

## **NOTICE TO BIDDERS**

Pursuant to G.S. 143-129, The Village of Bald Head Island (the “Village”) invites receipt of bids from all responsible bidders until 2:00 PM EST on March 31, 2022 in the office of the Village Attorney located at Brooks, Pierce, McLendon, Humphrey & Leonard, LLP , 115 N. 3rd Street, Suite 301 Wilmington, North Carolina 28401, at which time they will be read aloud and made available for public inspection for the purchase of the following:

### **Ladder Truck Apparatus**

Complete specifications and other bidding documents may be obtained from the Village’s website at: <https://villagebhi.org/departments-services/finance/rfps-rfqs-and-bids/> and in Village Hall located at 106 Lighthouse Wynd, Bald Head Island, North Carolina 28461 between the hours of 9:00 a.m. and 3:00 p.m., Monday through Friday or from Chris McCall, Village Manager, by request via email to [cmccall@villagebhi.org](mailto:cmccall@villagebhi.org).

The Village reserves the right to reject any or all bids or award bids to the lowest responsible bidder, taking into account price, features, support, time and other factors specified in the proposals for the performance of the contract.

**No facsimile or electronic submissions will be accepted.**



# The Village of Bald Head Island

March 11, 2022

## **INVITATION FOR SEALED BID**

### **Ladder Truck Apparatus**

The Village of Bald Head Island (the “Village”) invites receipt of bids from all responsible bidders for a **Ladder Truck Apparatus**. **Bids will be received until 2:00 PM EST on March 31, 2022** in the office of the Village Attorney located at Brooks, Pierce, McLendon, Humphrey & Leonard, LLP, 115 N. 3rd Street, Suite 301 Wilmington, NC 28401. The words “Ladder Truck Proposal”, the date, and bid opening time shall be stated on the front of the bid envelope.

**PUBLIC BID OPENING WILL BE AT 2:00 PM EST ON MARCH 31, 2022** in the office of the Village Attorney located at Brooks, Pierce, McLendon, Humphrey & Leonard, LLP, 115 N. 3rd Street, Suite 301 Wilmington, NC 28401.

#### **CONTACT FOR COMMUNICATIONS REGARDING THIS INVITATION FOR BID:**

**Chris McCall, Village Manager**

**Village of Bald Head Island, 106 Lighthouse Wynd, Bald Head Island, NC 28461**  
Telephone: 910-457-9700 ext. 1002 | Email: [cmccall@villagebhi.org](mailto:cmccall@villagebhi.org)

#### **CONTACT FOR COMMUNICATIONS REGARDING SPECIFICATIONS:**

**Alan May, Village Public Safety Director**

**Village Public Safety Department, 273 Edward Teach Extension, Bald Head Island, NC 28461**  
Telephone: 910-457-5252 ext. 1019 | Email: [amay@villagebhi.org](mailto:amay@villagebhi.org)

All questions pertaining to this invitation to bid must be submitted in writing to the person designated above no later than March 25, 2022 at 5:00 PM. Only written questions will be considered as formal. Answer to any questions the Village determines are pertinent to all bidders will be published to all bidders as additional information relevant to this invitation to bid.

Copies of the specifications and other bidding documents may be obtained from the Village’s website at: <https://villagebhi.org/departments-services/finance/rfps-rfqs-and-bids/> and in the Village Hall located at 106 Lighthouse Wynd, Bald Head Island, North Carolina 28461 between the hours of 9:00 a.m. and 3:00 p.m., Monday through Friday or from Chris McCall, Village Manager, by request via email to [cmccall@villagebhi.org](mailto:cmccall@villagebhi.org). The Village, in its discretion, may waive certain listed specifications. Please list in your responses if you are unable to conform to any of the listed specifications. Failure to strictly conform to the specifications may not necessarily disqualify your bid, but you must explain such variation.

By signing the Bid Proposal, Bidder hereby proposes to furnish all materials, tools, machinery, equipment, apparatus, labor, and all means necessary to perform all work in connection with the **Ladder Truck Apparatus** in accordance with this invitation to bid, and at the prices stated hereinafter.

The undersigned has carefully examined the scope of this work, has informed him/herself fully in respect of the Terms and Conditions and any general or special condition relating thereto.

### **AWARDING OF CONTRACT**

The contract will be awarded to the respondent offering the lowest responsible responsive bid to the Village taking into account price, features, support, time and other factors specified herein. The Village staff will evaluate individual submittals in context of the respondent's overall capabilities and pricing provided in each response. It will be at the Village's discretion to determine the respondent who has offered the lowest responsible responsive bid. Consideration will be given to only those quotes received from contractors who are properly licensed, bonded, and experienced in assembling the class of apparatus being requested. All proposals shall include and will be evaluated on the following criteria, listed not necessarily in order of importance:

- Conformance to the supplied specifications
- Features provided
- Price
- Estimated delivery time
- Extent to which resources and equipment designed and built in-house

The Village also reserves the right to reject any and all offers and to waive informalities or technicalities as it may deem to be in its best interest. *It is estimated that Village Council will award the contract at it's April 14<sup>th</sup>, 2022 Council Meeting.*

**For any proposal to be considered or accepted by the Village, at the time of filing, a bid bond will be required in the amount of 5% of the total bid price. The bid bond must be executed by a corporate surety licensed under the laws of North Carolina to execute such bonds, conditioned that the surety will immediately upon demand make payment to the obligee upon said bond if bidder fails to execute the contract in accordance with the bid bond.**

**A performance bond will be required to be supplied by the successful bidder until such time as the Village takes possession of the fire truck.**

**BID PROPOSAL**  
**LADDER TRUCK APPARATUS**

TOTAL BID AMOUNT: \_\_\_\_\_

ESTIMATED DELIVERY DATE: \_\_\_\_\_

Proposal of \_\_\_\_\_ (herein called  
“**Bidder**”, organized and existing under the laws of the State of \_\_\_\_\_  
doing business as (insert “a corporation”, “a partnership”, or as “an individual” as applicable)  
\_\_\_\_\_ to the **VILLAGE OF BALD HEAD ISLAND** (Hereinafter  
called “**Village**”).

By: \_\_\_\_\_ (Signature)

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Telephone: \_\_\_\_\_

Email: \_\_\_\_\_

Date: \_\_\_\_\_

## TERMS AND CONDITIONS

- 1. General.** Bids are to be submitted in accordance with the enclosed specifications and these Terms and Conditions, both of which require doing all that is necessary, proper, or incidental to the furnishing of the equipment and materials identified herein. All things not expressly stated in the attached specifications or Terms and Conditions but necessary in carrying them out must be included in bidder's proposal as though they were specifically stated. The Village of Bald Head Island (the "Village") objects to and will not evaluate or consider any additional terms and conditions submitted with a Bidder response. This applies to any response appearing in or attached to the proposal as part of the Bidder's response. **DO NOT ATTACH ANY ADDITIONAL TERMS AND CONDITIONS.** By execution and delivery of a proposal, Bidder agrees that any additional terms and conditions, whether submitted purposely or inadvertently, shall have no force or effect. It shall be the Bidder's responsibility to read this entire document, review all enclosures and attachments, and comply with all requirements specified herein.
- 2. Signature on Bid.** Every bid must be signed by an individual with actual authority to bind the bidding party. Failure to sign a bid may result in the bid being deemed non-responsive, and being rejected.
- 3. Bid Opening.** Bids will be received until 2:00 PM EST on March 31, 2022 in the office of the Village Attorney located at Brooks, Pierce, McLendon, Humphrey & Leonard, LLP, 115 N. 3rd Street, Suite 301 Wilmington, NC 28401, at which time they will be read aloud and made available for public inspection. The Village reserves the right to postpone bid openings for its own convenience.
- 4. Amendment/ Alteration.** Any and all amendments, alterations or other revisions to these Terms and Conditions or the Specifications that follow shall be made only by written addendum from the Village. Therefore, no oral statements by any person shall modify or otherwise affect the terms, conditions, or specifications stated in this invitations for bids. The Bidder is cautioned that the requirements of this bid can be altered only by written addendum and that verbal communications from whatever source are of no effect.
- 5. Minor Deviations/Exceptions to Specifications.** Minor deviations from the provisions of these specifications may be considered to permit manufacturers to follow their standard manufacturing processes; however, all such proposed deviations or alterations must be explained in detail and submitted Bidder's proposal by the time of bid opening.
- 6. Bidder's Expenses.** The Village accepts no responsibility for any expense incurred by the Bidder in the preparation and presentation of a bid. Such expenses shall be borne exclusively by the Bidder.
- 7. Acceptance and Rejection.** The Village reserves the right to reject any and all bids, in whole or in part, by deeming the same unsatisfactory as to quality or quantity, delivery, price or service offered, non-compliance with the specified requirements, error(s) in specifications or indications that revision would be advantageous to the Village, cancellation or other changes

in the intended project or any other determination that the proposed requirement is no longer needed, limitation or lack of available funds, circumstances that prevent determination of the best offer, or any other determination that rejection would be in the best interest of the Village. The Village further reserves the right to waive any informality in bids and, unless otherwise specified by the Bidder, to accept any item in the bid. If either a unit price or an extended price is obviously in error and the other is obviously correct, the incorrect price will be disregarded. Regardless of error or omission a Vendor shall not be permitted to increase its pricing after the deadline for submitting bids.

- 8. Firm Offer.** All bids shall constitute a firm offer. By execution and delivery of a bid in response to a solicitation document, Bidder agrees that any additional or modified terms and conditions, whether submitted purposefully or inadvertently, shall have no force or effect, and will be disregarded. Any bid that contains language that indicates the bid is non-binding or subject to further negotiation before a contractual document may be signed may be rejected outright.
- 9. Negotiations When All Bids Exceed Funds Available.** Notwithstanding the foregoing, the formal bidding statute allows negotiation with bidders when all bids are in excess of the funds available for the purchase. Value engineering is permissible only if all bid prices are over the amount of funds budgeted for the project. G.S. 143-129(b) (“In the event the lowest responsible bids are in excess of the funds available for the project or purchase, the responsible board or governing body is authorized to enter into negotiations with the lowest responsible b. . . making reasonable changes in the plans and specifications as may be necessary to bring the contract price within the funds available.”). In this case, the Village may elect to negotiate with the lowest responsive Bidder and make reasonable changes in the scope and specifications as necessary to bring the contract price within the funds available.
- 10. Inspection of Bidder’s Site.** The Village reserves the right to inspect, at a reasonable time, and at the Village’s own cost, the equipment, item, plant or other facilities of a prospective Bidder prior to contract award, and during the contract term as necessary for the Village’s determination that such equipment, item, plant or other facilities conform with the specifications/requirements and are adequate and suitable for the proper and effective performance of the contract.
- 11. Authority to Transact Business in North Carolina.** As a condition of contract award, each out-of-State Bidder that is a corporation, limited-liability company or limited liability partnership warrants that at the time of contracting and throughout the term of the contract, it has obtained appropriate authority to transact business in North Carolina from the North Carolina Secretary of State, as required by North Carolina law. Upon request each such Bidder will produce proof of authority. A contract requiring only an isolated transaction that may be completed within a period of six months, and not in the course of a number of repeated transactions of like nature, shall not be considered as transacting business in North Carolina and shall not such authorization.
- 12. Historically Underutilized Businesses.** The Village is committed to supporting bidders with diverse and historically underrepresented backgrounds, and it invites and encourages

participation in the bidding process by businesses owned by minorities, women, disabled, disabled business enterprises and nonprofit work centers for the blind and severely disabled. In particular, the Village encourages participation by bidders certified by the State Office of Historically Underutilized Businesses, as well as the use of HUB-certified vendors as subcontractors where appropriate.

- 13. Ineligible Bidders.** As provided in G.S. 147-86.59 and G.S. 147-86.82, certain companies are ineligible to contract with the State of North Carolina or any political subdivision of the State, as follows: (a) any company identified as engaging in investment activities in Iran, as determined by appearing on the Final Divestment List created by the State Treasurer pursuant to G.S. 147-86.58, and (b) any company identified as engaged in a boycott of Israel as determined by appearing on the List of restricted companies created by the State Treasurer pursuant to G.S. 147-86.81. All individuals signing this bid on behalf of a Bidder certify that the company they are signing for is not a company identified in (a) or (b) above.
- 14. Confidential Information in Bids.** To the extent permitted by applicable statutes and rules, the Village will maintain as confidential trade secrets in its bid that the Bidder does not wish disclosed. As a condition to confidential treatment, each page containing trade secret information shall be identified in boldface at the top and bottom as “CONFIDENTIAL” by the Bidder, with specific trade secret information enclosed in boxes, marked in a distinctive color or by similar indication. Cost information shall not be deemed confidential under any circumstances. Regardless of what a Bidder may label as a trade secret, the determination whether it is or is not entitled to protection will be determined in accordance with G.S. 132-1.2. Any material labeled as confidential constitutes a representation by Bidder that it has made a reasonable effort in good faith to determine that such material is, in fact, a trade secret under G.S. 132-1.2. Bidders are urged and cautioned to limit the marking of information as a trade secret or as confidential so far as is possible. If a legal action is brought to require the disclosure of any material so marked as confidential, the Village will notify Bidder of such action and allow Bidder to defend the confidential status of its information.
- 15. Firm Offer.** All bids shall constitute a firm offer. By execution and delivery of a bid in response to a solicitation document, Bidder agrees that any additional or modified terms and conditions, whether submitted purposefully or inadvertently, shall have no force or effect, and will be disregarded. Any bid that contains language that indicates the bid is non-binding or subject to further negotiation before a contractual document may be signed shall be rejected.
- 16. Indemnification.** Bidder covenants to save, defend, keep harmless and indemnify the Village and all of its officers, departments, agencies, agents and employees from and against all claims, loss, damage, injury, fines, penalties, and cost-including court costs and attorney’s fees, charges, liability and exposure, however caused resulting from, arising out of, or in any way connected with Bidder’s negligent performance or nonperformance of the terms of the contract.

**17. Non-Assignment.** During the performance of the contract, the Bidder shall not assign, transfer, convey, sublet, or otherwise dispose of any award of or any or all of its rights, title, or interest therein, without the prior written consent of the Town of Waynesville.

**18. Insurance Requirements.** In the interest of insuring the apparatus and assuming general liability through delivery to the Village, Bidder shall maintain at its own expense:

- a. Commercial General Liability Insurance in an amount not less than \$1,000,000 per occurrence for bodily injury or property damage; Village of Bald Head Island, 106 Lighthouse Wynd, Bald Head Island, NC 28461 shall be named as additional insured.
- b. Professional Liability Insurance in an amount not less than \$1,000,000 per occurrence-if providing professional services.
- c. Workers Compensation Insurance as required by the general statutes of the State of North Carolina and Employer's Liability Insurance not less than \$500,000 each accident for bodily injury by accident, \$500,000 each employee for bodily injury by disease, and \$500,000 policy limit.
- d. Commercial Automobile Insurance applicable to bodily injury and property damage, covering all owned, non-owned, and hired vehicles, in an amount not less than \$1,000,000 per occurrence as applicable.

Certificates of Insurance, as applicable, shall be furnished prior to the commencement of Services.



## **SPECIFICATION FOR LADDER TRUCK APPARATUS**

It is the intent of this specification to secure for the Village of Bald Head Island a Ladder Truck Apparatus. Specifications for this apparatus follow and should be considered to be minimum requirements. All parts not specifically mentioned which are necessary in operations shall be furnished by the successful bidder.

It will be the Bidder's responsibility to carefully examine each item listed in this specification. Failure to respond to each section of the technical specification may cause the proposal to be rejected without review as "non-responsive". A check mark in the "Yes" column immediately following each specification shall indicate minimum requirements are met. A specification that cannot be met fully should be indicated with a check mark in the "No" column and the bid accompanied by an additional page explaining of why the specification could not be met and any alternatives proposed for consideration.

Bid will be awarded on the basis of price, features, support, time and other factors specified on the following pages. The Village reserves the right to reject any or all bids.

### **DELIVERY:**

The completed vehicles shall be delivered by the successful bidder to the Village Public Safety Building located at 273 Edward Teach Extension, Bald Head Island, NC 28461

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Intent of Specifications</b></p> <p>It is the intent of these specifications to clearly describe the furnishing and delivery to the Purchaser, a complete apparatus equipped as specified. The primary objective of these specifications is to obtain the most acceptable apparatus for service in the Public Safety Department. These specifications cover specific requirements as to the type of construction and tests the apparatus must conform, together with certain details as to finish, material preferences, equipment and appliances with which the successful bidder must conform.</p> <p>The design of the apparatus must embody the latest approved automotive design practices. The workmanship must be of the highest quality in its respective field. Special consideration shall be given to service access to areas needing periodic maintenance, ease of operation, and symmetrical proportions. Construction must be heavy-duty and ample safety factors must be provided to carry loads as specified. The construction method employed will be in such a manner as to allow ready removal of any component for service or repair.</p> <p>The apparatus shall conform to the National Fire Protection Association Standard for Automotive Fire Apparatus, number 1901, in its most recent edition, unless otherwise specified in this document. Only the specified firefighting support equipment listed in these specifications shall be provided.</p> <p>The apparatus shall further conform to all Federal Motor Vehicle Safety Standards. No exception.</p> <p>Each bidder shall furnish satisfactory evidence of their ability to design, engineer, and construct the apparatus specified and shall state the location of the factory producing the apparatus. They shall also substantiate they are in a position to render prompt and proper service and to furnish replacement parts for the apparatus.</p> <p>Each bid must be accompanied by a set of detailed contractor's specifications consisting of a detailed description of the apparatus and equipment proposed. All bid proposal specifications must be in the same sequence as the advertised specification for ease of comparison. These specifications shall include size, location, type, and model of all component parts being furnished. Detailed information shall be provided on the materials used to construct all facets of the apparatus body. Any bidder who fails to submit detailed construction specifications, or who photocopies and submits these specifications as their own construction details will be considered non-responsive and shall render their proposal ineligible for award. No exception.</p> <p>Bids will be addressed and submitted in accordance with the instructions provided on the coversheet. The words "Ladder Truck Proposal", the date, and bid opening time shall be stated on the front of the bid envelope.</p> <p>It shall be the responsibility of the bidder to assure that their proposal arrives at the location and time indicated. Late proposals, telegrams, facsimile, telephone or email bids will not be considered. No exception.</p> <p>All bidders are required to detail the payment terms for apparatus on the bidder's proposal page. Any required prepayments or progress payments must be explained in detail. <b><u>The Village strongly prefers, and will give appropriate consideration, to bids that indicate a single payment be made upon delivery of a completed ladder truck apparatus.</u></b></p> <p><b>Single Source Manufacturing - Aerial</b></p> <p>In order to protect the Purchaser from divided warranty responsibility between chassis, aerial, and body manufacturers, proposals will only be considered from apparatus builders who design, fabricate, and assemble the complete apparatus at their own facilities.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>This shall include the cab shell, chassis assembly, aerial device, and complete body structure. Private labeling of another manufacturer's chassis, aerial, or body will not meet the requirements of this section.</p>		
<p><b>Aerial Certification</b></p>		
<p>Each bidder shall submit evidence of compliance to NFPA 1901 Standard for Aerial Ladder Fire Apparatus, in its latest edition, Sections 18-20 and 18-21, regarding structural and stability requirements. Evidence of a minimum 2.5 to 1 factor of structural safety based on the results of analytical, experimental, and structural analysis shall be provided with the bid. The analysis shall be performed and verified by a third party registered professional engineer. Submission of "in-house" certifications do not meet the requirements of this section. Failure to comply with this requirement will render the bidder's proposal unresponsive and ineligible for contract award.</p>		
<p><b>Hose Bed Capacity</b></p>		
<p>The hose bed shall have the capacity to store the following hose from the driver side to the officer side. 600 ft. of 4" double jacket fire hose.</p>		
<p><b>Overall Height Restriction</b></p>		
<p>The apparatus has an overall height restriction of 11 ft. 4 in.</p>		
<p><b>Overall Length Restriction</b></p>		
<p>The unit has an overall length restriction of 38 ft. 10 in.</p>		
<p><b>NFPA Compliance</b></p>		
<p>The manufacturer supplied components of the apparatus shall be compliant with NFPA 1901, 2016 edition.</p>		
<p><b>Equipment Capacity</b></p>		
<p>Equipment allowance on the apparatus shall be 2500 lbs. This allowance is in addition to the weight of the hoses and ground ladders listed in the shop order as applicable.</p>		
<p><b>BUMPERS</b></p>		
<p><b>Bumper Extension</b></p>		
<p>The bumper extension shall be approximately 16" from the face of the cab as required. <b>Bumper</b></p>		
<p><b>Gravel Shield</b></p>		
<p>The extended front bumper gravel shield shall be made of 3/16" (.188") aluminum treadplate material. The shield shall fully cover the top flange of the heavy duty front bumper.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Heavy Duty Bumper</b></p> <p>A heavy duty 10" high formed type front bumper constructed of 1/4" (.250") steel shall be provided. The front corners of the bumper shall be provided with a 45 degree tapered to produce an 8.5" wide mounting surface and to reduce swing clearance. Additional support shall be provided from the frame rails for the outboard side areas. The bumper shall be painted as specified.</p> <p><b>FRAME ASSEMBLY</b></p> <p><b>Frame Rail Construction</b></p> <p>The chassis frame shall utilize an integral torque box type design, on exception. The integral torque box shall combine the chassis frame and aerial torque box into a single structure. The integral torque box shall provide an optimized design that lowers vehicle center of gravity, eliminates the need to torque aerial frame attachment bolts, and permits underslung outriggers to maximize body compartmentation.</p> <p>The 20.75" high x 34" wide torque box frame shall be fabricated with 110,000-psi minimum yield, high strength steel. The side rails of the torque box chassis shall be constructed from 20.0" high x .375" thick formed high strength steel C-channel with 7.5" top and bottom flanges. In the jack leg areas the structure shall have .375" thick reinforcing plates spanning the width of the frame above and below the C-channels as well as .500" integral bulkhead supports. Between the front and rear jack areas tubular crossmembers shall be provided.</p> <p>Certified welders shall construct the torque box. The design shall utilize 100% welded joints for a totally sealed box. Skip welding shall not be acceptable. Complete Finite Element Analysis and strain gauge testing shall be employed to verify minimum safety factors for road traveling (5:1) and aerial operation (2.5:1).</p> <p>The torque box shall have the following attributes:</p> <p>Resistance to bending moment shall range from 14,440,000 to 22,590,000 in. lbs. Section modulus shall range from 131.28 to 205.35 cu. in.</p> <p>The frame section immediately forward of the torque box shall have the following attributes:</p> <ul style="list-style-type: none"> <li>• Resistance to bending moment 6,090,000 in. lbs.</li> <li>• Section modulus 55.41 cu. in.</li> </ul> <p>The torque box shall incorporate a stainless steel schedule 40 4" water pipe through the torque box below the turntable support for the aerial waterway inlet (if applicable). In addition, the torque box shall have two (2) 3" conduits between the forward left and right outriggers and rearward left and right outriggers to encapsulate the hydraulic, air and electrical lines.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The entire assembly shall be sand-blasted and painted black before chassis assembly. A full lifetime warranty against defects in materials or workmanship shall be supplied by the apparatus manufacturer.</p>		
<p>The custom chassis frame shall have a WHEEL ALIGNMENT in order to achieve maximum vehicle road performance and to promote long tire life. The alignment shall conform to the manufacturer's internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery upon request.</p>		
<p><b>Coated Fasteners</b></p>		
<p>The custom chassis frame assembly shall be assembled using GEOMET 720 coated fasteners for corrosion resistance.</p>		
<p><b>AXLE OPTIONS</b></p>		
<p><b>Shock Absorbers Front</b></p>		
<p>Koni model 90 shock absorbers shall be provided for the front axle. The shocks shall be three-way adjustable.</p>		
<p>The shocks shall be covered by the manufacturer's standard warranty. <b>Front</b></p>		
<p><b>Axle</b></p>		
<p>The vehicle shall utilize a Dana D-2200W drop beam front axle with a rated capacity of 24,000 lbs. It shall have 71" kingpin centers. The axle shall be of I-beam construction and utilize grease-lubricated wheel bearings. The vehicle shall have a nominal crank angle of 42 degrees, plus two (+ 2) degrees to minus three (- 3) degrees including front suction applications.</p>		
<p>The front axle hubs shall be made from ductile iron and shall be designed for use with 10 hole hub-piloted wheels in order to improve wheel centering and extend tire life.</p>		
<p>The front springs shall be parabolic tapered, minimum 4" wide x 54" long (flat), minimum four (4) leaf, progressive rate. The springs shall have Berlin style eyes and rubber maintenance free bushings on each end with an additional standard wrap at the front eye. The capacity shall be 24,000 lbs. at the ground.</p>		
<p>Tapered leaf springs provide a 20% ride improvement over standard straight spring systems. Supporting documentation/data shall be provided upon request.</p>		
<p>The vehicle shall be equipped with a Sheppard integral model M-110 power steering gear, used in conjunction with a power assist cylinder. The steering assembly shall be rated to statically steer up to a maximum front axle load of 24,000 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall operate mechanically should the hydraulic system fail.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Rear Axle</b></p>		
<p>The vehicle shall utilize an Meritor RS-35-185 single rear axle with single reduction hypoid gearing and a manufacturer`s rated capacity of 35,000 lbs. The axle shall be equipped with oil-lubricated wheel bearings with Meritor oil seals.</p>		
<p>The rear axle hubs shall be made from ductile iron and shall be designed for use with 10 holehub-piloted wheels to improve wheel centering and extend tire use.</p>		
<p><b>SUSPENSIONS</b></p>		
<p><b>Rear Suspension</b></p>		
<p>The rear suspension shall be a Reyco model 79KB. The suspension shall include linear-rate slipper type leaf springs that eliminate spring eyes and shackles. The suspension shall include two (2) fixed torque arms with poly bushings and cast spring hangers. The suspensionshall be rated for 35,000 lbs.</p>		
<p><b>WHEEL OPTIONS</b></p>		
<p><b>Front Wheels</b></p>		
<p>The vehicle shall have two (2) polished (on outer wheel surfaces only) Alcoa aluminum discwheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.</p>		
<p>Alco front wheel shall be Dura-Black finish IPOS Dura-Bright finish. Includes center cap andcovers for lug nuts.</p>		
<p><b>Rear Wheels</b></p>		
<p>The vehicle shall have four (4) polished (on outer wheel surfaces only) Alcoa aluminum discwheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.</p>		
<p>Alco wheels for single rear axle to be Dura-Black IPOS Dura-Bright finish. Includes center capand covers for lug nuts.</p>		
<p><b>Valve Stem Extensions</b></p>		
<p>Each inside rear wheel on the rear axle shall have valve extensions.<b>TIRE</b></p>		
<p><b>OPTIONS</b></p>		
<p><b>Front Tires</b></p>		
<p>The front tires shall be two (2) Michelin 425/65R 22.5 tubeless type 20 PR radial tires withXZY3 Wide Base aggressive tread.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The tires with wheels shall have the following weight capacity and speed rating:</p>		
<p>Max front rating 22,800 @ 65 mph.</p>		
<p>Max front rating with Alco aluminum wheels - 24,400 @ 65 MPH (intermittent fire service rating if GAW is over 22,800)</p>		
<p>The wheels and tires shall conform to the Tire and Rim Association requirements.</p>		
<p><b>Rear Tires</b></p>		
<p>The rear tires shall be Michelin 315/80R22.5 tubeless type radial tires with XDN2 GRIP all weather tread.</p>		
<p>The tires with wheels shall have the following weight capacity:</p>		
<p>33,080 lbs. (dual) @ 75 MPH. (Intermittent fire service max load 35,396 lbs)</p>		
<p>The wheels and tires shall conform to the Tire and Rim Association requirements.</p>		
<p><b>Intermittent Tire Service Rating</b></p>		
<p>The front and / or rear tires shall be provided with and intermittent emergency vehicle servicing. Tires rating shall conform to manufacturers' service rating as applicable.</p>		
<p><b>Tire Pressure Indicators</b></p>		
<p>The apparatus shall be provided with Real Wheels AirGuard LED tire pressure indicating valve stem caps. When the tire is under inflated by 5-10 PSI, the LED indicator on the cap shall flash red. The indicator housings shall be shock resistant and constructed from polished stainless steel. The indicators shall be calibrated by attaching to valve stem of a tire at proper air pressure per load ratings and easily re-calibrated by simply removing and re-installing them during service.</p>		
<p>Real Wheel Part number RWC1234 was superseded by RWC1235 as of June 2015 <b>AIR</b></p>		
<p><b>SYSTEM OPTIONS</b></p>		
<p><b>Air Dryer</b></p>		
<p>The chassis air system shall be equipped with a Bendix-Westinghouse AD-9 air dryer to remove moisture from the air in order to help prevent the air lines from freezing in cold weather and prolong the life of the braking system components.</p>		
<p><b>Air Inlet</b></p>		
<p>A 1/4" brass quick-release air inlet with a male connection shall be provided. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging air directly into the wet tank of the air brake system. It shall be located driver door jamb.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Isolated Air Reservoir</b></p>		
<p>The air system shall have an additional 1738 cu. in. isolated reservoir. The supply side of the reservoir shall be equipped with a check valve and an 85 psi pressure protection valve.</p>		
<p>Specified options shall be plumbed to the isolated air tank.</p>		
<p><b>Auxiliary Air Tank Plumbing</b></p>		
<p>The auxiliary air tank shall be plumbed to the following optional accessories, if equipped: Chassis air horns, brake system air outlet, air reel, light tower, air primer, air operated devices and or customer/dealer installed pneumatic add-on(s).</p>		
<p><b>Air Lines</b></p>		
<p>Air brake lines shall be constructed of color coded nylon tubing routed in a manner to protect them from damage. Brass fittings shall be provided.</p>		
<p><b>Air Horns</b></p>		
<p>Dual Hadley e-tone air horns shall be provided, connected to the chassis air system. The horns shall be mounted through the front bumper. The front bumper shall have two (2) holes punched to accommodate the air horns. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure.</p>		
<p><b>BRAKE SYSTEMS</b></p>		
<p><b>Front Brakes</b></p>		
<p>The front axle shall be equipped with Dana / Bendix ADB22X 17 inch disc brakes.</p>		
<p>A 3 year/unlimited miles parts and 3 year labor brake warranty shall be provided as standard by Dana. The warranty shall include bushings and seals.</p>		
<p><b>Brake System</b></p>		
<p>The vehicle shall be equipped with air-operated brakes and an anti-lock braking system (ABS). The brake system shall meet or exceed the design and performance requirements of the current Federal Motor Vehicle Safety Standard (FMVSS)-121, and the test requirements of the current NFPA 1901 Standard.</p>		
<p>A dual-treadle brake valve shall correctly proportion the braking power between the front and rear systems. The air system shall be provided with a rapid pressure build-up feature, designed to meet current NFPA 1901 requirements, to allow the vehicle to begin its emergency response as quickly as possible.</p>		
<p>A pressure-protection valve shall be installed to prevent use of the air horns or other air-operated devices should the air system pressure drop below 85 psi. This feature is designed to prevent inadvertent actuation of the emergency/parking brakes while the vehicle is in motion.</p>		



Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES									
	YES	NO								
<p>Two (2) air pressure needle gauges, one (1) each for front and rear air pressure, with a warning light and buzzer shall be installed at the driver`s instrument panel.</p>										
<p>The braking system shall be provided with a minimum of three (3) air tank reservoirs for a total air system capacity of 5,214 cu. in. One (1) reservoir shall serve as the wet tank and a minimum of one (1) tank shall be supplied for each of the front and rear axles. The total system shall carry a sufficient volume of air to comply with FMVSS-121.</p>										
<p>Tank Capacities in Cubic Inches:</p>										
<table border="0"> <thead> <tr> <th data-bbox="159 590 212 617">Wet</th> <th data-bbox="272 590 337 617">Front</th> <th data-bbox="402 590 456 617">Rear</th> <th data-bbox="526 590 579 617">Total</th> </tr> </thead> <tbody> <tr> <td data-bbox="159 659 212 686">1,738</td> <td data-bbox="272 659 337 686">1,738</td> <td data-bbox="402 659 456 686">1,738</td> <td data-bbox="526 659 579 686">5,214</td> </tr> </tbody> </table>	Wet	Front	Rear	Total	1,738	1,738	1,738	5,214		
Wet	Front	Rear	Total							
1,738	1,738	1,738	5,214							
<p>Spring-actuated emergency/parking brakes shall be installed on the rear axle.</p>										
<p>A Bendix-Westinghouse SR-1 valve, in conjunction with a double check valve system, shall provide automatic emergency brake application when the air brake system pressure falls below 40 psi in order to safely bring the vehicle to a stop in case of an accidental loss of braking system air pressure.</p>										
<p>A four-channel Wabco ABS shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to both front and rear axles. All electrical connections shall be environmentally-sealed for protection against water, weather, and vibration.</p>										
<p>The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall detect approaching wheel lock-up and instantly modulate (or pump) the brake pressure up to five (5) times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual-circuit design configured in a diagonal pattern. Should a malfunction occur in one circuit, that circuit shall revert to normal braking action. A warning light at the driver`s instrument panel shall signal a malfunction.</p>										
<p>The system shall also be configured to work in conjunction with all auxiliary engine, exhaust, or driveline brakes to prevent wheel lock-up.</p>										
<p>To improve maintenance troubleshooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started, and a dash-mounted light shall go out once the vehicle is moving above 4 MPH.</p>										
<p>A 3 year/300,000 mile parts and labor Anti-Locking Braking System (ABS) warranty shall be provided as standard by Meritor Automotive.</p>										
<p><b>Park Brake Release</b></p>										
<p>One (1) Bendix-Westinghouse PP-5 parking brake control valve shall be supplied on the lower dash panel within easy reach of the driver.</p>										

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Electronic Stability Control</b></p> <p>The apparatus shall be equipped with a G4 4S4M Electronic Stability Control (ESC) system that combines the functions of Roll Stability Control (RSC) with the added capability of yaw - or rotational – sensing.</p> <p>RSC focuses on the vehicle’s center of gravity and the lateral acceleration limit or rollover threshold. When critical lateral acceleration thresholds are exceeded, RSC intervenes to regulate the vehicle’s deceleration functions. The added feature of ESC is to automatically intervene to reduce the risk of the vehicle rotating while in a curve or taking evasive action, prevents drift out through selective braking, and controlling and reducing vehicle speed whenlateral acceleration limits are about to be exceeded.</p> <p>Intervention by the system occurs in three forms - engine, retarder and brake control. The ESCsystem uses several sensors to monitor the vehicle. These include a steering wheel angle sensor, lateral accelerometer, and yaw position sensor. ESC constantly monitors driving conditions and intervenes if critical lateral acceleration is detected or if the vehicle begins to spin due to low friction surfaces. The system provides control of engine and retarder torque as well as automatically controlling individual wheels to counteract both over steer and under steer.</p> <p>To further improve vehicle drive characteristics, the unit shall be fitted with Automatic Traction Control (ATC). This system shall control drive wheel slip during acceleration from a resting point. An extra solenoid valve shall be added to the ABS system. The system shall control theengine and brakes to improve acceleration slip resistance. The system shall have a dash mounted light that shall come on when ATC is controlling drive wheel slip.</p> <p>3 year/300,000 miles parts and labor warranties for ESC, RSC, and ATC shall be provided asstandard by Meritor Automotive.</p>		
<p><b>Rear Brakes</b></p> <p>The rear axle shall be equipped with ArvinMeritor 16.5” x 8.625” P-Cast S-cam brakes with castbrake shoes. The brakes shall be furnished with Haldex automatic slack adjusters.</p> <p>A 3 year/unlimited miles parts and 3 year labor rear brake warranty shall be provided as standard by ArvinMeritor Automotive. The warranty shall include bushings, seals, and cams.</p>		
<p><b>ENGINES &amp; TRANSMISSIONS</b></p> <p><b>Transmission Selector</b></p> <p>A push-button transmission shift module, Allison model 29538373, shall be located to the rightside of the steering column within easy reach of the driver. The shift position indicator shall beindirectly lit for after dark operation. The shift module shall have a “Do Not Shift” light and a “Service” indicator light. The shift module shall have means to enter a diagnostic mode and display diagnostic data including oil life monitor, filter life monitor, transmission health monitor and fluid level. A transmission temperature gauge with warning light and buzzer shall be installed on the cab instrument panel.</p>		

**Transmission Fluid**

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

**Speed**

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

**Engine/Transmission Package**

**Engine**

The vehicle shall utilize a Cummins L9 engine as described below:

- 450 maximum horsepower at 2200 rpm
- 1250 lb-ft peak torque at 1200 rpm
- Six (6) cylinder, charge air cooled, 4-cycle diesel
- 543 cu. in. (8.9 liter) displacement - 4.49 in bore x 5.69 in stroke
- 16.6:1 compression ratio
- Variable Geometry Turbocharged
- Engine shall be equipped with Full-Authority Electronics
- Electronic Timing Control fuel system
- Fuel cooler (when equipped with a fire pump)
- Cummins supplied fuel filter with integral water separator and water-in-fuel sensor approved by Cummins for use on the L9 engine
- Fleetguard LF9009 Venturi Combo combination full-flow/by-pass oil filter approved by Cummins for use on the ISL engine
- Engine lubrication system, including filter, shall have a minimum capacity of 25 quarts
- Delco-Remy 39 MT-HD 12-volt starter
- Cummins 18.7 cubic foot per minute (cfm) air compressor
- Corrosion inhibitor additive for coolant system
- After treatment system consisting of a oxidation catalyst and diesel particulate filter and selective catalyst reduction system
- Ember separator compliant with current NFPA 1901 standard
- The engine shall be compliant with 2021 EPA Emission standards

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

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

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

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>A copy of the Engine Installation Review stating the engine installation meets Cummins recommendations shall be provided as requested. The engine installation shall not require the operation of any type of "power-down" feature to meet engine installation tests.</p>		
<p><b>Transmission</b></p>		
<p>The vehicle shall utilize an Allison EVS3000P, electronic, 5-speed automatic transmission.</p>		
<p>A push button shift module shall be located right side of the steering column, within easy reach of the driver. The shift position indicator shall be indirectly lit for after-dark operation. The shift module shall have a "Do Not Shift" light and a "Service" indicator light that are clearly visible to the driver. The shift module shall have means to enter a diagnostic mode and display diagnostic data.</p>		
<p>A transmission oil temperature gauge with warning light and buzzer shall be installed on the cab instrument panel to warn the driver of high oil temperatures that may damage the transmission.</p>		
<p>The transmission shall have a gross input torque rating of 1250 lb.-ft. and a gross input power rating of 450 HP.</p>		
<p>The gear ratios shall be as follows:</p>		
<ul style="list-style-type: none"> <li>• 1 - 3.49</li> <li>• 2 - 1.86</li> <li>• 3 - 1.41</li> <li>• 4 - 1.00</li> <li>• 5 - .75</li> <li>• R - 5.03</li> </ul>		
<p>The transmission shall have an oil capacity of 23 quarts and shall be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the driver.</p>		
<p>A water-to-oil transmission oil cooler shall be provided to ensure proper cooling of the transmission when the vehicle is stationary (no air flow). Air-to-oil transmission oil coolers, which require constant air flow, are not acceptable.</p>		
<p>The transmission shall be provided with two (2) engine-driven PTO openings located at the 4 o'clock and 8 o'clock positions for flexibility in installing pto-driven equipment.</p>		
<p>The automatic transmission shall be equipped with a power lock-up device. The transmission lock-up shall prevent down shifting of the transmission when the engine speed is decreased during pump operations, thereby maintaining a constant gear ratio for safe operation of the pump.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The transmission lock-up shall be automatically activated when the pump is engaged in gear. The transmission lock-up shall be automatically deactivated when the pump is disengaged for normal road operation.</p>		
<p>A 5-year/unlimited miles parts and labor warranty shall be provided as standard by Allison Transmission.</p>		
<p><b>Automatic Shift to Neutral</b></p>		
<p>The transmission shall be programmed to comply with NFPA 1901 and automatically shift to neutral upon application of the parking brake.</p>		
<p><b>SECONDARY BRAKING</b></p>		
<p><b>Jacobs Engine Brake</b></p>		
<p>One (1) Jacobs engine brake shall be installed to assist in slowing and controlling the vehicle as required by NFPA 1901 for vehicles with gross vehicle weight ratings (GVWR) of 36,000 lbs. or greater. An on-off control switch and a high-medium-low selector switch shall be mounted in the cab accessible to the driver.</p>		
<p>When activated, the Jacobs engine brake shall cut off the flow of fuel to the cylinders and alter the timing of the exhaust valves. This shall transform the engine into a high-pressure air compressor, driven by the wheels, and the horsepower absorbed by the engine in this mode shall slow the vehicle. The selector switch allows the driver to select the amount of retarding power.</p>		
<p>When the on-off switch is in the “on” position, the engine brake shall be automatically applied whenever the accelerator is in the idle position and the automatic transmission is in the lock-up mode. If the accelerator is depressed or if the on-off switch is placed in the “off” position, the engine brake shall immediately release and allow the engine to return to its normal function.</p>		
<p><b>Transmission Programming</b></p>		
<p>The transmission shall include the Allison 2nd gear Pre-Select feature. This option will direct the transmission to down shift to second gear when the throttle is released and the Jacobs engine brake (or Telma retarder wired to activate with release of throttle) is engaged. This feature is designed to increase brake life and aid vehicle braking.</p>		
<p><b>COOLING PACKAGE</b></p>		
<p><b>Engine Cooling Package</b></p>		
<p><b>Radiator</b></p>		
<p>The cooling system shall include an aluminum tube-and-fin radiator with a minimum of 1,408 total square inches of frontal area to ensure adequate cooling under all operating conditions. There shall be a drain valve in the bottom tank to allow the radiator to be serviced. A sight glass shall be included for quick fluid level assessment. The radiator shall be installed at the prescribed angle in order to achieve the maximum operational effectiveness.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>This shall be accomplished according to established work instructions and properly calibrated angle measurement equipment.</p> <p><b>Silicone Hoses</b></p> <p>All radiator and heater hoses shall be silicone. Pressure compensating band clamps shall be used to eliminate hose pinching on all hoses 3/4" diameter and larger. All radiator hoses shall be routed, loomed, and secured so as to provide maximum protection from chafing, crushing, or contact with other moving parts.</p> <p><b>Coolant</b></p> <p>The cooling system shall be filled with a 50/50 mixture of water and antifreeze/coolant conditioner to provide freezing protection to minus 40 (- 40) degrees F for operation in severe winter temperatures.</p> <p><b>Coolant Recovery</b></p> <p>There shall be a coolant overflow recovery system provided.</p> <p><b>Charge Air Cooler System</b></p> <p>The system shall include a charge air cooler to ensure adequate cooling of the turbocharged air for proper engine operation and maximum performance.</p> <p><b>Charge Air Cooler Hoses</b></p> <p>Charge air cooler hoses shall be made from high-temperature, wire-reinforced silicone to withstand the extremely high temperatures and pressures of the turbocharged air. The hoses shall incorporate a flexible hump section to allow motion and misalignment of the engine relative to the charge air cooler. Charge air cooler hose clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.</p> <p><b>Fan/Shroud</b></p> <p>The fan shall be 30" in diameter with eleven (11) blades for maximum airflow and dynamic balance. It shall be made of nylon for strength and corrosion resistance. The fan shall be installed with grade 8 hardware which has been treated with thread locker for additional security. A fan shroud attached to the radiator shall be provided to prevent recirculation of engine compartment air around the fan in order to maximize the cooling airflow through the radiator. The fan shroud shall be constructed of fiber-reinforced high temperature plastic. The shroud shall be specifically formed with curved surfaces which improves air flow and cooling.</p> <p><b>Transmission Cooler</b></p> <p>The cooling system shall include a liquid-to-liquid transmission cooler capable of cooling the heat generated from the transmission. When a transmission retarder is selected, the cooler shall have an increased capacity to handle the additional heat load.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>FUEL SYSTEMS</b></p>		
<p><b>Fuel Line</b></p>		
<p>All fuel lines shall be rubber.</p>		
<p><b>Fuel Tanks</b></p>		
<p>Dual side-mounted fuel tanks shall be provided for a total usable capacity of 60 gallons. Each tank shall be of an all-welded aluminized steel construction with anti-surge baffles and shall conform to all applicable Federal Highway Administration (FHWA) 393.65 and 393.67 standards. The tanks shall be mounted behind the rear axle. Each tank shall be secured by a wrap-around T-bolt type stainless steel strap. Each strap shall be fitted with protective rubber insulation and shall be secured with grade 8 hardware. This design allows for tank removal from below the chassis.</p>		
<p>Each tank shall be equipped with a 2" filler neck, two (2) additional 80% draw pick-up/return connections, a vent with overturn leak protection, and a .50" NPT magnetic drain plug. The tanks shall be connected with a 1.0" crossover line for equalization allowing the full fuel capacity to be filled from either side of the vehicle. Fuel shall be drawn from one tank and returned to the other.</p>		
<p>A mechanical fuel pump sized to meet the engine requirements shall be provided.</p>		
<p><b>ALTERNATOR</b></p>		
<p><b>420 Amp Alternator</b></p>		
<p>There shall be a 420 amp Leece Neville alternator installed as specified. The alternator shall be a Leece Neville brushless type with integral rectifier and adjustable voltage regulator with an output of 369 amps per NFPA 1901 rating (420 amps per SAE J56).</p>		
<p><b>BATTERIES</b></p>		
<p><b>Battery System</b></p>		
<p>The manufacturer shall supply four (4) heavy duty Group 31 12-volt maintenance-free batteries. Each battery shall be installed and positioned so as to allow easy replacement of any single battery. Each battery shall be equipped with carrying handles to facilitate ease of removal and replacement. There shall be two (2) steel frame mounted battery boxes, one (1) on the left frame rail and one (1) on the right frame rail. Each battery box shall be secured to the frame rail with Grade 8 hardware. Each battery box shall hold (2) batteries. The batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections. The battery stud terminals shall each be treated with concentrated industrial soft-seal after cable installation to promote corrosion prevention. The positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>Batteries shall be placed on non-corrosive rubber matting and secured with hold-down brackets to prevent movement, vibration, and road shock. The hold-down bracket J-hooks shall be cut to fit and shall have all sharp edges removed. The batteries shall be placed in plastic trays to provide preliminary containment should there be leakage of hazardous battery fluids. There shall be two (2) plastic trays, each containing (2) batteries. Each battery tray shall be equipped with a rubber vent hose to facilitate drainage. The rubber vent hose shall be routed to drain beneath the battery box. The batteries shall be positioned in well-ventilated areas.</p>		
<p>One (1) positive and one (1) negative jumper stud shall be provided.</p>		
<p>Batteries shall have a warranty of twelve (12) months that shall commence upon the date of delivery of the apparatus.</p>		
<p><b>CHASSIS OPTIONS</b></p>		
<p><b>Engine Fan Clutch</b></p>		
<p>The engine shall be equipped with a thermostatically controlled engine cooling fan. The fan shall be belt driven and utilize a clutch to engage when the engine reaches a specified temperature.</p>		
<p>When disengaged, the fan clutch shall allow for improved performance from optional floor heaters, reduced cab interior noise, increased acceleration and improved fuel economy.</p>		
<p>The fan shall be equipped with a fail-safe engagement so that if the clutch fails the fan shall engage to prevent engine overheating.</p>		
<p><b>Drivelines</b></p>		
<p>Drivelines shall have a heavy duty metal tube and shall be equipped with Spicer 1710HD universal joints to allow full-transmitted torque to the axle(s). Drive shafts shall be axially straight, concentric with axis and dynamically balanced.</p>		
<p><b>Rear Tow Eyes</b></p>		
<p>Two (2) heavy duty tow eyes made of 3/4" (0.75") thick steel having 2.5" diameter holes shall be bolted directly to the rear of the frame to allow towing (not lifting) of the apparatus. The tow eyes shall be protruding into the rear compartment or out the rear of the body. The tow eyes shall be painted chassis black.</p>		
<p><b>Front Tow Hooks</b></p>		
<p>Two (2) heavy duty painted front tow hooks shall be securely bolted to the front chassis frame rail extensions to allow towing (not lifting) of the apparatus without damage. They shall be mounted in the downward position.</p>		
<p><b>Hydraulic Pump System</b></p>		
<p>A fixed-displacement hydraulic pump system shall be provided to operate all outrigger and aerial functions as well as the chassis power steering system.</p>		



Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>This shared hydraulic system is desired because it heats the hydraulic fluid while driving to provide smoother operation to other systems in cold climate conditions, rather than utilizing a separate pump.</p>		
<p>The hydraulic pump system shall allow the aerial system to be activated without having to shut down the water pump or reduce engine RPM's by a switch located on the cab within easy reach of the driver. A system "engaged" indicator light shall be provided on the activation switch. Engagement of the aerial circuit shall only be allowed with the transmission in the neutral or pump gear and the parking brake engaged.</p>		
<p>The system's hydraulic pump shall be engine mounted and able to supply thirteen (13) gpm of hydraulic fluid at a maximum pressure of 3,000 psi. The hydraulic system shall normally operate between 1,000 and 2,500 psi. It shall have flow controls to protect hydraulic components and it shall incorporate a relief valve set at 2,800 psi to prevent over-pressurization (2950 on HP78 models).</p>		
<p><b>DEF Tank</b></p>		
<p>A diesel exhaust fluid (DEF) tank with a five (5) gallon capacity shall be provided.</p>		
<p>The DEF tank shall include a heater fed by hot water directly from the engine block to prevent the DEF from becoming too cool to operate correctly per EPA requirements. The tank shall include a temperature sensor to control the heater control valve that controls the feed of hot water from the engine to the DEF tank heater.</p>		
<p>A sender shall be provided in the DEF tank connected to a level gauge on the cab dash. The tank shall be located left side below rear of cab.</p>		
<p><b>CAB MODEL</b></p>		
<p><b>Cab Typhoon Medium</b></p>		
<p>The vehicle shall be distinguished by an all-welded aluminum and fully enclosed tilt cab. The cab shall be designed exclusively for fire/rescue service and shall be pre-engineered to ensure long life. It shall incorporate an integral welded substructure of high-strength aluminum alloy extrusions that creates an occupant compartment that is essentially a protective perimeter. The end result is a distinctive structure that is aesthetically appealing, functionally durable, and characterized by increased personnel safety.</p>		
<p>The cab shall be constructed from 3/16" (0.188") 3003 H14 aluminum alloy plate roof, floor, and outer skins welded to a high-strength 6063-T6 aluminum alloy extruded subframe. Wall supports and roof bows are 6061 T6 aluminum alloy. This combination of a high-strength, welded aluminum inner structure surrounded on all sides by load-bearing, welded aluminum outer skins provides a cab that is strong, lightweight, corrosion-resistant, and durable.</p>		
<p>The inner structure shall be designed to create an interlocking internal "roll-cage" effect by welding two (2) 3" x 3" x 0.188" wall-thickness 6063-T5 aluminum upright extrusions between the 3" x 3" x 0.375" wall-thickness 6061-T6 roof crossbeam and the 2.25" x 3" x 0.435" wall-thickness 6063-T6 subframe structure in the front. An additional two (2) aluminum upright</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>extrusions within the back-of-cab structure shall be welded between the rear roof perimeter extrusion and the subframe structure in the rear to complete the interlocking framework. The four (4) upright extrusions -- two (2) in the front and two (2) in the rear -- shall be designed to effectively transmit roof loads downward into the subframe structure to help protect the occupant compartment from crushing in a serious accident. All joints shall be electrically seamwelded internally using aluminum alloy welding wire.</p>		
<p>The subframe structure shall be constructed from high-strength 6061-T6 aluminum extrusionswelded together to provide a structural base for the cab. It shall include a side-to-side 3" x 1.5" .375 thick C-channel extrusion across the front, with 3/4" x 2-3/4" (.75" x 2.75") full-width crossmember tubes spaced at critical points between the front and rear of the cab.</p>		
<p>The cab floor shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate weldedto the subframe structure to give the cab additional strength and to help protect the occupants from penetration by road debris and under-ride collision impacts.</p>		
<p>The cab roof shall be constructed from 3/16" (0.188") 3003 H14 aluminum treadplate supportedby a grid of fore-aft and side-to-side aluminum extrusions to help protect the occupants from penetration by falling debris and downward-projecting objects. Molded fiberglass or other molded fiber-reinforced plastic roof materials are not acceptable.</p>		
<p>The cab roof perimeter shall be constructed from 4" x 6-5/8" (4" x 6.625") 6063-T5 aluminum extrusions with integral drip rails. Cast aluminum corner joints shall be welded to the aluminum roof perimeter extrusions to ensure structural integrity. The roof perimeter shall be continuouslywelded to the cab roof plate to ensure a leak-free roof structure.</p>		
<p>The cab rear skin shall be constructed from 3/16" (0.188") 3003 H14 aluminum plate. Structural extrusions shall be used to reinforce the rear wall.</p>		
<p>The left-hand and right-hand cab side skins shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate. The skins shall be welded to structural aluminum extrusions at the top,bottom, and sides for additional reinforcement.</p>		
<p>The cab front skins shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate.The upper portion shall form the windshield mask, and the lower portion shall form the cab front. Each front corner shall have a full 9" outer radius for strength and appearance. The left- hand and right-hand sides of the windshield mask shall be welded to the left- hand and right- hand front door frames, and the upper edge of the windshield mask shall be welded to the cabroof perimeter extrusion for reinforcement. The cab front shall be welded to the subframe C- channel extrusion below the line of the headlights to provide protection against frontal impact.</p>		
<p><b>Cab Exterior</b></p>		
<p>The exterior of the cab shall be 94" wide x 130" long to allow sufficient room in the occupant compartment for up to eight (8) fire fighters. The cab roof shall be approximately 101" above theground with the flat roof option. The back-of-cab to front axle length shall be a minimum of 58".</p>		
<p>Front axle fenderette trim shall be brushed aluminum for appearance and corrosion resistance.Bolt-in front wheel well liners shall be constructed of 3/16" (0.188") composite material to provide a maintenance-free, damage-resistant surface that helps protect the underside of the cab structure and components from stones and road debris.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>A large stainless steel cooling air intake grille with an open area of no less than 81% shall be at the front of the cab.</p>		
<p>The cab windshield shall be of a two-piece replaceable design for lowered cost of repair. The windshield shall be made from 1/4" (0.25") thick curved, laminated safety glass with a 75% light transmittance automotive tint. A combined minimum viewing area of 2,561-sq. in. shall be provided. Forward visibility to the ground for the average (50th percentile) male sitting in the driver's seat shall be no more than 11 feet 7 inches from the front of the cab to ensure good visibility in congested areas.</p>		
<p><b>Windshield Wipers</b></p>		
<p>Two (2) opposed radial style windshield wipers with two (2) separate electric motors shall be provided for positive operation. The wipers shall be tested beyond the minimum SAE requirement to a total of 3.3 million cycles. The wipers shall be a wet-arm type with a one (1) gallon washer fluid reservoir, an intermittent-wipe function, and an integral wash circuit. Wiper arm length shall be approximately 20", and the blade length approximately 21". Each arm shall have a 90 degree sweep for full coverage of the windshield. The wipers shall be synchronized so as to wipe each windshield simultaneously.</p>		
<p><b>Cab Mounts and Cab Tilt System</b></p>		
<p>The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements. Mounting points shall consist of two (2) forward-pivoting points, one (1) on each side; two (2) intermediate rubber load-bearing cushions located midway along the length of the cab, one on each side; and two (2) combination rubber shock mounts and cab latches located at the rear of the cab, one (1) on each side.</p>		
<p>An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one (1) on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation.</p>		
<p>Safety flow fuses (velocity fuses) shall be provided in the hydraulic lift cylinders to prevent the raised cab from suddenly dropping in case of a burst hydraulic hose or other hydraulic failure. The safety flow fuses shall operate when the cab is in any position, not just the fully raised position.</p>		
<p>The hydraulic pump shall have a manual override system as a backup in the event of an electrical failure. Lift controls shall be located in a compartment to the rear of the cab on the right side of the apparatus. A parking brake interlock shall be provided as a safety feature to prevent the cab from being tilted unless the parking break is set.</p>		
<p>The entire cab shall be tilted through a 42-45 degree arc to allow for easy maintenance of the engine, transmission and engine components. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab.</p>		
<p>In the lowered position, the cab shall be locked down by two (2) automatic, spring-loaded cab latches at the rear of the cab. A "cab ajar" indicator light shall be provided on the instrument panel to warn the driver when the cab is not completely locked into the lowered position.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Cab Interior</b></p> <p>The interior of the cab shall be of the open design with an ergonomically-designed driver area that provides ready access to all controls as well as a clear view of critical instrumentation.</p> <p>The engine cover between the driver and the officer shall be a low-rise contoured design to provide sufficient seating and elbow room for the driver and the officer. The engine cover shall blend in smoothly with the interior dash and flooring of the cab. An all-aluminum subframe shall be provided for the engine cover for strength. The overall height of the engine enclosure shall not exceed 23" from the floor at each side and 27" in the center section. The engine cover shall not exceed 41" in width at its widest point.</p> <p>The rear portion of the forward engine cover shall be provided with a lift-up door to provide easy access for checking and filling engine oil, transmission fluid and power steering fluid without raising the cab (a separate access panel shall be provided for the power steering when equipped with an X12 or X15 engine).</p> <p>The engine cover insulation shall consist of 1/2" closed cell elastomeric compound foam with aluminum foil faced fiberglass fabric manufactured to specifically fit the engine cover. All edges and seams shall be sealed using aluminum foil faced fiberglass tape. The insulation shall meet or exceed DOT standard FMVSS 302-1 and V-0 (UI subject 94 Test).</p> <p>All cab floors shall be covered with a black rubber floor mat that provides an aggressive slip-resistant surface in accordance with current NFPA 1901.</p> <p>The rear engine cover area shall be covered with molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black with a pebble grain finish for slip resistance.</p> <p>A minimum of 57.25" of floor-to-ceiling height shall be provided in the front seating area of the cab and a minimum of 55.25" floor-to-ceiling height shall be provided in the rear seating area. A minimum of 36" of seated headroom at the "H" point shall be provided over each fenderwell.</p> <p>The interior side to side dimensions shall be 87" from wall padding to wall padding and 89.5" from door to door.</p> <p>The floor area in front of the front seat pedestals shall be no less than 24" side to side by up to 25" front to rear for the driver and no less than 24" side to side by up to 27" front to rear for the officer to provide adequate legroom.</p> <p>Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab.</p> <p>All exposed interior metal surfaces shall be pretreated using a corrosion prevention system.</p> <p>The interior of the cab shall be insulated to ensure the sound (dba) level for the cab interior is within the limits stated in the current edition of NFPA 1901. The insulation shall consist of 2 oz. wadding and 1/4" (0.25") foam padding. The padding board shall be backed with 1/4" (0.25")</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>thick reflective insulation. The backing shall be spun-woven polyester. Interior cab padding shall consist of a rear cab headliner, a rear wall panel, and side panels between the front and rear cab doors.</p>		
<p>The vehicle shall use a seven-position tilt and telescopic steering column to accommodate various size operators. An 18" padded steering wheel with a center horn button shall be provided.</p>		
<p>The driver and officer seat risers shall be welded to the main cab floor structure. Depending on the make and model of the seats, a storage compartment with a hinged door shall be provided in the risers.</p>		
<p>The lower front cab steps shall be a minimum of 11.5" deep x 24" wide. The lower rear cab steps shall be a minimum 16" deep x 21" wide. The first step at the front and rear cab doors shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The front and rear steps shall incorporate full width intermediate steps for easy access to the cab interior. The intermediate step at the front doors shall be approximately 6" deep (minimum). The intermediate step at the rear doors shall be approximately 10.75" deep (minimum). The step surfaces shall be aluminum diamond plate with a multi-directional, aggressive gripping surface incorporated into the aluminum diamond plate in accordance with current NFPA 1901.</p>		
<p>A black grip handle shall be provided on the interior of each front door below the door window to ensure proper hand holds while entering and exiting the cab. An additional black grip handle shall be provided on the left and right side windshield post for additional handholds.</p>		
<p><b>Cab Doors</b></p>		
<p>Four (4) side-opening cab doors shall be provided. Doors shall be constructed of a 3/16" (0.188") aluminum plate outer material with an aluminum extruded inner framework to provide a structure that is as strong as the side skins.</p>		
<p>Front cab door openings shall be approximately 36" wide x 72.5" high, and the rear cab door openings shall be approximately 33.75" wide x 72.5" high. The front doors shall open approximately 85 degrees, and the rear doors shall open approximately 80 degrees.</p>		
<p>The doors shall be securely fastened to the doorframes with full-length, stainless steel piano hinges, with 3/8" (0.375") diameter pins for proper door alignment, long life, and corrosion resistance. Mounting hardware shall be treated with corrosion-resistant material prior to installation. For effective sealing, an extruded rubber gasket shall be provided around the entire perimeter of all doors.</p>		
<p>The front door windows shall provide a minimum viewing area of 518 sq. in. each. The rear door windows shall provide a minimum viewing area of 554 sq. in. each. All windows shall have 75% light transmittance automotive safety tint.</p>		
<p>The door handles on the exterior of the cab shall be a pull type with vertical orientation. The handles shall be made with corrosion free material and have a black finish. Each exterior door handle shall have an integral keyed lock.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>Recessed paddle-style door latches shall be provided on the interiors of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening as required by NFPA 1901. The rear cab door handles shall have a vertical orientation making them easily accessible from forward or rearward outboard seating positions. Each cab door shall have a manually operated door lock actuated from the interior of each respective door.</p>		
<p><b>Cab Instruments and Controls</b></p>		
<p>Cab controls shall be located on the cab instrument panel in the dashboard on the driver's side where they are clearly visible and easily reachable. Chassis operation switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided:</p>		
<ul style="list-style-type: none"> <li>• Speedometer/Odometer</li> <li>• Tachometer</li> <li>• Engine hour meter</li> <li>• Engine oil pressure gauge with warning light and buzzer</li> <li>• Engine water temperature gauge with warning light and buzzer</li> <li>• Transmission oil temperature gauge</li> <li>• Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)</li> <li>• Fuel gauge with low fuel indicator light</li> <li>• Voltmeter</li> <li>• Master battery/ignition switch (rocker with integral guard)</li> <li>• Engine start switch (rocker)</li> <li>• Heater and defroster controls with illumination</li> <li>• Marker light/headlight control switch (rocker)</li> <li>• Panel light dimmer switch (rocker)</li> <li>• Self-canceling turn signal control with indicators</li> <li>• Windshield wiper switch with variable speed and washer controls</li> <li>• Pump shift control with green "pump in gear" and "o.k. to pump" indicator lights</li> <li>• Parking brake controls with red indicator light on dash</li> <li>• Automatic transmission shift console</li> <li>• Electric horn button at center of steering wheel</li> <li>• Master warning light switch</li> <li>• Cab ajar warning indicator</li> <li>• Air filter restriction indicator</li> </ul>		
<p>Controls and switches shall be identified as to their function by backlit wording adjacent to each switch, or indirect panel lighting adjacent to the controls.</p>		
<p><b>Electrical System</b></p>		
<p>The cab and chassis system shall have designated electrical distribution areas. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An access cover shall be provided for maintenance access to the electrical distribution area. Circuit protection shall be provided by fuses, thermal reset breakers and / or solid state controls.</p>		
<p>A 6 place, constantly hot, and 6 place ignition switched fuse panel and ground for customer-installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color-coded and functionally-labeled every 3” on the outer surface of the insulation for ease of identification and maintenance. The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather-resistant. All harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion.</p> <p><b>Daytime Running Lights</b></p> <p>Two (2) dual rectangular chrome plated headlight bezels shall be installed on the front of the cab. The low beam headlights shall activate with the release of the parking brake to provide daytime running lights (DRL) for additional vehicle conspicuity and safety. The headlight switch shall automatically override the DRL for normal low beam/high beam operation.</p> <p><b>Fast Idle System</b></p> <p>A fast idle system shall be provided and controlled by a switch accessible by the driver. The system shall increase engine idle speed to a preset RPM for increased alternator output.</p> <p><b>Cab Crashworthiness Requirement</b></p> <p>The apparatus cab shall meet and/or exceed relevant NFPA 1901 load and impact tests required for compliance certification with the following:</p> <p>Side Impact Dynamic Pre-Load per SAE J2422 (Section 5).</p> <p>Testing shall meet and/or exceed defined test using 13,000 ft-lbs of force as a requirement. The cab shall be subject to a side impact representing the force seen in a roll-over. The cab shall exhibit minimal to no intrusion into the cab’s occupant survival space, doors shall remain closed and cab shall remain attached to frame.</p> <p>Cab testing shall be completed using 13,776 ft-lbs of force <b>exceeding</b> testing requirements.</p> <p>Quasi-static Roof Strength (proof loads) per SAE J2422 (Section 6) / ECE R29, Annex 3, paragraph 5.</p> <p>Testing shall meet and/or exceed defined test using 22,046 lbs of mass as a requirement. Testing shall be completed using platen(s) distributed uniformly over all bearing members of the cab roof structure.</p> <p>Cab testing shall be completed using 23,561 lbs of mass <b>exceeding</b> testing requirements. The cab shall exhibit minimal to no intrusion into the cab’s occupant survival space and doors shall remain closed.</p> <p>Additional cab testing shall be conducted using 117,336 lbs of mass <b>exceeding</b> testing requirements by <b>over five (5) times</b>. The cab shall exhibit minimal to no intrusion into the cab’s occupant survival space and the doors shall remain closed.</p> <p>Frontal Impact per SAE J2420.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>Testing shall meet and/or exceed defined test using 32,549 ft-lbs of force as a requirement. The cab shall be subject to a frontal impact as defined by the standard. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame.</p>		
<p>Cab testing shall be completed using 34,844 ft-lbs of force <b>exceeding</b> testing requirements.</p>		
<p>Additional cab testing shall be conducted using 65,891 ft-lbs of force <b>exceeding</b> testing requirements by <b>over two (2) times</b>.</p>		
<p>The cab shall meet all requirements to the above cab crash worthiness; <b>NO EXCEPTIONS</b>.</p>		
<p>A copy of a certificate or letter verifying compliance to the above performance by an independent, licensed, professional engineer shall be provided upon request.</p>		
<p>For any or all of the above tests, the cab manufacturer shall provide either photographs or videofootage of the procedure upon request.</p>		
<p><b>Seat Mounting Strength</b></p>		
<p>The cab seat mounting surfaces shall be third party tested and in compliance with FMVSS571.207.</p>		
<p><b>Seat Belt Anchor Strength</b></p>		
<p>The cab seat belt mounting points shall be third party tested and in compliance with FMVSS571.210.</p>		
<p><b>ISO Compliance</b></p>		
<p>The manufacturer shall ensure that the construction of the apparatus cab shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus cab that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.</p>		
<p><b>CAB ROOF TYPE</b></p>		
<p><b>Raised Rear Cab Roof (Split)</b></p>		
<p>The outboard roof of the rear crew area shall be raised 12" allowing the rear cab doors to be extended up providing improved egress. The forward end of the raised roof shall be tapered for a streamlined appearance. The interior of the raised cab roof areas shall be provided with padded headliner material to match the center cab ceiling.</p>		
<p>The center of the cab roof shall include a 1.5" deep waterway clearance notch from front to rear minimizing overall travel height of the vehicle. The center cab roof notch shall not affect the interior cab ceiling or cab structure.</p>		



Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>CAB BADGE PACKAGE</b></p>		
<p><b>Logo Package</b></p>		
<p>The apparatus shall have manufacturer logos provided on the cab and body as applicable.</p>		
<p><b>CAB DOOR OPTIONS</b></p>		
<p><b>Rear Cab Door Position</b></p>		
<p>The cab rear doors shall be moved to the rear of the wheel opening. This door placement facilitates easier entry and egress by reducing the rear facing seat protrusion into the dooropening.</p>		
<p>Rear door position to the 58” or (medium cab).</p>		
<p><b>Cab Door Locks</b></p>		
<p>The cab shall have 1250 keyed door locks provided on exterior doors to secure the apparatus.</p>		
<p><b>Cab Door Panels</b></p>		
<p>The inner door panels shall be made from 1/8" (.125") aluminum plate painted Zolatone (to match cab interior paint) for increased durability. The cab door panels shall be split just below the handrail and incorporate an easily removable panel for access to the latching mechanism and window regulator for maintenance or service.</p>		
<p><b>Cab Door Locks</b></p>		
<p>Each cab door shall have a manually operated door lock actuated from the interior of each respective door. Exterior of each cab door shall be provided with a keyed lock integrated withthe cab door handle.</p>		
<p><b>Cab Front Door Windows</b></p>		
<p>Full roll-down windows shall be provided for the front cab doors with manually operated wormgear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable.</p>		
<p><b>Cab Rear Door Window(s)</b></p>		
<p>Full roll-down window(s) shall be provided for the rear crew door(s) with manually operatedworm gear drive cable operation for positive operation and long life. Scissors or gear-and- sector drives are not acceptable.</p>		
<p><b>Cab Door Style</b></p>		
<p>The cab doors shall extend down to cover lower step well.</p>		

**Cab Door Reflective Material**

Reflexite V98 Red/Fluorescent Yellow Green striping shall be provided approximately 7.5" high on the lower cab door panels of an extended (non-barrier) door. The stripes shall run from the top outer corner to the bottom inside corner of the lower door area, forming a "A" shape when viewed from the rear. The reflective material shall meet NFPA 1901 requirements.

**CAB STEP OPTIONS**

**Cab Steps**

The lower cab steps shall extend 3.5" past the side of the cab to provide increased surface area.

**MIRRORS**

**Cab Mirrors**

A pair of Retrac Aerodynamic model 612010 mirrors shall be provided on the cab. The west coast style mirrors shall have chrome housings with flat and convex sections. Both the upper and lower mirror sections shall be remote controlled and heated. The mirror heads shall include amber LED marker lights.

**MISC EXTERIOR CAB OPTIONS**

**Cab Canopy Window**

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

Window dimensions shall be as follows:

- 44" C/A cab (short cab): 16"W x 24.5"H
- 58" - 80" C/A cab (medium - extended): 26.69"W x 24.5"H

**Cab Canopy Window**

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

Window dimensions shall be as follows:

- 44" C/A cab (short cab): 16"W x 24.5"H
- 58" - 80" C/A cab (medium - extended): 26.69"W x 24.5"H

**Front Mud Flaps**

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

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Handrails</b></p>		
<p>Cab door assist handrails shall consist of two (2) 1.25” diameter x 18” long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer door openings one each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2” from the mounting surface to allow a positive grip with a gloved hand.</p>		
<p><b>Rear Cab Wall Construction</b></p>		
<p>The rear cab wall shall be constructed with the use of 3/16" aluminum diamond plate interlocking in aluminum extrusions.</p>		
<p><b>Cab Wheel Well</b></p>		
<p>The cab wheel well shall be increased in size to provide additional clearance for larger tires. The fender trim shall be adjustable in and out to better accommodate various wheel / tire offsets.</p>		
<p><b>Rubber Fenderette</b></p>		
<p>A rubber fenderette shall be provided in place of the standard fenderette. The rubber fenderette shall extend 2.75" out from the mounting point.</p>		
<p><b>Glass Tint</b></p>		
<p>The rear of the cab shall be equipped with dark tint glass. The glass shall have 20% light transmittance (+/- 10%). The dark tint shall be provided for the following windows (as equipped):</p>		
<ul style="list-style-type: none"> <li>• Window on cab sides between front and rear door</li> <li>• Rear door glass</li> <li>• Rear cab wall glass</li> <li>• Vista roof glass</li> </ul>		
<p><b>Receptacle Mounting Plate</b></p>		
<p>A mounting plate shall be provided for the battery charger receptacle, battery charger indicator and the air inlet (if applicable). The plate shall be fabricated from 3/16" aluminum smooth plate painted job color (two-tone if applicable) and be removable for service access to the receptacle(s) and indicator.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>HVAC</b></p>		
<p><b>HVAC Control Location</b></p>		
<p>Heating and air conditioning controls shall be located in the center dash area.<b>Air</b></p>		
<p><b>Conditioning</b></p>		
<p>An overhead air-conditioner / heater system with a single radiator mounted condenser shall besupplied.</p>		
<p>The unit shall be mounted to the cab interior headliner in a mid-cab position, away from all seating positions. The unit shall provide fourteen (14) comfort discharge louvers, eight (8) tothe back area of the cab, six (6) to the front area of the cab including one (1) each side outboard in the forward overhead console. These louvers will be used for both AC and heated air delivery. Two (2) additional large front louvers shall be damper controlled to providedefogging and defrosting capabilities to the front windshield as necessary.</p>		
<p>The unit shall consist of a high output evaporator coil and heater core with one (1) high output dual blower for front air delivery, and two (2) high performance single wheel blowers for rear airdelivery. For improved corrosion resistance the evaporator shall have a hydrophilic blue fin coating.</p>		
<p>The control panel shall actuate the air-distribution system using electric actuators. The controlpanel shall allow blended airflow to both the comfort air vents and defrost vents. Separate three-speed blower switches shall be provided to independently control airspeed for the front and rear blowers.</p>		
<p>The condenser shall be radiator mounted and have a minimum capacity of 65,000 BTUs andshall include a receiver drier.</p>		
<p>Performance Data: (Unit only, no ducting or louvers)</p> <ul style="list-style-type: none"> <li>• AC BTU: 55,000</li> <li>• Heat BTU: 65,000</li> <li>• CFM: 1300 @ 13.8V (All blowers)</li> </ul>		
<p>The compressor shall be a ten-cylinder swash plate type Seltec model TM-31HD with acapacity of 19.1 cu. in. per revolution.</p>		
<p>The system shall be capable of cooling the interior of the cab from 100 degrees ambient to 75degrees or less with 50% relative humidity in 30 minutes or less.</p>		
<p><b>SEATS</b></p>		
<p><b>Cab Seats</b></p>		
<p>All cab seats shall be Bostrom brand.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Seat, Rear Facing</b></p> <p>One (1) Bostrom 400 Series tanker 450 SCBA high back SCBA storage seats shall be provided in the rear facing position over the officer side wheel well.</p> <p>Features shall include:</p> <ul style="list-style-type: none"> <li>• Removable "Store-All" side cushions.</li> <li>• Auto-pivot and return headrest to open for improved exit with SCBA.</li> <li>• 12.5" wide SCBA cavity to store leading SCBA Brands.</li> <li>• Built in lumbar support.</li> <li>• Replaceable seat, side and headrest cushions.</li> </ul> <p>All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.</p> <p><b>Seat Cover Material</b></p> <p>All seats shall have vinyl seat cover material.</p> <p><b>Seat Fabric Color</b></p> <p>All seats shall be gray in color.</p> <p><b>Seating Capacity Tag</b></p> <p>A tag that is in view of the driver stating seating capacity of four (4) personnel shall be provided. <b>SCBA</b></p> <p><b>Bracket SmartDock</b></p> <p>A IMMI SmartDock Gen2 SCBA storage bracket shall be provided. The SmartDock is a strap-free docking station that offers single-motion SCBA insertion and hands-free release when the firefighter stands up to exit the seat. SmartDock has undergone extensive testing to ensure that it meets or exceeds industry standards. When evaluated to the NFPA 1901 Standard for Automotive Fire Apparatus, SmartDock met requirements for retaining both the cylinder and the pack in dynamic testing.</p> <p>Location: officer's seat, rear facing driver's side, rear facing officer's side. <b>Seat</b></p> <p><b>Belt Extender</b></p> <p>ReadyReach seat belt extenders shall be provided. The extender shall include an arm that places the shoulder belt D-loop in a closer, easier to reach location.</p> <p>The extenders shall be provided for the driver's seat, officer's seat, rear facing driver's side, rear facing officer's side seat.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Seat, Driver</b></p>		
<p>One (1) H. O. Bostrom Sierra air suspension seat with high back styling shall be supplied for the driver position.</p>		
<p>Features shall include:</p>		
<ul style="list-style-type: none"> <li>• Internally tethered Air-50 suspension assembly with weight, height and ride adjustment</li> <li>• Fixed lumbar support</li> <li>• 5" fore and aft adjustment</li> <li>• Reclining seat back</li> </ul>		
<p>The seating position shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.</p>		
<p><b>Seat, Officer</b></p>		
<p>One (1) H. O. Bostrom 400 Series fixed SCBA seat shall be supplied for the officer's position. Features shall include:</p>		
<ul style="list-style-type: none"> <li>• Generation II styling</li> <li>• 12.5" wide SCBA cavity to store leading SCBA brands</li> <li>• Adjustable depth SCBA cavity</li> <li>• Auto-pivot and return headrest to open for improved exit with SCBA</li> <li>• Removable "Store-All" side cushions</li> <li>• Built in lumbar support</li> <li>• Replaceable seat, side and headrest cushions</li> </ul>		
<p>All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.</p>		
<p><b>MISC INTERIOR CAB OPTIONS</b></p>		
<p><b>Cab Interior Padding Color</b></p>		
<p>Cab interior padding to be gray color. Includes ceiling, side and rear walls as applicable. <b>Sun</b></p>		
<p><b>Visors</b></p>		
<p>Lexan sun visors shall be provided for the driver and officer matching the interior trim of the cab and shall be flush mounted into the underside of the overhead console.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Air Horn Lanyard</b></p>		
<p>There shall be a "Y" style lanyard mounted in the center of the cab that allows the driver and officer to operate the air horns. The lanyard shall activate an electrical air switch.<b>Engine</b></p>		
<p><b>Cover</b></p>		
<p>The engine cover shall blend in smoothly with the interior dash and flooring of the cab. The upper left and right sides shall have a sloped transition surface running front to rear providing increased space for the driver and officer.</p>		
<p>The engine cover and engine service access door cover shall be molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black and feature a pebble grain finish for slip resistance.</p>		
<p><b>Overhead Console</b></p>		
<p>An overhead console shall be provided in the front of the cab for the driver and officer. The areas in front of the driver and officer shall be removable panels that can be used for switches and other electrical items. The entire overhead console shall be hinged for service access.</p>		
<p>The center of the overhead console shall have a lowered area for mounting of up to three (3) electrical components like siren heads, directional bar controllers, etc.</p>		
<p>The overhead console shall be constructed of aluminum smooth plate painted to match the cab interior. The console shall be installed using stainless steel fasteners.</p>		
<p><b>Rear Engine Cover</b></p>		
<p>The rear engine cover shall be provided with a reduced profile for increased legroom on the forward facing rear inboard seats.</p>		
<p><b>Cab Dash - Low Profile Severe Duty</b></p>		
<p>The driver side and center dash shall be constructed from cast aluminum for durability and long life.</p>		
<p>The driver side cast aluminum dash shall enclose the instrument cluster.</p>		
<p>The center dash area shall be a low profile design to provide optimal forward visibility. The driver and officer sides shall be angled for ergonomic access and designed for either a color display or switches. Access panels shall be provided on the top, front and officer side for easy service access.</p>		
<p>The officer side dash shall be low profile and constructed from .125" smooth aluminum plate. A service access panel shall be provided in the top surface.</p>		
<p>The driver, center and officer side dash shall be painted to match the cab interior.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The lower kick panels below the dash to be constructed from .125 aluminum plate painted to match the cab interior. The panels shall be removable to allow for servicing components that may be located behind the panels.</p>		
<p><b>Cab Insulation Package</b></p>		
<p>The cab shall be insulated to mitigate noise and ensure maximum cooling/heating capacity. The insulation package shall include 1" Polyester foam with Mylar facing for the front wall, rear wall, side walls, and ceiling, Reflectex (or equal) inside each cab door and 1" closed cell foam insulation below the front and rear facing seat risers.</p>		
<p><b>CAB ELECTRICAL OPTIONS</b></p>		
<p><b>Cab Dome Lights</b></p>		
<p>Four (4) ceiling mounted dome light assemblies shall be provided.</p>		
<p>Each light shall consist of a three-position assembly mounted rocker switch, LED (light emitting diode) 4" grommet mount white dome light, LED (light emitting diode) 4" grommet mount red dome light, and a plastic housing.</p>		
<p>The white light activates with appropriate cab door and light assembly mounted rocker switch, the red light activates with assembly mounted rocker switch only.</p>		
<p>Two (2) lights shall be located in both the front and rear of the cab. <b>Auto-</b></p>		
<p><b>Eject Battery Charger Receptacle</b></p>		
<p>The battery charger receptacle shall be a Kussmaul 20 amp NEMA 5-20 Super Auto-Eject #091-55-20-120 with a cover. The Super Auto-Eject receptacle shall be completely sealed and have an automatic power line disconnect.</p>		
<p>The receptacle shall be located outside driver's door next to handrail and the cover color shall be Red.</p>		
<p><b>ATC Override</b></p>		
<p>An Automatic Traction Control (ATC) override switch shall be provided. The switch shall be located within reach of the driver and allow for momentary disabling of the ATC system due to mud or snow conditions.</p>		
<p><b>English Dominant Gauge Cluster</b></p>		
<p>The cab operational instruments shall be located in the dashboard on the driver side of the cab and shall be clearly visible. The gauges in this panel shall be English dominant and shall be the following:</p>		
<ul style="list-style-type: none"> <li>• Speedometer/Odometer</li> <li>• Tachometer with integral hour meter</li> <li>• Engine oil pressure gauge with warning light and buzzer</li> </ul>		



Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
<ul style="list-style-type: none"> <li>• Engine water temperature gauge with warning light and buzzer</li> <li>• Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)</li> <li>• Fuel gauge</li> <li>• Voltmeter</li> <li>• Transmission oil temperature gauge</li> </ul> <p>This panel shall be backlit for increased visibility during day and night time operations.</p> <p><b>Headlights</b></p> <p>The front of the cab shall have four (4) headlights. The headlights shall be mounted on the front of the cab in the lower position. The headlights shall be day time operational.</p> <p><b>Air Compressor</b></p> <p>A Kussmaul model 091-9B-1, 120V air compressor shall be installed.</p> <p>The air compressor shall be powered by a 120 volt inlet receptacle and has an output of .76 cfmat 100 psi. A pressure switch senses the system pressure and operates the compressor whenever the pressure in the air brake system drops below a pre-determined level.</p> <p><b>12 Volt (or 24 Volt) Outlet</b></p> <p>A plug-in type receptacle for handheld spotlights, cell phones, chargers, etc. shall be installed driver side dash, officer side dash. The receptacle shall be wired battery hot.</p> <p><b>Antenna Base</b></p> <p>There shall be a Tessco P/N 90942 universal antenna base mounted on the cab roof with a weatherproof connector. The antenna base shall be NMO Motorola Style (equivalent to a MATM style) with RG58U coax cable. The antenna shall be located officer side forward with coaxial cable terminating at the center of the dash board.</p> <p><b>Battery Charger Location</b></p> <p>The battery charger shall be located behind driver's seat. <b>Air</b></p> <p><b>Compressor Location</b></p> <p>The air compressor shall be located behind officer's seat.</p> <p><b>Battery Charger</b></p> <p>An LPC 20 battery charger with remote mounted LED display shall be installed.</p> <p>A fully automatic charging system shall be installed on the apparatus. The system shall have a 120 volt, 60 hertz, 7 amp AC input with an output of 20 amps 12 volts DC. The battery charging system shall be connected directly to the shoreline to ensure the batteries remain fully charged while the vehicle is in the fire station or firehouse.</p>	YES	NO

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The system shall include a remote charging status indicator panel. The panel shall consist of two (2) LED lights to provide a visual signal if battery voltage is good or drops below 11.5 volts. The microprocessor shall be continuously powered from the battery to provide the charge status.</p>		
<p><b>USB Charging Port</b></p>		
<p>A dual USB charging port with 2.1A total power for cell phones, chargers, etc. shall be installed driver side dash, officer side dash. The receptacles shall be wired battery hot.</p>		
<p><b>DPF Regeneration Override</b></p>		
<p>A momentary override switch shall be provided for the Diesel Particulate Filter (DPF) regeneration. The switch will inhibit the regeneration process until the switch is reset or the engine is shut down and restarted. The switch shall be located within reach of the driver.</p>		
<p><b>LED Cab Headlights</b></p>		
<p>Peterson LED headlights shall be provided. LED lights shall be provided in the low and high beam position of the head lamp assembly.</p>		
<p><b>Cab Door Step Area Lighting</b></p>		
<p>There shall be eight (8) clear TecNiq model D07 LED lights provided to illuminate the cab step well areas. Two (2) lights shall be located at each door area, one (1) above each step. The lights shall have polished stainless steel housings. The lights shall be activated by the cab door ajar circuit.</p>		
<p><b>Cab Turn Signals</b></p>		
<p>A pair of TecNiq LED (Light Emitting Diode) turn signal lights with clear lens shall be installed on the front of the cab. The strip type lights shall be 1.25" high x 15" long and be mounted in polished cast aluminum housing between the quad bezels.</p>		
<p><b>BODY SPEC</b></p>		
<p><b>Aerial Equipment Body</b></p>		
<p><b>Performance</b></p>		
<p>The aerial body shall be designed to permit the reloading of fire hose without raising the aerial from the stored position. This requirement is essential to the effective operation of the apparatus when pumper operations are required. <b>NO EXCEPTIONS.</b></p>		
<p>The apparatus body shall be constructed entirely of aluminum extrusions with interlocking aluminum plates. An extruded modular aluminum body is required due to the high strength-to-weight ratio of aluminum, corrosion-resistant body structure, easy damage repair, and lighter overall body weight to allow for increased equipment carrying capacity.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The apparatus shall incorporate a rescue style body design to maximize compartment space. The rescue style left and right side body shall combine upper and lower compartments to provide more efficient use of body storage capacity.</p>		
<p>The entire vehicle shall be constructed of aluminum extrusions. Body designs that incorporate steel sub-frames connected to aluminum compartments are not as corrosion-resistant and not acceptable.</p>		
<p><b>Body Mainframe</b></p>		
<p>The body mainframe shall be entirely constructed of aluminum. The complete framework shall be constructed of 6061T6 and 6063T5 aluminum alloy extrusions welded together using 5356 aluminum alloy welding wire.</p>		
<p>The mainframe shall incorporate a series of vertical frame components connected in series. Each vertical frame assembly shall be constructed with 3" x 3" extrusions welded together in a square frame configuration. The open center shall permit the installation of a tunnel for ground ladder storage. The mainframe shall be held together from front to rear by two (2) solid 1/2" x 3" aluminum braces on each side of the vertical frame components. The braces shall also serve as the connection point between the torque box and body frame. The body side compartments shall be connected and supported by the extruded aluminum mainframe assembly.</p>		
<p><b>Body Side Assemblies</b></p>		
<p>The left and right side body assemblies shall be framed with 6063T5 1 1/2" x 4" 3/16" wall extrusions. The left side body compartments shall be framed to make full height compartments ahead and behind the wheel well opening. The body side assemblies shall be designed so that the compartment walls are not required to support the body. The compartments shall be interlocked and welded to the side assembly extrusions.</p>		
<p>The top of the body side assemblies shall be supplied with embossed diamond plate covers with polished corners to minimize maintenance and provide service access to electrical components.</p>		
<p><b>Stabilizer Openings</b></p>		
<p>The body shall be designed to accommodate a four (4) stabilizer aerial system. One (1) opening shall be supplied behind the rear axle as close to the wheel well opening as possible to maximize rear angle of departure and to prevent the stabilizer pads from contacting the ground during driving. The second set shall be mounted just behind the pump compartment. The openings shall be framed in aluminum extrusions. A stabilizer cover made from treadplate shall be supplied on the extendable stabilizer. The cover shall provide a pleasing appearance and mounting location for a red stabilizer warning light as outlined in NFPA 1901.</p>		
<p>The stabilizer openings shall be supplied with clear lights to illuminate the stabilizers and the ground surrounding the openings. The lights shall illuminate when any stabilizer is moved from the stored position.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Body Mounting System</b></p> <p>The body shall attach to the integral torque box with grade 8 bolts connected through steel mounts welded on the side of the torque box. To isolate dissimilar metals a 1/4" fiber- reinforced rubber dielectric barrier between the aluminum body and steel torque box shall be supplied. Body designs that weld to the aerial torque box or chassis frame rails shall not be acceptable due to the stress imposed on the vehicle during road travel and aerial operations.</p> <p><b>Rear Body Design</b></p> <p>The rear body shall be designed to provide ground ladder storage, hose deployment, and service access to aerial components. The center rear of the body shall be open for ground ladder storage. The area below the ground ladder storage shall be for a waterway inlet (if applicable), the stabilizer control panel and have access doors to hydraulic components.</p> <p>The aerial master control panel that is located on the rear of the body shall consist of a master switch, interlock light, and indicators that illuminate when each stabilizer is deployed. The stabilizer controls shall be divided into two (2) boxes located one (1) each side on the rear body so the operator may observe the stabilizers being deployed on each side of the apparatus as outlined in NFPA 1901.</p> <p><b>Side Aerial Access Staircase</b></p> <p>A single access staircase shall be supplied on the driver's side of the apparatus to the aerial turntable. The staircase shall incorporate a pocket-style drop-down step in the body rail to reduce ground to staircase step height when the unit is up on jacks. The angled staircase shall be supplied with extruded aluminum handrails on both sides of the staircase frame.</p> <p><b>Water Tank Mounting System</b></p> <p>The body design shall allow the booster tank to be completely removable without disturbing or dismantling the apparatus body structure. The water tank shall rest on top of a 3" x 3" frame assembly covered with rubber shock pads and corner braces formed from 3/16" angled plate to support the tank.</p> <p>The booster tank mounting system shall utilize a floating design to reduce stress from road travel and vibration. To maintain low vehicle center of gravity, the water tank bottom shall be mounted within 5" of the frame rail top. Designs that store ground ladders under the water tank and raise center of gravity shall not be acceptable.</p> <p><b>Compartments</b></p> <p>All body compartment walls and ceilings shall be constructed from 1/8" formed aluminum 3003 H14 alloy plate. Each compartment shall be modular in design and shall not be part of the body support structure.</p> <p>Compartment floors shall be constructed of 1/8" aluminum diamond plate welded in place. Compartment floors that are over 15" deep shall be supported by a minimum 1.5" x 3" x 1/8" walled aluminum extrusions. The compartment seams shall be sealed using a permanent pliable silicone caulk.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>A series of louvers shall be supplied to facilitate ventilation of each compartment. Each louver shall be 3” wide by 3/4” tall and 1/2” deep. Right side rear compartment to have .5” extruded aluminum flat bar welded to the underside centered equally between outside to inside for added support.</p> <p><b>Handrails</b></p> <p>Access handrails shall be provided at all step positions, including, but not limited to, the rear corner tailboard and installed to NFPA 1901 15.8. All body handrails shall be constructed of maintenance-free, corrosion-resistant, extruded aluminum. Handrails shall be a minimum of 1.25” OD and shall be installed between chrome end stanchions at least 2” from the mounting surface to allow for access with a gloved hand. The extruded aluminum shall be ribbed to assure a good grip for personnel safety.</p> <p>The handrails shall be installed as follows:</p> <p>Two (2) 48” handrails, one (1) each side, located on the aerial access stair case.</p> <p><b>Steps, Standing, and Walking Surfaces</b></p> <p>The maximum stepping distance shall not exceed 18”, with the exception of the ground to first step. The ground to first step shall not exceed 24”. The ground to first step shall be maintained when the stabilizers are deployed by an auxiliary set of steps installed at the aerial access staircase. All steps or ladders shall sustain a minimum static load of 500 lbs. without deformation as outlined in NFPA 15.7.2.</p> <p>All exterior steps shall be designed with a minimum slip resistance of 0.52 when tested wet using the Brungraber Mark II tester in accordance with the manufacturer's instructions.</p> <p><b>Apparatus Warning Labels</b></p> <p>A label shall be supplied on the rear body to warn personnel that riding in or on the rear step is prohibited as outlined in NFPA 1901 15.7.5. A label shall be applied to both sides of the apparatus and the rear to warn operators that the aerial is not insulated.</p> <p><b>Rubrail</b></p> <p>The body shall have a rubrail along the length of the body on each side and at the rear. The rubrail shall be constructed of minimum 3/16” thick anodized aluminum 6463T6 extrusion. The rubrail shall be a minimum of 2.75” high x 1.25” deep and shall extend beyond the body width to protect compartment doors and the body side.</p> <p>The rubrail shall be of a C-channel design to allow marker and warning lights to be recessed inside for protection. The top surface of the rubrail shall have a minimum of five (5) serrations raised .1” high with cross grooves to provide a slip-resistant edge for the rear step and running boards. The rubrail shall be spaced away from the body using 3/16” nylon spacers. The ends of each section shall be provided with a rounded corner piece. The area inside the rubrail C- channel shall be inset with a reflective material for increased side and rear visibility.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Pump Compartment</b></p>		
<p>The pump operator’s control panel and pump compartment shall be located towards the front of the body. The operator’s controls and gauges shall be located on the left side (street side) of the apparatus. The compartment shall be designed following NFPA 1901 15.6.</p>		
<p><b>ISO Compliance</b></p>		
<p>The manufacturer shall ensure that the construction of the apparatus aerial body shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer’s Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus aerial device that is built to exacting standards, meets the customer’s expectations, and satisfies the customer’s requirements.</p>		
<p><b>BODY COMPT REAR</b></p>		
<p><b>Rear Body Panels</b></p>		
<p>The rear body panels shall be smooth 1/8” un-painted aluminum plate to facilitate rear body striping. The panels shall be bolt-on for a clean appearance and easier repair in the event of damage.</p>		
<p><b>AERIAL BODY OPTIONS</b></p>		
<p><b>Triple Crosslay Hosebed</b></p>		
<p>Three (3) crosslay hosebeds shall be provided at the front area of the body. Each of the three (3) crosslay sections shall have a capacity for up to 200’ of 2.0” double-jacket fire hose single stacked and preconnected to the pump discharge. The crosslay decking shall be constructed entirely of maintenance-free 3/4” x 2-3/4” hollow aluminum extrusions.</p>		
<p>Stainless steel rollers with nylon guides set in aluminum extrusions shall be installed horizontally and vertically on each end of the crosslay to allow easy deployment of the hose and help protect the body paint.</p>		
<p><b>Dunnage Pan</b></p>		
<p>A dunnage pan constructed of 3/16” (.188”) aluminum treadplate shall be located rearward of the crosslays. The dunnage pan shall be sized to maximize available storage space. <b>Storage</b></p>		
<p><b>Pan</b></p>		
<p>A shallow pan shall be provided in the forward area of the upper open storage area. The pan shall constructed of 3/16" (.188") aluminum treadplate.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Ladder Tunnel Doors</b></p>		
<p>A pair of 3/16" (.188) aluminum smooth plate doors with D-ring style handles shall be installed for access to the rear ladder tunnel. Each door shall open a full 90 degrees to allow easy removal of ground ladders. The doors shall match the rear body finish.</p>		
<p><b>Rear Control Doors</b></p>		
<p>The driver/officer jack and master control switch panels at the rear of the body shall be provided with access doors. The doors shall have the same finish as the rear of the body.</p>		
<p><b>Outrigger Covers</b></p>		
<p>Two (2) piece outrigger covers constructed of .187" aluminum smooth plate painted job color shall be provided for the jack leg openings. One piece of the cover shall be sized to cover just the extending outrigger in order to require a minimal amount of set-up space. The second piece of the cover shall be fixed and mounted to the body to cover the remaining outrigger opening.</p>		
<p><b>Auxiliary Ground Pads</b></p>		
<p>Four (4) auxiliary ground pads shall be provided. The pads shall be 24" x 24" x 1/2" thick aluminum plate with a 20 degree formed handle with cutout for hand hold. The pads shall be stored in double brackets holding two (2) pads each that are welded below the body.</p>		
<p><b>Front Body Module</b></p>		
<p>There shall be a forward body module that will enclose the water tank and provide additional compartmentation. The body design shall provide 59.59 cubic feet of storage.</p>		
<p><b>Compartment Sizes</b></p>		
<p>The compartment sizes and location shall be as follows:</p>		
<p><b>Left Side:</b></p>		
<p>There shall be one (1) compartment (L1) over the forward stabilizer. The compartment shall be approximately 47.5" wide x 63.5" high x 16" deep and contain approximately 27.93 cubic feet of storage space. The door opening shall be approximately 47.5" wide x 63.5" high.</p>		
<p><b>Right Side:</b></p>		
<p>There shall be one (1) compartment (R1) over the forward stabilizer. The compartment shall be approximately 33" wide x 63.5" high x 16" deep (rearward) and 14.5" wide x 63.5" high x 23" deep (forward) and contain approximately 31.66 cubic feet of storage space. The door opening shall be approximately 47.5" wide x 63.5" high.</p>		
<p><b>Fuel Fill Door</b></p>		
<p>The fuel fills shall have hinged treadplate doors with a 1/4" stainless steel hinge and a latch to keep the doors closed. The doors shall be labeled "Diesel Fuel Only".</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Driver Side Compartments</b></p> <p>The driver side body design shall provide 95.82 cubic feet of storage, which exceeds the minimum NFPA 1901 Chapter 8.5 requirement of 40 cubic feet.</p> <p>There shall be one (1) compartment (L2) ahead of the rear wheels. The compartment shall be approximately 44” wide x 11.5” high x 24” deep (upper) and 44” wide x 57” high x 26” deep (lower) and contain approximately 44.73 cubic feet of storage space. The door opening shall be approximately 44” wide x 69.5” high.</p> <p>There shall be one (1) compartment (L3) over the rear wheels. The compartment shall be approximately 62.5” wide x 23” high x 26” deep (forward) and 7” wide x 23” high x 23” deep (rearward) and contain approximately 23.77 cubic feet of storage space. The door opening shall be approximately 69.5” wide x 23” high.</p> <p>There shall be one (1) compartment (L4) over the rear stabilizer. The compartment shall be approximately 45” wide x 23” high x 23” deep (upper), 30” wide x 28” high x 16” deep (lower forward) and 15” wide x 28” high x 23” deep (lower rearward) and contain approximately 27.38 cubic feet of storage space. The door opening shall be approximately 45” wide x 51” high.</p> <p><b>Fuel Fill</b></p> <p>The apparatus shall be supplied with a fuel fill on the driver side of the body. The fuel fill shall have a hinged door.</p> <p><b>Officer Side Compartments</b></p> <p>The officer side body design shall provide 64.61 cubic feet of storage.</p> <p>There shall be one (1) compartment (R2) ahead of the rear wheels. The compartment shall be approximately 44” wide x 11.5” high x 21” deep (upper) and 44” wide x 57” high x 26” deep (lower) and contain approximately 44.67 cubic feet of storage space. The door opening shall be approximately 44” wide x 69.5” high.</p> <p>There shall be one (1) compartment (R3) over the rear stabilizer. The compartment shall be approximately 25” wide x 24” high x 16” deep and contain approximately 5.56 cubic feet of storage space. The door opening shall be approximately 25” wide x 24” high.</p> <p>There shall be one (1) compartment (R4) behind the rear stabilizer. The compartment shall be approximately 40” wide x 27” high x 23” deep and contain approximately 14.38 cubic feet of storage space. The door opening shall be approximately 40” wide x 27” high.</p> <p>The hosebed shall contain 40 cubic feet. The hosebed shall measure 21” deep by 23” wide and 146” long.</p> <p>The hosebed compartment deck shall be constructed entirely from maintenance-free extruded aluminum. Extrusions shall have an anodized ribbed top surface for maintenance-free service life. Extruded aluminum slats shall be 3/4” x 2 3/4” and shall be riveted into a one-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose. The hosebed compartment shall be free of sharp edges and projections to prevent hose damage.</p>		



Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The compartment deck design shall incorporate a track for the installation of adjustable hosebed dividers. The track shall hold the nut straight so only a TORX's head screwdriver is required to adjust the divider from side to side.</p>		
<p>The hosebed sides shall consist of aluminum plate and a framework of 1.5" x 4" x 3/16" and 3" x 3" x 3/16" aluminum slotted extrusions welded both vertically and horizontally for high rigidity.</p>		
<p><b>Fuel Fill</b></p>		
<p>The apparatus shall be supplied with a fuel fill on the officer side of the body. The fuel fill shall have a hinged door.</p>		
<p><b>Rear Pike Pole/Attic Ladder Storage</b></p>		
<p>A storage compartment shall be provided at the rear of the body for four (4) pike poles and one (1) attic ladder with feet. The storage area shall be labeled for two (2) 6' poles, one (1) 8' pole, one (1) 10' pole and one (1) 10' attic ladder. The pike poles and attic ladder shall be secured by a hinged aluminum plate door that matches the rear body finish.</p>		
<p><b>DOORS</b></p>		
<p><b>Single Compartment Door</b></p>		
<p>A single compartment door shall be constructed using a box pan configuration. The outer doorpan shall be beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner doorpan shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.</p>		
<p>The compartment door shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.</p>		
<p>A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.</p>		
<p>A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.</p>		
<p>The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have a gas shock-style hold-open device.</p>		
<p>An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.</p>		
<p>The door(s) shall be installed in the following location(s): R3</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Single Compartment Door</b></p> <p>A single compartment door shall be constructed using a box pan configuration. The outer doorpan shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner doorpan shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.</p> <p>The compartment door shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.</p> <p>A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.</p> <p>A polished stainless steel Hansen D-ring style twist-lock door handle a with #459 latch shall beprovided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosionresistance.</p> <p>The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment doorwith a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have gas shock-style hold-open devices.</p> <p>An anodized aluminum drip rail shall be mounted over the compartment opening to assist indirecting water runoff away from the compartment.</p> <p>The door(s) shall be installed in the following location(s): L3</p>		
<p><b>Double Compartment Door</b></p> <p>Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner doorpans shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 90-degree bend to form an integral drip rail.</p> <p>The compartment doors shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors toprovide a seal that is resistant to oil, sunlight, and ozone.</p> <p>A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.</p> <p>A polished stainless steel Hansen D-ring style twist-lock door handle a with #459 latch shall beprovided on the primary door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The secondary door shall have a dual stage rotary latch with a 750 lb rating to hold the door in the closed position. The latch shall be mounted at the top of the door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latch. The paddle handle shall be connected to the rotary latch by a 5/32" (.156") diameter rod. Cable actuation shall be deemed unacceptable due to the potential for cable stretch and slippage. The striker pin shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.</p>		
<p>Double door latch to have latch brackets fabricated from .125 aluminum smooth plate, installed with "PULL" tags #1032993 for left side and #1032294 for right side.</p>		
<p>The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.</p>		
<p>The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb rating and be mounted near the top of the door (when possible).</p>		
<p>An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.</p>		
<p>The door(s) shall be installed in the following location(s): R4</p>		
<p><b>Double Compartment Door</b></p>		
<p>Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall be beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pans shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 95-degree bend to form an integral drip rail.</p>		
<p>The compartment doors shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone.</p>		
<p>A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.</p>		
<p>A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the primary door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.</p>		
<p>The secondary door shall have two (2) dual stage rotary latches, each with a 750 lb rating to hold the door in the closed position. The latches shall be mounted at the top and bottom of the door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latches. The paddle handle shall be connected to the rotary latches by 5/32" (.156") diameter rods. Cable actuation shall not be deemed unacceptable due to the potential for cable stretch and slippage. The striker pins shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>Double door latch to have latch brackets fabricated from .125 aluminum smooth plate, installed with "PULL" tags #1032993 for left side and #1032294 for right side.</p> <p>The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.</p> <p>The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb rating and be mounted near the top of the door (when possible).</p> <p>An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.</p> <p>The door(s) shall be installed in the following location(s): L1, L2, L4, R1, R2</p> <p><b>SHELVES</b></p> <p><b>Adjustable Shelf [Qty: 12]</b></p> <p>There shall be an aluminum adjustable shelf provided for a compartment as specified.</p> <p>The shelf shall be constructed of 3/16" (.187") smooth aluminum plate. The shelf shall have a minimum 2" front and rear lips to accommodate optional plastic interlocking compartment tile systems and shall be capable of holding 100 lbs on compartments with tracks mounted on backwall (compartments up to approximately 12" deep) or shall be capable of holding 250 lbs with tracks mounted on forward and rearward walls.</p> <p>The shelf shall be sized, width and depth, to match the size and location in the compartment.</p> <p><b>Adjustable Tracks [Qty: 8]</b></p> <p>Tracks shall be provided in the compartment as specified for use with adjustable shelves and/or trays in non-transverse compartments. The tracks shall be vertical mounted and attached to the side and/or rear walls of the compartments.</p> <p><b>TRAYS / TOOLBOARDS</b></p> <p><b>Roll-Out Tray [Qty: 5]</b></p> <p>There shall be a floor mounted SlideMaster with roll-out tray provided in a compartment as specified.</p> <p>The roll-out tray shall be constructed of 3/16" (.187) smooth aluminum with welded corners for strength and rigidity. The tray shall be sized in width and depth as applicable.</p> <p>An Innovative Industries SlideMaster (model AM3) aluminum frame and channel assembly shall be provided for the tray for the ease of operation and long service life. A positive twist lock shall be provided to lock the tray in the stored position. The tray shall roll out approximately 100% from the stored position.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The capacity rating shall be 600 pounds uniformly distributed load.</p>		
<p><b>COVERS</b></p>		
<p><b>Hose Bed Cover</b></p>		
<p>A cover constructed of Black 18 oz. PVC vinyl coated polyester shall be installed over the apparatus hose bed. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 square inch.</p> <p>The front edge of the cover shall be mechanically attached to the body. The sides of the cover shall be held in place with heavy duty Velcro strips running the length of the hose bed.</p>		
<p><b>Crosslay Cover</b></p>		
<p>A cover constructed of Black 18 oz. PVC vinyl coated polyester shall be installed on the apparatus crosslay. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 square inch.</p> <p>The cover shall be held in place across the top of the body by chrome snaps. The side flaps to be picked separately to comply with the latest edition of NFPA 1901.</p>		
<p><b>Rear Hose Bed Cover</b></p>		
<p>A cover constructed of heavy duty black nylon cargo netting shall be installed at the rear apparatus hose bed.</p> <p>The bottom of the cargo netting shall be mechanically attached to the hose bed. The cover shall be attached to comply with the latest edition of NFPA 1901.</p> <p>Cover shall secure the hose load at the rear open back of the hose bed and shall compliment separate top cover of vinyl, diamond plate or similar cover that secures top of body open areas over hose load.</p>		
<p><b>Crosslay Cover - Sides</b></p>		
<p>A pair of covers constructed of heavy duty black nylon cargo netting shall be installed over the side openings of the apparatus crosslay.</p> <p>The covers shall be secured in place to comply with the latest edition of NFPA 1901.</p>		
<p><b>PANELS</b></p>		
<p><b>Side Mount Pump Panels</b></p>		
<p>The driver and officer side pump panels shall be constructed of 14 gauge stainless steel. Each panel shall have the ability to be removed from the module for easier access and for maintenance in the pump area.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Hinged Gauge Panel</b></p>		
<p>The driver side upper gauge panel(s) shall be hinged to provide access to panel mounted electrical connections.</p>		
<p>The gauge panel(s) shall be hinged to open upward with a full-length stainless steel piano type hinge with 1/4" pins. The hinge shall be "staked" on every other knuckle to prevent the pin from sliding.</p>		
<p>The gauge panel(s) shall include latches to secure the panel in the closed position and two (2) mechanical/pneumatic (as applicable with the panel size) hold-opens for the open position.</p>		
<p><b>Pump Access Door</b></p>		
<p>The officer side pump module shall have a three (3) piece panel, one (1) above the discharge outlets, one (1) encompassing the discharges and intakes and one (1) low for bleeder valves.</p>		
<p>The upper two (2) pump panel sections shall have a vertical stainless steel piano type hinge with 1/4" pins along the forward edge of the pump module. The hinges shall be "staked" on every other knuckle to prevent the pin from sliding. The panels shall have push button style latches to secure the panels in the closed position. The upper panel shall have one (1) pneumatic shock to hold the panel in the open position.</p>		
<p><b>MISC PUMP PANEL OPTIONS</b></p>		
<p><b>Pump Panel Tags</b></p>		
<p>Color coded pump panel labels shall be supplied to be in accordance with NFPA 1901 compliance.</p>		
<p><b>PUMP MODULE OPTIONS</b></p>		
<p><b>Flex Joint</b></p>		
<p>The area between the pump modules and body shall include a rubber flex joint. <b>Air</b></p>		
<p><b>Horn Switch</b></p>		
<p>A heavy duty weatherproof push-button switch shall be installed at the pump operator's panel to operate the air horns.</p>		
<p>The switch shall be labeled "Evacuation Alert".</p>		
<p>Location: driver side pump panel.</p>		

