

**TRAVIS COUNTY EMERGENCY SERVICES DISTRICT No. 2**  
**PFLUGERVILLE FIRE DEPARTMENT**  
**203 E. PECAN STREET**  
**PFLUGERVILLE, TEXAS 78660**  
**(512) 251-2801**

Request for Proposals

for

**2019 Quint Fire Apparatus**

**RFP # 201906**

**Dated: 7/15/2019**

**DUE DATE FOR RESPONSES: 7/26/19**

**4:00 PM Central Standard Time**

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## 1.0 Notice of RFP

Travis County Emergency Services District No. 2 (the “District”) is soliciting sealed proposals for Request for Proposal (“RFP”) No. 201906 for a **2019 Quint Fire Apparatus**.

All addenda, notices, additional information, etc. will be e-mailed to the same contact as the RFP. These items are also available for pickup at the District Administration building.

One printed copy and one digital copy on USB flash drive of the proposal must be sealed and returned to the District Administration building at the following address:

Travis County ESD No. 2  
Attention: Logistics Director  
203 East Pecan Street  
Pflugerville, Texas 78660

by **4:00 p.m. Central Standard Time, on 7/26/19**. All proposals must be clearly marked with the proposal name and RFP number: “2019 Quint Fire Apparatus, RFP #201906”.

Proposer is responsible for delivery of proposal by the date and time set for the closing of the proposal acceptance. Proposals received after the due date and time will not be considered. The information contained in this RFP is confidential and is to be used only in connection with preparing a proposal.

The District reserves the right to reject any and all proposals, and to waive formalities, procedural requirements and/or minor technical inconsistencies, and to delete any requirements and/or specifications as deemed to be in the District’s best interest. Proposals failing to meet all requirements contained in this RFP may be rejected.

### 1.1 RFP Contact Information

All questions concerning this RFP must be addressed to the following point of contact:

Michael Anderson  
Battalion Chief  
203 East Pecan Street  
Pflugerville, Texas 78660  
Phone: (512) 695-5130  
Fax: (512) 990-2511  
Email: [manderson@pflugervillefire.org](mailto:manderson@pflugervillefire.org)

## 1.2 RFP Schedule of Events

| <b>Event Item</b>                                                                        | <b>Date</b> |
|------------------------------------------------------------------------------------------|-------------|
| Issue RFP                                                                                | 7/15/19     |
| Deadline for questions on RFP to designated contact                                      | 7/19/19     |
| Proposals Due                                                                            | 7/26/19     |
| Presentations by Proposers, if requested (estimated date – may change)                   | 7/29/19     |
| Evaluation process completed, successful Proposer selected (estimated date – may change) | 8/06/19     |
| Board Approval of Contract Award (approx.)                                               | 8/8/19      |

## 2.0 Background

Travis County Emergency Services District No. 2 (the District) was created in accordance with Chapter 775 of the Texas Health and Safety Code. The District, also referred to as the Pflugerville Fire Department, has a great responsibility in providing fire suppression, fire prevention, and first response emergency medical care covering approximately 77 square miles with staff and equipment working out of four fire stations 24-hours a day to a population of more than 133,000 in northeast Travis County.

The District service area is roughly bounded by Farm-to-Market Road 1325 in the West, the Travis-Williamson County line on the North, Manda Carlson Road and Cameron Road on the East, and Yager Lane, Dessau Road and Howard Lane on the South. The City of Pflugerville lies within the boundaries of the District, as well as two large municipal utility districts, Wells Branch and Northtown.

Additional information regarding the District can be found at the District's website <https://www.pflugervillefire.org/>.

### 3.0 Project Purpose and Objectives

Travis County Emergency Services District No. 2 is soliciting bids for a 2019 Quint Fire Apparatus. The unit shall have a 107-foot ladder with a minimum 1500 gallon per minute pump equipped with a Compressed Air Foam System (CAFS). This apparatus shall meet current NFPA 1901 standards.

The Department desires to purchase a unit that is to be constructed from specifications provided by the manufacturer and acceptable to the District. The manufacturer may design and construct all non-specified features at their discretion, but those features shall be included in the submitted proposal.

In the event of discrepancies between the specifications contained in this RFP and the proposal awarded the contract, the RFP shall supersede the contract.

Each bid proposal must include a delivery interval for the apparatus. It is the desire of the District to take delivery of this apparatus in 330 days from the date of the signed contract. A \$500.00 a day penalty will be assessed for each calendar workday past the contracted delivery date.

See Section 8 for complete list of specifications.

#### 4.0 Scope of Work

This scope of work (SOW) specifies the products and services that The District expects to acquire from the successful Proposer as a result of this RFP. This SOW outlines minimum requirements for the 2019 Quint Fire Apparatus.

##### 4.1 Anticipated Approach

###### NFPA COMPLIANCY

Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".

See Section 8 for complete specifications.

##### 4.2 Combination of Vendors/Products

The District will consider combinations of vendors/products to achieve the entire list of requirements stated in this RFP. As a result, it is possible for a Proposer to propose portions of the solution and specify compatible products/partners for the remaining parts of the solution. If this approach is taken, The District will evaluate the number, strength and relationship of the vendors/products proposed to determine if that approach provides the best value and easiest ongoing operation for The District.

## **5.0 Proposal Requirements**

The District is soliciting competitive sealed proposals from Proposers having suitable qualifications and experience in providing services in accordance with all terms, conditions, specifications and requirements of this RFP. This RFP is intended to describe the requirements and response format in sufficient detail to secure comparable proposals.

The District adheres to all statutes, court decisions and the opinions of the Texas Attorney General with respect to disclosure of public information.

The District, in its sole discretion, expressly reserves the right to request and/or require any additional information from Proposer(s) deemed relevant with respect to this RFP.

Award of the contract, if any, shall be made to the responsible Proposer whose proposal is determined to be the best evaluated offer from negotiation, taking into consideration the relative importance of price and other evaluation factors set forth in this RFP. All proposals must be valid for a minimum of 120 days from the date of submission.

The District expressly reserves the right to:

- Waive any defect, irregularity or informality in any proposal;
- Reject or cancel any or all proposals, or part(s) of any proposal;
- Accept proposals from one or more Proposers;
- Procure services by other means;
- Select the acceptable Proposer(s) who will offer contractual terms and conditions most favorable to The District; and/or
- Modify the specifications of the RFP contract for segments of this RFP, and/or negotiate the price and any other terms with Proposers, as needed.

Any contract awarded based on this RFP shall be governed by and construed in accordance with the laws of the State of Texas, is fully performable in Pflugerville, Texas, and venue for any action related to this contract will be Pflugerville, Texas.

The implied warranties of merchantability and fitness for a particular purpose shall not be waived under this RFP or any contract awarded from this RFP except as expressly authorized in writing by The District granting the waiver.

The Proposal and, as necessary, all associated documents must be signed by an individual authorized to contractually commit Proposer.

By submission of a response to this RFP, Proposer acknowledges and/or certifies the following:

1. Requirements stated in the RFP shall become part of any award to successful Proposer(s), and any deviations from these requirements must be specifically defined in proposal, request for clarification and/or counter proposal which, if accepted, shall also become part of any contract resulting from this RFP. The contents of the proposal and any clarification or counter proposal thereto submitted by the successful Proposer shall become part of the contractual obligation and incorporated by reference into the ensuing contract.
2. Products and services not specifically mentioned in this RFP, but which are necessary to provide the functional capabilities described by the Proposer shall be included in the proposal.
3. Proposals submitted in accordance with the requirements of this RFP shall be considered offers to contract on the terms contained in the proposals and in this RFP and at the price offered by the successful Proposer. If the District awards a contract to the successful Proposer, such award will constitute an acceptance of that offer and a contract between The District and the successful Proposer embodying the terms of this RFP and the proposal will become effective on the date of such award.
4. Any award under this RFP, or any part of the work to be provided under this RFP, shall not be assignable by Proposer without the express written permission of The District.
5. Review and acceptance of Standard Terms and Conditions (section 7.0)

#### **5.1 Proposal Submission Format**

The District will not accept oral proposals, or proposals received by telephone, FAX machine, telegraph, or email. Proposals must be prepared simply and economically, providing a straightforward, concise description of Proposer's ability to meet all components of this RFP. Emphasis should be focused on completeness, clarity of content and responsiveness to all requirements and specifications of this RFP. Proposer may also provide supplemental marketing or technical materials, to be packaged separately from the proposal. No materials provided by the Proposer will be returned.

Proposer shall submit one original hard copy and one electronic copy. All proposals become the property of The District and will not be returned to the Proposer.

#### **5.2 Proposal Requirements**

- 5.2.1 Cover Letter signed by officer authorized to contractually commit Proposer.
  - 5.2.2 Proposer shall furnish a complete name, mailing address and telephone number.
  - 5.2.3 Proposal must designate individual(s), along with respective telephone numbers, responsible for answering technical and contractual questions with respect to proposal.
  - 5.2.4 Promotional or display materials shall be separated from RFP response and labeled.
  - 5.2.5 **Detailed statement of qualifications**, addressing at a minimum:
    - 5.2.5.1 Detailed description of Proposer's experience in construction, operations and maintenance of a Quint Fire Apparatus;
    - 5.2.5.2 Hours of operation and contact information for staff to assist with problem resolution;
  - 5.2.6 **A minimum of three references** for clients similar in size and complexity to the District – references must include name and address of client, point of contact, contact information (phone, fax and email);
  - 5.2.7 **Cost and Revenue Proposal**
    - 5.2.7.1 Cost/fee for providing a 2019 Quint Fire Apparatus outlined in this RFP. Please provide clear and concise pricing model.
  - 5.2.8 **Exceptions.** The District expects the successful Proposer to agree to the standard terms and conditions that would be extended by The District for the purchase of comparable products and services. The District's standard terms and conditions can be found in RFP Section 7.0. These terms and conditions or, in the sole discretion of the District, terms and conditions substantially similar, will constitute and govern any agreement resulting from this RFP. If Proposer takes exception to any terms or conditions, Proposer will submit a list of the exceptions as part of its proposal. Proposer's exceptions will be reviewed by District and may result in disqualification of Proposer's proposal as non-responsive to this RFP. If Proposer's exceptions do not result in disqualification of Proposer's proposal, then District may consider Proposer's exceptions when District evaluates the Proposer's proposal. Proposals including conditional clauses, modifications or alterations to the RFP and/or irregularities of any kind are subject to disqualification by the District at the District's sole discretion.
- 5.3 Proposal Time Stamp
- The time proposals are received shall be determined by the receipt date and time recorded by District Administration personnel, who will promptly record submissions as they are received. Proposers are responsible for

insuring and verifying that proposals are received and recorded by District Administration personnel by the due date indicated in RFP Section 1.0.

5.4 Proposer Representations and Responsibilities

By submitting a proposal in response to this RFP, Proposer represents that it has carefully read and understands all elements of this RFP; has familiarized itself with all federal, state, and local laws, ordinances, and rules and regulations that in any manner may affect the cost, progress, or performance of the contract work; and has full knowledge of the scope, nature, quality and quantity of services to be performed.

By submitting a proposal in response to this RFP, the Proposer represents it has not relied exclusively upon any technical details in place or under consideration for implementation by the District but has supplemented this information through due diligence research and that Proposer sufficiently understands all issues relative to the indicated requirements.

The failure or omission of Proposer to receive or examine any form, instrument, addendum, or other documents or to acquaint itself with any other conditions or other details shall in no way relieve Proposer from any obligations with respect to its proposal or to any resulting contract.

5.5 Late Proposals

All proposals received by the District on time shall be accepted. All late proposals received by the District shall be rejected and will be made available for pickup by the Proposer upon request. Late proposals will remain unopened.

5.6 Proposer Questions

Proposers may only contact the individual listed in Section 1.1 with any questions regarding this RFP. Proposers shall not attempt to contact District Board members, District staff or management directly during the pre-award period. The District intends to respond to all appropriate questions and concerns; however, the District reserves the right to decline to respond to any question or concern.

All material questions/responses, clarifications, modifications and/or interpretations will be incorporated into an addendum which will be sent via email to original contact that the RFP was sent to. All addenda issued prior to the due date/time for responses are incorporated into this RFP and must be acknowledged in proposal. Only information provided in written addenda shall be binding – oral or other interpretations shall not be binding and are held without legal effect.

## 6.0 Proposal Evaluation

The District has attempted to provide Proposers with a comprehensive statement of requirements through this RFP for the services requested. Proposers must provide written proposals presenting Proposer's qualifications and understanding of the work to be performed. Proposers must address each evaluation criteria and be specific in presenting qualifications. Proposals must be as thorough and detailed as possible so that The District may properly evaluate qualifications, capabilities and all details of proposal.

Selection may be made of one or more Proposers deemed to be fully qualified and best suited among those submitting proposals. Onsite (or at the District's discretion, teleconference or videoconference) demonstrations or presentations, as well as client site visits, may be conducted for the Proposers so selected.

The District reserves the right to award based on the responses received or to negotiate with any or all the Proposers so selected. Price shall be considered but shall not be the sole determining factor for selection. The District may also award to other than the highest ranked proposer in the event the best and final price submitted by Proposer is more than the budget available for the project. The District shall select the Proposer which, in the District's opinion, has made the proposal most beneficial to the District for award. Should the District determine in writing and in its sole discretion that only one Proposer is fully qualified or that one Proposer is clearly more highly qualified than the others under consideration, a contract may be negotiated and awarded to that Proposer. The District reserves the right to revoke the original recommendation for award and associated contract in the event the recommended Proposer fails to execute a contract within thirty days of notification of selection for award. The award document will be a contract incorporated by reference all the requirements, terms and conditions of the RFP and the Proposer's proposal as negotiated.

For purposes of evaluation, The District may establish, after an initial review of proposals, a competitive range of acceptable or potentially acceptable proposals composed of the highest rated proposals, and defer action on proposals outside of the competitive range pending selection of a successful Proposer; however, the District reserves the right to include additional proposals in the competitive range if deemed to be in the District's best interest.

The District may permit revision of proposal(s) prior to final selection of a successful Proposer; such revisions, including pricing, shall become binding. Proposers within the competitive range may be provided an opportunity for discussion and revision of its proposal. The District is not obligated to select the

Proposer offering the most attractive economic terms if such Proposer is not the most advantageous to the District overall, as solely determined by the District.

By submission of a proposal, Proposer acknowledges acceptance of the evaluation process, the evaluation criteria, all specification, terms and conditions and all other requirements and specifications set forth in this RFP, and recognition that some subjective judgments must be made by the District during the process. The District makes no guarantees or representations that any award will be made and reserves the right to cancel this solicitation for any reason. Proposer shall be solely responsible and accept all risk for any costs associated with preparation of a response to this RFP, or subsequent evaluation related activities such as onsite interviews, demonstrations or presentations.

#### 6.1 Proposal Evaluation Criteria

The District has established criteria for scoring. This section presents the evaluation criteria, description, and the total points available to each. Total points available are 100.

##### **Costs Proposal: up to 5 points**

The highest points will be awarded to the lowest cost proposal that clearly addresses all areas of the RFP proposal.

##### **Financing Options: up to 5 points**

The highest points will be awarded to the Proposer that provides the most desirable financing package for the terms chosen by the District based upon interest rates and any financing/pre-pay discounts.

##### **Warranty Evaluation: up to 10 points**

The highest points will be awarded to the Proposer that meets and/or exceeds the minimum warranty criteria provided in the RFP.

**Cost of Ownership Evaluation: Up to 20 points**

The highest points will be awarded to the Proposer that provides the most comprehensive cost of ownership package that provides the greatest value to the District, while limiting the out of service time to specified apparatus.

**Service Evaluation: Up to 10 points**

The highest points will be awarded to the Proposer that provides the most beneficial proposal for service location, service vehicle availability, and the availability of non-proprietary replacement parts.

**Cab Design: Up to 10 Points**

The highest points will be awarded to the Proposer that provides the cab design that meets the RFP minimum criteria. The desired Clean Cab options along with storage and compartment solutions will be weighed heavily based upon the desired design as specified.

**Body Design: Up to 40 Points**

Up to 40 points will be awarded to Proposers that clearly address the areas for body design and compartmentation in the RFP proposal. The desired clean cab compartment options and overall storage and compartment design will be worth a total of 30 points. An additional 10 points will be available based upon the review of the storage availability. 5 points will be awarded if all specified SCBA storage is met without exception. An additional 5 points will be awarded if the design of the proposal offers available room for equipment storage as determined by the District based upon current equipment expected to be placed on proposed apparatus.

**Exceptions point reduction: -5 Points**

A reduction of overall score of up to 5 points can be awarded by the District if the exceptions are deemed excessive and/or fail to meet the intent of proposed are of the RFP. **Detailed Statement of Qualifications (Section 5.2.5) – up to 5 points**

## 7.0 Terms and Conditions

By acceptance of a purchase order or agreement, or response to a solicitation, Proposer agrees the following terms and conditions, without modification, will govern:

### 7.1 Standard Terms and Conditions

#### 7.1.1 Definitions

The following definitions shall be used to identify terms throughout procurement documents:

7.1.1.1 AGREEMENT/CONTRACT – A mutually binding legal document obligating the Vendor to furnish the goods, equipment or services specified within the solicitation and obligating the District to pay for the goods, equipment, or services specified.

7.1.1.2 BID/PROPOSAL/RESPONSE/OFFER/QUOTATION– A complete, properly signed response to a solicitation that, if accepted, would bind the Respondent to perform the resulting contract.

7.1.1.3 BIDDER/PROPOSER/RESPONDENT/OFFERER – The Respondent identified throughout the solicitation that they consider themselves qualified to provide the goods, equipment or services specified herein, and are interested in making an offer to provide the goods, equipment or services to The District.

7.1.1.4 District – Travis County Emergency Services District No. 2, Pflugerville Fire Department.

7.1.1.5 SERVICES – Work performed to meet the requirements and demand of a purchase order. The furnishing of labor, time, or effort by the Vendor and their ability to comply with promised delivery dates, specification and technical assistance specified.

7.1.1.6 SOLICITATION/INVITATION TO BID/REQUEST FOR PROPOSALS/REQUEST FOR QUOTES – The solicitation document issued by the District containing terms, conditions and specifications for the service or commodity to be procured.

7.1.1.7 VENDOR/CONTRACTOR – Person or business enterprise providing goods, equipment, labor and/or services to the District as fulfillment of obligations arising from an agreement or purchase order.

### **Solicitations**

#### 7.1.2 Conflict of Interest

Effective January 1, 2006, Chapter 176 of the Texas Local Government Code (HB 914) requires an entity contracting or seeking to contract for the sale or purchase of property, goods, or services with a local governmental entity to disclose any affiliation or business relationship which might create a conflict of interest with a local government entity. The Conflict of Interest Questionnaire is available from the Texas Ethics Commission at [www.ethics.state.tx.us](http://www.ethics.state.tx.us), and completed forms must be submitted to the appropriate records administrator of The District not later than the seventh business day after the date the entity begins contract discussions or negotiations with the local governmental entity, or submits to the local governmental entity an application, response to a Request for Proposals or Bids, correspondence, or another writing related to a potential Agreement with the local governmental entity. If responding to a Solicitation, the Conflict of Interest Form may be submitted with the Response. The completed forms may be mailed or hand delivered to The District. This legislation is subject to change and each entity should consult its own attorney regarding the current law. Any attempt to intentionally or unintentionally conceal a conflict of interest may result in disqualification of any response to a solicitation. The validity of the Contract is not affected solely because of failure to comply with the conflict of interest disclosure requirements.

**7.1.3 Communications with the District**

To insure the proper and fair evaluation of a Solicitation, The District prohibits ex parte communication (e.g., unsolicited) initiated by the Offeror to District Officials or Employees evaluating or considering the Responses prior to the time an award has been made. Communication between Offeror and the District will be initiated by the appropriate District Official or Employee in order to obtain information or clarification needed to develop a proper and accurate evaluation of the Solicitation. Ex parte communication may be grounds for disqualifying the offending Offeror from consideration or award of the Solicitation then in evaluation, or any future Solicitation.

Unless otherwise specified, all requests for clarification or questions regarding a Solicitation must be directed to Travis County ESD No. 2, Attn.: Purchasing Manager, 203 East Pecan Street, Pflugerville, TX 78660, 512-251-2801, FAX: 512-990-1125, [purchasing@Pflugervillefire.org](mailto:purchasing@Pflugervillefire.org).

**7.1.4 DISCLOSURE OF PENDING LITIGATION:**

Each Respondent shall include in its proposal a complete disclosure of any material civil or criminal litigation or pending

investigation which involves the Respondent or in which the Respondent has been judged guilty.

**7.1.5 CONFIDENTIALITY OF RESPONSES, PUBLIC INFORMATION ACT:**

All Responses are subject to release as public information unless the Response or specific parts of the Response can be shown to be exempt from the Texas Public Information Act. Respondents are advised to consult with their legal counsel regarding disclosure issues and take the appropriate precautions to safeguard trade secrets or any other proprietary information. The District assumes no obligation or responsibility for asserting legal arguments on behalf of potential Respondents.

If a Respondent believes that a Response or parts of a Response are confidential, then the Respondent shall so specify. The Respondent shall stamp in bold red letters the term "CONFIDENTIAL" on that part of the Response, which the Respondent believes to be confidential. Vague and general claims as to confidentiality shall not be accepted. All Responses and parts of Responses that are not marked as confidential will be automatically considered public information. Notwithstanding, responses to Requests for Proposals shall be opened in a manner that avoids disclosure of the contents to competing offeror and keeps the proposals secret during negotiations.

**7.1.6 CLARIFICATIONS, WAIVER OF MINOR TECHNICALITIES OR DISCREPANCIES:**

The District reserves the right to request clarification or additional information specific to any response after all Responses have been received and the Solicitation due date has passed. Additionally, The District reserves the right to accept or reject all or part of any Response, waive any formalities or technical inconsistencies, delete any requirement or specification from the Solicitation, or terminate the Solicitation when deemed to be in District's best interest.

**7.1.7 COST OF PREPARATION OF RESPONSE:**

All costs directly or indirectly related to preparation of a Response to this Solicitation or any oral presentation required to supplement and/or clarify a Response which may be required by The District shall be the sole responsibility of the Respondent.

**7.1.8 RESPONSES BECOME PROPERTY OF The District:**

Proposals received in response to a Solicitation become the sole property of The District.

