



COUNTY OF PRINCE WILLIAM

1 County Complex Court, (MC 460) Prince William, Virginia 22192-9201
(703) 792-6770 Metro 631-1703 Ext. 6770 Fax: (703) 792-4611

FINANCE DEPARTMENT
Purchasing

DATE: April 18, 2011

INVITATION FOR BID: IFB110040

SUBJECT: Class A Pumpers for Dale City Volunteer Fire Department

BID OPENING

DATE: May 25, 2011
TIME: 3:00 P.M. LOCAL TIME
SUBMIT TO: PURCHASING MANAGER
PRINCE WILLIAM COUNTY
1 COUNTY COMPLEX COURT (MC460)
PRINCE WILLIAM, VIRGINIA 22192-9201

PLEASE DIRECT CONTRACTUAL QUESTIONS CONCERNING IFB TO:
Ellen H. Wills
(703) 792-6773
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www.pwcgov.org/eservices/eprocurement

An Equal Opportunity Employer

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SECTION I

SPECIAL PROVISIONS

I.1 Scope

Prince William County is soliciting bids for Class A Pumpers for Dale City Volunteer Fire Department. The supplies and/or services shall strictly conform to the specifications set forth in the Solicitation and any amendments thereto. The prices shall be in force for the period of the contract.

I.2 Requesting Agency

Department of Fire and Rescue is the main requesting agency for this Solicitation. Other Prince William County agencies may utilize the awarded Contract(s) resulting from this Solicitation.

Dale City Volunteer Fire Department
Danny Dutch, President

I.3 Contract Period

The Contract Period shall be from Contract award date through completion and accepted delivery of units.

I.4 Delivery and/or Pick-Up of Goods

Unless otherwise notified, all goods are required to be delivered within 365 calendar days after receipt of order from the County. Deliveries shall be F.O.B. destination, freight full prepaid and allowed in Prince William County. No collect shipments will be accepted. Deliveries shall be made between 8:30 A.M. and 4:00 P.M., Monday through Friday, less established County holidays, unless otherwise approved by the County. Inside delivery required unless otherwise specified.

The County shall notify the Contractor if/when the County wishes to pick-up the goods from Contractor's place of business. In this event, the goods shall be available for County pick-up within 365 calendar days after County notification.

The Contractor shall give 48 hour advance delivery notice to the requesting agency for deliveries that require unloading assistance from the County and/or for deliveries made to County job site locations.

All shipments/deliveries shall be accompanied by packing slips or delivery tickets, which shall contain the following information for package or load.

Contractor's Name and Address
Contract Number
Purchase Order Number
Task Order Number/Work Order Number, if applicable
Goods Ordered
Goods Delivered (article/quantity/date)
Goods Back Ordered

Failure to comply with these conditions shall be considered sufficient reason for refusal to accept the goods.

I.5 Inspection and Acceptance

Goods and/or services (which term throughout this clause includes without limitation raw materials, components, intermediate assemblies, end products and work performed) shall be subject to inspection and testing by the County, to the extent practicable at all times and places including the place of manufacture, and in any event prior to acceptance.

In case goods are defective in material or workmanship or otherwise not in conformity with the County's requirements, the County shall have the right either to reject them (with or without instructions as to their disposition) or to require their correction. Goods which have been rejected or required to be corrected shall be removed or, if permitted or required by the Purchasing Manager, corrected in place by and at the expense of the Contractor promptly after notice, and shall not thereafter be tendered for acceptance unless the former rejection or requirement of correction is disclosed. If the Contractor fails to promptly remove such goods that are required to be removed or replaced or to correct such goods, the County either 1) may by Contract or otherwise replace or correct such goods and charge to the Contractor the cost occasioned the County thereby; or 2) may terminate the Contract for default as provided by the "Termination for Default" Clause. Unless the Contractor corrects or replaces such goods within the specified delivery schedule, the Purchasing Manager may require the delivery of such goods to be provided at a reduction in price that is equitable under the circumstances.

Any and all services provided shall be conducted and completed in accordance with recognized and customarily accepted industry practices, unless otherwise specified by the County, and shall be considered complete when the services are approved as acceptable by the County's Contract Administrator or its designee. In the event of rejection of any services provided, the Contractor shall be notified and shall have 10 calendar days from date of the deficiency notice to correct the deficiencies and resubmit for inspection.

I.6 Invoicing and Payments

Contractor's invoices shall be submitted to the "Invoice To" address as reflected on the County's Purchase Order.

The Contractor shall submit detailed invoices listing the goods and/or services provided to the County.

As a minimum, invoices shall reflect the following:

Contractor's Name and Address
 Contract Number
 Purchase Order Number
 Task Order Number/Work Order Number, if applicable
 Date Goods and/or Services were provided
 Receipts and/or Delivery Tickets, if applicable

The County shall make payment to the Contractor, net 30 days and may accept prompt payment discounts if offered, after receipt of an acceptable invoice and the requested goods and/or services have been received and accepted by the County.

I.7 Insurance

Insurance is required as described in Section III. An Insurance Certificate must be submitted to the County for review and acceptance before any services are performed by the Contractor. The same Insurance requirements will apply to any subcontractor performing for the Contractor on County jobs.

I.8 Literature

Bidders must submit two (2) copies of descriptive and/or technical literature on goods offered, to include manufacturer's warranty and guarantees.

I.9 Brand Name or Equal

One or more items called for by this solicitation have been identified in the Price Schedule by a brand-name-or-equal product description. Bids offering equal products will be considered for award if these products are clearly identified and are determined by the County to be equal in all material respects to the brand-name product referenced in the solicitation.

Unless the bidder clearly indicates in the bid that the bid is for an equal product, the bid will be considered as offering a brand-name product referenced in the solicitation.

If the bidder proposed to furnish an equal product, the brand name and model or catalog number, if any, of the product to be furnished must be inserted in the space provided in the solicitation. The evaluation of bids and the determination as to equality of the product offered will be based on information furnished by the bidder or identified in the bid, as well as other information reasonably available to the Purchasing Manager. Accordingly, to ensure that sufficient information is available, the bidder must furnish as a part of the bid:

- a. All descriptive material (such as cuts, illustrations, drawings, or other information) necessary for the Purchasing Manager to establish exactly what the bidder proposes to furnish and to determine whether the product offered meets the requirements of the solicitation; or
- b. Specific references to information previously furnished or to information otherwise available to the Purchasing Manager to permit a determination as to the equality of the product offered.

If the bidder proposes to modify a product so as to make it conform to the requirements of the solicitations, the bidder must:

- a. Include in the bid a clear description of the proposed modifications; and
- b. Clearly mark any descriptive material to show the proposed modifications.

I.10 Equal Product Specifications

The specifications detail the items or services for which bids are sought. Equal product substitution will be considered in the following circumstances:

1. The name of any brand, make, manufacturer, or a definite specification does not restrict bidders to the specific brand, make, manufacturer, or specification named, it is to set forth and convey to prospective bidders the general style, type, character and quality of the article desired; and
2. Wherever in specifications or contract documents a particular brand, make or material, device or equipment is shown or specified, such brand, make or material, device or equipment should be regarded merely as a standard. Any other brand, equal of the specified, considering quality, workmanship and economy of operation and suitable for the purpose intended, shall be considered responsive to the specifications.

Determinations as to the equality of product substitutions shall be made by the County whose decision shall be final.

I.11 Warranties

The Contractor warrants that (1) goods provided to the County are fit and sufficient for the purpose intended; (2) goods are merchantable, of good quality, and free from defects, whether patent or latent, in material or workmanship, and (3) goods provided to the County conform to the County's specified requirements.

Manufacturer's standard product warranties shall also apply.

I.12 Copyright

No vendor may copyright any work produced for the County of Prince William without the written consent of the Purchasing Manager.

I.13 Hazardous Products

Where applicable, the Contractor shall comply with all Virginia Occupational Safety and Health Administration Standards. Specifically, the Contractor shall ensure that all products provided to Prince William County are properly labeled and that Material Safety Data Sheets (MSDS) are provided for those products classified as "hazardous" by the Virginia Occupational Safety and Health Administration.

SECTION II

INSTRUCTIONS TO BIDDERS

GENERAL PROVISIONS

II.1 General

Bids and contracts for Prince William County are governed by the Prince William County Purchasing Regulations, effective January 1, 1981, as amended. All bidders are referred to the specific provisions of those regulations for guidance in dealing with County solicitations. In the event of an inconsistency between the special provisions of this solicitation, the general provisions, contract, or other included document, or the Purchasing Regulations, the inconsistency shall be resolved by giving precedence to the following documents in the following order:

- (1) the Purchasing Regulations
- (2) the Specifications
- (3) the Contract
- (4) the Special Provisions
- (5) the General Provisions and Definitions

The following general information is provided all bidders to facilitate the preparation of suitable bids for the goods or services identified in this Invitation, and the requirements set forth shall be binding on all bidders.

Bids must be based on the entire bid set and nothing else, and bidders are expected to take into consideration that the bid set, including any contract which is a part of the Invitation, will constitute the terms of the bargain between the County and the successful bidder. Where a contract is provided, it is intended that it shall incorporate the terms and conditions of the bid, rendering further reference to the bid set unnecessary.