**WATER TANK**

**Booster Tank**

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

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

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

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

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

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

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

Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with an I.D. of 3" or larger that is designed to run through the tank. This outlet shall direct the draining of overflow water past the rear axle, thus reducing the possibility of freeze-up of these components in cold environments. This drain

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>configuration shall also assure that rear axle tire traction shall not be affected when moving forward.</p>		
<p>The booster tank shall undergo extensive testing prior to installation in the truck. All water tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale.</p>		
<p>Each tank shall be weighed empty and full to provide precise fluid capacity. Each tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.</p>		
<p>The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.</p>		
<p><b>TANK PLUMBING</b></p>		
<p><b>Tank Fill 1.5” Akron Valve</b></p>		
<p>One (1) manually operated 1-1/2” Akron valve shall be installed between the pump discharge and the booster tank in order to fill the tank. The valve control shall be located at the pump operator’s panel, and shall visually indicate the position of the valve at all times.</p>		
<p>The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self- locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.</p>		
<p>The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.</p>		
<p>All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.</p>		
<p><b>Tank to Pump 3” Akron Air Valve</b></p>		
<p>One (1) air actuated 3” Akron valve shall be installed between the pump suction and the booster tank. Includes flex hose with stainless steel hose clamps for connection to the 4" tank sump outlet. The valve control shall be located at the pump operator’s panel and shall visually indicate the position of the valve at all times.</p>		
<p>The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self- locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.</p>		
<p>The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.</p>		



Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.</p>		
<p>A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.</p>		
<p><b>LADDER STORAGE / RACKS</b></p>		
<p><b>Rear Ladder Storage</b></p>		
<p>A ladder storage tunnel shall be provided beneath the aerial device frame work. There shall be access to the ladders via an opening at the rear.</p>		
<p>This tunnel shall be lined with .090" aluminum. The ladders will be held captive top and bottom by aluminum tracks and slide on friction reducing material. All ladders shall be removable individually without having to remove any other ladder.</p>		
<p>The ladder tunnel shall hold: 1225-A 35', 1200-A 28', 900-A 24' and 875-A 16'.</p>		
<p><b>HANDRAILS / STEPS</b></p>		
<p><b>Slide-Out Platform</b></p>		
<p>The slide-out platform shall be approximately 21" deep and shall be constructed of 1/8" aluminum treadplate. The platform shall be mounted under the apparatus body. The platform shall utilize a maintenance-free slide system incorporating stainless steel shoulder bolts that slide in slotted heavy wall aluminum angles. Notches shall be provided at each end of the slot to hold the platform in both the extended and retracted positions.</p>		
<p>A chrome grab handle shall be provided on the front face of the platform for ease of operation.</p>		
<p>Non-slip aluminum hand rail(s) with chrome plated stanchions shall be provided as best suited for use with the platform operation.</p>		
<p>If applicable, NFPA pump throttle height requirement shall be measured from the top of the slide-out platform on all aerials and from the ground on side mounted pump operator panels on non-aerial apparatus.</p>		
<p>Location: below driver side pump panel.</p>		
<p><b>Auxiliary Step</b></p>		
<p>A step below the body shall be provided. The step shall be constructed of .188" aluminum treadbrite. The step surface shall be provided with an aggressive skid-resistant surface. The step shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (0.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4". The step shall be located below rear of officer side pump panel.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>One (1) handrail shall be installed in compliance with current NFPA. The handrail shall be constructed of 6063T5 1.25" OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.</p> <p><b>MISC BODY OPTIONS</b></p> <p><b>Mud Flaps</b></p> <p>Black mud flaps with manufacturer's logo shall be provided for the body wheel wells.<b>Full</b></p> <p><b>Width Body Mud Flap</b></p> <p>A full width back rubber mud flap with customer specified graphics shall be provided and located at the rear of the body.</p> <p><b>Side Body Platework</b></p> <p>The painted aluminum smooth plate body side panels shall be flush with the supporting extrusions.</p> <p><b>Anodize Aluminum Trim</b></p> <p>A anodize aluminum trim shall be located at the bottom edge of all body compartment openings including pump enclosure with painted edge (as applicable). The trim shall provide added protection of the painted surface of the body when equipment is removed from the compartment.</p> <p><b>Tilt Jack Location</b></p> <p>The cab tilt jack shall be located right side forward jack leg compartment low behind door in access panel (tilt sw behind door).</p> <p><b>Body Wheel Well</b></p> <p>Smooth plate single axle wheel well painted job color. Includes bolt-on composite wheel well liners and bolt-on polished alum fenderettes.</p> <p>The body wheel well frame shall be constructed from 6063-T5 aluminum extrusion with a slot the full length to permit an internal fit of 3/16" (0.188") aluminum smooth plate painted job color. The wheel well trim shall be constructed from 6063-T5 formed aluminum extrusion.</p> <p>The fenderettes shall be bolt-on and shall be easily removable. The fenderette shall be constructed from .080" aluminum with a mirror finish. The fenderette shall be 2 1/2" (2.5") wide x 2 1/4" (2.25") tall with a 26 7/8" (26.875") radius. A "P" shaped rubber gasket shall be provided between the fenderette and wheel well body panel.</p> <p>The wheel well liners shall be constructed of a 3/16" (.187") composite material. The liners shall be bolt-on and shall provide a maintenance-free and damage-resistant surface.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Corner Guard</b></p>		
<p>Diamond plate corner guard for the rear compartment face forward of the side facing staircase(s) constructed of (.063”) aluminum treadplate. Guard shall wrap around corner.</p>		
<p><b>SCBA BOTTLE STORAGE</b></p>		
<p><b>Wheel Well SCBA Storage</b></p>		
<p>The body wheel well area shall store up to eight (8) SCBA bottles- four (4) on the officer side and four (4) on the driver side. The bottles shall be secured in each storage area by a verticalhinged door which shall be secured in the closed position by a push button latch. The doors shall match the wheel well area material and finish.</p>		
<p><b>SCBA Strap</b></p>		
<p>Straps shall be provided in each exterior storage compartment to provide secondary means tohold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon webbing formed in a loop. The strap(s) shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.</p>		
<p><b>PUMPS</b></p>		
<p><b>Pump Rating</b></p>		
<p>The fire pump shall be rated at 1500 GPM.</p>		
<p><b>Fire Pump System</b></p>		
<p>A Waterous Model S100C20 series centrifugal single stage pump shall be installed. This pumpshall be capable of pumping up to 2000 gpm at 150 psi.</p>		
<p><b>Pump</b></p>		
<p>The pump body shall be cast in ductile iron with a double stripping edge volute to minimize radial forces at all flow rates. A bronze impeller shall be provided. The impeller shall be balanced mechanically and hydraulically for vibration-free operation. The impeller shaft shall be stainless steel shaft with a spring-loaded mechanical shaft seal. Self-adjusting mechanical seal eliminates leakage and routine maintenance. The wear rings shall be bronze labyrinth-type(reverse flow) that are replaceable.</p>		
<p>The pump shall have an 8 inch x 13 ASA flange intake. A stainless steel intake manifold shall be provided with two (2) 6” NST inlets located one each side of the apparatus.</p>		
<p><b>Transmission</b></p>		
<p>The pump transmission shall be constructed of high-strength aluminum. The case shall be a three-piece design that is horizontally split. The drive line shafts shall be made from alloy steelforgings, hardened and ground to size.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The gearbox shall have all steel drive hardened sprockets with a Morse HV high strength drivechain. The gearbox ball bearings shall be deep groove, anti-friction to provide support and proper alignment to the impeller shaft assembly. Bearings shall be oil splash-lubricated, completely separated from the water being pumped, and protected by a V-ring and oil seals.</p>		
<p>The pump shall feature a passive lubrication system that eliminates the need for a separate oilpump.</p>		
<p><b>Pump Mounting</b></p>		
<p>The pump shall be mounted with steel angles and channel from the chassis frame using grade8 bolts, to both the frame and pump to permit removal of the pump for service. The pump shall be equipped with bolt flanges or Victaulic couplings on the suction and discharge side of the pump to provide for removal of fire pump without disturbing piping.</p>		
<p><b>Pump Shift</b></p>		
<p>The pump shift shall be pneumatically-controlled using a power shift cylinder.</p>		
<p>The power shift control valve shall be mounted in the cab, and be labeled "PUMP SHIFT". The apparatus transmission shift control shall be furnished with a positive lever, preventing accidental shifting of the chassis transmission.</p>		
<p>A green indicator light shall be located in the cab and be labeled "PUMP ENGAGED". The light shall not activate until the pump shift has completed its full travel into pump engagement position.</p>		
<p>A second green indicator light shall be located in the cab and be labeled "OK TO PUMP". This light shall be energized when both the pump shift has been completed and the chassis automatic transmission has obtained converter lockup (4th gear lockup).</p>		
<p>One (1) pump panel-mounted "GREEN" indicator light shall be positioned above the throttle control on the pump operator's panel. The light shall be energized when the pump shift has been completed, chassis automatic transmission has obtained converter lockup (4th gear lockup), and the chassis parking brake is set.</p>		
<p><b>Discharge Manifold</b></p>		
<p>The pump system shall utilize a stainless steel discharge manifold system that allows a direct flow of water to all discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion.</p>		
<p><b>Test Ports</b></p>		
<p>Two (2) test plugs shall be pump panel-mounted for third party testing of vacuum and pressure of the pump.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>PUMP CERTIFICATION</b></p> <p><b>Pump Certification</b></p> <p>The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. The pump shall be tested at the manufacturer’s facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in current NFPA 1901.</p> <p>The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank topump flow test as outlined in current NFPA 1901.</p> <p>A piping hydrostatic test shall be performed as outlined in current NFPA 1901.</p> <p>The pump shall deliver the percentage of rated capacities at pressures indicated below:</p> <ul style="list-style-type: none"> <li>• 100% of rated capacity at 150 psi net pump pressure</li> <li>• 100% of rated capacity at 165 psi net pump pressure</li> <li>• 70% of rated capacity at 200 psi net pump pressure</li> <li>• 50% of rated capacity at 250 psi net pump pressure</li> </ul> <p>A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-loadgoverned speed of the engine.</p> <p>A Certificate of Inspection certifying performance of the pump and all related components shall be provided at time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer’s Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer.</p> <p><b>PUMP OPTIONS</b></p> <p><b>Speed Counter Electronic, Waterous</b></p> <p>The test connection shall be installed on the pump panel to electronically verify the vehicle engine speed displayed on the electronic tachometer.</p> <p><b>Steamers, Flush+1</b></p> <p>The pump 6" steamer intake(s) shall be mounted approximately 1” from the pump panel to back of cap when installed. The "Flush+1" dimension can vary + or - 1-1/4" or as practicable depending on the pump module width and options selected. (Example 72" or 76" modules.)</p> <p>Location: driver's side, officer's side.</p> <p><b>Anodes, Waterous Pump</b></p> <p>The anodes help prevent damage caused by galvanic corrosion within the pump.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One (1) anode will be located on the suction side and one (1) will be located on the discharge side of the pump.</p>		
<p><b>Manual Pump Shift Override</b></p>		
<p>One (1) manual pump shift override shall be side panel mounted to engage the pump in the event of an air pressure failure. The pump shift shall be operated by a chrome handled push-pull cable.</p>		
<p><b>Manual Master Drain</b></p>		
<p>A manual master drain valve shall be installed and operated from the driver side. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal.</p>		
<p>The manual master drain valve shall have twelve (12) individually-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.</p>		
<p>The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.</p>		
<p><b>Pump Cooler</b></p>		
<p>The pump shall have a 3/8" line installed from the pump discharge to the booster tank to allow a small amount of water to circulate through the pump casing in order to cool the pump during sustained periods of pump operation when water is not being discharged. The pump cooler line shall be controlled from the pump operator's panel by a Innovative Controls 1/4 turn valve with "T" handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag</p>		
<p><b>Trident Primer</b></p>		
<p>A Trident air operated priming system shall be installed. The unit shall be of all brass and stainless steel construction and designed for fire pumps of 1,250 GPM (4,600 LPM) or more. Due to corrosion exposure no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design with 3/4" NPT connection to the fire pump.</p>		
<p>The primer shall be mounted above the pump impeller so that the priming line will automatically drain back to the pump. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass "wye" type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.</p>		
<p>The system shall create vacuum by using air from the chassis air brake system through a two-barrel multi-stage internal "venturi nozzles" within the primer body. The noise level during operation of the primer shall not exceed 75 Db.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Air Flow Requirements</b></p>		
<p>The primer shall require a minimum of 15.6 cubic foot per minute air compressor and shall be capable of meeting drafting requirements at high idle engine speed. The air supply shall be from a chassis supplied "protected" air storage tank with a pressure protection valve. The air supply line shall have a pressure protection valve set between 70 to 80 PSIG.</p>		
<p><b>Primer Control</b></p>		
<p>The primer control shall have a manually operated, panel mounted "push to prime" air valve. The valve shall direct air pressure from the air brake storage tank to the primer body. To prevent freezing, no water shall flow to and from the panel control.</p>		
<p><b>Warranty</b></p>		
<p>The primer shall be covered by a five (5) year parts warranty.</p>		
<p><b>INTAKES</b></p>		
<p><b>Left Intake 2.5" Akron Valve</b></p>		
<p>One (1) 2-1/2" suction inlet with a manually operated 2-1/2" Akron valve shall be provided on the left side pump panel.</p>		
<p>The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.</p>		
<p>The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.</p>		
<p>The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2- 1/2" NST female chrome inlet swivel, and shall be equipped with a chrome plated rockerlug plug with a retainer device.</p>		
<p>The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.</p>		
<p>All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.</p>		
<p>A 3/4" bleeder valve assembly will be installed on the left side pump panel.</p>		
<p><b>Right Intake 2.5" Akron Valve</b></p>		
<p>One (1) 2-1/2" gated suction inlet with a manual operated Akron valve shall be installed in the right side pump panel with the valve body behind the panel. The valve control shall be located at the intake and shall visually indicate the position of the valve at all times.</p>		

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	YES	NO
<p>The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymerseats for ease of operation and increased abrasion resistance. The valve shall have a self- locking ball feature using an automatic friction lock design to balance the stainless steel ballwhen in a throttle position and water is flowing through it.</p>		
<p>The valve shall be of the unique Akron swing-out design to allow the valve body to be removedfor servicing without disassembling the plumbing.</p>		
<p>The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2- 1/2” NST female chrome inlet swivel and shall be equipped with a chrome plated rockerlug plugwith a retainer device.</p>		
<p>All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.</p>		
<p>A 3/4” bleeder valve assembly will be installed on the right side pump panel.</p>		
<p><b>INTAKE OPTIONS</b></p>		
<p><b>Intake Pressure Relief</b></p>		
<p>A18 Series - PRESSURE RELIEF VALVE - TFT’s pressure relief valve is adjustable from 50 to250 psi (3 to 14 bar) with easy to see 25 psi (2 bar) increments. The aluminum casting is plasticimpregnated, hard coat anodized, and TFT powder coat finished inside and out for maximum corrosion protection. Works with Darley, Waterous, or Hale bolt hole patterns for direct use on pump flanges.</p>		
<p><b>DISCHARGES AND PRECONNECTS</b></p>		
<p><b>Left Front 2.5” Hose Bed Akron Valve</b></p>		
<p>One (1) 2-1/2” preconnect outlet with a manually operated Akron valve shall be supplied to thelower left of the apparatus hose bed. The preconnect shall consist of a 2-1/2” heavy-duty hosecoming from the pump discharge manifold to a 2-1/2” adapter.</p>		
<p>The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymerseats for ease of operation and increased abrasion resistance. The valve shall have a self- locking ball feature using an automatic friction lock design to balance the stainless steel ballwhen in a throttle position with water flowing through it.</p>		
<p>The valve shall be of the unique Akron swing-out design to allow the valve body to be removedfor servicing without disassembling the plumbing.</p>		
<p>The valve control shall be located at the pump operator panel and shall visually indicate theposition of the valve at all times.</p>		
<p>All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.</p>		



Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Waterway 4” Discharge with 3” Akron Valve</b></p> <p>One (1) 4” discharge outlet with a 3” manually operated Akron valve shall be connected from the pump discharge to the aerial waterway.</p> <p>The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self- locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.</p> <p>The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.</p> <p>The valve control shall be located at the pump operator’s panel and shall visually indicate the position of the valve at all times.</p> <p>All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.</p> <p><b>1.5” Single Crosslay Akron Valve [Qty: 2]</b></p> <p>One (1) single crosslay discharge shall be provided at the front area of the body. The crosslay shall include one (1) 2” brass swivel with a 1-1/2” hose connection to permit the use of hose from either side of the apparatus.</p> <p>The crosslay hose bed shall consist of a 2” heavy-duty hose coming from the pump discharge manifold to the 2” swivel. The hose shall be connected to a manually operated 2” Akron valve. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self- locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.</p> <p>The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.</p> <p>The valve control shall be located at the pump operator’s panel and shall visually indicate the position of the valve at all times.</p> <p>All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.</p> <p>Location: crosslay 1 &amp; 2, crosslay 3. <b>Left</b></p> <p><b>Panel 2.5” Discharge Akron Valve</b></p> <p>One (1) 2-1/2” discharge outlet with a manually operated Akron valve shall be provided at the left hand side pump panel.</p> <p>The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self- locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>with water flowing through it.</p>		
<p>The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.</p>		
<p>The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.</p>		
<p>All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.</p>		
<p>Location: left side discharge 1, left side discharge 2.</p>		
<p><b>Right Panel 2.5" Discharge Akron Valve</b></p>		
<p>One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel.</p>		
<p>The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.</p>		
<p>The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.</p>		
<p>The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.</p>		
<p>All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.</p>		
<p>Location: right side discharge 2.</p>		
<p><b>Right Panel 3" Discharge Akron Valve</b></p>		
<p>One (1) 3" discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel.</p>		
<p>The discharge shall be equipped with a device that shall not allow the valve to open or close in less than three (3) seconds.</p>		
<p>The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.</p>		
<p>The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.</p> <p>All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.</p> <p>Location: right side discharge 1.</p> <p><b>DISCHARGE OPTIONS</b></p> <p><b>IC Push/Pull Control</b></p> <p>The apparatus pump panel shall be equipped with Innovative Controls Side Mount Valve Controls. The ergonomically designed ¼ turn push-pull T-handle shall be chrome-plated zinc with recessed labels for color-coding and verbiage. An anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated zinc panel-mounting bezel with areas for color-coding and/or FOAM and CAFS identification labels.</p> <p><b>Bleeder Drain Valve [Qty: 8]</b></p> <p>The bleeder/drain valves shall be Innovative Controls ¾” ball brass drain valves with chrome-plated lift lever handles and ergonomic grips. Each lift handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve, also supplied by Innovative Controls. The color labels shall also include valve open and close verbiage.</p> <p><b>Discharge/Intake Bezel</b></p> <p>Innovative Controls intake and/or discharge swing handle bezels shall be installed to the apparatus with mounting bolts. These bezel assemblies will be used to identify intake and/or discharge ports with color and verbiage. These bezels are designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The specified assemblies feature a chrome-plated panel-mount bezel with durable UV resistant polycarbonate inserts. These UV resistant polycarbonate graphic inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.</p> <p><b>PRESSURE GOVERNORS</b></p> <p><b>Pressure Governor</b></p> <p>The apparatus shall be equipped with a Class 1 “TOTAL PRESSURE GOVERNOR PLUS” (TPG) Integrated pump control system. The TPG Plus shall have a weatherproof color display. The TPG will operate as an engine/pump pressure governor/throttle system that is connected directly to the Electronic Control Module (ECM) mounted on the engine. The TPG is to operate as a pressure sensor (regulating) governor (PSG).</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The TPG Plus shall display master intake and discharge gauge readings, engine RPM, oil pressure, engine temperature and voltage along with providing critical warnings. The warning levels for oil pressure, high engine temperature, low voltage and high voltage shall be independently programmable.</p> <p><b>GAUGES</b></p> <p><b>GAUGE IC 10 LED WATER TANK LEVEL</b></p> <p>One (1) Innovative Controls brand water tank level gauge shall be located at the pump operator's panel to provide a high-visibility display of the water tank level. Ten (10) high- intensity light emitting diodes (LED's) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.</p> <p>The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability.</p> <p>The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.</p> <p><b>Flow Meter System</b></p> <p>The apparatus shall be equipped with a Class 1 Flowminder on the specified discharge to digitally display the actual volume of water (in gallons per minute) being discharged through the specified line.</p> <p>Flowminder shall consist of:</p> <ul style="list-style-type: none"> <li>• Weatherproof digital flow display with super-bright digits at least 1/2" high. The display shall read actual flow and shall switch to total flow when the totalizer button is depressed and held.</li> <li>• Flow transmitter mounted in the discharge line piping between the pump and the discharge outlet. The transmitter shall consist of a weather resistant black anodized housing with brass wetted parts with a double paddle wheel.</li> <li>• Connecting cables to connect the digital display to the flow transmitter and apparatus power.</li> <li>• Machined mounting hardware to hold the transmitter in position in the discharge line.</li> <li>• The flow meter shall be checked and calibrated prior to delivery of the apparatus.</li> </ul> <p>The Flowminder shall be installed in addition to the pressure gauge.</p> <p>A Flowminder shall be provided for the following discharge(s): waterway discharge.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>2.5" [Qty: 8]</b></p> <p>The valve discharge gauges shall be 2 ½"(63mm) diameter Innovative Controls pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from –40F to +160F. Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.</p> <p>A polished chrome-plated stainless steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauges shall display a range from 0 to 400 psi with black graphics on a white background.</p> <p><b>Flow Meter Totalizer Button</b></p> <p>The apparatus shall be equipped with a Class 1 Totalizer button. When the totalizer button is depressed and held it will give the total volume of water that has flow through each specified discharge that is equipped with a flowmeter.</p> <p><b>ELECTRICAL SYSTEMS</b></p> <p><b>Multiplex Electrical System</b></p> <p><b>Electrical System</b></p> <p>The apparatus shall incorporate a Weldon V-MUX multiplex 12 volt electrical system. The system shall have the capability of delivering multiple signals via a CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA 1901 standards.</p> <p>The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.</p> <p>The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The over-current protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.</p> <p>Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Multiplex System</b></p> <p>For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:</p> <ul style="list-style-type: none"> <li>• The network system must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this application.</li> <li>• Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.</li> <li>• All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.</li> <li>• Each module that controls a device shall hold its own configuration program.</li> <li>• Each module should be able to function as a standalone module. No “add-on” module will be acceptable to achieve this form of operation.</li> <li>• Load shedding power management (8 levels).</li> <li>• Switch input capability for chassis functions.</li> <li>• Responsible for lighting device activation.</li> <li>• Self-contained diagnostic indicators.</li> <li>• Wire harness needed to interface electrical devices with multiplex modules.</li> <li>• The grounds from each device should return to main ground trunk in each sub harness by the use of ultrasonic splices.</li> </ul> <p><b>Wiring</b></p> <p>All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines. No exceptions.</p> <ul style="list-style-type: none"> <li>• NFPA 1901-Standard for Automotive Fire Apparatus</li> <li>• SAE J1127 and J1127</li> <li>• IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies.(Class 3 – High Performance Electronic Products)</li> </ul> <p>All wiring shall be copper or copper alloys of a gauge rated to carry 125% of the maximum current for which the circuit is protected. Insulated wire and cable 8ga and smaller shall be SXL, GXL, or TXL per SAE J1128. Conductors 6ga and larger shall be SXL or SGT per SAE J1127.</p> <p>All wiring shall be color coded and imprinted with the circuit’s function. Minimum height of imprinted characters shall not be less than .082” plus or minus .01”. The imprinted characters shall repeat at a distance not greater than 3”.</p> <p>A coil of wire shall be provided behind electrical appliances to allow them to be pulled away from mounting area for inspection and service work.</p> <p><b>Wiring Protection</b></p> <p>The overall covering of the conductors shall be loom or braid.</p>		

