for live electrical cable shall be installed in the upper portion of the passenger's side rear compartment. The reel shall be supplied with one hundred and fifty (150) feet of yellow 10/3 gauge electric cable. The reel shall be provided with a 12V DC electric rewind system and equipped with a push button control in an area where the operator can safely view the rewind operation. A heavy-duty captive roller shall be furnished on the reel. The cord shall be supplied with a spherical molded plastic cable stop.

A heavy-duty 4-receptacle junction box shall be provided for distribution of electrical power on the fireground. The box shall rugged with a full length carry handle. The box shall incorporate lighting sufficient to make connections in poorly lit area and alert users that box has power to it. The junction box shall be equipped with a pigtail and wire mesh cord grip to retain the wire in the unit with a L5-20 connection. A total of four (4) NEMA L5-20R twist lock, single receptacles shall be provided in the box. Each receptacle shall be rated for 20 amps at 125 volts. A mounting box shall be provided and installed in the passenger's side rear compartment.

One (1) 120 volt AC, 20A 3 wire twist lock receptacle shall be provided. The receptacle shall be located on the driver's side rear exterior of the apparatus in close proximity to the 120V tripod light. This outlet will power this light while it is stowed on the apparatus.

Paint

The complete apparatus shall have a professional and heavy-duty paint finish applied on all surfaces. The bidder shall describe in detail the process employed in the finishing of the apparatus. Details shall include a description of surface preparation, primer and surface coating for top coat application, and application. The bidder shall describe this process for all components of the apparatus including the chassis, cab, cab interior, body, body compartments, and any remaining areas such as inside the pump house.

Two Tone Cab Paint

The cab shall be two tone painted with the paint break just below the windshield. The top portion of the cab shall be painted white. The lower portion of the cab shall be painted red. The color and layout shall be reviewed by the Greenwich Fire Department prior to the application of the paint.

Body Paint – Single Color

The body of the apparatus shall be painted to match the primary cab color.

Graphics/Body Striping/Lettering/Chevron Striping

Graphics, Body Stripes, Lettering, and Chevron striping shall be provided and installed to match current Greenwich Fire Department apparatus. Pictures can be provided to the bidder on request.

Warranties

Manufacturer's Warranty on Apparatus – Two (2) year minimum for both parts and labor

Cab Structure – Fifteen (15) year cab structural warranty

Pump Plumbing – Ten (10) year on stainless steel pump plumbing

Rust/Corrosion - Ten (10) Year minimum on body at no additional cost.

Paint: Ten (10) Year minimum at no additional cost.

Frame Rails - Lifetime

Water Tank – Lifetime

Engine – Minimum Five (5) Years/50,000 Miles

Axles Front & Rear - 3 Years/36,000 Miles

Transmission (Allison) – 5 Years/100,000 Miles

Extended Warranties

See "Optional Items" section at the end of this specification.

Optional Items

Optional Item 1:

Vogel Lubrication System

The auto lube system shall provide automatic grease application up to 28 designated wear points on the unit, with the recommended dosages, per system interval cycle. The auto lube system shall be powered by an electrically driven Gear Pump. The gear pump shall be top mounted to a reservoir assembly with a capacity of 2.7 liters. The pump shall operate against a back pressure of 38 BAR (550 PSI) nominal, with an output of 160 cc/min. The pump assembly shall be mounted in a suitable location to facilitate care and maintenance of the system by removal of the cover assembly for access to the refill valve connection for replenishment of the grease reservoir. Distribution of lubricant shall be via Piston Distributors utilizing the "post lubrication principle", dispensing lubricant on the off cycle of the system or pump run time, with metering nipples bearing dosage identification which can be field changeable without disruption of other lubrication point connections. The auto lube system shall be operated via an electronic control module with System Monitoring capabilities of the main line and operating cycle with dash mounted visual indication to the vehicle operator. The control module shall have LED's and a system reset button to initiate a lube cycle for diagnostic purposes and/or reset the control module in the event a system fault has occurred. Upon a fault, the system is inoperable until the fault has been corrected and a system reset has been initiated by the operator or serviceman.

Optionals Item 2:

Front Bumper Winch – Fixed Mount

A Ramsey 12,000 lb electric winch with extended spool shall nest below the gravel pan surface of the front bumper. A door for maintenance shall be provided in the gravel pan. A means to access the winch direction control lever and remote control plug shall be provided without removing the attack hose line. The Winch shall be mounted on a surface that shall not flex when the winch is in use, since it could bind working parts of the winch. The winch shall be braced by a three (3)-point mount, as recommended by the winch manufacturer. The winch shall have 125' of .375" wire rope with a hook, pre-spooled on drum(14,400 lb rating). The Winch shall have planetary gearing. The electric motor shall have a thermal overload protection switch.