The County is not at liberty to change the terms of the bargain after the opening of bids. Where questions and discussions prior to bid opening disclose a need for additional information or amendments, appropriate addenda to the Invitation will be prepared and distributed so that all bidders will be offering price quotes based on the same information and specifications.

The Purchasing Manager may extend the date and time for opening of bids if she believes it is necessary.

II.2 Vendor Registration

Before submitting a response to this solicitation, an offeror must be a registered Prince William County vendor. Vendors are encouraged to register themselves over the Internet at

www.pwcgov.org/eservices/eprocurement

If Internet access is not available, or problems are experienced during registration, contact the Purchasing Office shown on the front page of the Solicitation.

II.3 Bid Submission

The Bidder shall submit to the County one (1) original and six (6) copies of the bid prior to the bid due date and time.

As a minimum the following items must be included in the Bid Submittal:

IFB Submission Form
Specifications and/or Scope of Work
Pricing Schedule
Bidder's Qualifications and References

and, if required but not limited to,

Insurance Certificate
Bonds
Certificates, Permits, and Licenses
Samples, Plans, and Drawings
Technical Literature, Catalogs, Price Sheets
Material Safety Data Sheets
Warranty Information

All information required by the Solicitation must be provided in order for the bid to be considered complete. Inadequate information may result in disqualification of the bid.

Any modifications not expressly provided for in the Solicitation may require rejection of the bid.

The bid must be signed and dated by an authorized person of the firm or corporation to bind the Bidder to a Contract with the County. The Purchasing Manager may require that any bidder submit powers of attorney or other appropriate documentation showing the authority of the signatory to act on the Contractor's behalf. If it later appears that the signatory was not authorized to act, whether such proof of agency has been demanded or not, the County may declare the Contract void if it is in its best interest to do so. In addition, resulting Contracts must be signed and dated by the Contractor and all other required parties.

Bids shall be submitted in any sealed package that clearly identifies the Solicitation name and number, bidder's name and address, and the bid due date and time.

The bid package shall clearly state "Bid Package is not to be opened until the bid due date and time."

The Bidder assumes the risk that a bid not properly marked may be mistakenly opened, and thus may be rendered ineligible for consideration. The Purchasing Manager or designated representative(s) shall not be responsible for the premature opening of a bid not properly identified as specified herein.

Bids must be submitted to and time stamped by the County Purchasing Office prior to the bid due date and time.

Bids received in the Purchasing Office after the prescribed due date and time shall not be considered for Contract award and shall be returned unopened to the Bidder.

If a prospective Bidder is unable to submit a bid in response to this Solicitation, the Bidder may submit a letter as to why the Bidder is unable or unwilling to submit a bid. The County is interested in learning if there are any problems with the Solicitation process that may discourage responses. Because of the large number of firms listed on the County's registered bidders list, the County may delete the names of those persons, firms or corporations who fail to respond to the County's Solicitations after having been invited to submit a bid on three successive Solicitations.

Bids shall be publicly opened, announced, and witnessed at the designated location on the due date and time fixed for the bid opening. Bidders are encouraged to attend bid openings and to offer constructive suggestions for improvements to the Solicitation process.

II.4 Bid Evaluation

As allowed by the County's Purchasing Regulations, the following provisions apply:

Bids shall be evaluated on the basis of the requirements set forth in the Solicitation and the County's Purchasing Regulations where applicable. Award(s) shall be made to the lowest responsive and responsible bidder.

The Purchasing Manager is authorized to waive any irregularity or informality in any bid; provided however, that a bid or amendments thereto which are received after the time specified for the opening of bids will be neither opened nor considered.

Withdrawal of bids is strictly governed by the County's Purchasing Regulations. If a bid may be lawfully withdrawn, notice of withdrawal must be provided in writing within two (2) business days after the conclusion of the bid opening procedure and shall submit original work papers with such notice.

When only one responsive and responsible bid is received, the Solicitation may be canceled and items rebid, unless the Director of Finance determines that the bid is reasonable and in the best interests of the County.

The Director of Finance may cancel the Solicitation if it is in the best interest of the County to do so.

II.5 Bid Prices and Acceptance

Bid prices unless otherwise specified, must be net, including but not limited to transportation and handling charges fully prepaid by the Contractor to destination, and subject only to any discount for prompt payment that may be offered by the Bidder.

Prompt payment discounts offered in bids will not be considered in determining contract award.

Bid prices, should they be accepted and a Contract awarded, shall remain firm for the period of the Contract unless otherwise agreed to by both parties.

Bidder warrants by virtue of bidding that prices, terms and conditions reflected in its bid submittal shall be firm for acceptance for a period of ninety (90) days from bid opening due date, unless otherwise stated in its bid submittal.

II.6 Competency of Bidder

No bids will be accepted from or award made to any person, firm, or corporation that is in arrears, or is in default to the County upon any debt or Contract, or that has defaulted as surety or otherwise upon any obligation to the County, person, firm, or corporation. If requested, the bidder must provide evidence to the contrary within forty-eight (48) hours upon request.

Person, firm, or corporation, shall submit a bid which conforms in all material respects to the Solicitation.

Person, firm, or corporation, shall have the capability with adequate: financial resources, facilities, experience, insurance and licenses, adequate: services, vehicles, and skilled personnel to provide goods and/or services as required by the Solicitation as determined through evidence submitted, reputation, past performance, public records, site visits, and references available to the County.

Person, firm, or corporation, shall have the ability to comply with the required delivery period and/or performance period taking into consideration other business commitments.

II.7 Placement of Orders

A County Purchase Order, which may be accompanied by a Task Order or a Work Order, shall be issued to the Contractor to provide the goods and/or services identified in the Contract. The Purchase Order indicates sufficient funds are budgeted and appropriated.

II.8 Contractor's Contract Representative

In the event a Contract is executed as a result of this Solicitation, the Contractor shall designate in writing its Contract Representative who shall be responsible for insuring that the goods and/or services required by the County are provided in accordance with the County's Contract.

II.9 Subcontractors

Contractors desiring to utilize subcontractors on County jobs must receive prior written County approval to do so before subcontractors perform any services for the County.

II.10 Contract Type and Award

The County intends to award a firm fixed type Contract(s). The County may award all or part of the Solicitation to any bidder whose bid is the lowest responsible and responsive bid. The County has the option to make multiple awards or primary and secondary awards. The County has the option to make awards by line item, by group, or by overall low bid. The County furthermore reserves the right to delete Solicitation item(s) from award consideration if it is in the County's best interest.

II.11 Standard Contract for Supplies and/or Services

Prince William County expects to enter into its "Standard Contract for Supplies and/or Services" in a form substantially as attached hereto. All clauses in Attachment A, Section II are mandatory. The Contractor's review and acceptance of these terms shall be required as a condition of its bid submittal acceptance. Failure to accept these clauses shall disqualify the bidder from further consideration.

The County will consider amendments proposed by Bidders, other than for the modification or deletion of clauses in Attachment A, Section II. Proposed amendments to the "Standard Contract for Supplies and/or Services" are to be highlighted and submitted as part of the offeror's bid submittal. The County's review and acceptance of the proposed terms shall be a condition of contract award.

II.12 Non-Discrimination Against Faith-Based Organizations

Prince William County Government does not discriminate against faith-based organizations in procuring goods and services.

II.13 Immigration Reform and Control Act of 1986

The Contractor certifies that it does not and will not during the performance of this contract violate the provisions of the Federal Immigration Reform and Control Act of 1986 which prohibits employment of illegal aliens. The Contractor agrees that its employment of any person without legal status may subject it to termination of this contract for default and agrees to include a similar provision in any subcontract.

II.14 Law Compliance

The Contractor shall be solely responsible for complying with all applicable federal, state and municipal laws, codes and regulations relating to this procurement.

II.15 Tax Exemption

Prince William County Government is exempt from the payment of any Federal excise or Virginia sales tax. However, when under established trade practice any such tax is included in bidders list price, the bidder shall bid the list price and shall show separately the amount of tax as a flat sum that will not be paid by the County.

II.16 Bidder's Agreements

Bidder's agreements including but not limited to: licenses, service and maintenance agreements, contract agreements/addendums, required to be signed by the County as part of a contract shall be submitted by the Bidder as attachments to the Bidder's initial bid. Review and negotiation by the County of terms contained in these documents shall be a condition of contract award.

II.17 Posting of Award

Notice of Contract award(s) made as a result of this Solicitation will be posted on the Prince William County Web Page at www.pwcgov.org/eservices/eprocurement.

SECTION III
FORMS

IFB SUBMISSION FORM FOR NUMBER IFB110040 Class A Pumpers for Dale City Volunteer Fire Department

SECTION I - COMPANY IDENTIFICATION AND OWNERSHIP DISCLOSURE

Company _____ Contact Person _____
 Address _____ Title _____
 _____ Telephone No. _____
 Remittance Address _____ FAX No. _____
 _____ EMail _____

Indicate Which: Corporation _____ *Minority Owned/Controlled
 Partnership _____ Business Yes ___ No ___
 Sole Prop. _____ Small Business Yes ___ No ___

Organized under the laws of the State of _____
 Principal place of business at _____

*Minorities are defined as Blacks, Hispanics, Asians or Pacific Islanders, American Indians, Alaskan Natives, and Women.