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	YES	NO
<p>Braid style wiring covers shall be constructed using a woven PVC-coated nylon multifilament braiding yarn. The yarn shall have a diameter of no less than .04” and a tensile strength of 22lbs. The yarn shall have a service temperature rating of -65 F to 194 F. The braid shall consist of 24 strands of yarn with 21 black and 3 yellow. The yellow shall be oriented the same and be next to each other.</p> <p>Wiring loom shall be flame retardant black nylon. The loom shall have a service temperature of -40 F to 300 F and be secured to the wire bundle with adhesive-backed vinyl tape. <b>Wiring</b></p> <p><b>Connectors</b></p> <p>All connectors shall be Deutsch series unless a different series of connector is needed to match a supplier’s component. The connectors and terminals shall be assembled per the connector/terminal manufacturer’s specification. Crimble/Solderless terminals shall be acceptable. Heat shrink style shall be utilized unless used within the confines of the cab.</p> <p><b>NFPA Required Testing of Electrical System</b></p> <p>The apparatus shall be electrical tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with delivery documentation per requirements of NFPA #1901. The following minimum testing shall be completed by the apparatus manufacturer:</p> <p><b>1. Reserve capacity test:</b></p> <p>The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test fail.</p> <p><b>2. Alternator performance test at idle:</b></p> <p>The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.</p> <p><b>3. Alternator performance test at full load:</b></p> <p>The total continuous electrical load shall be activated with the engine running up to the engine manufacturer’s governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded by excessive battery discharge, as detected by the system required in NFPA #1901 Standard, or a system voltage of less than 11.7 volts dc for a 12 volt nominal system, for more than 120 seconds, shall be considered a test failure.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>4. Low voltage alarm test:</b></p>		
<p>Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts dc for a 12 volt nominal system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.</p>		
<p><b>NFPA Required Documentation</b></p>		
<p>The following documentation shall be provided on delivery of the apparatus:</p>		
<p>A. Documentation of the electrical system performance tests required above.</p> <p>B. A written load analysis, including:</p> <ol style="list-style-type: none"> <li>a. The nameplate rating of the alternator</li> <li>b. The alternator rating under the conditions</li> <li>c. Each specified component load</li> <li>d. Individual intermittent loads</li> </ol>		
<p><b>Vehicle Data Recorder</b></p>		
<p>A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1901. The following data shall be monitored:</p>		
<ul style="list-style-type: none"> <li>• Vehicle speed MPH</li> <li>• Acceleration (from speedometer) MPH/Sec.</li> <li>• Deceleration (from speedometer) MPH/Sec.</li> <li>• Engine speed RPM</li> <li>• Engine throttle position % of full throttle</li> <li>• ABS Event On/Off</li> <li>• Seat occupied status Occupied Yes/No by position</li> <li>• Seat belt status Buckled Yes/No by position</li> <li>• Master Optical Warning Device Switch On/Off</li> <li>• Time: 24 hour time</li> <li>• Date: Year/Month/Day</li> </ul>		
<p><b>Occupant Detection System</b></p>		
<p>There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.</p>		
<p>The audible warning shall activate when the vehicle's park brake is released and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.</p>		



Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The visual warning shall consist of a graphical representation of each cab seat in the multiplex display screen that will continuously indicate the validity of each seat position.</p> <p>The system shall include a seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness.</p> <p><b>Multiplex Display</b></p> <p>The V-MUX multiplex electrical system shall include a Vista IV color display. The display shall have the following features:</p> <ul style="list-style-type: none"> <li>• Aspect ratio of 16:9 (Wide Screen)</li> <li>• Diagonal measurement of no less than 7"</li> <li>• Master warning switch</li> <li>• Engine high idle switch</li> <li>• Five (5) tactile switches to access secondary menus</li> <li>• Eight (8) multi-function programmable tactile switches</li> <li>• Specific door ajar indication</li> <li>• Real time clock</li> <li>• Provides access to the multiplex system diagnostics</li> <li>• Video capability for optional back-up camera(s) and GPS display</li> </ul> <p>The display shall be located driver's side engine cover.</p> <p><b>Electrical Connection Protection</b></p> <p>The vehicle electrical system shall be made more robust by the application of a corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body. If equipped with an aerial device, the exposed connections on the aerial components shall also be protected.</p> <p>The coating shall use nanotechnology to penetrate at the molecular level into uneven surfaces to create a protective water repellent film. The coating shall protect electrical connections against the environmental conditions apparatus are commonly exposed to.</p> <p><b>LIGHT BARS</b></p> <p><b>Light Bars</b></p> <p>A pair of Federal Signal Corporation 25" LED Navigator light bars model NVG25 shall be provided. Each bar shall contain one (1) split red/white 4x6 Quadraflare forward facing LEDs, two (2) red 4x6 Quadraflare forward facing LEDs and one (1) red 3x7 Quadraflare side facing LED. Lens configuration is all clear.</p> <p>The white LEDs shall be switched off in blocking right of way mode.</p> <p>The light bar shall be installed in the following location: front cab corners</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Light Bar Mount</b></p>		
<p>Two (2) pairs of 2" tall mounts shall be provided on the front mini light bars</p>		
<p><b>WARNING LIGHT PACKAGES</b></p>		
<p><b>Lower Level LED Warning Light Flash Rate</b></p>		
<p>The lower level Federal Signal QuadraFlare and/or FireRay LED warning lights shall be set to DoubleFlash 150 - Simultaneous pattern.</p>		
<p><b>Lower Level Warning</b></p>		
<p>Eight (8) Federal Signal FireRay model FR6 LED light heads and two (2) Federal Signal MicroPulse Ultra model MPS3 Ultra LED light heads shall be provided. The lights shall be Red with red lenses. Note: MicroPulse Ultra Series lights are only available with clear lenses.</p>		
<p>The light heads shall be provided with chrome flanges (as applicable) mounted as close to the corner points of the apparatus (as is practical) as follows:</p>		
<ul style="list-style-type: none"> <li>• Two (2) FR6 light heads on the front of the apparatus facing forward.</li> <li>• Two (2) FR6 light heads on the rear of the apparatus facing rearward.</li> <li>• Two (2) FR6 light heads each side of the apparatus, one (1) each side at the forward most point and one (1) centrally located to provide midship warning lighting.</li> <li>• Two (2) MPS3 Ultra LED light heads shall be mounted one (1) each side at the rearward most point (as practical).</li> </ul>		
<p>The side facing lights shall be located at forward most position, centered in rear wheel well, and side facing at rear of body in rubrail if equipped.</p>		
<p>All warning devices shall be surface mounted in compliance with NFPA standards.</p>		
<p><b>WARNING LIGHTS</b></p>		
<p><b>Hazard (Door Ajar) Light</b></p>		
<p>There shall be a 2" red LED hazard light installed as specified.</p>		
<p>The light shall be located center overhead.</p>		
<p><b>Warning Light</b></p>		
<p>A Roto Ray LED rotating light shall be provided on the front of the cab. The light assembly shall have three LED lights with clear lenses, two (2) red and one (1) clear that rotate at 200 RPM. It shall be located center of cab below the windshield.</p>		
<p>A switch shall be provided for activation of the light and shall be wired to de-activate through park brake.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Warning Lights</b></p>		
<p>A pair of Federal Signal model VSLR-R LED rotating beacons shall be provided. Each beacon shall contain one (1) Solaris red LED rotator with red lens.</p>		
<p>Lights shall be located: each side of pump module offset to the rear, rear upper body on aerial style brackets.</p>		
<p><b>Warning Lights</b></p>		
<p>Two (2) Federal Signal FireRay model FR6 LED (Light Emitting Diode) light heads with bezel shall be provided. The lights shall be Red with red lenses, Red with red lenses.</p>		
<p>The flashing lights shall be surface mounted where specified.</p>		
<p>Location: (1) each side of cab centered over wheel well, (1) each side in front quad inboard of NFPA warning light.</p>		
<p><b>DIRECTIONAL LIGHT BARS</b></p>		
<p><b>Directional Light Bar Control Location</b></p>		
<p>The directional light bar control head shall be located in the center overhead console offset to officer side.</p>		
<p><b>Directional Light Wired to Warning Lights</b></p>		
<p>The rear directional light bar shall be activated when the upper level warning lights are activated to provide additional lighting, in addition to the warning lights, when the vehicle is responding to a scene.</p>		
<p><b>Directional Traffic Warning Light</b></p>		
<p>A Federal Viper EXT LED Signal Master model 320862 light bar with amber lens shall be installed at the rear of the apparatus. The unit shall be 31.0" long with six (6) Viper EXT LED heads. Four operating modes are available: left arrow, right arrow, split (center/out) and a flashing warning pattern.</p>		
<p>A Federal 331105 control shall be provided with LED indicators to emulate the warning pattern.</p>		
<p>Light bar dimensions are 31.0" long x 3.30" deep x 2.70" high.</p>		
<p><b>SIRENS</b></p>		
<p><b>Electronic Siren</b></p>		
<p>A Federal PA300 siren model 690010 solid state electronic siren with attached noise-canceling microphone shall be installed. The unit shall be capable of driving a single high power speaker up to 200 watts to achieve a sound output level that meets Class "A" requirements.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>Operating modes shall include Hi-Lo, yelp, wail, P.A., air horn and radio re-broadcast. The siren shall be recessed mounted in the cab.</p>		
<p><b>Electronic Siren Control Location</b></p>		
<p>The electronic siren control shall be located in the center overhead console offset to driver side.</p>		
<p><b>Mechanical Siren</b></p>		
<p>A chrome plated flush mounted Federal Q2B-NN coaster siren shall be installed in the front bumper. An electric siren brake switch shall be located in the cab accessible to driver.</p>		
<p>The siren shall be located driver side front bumper.</p>		
<p><b>SPEAKERS</b></p>		
<p><b>Siren Speaker</b></p>		
<p>One (1) Federal Signal model ES100 Dynamax 100 watt speaker shall be flush mounted as far forward and as low as possible on the front of the vehicle. A polished model MSFMT grille shall be provided on the outside of the speaker to prevent road debris from entering the speaker.</p>		
<p>Speaker dimensions shall be: 5.5 in. high x 5.9 in. wide x 2.5 in. deep. Weight = 5.5 lbs.</p>		
<p>The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA1901 requirements.</p>		
<p>The speaker shall be located officer side front bumper. <b>DOT</b></p>		
<p><b>LIGHTING</b></p>		
<p><b>License Plate Light</b></p>		
<p>One (1) Truck-Lite model 15905 white LED license plate light mounted in a Truck-Lite model 15732 chrome plated plastic license plate housing shall be mounted at the rear of the body.</p>		
<p><b>Tail Lights</b></p>		
<p>One (1) Federal Signal FireRay model FR6-BTT red L.E.D. (Light Emitting Diode) light, one (1) Federal Signal FireRay model FR6-ARROW amber LED light and one (1) Federal Signal FireRay model FR6-BACKUP white LED light shall be installed horizontally with individual housings each side at rear and wired with weatherproof connectors.</p>		
<p>Light functions shall be as follows:</p>		
<ul style="list-style-type: none"> <li>• L.E.D. red running light with red brake light in upper position.</li> <li>• L.E.D. amber populated arrow pattern turn signal in middle position.</li> <li>• L.E.D. white backup light in lower position.</li> </ul>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>License Plate Bracket</b></p>		
<p>There shall be bracket fabricated from aluminum diamond plate, secured to rear of the body to accommodate a license plate.</p>		
<p><b>LED Marker Lights</b></p>		
<p>LED clearance/marker lights shall be installed on the cab. The body marker lights shall be TecNiq 3/4" grommet mounted LED.</p>		
<p><b>Upper Cab:</b></p>		
<ul style="list-style-type: none"> <li>• Five (5) amber LED clearance lights on the cab roof.</li> </ul>		
<p><b>Lower Cab:</b></p>		
<ul style="list-style-type: none"> <li>• One (1) amber LED side turn/marker each side of cab ahead of the front door hinge.</li> </ul>		
<p><b>Upper Body:</b></p>		
<ul style="list-style-type: none"> <li>• One (1) red LED clearance light each side, rear of body to the side.</li> </ul>		
<p><b>Lower Body:</b></p>		
<ul style="list-style-type: none"> <li>• Three (3) red LED clearance lights centered at rear, recessed in the rubrail.</li> </ul>		
<ul style="list-style-type: none"> <li>• One (1) red LED clearance light each side at the trailing edge of the apparatus body, recessed in the rubrail.</li> </ul>		
<ul style="list-style-type: none"> <li>• One (1) amber LED clearance light each side front of body just in front of rear wheels, recessed in the rubrail.</li> </ul>		
<ul style="list-style-type: none"> <li>• Two (2) amber LED (one (1) clearance; one (1) auxiliary turn) lights each side front of body, recessed in the rubrail.</li> </ul>		
<p><b>LIGHTS - COMPARTMENT, STEP &amp; GROUND</b></p>		
<p><b>Compartment Light Package</b></p>		
<p>Two (2) Hansen compartment light strips shall be mounted in each body compartment greater than 4 cu. ft. Transverse compartments shall have four (4) lights located two (2) each side.</p>		
<p>Each light bar shall include white LEDs mounted with a tough polycarbonate tube enclosure to protect the LED circuit board. The lights shall produce 120 lumens per foot and be waterproof up to IP66 rating.</p>		
<p>Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel.</p>		
<p>The wiring connection for the compartment lights shall be made with a weather-resistant plug in style connector. A single water and corrosion-resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall allow the light to illuminate if the compartment door is open.</p>		
<p><b>Step Light Package</b></p>		
<p>The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the steps around the apparatus in accordance with current NFPA requirements.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The lights shall be 2" circular Whelen LED (Light Emitting Diode) model T0CACCCR with clearlenses mounted in a resilient shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug in style connector.</p> <p>The step lights shall be switched from the cab dash with the work light switch.</p> <p><b>Ground Lights</b></p> <p>The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA requirements. The lights shall be TecNiq model T440 4" circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug in style connector.</p> <p>Ground area lights shall be switched from the cab dash with the work light switch.</p> <p>One (1) ground light shall be supplied under each side of the front bumper extension if equipped.</p> <p>Lights in areas under the driver and crew area exits shall be activated automatically when the exits doors are opened.</p> <p><b>Ladder Tunnel Light [Qty: 3]</b></p> <p>An EON LED light shall be provided to illuminate the ladder tunnel at the opening. The light shall be wired through the door ajar circuit on the ladder tunnel door.</p> <p><b>LIGHTS - DECK AND SCENE</b></p> <p><b>Hose Bed Light</b></p> <p>An Optronics round LED light model TLL44 shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901. The light shall provide 720 lm effective output. The light shall have a black powder coated, die cast aluminum housing and stainless steel hardware with a weatherproof rating of IP69K.</p> <p>The hose bed light shall be switched with the work light switch in the cab.<b>Deck</b></p> <p><b>Lights</b></p> <p>Two (2) Optronics round 12 volt LED model TLL44 floodlights shall be installed at the rear of the apparatus. Each light shall provide 720 lm effective output. Each light shall have a black powder coated, die cast aluminum housing and stainless steel hardware with a weatherproof rating of IP69K.</p> <p>The rear deck lights shall be switched with the work light switch in the cab.</p> <p>Location: (1) each side over rear ladder tunnel.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Crosslay Light</b></p>		
<p>An Optronics round LED light model TLL44 shall be installed at the rear area of the crosslay to provide crosslay lighting per current NFPA 1901. The light shall provide 720 lm effective output. The light shall have a black powder coated, die cast aluminum housing and stainless steel hardware with a weatherproof rating of IP69K.</p>		
<p>The crosslay light shall be switched with the work light switch in the cab.</p>		
<p><b>LIGHTS - NON-WARNING</b></p>		
<p><b>Engine Compartment Light</b></p>		
<p>There shall be lighting provided in compliance with NFPA to illuminate the engine compartment area. The light wiring circuit shall activate when the cab is tilted and master power is switched on.</p>		
<p><b>Pump Compartment Light</b></p>		
<p>An incandescent light shall be provided in the pump compartment area for NFPA compliance. The light shall be wired to operate with the work light switch in the cab.</p>		
<p><b>LED Pump Panel Light Package</b></p>		
<p>Three (3) TecNiq model E10 LED lights shall be mounted under a light shield directly above each side pump panel. The work light switch in the cab shall activate the lights when the park brake is set.</p>		
<p><b>CONTROLS / SWITCHES</b></p>		
<p><b>Door Ajar Alarm</b></p>		
<p>An audible alarm shall be provided through the multiplex display(s) in the cab wired into the door ajar or indicator.</p>		
<p><b>Foot Switch</b></p>		
<p>A heavy duty metal floor mounted foot switch shall be installed to operate the Q2B siren. It shall be located driver's side, officer's side.</p>		
<p><b>Additional Switch</b></p>		
<p>A 12 volt switch shall be provided.</p>		
<p>The switch shall be located pump operator's panel for pump panel lights.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>CAMERAS / INTERCOM</b></p>		
<p><b>Two-Way Intercom</b></p>		
<p>A Fire Research ACT two-way intercom system shall be installed to provide communications between the turntable control station and the aerial tip. The intercom system shall include two (2) speakers and two (2) control modules; one (1) with a push-to-talk button at the turntable control station and one (1) hands free at the aerial tip.</p>		
<p>The control modules shall have push-button volume control and a LED volume display. The hands free module shall constantly transmit to the other module unless the push-to-talk button is pressed.</p>		
<p>The intercom shall have active noise cancellation and be designed for exterior use. <b>Camera</b></p>		
<p><b>Aerial Tip</b></p>		
<p>A Pro-Vision wireless camera system shall be installed on the aerial. The system shall include a VLI camera mounted at the tip of the aerial that feeds the video image to the color display at the turntable console. The color camera shall feature 28 infrared LEDs for improved nighttime vision, a weatherproof twist lock connector and have an IP69K rating. The camera shall feature a 5 year manufacturer's warranty.</p>		
<p><b>360 Camera System</b></p>		
<p>A FRC inView 360 HD camera system shall be installed on the apparatus. The system shall feature four (4) ultra wide-angle cameras located on the front, sides and rear of the vehicle. A control module shall be provided that shall take the simultaneous digital images from the cameras and process them (video stitch) into a single 360° birds-eye view image. The system shall automatically switch to a camera / area specific priority based on inputs from reverse, right turn, left turn and park brake. The video image shall be displayed on the multiplex color monitor viewable by the driver. A button shall be provided next to the dash mounted multiplex display(s) to allow view selection. The camera system shall have a built in DVR for use with department supplied SD card(s). The camera system shall be capable to hold up to four (4) 256GB SD cards for a total storage of one (1) TB.</p>		
<p><b>MISC ELECTRICAL</b></p>		
<p><b>Back-Up Alarm</b></p>		
<p>An electronic back-up alarm shall be supplied. The 97 dB alarm shall be wired into the chassis back-up lights to signal when the vehicle is in reverse gear.</p>		
<p><b>12 Volt DC Power Distribution Module</b></p>		
<p>A Blue Sea model 5032 12 place, split bus fuse block with ground, 12 volt DC power distribution module shall be provided. The module shall provide two isolated groups of six circuits, and shall be wired through switched hot and battery hot, and include a battery ground.</p>		
<p>Location: behind officer's seat.</p>		



Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>LIGHTS - AREA</b></p>		
<p><b>Cab Brow Light</b></p>		
<p>One (1) FireTech 12V LED model FT-B-72-ML-W 75" white housing brow light with integral marker lights shall be provided. The light shall be installed on the front cab brow in place of the standard DOT marker lights. the light shall feature 54 LEDs` producing 19,665 usable lumens and five (5) DOT approved marker lights. The 285W 12V light shall draw 23.75 amps.</p>		
<p><b>Cab Brow Light [Qty: 2]</b></p>		
<p>One (1) FireTech 12V LED mini-brow flood light model FT-MB-27-F-W 35" long shall be provided. The light shall feature 27 LEDs` producing 9,317 usable lumens. The 135W 12V light shall draw 11.25 amps. A switch shall be provided, accessible to driver, for activation of light.</p>		
<p>The light assembly shall be located driver and officer side over rear cab door.</p>		
<p><b>Extended Brow Brackets</b></p>		
<p>The forward facing brow mounted flood light shall be provided with extended brackets for use with a standard trough aerial cab.</p>		
<p><b>RECEPTACLES</b></p>		
<p><b>Receptacle</b></p>		
<p>A 20 amp, 110 volt 3 prong straight blade NEMA #5-20 duplex receptacle with a weatherproof cover plate shall be installed.</p>		
<p>Location: driver side front compartment face.</p>		
<p><b>AERIAL MODEL</b></p>		
<p><b>Turntable Extension</b></p>		
<p>The right side of the turntable shall be extended to provide additional space for personnel and /or equipment. The extension shall include an additional 42`` high handrail along the outside of the turntable as outlined in NFPA 1901 Section 19.18.1.</p>		
<p><b>100` Aerial Device</b></p>		
<p><b>Aerial Ladder Requirements</b></p>		
<p>It is the intent of these specifications to describe a telescopic aerial ladder of the open truss design that is compliant with NFPA 1901 (2016 edition) chapter 19 sections 19.2 through 19.6 and sections 19.17 through 19.25. Some portions of this specification exceed minimum NFPA recommendations and are to be considered a minimum requirement to be met.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The aerial ladder shall consist of four (4) extruded aluminum telescopic ladder sections operating from -2 degrees to 82 degrees and designed to provide continuous egress for firefighters and civilians from an elevated position to the turntable.</p> <p>The aerial device shall have a vertical height of 100 ft. at full extension and elevation. The measurement of height shall be consistent with NFPA 1901 section 19.2.2.</p> <p>The rated horizontal reach shall be 85 ft. The measurement of horizontal reach shall be consistent with NFPA 1901 19.2.3. The measurement shall be from the outermost rung at full extension to the centerline of turntable rotation.</p> <p>The aerial shall have a maximum stabilizer spread of 11 ft. from pin to pin.</p> <p>The ladder shall be able to provide full operating capacities in up to 35 mph wind conditions.</p> <p><b>Aluminum Aerial Ladder</b></p> <p>The aerial ladder shall exceed the aerial ladder requirements found in section 19.2 of NFPA 1901 as detailed in these specifications. To ensure a high strength-to-weight ratio and an inherent corrosion resistance, the aerial ladder shall be completely constructed of high strength aluminum. All side rails, rungs, handrails, uprights and K-braces shall be made of structural 6061T6 aluminum alloy extrusions. All material shall be tested and certified by the material supplier. All ladder sections shall be semi-automatically welded by inert gas shielded arc welding methods using 5356 aluminum alloy welding wire. Structural rivets or bolts shall not be utilized in the ladder weldment sections.</p> <p>Due to the unpredictable nature of fireground operations, a minimum safety factor of 2.5 to 1 is desired. This structural safety factor shall apply to all structural aerial components including turntable and torque box stabilizer components. Definition of the structural safety factor shall be as outlined in NFPA 1901 A.19.20.1:</p> <p><b>DL</b> = Dead load stress. Stress produced by the weight of the aerial device and all permanently attached components.</p> <p><b>RL</b> = Rated capacity stress. Stress produced by the rated capacity load of the ladder.</p> <p><b>WL</b> = Water load stress. Stress produced by nozzle reaction force and the weight of water in the water delivery system.</p> <p><b>FY</b> = Material yield strength. The stress level at which the material exhibits permanent deformation.</p> <p><math>2.5 \times DL + 2.5 \times RL + WL</math> equal to/less than FY</p> <p>The minimum NFPA specification of 2.0 to 1 is exceeded in this paragraph by requiring a 2.5 to 1 safety margin on dead load and live load while flowing water.</p> <p>The stability factor or tip over safety margin shall be a minimum of 1.5 to 1 as defined by NFPA 1901 19.21. The 1.5 to 1 stability factor shall be achieved in all ranges, including the front working area, without relying on the chassis front axle for stabilization.</p>		

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

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

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

The ladder rungs shall be designed to eliminate the need for rubber rung covers. The rungs shall be spaced on 14 inch centers and have an integral skid-resistant surface as outlined in NFPA 1901 19.2.5 through 19.2.5.3. An oval-shaped rung shall be utilized to provide a larger step surface at low angles and more comfortable grip at elevated positions. The minimum design load shall be 500 pounds distributed over a 3-1/2" wide area per rung as outlined in NFPA 1901 19.2.5.4.

The aerial ladder shall exceed NFPA 1901 sections 19.2.6 and 19.2.8 governing the minimum ladder section width and hand rail height.

Section	Width	Height
Base Section	36"	24-5/16"
Second Section	29-1/2"	21-3/4"
Third Section	24-3/8"	19-1/16"
Fly Section	19-3/4"	16-3/8"

**Ladder Extension Mechanism**

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

**Extension Cylinder Size**

Bore: 3 1/4"  
Stroke: 94"

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

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY		BIDDER COMPLIES																							
		YES	NO																						
<p><b>Ladder Cable Size</b></p> <table border="0"> <tr> <td>1st section (4 cables - 2 extend, 2 retract)</td> <td>7/16" 6 x 19 galvanized cable</td> </tr> <tr> <td>2nd section (4 cables - 2 extend, 2 retract)</td> <td>5/16" 7 x 19 galvanized cable</td> </tr> <tr> <td>3rd section (4 cables - 2 extend, 2 retract)</td> <td>5/16" 7 x 19 galvanized cable</td> </tr> </table> <p>The ladder assembly shall consist of four (4) separate weldments that shall extend and retract within each other. Nylatron NSM slide pads shall be utilized between each section to minimize friction. Nylatron NSM slide pads shall be installed at the tip of the lower three (3) sections to accommodate the sliding loads as the ladder is extended.</p> <p><b>Aerial Extension Indicator</b></p> <p>Reflective tape stripes shall be installed on the ladder top hand rail of the base section to indicate extension in 5 foot increments. Numeric indicators shall be placed at 10 foot increments. A reflective dot on the base of the 2nd section shall provide a visual reference for the operator to estimate aerial elevation.</p> <p><b>Aerial Finish</b></p> <p>To reduce maintenance expense the aerial shall have a natural aluminum swirled finish. Visible inspection of all ladder weld joints shall be possible without having to remove paint or body filler to reveal the weld bead.</p> <p><b>Operation Times</b></p> <p>The aerial shall complete the NFPA 1901 19.2.12 time test in no more than 120 seconds. This test involves raising the aerial from the bedded position to full elevation and extension and rotating to 90 degrees. This test is to begin with the stabilizers deployed.</p> <table border="0"> <tr> <td>Time to extend ladder</td> <td>maximum 30 seconds</td> </tr> <tr> <td>Time to retract ladder</td> <td>maximum 30 seconds</td> </tr> <tr> <td>Time to raise ladder</td> <td>maximum 25 seconds</td> </tr> <tr> <td>Time to lower ladder</td> <td>maximum 25 seconds</td> </tr> <tr> <td>Time to rotate 180 degrees</td> <td>maximum 80 seconds</td> </tr> </table> <p><b>Aerial Ladder Rated Capacity</b></p> <p>The aerial device shall have a rated capacity of 325 lbs. consistent with NFPA 19.3.1 through 19.3.2. The rated capacity shall include 250 lbs. in personnel allowance and 75 lbs. for equipment mounted at the tip of the ladder. The aerial device shall be rated in multiple configurations as outlined in 19.3.4. A sign mounted at the base of the aerial shall communicate the following ratings in the unsupported fully extended configuration while maintaining a 2.5 to 1 safety margin as defined in NFPA 1901 A.19.20.1. The loads in each configuration are in addition to 75 lbs. of equipment mounted at the tip.</p> <p>Condition #1- Tip load only, no water flowing</p> <table border="0"> <thead> <tr> <th>Elevation</th> <th>Capacity</th> <th>Pounds</th> </tr> </thead> <tbody> <tr> <td>- 2 to 35 degrees</td> <td>1 person</td> <td>250 lbs.</td> </tr> </tbody> </table>				1st section (4 cables - 2 extend, 2 retract)	7/16" 6 x 19 galvanized cable	2nd section (4 cables - 2 extend, 2 retract)	5/16" 7 x 19 galvanized cable	3rd section (4 cables - 2 extend, 2 retract)	5/16" 7 x 19 galvanized cable	Time to extend ladder	maximum 30 seconds	Time to retract ladder	maximum 30 seconds	Time to raise ladder	maximum 25 seconds	Time to lower ladder	maximum 25 seconds	Time to rotate 180 degrees	maximum 80 seconds	Elevation	Capacity	Pounds	- 2 to 35 degrees	1 person	250 lbs.
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Elevation	Capacity	Pounds																							
- 2 to 35 degrees	1 person	250 lbs.																							