**7.1.9 WITHDRAWAL OF A RESPONSE:**

A Response may be withdrawn prior to the submission deadline by submitting a written request for its withdrawal to the Purchasing Manager. A new Response may be submitted and must be received prior to the submission deadline to be considered. Modifications offered in any manner will not be considered if submitted after the submission deadline.

**7.1.10 DETERMINATION OF AWARD, RESULTING AGREEMENT:**

In determining award, The District reserves the right to select the acceptable Respondent who will offer contractual terms and conditions most favorable to The District. All requirements stated in the Solicitation shall become a part of any Contract, Agreement or Purchase Order awarded as a result of the Solicitation, and any deviations from these requirements must be specifically stated and defined by the Respondent in their Response. Requests for clarification and the responses(s) shall also become a part of any Contract, Agreement or Purchase Order resulting from the Solicitation.

**7.1.11 AFFIRMATIONS AND CERTIFICATIONS:**

By signature on and submission of a Response, Respondent certifies they have not conspired with any other potential supplier in any manner to attempt to control competitive pricing. By signature on and submission of a Response, Respondent certifies they are duly qualified, capable and a bondable business entity not in receivership or contemplating same and has not filed for bankruptcy. By signature on and submission of a Response, Respondent affirms that they will not discriminate against any employee or applicant as prohibited by law.

**7.1.12 REQUIREMENTS FOR SUBMISSION OF RESPONSE:**

All Responses must be submitted in the form requested by the District and accompanied by all required attachments. Each Response shall be placed in a separate envelope and properly identified with Solicitation Number and Opening Date. Responses must be time-stamped by District Administration personnel at the Administration Building, 203 East Pecan Street, Pflugerville, TX 78660, on or before due date and time shown on the Solicitation form. Late Responses will not be considered.

If applicable, Respondent will show exact cost to deliver goods/services. Responses must specify unit price on the quantity specified, extend and show total. Unit prices shall govern, including in case of errors. Pricing will be considered firm for acceptance for a minimum of 60 days after the due date unless otherwise specified in the Solicitation. The validity period may be extended beyond that date on agreement of parties. Cash discounts will not be

considered in determining award; all cash discounts offered will be taken if earned. Respondent will list and deduct all discounts not based on early payment from prices quoted.

The District is exempt from all federal excise, state and local taxes unless otherwise stated. The District claims exemption from under Texas Tax Code §151.309, as amended. Texas Limited Sales Tax Exemption Certificates will be furnished upon request. Do not include taxes in Response to any Solicitation.

Unless stated otherwise, any catalog, brand name or manufacturer's reference used in the Solicitation is descriptive (not restrictive) and is used to indicate type and quality desired.

**7.1.13 INSURANCE REQUIREMENTS:**

Unless specific insurance requirements are noted, Vendor shall maintain standard insurance coverage. Upon request, Vendor shall provide a copy of its insurance policies to the District.

**7.1.14 EXCEPTIONS TO SPECIFICATIONS:**

Any deviation from the specifications must be clearly indicated in the Response to the Solicitation or promptly documented in writing at or before the time of the award. Any deviations or exceptions are subject to review by the District and may be grounds for rejection.

**7.1.15 TRAVEL EXPENSES:**

All travel, lodging and/or per diem expenses associated with providing the materials, equipment or services specified must be included in Proposal.

**7.1.16 EMPLOYEES:**

Vendor shall employ only orderly and competent workers, skilled in the performance of the Services which they will perform under the Agreement. Successful Proposer shall be responsible for conducting criminal background checks and verifying employment eligibility on all employees that will have access to District information.

**Payment**

**7.1.17 TAX EXEMPT STATUS:**

The District is exempt from all federal excise, state and local taxes unless otherwise stated in this document. The District claims exemption from all sales and/or use taxes under Texas Tax Code §151.309, as amended. Texas Limited Sales Tax Exemption Certificates are furnished upon request. Vendor will not charge for such taxes. If billed, The District will not remit payment until a corrected invoice is received.

**7.1.18 INVOICING REQUIREMENTS:**

Unless otherwise specified, all invoices shall be submitted to:  
Travis County ESD No. 2, Attn: Accounts Payable, 203 East Pecan  
Street, Pflugerville, TX 78660, or to  
accountspayable@pflugervillefire.org

**7.1.19 RIGHT TO AUDIT:**

The Vendor agrees that the representatives of the District shall have access to, and the rights to audit, examine, or reproduce, any and all records of the Vendor related to the performance under this Agreement. The Vendor shall retain all such records for a period of four (4) years after final payment on this Agreement or until all audit and litigation matters that the District has brought to the attention of the Vendor are resolved, or retention required by law, whichever is longer. The Vendor agrees to refund to the District any overpayments disclosed by any such audit.

**7.1.20 FIRM PRICING:**

The price shall remain firm for the duration of the Contract and extension periods. Vendor further certifies that the prices in the Offer have been arrived at independently without consultation, communication, or agreement for the purpose of restricting competition, as to any matter relating to such fees with any other firm or with any competitor.

**7.1.21 PRICE WARRANTY:**

The Vendor warrants the prices quoted are not materially higher than the Vendors current prices on orders by others for like deliverables under similar terms of purchase. In addition to any other remedy available, The District may deduct from any amounts owed to the Vendor, or otherwise recover, any amounts paid for items materially in excess of the Vendor's current prices on orders by others for like deliverables under similar terms of purchase.

**Additional Requirements**

**7.1.22 VENDOR'S OBLIGATION:**

Vendor shall fully and timely provide all deliverables described in Solicitation, Vendor's Offer in strict accordance with the terms, covenants and conditions of the Agreement and all applicable federal, state and local laws, rules and regulations.

**7.1.23 DEFAULT:**

Vendor shall be in default under the Agreement if the Vendor (a) fails to fully, timely and faithfully perform any of its material obligations under the Agreement, (b) becomes insolvent or seeks relief under the bankruptcy laws of the United States or (c) makes a

material misrepresentation in Vendor's Offer, or in any report or deliverable required to be submitted by Vendor to The District.

#### TERMINATION/CANCELLATION:

##### 7.1.24 TERMINATION FOR CAUSE:

In the event of default by the Vendor, the District shall have the right to terminate the Agreement for cause, by written notice effective ten (10) calendar days, unless otherwise specified, after the date of such notice, unless the Vendor, within such ten (10) day period cures such default, or provides evidence sufficient to prove to the District's satisfaction that such default does not, in fact, exist. In addition to any other remedies available under law or in equity, the District shall be entitled to recover all actual damages, costs, losses and expenses incurred by the District as a result of the Vendor's default, including without limitation, cost of cover, reasonable attorneys' fees, court costs and prejudgment and post-judgment interest at the maximum lawful rate. Additionally, in the event of default by the Vendor, the District may remove the Vendor from the District's Vendor List and any Offer submitted by the Vendor may be disqualified for up to three (3) years. All rights and remedies under the Agreement are cumulative and not exclusive of any other right or remedy provided by law.

##### 7.1.25 TERMINATION WITHOUT CAUSE:

The District shall have the right to terminate the Agreement, in whole or in part, without cause any time upon thirty (30) calendar days' prior written notice. Upon receipt of a notice of termination, the Vendor shall promptly cease all further work pursuant to the Agreement, with such exceptions, if any, specified in the notice of termination. The District shall pay the Vendor, to the extent of funds appropriated or otherwise legally available for such purposes, for all goods delivered and services performed, and obligations incurred prior to the date of termination in accordance with the terms hereof.

##### 7.1.26 NON-APPROPRIATION:

The resulting Agreement is a commitment of the District's current revenues only. It is understood and agreed that The District shall have the right to terminate the Agreement at the end of any District fiscal year (September 30th) if the governing body of The District does not appropriate funds sufficient to purchase the estimated yearly quantities, as determined by The District's budget for the fiscal year in question. The District may effect such termination by providing the Vendor a written notice of termination at the end of its then current fiscal year.

**7.1.27 CANCELLATION:**

The District reserves the right to cancel the Agreement for default all or any part of the delivered portion of the deliverables if the Vendor breaches any term hereof including warranties or becomes insolvent or commits acts of bankruptcy. Such right of cancellation is in addition to and not in lieu of any remedies which The District may have in law or in equity.

**7.1.28 FRAUD:**

Fraudulent statements by the Vendor on any Offer or in any report or deliverable required to be submitted by the Vendor to The District shall be grounds for termination of the Agreement for cause by The District and may result in legal action.

**7.1.29 INDEMNITY:**

VENDOR SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS The District, ITS OFFICERS, AGENTS, SERVANTS AND EMPLOYEES FROM AND AGAINST ANY AND ALL SUITS, ACTIONS, LEGAL PROCEEDINGS, CAUSES OF ACTION, CLAIMS, DEMANDS, DAMAGES, JUDGMENTS, LOSSES, LIENS, COSTS, EXPENSES, ATTORNEYS' FEES AND ANY AND ALL OTHER COSTS, FEES AND/OR CLAIMS OF ANY KIND OR DESCRIPTION ARISING OUT OF, IN CONNECTION WITH OR RESULTING FROM THE AGREEMENT OR THE GOODS OR SERVICES PROVIDED UNDER THE AGREEMENT. IF THE VENDOR AND The District ARE CONCURRENTLY NEGLIGENT, EACH PARTY'S LIABILITY SHALL BE LIMITED TO THAT PORTION OF NEGLIGENCE ATTRIBUTABLE TO IT AS DETERMINED UNDER THE APPLICABLE PROPORTIONATE RESPONSIBILITY RULES OF THE STATE OF TEXAS.

**7.1.30 LIABILITY:**

Any person, firm or corporation performing services pursuant to this Agreement shall be liable for all damages incurred while in the performance of such services. Vendor assumes full responsibility for the work to be performed hereunder and hereby releases, relinquishes, and discharges the District, its officers, agents and employees from all claims, demands and causes of action of any nature including the cost of defense thereof, for any injury to, including death of, any person whether that person be a third party, supplier or an employee of either of the parties hereto, and any loss of or damage to property, whether the same be that of either of the parties, caused by or alleged to have been caused by, arising out of or in connection with the issuance of the Agreement or Purchase Order to the Vendor and the negligence of the Vendor, whether or not said claims, demands and causes of action in whole or in part

are covered by insurance. Certificates of insurance may be required for, but not limited to, Commercial General Liability, Business Auto Liability, Workers Compensation and Professional Liability Insurance.

**7.1.31 INFRINGEMENT:**

Vendor represents and warrants to the District that: (a) Vendor shall provide the District good and indefeasible title to the deliverables and (b) the deliverables supplied by the Vendor in accordance with the specifications of the Agreement shall not infringe, directly or contributory, any patent, trademark, copyright, trade secret or any other intellectual property right of any kind of any third party; that no claims have been made by an person or entity with respect to the ownership or operation of the deliverables and the Vendor does not know of any basis for any such claims. Vendor shall, at its sole expense, defend, indemnify and hold the District harmless from and against all liability, damages and costs (including court costs and reasonable fees of attorneys and other professionals) arising out of or resulting from: (a) any claim that the District exercises anywhere in the world of the rights associated with the District's ownership, and if applicable, license rights, and its use of the deliverable infringes the intellectual property rights of any third party; or (b) Vendor's breach of any of the Vendor's representations or warranties stated in this Agreement. In the event of any such claim, the District shall have the right to monitor such claim or, at its option, engage its own separate counsel to act as co-counsel on The District's behalf. Further, Vendor agrees that the District's specifications regarding the deliverables shall in no way diminish Vendor's warranties or obligations under the Section, and the District makes no warranty that the products, development or delivery of such deliverables will not impact such warranties of Vendor.

**7.1.32 CONFIDENTIALITY:**

In order to provide the deliverables to the District, Vendor may require access to the District's and/or its licensors' confidential information (including, but not limited to, inventions, employee information, trade secrets, confidential know-how, confidential business information and other information which The District or its licensors consider confidential) (collectively, "Confidential Information"). Vendor acknowledges and agrees that the Confidential Information is the valuable property of the District and/or its licensors, and any unauthorized use, disclosure, dissemination or other release of the Confidential Information will substantially injure the District and/or its licensors. The Vendor

(including its employees, subcontractors, agents or representatives) agrees that it will maintain the Confidential Information in strict confidence and shall not disclose, disseminate, copy, divulge, recreate or otherwise use the Confidential Information without the prior written consent of the District, or in a manner not expressly permitted under this Agreement, unless the Confidential Information is required to be disclosed by law or as a result of an order of any court or other governmental authority with proper jurisdiction, provided the Vendor promptly notifies the District prior to disclosing such information so as to permit the District reasonable time to seek an appropriate protective order. The Vendor agrees to use protective measures no less stringent than the Vendor uses within its own business to protect its own most valuable information, which protective measures shall under all circumstances be at least reasonable measures to ensure the continued confidentiality of the Confidential Information.

**7.1.33 CODES, PERMITS, LICENSES:**

Vendor shall comply with all federal, state and local standards, codes and ordinances and the terms and conditions of the services of the electric utility, as well as other authorities that have jurisdiction pertaining to equipment and materials used and their application. None of the terms or provisions of the specification shall be construed as waiving any rules, regulations or requirements of these authorities. Vendor shall be responsible for obtaining all necessary permits, certificates and/or licenses to fulfill contractual obligations to The District.

**7.1.34 ADVERTISING and the District:**

Vendor shall not advertise or otherwise publicize, without the District's prior written consent, the fact that the District has entered into the Agreement, except to the extent required by applicable law.

**7.1.35 INDEPENDENT CONTRACTOR:**

The Agreement shall not be construed as creating an employer/employee relationship, a partnership or joint venture. The Vendor's services shall be those of an independent contractor. The Vendor agrees and understands that the Agreement does not grant any rights or privileges established for employees of the District. Vendor shall not be within protection or coverage of the District's Worker Compensation insurance, Health Insurance, Liability Insurance or any other insurance that the District, from time to time, may have in force.

**7.1.36 LIENS:**

Vendor shall defend, indemnify and hold the District harmless from and against any and all liens and encumbrances for all labor, goods

and services provided under this Agreement. At the District's request, the Vendor or its subcontractors shall provide a proper release of all liens or satisfactory evidence of freedom from liens shall be delivered to the District.

**7.1.37 ASSIGNMENT/DELEGATION:**

The Agreement shall be binding upon and endure to the benefit of the District and the Vendor, and their respective successors and assignees, provided however, that no right or interest in the Agreement shall be assigned and no obligation shall be delegated by the Vendor without the prior written consent of the District. Any attempted assignment or delegation by the Vendor shall be void unless made in conformity with this Section. The Agreement is not intended to confer any rights or benefits on any person, firm or entity not a party hereto; it being the intention of the parties that there be no third-party beneficiaries to the Agreement.

**7.1.38 INTERPRETATION:**

The Agreement is intended by both parties as the final, complete and exclusive statement of the terms of their agreement. No course of prior dealing between the parties or course of performance or usage of the trade shall be relevant to supplement or explain any term used in the Agreement. Although the Agreement may have been substantially drafted by one party, it is the intent of the parties that all provisions be construed in a manner fair to both parties, reading no provision more strictly against one party of the other. Whenever a term defined by the Uniform Commercial Code (the "UCC"), as enacted by the State of Texas, is used in the Agreement, the UCC definition shall control unless otherwise defined in the Agreement.

**7.1.39 GOVERNING LAW AND VENUE:**

This Agreement is made under and shall be governed by the laws of the State of Texas, including when applicable, the UCC as adopted in Texas, VTCA, Business & Commerce Code, Chapter 1, excluding any rule or principle that would refer to and apply the substantive law of another state or jurisdiction. This Agreement is fully performable in Pflugerville, TX, and the venue for any action related to this Agreement shall be Pflugerville, TX. All issues arising from this Agreement shall be resolved in the courts of Travis County, Texas and the parties agree to submit to the exclusive personal jurisdiction of such courts. The foregoing, however, shall not be construed or interpreted to limit or restrict the right or the ability of The District to seek and secure injunctive relief from any competent authority as contemplated herein and does not waive The District's defense of sovereign immunity.

**7.1.40 SURVIVABILITY OF OBLIGATIONS:**

All provisions of the Agreement that impose continuing obligations on the parties, including but not limited to the warranty, indemnity and confidentiality obligations of the parties, shall survive the expiration or termination of the Agreement.

**7.1.41 CLAIMS:**

If a claim, demand, suit or other action is asserted against the Vendor which arises under or concerns the Agreement, or which could have a material adverse effect on the Vendor's ability to perform thereunder, the Vendor shall give written notice to the District within ten (10) calendar days after receipt of notice by the Vendor. Such notice to the District shall state the date of notification of any such claim, demand, suit or other action; the names and address of the claimant(s); the basis thereof; and the name of each person against whom such claim is asserted. Such notice shall be delivered to the District at 203 East Pecan Street, Pflugerville, TX 78660.

**7.1.42 GRATUITIES:**

The District may, by written notice to the Vendor, cancel the Agreement without liability if it is determined by the District that gratuities were offered or given by the Vendor or any agent or representative of the Vendor to any officer or employee of the District with the intent of securing the Agreement or securing favorable treatment with respect to awarding or amending or the making of any determinations with respect to performing of the Agreement. In the event the Agreement is cancelled by the District pursuant to this Section, the District shall be entitled, in addition to any other rights and remedies, to recover the benefits or payments to the Vendor, as a result of the gratuities.

**7.1.43 PERSONAL INTEREST PROHIBITED:**

No officer, employee, independent consultant or elected official of the District who is involved in the development, evaluation or decision-making process of the performance of the any Solicitation shall have a financial interest, direct or indirect, in the resulting Agreement.

**7.1.44 WAIVER:**

No claim or right arising out of a breach of the Agreement can be discharged in whole or in part by a waiver or renunciation of the claim or right unless the waiver or renunciation is supported by consideration and is in writing signed by the aggrieved party. No waiver by either the Vendor or the District of any one or more events of default by the other party shall operate as, or be construed to be, a permanent waiver of any rights or obligations

under the Agreement, or an express or implied acceptance of any other existing or future default(s), whether of similar or different character.

**7.1.45 DISPUTE RESOLUTION:**

If either the Vendor or The District has a claim, dispute or other matter in question for breach of duty, obligations, services rendered or any warranty that arises under this Agreement, the parties shall first attempt to resolve the matter through this dispute resolution process. The disputing party shall notify the other party in writing as soon as practicable after discovering the claim, dispute or breach. The notice shall state the nature of the dispute and list the party's specific reasons for such dispute. Within ten (10) business days of receipt of the notice, both parties shall make a good faith effort, in person or through generally accepted means, to resolve any claim, dispute, breach or other matter in question that may arise out of, or in connection with, this Agreement. If the parties fail to resolve the dispute within sixty (60) days of the date of receipt of the notice of the dispute, then the parties may submit the matter to non-binding mediation upon written consent of authorized representatives of both parties in accordance with the Arbitration Rules of the American Arbitration Association or other applicable rules governing mediation then in effect. If the parties cannot resolve the dispute through mediation, then either party shall have the right to exercise any and all remedies available under law regarding the dispute.

**7.1.46 INVALIDITY:**

The invalidity, illegality or unenforceability of any provision of this Agreement shall in no way affect the validity or enforceability of any other portion or provision of the Agreement. Any void provision shall be deemed severed from the Agreement and the balance of the Agreement shall be construed and enforced as if the Agreement did not contain the particular portion or provision held to be void. The parties further agree to reform the Agreement to replace the stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this section shall not prevent the entire Agreement from being void should a provision which is the essence of the Agreement be determined to be void.

## **8.0 Specifications**

### **8.1 QUALITY AND WORKMANSHIP**

- The design of the apparatus proposed shall embody the modular design and construction technique as outlined. The workmanship is of the highest quality in its respective field. Special consideration has been given to the following points: accessibility of the various components which require periodic maintenance operations for ease of operation, including both pumping and driving operations and symmetrical proportioning of the overall apparatus.
- Construction utilized shall be rugged and safety factors have been provided to carry loads as specified and to meet the road requirements and speed conditions as set forth under "Performance Tests and Requirements".
- Welding shall not be employed in the assembly of the apparatus in a manner that shall prevent the removal of major component parts for service and/or repair. This includes the following but is not limited to; compartment doors, hinges, fender liners, running boards, hose beds, and pump panels, etc.

### **8.2 VEHICLE STABILITY**

- The height of the fully loaded vehicle center of the gravity shall not exceed the chassis manufacturer maximum.
- The front to rear weight distribution of the fully loaded vehicle shall be within the limits set by the chassis manufacturer.
- The front axle loads shall not be less than the minimum axle loads specified by the chassis manufacturer, under full load and all other loading conditions.
- The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped shall not exceed 7%.

### **8.3 PERFORMANCE TEST AND REQUIREMENTS**

- The apparatus will meet the performance requirements at elevations of 2000 feet (610m) above sea level.
- The apparatus will meet the performance requirements while stationary on any grade of up to and including 6% in any direction.
- From a standing start, the vehicle will attain a true speed of 35 mph (56 km/h), within 25 seconds on a level road.
- The apparatus will obtain a minimum top speed of 50 mph (80 km/h) on a level road.
- The apparatus will be able to maintain a speed of at least 20 mph (32 km/h), on any grade up to and including 6%.

- The apparatus will be tested and approved by Underwriters Laboratories Incorporated in accordance with the standard practices for pumping engines.

## 8.2 ROAD TEST

- Each manufacturer will conduct road test to verify that the complete apparatus is capable of compliance:
- The test will be conducted on a dry, level, paved road that is in good condition. The engine will not operate in excess of the maximum no load governed speed.
- Acceleration test will consist of two runs in opposite directions over the same route.
- The vehicle will attain a true speed of 35 mph (56 km/h) from a standing start within 25 seconds.
- The vehicle will attain a minimum top speed of not less than 50 mph (80 km/h).
- If the apparatus is equipped with an auxiliary braking system, the apparatus manufacturer will road test the system to confirm that the system is functioning as intended by the auxiliary braking system manufacturer.
- The service brakes will bring the fully laden apparatus to a complete stop from an initial speed of 20 mph (32 km/h) in a distance not exceeding 35 feet (10.7M) by actual measurement, on a substantially hard, level surface road that is free of loose material, oil, or grease.