Following are the names and address of all persons having an ownership interest of 5% or more in the Company:
 (Attach more sheets if needed)

Name	Address
_____	_____
_____	_____

SECTION II - CONFLICTS OF INTEREST

This solicitation is subject to the provisions of Section 2.2-3100 et. seq., Virginia Code Annotated, the State and Local Government Conflict of Interests Act.

The Bidder () is () is not aware of any information bearing on the existence of any potential organizational conflict of interest.

SECTION III - COLLUSION

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a bid for the same services, materials, supplies, or equipment, and is in all respects fair and without collusion or fraud. I understand collusive bidding is a violation of the State and Federal law and may result in fines, prison sentences, and civil damage awards.

By signing this bid, Bidder certifies, acknowledges, understands, and agrees to be bound by the conditions set forth in this Solicitation.

Authorized
 Signature _____ Date _____

Name (Printed) _____ Title _____

BIDDER MUST RETURN THIS COMPLETED FORM WITH BID SUBMISSION

III.1 Specifications/Scope of Work

See Specifications as follows:

SPECIFICATIONS FOR TWO (2) CLASS A PUMPERS FOR THE DALE CITY VOLUNTEER FIRE DEPARTMENT

A. GENERAL SPECIFICATIONS

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to cover the furnishing and delivery of completed apparatus equipped as hereinafter specified. These specifications cover only the general requirements as to the type of construction and test to which the apparatus shall conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. Minor details of construction and materials, which are not otherwise specified, are left to the discretion of the contractor, who shall be solely responsible for the design and construction of all features. Apparatus proposed by the bidder shall meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Loose equipment shall be provided only as stated in the following pages.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of 10 years. Further, bidder shall maintain dedicated service facilities for the repair and service of products within 125 miles of Dale City, Virginia. The service facility must be a service center dedicated to service of fire apparatus, a highway truck garage shall not be considered to be acceptable. The facility must be staffed by technicians who are EVT and ASE certified to work on all components of fire apparatus, including but not limited to, electrical systems, fire apparatus HVAC systems and Hale fire pumps and plumbing. Evidence of such a facility shall be included in bidder proposal.

Each bidder shall furnish satisfactory evidence of their ability to construct the apparatus specified and shall state the location of the factory where the apparatus is to be built. The bidder shall also show that the company is in position to render prompt service and to furnish replacement parts for said apparatus.

Each bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished under contract shall conform. These specifications shall indicate size, type, model and make of all component parts and equipment.

Each proposal shall be accompanied by a detailed drawing of the apparatus proposed in order that the DC VFD committee can accurately compare layout, design, compartments, etc.

QUALITY AND WORKMANSHIP

The design of the apparatus shall embody the latest approved automotive engineering practices. The workmanship shall be of the highest quality in its respective field. Special consideration shall be given to the following points: Accessibility of the various units that require periodic maintenance, ease of operation (including both pumping and driving) and symmetrical proportions. Construction shall be rugged and ample safety factors shall be provided to carry the loads specified and to meet both on and off 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 ready removal of any component part for service or repair.

DELIVERY

Apparatus, to insure proper break in of all components while still under warranty, **shall be delivered under its own power** - rail or truck freight shall not be acceptable.

A qualified delivery engineer representing the contractor shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in the proper operation, care and maintenance of the equipment delivered. At a minimum, this shall be two (2) four hour sessions, one to be presented Monday through Friday between the hours of 8:00 a.m. and 5:00 p.m., the other to be a Saturday between the hours of 8:00 a.m. and 5:00 p.m.

INFORMATION REQUIRED

The manufacturer shall supply at time of delivery, complete operation and maintenance manuals covering the completed apparatus as delivered. A permanent plate shall be mounted in the driver's compartment which specifies the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication and drive axle.

PERFORMANCE TESTS AND REQUIREMENTS

A road test shall be conducted with the apparatus fully loaded and a continuous run of ten (10) miles or more shall

be made under all driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. Vehicle shall adhere to the following parameters:

- A) The apparatus, when fully equipped and loaded, shall have not less than 25% or more than 50% of the weight on the front axle, and not less than 50% nor more than 75% on the rear axle.
- B) The apparatus shall be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.
- C) The service brakes shall be capable of stopping a fully loaded vehicle in 35 feet at 20 mph on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.
- D) The apparatus, fully loaded, shall be capable of obtaining a speed of 50 mph on a level concrete highway with the engine not exceeding its governed rpm (full load).

FAILURE TO MEET TEST

In the event the apparatus fails to meet the test requirements of these specifications on the first trial, second trials may be made within 30 days of the date of the first trial. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Failure to comply with changes to conform to any clause of the specifications, within 30 days after notice is given to the bidder of such changes, shall also be cause for 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 purchaser during the above-specified period with the permission of the bidder shall not constitute acceptance.

LIABILITY

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

SPECIFICATION BID REQUIREMENTS

Bidders shall submit a detailed proposal. A letter only, even though written on a company letterhead, shall not be sufficient. Bid proposals shall be submitted in the **same sequence** as specifications for ease of evaluation, comparison and checking of compliance. Although it is recognized that each bidder's standard proposal will be in different orders, modern word processing simplifies the ability to write a proposal in the same order as our specifications. Proposals in different orders place an unnecessary burden on the evaluating committee and are very difficult to compare. **An exception to these requirements shall not be tolerated.**

EXCEPTIONS

All exceptions shall be stated no matter how seemingly minor and shall be listed on a page entitled **EXCEPTIONS**. Any proposal clarifications may be listed on the same page under a separate heading, **CLARIFICATIONS**. Exceptions not taken shall be assumed by the purchaser to be included in the proposal, regardless of the cost to the bidder.

GENERAL CONSTRUCTION

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles. Weight balance and distribution shall be in accordance with the recommendations of the NFPA.

APPROVAL DRAWING

A drawing of the proposed apparatus shall be provided for approval before construction begins. The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc. A "revised" approval drawing of the apparatus shall be prepared and submitted by the manufacturer to the purchaser showing any changes made to the approval drawing.

WARRANTIES

To protect the interests of the Dale City Volunteer Fire Department, the successful bidder shall be the sole warranty point for the CAB, CHASSIS, BODY, and MAJOR COMPONENTS, limiting the major warranty requirements to a single point.

The manufacturer shall warrant in writing that the unit shall be free from manufacturing defects for a period of two (2) years from the date the unit is placed "in service".

In addition, the following extended warranties shall be provided with the bid:

- The chassis frame, frame liner, and frame members shall have a manufacturer's lifetime warranty.
- The complete unit shall have a 10-year extended paint finish warranty.
- The complete unit shall have a lifetime corrosion perforation warranty.
- The apparatus cab shall have a 10-year structural warranty
- The apparatus body shall have a 10 year structural warranty.
- The fire pump shall have a manufacturer's 5-year warranty
- The water and foam tank shall have a manufacturer's lifetime warranty
- All plumbing provided shall have a manufacturer's 10 year limited warranty
- The engine shall have a manufacturer's 5-year limited warranty.
- The transmission shall have a manufacturer's 5-year limited warranty
- The axles and brakes shall have a manufacturer's 2-year / unlimited mileage warranty

All other warranties, as outlined in these specifications shall be provided in writing as a part of the bid package. Failure to provide the warranties as outlined throughout these specifications shall be cause for rejection of the bid package.

B. APPARATUS CHASSIS

CHASSIS

Chassis provided shall be a new, tilt-type custom fire apparatus. The chassis shall be designed and manufactured for heavy-duty service, with adequate strength, capacity for the intended load to be sustained, and the type of service required. The chassis shall be the manufacturers' first line tilt cab.

SEATING CAPACITY

The seating capacity in the cab shall be six (6).

WHEELBASE

The wheelbase of the vehicle shall be no greater than 185.00".

DIMENSIONS

The apparatus shall meet the following minimum/maximum requirements:

Maximum Wheel base: 185"

Maximum Length: 32' 0"

Maximum Height: 125"

Maximum Width: 101"

Minimum Axle Ratings: Front 18,000# minimum, Rear 27,000# minimum

GVW RATING

The gross vehicle weight rating shall be a minimum of 45,000 lb.

FRAME

The chassis frame shall be built with the intended purpose in mind and shall be of sufficient strength to support the load. Full details of frame materials and construction shall be submitted as part of your proposal. The frame rails shall be guaranteed for the **life of the vehicle** against defects in design, material or workmanship, excluding accident or abuse. A copy of the fire apparatus manufacturer's warranty shall be included with the bid.

FRONT NON DRIVE AXLE AND SUSPENSION

The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-18. The axle shall include a 3.74 inch drop and a 71.00 inch king pin intersection (KPI). The axle shall include a conventional style hub with a standard knuckle. The weight capacity for the axle shall be rated to 18,000 pounds.

The suspension shall be the manufacturers' first quality standard leaf spring suspension suitable for the intended load rated for a minimum of 18,000 lbs.

Oil seals with a viewing window shall be provided on the front axle.

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

A complete description of the axle, suspension and associated components shall be provided as part of your proposal.