A four (4)-way roller fair lead shall be supplied of sufficient strength to accommodate the winch capacity.
A label shall be placed on or near the mount that states the maximum winch load rating and the maximum rope load rating that the mount can support.

Wire cables to battery shall be two (2)-gauge or larger. Speed and amperage draw of winch shall be variable depending on winch load. Winch shall have a remote control cable 32.00' long.

Optional Item 3:

Front Bumper Winch - Receiver Type

A Ramsey Model QM9000 electric winch with Hawse fair lead, 95 feet of cable and a replaceable hook shall be provided. It shall have a 9,000 lb. capacity (top layer) and shall have one forward and one reverse speed. The winch shall have a 12-volt electric drive and a "RAM-LOK" semiautomatic clutch which permits free spooling of the cable. A 12 foot remote control cable for the winch shall also be provided. The winch shall come with a Jergens détente pin.

A receiver tube shall be recessed in the front of the cab between the front bumper extension rails and in front of the bumper. It shall be bolted in place for easy removal. Assembly shall be constructed of a minimum of .25" plate. The 9000 lb winch shall have a 9000 lb pulling capacity in the horizontal pulling position, in line with the centerline of the apparatus. In this condition, it has a 2:1 no yield safety factor.

Power shall be wired to the area of the receiver for the purpose of operating the winch. A 12 volt weather proof plug-in receptacle shall be provided next to the receiver.

Optional Item 4:

Aluminum Cab

The bidder may specify the cab construction material with aluminum as an option. The construction techniques, dimensions, and material details for the cab sub-frame, floor, side walls, back wall, roof, doors, and frontal crash area shall be provided by the bidder.

Optional Item 5:

Cab Side Access Doors

Two (2) side access doors shall be provided on the cab, one on each side between the front doors and the front crew cab fixed windows. The door shall allow access to the space behind the driver and officer seat. The doors shall be vertically hinged with a D handle latch. A stainless steel sill protector shall be installed to protect the paint.

Optional Item 6:

Cab Roof – Stokes Basket Storage Box

A weather tight stokes basket storage box shall be provided on the roof of the cab. The storage box shall be able to accommodate one Junkin JSA-200 Plastic Stokes Basket Rescue Stretcher. The storage box shall be constructed of of aluminum tread plate and have a hinged door on the top. It shall be mounted on the rear section of the roof and be aesthetically pleasing to the appearance of the apparatus.

Optional Item 7:

Cab Roof – Stokes Basket Mounting

A Junkin JSA-200 Plastic Stokes Basket Stretcher shall be mounted directly to the rear of the cab roof. The basket shall be mounted with the rail down so that rain, snow, and other debris cannot collect inside the basket. The mounting system shall permit the basket to remain well attached while traveling at top speed and during high wind storms. The mounting system shall allow for a rapid release of the unit with a gloved hand. The system shall also allow for a long backboard to be stored and retained within the basket.

Optional Item 8:

Stokes Basket

A Junkin Model JSA-200 Plastic Stokes Basket Stretcher shall be provided with the apparatus.

Optional Item 9:

ReadyReach Seat Belt System

A ReadyReach Seat Belt System by Indiana Mills & Manufacturing Industries (IMMI) shall be installed at each riding position in lieu of a standard seatbelt configuration. The system allows for firefighters to more easily reach and buckle the belt with full personal protective gear donned. The system shall meet all applicable FMVSS and NFPA 1901 standards. The system shall be supplied with red webbing.

Optional Item 10:

Element Heated Windshield

A heated windshield shall be installed which uses an electrical element for heating. The heated windshield shall provided excellent defogging and defrosting capabilities. The bidder shall provide details on the heated windshield specified.

Optional Item 11:

Panasonic ToughBook

A Panasonic ToughBook 31 Laptop shall be provided with the apparatus. The Greenwich Fire Department will provide the exact specifications to the bidder awarded the project.

Optional Item 12:

Additional Water Tank Level Gauges

There shall be three (3) Whelen PSTANK LED water tank level gauges provided and installed on the apparatus. Two (2) gauges shall be installed on the cab, one on each side, and one (1) shall be installed on the rear of the apparatus in an area protected from damage. These shall provide a visual display of the water level in the boost-

er tank and be visible from a great distance away form the apparatus. Each unit shall include four (4) colored levels, and function similar to the water level indicator located on the pump panel.

Optional Item 13:

Hose Bed Discharges

There shall be one (1) 2.50" discharge located on the **left front** of the apparatus hose bed. It shall be plumbed with 2.50" pipe and gated with a 2.50" quarter turn ball valve of an in-line dropout design with the control and pressure gauge located on the pump panel. A 2.00" FNPT x 2.50" MNST adapter shall be provided on the discharge. (1) 2.50" FNST x 1.50" MNST shall be provided for the left front hose bed discharge.