## 8.5 AERIAL TEST

- The manufacturer shall have Underwriter's Laboratories Incorporated personnel conduct the tests required by the Underwriter's Laboratories Incorporated Guide of Certifications of Fire Department Aerial. A copy of all tests shall accompany the apparatus upon delivery.

## 8.6 PUMP TEST

- The pump will be tested, approved and certified by Underwriter's Laboratory at the manufacturer's expense. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details will be provided to the Fire Department at the time of delivery.

## 8.7 GENERATOR TEST

- If the unit has a generator, the generator will be tested, approved, and certified by Underwriters Laboratories at the manufacturer's expense. The test results will be provided to the Fire Department at the time of delivery.

#### 8.8 FAILURE TO MEET TESTS

- In the event the apparatus fails to meet the test requirements of these specifications on the first trials, second trials may be made at the option of the manufacturer within thirty-(30) days of the date of the first trials. Such trials shall be final and conclusive and failure to comply with changes, as the purchaser may consider necessary to conform to any clause of the specifications within thirty-(30) days after notice is given to the manufacturer of such changes, shall also because of rejection of the apparatus.
- Permission to keep or store the apparatus in any building owned or occupied by the purchaser or its use by the Fire Department during the above-specified period with the permission of the manufacturer shall not constitute acceptance.

#### 8.9 INFORMATION SUPPLIED AT TIME OF DELIVERY

8.9.1 The following information and original certifications will be required at time of delivery. This information will be supplied by the apparatus manufacturer:

8.9.1.1 The manufacturer's record of apparatus construction details, including the following information:

- (a) Owner's name and address
- (b) Apparatus manufacturer, model, and serial number
- (c) Chassis make, model, and serial number
- (d) GVWR of front and rear axles
- (e) Front tire size and total rated capacity in pounds (kilograms)
- (f) Rear tire size and total rated capacity in pounds (kilograms)
- (g) Chassis weight distribution in pounds (kilograms) with water and manufacturer-mounted equipment (front and rear)
- (h) Engine make, model, and serial number, rated horsepower, related speed and governed speed Type of fuel and fuel tank capacity
- (i) Electrical system voltage and alternator output in amps
- (j) Battery make, model, and capacity in cold cranking amps (CCA)
- (k) Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio

- (l) Pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
- (m) Pump transmission make, model, serial number, and gear ratio
- (n) Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
- (o) Water tank certified capacity in gallons or liters
- (p) Foam tank (if provided) certified capacity in gallons or liters
- (q) Aerial device type, rated vertical height in feet (meters), rated horizontal reach in feet (meters), and rated capacity in pounds (kilograms)
- (r) Paint manufacturer and paint number(s)
- (s) Company name and signature of responsible company representative
- (t) Certification of slip resistance of all stepping, standing, and walking surfaces
- (u) If the apparatus has a fire pump, the pump manufacturer's certification of suction capability
- (v) If the apparatus has a fire pump, a copy of the apparatus manufacturer's approval for stationary pumping applications
- (w) If the apparatus has a fire pump, the engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum governed speed
- (x) If the apparatus has a fire pump, the pump manufacturer's certification of the hydrostatic test
- (y) If the apparatus has a fire pump, the certification of inspection and test for the fire pump or the industrial supply pump
- (z) The certification of inspection and test for the aerial device
- (a1) All the technical information, required for inspections to comply with NFPA 1914, Standard for Testing Fire Department Aerial Devices
- (b1) If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source
- (c1) If the apparatus is equipped with an air system, test results of due air quality, the SCBA fill station, and the air system installation
- (d1) Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose)
- (e1) Written load analysis and results of the electrical system performance tests required in NFPA 1901 Chapter 13

## **Section 8.0 Specifications**

(f1) When the apparatus is equipped with a water tank, the certification of water tank capacity

8.9.1.2 The Fire Apparatus Manufacturer will also provide documentation of the following items for the entire apparatus and each major operating system or major component of the apparatus:

- (1) Manufacturer's name and address
- (2) Country of manufacture
- (3) Source for service and technical information
- (4) Parts replacement information
- (5) Descriptions, specifications, and ratings of the chassis, pump (if applicable), and aerial device
- (6) Wiring diagrams for low voltage and line voltage systems to include the following information:
  - (a) Pictorial representations of circuit logic for all electrical components and wiring
  - (b) Circuit identification
  - (c) Connector pin identification
  - (d) Zone location of electrical components
  - (e) Safety interlocks
  - (f) Alternator-battery power distribution circuits
  - (g) Input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems
- (7) Lubrication charts
- (8) Operating instructions for the chassis, any major components such as a pump or aerial device, and any auxiliary systems
- (9) Precautions related to multiple configurations of aerial devices, if applicable
- (10) Instructions regarding the frequency and procedure for recommended maintenance
- (11) Overall apparatus operating instructions
- (12) Safety considerations
- (13) Limitations of use
- (14) Inspection procedures
- (15) Recommended service procedures
- (16) Troubleshooting guide
- (17) Apparatus body, chassis, and other component manufacturer's warranties
- (18) Special data required by this standard
- (19) Copies of required manufacturer test data or reports, manufacturer certifications, and independent third-party certifications of test results
- (20) A material safety data sheet (MSDS) for any fluid that is specified for use on the apparatus

(21) One-(1) copy of the latest edition of FAMA's Fire Apparatus Safety Guide

The Fire Apparatus Manufacturer shall deliver with the apparatus all manufacturers' operations and service documents supplied with components and equipment that are installed or supplied.

8.10 LIABILITY

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

8.11 GENERAL WARRANTY

The new quint fire apparatus manufactured per these specifications shall be warranted for a period of at least one (1) year from the date of delivery, except for chassis and other components noted herein.

The warranty on the chassis and chassis supplied components, storage batteries, generators, electrical lamps and other devices subject to deterioration is limited to the warranty of the manufacturer thereof and adjustments for the same are to be made directly with the chassis manufacturer by the Purchaser.

8.12 10-YEAR WARRANTY ON BODY FABRICATIONS

The fire apparatus manufacturer (body builder) shall warrant to the original purchaser only that the body components as fabricated by the body builder, under normal use and with reasonable maintenance, be structurally sound and shall remain free from corrosion perforation for a period of ten (10) years.

This warranty does not apply to the following items which are covered by a separate warranty: paint finish, hardware, moldings, and other accessories attached to this body.

The body builder shall replace, without charge, repair at the factory, or make a fair allowance for any defect in material or workmanship demonstrated to the satisfaction to have existed at the time of delivery or not due to misuse, negligence, or accident.

8.13 10-YEAR APPARATUS PAINT WARRANTY

The ten (10) year paint performance guarantee will cover the areas of the vehicle as are originally finished by the apparatus body builder with the specified product for a period of ten (10) years beginning the day the vehicle is delivered to the purchaser.

**8.14 LIFETIME WARRANTY - WATER TANK**

The water tank, and its installed accessories, shall be covered by a "Lifetime" Warranty, against cracks, corrosion, or other failures caused by the tanks design and normal use of the same. The warranty shall be between the tank manufacturer, and the customer.

**8.15 LIFETIME WARRANTY - FOAM TANK**

The foam reservoir/tank, and its installed accessories, shall be covered by a "Lifetime" Warranty, against cracks, corrosion, or other failures caused by the tanks design and normal use of the same. The warranty shall be between the tank manufacturer, and the customer.

**8.16 PUMP WARRANTY**

The specified fire pump and accessories shall carry a five (5) year warranty covering defective parts only.

**8.17 PUMP PLUMBING WARRANTY**

The stainless-steel plumbing components and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted for a period of ten (10) years.

**8.18 WARRANTY EVALUATION**

All warranties provided with the purchase of the apparatus shall be included in the proposal. Warranty information will be included in the evaluation of the submitted proposals.

**8.19 SERVICE AND PARTS AVAILABILITY**

ALL AREAS OF SERVICE WILL BE INCLUDED IN THE EVALUATION OF THE SUBMITTED PROPOSALS.

**8.19.1 MANUFACTURER SERVICE CONTACTS**

The manufacturer must have a 24 hour/ 7 day a week, toll-free emergency hot line. The manufacturer must be capable of providing both in-house and on-site service for the apparatus. The service technicians shall be EVT certified in compliance with NFPA 1071 classifications F2 through F6. On-site service and maintenance shall be the primary function, to eliminate the vehicle having to leave the fire department jurisdiction. Copies of the certifications shall be made available through the Human Resources office.

**8.19.2 SERVICE CENTERS**

The manufacturer shall have a service center located within a 50-mile radius from the TCESD No.2 administrative office. The center shall be able to perform the manufacturer recommended maintenance procedures.

#### 8.19.3 SERVICE VEHICLES

The manufacturer shall have a minimum of 10 full time, company owned, service vehicles. The vehicles shall be available 24 hours a day, seven days a week to respond to customer needs. The Service Vehicles shall be operated by full time EVT Certified Technicians.

#### 8.19.4 REPLACEMENT PARTS

Replacement parts shall be available directly from the manufacturer, as well as the dealer and or service centers. A reduction in proprietary parts is preferred by TCSED No. 2.

#### 8.19.5 MAINTENANCE SCHEDULE AND RECOMMENDATIONS; COST ESTIMATES

The proposal shall include a detailed recommended maintenance schedule, including the preferred maintenance intervals. An additional cost of ownership cost estimate worksheet shall be included in the proposal using current service center pricing schedules for the recommended maintenance above. The cost of ownership estimate will be an area of evaluation for the submitted proposals.

#### 8.19.6 SMART TRUCK TECHNOLOGY

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

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

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

The system shall provide remote diagnostics of vehicle subsystems such as VMUX (when applicable), pressure governors (requires multiplex system), electric monitors (requires multiplex system) and electric valves (requires multiplex system).

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

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

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

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

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

#### Hardware Vehicle Gateway

The vehicle gateway module shall be rugged in construction using a durable cast aluminum enclosure designed for emergency vehicle applications. The module shall have sealed Deutsch connectors providing four-(4) CAN network ports, one-(1) RS-485 port, one-(1) Ethernet RJ45 port, one-(1) USB port, embedded cellular modem, Bluetooth and GPS capability.

The IoT Core Vehicle Gateway shall be capable of 2 way vehicle telemetry, supporting both remote diagnostics and remote over-the-air software updates. Antennas Three-(3) low profile antennas shall be installed on the cab roof.

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

#### 8.20 CHASSIS TO BE FURNISHED: CUSTOM-BUILT CAB & CHASSIS

It is the intent of the technical specifications contained herein to ensure the custom cab and chassis specified shall be engineered, designed, and manufactured exclusively for heavy-duty continuous use in extreme environments and rigorous adverse conditions.

Each custom cab and chassis shall be manufactured in strict compliance with all applicable requirements as set forth in the current edition of the NFPA (National Fire Protection Association) pamphlet 1901 with maximum safety as the key focus throughout the design and development

phase of each fire and rescue chassis. The price of the custom chassis shall be included in the total Bid Proposal Package Price.

**8.21 MODEL**

The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. The chassis shall be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.

**8.22 APPARATUS TYPE**

The apparatus shall be an aerial vehicle designed for emergency service use which shall be equipped with a permanently mounted 107' plus ladder and a fire pump equipped with a compressed air foam system (CAFS) which has a minimum rated capacity of 1500 gallons per minute. The apparatus shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.

**8.23 CAB DESIGN AND STYLE**

- The cab shall be a custom, fully enclosed, cab designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. This style of cab shall offer five (5) seating positions.
- The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The cab shall also include a crew area with two (2) cab doors, also large enough for personnel in full firefighting gear.
- The cab shall be an engine forward extended, medium four-door, (raised roof, notched) full tilt cab. The cab shall be an "Open Interior" roll cage design requiring no inner walls or vertical interior supports.
- The cab's roof shall be raised 8 inches providing additional headroom above the crew area. The raised portion shall start midway over the driver and officer seats. The cabs seating capacity for emergency personnel shall be five.
- A wide notch shall be provided in the cabs roof for nesting of an aerial device without increasing the overall height of the apparatus.
- All storage areas inside the cab shall fully comply with NFPA 1901 restraint requirements of 9G's.

**8.24 CAB DESIGN AND STYLE: CLEAN CAB CONCEPTS**

TCESD No.2 seeks to design and implement "Clean Cab" concepts into the design and function of this specified apparatus. Consideration in the choice of coverings, materials, and such should be considered when specifying equipment and materials. The interior components shall be able to be decontaminated and cleaned through normal cleaning and washing processes.

- The cab shall include HEPA filters in the cab air conditioner systems.

**Section 8.0 Specifications**

- The cab will not contain any SCBA mounting. The preference for SCBA mounting features are as follows and should be considered in the proposal submitted:
- First Priority- Cab extension to the rear of cab with exterior access compartments on each side of the cab. The compartments shall be transverse with slide out tray or tool boards and of dimensions to allow for the storage of Scott X3 SCBA with 45-minute cylinders on stationary SCBA brackets.
- 2nd priority- SCBA storage in wheel well corner compartments in the apparatus body. At least three (3) SCBA shall be stored in wheel well compartments. Wheel well compartments shall be large enough to store Scott X3 SCBA 45-minute cylinders.
- A combination of the above storage solutions is acceptable and must be identified in the submitted proposal. If SCBA are designed to be stored in body compartments, the storage brackets for each SCBA shall be included in the proposal.

**8.25 AIR BAG PROTECTION**

The Apparatus will be outfitted with an air bag protection system for the occupants of the cab. Airbags will be provided for all five (5) riding positions along with rollover protection and any additional components.

**8.26 CAB UNDERCOAT**

There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection.

**8.27 CAB CORROSION PROTECTION**

A corrosion preventative material shall be applied during cab construction. The apparatus cab shall be completely covered, prior to installation of any interior or exterior components, including insulation and floor mats. This process shall be required to guard against corrosion as well as to keep the cab as quiet as possible for firefighters.

A ten-(10) year warranty against corrosion perforation shall be provided for the cab.

**8.28 CAB PAINT INTERIOR**

The visible interior cab structure surfaces shall be painted with texture finish gray in color.

**8.29 CAB INTERIOR ACCESSORIES**

**8.29.1 CHARGING PORT(S), 12-VOLT DUAL USB**

- There shall be four (4) Kussmaul model 019-219-4, 12-volt USB dual charging port(s) provided in the cab. The charging port(s) shall be equipped with two-(2) 2.1 amp connections with built in LED indicator that indicates when the device(s) are powered.

- The charging port(s) shall be wired to direct battery power with the appropriate wire size and fuse.
- The charging port(s) shall be located in the emergency switch panel or another location to be determined by the Fire Department.

#### 8.29.2 PAC-TRAC TOOL BOARD(S)

- Two (2) Pac-Trac tool board(s) shall be installed in the cab for the mounting of additional equipment. The tool boards shall be located on the interior, rear wall of the cab.
- The tool board slats shall be provided with Trac Lock inserts and fasteners.
- There shall be two (2) 6" deep storage pocket(s) installed at the bottom of the cab mounted tool board(s).

#### 8.29.3 TIC CHARGER(S), Knox, Etc

- There shall be two (2) TIC charger(s) supplied by the customer and installed by the apparatus body builder.
- The items must be sent to the manufacturer in advance and marked with name and shop order number for identification.
- Fire department supplied TIC(s), Med Vault and Knox box shall be installed in the cabin locations to be determined at the pre-construction conference.

### 8.30 HOLDERS

There shall be five (5) On Solutions Talon helmet holders provided and installed in the cab in compliance with the latest edition of NFPA 1901.

The Talon helmet mounting system offers innovative solutions to new rules regarding helmet containment inside of fire apparatus. The Talon bracket enables departments to solve these problems with one installation. With multiple adjustment points, the Talon can be configured to fit nearly any helmet with a brim and allows a positive grip to eliminate the worry of it becoming dislodged in an accident. With a limited lifetime warranty, and user friendly functions, this helmet bracket is built to last.

Features:

- Anodized Aluminum Construction
- Stainless Steel Hardware
- Third Party Certified to meet NFPA requirements

8.31 12-VOLT FUSE BLOCK(S)

- There shall be one (1) Blue Sea fuse block(s) 5025 installed in a location determined by the customer.
- The unit shall include a six-(6) 12-volt constant power supply ports and grounding buss with easily changeable fuses.
- The unit shall have a 100-amp total operating range.

8.32 CAB STRUCTURAL WARRANTY

The cab structure shall be warranted for a period of ten (10) years. Warranty conditions may apply and shall be listed in the detailed warranty document that shall be provided upon request.

8.33 CRASH TEST

The cab shall exceed the strict and detailed requirements of the Economic Commission for Europe Structural Standard, ECE-29R. The test shall consist of an impact load test and a vertical load test to the cab. The Cab shall meet or exceed all criteria of this portion of the tests and complete records of these tests shall be available on record upon purchaser request.

8.34 CHASSIS WHEELBASE AND TURNING RADIUS

The chassis wheelbase will not exceed 260 inches.

The calculated vehicle turning radius will not exceed 37'

8.35 WHEEL CHOCKS WITH BRACKETS

There shall be two (2) pair of Ziamatic model SAC-44 folding wheel chocks with SQCH-44-H horizontal chock holder(s) mounted on the apparatus body as directed by the fire department.

The wheel chocks shall be located each side under the cab. The final mounting location will be confirmed at the pre-construction conference.

8.36 ENGINE

- The vehicle shall be equipped with a Cummins X15 565 turbocharged diesel engine.
- Standard features include an electronic governor, electronically controlled unit injectors, Farr air cleaner, a 12-volt starter Delco 39 MT, and an 18.7 CFM compressor. The oil filter shall be a full flow and bypass design.
- Engine is equipped with Exhaust Gas Recirculation.
- This engine conforms to the US 2017 EPA regulations for heavy-duty diesel engines.
- Specifications-
  - Model: ISX15
  - Number of Cylinders: Six-(6)
  - Bore and Stroke: 5.39" X 6.65"

- Displacement: of 14.9 L
- Rated Horsepower: 565 @ 1800 RPM
- Peak Torque: 1850 @ 1500 RPM
- Governed Speed: 2100 RPM

**8.37 ENGINE HIGH IDLE CONTROL**

There shall be a manual high idle switch located in the cab. When activated, the switch shall increase the engine idle speed to approximately 1200 RPM to allow the alternator to supply additional charging of the apparatus battery system. The high idle switch shall only operate if all interlocks are met. Apparatus transmission must be in neutral with the parking brake set and the fire pump (if equipped) must not be engaged.

**8.38 TOTAL SYSTEM LOAD MANAGER**

The apparatus shall be equipped with a Class 1 Total System Manager (TSM) for performing electrical load management.

**8.39 AUXILIARY ENGINE BRAKE**

A Telma electric retarder shall be provided and installed on the apparatus. The retarder shall be mounted to the chassis frame. Actuation shall be modulated by the brake pedal. Four-(4) lamps shall be installed on the instrument panel to indicate the progressive stages of vehicle retardation.

**8.40 ELECTRONIC ENGINE OIL LEVEL INDICATOR**

The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.

**8.41 FLUID FILLS**

The engine oil, coolant, transmission, and power steering fluid fills shall be located under the cab. It would be preferred to be able to manually check the engine oil and coolant levels without having to raise the cab.

**8.42 ENGINE WARRANTY**

The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.

**8.43 REMOTE THROTTLE HARNESS**

An apparatus interface wiring harness for the engine shall be supplied with the chassis. Separate circuits shall also be included for pump controls, "Pump Engaged" and "OK to Pump" indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, customer ignition, air horn solenoid switch, high idle switch, and high idle indicator light.

#### 8.44 ENGINE COOLING SYSTEM

- There shall be a heavy-duty cooling system designed to meet the demands of the emergency response industry. The radiator shall be equipped with a drain cock to drain the coolant for serviceability and shock mounting will be used to minimize stress from road and engine vibrations.
- The entire chassis cooling system shall have premium rubber hoses.
- The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and sight glass to monitor the level of the coolant.
- The cooling package shall include Extended Life Coolant (ELC). The coolant shall contain a 50/50 mix of propylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit.
- An engine coolant filter with a shut-off valve for the inlet and outlet shall be installed on the chassis. The location of the filter shall allow for easy maintenance.
- The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.
- A remote engine coolant overflow bottle shall be provided in the case of over filling the coolant system.

#### 8.45 AUXILIARY ENGINE COOLER

The cooling system shall have a tube and bundle engine cooler mounted in the upper radiator water pipe.

Water from the fire pump shall be circulated through 1/2" tubing to the cooler. A valve located on the pump panel shall control the cooling circuit.

#### 8.46 ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter. An Ember Separator shall be installed between the stainless steel grill and the air filter system allowing fresh air to pass through to the engine while preventing particles of .039 inches (1.0 mm) or larger from entering the system in accordance with the latest version of NFPA easily accessible through the exterior stainless steel grille. Periodic cleaning or replacement of the screen shall be all that is required after installation.

The engine shall also include an air intake filter. The dry type filter shall ensure dust and debris safely contained inside the disposable housing, eliminating the chance of contaminating the air intake system during air filter service via a leak-tight seal.

The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.

#### 8.47 ENGINE EXHAUST SYSTEM

- The exhaust system will include a Single Module™ aftertreatment device to meet current EPA standards. The exhaust system will be stainless steel from the turbo to the inlet of the aftertreatment device and will be 5.00 inches in diameter. An insulation wrap will be provided on all exhaust pipes between the turbo and aftertreatment device to minimize the heat loss to the aftertreatment device.
- The exhaust will terminate horizontally ahead of the right-side rear wheels. A tailpipe diffuser will be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.
- There shall be a Plymovent tailpipe adapter, magnetic conical kit installed on the apparatus. The apparatus exhaust system shall be modified to accept the collar. The exhaust pipe with adapter will terminate flush with the outer edge of the rub rail.

#### 8.48 TRANSMISSION

- The chassis shall be equipped with an Allison 4500 EVS automatic transmission. It shall be equipped with 4th gear operating controls and programmed for Fire Apparatus vocation. An electronic oil level indicator shall be provided as well as a diagnostic reader port connection. The transmission shall be geared to provide one-to-one ratio in fourth gear for fire pump applications. This dedicated "lockup" circuit is provided for pump operation. The transmission fifth gear shall be an overdrive ratio, permitting the vehicle to reach its top speed at the governed engine speed.
- The transmission shall be equipped with an automatic neutral feature. Applying the parking brake shall command the transmission to neutral, regardless of drive range requested on the shift selector which shall require re-selecting the drive range to shift out of neutral.
- The transmission shall be equipped with dual PTO ports with engine speed capabilities. The transmission shall be cooled by the radiator-mounted heat exchanger. The transmission fluid shall meet Allison specification TES-295.
- The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

8.49 DRIVELINE

All drivelines shall be heavy duty metal tube with a minimum 4.50" diameter and .134" wall thickness and equipped with full round yokes and universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration at a minimum of 3000 rpm.