The axle shall have a certified turning angle of at least 45 degrees. The proposed cramp angle, curb to curb and wall to wall turn radius calculations shall be submitted as part of your proposal. Front discharge, front suction, or aluminum wheels shall not infringe on this cramp angle.

The manufacturer's two year (minimum) parts and labor warranty shall be provided with this axle.

REAR AXLE

The rear axle shall be a Meritor model RS-25-160 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 27,000 pounds.

The axle shall be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.63 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.

The axle shall have heavy-duty Hypoid gearing for longer life, greater strength and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage will be used.

The single rear axle shall feature a Reyco 79KB suspension which shall offer a variable rate, self leveling captive slipper type conventional multi-leaf spring suspension with 57.50 inch X 3.00 inch springs. One (1) adjustable and one (1) fixed torque rod shall be provided.

A helper spring shall be provided in addition to the standard spring pack to help prevent vehicle sway during aggressive cornering.

The rear suspension capacity shall be rated at 27,000 pounds.

The manufacturer's two year (minimum) parts and labor warranty shall be provided with this axle.

TOP SPEED OF VEHICLE

A rear axle ratio shall be furnished to allow the vehicle to reach an approximate top speed of 68 MPH.

BRAKE SYSTEM, TRACTION CONTROL, ROLL STABILITY

A rapid build-up air brake system shall be provided. The braking system shall be provided with a minimum (3) air tank reservoirs for a total air system capacity of 5,214 cu. in. One reservoir shall serve as the wet tank and a minimum of one (1) tank shall be supplied for each of the front and rear axles. The total system shall carry a sufficient volume of air to comply with FMVSS-121.

Tank Capacities in Cubic Inches

Wet	____ Front	____ Rear	____ Total	____
	1,556 l,	556 l,	556	4,668

An automatic drain valve shall be installed on the wet tank to constantly remove condensed moisture as it accumulates. This will extend the life of the air dryer element for reduced maintenance.

A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a service brake application in the unlikely event of primary air supply loss.

The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI.

A Wabco Anti-lock braking system (ABS) system shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to both front and rear axle. All electrical connections shall be environmentally sealed for protection against water, weather, and vibration.

The system shall consist of a four (4) sensor, four (4) modulator system installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall detect approaching wheel lock-up and instantly modulate (or "pump") the brake pressure up to 5 times per second to prevent wheel lock-up. Each wheel shall be individually controlled. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. Should a malfunction occur in one circuit, that circuit shall revert to normal braking action. A warning light at the driver's instrument panel shall signal a malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The system shall also be configured to work in conjunction with all auxiliary engine, exhaust, or driveline brakes to prevent wheel lock-up.

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

Automatic traction control shall be installed on the rear axle. The automatic traction control system shall apply the anti-lock braking system when the drive wheels lose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on icy or wet surfaces.

A switch shall be provided and properly labeled "mud/snow". When the switch is engaged, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light shall blink continuously notifying the driver of activation. Disengaging the switch again shall deactivate the mud/snow feature.

Additional handling capabilities shall include roll stability control which shall monitor the vehicle's rollover threshold based on the lateral acceleration. The system shall activate a computerized device which shall slow the vehicle when the threshold is exceeded in either direction. Normal vehicle operations shall resume once the problematic conditions cease. Roll stability control shall be integral with the ABS and ATC systems.

The electronic stability control unit (ESC) shall be a functional extension of the electronic braking system. It shall be able to detect any skidding of the vehicle about its vertical axis as well as any rollover tendency. The control unit shall comprise an angular-speed sensor that measures the vehicle's motion about the vertical axis, caused, for instance, by cornering or by skidding on a slippery road surface. An acceleration sensor measures the vehicle's lateral acceleration. The CAN bus provides information on the steering angle. On the basis of lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.

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

FRONT BRAKES

Meritor Disc Plus EX225 17 inch disc brakes with automatic slack adjusters shall be installed on the front axle. A swing away caliper assembly shall be provided to facilitate maintenance. The rotors shall utilize a vented disc to help dissipate heat. All actuating parts shall be sealed from dirt and moisture.

REAR BRAKES

The rear brakes shall be Meritor 16.50 inch X 7.00 inch S-cam drum type. The brakes shall include a cast iron shoe.

EMERGENCY SPRING BRAKE RELEASE

An emergency spring brake release system shall be installed in the center of the engine tunnel, accessible to both the driver and the officer. The brake release shall include a separate isolated protected 1200 cubic inch air reservoir with gauge and an in-cab "push and hold" brake release valve.

REAR BRAKE SLACK ADJUSTERS

The rear brakes shall include Meritor automatic slack adjusters installed on the axle which features a simple, durable design offering reduced weight. The automatic slack adjusters shall feature a manual adjusting nut which cannot inadvertently be backed off and threaded grease fittings for easy serviceability.

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer with an integral 100 watt heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be located on the right hand frame rail forward of the front wheel behind the right hand cab step.

FRONT BRAKE CHAMBERS

The front brakes shall be provided with MGM type 24 long stroke brake chambers.

REAR BRAKE CHAMBERS

The rear axle shall include TSE 30/36 brake chambers which shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.

AIR COMPRESSOR

The air compressor provided for the engine shall be a Wabco® SS 318 single cylinder pass through drive type compressor which shall be capable of producing 18.7 CFM at 1200 engine RPMs. The air compressor shall feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. The compressor shall include an aluminum cylinder head which shall improve cooling, reduce weight and decrease carbon formation. Superior piston and bore finishing technology shall reduce oil consumption and significantly increase the system component life.

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements.

BRAKE LINES

Color coded nylon brake lines shall be provided. The lines shall be wrapped in a heat protective loom where necessary in the chassis.

AIR OUTLET

One (1) air outlet shall be installed with a female coupling and shut off valve, located on the driver side of pump panel. This system shall tie into the "wet" tank of the brake system and include an 85 psi pressure protection valve in the outlet line to prevent the brake system from losing all air. A mating male fitting shall be provided with the loose equipment.

EMERGENCY PARKING BRAKE

Spring-actuated emergency/parking brakes shall be installed on the rear axle. One (1) Bendix-Westinghouse PP-1 parking brake control valve shall be supplied on drivers side of the dashboard in a location to be determined.

A Bendix-Westinghouse SR-1 valve, in conjunction with a double check valve system, shall provide automatic emergency brake application when the air brake system pressure falls below 40 PSI in order to safely bring the vehicle to a stop in case of an accidental loss of braking system air pressure.

PARK BRAKE CONTROL(additional)

A second park brake control valve shall be installed on the officer side of instrument panel in a location to be determined. This valve shall only activate the brakes if manually pulled out; low air pressure shall not activate this valve.

AIR INLET

One (1) air inlet shall be provided to allow station air to be supplied to the apparatus brake system through a shoreline hose. It shall be located under the front bumper with a "glad-hands" connection for towing purposes.

A check valve shall be provided to prevent reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system.

AIR TANK, ADDITIONAL, FOR AIR HORN SYSTEM

An additional air tank with 1454 cubic inch displacement shall be provided to increase the capacity of the air system. This tank shall be dedicated for air horn use.

AIR TANK, ADDITIONAL, ISOLATED BRAKE RELEASE

An additional air tank with 1454 cubic inch displacement shall be provided for an isolated emergency brake release. The control shall be located inside the cab within easy reach of the driver.

ENGINE

The chassis engine shall be a Cummins ISL9 engine. The ISL9 engine shall be an in-line six (6) cylinder, four cycle diesel powered engine. The engine shall offer a rating of 450 horse power at 2100 RPM and shall be governed at 2200 RPM. The torque rating shall feature 1250 foot pounds of torque at 1450 RPM with 543 cubic inches (8.9 liter) of displacement.

The ISL9 engine shall feature a VGT™ Turbocharger, a high pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and shall be EPA certified to meet the 2010 emissions standards using cooled exhaust gas recirculation and selective catalytic reduction technology.

The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system.

A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link shall also be provided at the back of the cab.

There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit.

The vehicle shall be equipped with an automatic high-idle speed control. It shall be pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output. This device shall operate only when the master switch is activated and the transmission is in neutral with the parking brake set. The device shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake is released, or when the transmission is placed in neutral. There shall be an indicator on the driver's dashboard for the high idle speed control.

The engine shall include programming which will govern the top speed of the vehicle.

ENGINE WARRANTY

The engine shall be supplied with a minimum of a **five (5) year or 100,000 mile** warranty provided by the engine manufacturer.

ENGINE INSTALLATION CERTIFICATION

The fire apparatus manufacturer shall provide, at the time of delivery, a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The approval of the engine installation shall be at full horsepower rating in a continuous duty application under all operating conditions, including road and pump. No type of automatic horsepower reduction feature shall be allowed.

There shall be no exception to any portion of the engine installation certification. Nonconformance shall lead to immediate rejection of bid.

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.

ENGINE BLOCK HEATER

A 1000 watt, 120 volt, immersion type engine heater shall be installed with the AC power inlet located to the rear of the driver's door. The AC power inlet circuit shall have in-line circuit protection.

ENGINE COOLING SYSTEM

There shall be a heavy-duty cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

The cooling system shall be comprised of a charge air cooler, radiator, surge tank, a shroud, a clutch fan, recirculation shields and all necessary plumbing and tubing. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The engine cooling system fan shall incorporate a thermostatically controlled clutched type fan drive. When the clutched fan is disengaged it shall facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure.