36 to 50 degrees	2 people	500 lbs.
51 to 82 degrees	3 people	750 lbs.

Condition #2- Distributed loads no water flowing. (These include one person at the tip)

<b>Elevation</b>	<b>Capacity</b>	<b>Pounds</b>
- 2 to 20 degrees	1 person	250 lbs.
21 to 35 degrees	3 people	750 lbs.
36 to 50 degrees	5 people	1250 lbs.
51 to 82 degrees	10 people	2500 lbs.

Condition #3- Ladder tip load while flowing 1000 gpm with pre-piped waterway

<b>Elevation</b>	<b>Capacity</b>	<b>Pounds</b>
-2 to 35 degrees	0	0
36 to 50 degrees	1 person	250 lbs.
51 to 82 degrees	2 people	500 lbs.

**Hydraulic System**

The hydraulic plumbing shall consist of hydraulic stainless steel tubing wherever possible in order to:

- Eliminate hose wear.
- Eliminate the corrosion associated with galvanized steel tubing.
- Provide a stronger medium to carry the hydraulic fluid.

An interlock device shall be provided to prevent activation of the aerial ladder hydraulic pump until either the transmission is placed in neutral and the parking brake is set, or the transmission is placed in drive and the rear driveline is disengaged as outlined in NFPA 19.17.3.

The hydraulic system shall be of the latest design and incorporate features to minimize heat build up and provide smooth control of the aerial ladder. The system shall meet the performance requirement in NFPA 19.19.6 and 19.19.7, which requires adequate cooling under 2-1/2 hours of operations.

All hydraulic components that are non-sealing whose failure could result in the movement of the aerial shall comply with NFPA 19.19.1 and have burst strength of 4 to 1. Dynamic sealing components whose failure could cause aerial movement shall have a margin of 2 to 1 on maximum operating pressure per NFPA 19.19.1.1. All hydraulic hoses, tubes, and connections shall have minimum burst strength of 3 to 1 per NFPA 19.19.2.

A hydraulic oil pressure gauge shall be supplied at the base control location per NFPA 19.19.4.

The hydraulic system shall consist of a 55 gallon reservoir mounted to the torque box and plumbed to the hydraulic pump. The tank shall be supplied with a removable top to access tank strainer filter. The reservoir cap shall be marked per NFPA 19.19.5.2. There shall be plumbing for a supply and return line and a tank drain on the reservoir.

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES									
	YES	NO								
<p>Connections on the bottom of the tank shall utilize Code 61 flange fittings for ease of service. Gated valves under the tank shall facilitate filter changes.</p>										
<p>The hydraulic system shall use 5w-20 multi-weight, SAE 32 grade oil and incorporate the following filters to provide dependable service:</p>										
<table border="0"> <tr> <td>Reservoir Breather:</td> <td>10-micron</td> </tr> <tr> <td>Magnetic Reservoir Strainer:</td> <td>125-mesh</td> </tr> <tr> <td>Pressure Filter (Torque Box):</td> <td>3-micron</td> </tr> <tr> <td>Return Filter:</td> <td>10-micron</td> </tr> </table>	Reservoir Breather:	10-micron	Magnetic Reservoir Strainer:	125-mesh	Pressure Filter (Torque Box):	3-micron	Return Filter:	10-micron		
Reservoir Breather:	10-micron									
Magnetic Reservoir Strainer:	125-mesh									
Pressure Filter (Torque Box):	3-micron									
Return Filter:	10-micron									
<p>The aerial hydraulic system shall be designed in such a manner that a hydraulic pump failure or line rupture shall not allow the aerial or outriggers to lose position. Hydraulic holding valves shall be mounted directly on cylinders. To ensure reliable performance of holding valves, no hoses shall be permitted between a holding valve and cylinder.</p>										
<p>The hydraulic system shall be designed with an auxiliary power unit meeting the guidelines of NFPA 1901 19.18.7. The auxiliary power unit shall be a 12-volt pump connected to the chassis electrical system. The pump shall provide operation at reduced speeds to store the aerial device and outriggers for road transportation. Self-centering switches shall be provided at the turntable and each stabilizer control station to activate the system. The system shall be designed to provide a minimum of five (5) minutes of hydraulic power to operate functions.</p>										
<p>Hydraulic power to the ladder shall be transferred from the torque box by a hydraulic swivel. <b>Aerial</b></p>										
<p><b>Torque Box</b></p>										
<p>The aerial shall utilize an integral torque box design. The integral torque box design shall serve to carry the chassis, body, and aerial device as an integrated system. The system design shall provide a lower center of gravity to enhance road performance, a mounting location for underslung stabilizers, and additional space for body compartments. The strength of the torque box shall be a minimum 13.5 million-inch pounds resistance to bending moment. The stabilizers and turntable supports shall be welded directly to the torque box.</p>										
<p><b>Stabilization</b></p>										
<p>The unit shall be equipped with two (2) sets of extendable criss-cross underslung stabilizers, no exceptions. The stabilizers shall have a spread of 11 feet centerline to centerline of the stabilizer pads when fully extended. One (1) set of stabilizers shall be mounted in the forward body area and a second set close to the rear axle to minimize impact on departure angle. The stabilizers shall have an inner and outer tube that slide on low friction pads for deployment. The stabilizers shall have a tip over safety margin of 1-1/2 times the rated load imposed by the aerial in any position the aerial device can be placed as outlined in NFPA 1901 19.21.2. The apparatus stabilization shall be accomplished without the assistance of the chassis suspension or tires in contact with the ground.</p>										
<p>The aerial shall be able to sustain a 1-1/3 to 1 rated load on a 5 degree slope downward in the position most likely to cause overturning as outlined in NFPA 1901 19.21.3.1 The maximum ground slope the apparatus can be set up on is 12 percent. On the 12 percent slope the apparatus can be leveled within a 6 percent operating range for the apparatus.</p>										

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The cylinders shall be supplied with dual pilot operated check valves on each stabilizer cylinder to hold the cylinder in the stowed or working position should a charged line be severed at any point in the hydraulic system. The stabilizers shall level side to side, corner to corner and front to rear on uneven terrain. Stabilizers shall contain safety lock valves. This assures there will be no "leak down" of stabilizer legs. Mechanical pins are not required. This feature contributes to efficient set-up and field operation.</p>		
<p>The stabilizer lift cylinders shall be sized to maximize ground penetration. The lift cylinders shall be mounted on the side of the torque box for protection and shall have the following dimensions:</p>		
<p>Bore:                   5" Stroke:                 11"</p>		
<p>The stabilizer extension cylinders shall have the following dimensions: Bore:</p>		
<p>                                  2" Stroke:                 26"</p>		
<p>Each Stabilizer that can be extended from the body shall be supplied with a red warning light as outlined in NFPA 19.21.4.4. A stabilizer extended warning light shall be supplied in the cab to warn the driver of an extended stabilizer condition as outlined in NFPA 1901 13.11. A floodlight shall be supplied in each stabilizer location to illuminate the stabilizer and ground. The light shall automatically turn on with the deployment of the stabilizer.</p>		
<p>The stabilizer ground contact area for each foot pad shall be 10" x 14" without auxiliary pads and 24" x 24" with auxiliary pads deployed. The ground pressure shall not exceed 75 psi with auxiliary pads deployed when the apparatus is fully loaded and the aerial device is carrying its rated capacity in every position. This shall be accomplished with the stabilizer pads deployed, as outlined in NFPA 19.21.4.2.</p>		
<p><b>Stabilizer Controls</b></p>		
<p>Four (4) electric solenoid valves shall control the stabilizers. The control switches shall be located at the rear of the apparatus so the operator may observe the stabilizers during deployment. An audible alarm with a minimum 87 dBA shall also sound while the stabilizers are in motion as required by NFPA 19.21.4.1. Stabilizer deployment shall be completed in less than 60 seconds.</p>		
<p>There shall be an interlock that prevents the operation of the ladder until the stabilizers are down and properly set as outlined in NFPA 19.17.5. Four (4) micro-switches, one (1) on each jack leg, shall sense when all four (4) jack feet are in firm contact with the ground. This condition shall be indicated when all four (4) yellow jack down indicator lights are on and the green interlock light is on. When the apparatus has been leveled, a manual transfer switch shall be used to shift hydraulic power to ladder operations. The interlock system shall have a manual override with access through a door on the rear control panel.</p>		
<p>To simplify leveling the apparatus, two (2) color-coded level indicators shall be supplied at the rear of the apparatus. One (1) indicator shall be for front to rear level and one (1) for side to side level.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Forward Aerial Support</b></p> <p>The aerial ladder support shall be fabricated from steel components and be welded directly to the torque box chassis. The ladder support uprights shall be constructed from 7/8" thick steel plate. Bolt-in diagonal bracing shall be installed on the support structure in an "X" pattern to restrict to side movement. This design shall allow for a pre-determined amount of flex preventing premature failure that can be found in an overly rigid structure. The support shall be located behind the rear wall of the cab.</p> <p><b>Turntable Support Assembly</b></p> <p>The aerial ladder turntable assembly shall be mounted at the rear of the apparatus. The turntable support assembly shall be welded to the integral torque box for efficient transfer of aerial loads to the stabilizers and shall permit storage of ground ladders in the center rear of the apparatus. The complete turntable support assembly shall be multi-pass welded to the sides of the combination chassis frame torque box.</p> <p>The turntable support assembly shall be a steel weldment constructed of four (4) vertical 1/2" x 5" x 5" square tubing with identical tubing welded in between the top ends of the verticals.</p> <p>A bearing mounting plate shall be welded to the top of the verticals and sides of the horizontal on the torque box pedestal. The bearing mounting plate shall be 43" x 43" and shall have a 1- 1/2" thickness. This bearing mounting plate shall be attached to a 3/4" steel plate that is welded to the bottoms of the horizontal tubing. The use of multi-pass welding shall be utilized wherever possible.</p> <p>A 34-1/4" rotation bearing with a 3" face drive gear shall be bolted to the top of the bearing mounting plate with thirty (30) 3/4" grade 8 plated bolts. The gear tooth shall be stub tooth form.</p> <p><b>Upper Turntable</b></p> <p>The upper turntable assembly shall attach to the rotation bearing and the base of the ladder. The turntable assembly shall be bolted to the turntable bearing by twenty (20) 3/4" grade 8 plated bolts. The turntable assembly shall provide a mounting base for the ladder and elevating cylinders.</p> <p>The turntable working platform shall be a fabricated steel structure covered with a non-skid 3/16" thick aluminum material for operator safety. The right side of the turntable shall be modified to allow full access to the body's SideStacker hosebed. There shall be a control pedestal mounted on the left side of the turntable.</p> <p>Two (2) railings 42" high shall be provided along the perimeter of the turntable as outlined in NFPA 1901 19.18.1. Two (2) Mansaver bars shall be provided to allow access to the turntable area.</p> <p>An 11" high step shall be installed on the turntable deck to provide convenient access to the ladder sections for egress.</p> <p>Two (2) lights shall be provided in the turntable step to illuminate the turntable deck area per NFPA requirements.</p>		



Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The ladder pivot point shall connect to the upper turntable assembly by two (2) 2-1/4" ID spherical bearings.</p> <p><b>Elevation Mechanism</b></p> <p>The aerial shall utilize dual 5" bore 38-1/2" stroke elevating cylinders to attach the upper turntable assembly and bottom of the base ladder section. A 1-3/4" pin and bearing system shall connect to the turntable. A 2" pin and bearing system shall connect to the base section of the ladder. The elevation system shall be designed following NFPA 1901 19.5.1. The elevation hydraulic cylinders shall incorporate cushions on the upper limit of travel. The hydraulic elevation cylinders shall also serve as a locking device to hold the aerial in the stored position for road travel.</p> <p><b>Rotation Mechanism</b></p> <p>The aerial shall be supplied with a hydraulically-powered rotation system as outlined in NFPA 1901 19.5.2. The hydraulic rotation motor and planetary gear drive system shall provide continuous rotation under all rated conditions and be supplied with a spring-applied brake to prevent unintentional rotation.</p> <p><b>Aerial Electric Power</b></p> <p>A hydraulic swivel shall be installed to provide hydraulic fluid transfer to the aerial ladder cylinders, electrical power to the aerial ladder, and water delivery to the pre-plumbed waterway while permitting continuous 360-degree rotation. The swivel shall provide two (2) hydraulic circuits, twenty four (24) electrical circuits, and one (1) 4" passage for waterflow. The swivel shall be environmentally-sealed to prevent contamination of the hydraulic fluid.</p> <p><b>Aerial Ladder Operating Position</b></p> <p>An aerial ladder operator's position shall be supplied as outlined in NFPA 1901 19.4.1. The operator's position shall be located on the left side of the aerial turntable. The apparatus shall be supplied with labels to warn of electrocution hazard. The control console shall provide a service access door on the front and side of the console to access hydraulic and electrical connections. The electrical panel shall be contained in junction box with labeled wires. The console shall be angled, labeled and supplied with lights for night operation.</p> <p><b>Console Cover</b></p> <p>A diamond plate contoured hinged cover shall be supplied to protect the console from the elements. The cover shall latch in the stored position and swing away from the console so as not to interfere with sight of the aerial device.</p> <p><b>Aerial Ladder Control Levers</b></p> <p>The control levers shall be arranged as outlined in NFPA 19.17.7. The first lever from the left shall be the extension control (forward for extend and back for retract). The second lever shall be for rotation (forward for clockwise and back for counter clockwise). The third handle shall control elevation (forward for down and back for up). A ring around the control console shall be provided to prevent unintentional movement as outlined in NFPA 19.17.6.2.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Rung Alignment Indicator</b></p>		
<p>A light on the control console shall indicate when the ladder rungs are aligned for climbing.<b>Aerial</b></p>		
<p><b>Alignment Indicator</b></p>		
<p>A reflective arrow mounted to the body and the turntable shall indicate when the aerial is aligned for travel bed.</p>		
<p><b>Load Indication System</b></p>		
<p>A lighted elevation/safe load indicator diagram shall be located on the lower right side of the base section to indicate safe load capacity at any angle of elevation. The safe load indicator shall be 15" x 15" in size and clearly communicate aerial capacity in any one of the following conditions: tip load only, tip load with water flowing, and distributed load at full extension. The chart shall identify capacity using graphic characters to indicate each 250 lb. increment. The chart shall be equipped with lighting and warn of electrocution hazards from power lines and lightning.</p>		
<p><b>Aerial Waterway</b></p>		
<p>A pre-piped waterway shall be supplied as outlined in NFPA 1901 19.6. The waterway shall telescope to the end of the third section. A waterway of 4" internal diameter shall run through the turntable and a swivel joint to connect to the tubular aerial waterway. The tubular waterway shall run under the aerial ladder. The waterway tubes shall have the following sizes:</p>		
<p>Base Section:        5" OD  Mid Section:        4-1/2" OD  3rd Section:        4" OD</p>		
<p>The tubes shall be constructed of hard coat anodized aluminum and shall be telescopic with the aerial ladder through sealed slip joints. The slip joints shall be designed with grease zerk fittings to facilitate lubrication.</p>		
<p>A 1-1/2" drain valve shall be installed and operated from the rear of the apparatus.</p>		
<p>The water system shall be capable of flowing 1000 gpm at 100 psi nozzle pressure at full elevation and extension. The friction loss between the tip and below the swivel shall not exceed 100 psi while flowing 1000 gpm as outlined in NFPA 1901 19.6.1 and 19.6.2.</p>		
<p><b>Waterway Relief Valve</b></p>		
<p>An automatic relief valve preset at 250 psi shall be installed in the aerial waterway to prevent over-pressurization of waterway system. The relief valve shall be mounted in the lower portion of the waterway where it enters the aerial torque box frame and dumps under the apparatus.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Ladder Tip Step</b></p>		
<p>Two (2) split design folding steps shall be located near the ladder tip to provide a position for a firefighter using the ladder pipe / monitor as outlined in NFPA 1901 19.2.9. The steps shall have a raised surface for traction and cut outs for deployment.</p>		
<p><b>ISO Compliance</b></p>		
<p>The manufacturer shall operate a Quality Management System meeting the requirements of ISO 9001:2015.</p>		
<p>The International Organization for Standardization (ISO) is a recognized world leader in establishing and maintaining stringent manufacturing standards and values. The manufacturer's certificate of compliance affirms that these principles form the basis for a quality system that unswervingly controls design, manufacture, installation, and service.</p>		
<p>The manufacturer's quality systems shall consist of, but not be limited to, all written quality procedures (aka QOP) and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts products or processes. In addition, all apparatus assembly processes shall be documented for traceability and reference. The manufacturer shall also engage the services of a certified third party for testing purposes where required.</p>		
<p>If the manufacturer operates more than one manufacturing facility each facility must be ISO certified.</p>		
<p>By virtue of its ISO compliance the manufacturer shall provide an apparatus that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.</p>		
<p>A copy of the manufacturer's certificate of ISO compliance for each manufacturing facility shall be provided with the bid.</p>		
<p><b>AERIAL HYDRAULIC SYSTEM OPTIONS</b></p>		
<p><b>Aerial Hydraulic Oil Level Gauge</b></p>		
<p>A hydraulic oil level gauge shall be supplied for easy fluid level verification. The three-light system shall indicate full oil level with a green light, acceptable oil level with yellow light, and low oil level with a red light. The display shall be located next to aerial master panel.</p>		
<p><b>AERIAL CONTROLS</b></p>		
<p><b>Aerial Controls at Ladder Tip</b></p>		
<p>A secondary aerial ladder operator's position shall be supplied at the tip of the aerial ladder. The control station shall be designed to meet NFPA 1901 16-5.4.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The turntable control station shall serve as the main control location and be capable of overriding the ladder tip control station. A momentary switch shall be supplied at the turntable control station to enable the tip controls. If the operator releases the momentary switch the tip controls shall deactivate.</p> <p>The maximum speed of the aerial device shall be reduced when the ladder tip controls are in operation. The reduced speed shall not exceed the NFPA 1901 recommendation of:</p> <ul style="list-style-type: none"> <li>• Rotation at full extension of 2 ft/sec (.6 m/sec)</li> <li>• Elevation and lowering at 1 ft/sec (.3 m/sec)</li> <li>• Extension and Retraction at .5 ft/sec (.15 m/sec)</li> </ul> <p>The folding steps at the ladder tip shall be designed to prevent operator's feet from protruding through the outermost fly section. The fold down steps shall be weight supporting before the ladder tip controls are functional.</p> <p>The ladder tip controls shall be a CAN based switch module with six (6) individual switches to control rotation, extension, and elevation. The module shall have lights to indicate the turntable control station momentary switch is depressed and a light to show the tip control switches are enabled (indicating the tip step switches are also depressed).</p> <p><b>Aerial Control System</b></p> <p>The aerial hydraulic system shall be equipped with a microprocessor based electric over hydraulic control system. The system shall include electronic ramping to provide smooth acceleration and deceleration of aerial functions during sudden movements of the operator control levers. The ladder shall utilize three (3) combination proportional control valves for smooth aerial device movements. The hydraulic system valve body shall be located in the turntable console.</p> <p>The switch modules on the console shall be CAN based for reliable operation. The system shall utilize 32-bit control module(s) rated for mobile applications.</p> <p>The control system shall have manual overrides in the event of a system failure. The overrides shall be located directly on the electric / hydraulic control valve within easy reach of the turntable operator. The manual system shall be organized to match the base controllers with the functions clearly labeled.</p> <p><b>Aerial Speed Switch</b></p> <p>The control system shall be provided with a "creep speed" switch for precise aerial movement. When activated, the aerial shall operate a slow speed and the chassis engine will remain at idle speed.</p> <p><b>Variable Ramping</b></p> <p>A three (3) position switch shall be provided to select system ramping (ladder movement when initiating or ceasing movement of a control lever). The switch shall allow selection of normal (1/2 second), firm (1/4 second) or soft (3/4 second) ramping based on operator preference.</p>		

**End of Stroke Cushioning**

The aerial system shall monitor the aerial position and when the ladder is near full extension, retraction and elevation (up and down) will slow the ladder movement down for softer stops. The sensors shall be CAN based for accurate and reliable performance.

**Body Protection**

The aerial control system shall feature programming to prevent the aerial from contacting the body. The system shall feature multiple zones to optimize operational envelop based on a specific apparatus configuration. When approaching a protected zone the aerial shall automatically ramp down in speed to come to a soft stop. A momentary switch shall be provided to allow the aerial operator to by-pass the body protection zone.

**Aerial Information System Display**

The aerial device shall be equipped with a color display at the turntable console that provides critical information to the aerial operator for added safety.

Information shall be conveyed to the operator using J1939 protocol through multiple mission-specific screens, each tailored for a specific fireground activity. The screens display shall include available tip load, distributed load, master stream and aerial systems data.

The available tip load shall be represented in simple "Stick-Figure" type symbols that show the allowable quantity of people at the tip based on ladder position. The screen layouts shall be uncluttered allowing the symbols to be easily read at a glance. The system shall also feature programming that calculates the allowable tip load based on elevation and extension, allowing for increased tip capacity when possible. Systems that rely on hydraulic pressure to determine load shall not be acceptable.

In addition to available tip load, the display shall provide the following information:

- Ladder extension (%)
- Ladder inclination in degrees
- Ladder rotation position
- Rated distributed load
- Waterway flow
- Total waterway flow (with reset button)
- Waterway pressure
- Tip temperature
- Hydraulic oil pressure
- Hydraulic oil temperature
- Hydraulic oil level
- Aerial hourmeter
- Rung alignment status
- Cradle alignment status
- Aerial PTO status
- Aerial PTO engage
- Breathing air status (if equipped with breathing air)
- Fuel Level
- Transmission temperature

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<ul style="list-style-type: none"> <li>• Engine RPM</li> <li>• Coolant temperature</li> <li>• Engine oil pressure</li> <li>• Battery voltage</li> <li>• Pump in gear status (if equipped with a pump)</li> <li>• OK to pump status (if equipped with a pump)</li> <li>• Chassis engine start / stop</li> <li>• Chassis air horn switch</li> </ul> <p>The display shall be capable of showing system units in standard or metric values.<b>Audible</b></p> <p><b>Warnings</b></p> <p>The system shall include alarms to indicate when tip temperature is greater than 300°F, tip temp below 32°F, hydraulic oil temperature is above 190°F and when breathing air is below 20% and 5% volume (if equipped),</p> <p><b>Visual Warnings</b></p> <p>In addition to the audible warnings, the system shall include visual warning indicators for high tip temperature, low tip temperature, high hydraulic oil temperature and low breathing air (if equipped),</p> <p><b>Display Screen</b></p> <ul style="list-style-type: none"> <li>• 7” bonded Transflective LCD screen (Sunlight viewable)</li> <li>• 16-bit color format</li> <li>• 800 x 480 resolution</li> <li>• LED backlighting</li> <li>• Environmentally sealed housing</li> <li>• Fourteen (14) integrated tactile navigation buttons</li> </ul> <p><b>Sensors</b></p> <ul style="list-style-type: none"> <li>• Ladder extension</li> <li>• Ladder inclination</li> <li>• Turntable rotation</li> <li>• Waterway pressure</li> <li>• Waterway flow</li> <li>• Tip temperature</li> <li>• Hydraulic oil pressure</li> <li>• Hydraulic oil temperature</li> <li>• Hydraulic oil level</li> <li>• Cradle alignment</li> <li>• Rung alignment</li> <li>• Breathing air pressure (If equipped with breathing air)</li> </ul>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Cradle Assist Switch</b></p> <p>The control system shall also include a momentary switch to assist in stowing the aerial. The switch, in conjunction with moving the "down" aerial control lever shall cause the aerial to rotate to center and lower into the cradle. The system shall be operational when the aerial is below 30 degrees in elevation and 30 degrees left or right of center.</p>		
<p><b>Cradle Alignment Light</b></p> <p>A green light shall be provided at the turntable control console to indicate when the aerial is aligned for bedding.</p>		
<p><b>Monitor Stow Switch</b></p> <p>The control system shall also include a switch to deploy and stow the waterway monitor (if equipped with a pre-piped waterway).</p>		
<p><b>Emergency Stop Switch</b></p> <p>An emergency stop switch shall be provided on the console that turns off the controllers and de-energizes the PTO in the event the aerial must be stopped immediately. The system shall include both visual and audible indicators that the switch has been activated.</p>		
<p><b>Durability</b></p> <p>The components shall be thoroughly tested and have a proven reliability in severe environments to ensure long life on the fireground. The system shall be capable of operating in a temperature range of -40°C through +85°C.</p>		
<p><b>Diagnostics</b></p> <p>The system shall feature diagnostic capabilities that includes an I/O status screen separated by component.</p>		
<p><b>Wireless Aerial Controls</b></p> <p>The aerial shall feature wireless controls in addition to the turntable control console, no exceptions. The wireless control system shall include a portable control box and receiver module with J1939 interface. The system shall allow control of the aerial device, aerial water monitor and aerial outriggers.</p>		
<p><b>Remote Control Box</b></p> <p>The wireless remote control box shall have Automatic Frequency Selection for reliable operation. The box the following features:</p> <ul style="list-style-type: none"> <li>• Three (3) aerial control levers</li> <li>• Ten (10) buttons</li> <li>• Nine (9) switches</li> </ul>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<ul style="list-style-type: none"> <li>• Rung alignment LED light</li> <li>• Cradle aligned LED light</li> <li>• LCD display</li> <li>• Roll-over bar to protect panel controls</li> <li>• Recessed LED front panel lighting</li> <li>• Robust plastic housing rated at IP65</li> <li>• Automatic Frequency Selection (for reliable operation)</li> <li>• Automatic power off if box is dropped or experiences zero-g</li> <li>• Emergency stop switch</li> <li>• Two (2) rechargeable NiMH exchange batteries</li> <li>• DC Battery charger</li> <li>• Shoulder strap</li> </ul> <p><b>MONITORS</b></p> <p><b>Monitor Finish</b></p> <p>The aerial monitor(s) shall be ordered from the OEM manufacturer painted silver.</p> <p><b>Electric Monitor</b></p> <p>The aerial ladder shall be equipped with an TFT Monsoon RC electrically controlled monitor with a powder coated silver finish. The monitor shall be equipped with an Master Stream electrically controlled automatic nozzle capable of discharging 250-1,000 gpm at 100 psi nozzlepressure. This waterflow capability shall be available at any extension, elevation, or position without any restrictions while flowing 1,000 gpm. A minimum stability factor of 1.5 to 1 shall be maintained in this configuration.</p> <p>The operational range of the electric monitor and nozzle shall be 135 degrees through the vertical plane (90 degrees upwards from a line perpendicular to the aerial ladder and 45 degrees downward), and 180 degrees through the horizontal plane (90 degrees to either side of the aerial ladder center line). The monitor shall be able to move in the horizontal and verticalaxis simultaneously.</p> <p>The monitor relay box shall include solid state components and shall be coated to resist corrosion. The monitor shall have fully enclosed motors and gears with built in manual overridecapability.</p> <p>Control switches for horizontal movement, vertical movement and pattern selection shall belocated at the control panel.</p> <p><b>Monitor Tip Controls</b></p> <p>In addition to the controls at the operator console, electric monitor directional and stream controls shall be installed in close proximity to the monitor on the ladder to allow operation by afirefighter on the ladder.</p>		



Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Shut-Off Valve</b></p> <p>A TFT model VUM valve shall be provided at the base of the monitor. The valve body shall be constructed from cast aluminum with a pivoting cast stainless steel shut-off assembly. The valve shall allow the monitor to be shut off when using of the 2.5" auxiliary discharge.</p> <p><b>2.5" Valve</b></p> <p>An auxiliary 2.5" discharge valve (with 4.75" extension pipe) shall be mounted at the tip of the ladder.</p> <p><b>AERIAL WARNING LIGHTS</b></p> <p><b>LED Outrigger Lights (4)</b></p> <p>Four (4) Whelen M6V2R Super LED red light heads with red lens shall be provided. The rectangular lights shall include chrome flanges. The lights shall be surface mounted on the outrigger covers in compliance with current NFPA 1901. Warning and ground lights shall be activated with aerial master switch.</p> <p><b>Warning Lights</b></p> <p>Two (2) Whelen ION-T Series model TLI Super LED light heads shall be provided. The lights shall be Red with clear lenses. The lights shall include chrome flanges where applicable.</p> <p>Location: [#LOC].</p> <p><b>AERIAL LIGHTING</b></p> <p><b>Ladder Base Lighting</b></p> <p>Two (2) Whelen round 12 Super LED model PFBP12C floodlights with black housing and chrome rear cover shall be mounted one on each side at the bottom of the ladder base section. They shall be controlled from the turntable operating pedestal.</p> <p><b>Tip Light Locations</b></p> <p>All spot, flood and quartz lights at the tip of the fly section shall be mounted back as far as possible from the tip of the ladder.</p> <p><b>Ladder Climbing Lights</b></p> <p>A Luma-Bar Pathfinder LED lighting system shall be provided to illuminate the climbing area inside each ladder section. The strip type lights shall be located above ladder rung level and directed toward the centerline of the ladder to reduce glare. The lights shall be mounted to a 1.25" x .5" x .125" extruded aluminum channel and wired to not be an obstruction during climbing. The lights shall be controlled with the ladder lights switch at the operators control console.</p> <p>The LED lights shall be Blue.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Whelen Pioneer LED 12V Flood Light</b></p>		
<p>A Whelen Pioneer Plus series 12V flood light model PFH1 LED light fixture(s) shall be provided on a Whelen model PH1LPED permanent mount non-telescoping base. The rectangular extruded light fixture with die cast end caps shall measure 8.35" wide by 4.25" high by 3" deep and have a white powder coat finish. The light fixture shall have eighteen (18) white Super- LEDs with molded vacuum metalized reflector that draws 6.5 amps and produce 8,875 usable lumens.</p>		
<p>The light assembly shall be mounted at the tip of the aerial as specified. The base shall allow for 360-degree rotation of the light. A locking knob shall hold the pole at the desired angle. The light shall be provided with a switch at the lower console to control the light when the aerial power circuit is activated.</p>		
<p>Location(s): left side tip, right side tip.</p>		
<p><b>WATERWAY OPTIONS</b></p>		
<p><b>Rear Inlet Valve</b></p>		
<p>A valve shall be installed in the waterway to permit the rear inlet to be used as a discharge. The valve control shall be rear mounted and labeled to indicate open or closed.</p>		
<p><b>Waterway Inlet</b></p>		
<p>One (1) 4" inlet shall be provided at the rear of the apparatus and shall be connected to the vertical pedestal waterway piping to supply water to the aerial waterway from an outside source. All fabricated piping shall be constructed of a minimum of Schedule 10 stainless steel piping to help prevent corrosion. The threads shall be NST. A long handle chrome plated 4" NST cap shall be installed on the inlet.</p>		
<p><b>Waterway Pressure Gauge</b></p>		
<p>The valve discharge gauges shall be 2 1/2" (63mm) diameter Innovative Controls pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40F to +160F.</p>		
<p>Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy. A polished chrome-plated stainless steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels.</p>		
<p>The gauges shall display a range from 0 to 400 psi with black graphics on a white background.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>AERIAL EQUIPMENT</b></p>		
<p><b>Axe Bracket</b></p>		
<p>An axe bracket shall be provided on the aerial ladder. The bracket shall be Zico model# H-AB blade guard and PAC TRAC model# 1004 clamp for the handle. The bracket shall be designed to hold a 6 lb. axe.</p>		
<p>Location: left side fly section.</p>		
<p><b>Pike Pole Mount</b></p>		
<p>There shall be an aluminum tube mounted directly on the ladder for storage of a 6` pike pole. The tube shall be located right side fly section.</p>		
<p><b>Lifting Eye</b></p>		
<p>A lifting eye shall be provided at the tip of the ladder. The eye shall be constructed of aluminum with a slotted hole to allow for webbing to easily pass through. The lifting eye shall allow for a load equal to the rated tip load capacity of the ladder, up to 500 pounds.</p>		
<p><b>AERIAL LADDER BRACKETS</b></p>		
<p><b>Roof Ladder Bracket</b></p>		
<p>A lift-out style roof ladder mounting bracket shall be installed on the outside of the ladder base section. The bracket shall be designed to hold a 775-A 14 on right side of base section, 775-A14 on left side of base section.</p>		
<p><b>SIGN PLATES</b></p>		
<p><b>Aerial Sign Plate</b></p>		
<p>Two (2) 16" x 144" x 1/8" (0.125") thick smooth aluminum plates shall be provided. The plates shall have 1" lips top and bottom for rigidity. Each sign plate shall be bolted on either side of the base section, approximately at the midpoint. The plates shall be provided to display the department's name or other information. The plates shall be painted Job Color as specified by the customer.</p>		
<p><b>AERIAL TESTING</b></p>		
<p><b>Third-Party Flow Test</b></p>		
<p>A flow test shall be conducted to determine that the water system is capable of flowing 1,000 gpm at 100 psi nozzle pressure with the aerial device at full extension and elevation. When the aerial apparatus is equipped with a fire pump, the test shall be conducted using the onboard pump. Intake pressure for the onboard pump shall not exceed 20 psi.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>In addition to the flow test, a hydrostatic test shall be done on the waterway system. The permanent water system, piping, and monitor shall be hydrostatically tested at the maximum operating pressure required to flow 1,000 gpm at 100 psi nozzle pressure at maximum elevation and extension.</p> <p>These results shall be certified by an independent, third-party testing organization, per NFPA 16.13.1 through 16.13.1.3.</p> <p><b>Aerial Certification</b></p> <p>All certification shall be performed by a certification organization that is accredited for inspection and testing systems on fire apparatus in accordance with ISO/IEC 17020.</p> <p>The aerial ladder shall be tested in compliance with the current editions of NFPA 1901 and NFPA 1911. All critical structural components of the aerial shall include 100% nondestructive testing (NDT) before assembly and body mounting. All NDT testing shall be performed by Level II or Level III technicians who have been certified in the test methods used in accordance with ANSI/ASNT CP-189.</p> <p>Welds for structural load-supporting elements shall be performed by certified welders under the guidelines of AWS. Each aluminum ladder section shall be subjected to 100% NDT visual weld inspection followed by Liquid Penetrant NDT inspection as required to qualify suspected weld defect indications. Each steel ladder section shall be subjected to 100% Magnetic Particle NDT weld inspection to assure the structural integrity of the welds.</p> <p>A 100% Magnetic Particle weld inspection shall be conducted on the torque box, aerial support structure, outriggers, outrigger support structure and all other structural ferrous aerial components. This test shall be performed to assure the structural integrity of the weldment.</p> <p>After the aerial is assembled and installed on the vehicle, an operational inspection shall be made and the aerial shall be tested to comply with the applicable standards in the current editions of NFPA 1901 and NFPA 1911.</p> <p>In addition to the above tests, the aerial shall successfully complete the following operational tests:</p> <ol style="list-style-type: none"> <li>1) The completed apparatus shall be placed on a firm, level surface with the aerial stabilizers extended and down. The aerial shall lift a test weight equal to the rated tip load capacity, as specified herein, with the aerial at full extension, 0 degrees elevation, and rotated 90 degrees to either side of the truck chassis. The test weight shall be lifted from 0 degrees to 15-20 degrees. The test weight shall be suspended from a position equal to the position of the outermost rung of the fly section or the center of the platform when so equipped. The aerial shall lift the test weight smoothly and evenly with no twisting or jerking. This test shall be performed at the normal hydraulic system relief valve setting. No temporary adjustments to the relief valve shall be allowed.</li> <li>2) The completed apparatus shall be placed on a firm, level surface with the aerial ladder stabilizers extended and down. A test weight equal to 1.5 times the aerial's rated tip load capacity, shall be suspended from a position equal to the position of the outermost rung of the fly section (or center of the platform when so equipped), with the aerial in the straight-ahead position.</li> </ol>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The aerial shall then be rotated a full 360 degrees around the vehicle with the aerial at full extension and at 0 degrees elevation (or high enough to clear vehicle-mounted equipment). The aerial and vehicle shall show no signs of instability. This test shall be performed with no water in the tank, or hose, ladders, or removable equipment that would act as a counterbalance in order to simulate a worst-case condition.</p>		
<p>3) The completed apparatus shall be placed on a firm surface having a minimum 5 degrees side slope with the aerial stabilizers extended and down. A test weight equal to 1.5 times the aerial's rated tip load capacity, shall be suspended from a position equal to the position of the outermost rung of the fly section (or center of the platform when so equipped), with the aerial in the straight-ahead position. The aerial shall then be rotated 90 degrees to the downhill side with the aerial at full extension, 0 degrees elevation (or high enough to clear vehicle-mounted equipment). The aerial and vehicle shall show no signs of instability, and all of the stabilizers shall remain firmly on the ground. This test shall be performed with no water in the tank, or hose, ladders, or removable equipment that would act as a counterbalance in order to simulate a worst-case condition.</p>		
<p>4) The completed apparatus shall be placed on a firm, level surface with the aerial stabilizer extended and down. A test weight equal to 2.0 times the aerial's rated tip load capacity, shall be suspended from a position equal to the position of the outermost rung of the fly section (or center of the platform when so equipped), with the aerial in the straight-ahead position at full extension and at 8 degrees elevation (or high enough to clear vehicle-mounted equipment). After ten (10) minutes, the weight shall be removed, and the aerial shall be inspected for any abnormal twist or deflection.</p>		
<p>5) The completed apparatus shall be placed on a firm, level surface with the aerial stabilizers extended and down. The aerial will be positioned at full extension at 0 degrees elevation at some position out of the travel rest and off the side or rear of the truck. For units without a pre-piped waterway to the tip, a test weight of 220# shall be applied horizontally and perpendicular to the tip of the aerial at the location of the outermost rung. The rotation brake shall not release nor shall the aerial's deflection exceed the manufacturer's accepted tolerances. For aerials with pre-piped waterways, a test weight of 350# will be applied at the location of water nozzle.</p>		
<p>Upon satisfactory completion of all inspections and tests, an independent third-party inspection firm shall submit a certificate indicating that all specified standards have been met.</p>		
<p><b>MISC LOOSE EQUIPMENT</b></p>		
<p><b>DOT Required Drive Away Kit</b></p>		
<p>Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>EXTERIOR PAINT</b></p>		
<p><b>Paint Break with Dip to Grille</b></p>		
<p>The cab shall have a two-tone paint break. The break line shall be approximately 31.5 inches below the cab roof drip rail. The paint break shall include a dip down to the corners of the cab grille.</p>		
<p><b>Paint Valve Ends</b></p>		
<p>The valve ends shall be painted job color.</p>		
<p><b>Painted Pump/Pre-Connect Module(s)</b></p>		
<p>The apparatus pump/pre-connect module(s) shall be painted job color. The paint process shall match what is applied to the body.</p>		
<p><b>Paint Spray Out</b></p>		
<p>A paint sample spray out of the cab two-tone paint colors will be provided for approval prior to painting.</p>		
<p><b>Paint Custom Cab</b></p>		
<p>The apparatus cab shall be painted Sikkens FLNA 3225 <b>RED</b>. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.</p>		
<p>The aluminum cab exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces. Cab doors and any hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on cab, door jambs and door edges.</p>		
<p>Paint process shall feature Sikkens high solid LV products and be performed in the following steps:</p>		
<ul style="list-style-type: none"> <li>• Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.</li> <li>• Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.</li> <li>• Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.</li> <li>• Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.</li> </ul>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>Any location where aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre- treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, hand rails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.</p>		
<p>After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.</p>		
<p><b>Paint Cab Two-Tone Color</b></p>		
<p>The upper section of the cab shall be painted FLNA 9550 <b>DARK GREY METALLIC</b>. The paint process of the secondary cab color shall be the same as the primary color.<b>Paint Body</b></p>		
<p><b>Large</b></p>		
<p>The apparatus body shall be painted Sikkens FLNA 3225 RED. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.</p>		
<p>The aluminum body exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces of the body. Any vertically or horizontally hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on body, door jambs and door edges.</p>		
<p>Paint process shall feature Sikkens high solid LV products and be performed in the following steps:</p>		
<ul style="list-style-type: none"> <li>• Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.</li> <li>• Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.</li> <li>• Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.</li> <li>• Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.</li> </ul>		
<p>Any location where aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre- treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>All hardware used in mounting steps, hand rails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.</p>		
<p>After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.</p>		
<p><b>Aerial Paint</b></p>		
<p>The lift cylinders, extension cylinders and upper turntable steelwork (less turntable) shall be painted to match the primary job color.</p>		
<p><b>Metallic Paint</b></p>		
<p>The cab two-tone shall be provided with approved metallic flake paint color. <b>Tip</b></p>		
<p><b>Paint</b></p>		
<p>The tip of the aerial ladder shall be painted orange to assist firefighters in locating the ladder tip. The paint color shall be AkzoNobel FLNA20505. The last three rungs, uprights and beams from the tip shall be painted; including nozzle guard (if equipped).</p>		
<p><b>INTERIOR PAINT</b></p>		
<p><b>Cab Interior Paint</b></p>		
<p>The interior of the cab shall be painted Zolatone gray #20-64. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system.</p>		
<p><b>PROTECTIVE COATINGS</b></p>		
<p><b>LINE-X bumper package</b></p>		
<p>LINE-X bumper package: Includes all visible diamond plate (smooth aluminum if equipped) surfaces including gravel shield, exterior surface of trays and lids (flat or raised). If equipped, exterior of the fabricated booster reel housing, fabricated box for booster reel rollers and winch access door shall be included in this package.</p>		
<p><b>LINE-X package for Aerial Body Misc. parts</b></p>		
<p>LINE-X package for Aerial body components: Includes wheel well plates, outrigger covers, diamond plate filler panels, diamond plate fuel fill doors and aerial control doors as applicable.</p>		
<p><b>LINE-X package for custom cab roof</b></p>		
<p>LINE-X package for custom cab roof: All roof plate surfaces including the rear lip over the backwall and trough plates if applicable shall have LINE-X coating. All plating (risers, boxes, etc.) fabricated at the manufacturer and installed on the roof shall be included in this package.</p>		



Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>LINE-X package for custom cab back wall (exterior)</b></p>		
<p>LINE-X package for custom cab back wall (exterior only): The entire exterior back wall (platework and extrusions) shall have LINE-X coating.</p>		
<p><b>LINE-X package for custom cab steps</b></p>		
<p>LINE-X package for custom cab steps: Includes cab step wells (everything below the cabfloor) and all welded and bolt on steps including stirrup and swing out steps as applicable. Steps hanging below the cab shall have LINE-X coating inside and outside. DEF tank door or any other access doors are also included in this package if located in the step wellarea below the cab floor.</p>		
<p><b>LINE-X package for single axle Aerial</b></p>		
<p>Includes the following as applicable:</p>		
<ol style="list-style-type: none"> <li>1. All visible diamond plate surfaces on top of the body and pump module including all side and rear facing diamond plate panels</li> <li>2. All visible surfaces of the storage boxes and storage pans installed on top of the body and pump module</li> <li>3. All other plate work fabricated at the manufacturer such as covers, shields, partitions, etc. mounted on top of the body and pump module</li> <li>4. Aluminum crosslay, speedlay and hosebed covers</li> <li>5. Pump panel running boards, exterior surface of running board suction trays and lids, intermediate steps and underbody slideout platform(s) or steps.</li> <li>6. Mounting plates and brackets installed under the running board or body for plumbing options like bleeders, drains, etc.</li> <li>7. Tailboard or rear bumper overlay</li> <li>8. Side staircase plate work and flop down steps</li> <li>9. Rear staircase plate work and visible extrusions with flop downs or flip up steps</li> </ol>		
<p><b>Scorpion Bumper Top Perimeter</b></p>		
<p>The top perimeter of the formed heavy duty bumper shall have Job Color Scorpion finish. The finish shall be applied to the top flange, radius and 1" down on the face of the heavy duty bumper front, corners and sides.</p>		
<p><b>LETTERING</b></p>		
<p><b>Sign Gold Letter [Qty: 100]</b></p>		
<p>Sign Gold letters up to 6" tall shall be applied.</p>		
<p>The exact size and location of the letters shall be as specified by the customer. <b>Sign</b></p>		
<p><b>Gold Letters [Qty: 28]</b></p>		
<p>Sign Gold letters up to 12" tall shall be applied.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p>The exact size, color and location of the letters shall be as specified by the customer.</p> <p><b>Lettering Shade and/or Outline [Qty: 128]</b></p> <p>Existing letters shall be shaded and/or outlined as specified by the customer to provide acontrast.</p> <p><b>STRIPING</b></p> <p><b>Reflective Stripe in Rub rail</b></p> <p>The reflective stripe in the body rub rail shall be white.</p> <p><b>CAB AND BODY STRIPE</b></p> <p>A single Scotchlite stripe, up to 6 inches in width shall be installed on the cab and body . The stripe shall have a hockey style, Z or S style or any other customer specific design style.</p> <p>The stripe shall be NFPA compliant and the size, color and location shall be as specified by the customer.</p> <p><b>Scotchlite Cab Stripe</b></p> <p>Scotchlite cab stripe shall be 3/4” in width total, 1/2” gold stripe with a 1/8” customer specified color outline on both sides and a clear polyurethane coating. Stripe shall be centrally located and shall contour with the cab, following the paint break.</p> <p><b>Front Bumper Reflective Striping</b></p> <p>Chevron style Reflexite V98 striping shall be provided on the front bumper of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern.</p> <p><b>Rear Body Reflective Striping</b></p> <p>Chevron style Reflexite V98 striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels and doors inboard and outboard of the beavertails if applicable.</p> <p><b>Reflective Stripes on Stabilizers</b></p> <p>aerial ladder stabilizers which protrude beyond the side of the body shall be striped with alternating color Reflexite V98 film. The stripes shall run at a 45 degree angle sloping down and away from the center, forming an "A" shape when viewed from the front or rear of the unit. The reflective material shall meet NFPA 1901 requirements.</p> <p>Stripe colors to be Red/Fluorescent Yellow Green.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Designated Standing / Walking Area Indication</b></p>		
<p>1" wide yellow perimeter marking consisting of individual Reflexite diamonds shall be applied to indicate the outside edge of designated standing and walking areas above 48" from the ground in compliance with 2016 NFPA 1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement.</p>		
<p><b>GRAPHICS</b></p>		
<p><b>Manufacturer Logo</b></p>		
<p>The manufacturer logo (PR) on aerial lift cylinder. Logo to be sign gold material approx. 14" long located midway along outward surface of cylinder.</p>		
<p><b>Graphics Drawing</b></p>		
<p>A graphics drawing shall be provided for the apparatus. The drawing shall include striping, lettering and logos meeting NFPA guidelines. The drawing shall be presented for review and approval by the end user prior to application of the graphics.</p>		
<p><b>WARRANTY / STANDARD &amp; EXTENDED</b></p>		
<p><b>Standard 1 Year Warranty</b></p>		
<p>The apparatus manufacturer shall provide a full 1-year standard warranty. All components manufactured by the apparatus manufacturer shall be covered against defects in materials or workmanship for a 1-year period. All components covered by separate suppliers such as engines, transmissions, tires, and batteries shall maintain the warranty as provided by the component supplier. A copy of the warranty document shall be provided with the proposal.</p>		
<p><b>Lifetime Frame Warranty</b></p>		
<p>The apparatus manufacturer shall provide a full lifetime frame structural warranty. This warranty shall cover all apparatus manufacturer designed frame, frame members, and cross-members against defects in materials or workmanship for the lifetime of the covered apparatus. A copy of the warranty document shall be provided with the proposal. Frame warranties that do not cover cross-members for the life of the vehicle shall not be acceptable.</p>		
<p><b>10 Year 100,000 Mile Structural Warranty</b></p>		
<p>The apparatus manufacturer shall provide a comprehensive 10 year/100,000 mile structural warranty. This warranty shall cover all structural components of the cab and/or body manufactured by the apparatus manufacturer against defects in materials or workmanship for 10 years or 100,000 miles, whichever occurs first. Excluded from this warranty are all hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the proposal.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>10 Year Stainless Steel Plumbing Warranty</b></p>		
<p>The apparatus manufacturer shall provide a full 10-year stainless steel plumbing components warranty. This warranty shall cover defects in materials or workmanship of apparatus manufacturer designed foam/water plumbing system stainless steel components for 10 years. A copy of the warranty document shall be provided with the proposal.</p>		
<p><b>20 Year Aerial Device Structural Warranty</b></p>		
<p>The aerial manufacturer shall provide a 20 year structural integrity warranty on the aerial device. This warranty shall cover structural components and shall be extended for a period of 20 years after the date on which the vehicle is delivered to Purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions.</p>		
<p><b>10 Year Paint and Corrosion Warranty</b></p>		
<p>The apparatus manufacturer shall provide a 10-year limited paint and corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner.</p>		
<p>The paint shall be prorated for 10 years as follows:</p>		
<p><b>Topcoat &amp; Appearance:</b>  (Gloss, Color Retention, Cracking)0  to 72 months                      100%  73 to 120 months                50%</p>		
<p><b>Coating System, Adhesion &amp; Corrosion:</b>  (Includes Dissimilar metal corrosion, Flaking, Blistering, Bubbling)0 to  36 months                        100%  37 to 84 months                50%  85 to 120 months                25%</p>		
<p>Corrosion perforation shall be covered 100% for 10 years. Corrosion perforation is defined as complete penetration through the exterior metal of the apparatus.</p>		
<p>The warranty period shall begin upon delivery of the apparatus to Purchaser. A copy of the warranty document shall be provided with the proposal.</p>		
<p>UV paint fade shall be covered in a separate warranty supplied by Akzo Nobel (Sikkens) and shall be for a minimum of 10 years.</p>		
<p><b>Meritor Rear Axle Warranty</b></p>		
<p>A 5-year/unlimited miles, 5-year parts and 5-year labor rear drive single or rear drive tandem axle warranty shall be provided by Meritor Automotive.</p>		

Specification for: VILLAGE OF BALD HEAD ISLAND DEPT OF PUBLIC SAFETY	BIDDER COMPLIES	
	YES	NO
<p><b>Front Axle Warranty</b></p> <p>A 5-year/unlimited miles, 5-year parts and 5-year labor front non-drive steer axle warranty shall be provided by Dana Corporation.</p> <p><b>SUPPORT, DELIVERY, INSPECTIONS AND MANUALS</b></p> <p><b>Training</b></p> <p>The manufacturer shall provide three (3) consecutive days of training covering vehicle maintenance and operational familiarization.</p> <p>This training shall be provided by a full time, manufacturer employee trainer who specializes in aerial training.</p> <p><b>Pump Panel Approval Drawing</b></p> <p>A detailed large scale approval drawing of the pump panel(s) shall be provided. The drawing shall be provided on an purchased unit prior to the construction process.</p> <p><b>Approval Drawings</b></p> <p>A general arrangement drawing depicting the vehicles appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views.</p> <p>Vehicles requiring pump controls shall include a general arrangement view of the pump operator's position, scaled the same as the elevation views.</p> <p><b>Approval Drawings - Dash Panel Layout</b></p> <p>A detailed large scale approval drawing of the dash/console panel layout shall be provided. The drawing shall be provided on an purchased unit prior to the construction process.</p> <p><b>Electronic Manuals</b></p> <p>Two (2) copies of all operator, service, and parts manuals MUST be supplied at the time of delivery in digital format -NO EXCEPTIONS! The electronic manuals shall include the following information:</p> <ul style="list-style-type: none"> <li>• Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, aerial (if applicable), installed components, and auxiliary systems.</li> <li>• Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems.</li> <li>• Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.</li> <li>• Instructions regarding the frequency and procedure for recommended maintenance.</li> <li>• Maintenance instructions for the repair and replacement of installed components.</li> <li>• Parts listing with descriptions and illustrations for identification.</li> <li>• Warranty descriptions and coverage.</li> </ul>		

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	YES	NO
<p>The electronic document shall incorporate a navigation page with electronic links to the operator`s manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each copy shall include a table of contents with links tothe specified documents or illustrations.</p> <p>The electronic document must be formatted in such a manner as to allow not only the printing ofthe entire manual, but to also the cutting, pasting, or copying of individual documents to other electronic media, such as electronic mail, memos, and the like.</p> <p>A find feature shall be included to allow for searches by text or by part number.</p> <p>These electronic manuals shall be accessible from any computer operating system capable ofsupporting portable document format (PDF). Permanent copies of all pertinent data shall be kept file at both the local dealership and at the manufacturer`s location.</p> <p>NOTE: Engine overhaul, engine parts, transmission overhaul, and transmission parts manualsare not included.</p> <p><b>Fire Apparatus Safety Guide</b></p> <p>Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intendedto point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest possible ways of dealing with these situations. This manual is NOT a substitute for the manufacturer`s fire apparatus operator and maintenance manuals or commercial chassis manufacturer`s operator and maintenance manuals.</p>		