8.50 FUEL SYSTEM

- The fuel system shall have a fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.
- A water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.
- The fuel system supply and return lines installed from the fuel tank to the engine shall be black textile braided lines which are reinforced with braided high tensile steel wire. The fuel lines shall be connected with reusable steel fittings.
- The fuel tank shall have a minimum of sixty (60) gallon capacity and shall include a drain plug centered in the bottom of the tank. The largest standard size fuel tank would be preferred.
- The tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.

8.51 FRONT AXLE

- The front axle shall be a Meritor MFS-20 with a 23,000-pound rating equipped with oil seals and transparent cover for oil level inspection.
- The front suspension shall be parabolic (taper leaf) spring type, with four-(4) leaves with a 23,000 pound service rating. The leaves shall be a minimum of 4" wide x 54" long (flat), with grease fittings for lubrication installed in the spring pins.
- Axle stops with energy absorbing jounce bumpers shall be supplied on the spring top pad.
- Double acting Koni shock absorbers shall be provided on the front suspension.

8.52 STEERING COLUMN/ WHEEL

- The steering column shall include tilt and telescope.
- A lever mounted on the side of the column shall control the tilt and telescope features. A Signal-Stat (self-canceling) turn signal switch shall be mounted to the column.
- The steering shaft from the column to the meter box shall have a rubber boot to cover the shaft slip and a second rubber boot to seal the passage hole in the floor.
- The steering wheel shall be 18 inches in diameter.
-

- The Signal-Stat turn signal switch shall include the following functions:
  - Left and right turn signals
  - High beam dimmer control
  - Hazard warning switch
  - Two speed with intermittent windshield wiper control
  - Windshield washer control

**8.53 POWER STEERING PUMP**

- The vehicle shall be equipped with a Sheppard M110 power steering gear, used in conjunction with a M90 power assist gear.
- The steering assembly shall be rated to statically steer up to a maximum front axle load of up to 23,500-pounds.
- Relief stops shall be provided to reduce system pressure upon full wheel cut.
- The system shall operate mechanically should the hydraulic system fail.

**8.54 REAR AXLE**

- The rear tandem axle shall be a Meritor RT-58-185 with a 63,000-pound service rating. The axles shall be equipped with "Oil Bath" wheel end seals.
- The rear axle differential shall be lubricated with oil.
- The rear suspension shall be a Ridewell Dynalastic 202S rated to match the capacity of the rear axle. The suspension shall have a 52" to 54" axle centers. The suspension shall incorporate a straddle mount installation and four shock absorbers. Center and end beam bushings shall be double bonded for extended life.
- The rubber spring cushioned torque beams shall be individually jointed for independent drive axle movement, eliminating brake hop and axle chatter.

**8.55 REAR AXLE DIFFERENTIAL**

The Meritor RT series rear axle shall have a standard differential in each axle.

**8.56 FRONT TIRE**

The front tires shall be Goodyear 425/65-R22.5 Load Range "L" G-296 MSA all-weather tread or equivalent.

**8.57 REAR TIRE**

The rear tires shall be Goodyear 315/80R 22.5 18 Ply "J" Regional RHD II Rocky Environment traction tread or equivalent.

8.58 FRONT WHEEL

The front wheels shall be Alcoa hub piloted, polished aluminum wheels. The wheels shall feature one- piece forged strength and a polished finish that lasts.

8.59 REAR WHEEL

The rear wheels shall be Alcoa hub piloted, heavy duty, aluminum wheels. Each rear wheel shall have a polished aluminum finish that lasts.

8.60 VALVE STEM EXTENSIONS

A set of eight (8) valve stem extensions shall be provided to allow for visual inspection of the LED tire pressure caps on the tandem rear wheels.

8.61 TIRE PRESSURE MONITORING SYSTEM

Each tire installed on the apparatus shall be equipped with a tire pressure monitoring device. The device shall consist of a valve stem cap to with an LED tire alert to indicate tire pressure conditions. The LED shall flash when the tire drops 8 psi below the factory setting.

8.62 WHEEL TRIM

- The front wheels shall include stainless steel lug nut covers and hub caps.
- The rear wheels shall include stainless steel lug nut covers and “Lincoln Hat” hub covers.

8.63 BRAKE SYSTEM

- The air brake system shall meet the requirements of FMVSS-121.
- The system shall consist of four-(4) reservoirs with a total capacity of 8000 cubic inches.
- The system shall be of dual circuit and quick build up design powered by an engine mounted gear driven air compressor.
- The chassis air system shall meet NFPA 1901 latest edition for rapid air pressure build-up within sixty-(60) seconds from a completely discharged air system. This system shall provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended operating conditions following the sixty-(60) seconds build-up time.
- The system shall be protected by a WABCO System Saver 1200 air dryer with 12 volt heated automatic moisture ejector on the wet tank and quarter turn brass drain valves on the other tanks.
- The entire chassis air system shall be plumbed utilizing reinforced nylon air lines.
- All of the airlines shall be color coded to correspond with an air system schematic and shall be adequately protected from heat and chafing.

- The entire chassis air system shall be plumbed utilizing reinforced nylon air lines in conformance to SAE J 844-94, Type B and USDOT standards.
- All of the airlines shall be color coded to correspond with an air system schematic and shall be adequately protected from heat and chafing. Color coding shall be as follows:
  - Blue: Supply Lines
  - Green: Primary Lines
  - Red: Secondary Lines
  - Orange: Park Brake Lines
  - Yellow: Accessory Lines
  - Purple: Pump Shift - Supply Line
  - White: Pump Shift / Road Mode Line
  - Black: Pump Shift / Pump Mode Line
- The compressor discharge shall be plumbed with stainless steel braided hose lines with a Teflon lining.
- The system shall be plumbed using color-coded nylon airlines with brass push-lock fittings.
- The front axle shall be equipped with Meritor EX-225 air operated disc brakes and ventilated rotors.
- The rear axle shall be equipped with 16-1/2" x 8-5/8" S-Cam air operated brakes with automatic slack adjusters.

**8.64 BRAKE SYSTEM: ANTI-LOCK BRAKES W/ATC & ELECTRONIC STABILITY CONTROL**

The apparatus shall have a Wabco ABS-based Electronic Stability Control (ESC). The system includes a Wabco 6-channel Anti-Lock Braking System shall be installed which includes six-(6) wheel sensors and six-(6) modulators to control and compensate braking force at each wheel.

**8.65 FRAME**

The frame shall consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame shall include a full-length inner frame liner of a minimum yield of 110,000 psi. All cross members will be fastened with Grade 8 fasteners.

Proposals including heat treated rails shall not be considered.

The frame and cross members shall carry a lifetime warranty to the original purchaser. A copy of the frame warranty shall be made available upon request.

**8.66 FRAME PAINT**

- The frame shall be powder coated gloss black.
- The running gear shall be painted gloss enamel black. The running gear shall consist of the axles, drivelines, air tanks, steering gear, frame mounted brackets, drag link, and fuel tank.
- The air system piping and electrical harnesses shall not be installed until after the paint has cured. This shall insure complete coverage behind those items as well as that air piping and wiring harnesses are not.

**8.67 FRONT BUMPER**

- There shall be an 100,000 psi high tensile strength painted steel bumper provided fabricated from 10-1/2" x 3-1/2" x .375" steel bolted to the chassis frame rails utilizing grade 8 hardware protecting the front of the apparatus during head-on or angled collisions.
- The bumper shall include 45-degree corners.
- The front bumper ends shall have recessed pockets to allow for mounting of warning lights.
- The bumper shall be sprayed with a spray-on liner before installation. Paint color will match cab paint color.
- There shall be red and yellow retro reflective chevron striping applied to the front bumper.

**8.68 FRONT BUMPER EXTENSION LENGTH**

- There shall be a twenty-four inch (24") frame extension provided. The extension rails shall be bolted to the chassis frame rails through reinforcement plates, backed by the engine mounting crossmember. Fasteners utilized shall be Grade 8 bolts.
- A gravel shield constructed of 1/8" (.125") embossed aluminum tread plate shall be installed above the frame extension between the bumper and the front face of the cab.
- There shall be a full-width compartment provided in the front bumper fabricated of 1/8" (.125) smooth aluminum plate with drain holes to allow drainage. The compartment will be 4" deep in the outboard sections and full depth in the center between the frame rails. The compartment will be divided using aluminum and have the capacity to hold 150' of 1.75" structural fire hose and 150' of 1.5" wildland hose.
- A safety sign FAMA22, which warns of the need to secure hose, shall be visible to personnel at the hose storage area.
- One-(1) full length, hinged, aluminum tread plate cover shall be installed over front bumper compartments. The cover shall be

secured in the closed position with two-(2) stainless steel latches. The cover shall be raised for additional storage.

- Two (2) each, 12-volt LED bumper compartment underside lid mounted "strip" lights, shall be furnished. Light strips are to be positioned and angled to illuminate the entire rescue tool compartment with the lid in the fully opened position.

**8.69 AIR HORN**

- The chassis shall include two (2) 24" long Grover air horns, the air horns shall be trumpet style with a chrome finish.
- The air horns shall be recess mounted in the front bumper outboard of the frame rails in the right and left outboard positions.
- The apparatus shall contain an air tank of adequate capacity to ensure the function of the air horns.
- The air horn shall be plumbed to the chassis, air supply system thru an air protection valve, and manufactured from spun brass material with an easily separated die cast sounding unit for serviceability.

**8.70 ELECTRONIC SIREN SPEAKER**

The bumper shall include one (1) 100-watt speaker which shall be recess mounted within the bumper fascia. The speaker shall include a flat mounting flange which shall be polished aluminum.

**8.71 FRONT BUMPER TOW HOOKS**

Two (2) heavy duty tow hooks, painted to match the chassis frame, shall be installed behind the front bumper, forward position and bolted directly to the outside of each chassis frame rail with grade 8 bolts.

**8.72 CAB TILT SYSTEM**

An electric over hydraulic cab lifting pump shall be provided to tilt the cab for engine and transmission service. The pump shall be operated by a remotely wired control box with coiled cord, weather resistant plug, and receptacle. A redundant mechanical stay arm will be provided for increased safety.

An interlock shall be provided preventing the cab from inadvertently rising until the transmission is placed in the neutral position and the parking brake is set. In the event of electrical failure, a hydraulic manual backup shall be provided to tilt the cab.

8.73 CAB WINDSHIELD

The cab windshield shall be a wraparound design consisting of a minimum of 4200 square inches for maximum visibility. The glass utilized for the windshield shall include standard automotive tint.

8.74 DOOR WINDOWS

- All cab doors windows shall be electric and have the capability to roll down completely into the door housing.
- A reinforced window regulator assembly shall be provided for severe duty use.
- Each door shall have individual window controls with a master set of controls on the driver's side door.
- The crew area windows shall have a dark tint.

8.75 CLIMATE CONTROL

- The climate control system shall use three-(3) heater-air conditioner units.
- The front circuits shall use two-(2) heater-air conditioning units, mounted under the dash on the driver's side and under the officer's side. These units are each rated at 14,700 BTU heating and 19,200 BTU cooling.
- The units shall blow up toward the windshield through four-(4) adjustable vents in the dash.
- Additionally, there shall be two-(2) adjustable vents each side to direct air at the lower portion of the driver and officer seating areas. Two-(2) switches, including low/med/high and heat/off/ ac, shall control the front system.
- A DEFOG switch shall be installed to operate both the front heating and cooling systems. This provides hot and dry air for defogging purposes. The hot and dry air shall vent through the adjustable vents in the dash and two-(2) overhead vents.
- The two-(2) front systems shall combine to put out a total of 688 CFM air flow.
- The rear circuit shall use one large heater-air conditioner unit with a rating of 34,150 BTU cooling and 36,000 BTU heating. It shall be mounted under the forward-facing rear seats. Ducting shall run up the rear wall to adjustable vents (minimum of six) running along the center of the ceiling toward the front of the cab. Two-(2) switches including high/med/low and heat/off/AC shall control the unit.
- In addition to the rear control switches, there shall be an ON/OFF switch located near the driver to disable the rear unit if needed.
- The rear system shall put out a total of 640 CFM air flow.
- The total system shall have a capacity of 72,550 BTU cooling, 65,400 BTU heating and a total in-cab air flow of 1,328 CFM.

- The entire roof and back wall shall be heavily insulated with 1" foam to enhance the cooling system.
- Both heaters shall be plumbed with a shut off valve at the engine.
- The air conditioning system shall be powered through one-(1) engine driven 19.1 cubic inch compressor.
- Two-(2) roof top condensers, each rated at 38,700 BTU, shall be provided.

**8.76 CAB INSULATION**

The cab walls, ceiling and engine tunnel will be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab ceiling and walls shall include a minimum R-7 insulation. A minimum of 1" foam insulation shall be installed in the entire roof and back wall. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

**8.77 UNDER CAB INSULATION**

The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation, engineered for application inside diesel engine compartments.

**8.78 INTERIOR TRIM FLOOR**

Cab floors shall be covered with a smooth rubber matting with barrier type insulation or covered with a spray-on product with a smooth finish. Edges of the insulation shall be trimmed with a cast aluminum foot plate for a pleasing appearance. The floor covering shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

**8.79 REAR WALL INTERIOR TRIM**

The entire interior rear wall of the cab shall be covered with 3/16" (.1875") smooth aluminum plate coated with a spray-on liner product. The color of the rear wall panel will match the interior of the cab unless otherwise specified. The final paint colors will be verified at the pre-construction conference.

**8.80 HEADER TRIM**

The cab interior shall feature header trim over the driver and officer dash constructed of Marine Grade aluminum.

**8.81 TRIM CENTER DASH**

The cab shall have a custom built, smooth aluminum plate dashboard, overhead console, glove box, instrumentation panel and switch panel. The front overhead shall include room for the three sun visors and the door open indicator light. The final design will be approved by the purchaser at the pre-construction conference.

8.82 TRIM LH DASH

- The left-hand dash shall be constructed of Marine Grade aluminum plate for a perfect fit around the instrument panel.
- The left-hand dash shall offer lower vertical surface area to the left and right of the steering column to accommodate control panels.
- The final design will be approved by the purchaser at the pre-construction conference.

8.83 TRIM RH DASH

- The right-hand dash shall be constructed of Marine Grade aluminum plate and shall include a glove compartment with a hinged door.
- The glove compartment will consist of a flat top.
- The RH Dash area shall allow for the mounting of a mobile data computer and accompanying mounting hardware.
- The final design will be approved by the purchaser at the pre-construction conference.

8.84 ENGINE TUNNEL TRIM

- An insulated covering shall be fitted over the engine tunnel. Made from the same material as the cab floor insulation, this covering shall insulate the cab from engine heat and noise.
- An aluminum door on top of the engine tunnel shall provide access for fluid checks.
- The back side of the engine cover, as well as a 2" to 3" return on the top side, shall be covered with a sprayed aluminum panel and be of sufficient strength to allow for 9G resistant mounting of any optional hand lights, entry tools, or other fire rescue equipment specified by the customer.
- The floor mats and engine tunnel shall be covered with gray pebble grain vinyl with 1/4" (.250") foam backing. The edges of the floor mats shall be trimmed with a cast aluminum foot plate for a pleasing appearance.

8.85 POWER POINT DASH MOUNT

- The cab shall include power receptacles in the center of the cab dash to provide a power source for 12-volt electrical equipment.
- The receptacles shall be wired battery direct.
- The final design will be approved by the purchaser at the pre-construction conference.

**8.86 INTERIOR DOOR TRIM**

- The interior trim on the doors of the cab shall consist of an aluminum panel constructed of Marine Grade aluminum plate. The door panels shall include a painted textured finish.
- The inner door panels shall include an aluminum tread kick plate which shall be fastened to the lower portion of the door panels.
- The interior of each door shall include high visibility reflective tape.
- There shall be four-(4) "STOP" signs installed in the cab, one-(1) on the lower door panel of each cab door.
- A white reflective tape 1.00 inch in width shall be provided vertically along the rear outer edge of the door.

**8.87 INTERIOR TRIM VINYL COLOR**

The cab interior vinyl trim surfaces shall be gray in color.

**8.88 HEADER TRIM INTERIOR PAINT**

The metal surfaces in the header area shall be coated with a texture finish.

**8.89 DASH INTERIOR PAINT**

The entire dash shall be coated with a texture finish. Any accessory pods attached to the dash shall also be painted this color.

**8.90 INTERIOR TRIM SUNVISOR**

The header shall include two (2) sun visors, one each side forward of the driver and officer seating positions above the windshield.

**8.91 SWITCH PANELS**

- The center dash panel shall include rocker switches to control emergency lighting, with one master emergency lighting switch and individual emergency lighting switches. Layout shall be determined by the manufacturer.
- The left dash panel shall include rocker switches to control the general electrical equipment on the apparatus.
- The final configuration of switches in the switch panels will be determined at the pre-construction conference.

**8.92 VEHICLE DATA RECORDER w/SEAT BELT WARNING**

- Apparatus shall be equipped with a Class1 "Vehicle Data Recorder and Seat Belt Warning System" (VDR/SBW) that is connected to the power train CAN (Controller Area Network) bus consisting of transmission (TCM), engine control (ECM) and antilock brake (ABS) modules mounted on the apparatus. The VDR/SBW will function per NFPA 1901-2009 sections 4.11 (Vehicle Data Recorder) utilizing the power train's J1939 data and 14.1.3.10 (Seat

Belt Warning) using the Class1 “Seat Belt Input Module” for seat occupied and belt status information.

- The VDR data shall be downloadable by USB cable to a computer using either Microsoft™ or Apple™ Operating Systems using Class 1/ O.E.M. supplied reporting software.
- There shall be a seat belt indicator system supplied in the cab. The indicator system shall indicate seat belt use for each individual seating position when the seat is occupied, the seat belt remains unfastened and the parking brake is released.
- A display panel shall be supplied in the dash area. The panel shall have an audible indicator and a red light display to indicate that a seat belt has not been fastened. Mounted in the overhead console in the driver's area the indicator system shall indicate seat belt use for each individual seating position when the seat is occupied, the seat belt remains unfastened and the parking brake is released.

**8.93 VEHICLE VIDEO SYSTEM KIT w/DVR VIDEO SYSTEM KIT, FRC INVIEW360**

An FRC, powered by SEON, model SNA100-A00 InView 360 Video system kit shall include four-(4) cameras, an Electronic Control Unit (ECU), required harnesses and a manual camera switch. The system kit shall provide split video feed with bird's-eye view and individual camera views. It shall be capable of integrating with an existing vehicle system for an automatic camera view, which seamlessly switches from front/left/right/rear views based on turn signal and reverse activation. It shall also feature a switch module that allows the operator to override the default camera view. The system shall feature NTSC video inputs for (4) four cameras, and also have NTSC, CVBS (SD) 2-channel view output. It shall have a 150-degree horizontal camera view angle and have a resolution of 720 x 480 at 30 FPS (frames per second).

The system shall operate from 9 to 36 VDC and shall consume no more than 15 watts of power. It shall operate from -22° F to 158° F. It shall weigh less than 8 lbs. The ECU (Electronic Control Unit) shall have dimensions of 4.54" L x 6.24" H X 1.34" D. The camera shall have dimensions of 2.4" L X 2.0" H X 1.7" D.

**8.94 IN CAB MONITOR, COLOR**

An FRC, powered by SEON, model SNA010-B10 InView 360 SAV-MON, AVM 7.4" In Cab Video Monitor shall include a 7" diagonal color LCD TV display monitor with viewing dimensions of 6.06" W x 3.42" H. The monitor shall be a TFT Active Matrix System display with an 800 x 480 resolution and a display format of 16:9 (aspect ratio).

It shall operate from 12 VDC, and the connection terminals shall include a composite video in and power in. The monitor shall weigh 0.9 lbs., and it shall have dimensions of 5-1/2" high x 2-3/4" wide x 11" high. The location of the monitor mounting will be in the upper left hand corner of the windshield in view of the driver. The location shall not block the view of the driver.

#### 8.95 DVR SYSTEM, HIGH-DEFINITION

- An FRC, powered by SEON, model SNA050-A00 InView 360 Trooper TL-HD5 5-CHANNEL DVR shall record up to (4) four video channels plus (1) one high-definition channel at 30 FPS (frames per second) on all channels simultaneously. The video resolution shall be 720 x 480 D1 on (4) four channels and 1280 x 720 HD progressive scan on the high definition channel.
- The DVR shall feature dual streaming technology that records (2) two information streams: (1) one for hi-resolution playback and (1) one for low resolution. It shall also feature a low frame streaming rate for real-time viewing over cellular networks, if equipped with optional hardware, and VMax Stream software service support. It shall support frame advance, FFD (fast-forward) and REV (Reverse) playback up to 32X.
- It shall support geo-fencing capability, which delivers alerts when a vehicle deviates from geographic boundary. The DVR shall include GPS receiver for recording of vehicle speed and location.
- The DVR shall feature 1TB of main storage (HDD), and 32 GB of back up storage on SD card.
- It shall offer 3 Ethernet ports.
- The DVR shall have Smart-Temp technology providing automatic monitoring of DVR operational temperature and DVR control.
- It shall have Smart-Start technology to ensure the DVR is safeguarded against electrical spikes with vehicle start-up voltage protection.
- The DVR shall include a built-in 3-axis G-sensor. It shall operate from 8 to 32 VDC, shall have transient protection for 600 W for power input, and shall have 400W per signal input.
- The DVR shall measure 2.5"H x 7"W x 9.5" D. It shall weigh 5.3 lbs.
- The DVR shall operate from -22° F to 122° F, and shall meet FCC emissions requirements. It shall be tested in accordance with SAE-1455 and MIL-STD 810 for vibration.

#### 8.96 ADAPTER, DVR

An FRC, powered by SEON, model SNA009-B10 InView 360 ARMF 360 to DVR Adapter shall connect inView 360 video output feed into the Trooper TL-HD5 DVR Recorder for recording in 360 view.