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees F.

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.

SILICONE COOLANT HOSES

All radiator and cooling system hoses shall be silicone and shall be installed utilizing "constant torque" style clamps.

ENGINE COOLANT FILTER

An inline engine coolant filter shall be provided and installed to filter sediment and debris from the coolant.

ENGINE COOLANT OVERFLOW BOTTLE

A remote overflow bottle shall be provided in the case of over filling the coolant system; this is usually done to locate the expansion fluid or overflow in the overflow bottle rather than on the ground. The overflow bottle that shall be used on the system shall only be a catch bottle and not return coolant back to the surge tank.

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter. The air intake with ember separator shall be mounted in a location which allows free air intake while preventing road dirt and re-circulating hot air from entering the engine. The ember separator shall be easily accessible for inspection and maintenance.

The engine shall also include a replaceable 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 flow distribution and dust loading shall be uniform throughout the high-performance filter cone pack, which shall result in pressure differential for improved horsepower and fuel economy. The air intake shall be mounted with easy maintenance access in mind. 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.

ENGINE EXHAUST SYSTEM

The exhaust system shall include a diesel particulate filter (DPF), a diesel oxidation catalyst, and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust fluid solution consisting of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be injected into the system through the decomposition tube between the DPF and SCR.

The DPF, the decomposition tube, and the SCR canister through the end of the tailpipe shall be connected with zero leak clamps. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires.

The exhaust system shall be mounted below the frame in the outboard position with the SCR canister in line rearward of the DPF. The exhaust shall terminate 5" from the edge of the body and be configured so that the exhaust pipe opening is pointed down towards the ground.

DIESEL EXHAUST FLUID TANK

The exhaust system shall include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of six (6) usable gallons and shall be mounted on the left hand side of the chassis in an easy to access location.

The DEF tank shall be designed with capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall be run through lines in the tank to help prevent the DEF from freezing and to provide a means of thawing the fluid if it should become frozen.

The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard in an accessible location.

ENGINE EXHAUST WRAP

The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat which can be transferred from the exhaust.

TRANSMISSION

The drive train shall include an Allison Gen IV-E model EVS 3000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters and Castrol TranSynd™ synthetic TES 2 95 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The Gen IV-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

The transmission gear ratios shall be:

1st	3.49:1
2nd	1.86:1
3rd	1.41:1
4th	1.00:1
5th	0.75:1
Rev	5.03:1

The transmission, upon start-up, will select the fifth speed operation without the need to press the mode button.

The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall provide a prognostic indicator (wrench symbol) on the digital display between the selected and attained indicators. The prognostics monitor various operating parameters to determine and shall alert you when a specific maintenance function is required.

When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.

The transmission shall include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements. The transmission cooling system shall feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.

TRANSMISSION FEATURE PROGRAMMING

The EVS group package number 127 shall contain the 198 vocational package in consideration of the duty of the apparatus as a Pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.

This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

An eight (8) pin Delphi connector will be provided next to the steering column connector. This will contain the following input/output circuits to the transmission control module.

Function ID	Description	W	Wire assignment
C	PTO Request		142
J	Fire Truck Pump Mode (4th Lockup)		122 / 123
C	R	Range Indicator	14
G	PTO	Enable Output	13
		Signal Return	103

TRANSMISSION WARRANTY

The transmission shall be supplied with a minimum of a **five (5) year or 100,000 mile** warranty provided by the transmission manufacturer.

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with Spicer 1710 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat[®].

DRIVELINE RETARDER

A Telma electromagnetic driveline retarder shall be focal mounted on the rear axle to act as an auxiliary braking system.

There shall be four (4) stages of activation for the driveline retarder. The first stage shall be 25% activation, the second stage shall be 50% activation, the third stage shall be 75% activation and the fourth stage shall be 100% activation. The first two (2) stages shall be applied at zero throttle. The remaining two stages shall work off pressure applied to the service brake. The third stage shall activate with 7 PSI of pressure. The fourth stage shall activate with 10 PSI of pressure. The driveline retarder shall be controlled by an On/Off switch located on the dash control panel. There shall be an indicator light mounted on the instrument panel. The indicator light shall indicate the four (4) stages of activation.

The driveline retarder shall disengage in pump mode or during an ABS event. A positive activation of the driveline retarder shall activate the brake lights.

AUXILIARY ENGINE BRAKE

The engine shall utilize a variable geometry turbo (VGT). The VGT auxiliary engine brake shall be an integral part of the turbo and shall offer a variable rate of exhaust flow, which when activated shall slow the engine and in turn slow the vehicle.

The VGT shall actuate the vehicle's brake lights when engaged as an auxiliary brake. A cutout relay shall be installed to disable the VGT when in pump mode or when an ABS event occurs. The VGT engine brake shall activate at a 0% accelerator throttle position when in operation mode.

The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:

- A valid gear ratio is detected.
- The driver has requested or enabled engine compression brake operation.
- The throttle is at a minimum engine speed position.
- The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.

The variable geometry turbo brake shall be controlled via the multiplexed electrical system which shall remember and default to the last engine brake control setting when the vehicle is shut off and restarted.

FUEL TANK

A large capacity fuel tank with a minimum capacity of 65 gallons shall be provided and mounted at rear of chassis. The tank shall be of heavy duty construction and shall be equipped with swash partitions and a vent. A drain plug shall be provided in a low point of the tank for drainage.

A fill inlet shall be located on the driver's side of the body and be covered with a hinged, spring loaded door that is marked "Diesel Fuel Only". A .50" diameter vent shall be provided running from top of tank to just below fuel fill inlet. All fuel lines shall be provided as recommended by the engine manufacturer.

The tank shall meet all FHWA 393.67 requirements including a fill capacity of 95% of tank volume.

FUEL WATER SEPARATOR

The fuel system shall have a Davco Fuel Pro 382 fuel filter/water separator with a thermostatically controlled integral heater as a primary filter. The fuel filter shall have a drain valve.

An instrument panel lamp and audible alarm which indicates when water is present in the fuel-water separator shall also be included.

A secondary fuel filter shall be included as approved by the engine manufacturer.

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be reinforced nylon tubing rated for diesel fuel. The fuel lines shall be connected with brass fittings.

FUEL COOLER

A cross flow air to fuel cooler shall be provided to lower fuel temperature allowing the vehicle to operate at higher ambient temperatures. The fuel cooler shall be located behind the rear axle.

FUEL TANK SERVICEABILITY PROVISIONS

The chassis fuel lines shall have additional length provided so the tank can be easily lowered and removed for service purposes. The additional 8 ft. of length shall be located above the fuel tank and shall be coiled and secured.

RECESSED FUEL FILL

A bright polished chrome plated fuel fill casting shall be recessed in the body side.

FUEL SHUT OFF

A shut-off valve shall be supplied to prevent drain back of fuel into the main supply line during filter changes. The valve location shall be at the filter.

AUXILIARY FUEL PUMP

An auxiliary electric fuel pump shall be added to the fuel line for re-priming the engine with a control switch easily accessible from the apparatus driver's position.

STEERING

Heavy duty steering gears, with integral heavy-duty power steering, shall be provided. The power steering shall incorporate a suitable hydraulic pump with integral pressure and flow control. A full description of power steering and assist systems shall be provided as part of your proposal. The steering wheel shall be capable of tilting and telescoping.

TIRES

The front tires shall be Michelin 365/70R-22.5 20PR "L" tubeless radial XZA highway tread.

The front tire stamped load capacity shall be 21,000 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 125 pounds per square inch.

The rear tires shall be Michelin 12R-22.5 16PR "H" tubeless radial XDN2 all weather tread.

The rear tire stamped load capacity shall be 27,120 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 120 pounds per square inch.

ALUMINUM WHEELS

The front axle shall have polished Alcoa aluminum disc wheels. They shall be forged from one piece corrosion resistant aluminum alloy. Wheels are for use with 365/70R22.5 tires on the front axle only.

Maximum front rating shall be 21,000 lbs.(single)

The rear axle shall have polished Alcoa aluminum disc wheels. They shall be forged from one piece corrosion resistant aluminum alloy. Wheels are for use with 12R22.5 tires on the rear axle only.

Maximum rear rating shall be 27,120 lbs (dual)

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

WHEEL ALIGNMENT

Prior to delivery, a wheel alignment shall be performed. The alignment shall conform to the component manufacturer's specifications. All wheel lug nuts and axle U-bolt retainers shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be provided at delivery.

TIRE PRESSURE INDICATORS

There shall be a tire pressure indicator at each tire's valve stem on the vehicle that shall indicate if there is insufficient pressure in the specific tire. All indicators shall be readily visible including the rear inside duals.

WHEEL TRIM

The front wheels shall have polished stainless steel lug nut covers. The front axles shall be covered with polished stainless steel hub covers with cutouts for viewing the oil seals.

The rear wheels shall have polished stainless steel lug nut covers. The rear axle hubs shall be covered with polished stainless steel high hat covers.

AUTOMATIC TIRE CHAINS

One (1) pair of On Spot automatic tire chains shall be provided at the rear. System shall be electric over air operated with switch on cab instrument panel. The system shall be operable at speeds up to 35 mph.