There shall be one (1) 2.50" discharge located on the **right front** of the apparatus hose bed. It shall be plumbed with 2.50" pipe and gated with a 2.50" quarter turn ball valve of an in-line dropout design with the control and pressure gauge located on the pump panel. A 2.00" FNPT x 2.50" MNST adapter shall be provided on the discharge.

Optional Item 14:

Akron Brass Model 3126 125 GPM Foam Truck System

An Akron Brass Model 3126 125 GPM Foam Truck System shall be provided and installed on the Number 1 Discharge on the driver's side main pump panel. The system shall be plumbed to the on board foam cell. The system shall incorporate a proportioner controller mounted on the main pump panel. The system shall be installed in accordance with the manufacturer's instructions and include a means to flush the system after each use.

Optional Item 15:

Akron Brass Model 3127 125 GPM Portable By-Pass Eductor

An Akron Brass Model 3127 125 GPM Portable By-Pass Eductor shall be provided with the apparatus. A means shall be provided to discharge foam from the foam cell to a bucket on the ground for use by this portable foam eductor. The control and discharge from the foam cell shall be located on the pump panel and be provided with a hose to accomplish a simple and neat operation.

Optional Item 16:

Combination Pressure Gauge with Flow Meter

All individual pump discharge gauges shall be equipped with an FRC Insight Ultimate combination pressure gauge with flow meter. Each discharge instrument shall have be the same size and span as the specified in the pump section of this specification.

Optional Item 17:

Aluminum Body Option

The bidder may specify the cab construction material with aluminum as an option.

The construction techniques, dimensions, and material details for the body substructure and body, including compartments shall be provided by the bidder.

Optional Item 18:

Emergency Lighting

The bidder shall provide three (3) different design configurations for an emergency lighting package. Each proposal shall adequately cover all required zones on the apparatus and exceed the current NFPA standards. The bidder shall utilize Whelen brand emergency lighting products to accomplish this. Lighting shall utilize LED technology. Where light bars are specified, the full potential of the light bar shall be utilized. The bidder shall provide details including the cost, model numbers used and their mounting locations for each proposal presented.

Optional Item 19:

Rear Facing Scene Light

There shall be one (1) Whelen Model PFP2, 12 Volt LED floodlight installed on a pole with a bottom raise side mount located on the officer's side rear body. The side mount model number shall be specified by the bidder and provide the physical and operating clearance necessary from the side of the body for the flood light. The light shall be controlled by a switch within reach of the driver in a seated position and a switch located on the main pump panel.

Optional Item 20:

Equipment for Ladder Rack

One (1) Duo-Safety Solid Beam 2-Section Series 900-A 24 foot aluminum extension ladder shall be provided and installed on the ladder rack.

One (1) Duo-Safety Solid Beam 1-Section Series 775-A 14 foot aluminum roof ladder shall be provided and installed on the ladder rack.

One (1) Duo-Safety Series 585-A 10 foot aluminum folding ladder shall be provided and installed on the ladder rack.

Three (3) Fire Hooks Unlimited (NY) Roof Hooks shall be provided. Two (2) roof hooks shall be 6 feet in length each. One (1) roof hook shall be 100 foot in length. The hooks shall be stored in the supplied mounting tubes as specified in the Ladder Rack section of this specification.

Optional Item 21:

Self Contained Breathing Apparatus

Four (4) Scott 4.5 SCBA's with Pak Alert SE7 Pak Tracker shall be provided. The SCBA configuration shall include an AP1240204000302 (H/D Wire Frame), a Q/D CBRN Regulator, and a PASS Device with Pak Tracker.

Optional Item 22:

Self Contained Breathing Apparatus Cylinders

Twelve (12) Scott #804721-01 30 minute carbon air cylinders shall be provided with the apparatus.

Optional Item 23:

Large Diameter Supply Hose

Fifteen (15) 100 foot lengths of 5.00 inch LDH supply hose coupled with 5.00 inch locking Storz connections shall be provided for the center rear hose bed. The color of the hose shall be yellow.

Two (2) 25 foot lengths of 5.00 inch LDH supply hose coupled with 5.00 inch locking Storz connections shall be provided. The color of the hose shall be yellow.

Optional Item 24:

Attack Hose

Four (4) 50 foot lengths of 1.75 inch double jacketed attack line shall be provided for the number one crosslay. The color of the hose shall be blue.

Four (4) 50 foot lengths of 1.75 inch double jacketed attack line shall be provided for the number two crosslay. The color of the hose shall be green.