**8.97 SEAT BELTS**

Seat belts shall be either ABTS belts or traditional 3-points seat belts; red in color.

**8.98 SEAT COLOR**

All seats supplied with the chassis shall be gray/black in color. All seats shall include red seat belts.

**8.99 SEAT MATERIALS AND REMOVABLE COVERS**

- The seats shall be covered with Bostrom Durawear material.
- Each cab seat shall be equipped with Bostrom's clean cab seat option. Each seat shall have the following provided with this option:
  - Zip Clean cover: The cover shall be removable for machine washing.
  - Spare Zip Clean cover to be used while the original cover is being washed.
  - Foam Block option: The foam has a blue encapsulated barrier to create a waterproof and reduced gas absorption exterior.

**8.100 SEAT DRIVER**

- The driver's seat shall be a H. O. Bostrom Sierra, Air-100 RX air suspension, high back bucket seat.
- The seat shall have a tapered and padded seat cushion.
- The seat shall have a five-inch fore and aft adjustment, a four-inch height adjustment with a reclining seat back.
- The seat air ride suspension shall be pneumatically controlled from a control switch on the forward lower edge of the seat.

**8.101 SEAT OFFICER**

- The officer's seat shall be a H. O. Bostrom Sierra, Air-100 NON-SCBA air suspension (optional), high back bucket seat.
- The seat shall have a tapered and padded seat cushion. The seat shall have a five-inch fore and aft adjustment, a four-inch height adjustment with a fixed seat back.
- The seat air ride suspension shall be pneumatically controlled from a control switch on the forward lower edge of the seat.

The purchaser's preference is to ensure a storage compartment is available under the officer seat. The air suspension for the officer seat can be excluded in order to provide the preferred storage compartment.

#### 8.102 SEAT CREW FORWARD FACING

The crew area shall include three (3) seats in the forward-facing position mounted against the rear cab wall in a single row.

- Center Seat:
  - The inboard forward-facing seat installed against the rear cab wall shall be a H. O. Bostrom Sierra, 400 Series, FX fixed high back non SCBA bucket seat with flip bottom.
  - The seat shall have a tapered and padded seat cushion.
  - A two-(2) way, fore and aft seat base shall be provided.
  - The forward-facing center seating position shall include an enclosed style seat riser located and installed at the rear wall.
  - The seat frame shall be constructed of Marine Grade aluminum plate and shall be covered in material and painted to match the cab interior.
- Outer Seats:
  - The two-(2) forward facing seats installed against the rear cab wall, one (1) either side of the flip seat.
  - Seats shall be a H. O. Bostrom Sierra, 400 Series, FX fixed high back non SCBA bucket seat with fixed bottom.
- The seats shall have a tapered and padded seat cushion.
- A two-(2) way, fore and aft seat base shall be provided.
- The forward facing outer seating positions shall include an enclosed style seat riser located and installed at the rear wall.
- The seat frame shall be constructed of Marine Grade aluminum plate and shall be covered in material and painted to match the cab interior.

#### 8.103 CAB FRONT UNDERSEAT STORAGE ACCESS

The under-seat storage areas shall have a solid aluminum hinged door with non-locking latches and painted to match cab interior.

#### 8.104 EMS CABINETS IN CREW CAB

There shall be two EMS cabinets built and installed in the crew cab area, one each behind the officer and driver seats. These cabinets shall be as large as possible and fill the entire opening with a minimum width opening of 22"x 22" deep and full height. The cabinet shall be sprayed finish to match the interior of the cab.

Exterior Access:

- The cabinets will have a door opening to the exterior of the cab on each side of the apparatus for external access to the compartment.
- The door shall be constructed entirely from 5052-H32 smooth aluminum plate using a box pan configuration.

- The outer panel shall be constructed from 3/16" (.1875") smooth aluminum plate and the inner panel shall be welded in place constructed from 1/8" (.125") smooth aluminum plate.
- Exterior door latch shall incorporate a polished D-paddle handle with rotary style latch. For ease of operation, the D-handle opening shall be large enough to accommodate a gloved hand. The paddle latching design shall be subjected to corrosion, water infiltration, and cycle testing to 35,000 cycles.
- The watertight door seal shall exceed the current KKK-1822 water infiltration standards. The door shall be securely fastened to the compartment with full-length stainless-steel piano hinge using 1/4-20 stainless bolts and locking nuts. The hinge shall be slotted to allow for adjustments.
- Absolutely no self-tapping screws or pop rivets shall be acceptable to mount the door mechanisms or slam latch assemblies.

Interior Access:

- Each compartment will have access to the compartment from inside the rear of the cab.
- Cargo netting shall be installed over the interior opening of each EMS compartment. The netting shall be permanently fixed at the bottom of the compartment with self-locking seat belt latches at the top and sides.

Lighting:

LED lighting shall be installed in each of the EMS compartments in a location to provide illumination for the entire cabinet including each shelf. The lighting shall be activated when opening the exterior door.

Shelving:

There shall be two (2) vertically adjustable shelf (shelves) shall be installed in each EMS cabinet. The shelf shall be constructed of smooth aluminum and have a 2" lip at the front, sides and rear of the shelf.

#### 8.105 RADIO/CREW INTERCOM SYSTEM

The manufacturer shall install a complete A David Clark 3800 series intercom system for five-(5) seated positions in the cab. The system will also include wireless capability for (2) wireless headset systems.

The driver and officer headsets include the intercom and two-way radio communication functions, while the crew headsets are capable of intercom communications and radio communications listening.

The system shall consist of installation of the necessary components above, and supporting equipment including:

(5)-3800 series under the helmet headsets.

(2)- model H9940 wireless headset

(2)- Belt Stations, model U9910 BSW and accompanying batteries and chargers

**8.106 WINDSHIELD WIPER SYSTEM**

The cab shall include a dual arm wiper system which shall clear the windshield of water, ice and debris. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position. A washer reservoir of no less than 70 ounces shall be included.

**8.107 CAB DOOR HARDWARE**

- The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves.
- The handles shall be made of aluminum with a chrome plated finish.
- The interior latch shall be cast aluminum, oversized for easy access with a gloved hand.

**8.108 REARVIEW MIRRORS**

- Two-(2) side-mounted, west-coast style rear view mirrors shall be installed with a minimum 14-1/2 x 7" mirror head and a separate 6" x 8" parabolic mirror.
- The mirror head shall be heated and remotely adjustable by the driver. The mirrors shall be aerodynamically designed to reduce wind buffeting and resultant vibration.
- The mirrors support tubes shall be 7/8" stainless steel, with breakaway mounting brackets.
- The cab mirror housings shall be chrome.

**8.109 CAB FENDER**

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner liner and an outer fenderette made of polished stainless steel.

**8.110 MUD FLAPS FRONT**

The front wheel wells shall have mud flaps installed on them.

**8.111 IGNITION**

- A master battery system with a keyless start ignition system shall be provided.
- A chrome push type starter button shall be provided adjacent to the master battery and ignition switches.
- Each switch shall illuminate a green LED indicator light on the dash when the respective switch is placed in the "ON" position.

#### 8.112 BATTERY

- The battery system shall be a single system consisting of six-(6) Exide Group 31, 12-volt DC, heavy-duty, high cycle automotive batteries.
- The battery bank shall have a group rating of 4500 cold cranking amperes (CCA) and a reserve of 1080 minutes at zero degrees Fahrenheit.
- All battery wiring shall be welded battery cable capable of handling 125% of the actual load. It shall be run through a heat resistant flexible nylon "HTZL" loom rated at a minimum of 300 degrees Fahrenheit.
- All cable connections shall be machine crimped and soldered.

#### 8.113 BATTERY TRAY

- The chassis batteries shall be mounted in welded and bolted stainless steel battery box.
- The battery hold-downs shall be made of structural, stainless steel angle.
- Painted carbon steel battery boxes shall not be acceptable.

#### 8.114 BATTERY JUMPER STUD

- One-(1) set of battery jumper studs shall be provided on the chassis. The studs shall be connected to the chassis batteries with 1/0 color coded cables, red for the positive cable and black for the negative cable.
- The studs shall be protected with color coded plastic covers when not being used.
- A tag shall be provided for positive/negative terminals.

#### 8.115 ALTERNATOR

- The alternator shall be a Delco Remy model 55SI 430 amp. It will have a rated output current of 430 amps, as measured by SAE method J56. The alternator shall be engine driven via a poly-groove power belt with an automatic tensioner.
- The alternator shall be a brushless design.
- The alternator shall meet all current applicable NFPA 1901 Edition requirements for performance.

#### 8.116 BATTERY CONDITIONER

A Blue Sea Systems P12 40 Amp battery conditioner (model 7532) shall be supplied. The battery conditioner shall be mounted in a body compartment on the left side of the apparatus. The location will be finalized at the pre-construction conference.

#### 8.117 BATTERY CONDITIONER DISPLAY

A Blue Sea Systems model 7517 battery charge display shall be supplied. The battery charge display shall be mounted on the left side pump panel.

#### 8.118 AUXILIARY AIR COMPRESSOR

- A Kussmaul Pump 12V air compressor shall be supplied.
- The air compressor shall be installed behind the driver's seat.
- The air compressor shall be plumbed to the air brake system to maintain air pressure.
- Due to the potential freezing issues, this airline shall be plumbed to the air tank side of the air governor.
- Running this air through the air governor is not acceptable.

#### 8.119 ELECTRICAL INLET

There shall be provided one (1) Blue Sea 7851 Sure Eject. A solenoid wired to the vehicle starter is energized when the engine is started. This instantaneously drives the plug from the receptacle. The receptacle shall be provided with a weatherproof cover.

Automatic AC disconnect ejects power cords upon ignition to prevent damage.

- Motor driven design ensures consistent ejections for years of operation
- Ejection piston is self-recessing with no cocking required
- Keyed plug design for easy one handed insertion in hard to reach places
- AC power indicating LED
- Compatible with existing 15A and 20A plugs
- Contoured cover prevents faulty ejections
- Screw terminal wiring for reliable electrical connections
- No lubrication or self-service required

The auto eject shall be located near the front left side of the cab, either mounted on the cab or in a recessed pocket in the front bumper.

#### 8.120 STEP LIGHTS

Six-(6) TecNiq D04 Linear Dragon LED lights shall be provided, two-(2) in each front cab step well and one-(1) in each rear cab step well. Each light shall activate when the cab door is opened.

#### 8.121 LIGHT(S), LED PERIMETER ILLUMINATION

- Nine (9) Whelen 3" Round Super-LED® model 3SC0CDCR perimeter illumination light(s) shall be provided as specified.
- The steady burn illumination light shall incorporate six clear Super-LED and a clear non-optic hard coated polycarbonate lens for maximum output. The hard coated sealed lens shall provide extended life/luster protection against UV and chemical stresses.
- The light shall be wet sealed, and vacuum tested to ensure proper sealing.

- The conformal coated PC board, powder coated die cast housing, and exterior rubber gasket shall provide additional protection against environmental elements.
- The 3SC0CDCR shall provide 360 usable lumens. The solid-state illumination light shall be vibration resistant. The 3SC0CDCR will contain a 6" unterminated pigtail. The illumination light is covered by a five-year factory warranty. The 3SC0CDCR requires a ¾" wire entry hole in the body of the vehicle and includes mounting screws and grommet.
- In addition to the under-cab lights, these shall be located as follows:
  - Two at the front of the hose bed
  - Two under the front bumper
  - One under left side pump panel
  - One under the left side turntable access steps
  - One under the rear body
  - One under right side pump panel
  - One under right side rear compartment, symmetrical to left side mount
- The lights shall be controlled by a switch on the cab dash and on the left side pump panel labeled "PERIMETER LIGHTS".

#### 8.122 FRONT SCENE LIGHTS

- The front of the cab shall include two (2) 12-volt LED contour roof mount lights installed on the brow of the cab.
- The mounting brackets shall be machined to conform to the roof radius.
- The front scene lighting shall be activated by a rocker switch located on the main switch panel.

#### 8.123 INTERIOR OVERHEAD LIGHTS

There shall be One (1) Whelen 6" Round Super-LED model 60CREGCS in the cab's headliner over the engine tunnel. The steady burn 12v interior light shall incorporate six red and six clear Super-LEDs and a clear non-optic translucent hard coated polycarbonate lens for maximum output.

The hard-coated lens shall provide extended life/luster protection against UV and chemical stresses. The conformal coated PC board and foam in place gasket shall provide additional protection against environmental elements. The 60CREGCS includes Hi/Low intensity mode standards and On/Off dual switch function. The solid-state interior light shall be vibration resistant. The interior light is covered by a five year factory warranty.

The white LED lights shall be activated when any cab door is in the open position automatically switching off all red lights currently on and reactivated when the door is closed.

Four-(4) additional Whelen 6" Round Super-LED model 60CREGCS shall be provided in the cab's headliner. The white LED lights shall be activated when any cab door is in the open position automatically witching off all red lights currently on and reactivated when the door is closed.

The light switch for each light shall be within reach of a seated and belted member in order to operate the lights. The lights shall be located as follows;

One (1) inboard of the driver seat

One (1) inboard of the officer seat

One (1) slightly forward of each outside forward facing crew seat

#### 8.124 DO NOT MOVE APPARATUS LIGHT

- There shall be a door ajar and safety warning light system with indicator panel located in the cab. The panel is mounted to the ceiling between the driver and the officer. The indicator panel has multiple LED lights that activate under one or all of the following conditions:
  - Cab door is open
  - Compartment door is open
  - Outrigger is not in the stowed position
- An audible alarm shall be installed in conjunction with the door-ajar and outrigger portion of the system.
- The panel only operates when the ignition switch is in the "On" position and the parking brake released.

#### 8.125 MASTER WARNING SWITCH

A master switch shall be included in the main rocker switch panel. The switch shall be a rocker type, red in color and labeled "Master" for identification. The switch shall feature control over all devices wired through it. Any warning device switch left in the "ON" position shall automatically power up when the master switch is activated.

#### 8.126 WARNING LIGHTS

All warning lights shall be mounted to be NFPA compliant and shall be red LED style and red in color.

#### 8.127 EMERGENCY LIGHTING PACKAGE

An emergency lighting package shall be included in the proposal. The lighting shall comply with the most recent NFPA standard. The lighting shall be LED lights and vary in color between red and blue lights. It is preferred that the lighting package be compatible with additional directional lighting and siren systems.

The lights shall be operated through a switch located in the cab area operated by the driver.

Preferred equipment: Feniex Industries Brand Equipment

Acceptable Substitute: Whelen Products

#### 8.128 SIREN CONTROL HEAD

An electronic siren control head with remote dual amplifier shall be provided and flush mounted in the switch panel within reach of the driver. The siren shall feature a 200-watt output with radio public address, wail, yelp, and any additional tones.

Preferred equipment: Feniex Industries Brand Equipment

Acceptable Substitute: Whelen Products

#### 8.129 MECHANICAL SIREN

- One (1) Federal Signal Q2B siren model Q2B-012NNSD electro-mechanical siren shall be installed thru the front bumper centered between the frame rails.
- The Q2B siren shall be a streamlined, chrome plated siren designed to provide reliable and long-life operation. The electro-mechanical siren shall produce the distinctive Q2B sound that is a registered trademark of Federal Signal and shall be provided with a heavy-duty clutch and an electric brake.
- The Q2B siren shall measure 10.5" high x 14" long x 10" deep and shall produce 123 decibels at ten feet. The siren shall operate off the vehicles 12V system.
- The Q2B siren shall be surface mounted in the front bumper of the vehicle.
- A siren brake switch shall be located within reach of the driver, and a switch will be located on the RH dash area within reach of the Officer, near the air horn switch.
- The siren activation switch shall be wired thru the chassis park brake and operate in the "Response Mode" only.
- A foot operated switch shall be installed on the driver's side wired to the mechanical siren. A dash mounted switch shall be installed on the officer's side wired to the mechanical siren.

#### 8.130 AIR HORN ACTIVATION

- A driver-controlled horn/air horn selector switch shall be installed in the cab and operate either air
- horn(s) or chassis electric horn through the horn ring button allowing the driver to activate the chassis or air horn through the steering wheel
- An additional air horn switch shall be installed on the officer's side wired to the air horn(s). This switch will be mounted in the RH dash area and will be determined upon final dash design.
- A push button momentary switch shall be mounted on the pump panel AND aerial turntable console to activate the chassis air horns.

**8.131 BACK UP ALARM**

A backup alarm shall be installed at the rear of the chassis. The alarm shall automatically activate when the transmission is placed in reverse.

**8.132 INSTRUMENTATION**

An ergonomically designed instrument panel shall be provided. Each gauge shall be backlit with LED lamps. Stepper motor movements shall drive all gauges.

**8.133 BACKUP CAMERA AND MONITOR**

There shall be a backup camera installed on the rear of the apparatus to allow the driver to see the rear of the apparatus while backing up. There shall be a monitor attached to the backup camera and it shall be installed in close proximity to the driver in order to allow them the ability to see what is directly behind them. This equipment can be combined into the vehicle video system and DVR.

**8.134 OPERATION MANUAL**

There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.

**8.135 AS BUILT WIRING DIAGRAMS**

The cab and chassis shall include one (1) digital copy of wiring schematics and option wiring diagrams.

**8.136 FUEL FILL, RECESSE WITH DOOR**

There shall be a recessed fuel fill assembly with a non-locking door mounted on the left and right side of the apparatus body. The fuel fill assemblies shall be equipped with a fuel fill cap, retention ring and hinged door. The assembly shall be properly labeled "DIESEL FUEL ONLY".

**8.137 RADIO INSTALLATION**

Two (2) radio(s) supplied by the Fire Department shall be installed in the cab by the apparatus body builder. The siren must be new in the manufactures supplied package.

The items must be sent to the manufacturer in advance and marked with name and shop order number for identification.

One Motorola APX8500 with remote head - radio in storage under officer seat.

One CDM1250 VHF radio.

**8.138 ANTENNA INSTALLATION**

There shall be five (5) or more antenna(s) supplied by the customer and installed by the apparatus body builder. The items must be sent to the manufacturer in advance and marked with name and shop order number for identification.

Above described APX and CDM plus 2 modem antenna and one GPS antenna.

**8.139 RADIO POWER CIRCUIT**

A 50 amp switched battery power circuit with manual reset shall be installed under the officer's seat to activate the radio.

**8.140 POWER AND GROUND STUDS**

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40-amp battery direct load and one (1) power stud shall be capable of carrying up to a 20-amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud.

**8.141 "HOT" CIRCUIT PANEL: CUSTOMER'S RADIOS/COMPUTERS/PHONES**

A continuously "HOT" breaker panel, with 6 each 12-volt power positions and individual vehicle grounds shall be provided inside the chassis cab, for use with purchaser's installed radios, cell phones, computers, and other 12-volt powered accessories.

**8.142 IGNITION POWERED CIRCUIT PANEL: CUSTOMER'S ACCESSORIES**

A vehicle Ignition Switch-ON powered breaker panel with 6 each 12-volt power positions and individual vehicle grounds shall be provided inside the chassis cab for use with Customer's installed 12- volt powered accessories.

**8.143 STREAMLIGHT LITEBOX LANTERN/FLASHLIGHT**

- Four (4) waterproof Streamlight Fire Vulcan series light(s), part number 44451, shall be provided.
- The light(s) shall have a orange high-impact ABS thermoplastic housing, rubberized impact bumper, lens ring, shoulder strap and cushioned-grip handle.
- The light(s) shall contain C4 LED technology and taillight LEDs that operate in blinking and steady modes.
- The LED bulb shall provide up to 80,000 peak beam candlepower rated at 145 lumens. Ultra-bright blue tail light LED's are provided to make certain you can be seen even in thick smoke. The Lithium-Ion rechargeable cells recharge in 5 hours and provides run times up to 3 hrs. with steady High LED & taillights in operation.

- The vehicle-mounted direct-wire charging rack(s) shall be wired direct to the batteries of the 12-volt DC system on the apparatus. Location shall be determined at prebuild conference.

#### 8.144 STREAMLIGHT SURVIVOR FLASHLIGHT(S)

- Five (5) waterproof Streamlight Survivor series light(s), part number 90528, shall be provided.
- The light(s) shall have orange high impact super tough nylon housing, a spring-loaded clip with built in attachment ring for belts and harnesses and serialized for positive identification.
- The light(s) shall contain C4 LED technology impervious to shock with a 50,000 hour lifetime.
- The C4 LED shall be provide up to 21,000 peak beam candlepower rated at 100 lumens.
- The fast charge vehicle-mounted charger(s) shall be wired direct to the batteries of the 12-volt DC system on the apparatus. The light comes equipped with a spring-loaded clip with built in attachment ring for belts and harnesses, serialized for positive identification and in high-visibility orange.
- Location shall be determined at pre build conference.

#### 8.145 GPS TRANSMITTER

- One (1) GPS transmitting puck shall be furnished and installed on the apparatus.
- The GPS puck shall be mounted on the roof of the apparatus in front of the light bar on the passengers' side of the apparatus.
- The wire for the puck shall be run under the headliner and down the post to the location of the computer mount.
- When mounting the puck, the manufacturer shall seal up the hole with silicone so water does not enter the cab.
- The make and model of device will be determined at the pre-construction conference.

#### 8.146 SINGLE-STAGE PUMP

A 1500-2000 GPM Single Stage, Waterous CSU, Class A, single-stage centrifugal fire truck pump shall be furnished, mounted in the vehicle. The pump shall be of single stage construction and comply with all applicable requirements of the latest standards for automotive fire apparatus of the National Fire Protection Association.