MUD FLAPS

Mud flaps shall be installed behind the front and rear wheels of the apparatus.

AUTOMATIC CHASSIS LUBRICATION SYSTEM

A SKF (formerly known as Vogel) Automatic Lubrication System shall be installed to provide automatic grease application, with recommended dosages, per system interval cycle, to the following lubrication wear points:

- Spring Pins and Spring Hanger Pins @ 0.6 CCM
- King Pins, Upper and Lower @ 0.4 CCM
- Steering Linkage @ 0.2 CCM
- Tie Rod Ends @ 0.2 CCM
- Steering Assist Cylinder (If applicable) @ 0.2 CCM
- Drag Link @ 0.2 CCM
- Automatic Slack Adjusters @ 0.1 CCM
- Steering Mitre Box @ 0.1 CCM
- Tilt Cab Lift Assembly @ 0.05 CCM

The lubrication system shall utilize the post lubrication principle and shall be powered by an electrically driven, 12V gear pump. The gear pump shall be top mounted to a reservoir assembly with a capacity of 2.716 lbs grease liters. The electronic control unit shall be connected through the ignition circuit which shall provide power to the pump when the engine is running.

The gear pump and reservoir shall be located in an accessible location.

The electronic control module shall include system monitoring capabilities for the main line and operating cycle with a visual indicator for the vehicle operator, located in the cab in a convenient location for the driver. The control module shall have LED's and a system reset button to initiate a lube cycle for diagnostic purposes and/or reset the control module in the event a system fault has occurred. Upon a fault, the system shall be inoperable until the fault has been corrected and a system reset has been initiated by the operator or service personnel.

FLUID FILLS

The engine oil, coolant, transmission, and power steering fluid fills shall be located under the cab. The engine tunnel shall include an access door to allow for fluid dipstick visual checks. The windshield washer fill shall be in a location that is easily accessible to check visually and refill without tilting the cab.

C. APPARATUS CAB

CAB

The cab shall be designed specifically for the fire service and manufactured by the chassis builder. Construction of the cab shall consist of aluminum sheets and extruded aluminum framing.

The cab shall be the widest cab available from the manufacturer, approximately 100.00" wide (exterior) providing maximum interior width. The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated.

The cabs shall be designed to seat six (6) firefighters comfortably to include the driver, officer and four (4) firefighters in the crew cab, two outboard rear facing and two inboard forward facing. The industry standards for the crew cab size we desire indicate that the front axle to back of cab measurement should be in the 60" – 65" range. At a minimum, the crew cab section shall have a raised roof of a height necessary to meet the height of the apparatus body to enhance headroom in the crew cab and provide a streamlined appearance to the finished apparatus.

A full description of the cab construction, including aluminum framework sizes and materials, aluminum sheeting sizes and materials and the method of construction and assembly shall be included as part of your proposal. The following dimensions shall be included as part of your proposal:

- Width of cab, inside door panel to inside door panel
- The floor to ceiling height inside the crew cab.
- Distance from top front edge of officers seat cushion to front dashboard
- Distance from the inside rear wall of crew cab to the rear of the engine tunnel

The crew cab shall be of the totally enclosed 4-door design. The cab shall be a full tilt cab style. The engine shall be easily accessible and capable of being removed with the cab tilted. The cab shall have a cushioned mounting system and shall be tilted by a hydraulic pump connected to two (2) cab lift cylinders. The cab shall then be locked down by an automatic locking mechanism that actuates after the cab has been lowered.

The crew cab floor shall be flat across the entire surface for ease of movement inside the cab.

The cab access steps shall be as wide and deep as possible to allow safe ingress and egress from the front cab and crew cab. Step dimensions shall be provided as part of your proposal.

A slip resistant handrail shall be provided adjacent to all door openings to assist entrance into the cab. The cab doors shall be as wide and high as possible to allow easy entry and exit from the cab and crew cab. All doors shall be full doors enclosing the entry step wells. Door dimensions shall be provided as part of your proposal.

All cab and crew cab entry doors shall contain a roll down window with electrical motors and actuators. Each window position shall have a window control switch that is designed and recessed so as to be protected from accidental actuation. In addition, the driver shall have the capability to operate all four cab door windows from a location convenient to the driver's seat.

Durable door handle and latch mechanisms shall be provided, preferably of the flush, paddle handle design, on the interior and exterior of all cab doors. Handles shall be of sufficient size to be operated easily, even with a gloved hand, and shall be easy to reach with no obstructions.

The door hinge shall be a heavy duty stainless steel piano type. There shall be double automotive type rubber seals around the perimeter of the door framing and door edges to ensure a weather tight fit. Cab door panels shall be removable without disconnecting door and window mechanisms.

The engine hood shall be constructed of aluminum and shall allow for maximum driver and passenger elbow room. The engine hood shall be insulated for protection from heat and sound. The noise insulation keeps the DBA level within the limits stated in the current NFPA series 1900 pamphlet.

Full circular inner fender liners, in the wheel wells, shall be provided.

A curved, safety glass windshield shall be provided, as large as possible to provide the greatest visibility.

Dimensions of windshield in square inches shall be provided as part of your proposal. All cab glass shall be tinted.

Two sun visors shall be provided. The sun visors shall be located above the windshield with one (1) mounted on each side of the cab.

Two (2) Electric windshield wipers with washer shall be provided that meet FMVSS and SAE requirements. The washer reservoir shall be able to be filled without raising the cab.

CAB INTEGRITY CERTIFICATION

The fire apparatus manufacturer shall provide a cab crash test certification with this proposal. The certification states that the cab must meet or exceed the requirements below:

- European Occupant Protection Standard ECE Regulation No.29, latest edition.
- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.
- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.

These are minimum test standards for cab strength. Manufacturers shall submit test data for all cab integrity testing that has been performed on their cab for evaluation. **There shall be no exception to any portion of the cab integrity certification. Nonconformance shall lead to immediate rejection of bid.**

CAB WARRANTY

The bidder shall furnish a **ten (10) year** cab warranty. The warranty shall cover defects in design or workmanship in the cab tubular supports and mounting supports and other cab structural components identified in the specifications. A copy of the warranty shall be submitted with the bid. **No exceptions to this requirement will be accepted.**

CAB FLOOR

The cab and crew cab floor areas shall be covered with a rubber type floor which will provide non-slip footing, acoustical sound dampening, durability and ease of maintenance. A full description of floor covering shall be provided as part of your proposal.

CREW CAB WINDOWS

On each side of the crew cab, a window with tinted glass shall be provided.

CAB DOOR LOCKS

All cab doors shall be furnished with lockable exterior handles. All the doors shall be keyed alike utilizing a 1250 coded key.

FENDER CROWNS

Stainless steel or polished aluminum fender crowns shall be installed at cab wheel openings. The fender crowns shall have a radius outside corner that allows the fender crown to extend beyond the side wall of the front tires and also allow the crew cab doors to open fully.

DOOR JAM SCUFFPLATES

All cab door jambs shall be furnished with a polished aluminum or stainless steel scuff plate, mounted on the striker side of the jam.

CAB LIFT

A hydraulic cab lift system shall be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves.

A wired or wireless remote control shall be provided for raising and lowering the cab. If wired, the remote should connect in a location, and provide adequate travel length, to be able to observe the cab front and sides while raising and lowering the cab.

The hydraulic cylinders shall be equipped with a velocity fuse that protects the cab from accidentally descending when the control is located in the tilt position.

A redundant mechanical stay arm shall automatically be engaged once the cab has been fully raised. Before lowering the cab, this device must be disengaged manually.

In the event of electrical failure, a manual hydraulic override shall be provided.

INTERLOCK, CAB LIFT TO PARKING BRAKE

The cab lift shall be interlocked to the parking brake. The cab tilt mechanism shall be active only when the parking brake is set and the ignition switch is in the on position, if the parking brake is released the cab tilt mechanism shall be disabled.

MIRRORS

Ramco model 6015-FFHR-750HR bus style mirrors shall be provided. The mirror heads shall be polished cast aluminum and shall measure 9.75 inches wide X 13.00 inches high with an additional top mount convex assembly. The mirrors shall be mounted one (1) on each front cab corner radius below the windshield with 15.00 inch long polished cast aluminum arms.

The mirrors shall feature a remote controlled heated full flat glass and a top mounted remote controlled heated convex glass. The mirror control switches shall be located within easy reach of the driver. The mirrors shall be manufactured using the finest quality non-glare glass and shall feature a rigid mounting thereby reducing engine vibration. The mirrors shall be corrosion free under all weather conditions.

The heat for the rearview mirrors shall be controlled through a switch beside the mirror controls.

BUMPER

The chassis shall be equipped with a heavy duty front bumper constructed from structural steel channel. The bumper shall measure approximately 12 inches in height with a 3 inch flange and shall be 104.50 inches wide with angled front corners. Full details of bumper materials, dimensions and design shall be submitted as part of your proposal.

The bumper shall be primed and finish painted green to match the apparatus striping color.

It shall be mounted directly to the front frame extensions for maximum strength. The bumper shall extend approximately 22" forward of the front of the cab to provide additional protection against low-speed frontal impacts.