Four (4) 50 foot lengths of 1.75 inch double jacketed attack line shall be provided for the number three crosslay. The color of the hose shall be white.

Eight (8) 50 foot lengths of 2.50 inch double jacketed attack line shall be provided for the driver's side rear hose bed. The color of the hose shall be red.

Eight (8) 50 foot lengths of 3.00 inch double jacketed attack line shall be provided for the passenger's side rear hose bed. The color of the hose shall be white.

Three (3) short lengths of 1.75 inch double jacketed attack line shall be provided for each crosslay. The length shall be such that it can connect to the crosslay discharge and extend to the ground to allow for a firefighter to disconnect and add more hose without climbing the apparatus. The colors shall be blue, green, and white.

One (1) short length of 2.50 inch double jacketed attack shall be provided for the driver's side hose bed discharge. The length shall be such that it can connect to the discharge and extend to the ground at the rear of the apparatus to allow for a firefighter to disconnect and add more hose without climbing the apparatus. The color shall be red.

One (1) short length of 3.00 inch double jacketed attack shall be provided for the passenger's side hose bed discharge. The length shall be such that it can connect to the discharge and extend to the ground at the rear of the apparatus to allow for a firefighter to disconnect and add more hose without climbing the apparatus. The color shall be white.

Optional Item 25:

Positive Pressure Fan

One (1) Tempest Variable Speed Model Blower shall be provided. It shall be a Model EB-16-VSG or Part Number 700-316.

Optional Item 26:

Knox Box Master Key Retention

A KeySecure knox box master key retention system shall be provided and installed in the apparatus. The unit shall be keyed to retain a Greenwich Fire Department master key. More discussion required at a pre-construction meeting.

Optional Item 27:

FireCom Wireless Headset System

A four (4) person FireCom 5200D Intercom Wireless Headset System shall be provided and installed in the apparatus. The system shall allow for the driver and officer to both transmit and receive communications through the mobile radio. The remaining positions shall be permitted receive communication from the mobile radio. All firefighters on board shall be able to communicate to each other through the intercom.

Optional Item 28:

Officer Speedometer

An additional speedometer shall be provided on the right side of the dash so that the officer can monitor apparatus speed. The speedometer shall be properly calibrated to match the driver's speedometer.

Optional Item 29:

Road Temperature Monitoring System

A road temperature monitoring system shall be installed on the apparatus. The system shall be capable of measuring the temperature of the road surface using a non-contact infrared sensor. The system shall also be capable of measuring the air temperature. A display shall be installed in the cab in an area where both the driver and officer can view the data.

Optional Item 30:

Motorola Mobile Radio and Repeater System

Specifications to be provided by DC Nixon'

Optional Item 31:

Light Tower

A Will-Burt Night Scan Powerlite with Profiler HDT light tower shall be provided and installed on the apparatus. The bidder shall provide details as to the proposed mounting location on the apparatus. The unit shall be provided with a combination of spot and flood LED lights and operate off the 12 volt system. The unit shall generate 42,000 lumens. The controls for the light tower shall be located in the driver's side front compartment ahead of the rear wheels.

Optional Item 32:

Extended Warranties

The bidder shall indicate any type of extended warranty on any of the components that can be offered.

EXHIBIT B

In the Optional Item 17 section:

In the first line change "cab" to "body".

In the Optional Item 20 section:

In the section change "100 foot" to "10 feet"

Change the following Optional Item 21 and Optional Item 22 verbatim:

Optional Item 21:

Self Contained Breathing Apparatus

Four (4) Scott Part #AP1540204000302 – Scott 4.5 Wire Frame H/D Air Packs (NFPA 2007 Ed. Compliant) Quick Disconnect EZ-Flow Regulator (CBRN) H/D Cylinder Band with Snap/Toggle Integrated PASS Device with Batteries. (Pak-Tracker)

Optional Item 22:

Self Contained Breathing Apparatus Cylinders

Twelve (12) Scott #804721-01 30 minute carbon air cylinders shall be provided with the apparatus.

Change the following Optional Item 30 section verbatim:

Optional Item 30:

Installation of Motorola Dual Band Radio and Repeater System

The apparatus manufacturer shall install a Motorola Dual Band (VHF/800) mobile radio with one (1) remote control head and a vehicle repeater system as part of the construction of the apparatus. The radio equipment to be installed will be provided by the Greenwich Fire Department at the appropriate time during the build.

The installation shall include the mounting of all associated equipment and the routing of all necessary wires and cables to allow the equipment to be powered and function as it was designed. Final hook up to power and all programming of the radio system shall be completed only by the radio vendor contracted by the Greenwich Fire Department.

The final mounting location of the control head shall be determined by the Greenwich Fire Department.