- The pump shall be free from objectionable pulsation and vibration under all normal operating conditions.
- The pump body shall be closed-grained gray iron and must be horizontally split in two sections for easy removal of the entire impeller shaft assembly, and designed for complete servicing from the bottom of the truck without disturbing setting of the pump in the chassis or apparatus piping, which is connected to the pump. Pump body halves shall be bolted together on a single horizontal face to minimize leakage and facilitate reassembly.
- The discharge manifold shall be cast as an integral part of the pump body assembly and provide at least three full 3-1/2" openings located one outlet on the right side of the pump body, one outlet on the left side of the pump body, and one outlet directly on top of the pump discharge manifold.
- The impeller shall be bronze with double suction inlets, accurately balanced (mechanically and hydraulically), of mixed flow design with reverse-flow, labyrinth-type, and utilize wear rings that resist water bypass and loss of efficiency due to wear.
- The wear rings are to be bronze and shall be easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.
- The impeller shaft shall be stainless steel, accurately ground to size, and supported at each end by oil or grease-lubricated anti-friction ball bearings for rigid and precise support. Bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals.
- The impeller shaft shall be of two-piece construction separable between the pump and pump transmission to allow true separation of the transmission from the pump without disassembly of either component.
- No Sleeve type bearings shall be used.
- The pump transmission shall be rigidly attached to the pump body assembly and be of the latest design incorporating a high strength, involuted, tooth-form Hy-Vo chain drive and driven sprockets capable of operating at high speeds to provide smooth, quite transfer of power. The shift engagement is accomplished by a free sliding collar and shall incorporate an internal locking mechanism to insure that collar shall be maintained in ROAD or PUMP position.
- For chassis equipped with automatic transmissions, the pump transmission driveline shall have a torque-rating equal to or greater than the maximum net engine torque multiplied times the first gear ratio and torque converter ratio.
- The suction fittings shall include removable, die cast, zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.

- A 3" clapper check valve shall be installed between the suction side of the pump and the tank-to-pump valve. This 3" clapper valve shall eliminate the possibility of a pressure surge expanding the water tank.
- Pump system shall utilize an integral discharge manifold system that allows a direct flow of water to all discharge valves.

#### 8.147 PUMP CERTIFICATION, 1500-2000 GPM

- The pump when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901.
- The pump shall be tested at the manufacturer's facility by an independent, third party testing service.
- The conditions of the pump test shall be as outlined in current NFPA 1901.
- The tests shall include, at minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.
- A Piping hydrostatic test shall be performed as outlined in current NFPA 1901.
- The pump shall meet and perform the following test to receive certification:
  - 100% of rated capacities at 150 PSI net pump pressure
  - 100% of rated capacities at 165 PSI net pump pressure
  - 70% of rated capacities at 200 PSI net pump pressure
  - 50% of rated capacities at 250 PSI net pump pressure

#### 8.148 ENGINE COOLER

The engine cooler shall be installed in-line from the discharge side of the pump and installed in the engine cooling system. There shall be a 1/2", quarter turn valve installed thru the pump panel and shall be clearly labeled.

#### 8.149 PUMP TEST DATA PLATE

The pump shall be provided with a metal plate giving the rated flow at "capacity" and "pressure" test pressures, together with the RPM of the engine at those pressures and deliveries and mounted in clear view of the pump operator's panel. Test plate shall also indicate pump serial number, engine governed speed, and pump mode of operation for all four individual pump rating tests.

**8.150 PACKING GLANDS**

The stuffing boxes shall be integral with the pump body and be equipped with two-piece glands to permit adjustment or replacement of packing without disturbing the pump. Lantern rings shall be located at inner ends of stuffing boxes so that all rings of packing can be removed without removal of the lantern rings. Water shall be fed into stuffing box lantern rings for proper lubrication and cooling when the pump is operating.

**8.151 AIR PUMP SHIFT**

- An air operated pump shift shall be installed in the chassis cab to engage the fire pump. Provisions shall be made for placing the pump drive system in operation using controls and switches that are clearly identified and within convenient reach of the operator while in the cab.
- A green indicator light shall be installed on the cab dash and labeled "Pump Engaged".
- Where an automatic chassis transmission is provided, a green indicator light in the driving compartment and a green indicator light located at the pump operator's position shall be provided and shall be energized when both the pump shift has been completed and the chassis transmission is engaged in pump gear.
- The light in the driving compartment shall be labeled "OK TO PUMP".
- The light on the pump operator shall be positioned adjacent to and preferably above the throttle control and shall be labeled "Warning: DO NOT OPEN THROTTLE UNLESS LIGHT IS ON".
- The green light on the pump operator's panel shall be energized when the pump is engaged, the transmission is in drive, and the parking brake is set.

**8.152 PUMP SHIFT OVERRIDE**

The pneumatic pump shift shall be provided with a mechanical pump shift override with single override control located on the driver's side of the vehicle. Pump pneumatic shift override control shall allow for manual shifting of the air cylinder, allowing the pump to be shifted manually.

**8.153 DRAIN: MASTER**

There shall be a master drain valve recessed mounted below the pump module under the side running board, connecting all drain lines, with the capacity to discharge water simultaneously from all locations to below the chassis frame rails.

**8.154 INTAKE RELIEF VALVE, 2-1/2" STAINLESS STEEL**

There shall be an Akron model 53 suction side relief valve provided in the pump system. The relief valve is adjustable from 50-1250 psi and set at

the factory at 125 psi.; valve shall dump excessive inlet water pressure below the vehicle and will have a “DO NOT CAP” warning label.

**8.155 ENGINE THROTTLE-PUMP**

There shall be a Vernier engine throttle with quick release at the center of the controller. The throttle shall be mounted on the pump panel

**8.156 PRESSURE RELIEF VALVE**

There shall be one (1) Waterous Model 82261-1E, discharge relief valve installed in the pump panel. The relief valve is a two-unit system. A panel mounted pilot valve assembly controls operation of the main relief valve. The pilot valve has two controls; one to select the desired operating pressure, the other to switch the relief valve in or out of operation.

The pressure relief shall discharge to atmosphere, and the discharge shall direct away from the operator's position.

**8.157 PRIMING PUMP**

- The priming pump shall be a 12-volt Waterous model VPO Oil-Less, positive displacement vane type, electrically driven conforming to the standards outlined in the current edition of NFPA. One-(1) priming control shall open the priming valve and start the priming motor.
- The primer shall be capable of priming without the use of primer oil.
- The primer shall be connected to the power source with a 300-amp fusible link. A Vacuum Activated Priming valve (VAP), consists of a stainless-steel valve stem, spring and pressure disk in a plastic valve body. A rubber disk forms the seat for the valve stem and also forms a seal between the priming valve inlet and the pump body. A rubber diaphragm forms a seal which allows the valve to open and close while isolating the interior of the priming valve from atmospheric pressure.

**8.158 PUMP TEST**

The pump test/certification to be performed by apparatus manufacturer and "witnessed" by an independent third party as per NFPA 1901 pumping standards, with proper serialized certification provided upon apparatus delivery.

**8.159 ANODE, INLET**

One (1) sacrificial zinc anode shall be provided in the water pump inlet manifold, to protect the pump from corrosion.

#### 8.160 HOSE THREADS

Where specified, all screw-on/off threads shall be NST (National Standard Threads), all "sexless" couplings shall be Storz.

#### 8.161 DISCHARGE VALVES

- The side discharge valves shall be Waterous discharge valves. The chromium-plated bronze valve ball and bronze and stainless steel internal moving parts assure you of many years of dependable service. Ball bearings on the valve trunnions permit opening or closing the 3-1/2 inch valve easily, even under pressure. The 2-1/2 inch valves have upper and lower bronze bushings which support valve trunnions. The Waterous valve design permits a single drain valve to drain both the valve body and discharge hose. This eliminates the expense of a separate valve drain and the nuisance of operating an extra control. The hydraulically-balanced floating seal assembly is self-adjusting for wear, prevents leakage even under high pressure, and assures easy operation. Easily replaceable O-rings are used throughout. You never need to add or remove shims or make adjustments to correct for wear.
- All other apparatus valves shall be Akron heavy-duty swing out 8000 series brass body with flow optimizing stainless steel ball, and dual polymer seats.
- The valve shall be capable of dual directional flow
- while incorporating a self- locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball.
- The valve shall not require the lubrication of seats or any other internal waterway parts and be capable of swinging out of the waterway for maintenance by the removal of six bolts.
- The valve shall a 10- year warranty covered by Akron Brass.

#### 8.162 INTAKES

The following intakes shall be designed into the apparatus:

- A 6" NST main non-gated inlet shall be installed to the suction side of the pump.
- Inlet shall be equipped with removable screen and long handled pressure cap. This intake shall terminate on the left and right-side pump panels.
- One (1) 2-1/2" swing operated ball valve(s) shall be installed on the left side pump panel plumbed to the suction side of the pump with 2-1/2" piping.
- The suction(s) shall be equipped with a 2-1/2" FNST chrome inlet swivel, brass inlet strainer, chrome plug with chain and 3/4" drain valve.
- The control handle shall be located at the valve.

- A warning plate permanently affixed in close proximity of the suction inlet shall be installed stating: "WARNING - SERIOUS INJURY OR DEATH COULD OCCUR IF INLET IS SUPPLIED BY A PRESSURIZED SOURCE WHEN THE VALVE IS CLOSED".

#### 8.163 TANK-TO-PUMP CONNECTIONS

- The booster tank shall be connected to the intake side of the pump with a check valve. The 3" tank to pump line shall run from a bottom sump into the 3" valve. To prevent damage due to chassis flexing or vibration, a short 3" flexible rubber hose coupling shall be used to connect the tank to the intake valve.
- The tank to pump valve shall be a quarter turn fixed pivot design.
- The valve shall be controlled by a chrome push/pull locking "T" handle installed at the pump operator's panel.
- NOTE: PVC tank-to-pump piping is not acceptable.

#### 8.164 TANK REFILL, BALL VALVE

- A 1-1/2" tank fill line shall be provided, using a quarter turn full flow ball valve and high-pressure flexible hose.
- The valve shall be push pull controlled from the pump operator's panel. Control nameplate to read: "TANK FILL".

#### 8.165 TANK RECIRCULATING - PUMP COOLER

- The pump shall have a 3/8" line installed from the pump discharge, to the water tank to cool the pump during long periods of pumping when water is not being discharged. The pump cooler shall be controlled from the pump operators' panel by a 3/8" valve consisting of a cast bronze body with 1/4 turn chrome plated bronze ball, reinforced Teflon seals, and blow-out-proof stem rated to 600 PSI.
- The valve shall be installed thru the pump panel and clearly labeled.
- Control nameplate to read: "PUMP COOLER".

#### 8.166 PUMP DISCHARGE OUTLET CONTROLS AND ACTUATORS

All discharge valves shall have operating controls and actuators that allow the valve to be positioned incrementally from closed to full open and locked in any selected position. Each valve control is to be adjacent to its respective pressure instrument.

#### 8.167 DECONTAMINATION DISCHARGE

A decontamination connection will be provided on the pump panel.

#### 8.168 DISCHARGE OUTLET BLEEDERS

- All lines shall drain through the master drain valve or shall be equipped with individual drain valves, easily accessible and labeled,
- One-(1) individual lift up type drain valve shall be furnished for each 1-1/2" or larger discharge port and each 2-1/2" gated auxiliary suction.
- The drain/bleeder valves shall be located at the bottom of the side pump module panels.
- All drains and bleeders shall discharge below the running boards.

#### 8.169 STAINLESS STEEL DISCHARGE MANIFOLD

- A stainless-steel discharge manifold shall be furnished, flange bolted, or Victaulic clamped to and easily removable from, the fire pump's large diameter discharge outlet taps.
- Heavy wall threaded stainless steel pipe and pipe fittings shall be used, wherever possible, downstream of the specified side outlet and top deluge discharge valves.
- All flexible discharge lines and bleeder lines, downstream of respective valves, shall be reinforced high pressure hose assemblies with stainless steel or brass end fittings.
- Pressure gauge tubing lines shall be clear polypropylene with brass fittings, manifold drain lines (that are not high pressure hose assemblies) shall be copper tubing.

#### DISCHARGES

Due to different layout designs of the apparatus, the following discharges shall be designed into the apparatus.

#### 8.170 DISCHARGE, FRONT BUMPER

- There shall be one-(1) front discharge installed thru the gravelshield passenger's side outboard of the frame rail.
- The front bumper discharge shall terminate with a 90-degree swivel elbow, 2-1/2" FNPT x 2-1/2" MNST.
- One-(1) 2-1/2" brass valve with 3/4" drain shall be installed on the discharge side of the pump plumbed to the front swivel with flexible high-pressure hose and victaulic stainless steel couplings tested to 1200
- PSI.
- The front discharge shall be push/pull controlled at the pump operator's panel.
- A tread plate stop shall be provided preventing the front bumper discharge swivel from incidental contact with the cab.

8.171 DISCHARGES, 2-1/2" LEFT SIDE

- There shall be two-(2) discharge outlets with a 2-1/2" valve on the left side pump panel.
- The outlets shall be push pull controlled from the operator's panel and terminate with 2-1/2" MNST threads.
- All 2-1/2" side discharge outlets shall terminate with chrome-plated 30-Degree elbows with 2-1/2" MNST threads and chrome vented caps/chains.

8.172 DISCHARGES, 2-1/2" RIGHT SIDE

- There shall be one-(1) discharge outlet with a 2-1/2" valve on the right-side pump panel. The outlet shall be push pull controlled from the operator's panel and terminate with 2-1/2" MNST threads.
- All 2-1/2" side discharge outlets shall terminate with chrome-plated 30-Degree elbows with 2-1/2" MNST threads and chrome vented caps/chains.

8.173 DISCHARGES, 4" RIGHT SIDE

- There shall be one-(1) discharge outlet with a 4" valve on the right-side pump panel.
- The outlet shall be hand wheel controlled from the operator's panel and terminate with 4" MNST threads.
- A 4" NST to Storz adapter shall be provided for this discharge.

8.174 DISCHARGE, AERIAL WATERWAY

- The aerial waterway discharge shall be provided with a 4" full-flow valve.
- The waterway discharge shall be connected from the pump to the aerial waterway with the use of heavy steel pipe.
- The discharge valve shall be hand wheel controlled from the pump operator's panel and shall have a liquid filled 2-1/2" pressure gauge.
- The aerial discharge will also include a 2 1/2" discharge with a quarter turn ball valve with 2-1/2" NH male outlet.

8.175 COMPRESSED AIR FOAM SYSTEM (CAFS)

- The two (2) 1 3/4" preconnects shall be CAFS capable.
- The 2 1/2" preconnect shall be CAFS capable.
- The front Bumper discharge line shall be CAFS capable.
- One 2.5" discharge on left side shall be CAFS capable.

#### 8.176 CLASS - A FOAM SYSTEM & CAPABLE DISCHARGE OUTLETS

The apparatus shall be equipped with a "single agent" electronic, fully automatic, variable speed, direct injection discharge side foam proportioning system that matches the pumping system. The system shall be capable of handling Class A foam concentrates.

The foam injection system shall be plumbed to the specified onboard Class A foam concentrate tank with proper size hoses to include shutoff valves and removable strainers.

The system can be activated from an external 12-volt electrical source, such as a pump-in-gear circuit or engine ignition power which can eliminate one step in the operational sequence. An optional remote start/stop control and cable is available. The 12-volt, electric motor driven, positive displacement triplex plunger foam pump is equipped with an aluminum crankcase, ball bearings, forged brass pump body and manifold, solid ceramic plungers, stainless steel check valves and piston guides, Buna packing and preset thermal and pressure relief valves.

The foam pump is rated at 6 GPM @ 150 psi (9.46 l/min @ 10 bar) operating pressures up to 450 psi (32 bar). Maximum electrical load of 40 amps @ 12 VDC.

A pump motor electronic driver, located inside the controller housing, receives signals from the microcontroller and powers the 1 hp (.8 kW) electric motor in a variable speed duty cycle to ensure that the correct amount of foam concentrate set by the pump operator is injected into the water stream.

An Operator Interface Terminal (OIT), shall be mounted on the pump operator's panel allows the operator to perform the following functions:

- Provide push button control of foam proportioning rates (Class A .1% to 1% / Class B 1%, 3%, or 6%)
- Calibrate flow rate
- Flashes and then displays a steady "low concentrate" warning when the foam concentrate tank runs low, system shuts off after two minutes
- Flash a "no concentrate" warning when the foam concentrate tank is empty
- Flash an "error" warning with associated code in the event of an electronic malfunction
- Provide a manual back-up mode, controlled by the operator.

A paddlewheel-type flowmeter, installed in the process manifold upstream of the foam injection point, connects to the microcontroller. A flowmeter tee, constructed of stainless steel or brass with Victaulic groove outer connections and threaded NPT inner connections at each end of the tee, is provided for connection to the apparatus plumbing. Flowmeter tees are available as follows:

2.5" ID (750 GPM / 2800 L/min)

It is the preference of the purchaser to have all discharges capable of class A foam streams. At a minimum the following discharges shall have Class A Foam Capabilities:

- Two (2) 1 3/4" preconnects shall be Class A Foam capable
- 2 1/2" preconnect shall be Class A Foam capable.
- Front Bumper discharge line shall be Class A Foam capable
- One 2.5" discharge on left side shall be Class A Foam capable.
- Aerial Discharge shall be Class A Foam.

#### 8.177 FOAM TANK

- The foam tank shall have a minimum capacity of 40 gallons designed as an integral part of the water tank and shall have a manual fill tower.
- The fill tower shall be constructed of 1/2" PT3™ polypropylene and shall be a minimum dimension of 8" x 8" outer perimeter.
- Each foam fill tower shall be constructed of a colored material (yellow, green and black) indicating which tower is to receive each type of foam utilized.
- The capacity of the tank shall be engraved on the top of the fill tower lid. The tower shall be located in the right front corner of the tank unless otherwise specified.
- The tower shall have a 1/4" thick removable polypropylene screen and a stainless steel hinged-type cover.
- Inside the fill tower, approximately 1.5" down from the top, there shall be an anti-foam fill tube that extends down to the bottom of the tank.
- A pressure vacuum vent shall be provided in the lid of the fill tower.

#### 8.178 PUMP DRIVER'S SIDE CONTROLS

The pump operator's control panel shall be located on the driver's side middle of the vehicle. All pump discharge and suction controls are to be mounted on this pump operator's control panel, so as to permit operation of the pump from one central location.

#### 8.179 IDENTIFICATION TAGS

All discharge controls and outlets, suction controls and inlets, drain valve controls, bleeder valve controls, and all other pump related controls shall be properly identified with permanent engraved or cast nameplates describing function and operation of each control.

#### 8.180 PUMP GAUGE & INSTRUMENT PANEL 12-VOLT LED LIGHTING

The manufacture shall install appropriate 12-volt LED lighting to fully light the pump operator control panel. Lights shall be activated by a switch on the pump panel.

**8.181 AIR HORN SWITCH - PUMP GAUGE PANEL**

A weatherproof push button or rocker switch shall be furnished on the pump gauge panel, with an engraved nametag to read: "EMERGENCY AIR HORN." Switch shall activate above specified high capacity 12-volt air solenoid.

**8.182 MASTER GAUGES, VACUUM & PRESSURE**

- Two compound 4-1/2" master gauges shall be provided and installed on the pump operator's panel. The intake and discharge gauges are liquid filled with a solution to assure visual readings and reduce inner lens condensation.
- The body of the gauges shall be constructed of Zytel nylon with chrome-plated bezels.
- The face of the gauges shall be Spun Metal with black background and white markings accurate within 1%. The pressure gauges shall maintain performance of all features and be free from defects in material and workmanship which includes fluid fill leakage and discoloration for seven (7) years.
- A black permanently engraved identification nameplate will be installed for each gauge below the gauge, to read: "INTAKE" and "DISCHARGE" as appropriate.

**8.183 TEST GAUGE PANEL**

A test plug assembly to be furnished, installed on specified gauge panel adjacent to respective pump suction and pump discharge gauge.

**8.184 PUMP PANELS**

- The operator's controls and gauges shall be mounted on pump panels constructed of 1/8" (.125) black anodized, non-glare aluminum.
- No vinyl coverings shall be acceptable as these surfaces are subjected to rough service and vinyl is susceptible to tearing.
- The operator's master gauge panel shall be vertically hinged with push style latch for access to gauges and auxiliary controls.
- The operator's control panel shall be located below the master gauge panel and constructed of 1/8" (.125) black anodized, non-glare aluminum.
- All gauges and controls shall be properly identified with color-coded metal tags. The tags shall be affixed with 3M brand industrial adhesive.
- The gauges shall be functionally grouped above each control.
- The right-side upper panel shall be vertically hinged with double doors and push style latches for pump compartment access.
- The doors shall be constructed of .125" aluminum tread plate.

- The right-side lower panel shall be removable for serviceability. The panel shall be constructed of 1/8" (.125) black anodized, non-glare aluminum.
- All instruments and controls shall be provided and installed as a group at the pump panel.
- The central midpoint or centerline of any valve control shall be no more than 72" vertically above the ground or platform that is designed to serve as the operator's standing position.
- The instruments shall be placed to keep the pump operator as far as practical from all discharge and intake connections and in a location where they are readily visible and operationally functional while the operator remains stationary.

#### 8.185 PRESSURE GAUGES, 2-1/2"

- The discharges shall be provided with 2-1/2" pressure gauges.
- The discharge gauges shall be liquid filled with a solution to assure visual readings and reduce inner lens condensation.
- The body of the gauges shall be constructed of Zytel nylon with chrome-plated bezels.
- The face of the gauges shall be Spun Metal with black background and white markings reading from zero to 400 PSI.
- The gauges shall be installed at each discharge control on the pump operator's panel.
- On side mount pump applications with push pull handles each gauge shall incorporate a Thuemling Instrument Group 1-piece module assembly consisting of the gauge, push-pull and trim bezel.
- The pressure gauges shall maintain performance of all features and be free from defects in material and workmanship which includes fluid fill leakage and discoloration for seven years.
- The pump panel master and pressure gauge bezels shall be standard chrome finish.

#### 8.186 FLOWMETER and PRESSURE INDICATOR(S)

- Four (4) Fire Research Insight Ultimate model FPA400-0XX combination digital flowmeter and pressure indicator kit(s) shall be installed.
- The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow sensor housing with a mount for the specified plumbing, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 4 3/8" high by 4 3/8" wide by 3 1/2" deep. The module shall have a digital LED display for flow with super bright digits more than 3/8" high.
- Flow rate shall be displayed in GPM.

- The module shall have an analog display for pressure with an expanded scale in the normal operating range for more accurate readings.
- The pressure indicator input and movement shall be electronic.
- Pressure shall be displayed in PSI.
- The flowmeter/pressure indicator program features shall be accessed from front of the module.
- The program shall support multiple calibration points for flow and pressure, set points for high and low flow warnings, and flow totalizing functions.
- The pressure indicating needle shall be microprocessor controlled.
- The module shall be able to communicate with other FRC Insight flowmeters over a datalink.
- These will be provided for the 3 crosslays: (2) 1.75" crosslays and (1) 2.5" crosslay, and the front bumper discharge.