The space between the bumper and the front of the cab shall be covered on the top and on each side with 3/16" aluminum diamond plate.

A license plate bracket shall be provided.

HOSE TRAY (drivers (left) side)

A hose tray shall be placed in the left side of the extended bumper. The tray shall have a capacity of 100' of 1.75" double jacket cotton-polyester hose. Black Turtle Tile rubber grating shall be provided at the bottom of the tray. Drain holes shall also be provided.

HOSE TRAY (officers (right) side)

A hose tray shall be placed in the right side of the extended bumper. The tray shall have a capacity of 20' of 5.00" double jacket cotton-polyester hose. Black Turtle Tile rubber grating shall be provided at the bottom of the tray. Drain holes shall also be provided.

TOW EYES

Two (2) painted steel tow eyes shall be installed under the bumper and attached to the front frame members. The tow eyes shall be designed and positioned to allow up to a 6,000 pound straight horizontal pull in line with the centerline of the vehicle. The tow eyes shall not be used for lifting of the apparatus. The inner and outer edges of the tow eyes shall have a 0.25" radius. The tow eyes shall be painted black.

CAB INTERIOR

The cab dash fascias shall be a wrap-around design to provide easy access of controls and shall be constructed out of a durable, high impact material.

A headliner shall be installed in both forward and rear cab sections. Headliner material shall be a durable material, pleasing in appearance and securely fastened. The forward portion of the cab headliner shall provide easy access for

servicing electrical wiring or for other maintenance needs without removing the entire unit.

It is the desire of the Dale City Volunteer Fire Department to have as durable a cab interior as possible. To achieve this goal we require that the engine tunnel top and side surfaces and the interior walls be of metal construction, aluminum or stainless steel, and be coated with a material such as Line-X. The coating material shall be dark green in color. The interior door panels shall be brushed aluminum or stainless steel. Upholstered surfaces or plastic surfaces shall not be acceptable. The lower half of the interior door panels shall be covered with reflective Scotchlite material with diagonal green and white stripes.

INSULATION PACKAGE (Cab Interior)

The cab interior shall be insulated in a manner to reduce noise levels and assist with climate control inside the cab. Where possible, the inside of the door panels, the underside of the engine tunnel and the interior of the walls, between the outer skin and the interior panels should be filled with a rigid sheet foam insulation or similar material.

GRAB HANDLE

A grab handle shall be mounted on the "A" door post of the driver's and officers side cab door to assist in entering the cab. The grab handle shall be securely mounted to the post area between the door and windshield.

CAB SEATING

The driver's seat shall be an H.O. Bostrom Firefighter Sierra model seat. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment and seat rake adjustment. The seat shall feature integral springs to isolate shock.

An HO Bostrom Tanker 450 SCBA seat shall be provided in the cab for the officer. This seat shall incorporate fore and aft adjustments.

Driver and officer seats shall be furnished with three point shoulder type seat belts. The seat belts shall be furnished with automatic retractors. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

UNDER SEAT COMPARTMENT

A compartment shall be provided under the officer's seat, the compartment dimensions shall be as large as possible. The compartment is for storage of miscellaneous books, gas meters, etc. It shall have a drop-down door with a chrome plated lift and turn latch provided for access. The compartment shall be constructed of smooth aluminum and painted to match the cab interior.

SEATING (rear facing crew cab)

Two (2) rear facing HO Bostrom Tanker 450CT SCBA seats shall be provided in the outboard positions in crew cab. The SCBA cavity in each seat shall be adjustable front to rear in 1.50" increments to accommodate different size SCBA bottles.

SEATING (forward facing crew cab)

Two (2) forward facing HO Bostrom Tanker 400CT Flip-Up SCBA seats shall be provided in the center positions, against the cab rear wall. These seats shall be spaced apart from each other as much as possible without interfering with the seating position of the rear facing crew cab seats. The SCBA cavity in each seat shall be adjustable front to rear in 1.50" increments to accommodate different size SCBA bottles.

Crew cab seats shall be furnished with three point shoulder type seat belts. The seat belts shall be furnished with automatic retractors. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

These seats shall be mounted on an aluminum riser that shall be the full width of the two seats and as deep as possible without extending past the front of the seats when they are in the up position. The front of this riser shall be a removable access panel with retaining screws in each of the four corners.

SCBA MOUNTING BRACKETS, CAB INTERIOR

All five SCBA seats shall be furnished with H.O. Bostrom SecureAll SCBA mounting brackets capable of holding an MSA Firehawk MMR SCBA with a Black Rhino harness and 4500 psi, 45 minute duration carbon fiber cylinder. The release mechanism for the SCBA bracket shall be in the front of the bottom seat cushion.

SEAT BELT WARNING

A seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall provide a visual and audible warning indicator in the forward cab.

The warning system shall activate when any seat is occupied with a minimum of 60 pounds, the corresponding seat belt remains unfastened, and the park brake is released. The warning system shall also activate when any seat is occupied, the corresponding seat belt was fastened in an incorrect sequence, and the park brake is released. Once activated, the visual indicators and audible alarm shall remain active until all occupied seats have the seat belts fastened.

OCCUPANT ROLLOVER PROTECTION

The vehicle shall include the RollTek™ rollover occupant protection system (or equal) which shall secure occupants, increase the survivable space within the cab and protect against head/neck injuries in the event of a rollover accident.

System Components Shall Include:

Integrated Roll Sensor **IRS** - detects an imminent rollover, activates protective devices and records crash events.

Integrated Belt Pretension **IBP** device for mechanical and/or electrical seats - tightens the seat belt around occupant, securing occupant in seat and positions occupant for contact with integrated head cushion.

Seat Pull-down System **S4S** device for air seats - locks seat to lowest position, increases survivable space, tightens belt around occupant, secures occupant in seat and positions occupant for contact with integrated head cushion.

Inflatable Head Cushion **IHC** - protects applicable seat position occupant's head/neck and shields applicable seat position occupants from dangerous surfaces. Remains inflated for 8-10 seconds.

SEAT UPHOLSTERY

All seat upholstery shall be dark silver gray Dura-Wear, waterproof fabric.

SEAT BELTS (red)

All seating positions in cab and crew cab shall have red seat belts.

ENGINE COMPARTMENT LIGHT

An LED engine compartment light shall be installed under the engine hood, of which the switch is an integral part. Light shall have a .125" diameter deep hole in its lens to prevent moisture retention.

CAB INTERIOR LIGHTING

Auxiliary lights shall be provided in the cab and consisting of:

- Two (2) Red/Clear LED dome lights Whelen 80CREHCR, located one (1) on the officer side and one (1) on the driver side, controlled by the following:
 - Clear light controlled by a dash switch conveniently located for the user.
 - Red light controlled by the door switch and by a dash switch conveniently located for the user.
- An LED courtesy light at each door opening, Whelen T0CACCCR light with TFLANGEC chrome surface mount flange, in the step well controlled by automatic door switches, the light shall be shielded to provide adequate protection against damage.

CREW CAB INTERIOR LIGHTING

Auxiliary lights shall be provided in the crew cab and consist of:

- Two (2) Red/Clear LED dome lights, Whelen 80CREHCR (or equal) located, one (1) on each side of the crew cab, controlled by the following:
 - Clear light controlled by a switch near the door post, conveniently located for the user.
 - Red light controlled by the door switch and by a switch near the door post, conveniently located for the user.

- An LED courtesy light at each door opening, Whelen T0CACCCR light with TFLANGEC chrome surface mount flange, in the step well controlled by automatic door switches, the light shall be shielded to provide adequate protection against damage.

MAP LIGHT

One (1) Sunnex model #HS762-00, 12V, 20 watt halogen light designed for direct connection shall be furnished and located at the officers side overhead. The light shall have a rectangular base with an on/off rocker switch and feature a swivel joint with 360 degree axial rotation and 90 degree angular adjustment.

HAND HELD SPOTLIGHT

There shall be one (1) Specialty lighting Model 2150 hand held spotlight with momentary switch provided and hard wired to the vehicle. The light shall be furnished with a mounting bracket of stainless steel or aluminum. The bracket shall be shipped loose for installation in the customers' facility.

"DO NOT MOVE APPARATUS" INDICATOR

A flashing red indicator light (located in the driving compartment) shall be illuminated automatically per NFPA. The light shall be labeled "Do Not Move Apparatus If Light Is On". An audible alarm shall be provided with the open door indicator light. The alarm shall be controlled by the parking brake, so that it shall deactivate when the parking brake is set.

MESSAGES, DISPLAY, Do Not Move Truck

There shall indicator lights and warning signals in the cab to warn of doors or accessories that are not properly closed or stowed. The items to be indicated at a minimum are as follows:

DS Cab Door Open (Driver Side Cab Door Open)

PS Cab Door Open (Passenger's Side Cab Door Open)

DS Crew Cab Door Open (Driver Side Crew Cab Door Open)

PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)

DS Body Door Open (Driver Side Body Door Open)

PS Body Door Open (Passenger's Side Body Door Open)

Rear Body Door Open.

Deck Gun Raised

Hatch Door Open

These warnings may be a single screen or lighted diagram or they may be individual lights properly labeled for easy identification. The lights and audible warning should only activate after the parking brake is disengaged.