#### 8.187 GAUGE, WATER LEVEL

- A Fire Research TankVision Pro model WLA300-A00 tank indicator kit shall be installed on the pump operator's panel.
- The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable.
- The indicator shall show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs.
- A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees.
- The indicator case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label.
- The program features shall be accessed from the front of the indicator module.
- The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a datalink to connect remote indicators.
- Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

#### 8.188 GAUGE, AUXILIARY WATER LEVEL

- There shall be four-(4) Whelen 400 series LED lights mounted behind the crew doors one (1) set each side of the extended cab.
- The color-coded lights shall be arranged vertically and correspond with the water level in the tank.

- The color coding is as follows:
  - Water Level Light Display:
  - Green - Full
  - Blue - Three Quarter
  - Yellow - Half
  - Red - One Quarter
- Red flashing lights indicate the water tank is empty.

#### 8.189 GAUGE, FOAM LEVEL

- A Fire Research TankVision Pro model WLA360-A00 tank indicator kit shall be installed on the pump operator's panel.
- The kit shall include an electronic indicator module, a pressure sensor, a 10' sensor cable and a tank vent.
- The indicator shall show the volume of Class A foam concentrate in the tank on nine (9) easy to see super bright RGB LEDs.
- A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees.
- The indicator case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive green label.
- The program features shall be accessed from the front of the indicator module.
- The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a datalink to connect remote indicators.
- Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

#### 8.190 POLY WATER TANK -- LIFETIME WARRANTED - 500 WATER

The apparatus shall be equipped with a 500 gallon water capacity polypropylene thermoplastic water tank. The fill and overflow tower shall be equipped with a hinged lid and a removable polypropylene screen. Tank construction shall conform to NFPA standards.

#### 8.191 CROSSLAYS, 1-3/4" DOUBLE LAY

- Two-(2) pre-connected crosslay compartments shall be provided above the pump module.
- Each crosslay bed shall accommodate 200' of 1-3/4" double jacket hose stored in two stacks side-by-side.
- Stainless steel nylon guide rollers shall be installed at each end with stainless steel scuff plates around the perimeter to protect the painted surface.

- The crosslays will be of design to incorporate hose trays for the storage and deployment of the hose.
- One-(1) 2" ball valve with 90-degree mechanical swivel shall be installed for each crosslay.
- The valve shall be plumbed to the crosslay with 2" high-pressure flexible hose and stainless steel couplings.
- The high pressure hose shall be tested to 1200 PSI.
- The crosslays shall be push pull controlled at the pump operator's panel.
- The crosslays shall be equipped with a lift-up style drain valve.
- A safety sign FAMA22, which warns of the need to secure hose, shall be visible to personnel at the hose storage area.

#### 8.192 CROSSLAY, 2-1/2" DOUBLE LAY

- One-(1) pre-connected crosslay compartment shall be provided above the pump module.
- The crosslay bed shall accommodate 200' of 2-1/2" double jacket hose stored in two stacks, side-by-side.
- Stainless steel nylon guide rollers shall be installed at each end with stainless steel scuff plates around the perimeter to protect the painted surface.
- The crosslays will be of design to incorporate hose trays for the storage and deployment of the hose.
- One-(1) 2-1/2" ball valve with 90-degree mechanical swivel shall be installed.
- The valve shall be plumbed to the crosslay with 2-1/2" high-pressure flexible hose and stainless steel couplings.
- The high pressure hose shall be tested to 1200 PSI.
- The crosslay shall be push pull controlled at the pump operator's panel.
- The crosslay shall be equipped with a lift-up style drain valve.
- A safety sign FAMA22, which warns of the need to secure hose, shall be visible to personnel at the hose storage area.

#### 8.193 CROSSLAY COVER AND END FLAPS

A crosslay cover will be provided along the top of the apparatus secured by bungee and J-hook connectors to secure the hose from inadvertently deploying during normal operations and meeting the current NFPA requirements.

The cargo net end flaps shall be secured using aircraft style seat belt straps. The seat belt male end shall be hard fastened to the body with the female end attached to the end flaps. The cover prevents hose from inadvertently deploying during normal operations meeting the current NFPA requirements.

## HOSE BED

### 8.194 HOSE STACK RIGHT SIDE

The aerial apparatus body shall be equipped with a hose stack hose bed on the right side rear of the apparatus body to allow for easy removal of fire hose.

The hose bed shall be divided to form two sections and contain a minimum width of 8" and minimum height of 13" in each section. It is preferred that the storage includes room to use hose trays for the following hose amounts: 100' of 1.75" double jacket structural hose in an accordion load; and 150' of 1.75" double jacket structural hose in a double stack flat load, side-by-side.

### 8.195 LDH HOSE STORAGE: LADDER TUNNEL

There shall be a 120" deep roll out tray provided in the ladder tunnel. This shall be used to carry the five (5) lengths of 5" x 100' LDH hose supplied by the fire department. The height and width of the tray shall be constructed to secure the hose load during normal operation. The tray should be mounted on slide with a combined capacity of at least 1000 pounds.

### 8.196 TOW EYES, TWO (2) EACH

Two (2) tow eyes shall be installed below the rear of body, eyes to be 3" in diameter. The tow eyes shall be painted to match the frame rails.

### 8.197 COMPARTMENTED BODY CONSTRUCTION MATERIALS:

The apparatus hose body and compartments shall be fabricated entirely of aluminum.

### 8.198 CONSTRUCTION FEATURES

- Wheel well trim shall be furnished as specified below, bolted in position and easily replaceable, surrounding driver's side and passenger's side rear body "radius" wheel well cut-outs.
- Full width wheel well liners shall be installed on the body to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner liner and an outer fenderette made of polished stainless steel.
- During assembly all areas where metal mates or abuts shall be properly caulked with silicone body sealant to prevent moisture penetration.
- The body shall have a rub rail along the length of the body on each side and at the rear.
- The rub rail shall extend beyond the body width to protect compartment doors and the body side.

- The body builder shall provide total cubic feet of storage in the RFP. The Purchaser would prefer to have a minimum of 224 cubic feet of cabinet storage space.

**8.199 COMPARTMENT DOORS AND DOOR ACCESSORIES:**

- Roll up doors shall be installed on all doors where it is possible. These specified roll-up style compartment door tracks/extrusions shall be "flush" with exterior body panels/door jambs.
- The side compartment roll-up door slats and doorframe extrusions shall be finish painted to match the body.
- Compartment 12-volt multiple LED lighting shall be furnished for each compartment door opening. Lights to be inboard mounted on the specified door tacks or jambs, activated by "opening" of the respective compartment door, using a magnetic bar latch switch where roll-up doors are provided.
- Pull down straps shall be provided to aid on closing the door(s).

**COMPARTMENT STRUTS AND STORAGE TRAYS  
THE FOLLOWING SHALL BE PROVIDED:**

**8.200 COMPARTMENT UNISTRUTS**

Four (4) set(s) of aluminum unistruts shall be installed in the compartment(s) specified by the department for future installation of shelves or to allow the specified trays/tool boards to be adjustable.

**8.201 SHELF, ADJUSTABLE**

There shall be six (6) 24-28" deep adjustable shelf (shelves) constructed from 3/16" (.1875) smooth aluminum. Each shelf shall have a 2" lip on all sides for additional strength.

**8.202 TRAY(S), 30-DEGREE ROLL-OUT/TILT**

- There shall be three (3) roll-out tray(s) supplied, constructed from 3/16" (.1875") smooth aluminum plate.
- The tray shall be approximately 37-48"W x 24-28"D. The tray(s) shall have a 3" lip on all sides for additional strength.
- The tray(s) shall be mounted on Slide Master Slides with a combined capacity of 250 pounds.
- The tray and the rail system shall be designed to tilt 30 degrees with 70% extension.
- The tray(s) shall be mounted in a compartment specified by the department.

**8.203 TRAY(S), 500 POUND ROLL OUT**

- There shall be one (1) 24-28" deep roll-out tray(s) constructed from 3/16" (.1875") smooth aluminum plate installed on the apparatus.
- The tray(s) shall have a 3" lip on all sides for additional strength.
- The tray(s) shall be mounted on Slide Master slides with a combined capacity of 500-pounds.
- The tray and the rail system extend 70% out of the compartment.

**8.204 TRAY(S), 250 POUND ROLL OUT**

- There shall be three (3) 24-28" deep roll-out tray(s) constructed from 3/16" (.1875") smooth aluminum plate installed on the apparatus.
- The tray(s) shall have a 3" lip on all sides for additional strength. The tray(s) shall be mounted on Grant slides with a combined capacity of 250 pounds.

**8.205 TOOL BOARD(S), HINGED ALUMINUM**

- One (1) 3/16" thick aluminum tool board(s) shall be installed in the specified compartment(s) for the mounting of additional equipment.
- The board(s) shall be welded to a 2" x 2" perimeter mounted aluminum extrusion for strength to form a hinged tool board.
- The tool board shall be secured to a stainless-steel piano style hinge bolted to a reinforcing extrusion welded to the front wall of the compartment left side.
- The resulting hinge mounting shall space the tool board away from the compartment wall sufficiently so that tools may be mounted on both sides of the board.
- The door shall be held in the open position by a gas shock.
- The door shall be held in the closed position by a non-locking lever latch with 2-point catch.

**8.206 TOOL BOARD(S), ALUMINUM PEG BOARD**

- Four (4) aluminum peg style tool board(s) shall be installed in the specified compartment(s) for the mounting of additional equipment.
- Location of the above shall be determined at pre-construction conference.

**8.207 BLACK SECTIONAL VINYL FLOOR TILES**

Black vinyl Turtle Tile or equal sectional floor tiles shall be provided, floor level of driver's side, passenger's side, and rear compartments. Black vinyl Turtle Tile or equal sectional floor tiles shall be provided in all trays specified above.

#### 8.208 SLOPING TURTLE TILE RAMPS

The specified Turtle Tile sectional floor tiles shall include leading edge sloped ramps at outboard "sweep-out" riser all compartment door openings.

#### 8.209 REAR PIKE POLE STORAGE

- Six-(6) aluminum tubes shall be installed on the apparatus for pike pole storage.
- One-(1) end shall be notched to allow the poles to be locked in place.
- The storage area shall be labeled for two (2) 6` poles, two (2) 8` poles, one (1) 10' pole, and one (1) 12` pole.

#### 8.210 REAR LADDER STORAGE

- Ladder storage shall be provided beneath in the ladder tunnel.
- There shall be access to the ladders via an opening at the rear.
- The ladders will be held captive top and bottom by aluminum tracks and slide on friction reducing material.
- All ladders shall be removable individually without having to remove any other ladder.
- The ladder storage shall hold: Duo Safety ladders sizes 35'-2 section, 28'-2 section, 16'-roof, 10' folding and a Little Giant model 17 type 1A.
- All ladders shall be provided by the manufacturer as specified.

Provisions will be made for storage of one (1) backboard(s) in the torque box ladder storage area. The size of the backboard(s) will be 72" long X 16" high X 2" wide.

Full dimensions of the ladders will be confirmed at the pre-build conference.

#### 8.211 LADDER STORAGE LIGHTING

There will be two (2) white LED lights used to illuminate the torque box ladder storage compartment. One (1) each side will be located on the side wall of the torque box near the ladder storage entry area. The lights will be activated when the ladder storage compartment door is opened.

#### 8.212 SIDE AERIAL ACCESS STAIRCASE

- A single access staircase shall be supplied on the driver`s side of the apparatus to the aerial turntable.
- The staircase shall incorporate a pocket-style drop-down step in the body rub 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.

#### 8.213 BODY SCBA BOTTLE STORAGE

- The body shall store up to six (6) SCBA bottles- three (3) on the officer side and three (3) on the driver side.
- There shall be rack provided for the purpose of securing six (6) spare SCBA cylinders.
- The rack shall be fabricated from heavy-duty round aluminum tubing. Each partition of this rack shall be lined with a rubber matting in order to protect the bottles from damage.
- There shall be one compartment on each side of the apparatus to secure the SCBA cylinders. The compartment shall be ahead of the rear outrigger. The interior dimensions of the compartment shall be approximately 8" wide x 28" high x 24" deep.
- The bottles shall be externally secured in each storage area by a vertically hinged door which shall be secured in the closed position by a pan style latch.
- The doors shall have a finish that matches similar compartments.

#### 8.214 WIRING SYSTEM

The apparatus shall incorporate a point to point 12 volt electrical system. 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.

All wiring shall be colored coded and imprinted with the circuit's function.

#### 8.215 THREE-WAY INTERCOM

- A two-way, two-(2) station intercom system shall be furnished on the aerial ladder.
- Intercom communication shall be between the ladder tip and the turntable control console.
- The turntable station shall be push-to-talk with separate transmit and receive volume control knobs.
- The ladder tip station shall have a hands-free speaker/microphone unit, requiring no operator attention to transmit or receive.

#### 8.216 6KW HYDRAULIC GENERATOR

- A 6kW PTO driven hydraulically powered generator system shall be supplied and installed.
- The genset shall be an Onan model CMHG.
- The genset system shall be capable of producing the nominal output power of 6kW, 120V/240V, 60 Hz.
- The hydraulic pump shall be driven by a chassis transmission mounted power take off (PTO).
- A green light to indicate that the PTO is in gear shall be mounted in the cab and on the pump panel.
- A display meter consisting of 4 numeric LED displays shall be used.

- The meter shall simultaneously display system voltage, frequency, and amperage in each of the two 120V legs.
- The meter shall also have provisions for toggling to total hours run and oil temp via a mode switch.
- A General Electric breaker box with 240 main breaker and four (4) 120 volt circuit breakers shall be installed.
- The breaker box shall include a master breaker sized according to the generator output.
- The breaker box shall be located in a compartment as specified by the engineering department to meet the current NFPA specifications.
- The breaker box will be located in the specified compartment determined at pre-construction conference.

#### 8.217 LIGHTS, SIDE-MOUNTED BROW LIGHTS

- Four (4) Whelen Pioneer Plus Model PFH1 light heads shall be provided in a flat brow mount.
- The lights will be operated by switches located at the pump panel also be switched in the cab.
- Switches shall be labeled LEFT SCENE and RIGHT SCENE.
- Locations are: Above front left and rear left compartments; above front right and rear right compartments.

#### 8.218 REAR SCENE LIGHTS

There shall be two (2) 12 volt LED style scene lights mounted on the rear of the apparatus. These lights shall be controlled by both a switch in the cab labeled "REAR SCENE" and also when the apparatus is placed in reverse.

#### 8.219 TRAFFIC DIRECTING LIGHT BAR - REAR OF BODY

- One (1), traffic directing light bar with six (6) Amber LED lamps and one (1) control head is to be furnished.
- The light bar is to be surface mounted at center rear of body, as high as possible.
- Control head is to be installed inside driver's compartment, location as designated by Customer at pre-build conference.
- The directional light bar shall be compatible with the emergency lighting and siren system (if applicable).
- Preferred equipment: Fenix Industries Brand Equipment
- Acceptable Substitute: Whelen Products

#### 8.220 ELECTRIC CORD REEL

- A Hannay electric rewind cord reel shall be installed on the apparatus. The reel shall include 200' of 10-4 cord, yellow in color.
- The reel shall be mounted as directed and shall be controlled by a 12-volt switch.
- The cord reel shall be wired to the breaker panel.
- The cord reel will be wired to one (1) Akron brass electrical junction box and mounted as directed by the purchaser as determined at the pre-construction conference.
- The junction box shall consist of all household outlets.
- All electrical receptacles, plugs, and snap type weatherproof covers shall be UL Listed components.
- There shall be one (1) Hannay hose/cord stop(s) model HS-3 attached at the end of each hose/cord.

#### 8.221 CORD REEL ROLLERS

There shall be one (1) 4-way roller assembly(ies) installed to guide the hose/cord on and off the spool to prevent chafing of the apparatus paint. A heavy duty rubber covered electric reel rewind button shall be installed in the officer side pump panel.

#### 8.222 AERIAL DEVICE

- A 107' plus telescopic rear-mount aerial ladder of the open truss steel design shall be installed at the rear of the vehicle with the aerial pointed forward when it is in the travel position.
- The aerial ladder shall meet or exceed the requirements of the current edition of NFPA 1901.
- The aerial ladder shall be designed to provide continuous egress for firefighters and civilians from an elevated position to the turntable.
- The ladder shall be able to provide full operating capacities in up to 35 mph wind conditions.
- The ladder shall also have the capability to support and be operational with a minimum of 750 pounds at the tip while flowing 1500 GPM with the fog nozzle turned 90 degrees to the side of the ladder.
- Bidders listing rated capacities not in compliance with NFPA 1901, 19.3 requirement of 250 pound increments will have their capacity rounded down to the next lowest recognized increment.

#### 8.223 LADDER EGRESS

- The fly ladder tip shall be equipped with a bolt-on section to make the transition to and from the ladder easier.
- The egress shall have an angled section which includes ladder rungs and an extended radius handrail to provide additional safety when climbing to and from the ladder.
- The bolt-on section shall be easily replaced if damaged during firefighting operations.
- The ladder tip shall be painted Red to match the body color.

#### 8.224 AERIAL LADDER RATED CAPACITY

The aerial ladder shall have a rated tip capacity of 750 lbs with water flowing. The rated tip capacity shall be in addition to an allowance of 50 lbs. for equipment mounted at the tip of the ladder.

#### 8.225 GROUND CONTROL STATION

- A control station shall be located at the rear of the apparatus in an easily accessible area.
- Per NFPA 1901, 19.17.6, the control panel shall be arranged so the controls are easy to distinguish and operate, illuminated for nighttime operation, and properly labeled.
- To protect the controls and instrumentation, an aluminum tread plate door shall be provided over the rear control station.
- The door shall be attached with piano style hinge and have two-(2) push button quick release latches.
- The following items shall be furnished at the control console, clearly identified, and located for ease of operation and viewing:
  - Individual stabilizer down indicator lights
  - Aerial PTO engaged indicator light
  - High idle switch with indicator light
  - Emergency hydraulic pump control with indicator light
  - Stabilizer/Aerial diverter control with indicator light
  - Side to Side leveling bubble
- A front to rear level indicator shall be provided inside the torque box.
- A weatherproof compartment shall be furnished behind the control panel containing the aerial circuit breakers, interlock components, and control circuit distribution terminals.
- A recessed work light shall be provided in the access door.

#### 8.226 AERIAL LADDER CONTROL LEVERS

- Three-(3) handles for the ladder hydraulic functions (elevation, rotation, and extension) shall be installed at the control console.
- To comply with NFPA 1901, 19.17.7, the controls shall be distinct from the remainder of the other actuators and instruments on the

turntable control console, and be manual for safety and durability reasons. There shall be no exceptions allowed to this requirement.

- The levers shall be separated by enough distance so that a gloved hand shall not disturb an adjacent control, per NFPA 1901, 19.17.6.5.
- The controls shall be capable of being operated independently or simultaneously with a gloved hand.
- The speed of movement caused by moving any control shall be minimally affected when multiple controls are moved.
- In compliance with NFPA 1901, 19.17.6.2, a push/pull systems engagement control shall be installed at the control pedestal.
- The control shall energize the hydraulic system for ladder function and provide flow of hydraulic fluid to the master valve bank.
- An automatic throttle switch shall be attached to the systems engagement control that advances the engine speed to a preset RPM, when the midship pump is not engaged.

#### 8.227 CREEPER CONTROLS AT LADDER TIP

- There shall be a set of aerial ladder creeper controls at the tip of the fly section. The control module shall consist of three-(3) spring loaded, triple-pole, double-throw, and return to center switches, one for each aerial ladder function:
  - Raise/lower
  - Extend/retract
  - Left/right rotation
- Each function switch shall have a permanently affixed black and white label adjacent to the switch.
- Each switch shall be encircled by a rubber boot to protect it from collecting moisture.
- The creeper control shall allow the crew member on the tip of the ladder to operate these three functions within the speed limitations as set forth in NFPA 1901, 19.5.4(1) through 19.5.4(4).
- A stainless-steel guard shall be installed to help prevent switches from being damaged or actuated from activity on the tip of the aerial ladder.
- A momentary switch shall be installed at the lower control station to activate the system. When in the normal position, the system shall be de-energized. When the switch is held in the on-position, power shall be available to the person at the tip.

#### 8.228 RUNG ALIGNMENT INDICATOR

A light on the control console shall indicate when the ladder rungs are aligned for climbing.

#### 8.229 AERIAL ALIGNMENT INDICATOR

A reflective arrow mounted to the body and the turntable shall indicate when the aerial is aligned for travel bed.

#### 8.230 AERIAL HOURMETER

An aerial hour meter shall be installed in the turn table pedestal be wired to the aerial PTO circuit to record hours of PTO operation for the aerial device. The hour meter shall aid in scheduling preventative maintenance.

#### 8.231 AERIAL LOADMINDER

- There shall be a LoadMinder at the operator's pedestal that indicates the load(s) on the aerial device.
- The display shall be in the form of an LED illuminated bar graph.
- The instrument shall be readable in day and night conditions.
- The display shall be a "real-time" display, thereby giving immediate readings to the operator.

The LoadMinder as described shall be designed in such a manner that the operator will not have to refer to an angle indicator, extension tape, or load chart; or be required to guess at, or try to calculate the loads or forces applied to, or interacting with the aerial device at any given time and in any situation. This shall be in compliance with NFPA 1901 newest revision.

The LoadMinder shall be connected to a 100 db alarm at the operator's control stations that shall sound when the ladder load is above the rated capacity.

#### 8.232 APPARATUS LEVEL INDICATOR

A bubble type level indicator shall be provided at the rear of the apparatus to assist in the aerial device setup. This device shall be mounted in the center of the rear body panel visible to the operator setting the outriggers. The leveling indicator shall be backlit and color coded indicating the following conditions:

"Green" Safe Operating Zone.

"Yellow" Caution Operating Zone.

"Red" Do Not Operate Zone – Reposition Apparatus.

#### 8.233 AERIAL WATERWAY

- A four-section, telescopic aerial waterway shall be provided, consisting of a 5.0" outside diameter steel pipe in the base section, a 4.5" diameter pipe on the next section, and a 4.0" outside diameter pipe on the third section, and a 3.5" outside diameter pipe in the fly section.
- The waterway pipe shall be connected to the waterway swivel.
- A 4" inside diameter pipe shall be routed through the rotation point swivel up to the heel pin swivel.

- The heel pin swivel shall allow the rated flow of the waterway while elevating the aerial ladder from -6 degrees to +72 degrees.
- The heel pivot pin shall not be integral with the waterway swivel at any point. The design of the water way shall allow complete servicing of the waterway swivel without disturbing the heel pivot pin.
- A 4-1/2" outside diameter pipe shall be connected from the waterway discharge valve to the water swivel at the rotation point of the turntable. The water swivel shall allow the ladder to rotate 360 degrees while continuing the rated water flow of 1500 GPM.
- The aerial waterway shall be capable of being supplied from an external water source.
- A four-(4")
- stainless steel waterway piping shall be provided at the right-side pump panel, plumbed to the aerial pre-piped water system.
- A female 4" pipe thread to 4" NST male chrome plated adapter with screen and cap shall be provided for the connection of adapters or Siamese for fire hose.
- A 2-1/2" diameter liquid filled water pressure gauge shall be located adjacent to the waterway inlet.
- A 1-1/2" drain valve shall be installed and operated from the rear of the apparatus.

#### 8.234 PINNED WATERWAY

- The waterway monitor shall be capable of being placed in one of two positions, either at the end of the fly section or at the end of the third ladder section. This is required to keep the ladder tip clear of obstructions when the aerial device is used in rescue operations, as described in NFPA 1901, A.19.6.4.5.
- Repositioning of the monitor shall be accomplished through an electric actuated switch on the turntable control console. The switch shall activate a mechanism that locks the monitor into the desired position.
- There shall be two separate indicator lights located near the positioning switch to inform the aerial operator of the current position of the monitor. The individual lights shall be labeled "Rescue" and "Water Tower".
- The ladder shall be fully retracted in order to reposition the monitor.
- The device shall be designed in such a manner that, when it is in the forward position, the master stream device shall be connected to the tip of the ladder. When it is toward the back, the device shall remain at the end of the third ladder section.
- The electric monitor and nozzle controls shall be permanent and shall not incorporate any spring loaded cable reels or electrical contact pads that can foul or become damaged thereby the monitor

to become inoperable. In addition, voltage to the ladder tip shall be sufficient so as not to require an external power supply, such as a battery, to operate the monitor.

- An electric actuator is the only acceptable method of repositioning the waterway monitor. Pins or other mechanical type monitor positioning system shall not be acceptable due to difficulties in centering the alignment of the ladder sections, requiring the turntable operator to walk to the end of the ladder, uncertainties in correctly positioning the shift mechanism, etc.
- The waterway shall retain the same 1500 GPM flow capacity, regardless of monitor position.

#### 8.235 WATERWAY RELIEF VALVE

An automatic relief valve shall be installed in the aerial waterway to prevent over-pressurization of waterway system.

#### 8.236 FLOW/PRESSURE METER, TURNTABLE MOUNTED

- There shall be one-(1) Fire Research Insight model DFA 400-040 digital flowmeter kit installed, per NFPA 1901, section 19.12.7, to monitor the flow of the aerial waterway.
- The flow meters display shall be located on the turntables control console. The kit shall include a display module, paddle wheel flow sensor, sensor housing with a mount and a 10' sensor cable.
- The flowmeter case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 3-1/4" high by 3-1/4" wide by 2-1/2" deep.
- It shall have an LED display with super bright digits more than 1/2" high. Flow rate shall be displayed in GPM (Gallons per Minute).

#### 8.237 ELEVATED MASTER STREAM APPLIANCE

- An Akron Brass StreamMaster II, model 3480, remote controlled, all electric, single waterway monitor shall be installed at the tip of the ladder. The monitor shall be equipped with two-(2) 90 degree drive positioning motors, one each for vertical and horizontal movement. Each positioning control shall be equipped with a manual override.
- There shall be an Akron Akromatic 5178 electric combination fog and straight stream nozzle with automatic flow mechanism provided.
- The flow range of the nozzle shall be 1500 GP M at 80 psi.
- The nozzle shall be constructed of durable, lightweight Pyrolite and shall have electric pattern selection from straight stream to wide fog controlled by a 12 volt motor and linear ball screw.
- The nozzle shall include a manual override pattern, control knob, built-in stream shaper, and 3-1/2" NH swivel base.

### **Section 8.0 Specifications**

- The monitor shall be capable of vertical positioning from -135 degrees to +30 degrees and horizontally 90 degrees from side to side for a full 180-degree sweep.
- The rated tip load of the aerial device, when nozzle is flowing at horizontal or below, shall not be affected by the position of the nozzle throughout the entire range as listed above.
- The rated tip load of the aerial device, with the nozzle flowing above horizontal, shall be reduced by 250 pounds.

**8.238 LADDER TIP WARNING LIGHTS**

- Two (2) Whelen Vertex Super-LED light heads with clear lenses shall be supplied and mounted one each side at the ladder tip.
- The lights shall include chrome flanges.
- The lights shall be wired to activate with the aerial master power switch.

**8.239 LADDER BASE LIGHTING**

Two-(2) Whelen Pionner Micro MPBW, 12 volt LED lights shall be furnished, one-(1) each side on the base section lower chord. The tracking lights shall be controlled from the turntable control station.

**8.249 LADDER CLIMBING LIGHTS**

A LED lighting system to illuminate the climbing area inside each ladder section shall be provided.

**8.250 TIP SPOT LIGHT**

- There shall be one-(1) Whelen PFH1 light furnished at the tip of the fly section right side.
- A switch located on the lamp head shall activate the light.
- There shall be one-(1) Whelen PFH1 light furnished at the tip of the fly section left side.
- A switch located on the lamp head shall activate the light.

**8.251 LED 120V FLOOD LIGHT**

- Two (2) 120V flood light 120V LED light fixture shall be provided on a ROM Kwik-Raze permanent mount non-telescoping bases.
- The light assembly shall be mounted one on each side of the tip of the aerial.
- 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 fitted with a weather-resistant switch to control the light when the aerial power circuit is activated. It would be preferred if these lights fold back out tight to the ladder when not in use.

**8.252 AERIAL TIP RECEPTACLE**

- A 110 volt standard household 20 amp receptacle outlet shall be installed at the tip of the aerial device and wired into an apparatus breaker box with a 30 amp breaker.
- The breaker shall be fitted with a GFI protection feature.
- The receptacle box shall be fitted with a weather-resistant cover.

**8.253 ROOF LADDER MOUNT**

- There shall be one-(1) set of brackets to hold a 16' roof ladder on the outside of the base section for a roof ladder.
- The brackets shall be installed between the aerial base section and the ladder sign plate.
- The brackets shall be formed using break and bend techniques for added strength and an outstanding appearance.
- To enhance durability, the brackets shall be coated with a bed liner type scratch resistant coating.
- Where the ladder rack is bolted to the aerial section or ladder sign, stainless steel fasteners shall be employed.
- When installed in the brackets, the roof ladder shall be retained so that it shall not come out of the brackets unexpectedly.

**8.254 AERIAL SIGN BOARDS**

- Two (2) smooth aluminum sign boards shall be provided.
- The sign boards 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 sign boards shall display "Travis County ESD No.2 -Pflugerville Fire. Dept.".
- The sign boards shall be painted to match the body and cab paint.

**8.255 STOKES BASKET BOX**

- There shall be one (1) fully enclosed stokes basket box installed on the side of the base section of the ladder.
- There shall be a like material lid installed on the box with a stainless-steel hinge and a positive closing latch.
- The lid shall provide a watertight seal.
- The stokes basket box shall be painted to match the body and cab paint.
- The maximum weight capacity of this storage box will be provided to the purchaser.
- A warning label indicating the maximum weight capacity shall be affixed to the inside of the box lid.

#### 8.256 STOKES BASKET MOUNTING

- There shall be one-(1) compartment with the capacity to hold one-(1) Stokes Basket.
- The location of this compartment shall be determined by the Fire Department.
- The department must supply make and model of basket.
- There shall be a stokes mounting bracket located on top of the water tank or body compartments.

#### 8.257 STORAGE MODULE, CHAIN SAW

- There shall be one (1) saw storage module(s) located in the specified compartment(s) to hold two-(2) chain saws.
- The module shall be fabricated from 1/8" smooth aluminum and shall be painted with gray spray-on material.
- The module shall be angled to allow for additional storage.
- The front of the module shall have two-(2) lift up doors to access the additional storage area.
- The outside of each door shall be equipped with a fabricated saw mount and two-(2) chrome dog bone handles.
- The design of the saw module will be provided by the department upon request.
- The location of the storage module will be determined at the pre-construction conference.

#### 8.258 WHEEL WELL COMPARTMENT, LEFT CENTER

- There shall be a storage compartment located in the left center body wheel well to house air bags.
- The floor and sides of the compartment shall be lined with a polypropylene sheet and the back wall shall be lined with rubber matting to provide scuff protection.
- The bottom of the compartment shall be supported to eliminate breakage. The compartment shall be vented to facilitate moisture drainage.
- The compartment shall be approximately 32" long at the top, as wide as possible at the bottom x as tall as possible x 26-1/2" deep. This compartment shall be used for air bag storage: top to bottom:
  - 25" x 24" x 2" on top
  - 25" x 24" x 2" under the first 25x24
  - 15" x 22" x 2" next to 6" x 13" x 2", under the second 25x24
  - 15" x 22" x 2" on the bottom

#### 8.259 WHEEL WELL COMPARTMENT, RIGHT CENTER

- There shall be a storage compartment located in the right center body wheel well to house Extinguishers.
- The floor and sides of the compartment shall be lined with a polypropylene sheet and the back wall shall be lined with rubber matting to provide scuff protection.
- The bottom of the compartment shall be supported to eliminate breakage. The compartment shall be vented to facilitate moisture drainage.

#### 8.260 BODY COMPARTMENTATION

TCESD No.2 employs a robust amount of emergency equipment to support incident response needs. As such, body configuration and compartmentation is of high value and will be a prominent area of evaluation for submitted proposals.

- Roll-up doors are preferred where available unless lift up doors are necessary due to size constraints.
- All roll-up doors will be equipped with a pull down strap to assist with closure.
- Lift up door types will be horizontally hinged and incorporate a polished D-paddle handle with rotary style latch.
- Lift up type doors shall open beyond 90 degrees to allow for additional head clearance.
- Preference is for all compartments to be full height and full depth (24") utilizing all available space in the body for compartment storage space.
- A minimum depth of 12.00" is required for any body compartment.
- A minimum of 224 cubic feet of storage shall be provided in the proposal.
- Final layout of compartment with shelving and equipment mounting needs will be determined at the pre-construction conference.

#### 8.261 FRONT OUTRIGGERS

- Two (2) front outriggers shall be provided immediately forward of the body. This design shall provide proper stability and minimize front axle and suspension loads while the aerial device is in operation over the front of the apparatus.
- For ease of service, it would be preferred that the vertical jack cylinders be designed so they can be removed from the top.
- The outrigger will include a red flashing stabilizer warning light mounted below each stabilizer beam facing front and rear. These warning lights shall be activated by the aerial master switch.
- A 4" LED flood light shall be provided at each stabilizer location to illuminate the surrounding area. The lights shall be activated by the aerial master switch.

#### 8.262 REAR OUTRIGGERS

- Two (2) rear outriggers shall be mounted underneath the chassis frame to allow more ground ladder storage above the frame. The extension of the horizontal outrigger beams shall provide 10 degrees of leveling capability for operations in hilly terrain.
- For ease of service, it would be preferred that the vertical jack cylinders be designed so they can be removed from the top.
- The outrigger will include a red flashing stabilizer warning light mounted below each stabilizer beam facing front and rear. These warning lights shall be activated by the aerial master switch.
- A 4" LED flood light shall be provided at each stabilizer location to illuminate the surrounding area. The lights shall be activated by the aerial master switch.

#### 8.263 PADS, AUXILIARY STABILIZER

- Four-(4) auxiliary pads shall be provided for load distribution for each stabilizer. The pads shall be 24" x 24" x 1/2" thick.
- These pads shall be constructed of lightweight high capacity cast nylon material with a load capacity on hard foundation of 150,000 pounds.
- These auxiliary pads shall meet all FEA testing criteria and retain shape after use, regardless of surface setup.
- Each pad shall be equipped with a center mounted heavy-duty rope handle for ease of placement and pick up.
- Each pad shall have a magnet recessed in the center-top surface. This shall enable accurate ground pad placement before outrigger deployment.
- Each magnet shall be capable of supporting the weight of the outrigger pad during outrigger motion.
- Outrigger motion shall include start, extension and stop.
- The magnet shall keep the pad affixed to the outrigger foot pad during all three of these conditions.
- The magnet shall be encapsulated in a thin stainless-steel wrap.

#### 8.264 EQUIPMENT, ETC. CAP(S), 5" STORZ

There shall be two (2) Kochek model CC507, 5" Storz cap(s) with chain provided with the apparatus.

#### 8.265 30 DEGREE ELBOW(S) - 4" FNST X 5" STORZ

There shall be two (2) Kochek model SKE45R, 4" FNST rocker lug x 5" Storz, adapter supplied with the apparatus. The elbow(s) shall have a 30-degree turn down.

One for the LDH discharge and one for the waterway inlet.

**8.266 ROOF HOOKS**

The following roof hooks shall be supplied with the apparatus:

- (1) Fire Hooks Unlimited model RH-10, 10' New York Roof Hook(s) with a ram end.
- (1) Fire Hooks Unlimited model RH-12, 12' New York Roof Hook(s) with a ram end.
- (2) Fire Hooks Unlimited model RH-8, 8' New York Roof Hook(s) with a ram end.
- (2) Fire Hooks Unlimited model RH-6, 6' New York Roof Hook(s) with a pry end.

**8.267 LADDERS**

The following ladders shall be supplied with the apparatus:

- (1) 35' two (2) section aluminum Duo-Safety Series 1200-A Extension ladder
- (1) 28' two (2) section aluminum Duo-Safety Series 1200-A Extension ladder
- (2) 16' roof, aluminum, Series 875-A-DR (Double Hook)
- (1) 10' Duo-Safety Model 585-A Folding Ladder
- (1) Duo-Safety Model 35-B, 14' combination style jack knife ladder

This ladder shall be located on top of right-side body compartment(s) in a horizontal ladder bracket consisting of a diamond plate boot at one end and plunger type retainer at the other end.

**8.268 LADDER BELTS**

- (6) Ladder belts meeting the requirements of NFPA 1983 shall be supplied with the apparatus. They will be sized (3) Large and (3) Extra-Large

**8.269 CAB PAINT FINISH, TWO TONE**

The custom cab shall have a two-tone paint finish. The paint colors shall be furnished by the customer.

The break in the color shall be at the bottom of the chassis window, unless otherwise specified by the department.

**8.270 STRIPE, CAB PAINT BREAK LINE**

A 1/2" wide Spun Gold pin stripe shall be applied at the cab paint break line.

**8.271 SCOTCHLITE STRIPE**

- There shall be a 6" wide Scotchlite stripe, with an additional 1" wide stripe located above and below.
- The stripes shall be located no higher than 60" from the ground installed on the apparatus cab and body.

- The stripes shall cover a minimum of sixty percent (60%) of each side of the apparatus and forty percent (40%) of the front and rear of the apparatus. The stripe shall be installed to meet the current NFPA requirements.
- Striping Color: White
- Pin Stripe/Secondary Stripe Color: Gold
- Striping Layout: Hockey Stick Design, Body Compartment Doors
- The reflective stripe shall run straight from the headlights to the front body compartments with a hockey stick design and run to the rear of the body on each side of the apparatus.

#### 8.272 STRIPE, CHEVERON

- A minimum of fifty percent of the rear vertical surface of the unit shall be overlaid with a reflective material, installed in an alternating "Chevron" pattern (sloping down and away from the centerline) at a 45-degree angle. Each stripe shall be 6" wide and the colors of stripping shall be in compliance, with the current edition of NFPA 1901.
- Chevron striping that matches the colors on the front bumper and rear body shall be provided each side over the tandem rear wheels.
- The outrigger extension beams shall have reflective chevron striping to match that found on the front bumper and rear body.
- Chevron Striping Colors: 3M Red & Lime Green

#### 8.273 LETTERING

- There shall be a maximum of sixty-(60) 3" tall Spun Gold letters applied to the apparatus. The lettering shall also have a one-color shade applied.
- There shall be eighteen (18) 8" tall Scotchlite letter(s) applied to the apparatus. Lettering color and shading to match original letters.
- There shall be twenty-six (26) letters applied to the aerial lettering plates as directed.
- Lettering color and shading shall be determined by the Fire Department.
- There shall be one (1) pair Fire Department decals/Maltese Crosses installed on the apparatus.
- The decals shall match the Fire Department requirements.
- There shall be twelve (12) additional 3" 23 Carat Gold Leaf letter(s) with a Mylar overlay. The letter(s) shall be applied and finished in the same manner as the others.
- There shall be fourteen (14) additional 3" 23 Carat Gold leaf letter(s) installed. The letter shall be applied and finished in the same manner as the others.

- There shall be twenty (20) 6" tall Scotchlite letter(s) applied to the apparatus. Lettering color and shading to match original letters.

#### 8.274 LETTERING DESIGN

The purchaser will provide the builder with a picture of the lettering desired at the pre-construction conference.

#### 8.275 FINAL DELIVERY

To ensure proper break-in of all components while still under warranty, the apparatus shall be delivered over the road under its own power (Rail and/or truck freight shall not be acceptable).

#### 8.276 TRAINING

There shall be three-(3) days of instruction shall be provided by a factory-employed trainer. Because the trainer should be extremely familiar with the apparatus being delivered, proposals that offer training by an independent contractor shall not be acceptable.

The instruction program shall be designed to instruct the individual who has never utilized an aerial device, as well as experienced operators. Fire department personnel shall be thoroughly taught the operating systems of the aerial device, including emergency operation. Introductory service skills utilizing the vehicle shall also be provided.

### **Proposal Evaluation**

The District has attempted to provide Proposers with a comprehensive statement of requirements through this RFP for the services requested. Proposers must provide written proposals presenting Proposer's qualifications and understanding of the work to be performed. Proposers must address each evaluation criteria and be specific in presenting qualifications. Proposals must be as thorough and detailed as possible so that The District may properly evaluate qualifications, capabilities and all details of proposal.

Selection may be made of one or more Proposers deemed to be fully qualified and best suited among those submitting proposals. Onsite (or at the District's discretion, teleconference or videoconference) demonstrations or presentations, as well as client site visits, may be conducted for the Proposers so selected.

The District reserves the right to award based on the responses received or to negotiate with any or all the Proposers so selected. Price shall be considered but shall not be the sole determining factor for selection. The District may also award to other than the highest ranked proposer in the event the best and final price submitted by Proposer is more than the budget available for the project. The District shall select the Proposer which, in the District's opinion, has made the proposal most beneficial to the District for

award. Should the District determine in writing and in its sole discretion that only one Proposer is fully qualified or that one Proposer is clearly more highly qualified than the others under consideration, a contract may be negotiated and awarded to that Proposer. The District reserves the right to revoke the original recommendation for award and associated contract in the event the recommended Proposer fails to execute a contract within thirty days of notification of selection for award. The award document will be a contract incorporated by reference all the requirements, terms and conditions of the RFP and the Proposer's proposal as negotiated.

For purposes of evaluation, The District may establish, after an initial review of proposals, a competitive range of acceptable or potentially acceptable proposals composed of the highest rated proposals, and defer action on proposals outside of the competitive range pending selection of a successful Proposer; however, the District reserves the right to include additional proposals in the competitive range if deemed to be in the District's best interest.

The District may permit revision of proposal(s) prior to final selection of a successful Proposer; such revisions, including pricing, shall become binding. Proposers within the competitive range may be provided an opportunity for discussion and revision of its proposal. The District is not obligated to select the Proposer offering the most attractive economic terms if such Proposer is not the most advantageous to the District overall, as solely determined by the District.

By submission of a proposal, Proposer acknowledges acceptance of the evaluation process, the evaluation criteria, all specification, terms and conditions and all other requirements and specifications set forth in this RFP, and recognition that some subjective judgments must be made by the District during the process. The District makes no guarantees or representations that any award will be made and reserves the right to cancel this solicitation for any reason. Proposer shall be solely responsible and accept all risk for any costs associated with preparation of a response to this RFP, or subsequent evaluation related activities such as onsite interviews, demonstrations or presentations.

### **Proposal Evaluation Criteria**

The District has established criteria for scoring. This section presents the evaluation criteria, description, and the total points available to each. Total points available are 100.

Costs Proposal: up to 5 points

5 points will be awarded to the lowest cost proposal that clearly addresses all areas of the RFP proposal.

Financing Options: up to 5 points

The highest points will be awarded to the Proposer that provides the most desirable financing package for the terms chosen by the District based upon interest rates and any financing/pre-pay discounts.

Warranty Evaluation: up to 10 points

The highest points will be awarded to the Proposer that meets and/or exceeds the minimum warranty criteria provided in the RFP.

Cost of Ownership Evaluation: Up to 20 points

The highest points will be awarded to the Proposer that provides the most comprehensive cost of ownership package that provides the greatest value to the District, while limiting the out of service time to specified apparatus.

Service Evaluation: Up to 10 points

The highest points will be awarded to the Proposer that provides the most beneficial proposal for service location, service vehicle availability, and the availability of non-proprietary replacement parts.

Cab Design: Up to 10 Points

The highest points will be awarded to the Proposer that provides the cab design that meets the RFP minimum criteria. The desired Clean Cab options along with storage and compartment solutions will be weighed heavily based upon the desired design as specified.

Body Design: Up to 40 Points

Up to 40 points will be awarded to Proposers that clearly address the areas for body design and compartmentation in the RFP proposal. The desired clean cab compartment options and overall storage and compartment design will be worth a total of 30 points. An additional 10 points will be available based upon the review of the storage availability. 5 points will be awarded if all specified SCBA storage is met without exception. An additional 5 points will be awarded if the design of the proposal offers available room for equipment storage as determined by the District based upon current equipment expected to be placed on proposed apparatus.

Exceptions point reduction: -5 Points

A reduction of overall score of up to 5 points can be awarded by the District if the exceptions are deemed excessive and/or fail to meet the intent of proposed are of the RFP.