CAB INSTRUMENTATION

Instrument panel controls and switches shall be identified as to function by imprinted labels adjacent to each item. Actuation of the headlight switch shall illuminate ("back lit") wording for after dark operation.

To avoid confusion, warning indicators shall be (where possible) the "dead front" type, meaning the warning light and word identification of same does not show up unless it is necessary.

Instrument panel gauges, vehicle lights and other electrical accessories shall use proper size wiring to accommodate expected current load. Wiring shall meet SAE J-1128 specifications for high temperature (250 degrees Fahrenheit min.) conditions and be color, number and function coded.

Cab instruments and controls shall be conveniently located within the forward cab section. Gauges and emergency vehicle switches shall be installed on removable panels for ease of service.

At a minimum, the following information shall be located in the cab, easily seen by the apparatus driver. This may be accomplished by gauges, information center screens, lighted panels, or a combination of these components. A full description of these components and their array shall be a part of your proposal.

	Fuel Level
Loa	d manager status
Voltm	eter
	Revolutions per minute (RPM).
En	gine Oil Pressure
En	gine Temperature
	Doors, items not in the stowed positions:
En	gine Hours
	Pump Hours
Spee	dometer/odometer
	Engine Oil pressure Gauge (Low oil pressure to activate red warning light and a steady tone alarm.)
	Air Pressure Gauges, that includes the following:
	Two (2) gauges, one (1) for the front and the other for the rear brake pressure.
	Low air pressure to activate a red warning light and a steady tone alarm.
	Transmission Oil Temperature Gauge, that includes the following:
	High transmission oil temperature activates a red warning light and a steady tone alarm.
	Engine Coolant Temperature Gauge, that includes the following:
	High engine temperature activates a red warning light and a steady tone alarm.

The following controls shall be located in the cab within easy reach of the driver:

	Ignition/Stop Switch.
	Momentary push switch, Engine Start Control Switch.
Heat	er and Defroster Controls.
Head	light Switch.
Turn	signal arm to include the following controls:
Self	Canceling Turn Signal.
	Headlight Dimmer.
Hazard	Switch incorporated into the steering column.
Em	ergency Warning Light Control Panel.
	Parking Brake Control.
	Horn Button Control: Center of steering wheel.
	Two (2)-speed Windshield Wiper Control with intermittent feature. The control shall also have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use
	Windshield Washer Controls.

The following shall be provided by means of lighting warning symbols or text:

	Left Directional Activated (amber).
Rig	ht Directional Activated (amber).
	High Beam Activated (blue).
Check	Engine (amber).
ABS	Activated (amber).
	Battery Switch On (green).
Check	Transmission (amber).
Par	king Brake Engaged (red).
St	op Engine (red).
ATC	Activated (amber).
Ign	ition Switch On (green).
	Transmission Temp High (amber).
	High Air Restriction Warning

DIGITAL SPEEDOMETER, ADDITIONAL (OFFICERS SIDE)

Provided on the officers side shall be a Class I digital display speedometer. The speedometer shall be mounted in a switch panel or fabricated housing and be within easy view of the officer.

SWITCH PANELS

The built-in emergency light switch panel shall have a master switch plus individual switches for selective control. The switch panel shall be located in the "overhead" position above the windshield on the driver's side to allow for easy access. Switches shall be membrane type with an indicator light, of which is an integral part of the switch.

ELECTRICAL SYSTEM

The following specifications describe the low voltage electrical system on the apparatus. The electrical system shall include all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The electrical equipment installed by the apparatus manufacturer shall conform to current automotive electrical system standards, the latest Federal DOT standards, and the requirements of the applicable NFPA 1901 standards.

The apparatus shall have a Weldon V-MUX multiplexing system, or equal, to provide diagnostic capability. The system shall have the capability of delivering multiple signals via a CAN bus, utilizing specifications set forth by SAE J1939. The electrical system shall be pre-wired for computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics, troubleshooting, or program additions. There shall be a diagnostic display provided in the cab. The multiplexed system shall use twisted-pair shielded wire within the electrical system for noise reduction. The diagnostic display shall allow for fault and condition messages to be displayed. For superior system integrity, the networked system shall meet the following minimum requirement components:

- Power management center
- Load shedding power management
- Solid-state circuitry
- Switch input capability
- Responsible for lighting device activation
- Self-contained diagnostic indicators
- Power distribution module
- Diagnostic display for warning message indication
- High Idle Function

All wiring shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for which the protected circuit. Voltage drops in all wiring from the power source to the device shall not exceed 10 percent. The wiring, wiring harness and insulation shall be in conformance to applicable SAE J-1128 with GXL temperature properties and NFPA standards. All exposed wiring shall be protected in a loom with a minimum temperature rating of 289 degrees Fahrenheit. All wiring looms shall be properly supported and attached to body members. The electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.

The wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection and shall be installed in accordance with the device manufacturer's instructions. Electrical connections shall be with mechanical type fasteners and large rubber grommets where wiring passes through metal panels.

The wiring between the cab and body shall be joined using Deutsche type connectors or in an enclosed terminal junction panel. This system will permit body removal with minimal impact on the apparatus electrical system. All connections shall be crimp-type with insulated shanks to resist moisture and foreign debris such as grease and road grime. Weather-resistant connectors shall be provided throughout to ensure the integrity of the electrical system.

Any electrical junction or terminal boxes shall be weather resistant and located away from direct water spray. In addition, the main body junction panel shall house the automatically reset breakers and relays as required.

There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless they are enclosed in an electrical junction box or covered with a removable electrical panel. The wiring shall be secured in place and protected against heat, liquid contaminants and damage. Wiring shall be uniquely identified at least every two feet (2') by color coding or permanent marking with a circuit function code and identified on a reference chart or electrical wiring schematic per requirements of the applicable NFPA 1901 standards.

The electrical circuits shall be provided with low voltage over current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather resistant enclosures. The over current

protection shall be suitable for electrical equipment and shall be the automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of the maximum current for which the protected circuit. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

The electrical system shall include the following:

- Electrical terminals in weather exposed areas shall have a non-conductive grease or spray applied. A corrosion preventative compound shall be applicable to all terminal plugs located outside of the cab or body.
- The electrical wiring shall be harnessed or be placed in a protective loom.
- Holes made in the roof shall be caulked with silicone. Large fender washers shall be used when fastening equipment to the underside of the cab roof.
- Any electrical component that is installed in an exposed area shall be mounted in a manner that will not allow moisture to accumulate.
- A coil of wire must be provided behind each electrical appliance to allow them to be pulled away from the mounting area for inspection and service work.
- All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.

The warning lights shall be switched in the chassis cab with labeled switches in an accessible location. Individual rocker switches shall be provided only for warning lights added over the minimum requirement level of warning lights in either the stationary or moving modes. All electrical equipment switches shall be mounted on a switch panel mounted in the cab convenient to the operator. Rocker type warning light switches shall be utilized. For ease of nighttime operation, an integral indicator light shall be provided to indicate when the circuit is energized.

All switches shall be appropriately identified as to their function.

A single warning light switch shall activate all required warning lights. This switch will allow the vehicle to respond to an emergency and "call for the right of way". When the parking brake is applied, a "blocking right of way" system shall be automatically activated per requirements of the NFPA 1901 standard. All "clear" warning lights shall be automatically turned off upon application of the parking brake.

The individual compartment doors shall be programmed to indicate which individual door is open or ajar on the V-MUX display.

The V-MUX system shall incorporate the Vista display unit in the cab within easy reach of the driver.

The system shall incorporate a color back up camera, the image shall be displayed on the Vista display automatically when the transmission is placed in reverse and will be manually selectable at other times.

The system shall incorporate a GPS navigation system interfaced to the Vista display, this system shall announce streets and turns by name and it shall carry pre-loaded maps of North America.

POWER AND GROUND STUDS

Four (4) power studs shall be provided in the electrical component compartment for two way radio equipment.

The studs shall consist of the following:

- Stud #1 shall be 12-volt 40-amp, controlled by battery switch.
- Stud #2 shall be 12-volt 100-amp, ground.
- Stud #3 shall be 12-volt 60-amp, controlled by ignition switch.
- Stud #4 shall be 12-volt 60-amp, battery direct.

CHARGING STATION

In the cab, to the rear of the engine tunnel, a charging station shall be fabricated and installed. This station shall be manufactured from aluminum and shall be the width and height of the engine tunnel, and shall have two charging station shelves. The first shelf will be approximately half way up the engine tunnel and be approximately 6" in depth. This area will be used by the department for mounting of hand lights with chargers. The second shelf will be at the top of the engine tunnel and be approximately 8" in depth. This shelf will be used by the department for mounting chargers for a thermal imaging camera, a gas monitor and portable radios. A 30 amp circuit breaker protected 12V power and ground stud shall be provided in this area for the department to make final connections for the electrical equipment. The power supply shall be battery direct, hot at all times.

EMI/RFI PROTECTION

The electrical system shall reduce undesired electromagnetic and radio frequency emissions. An advanced electrical system shall be used to insure radiated and conducted EMI (electromagnetic interference) or RFI (radio frequency interference) emissions are suppressed at their source.

The apparatus shall have the ability to operate in the electromagnetic environment typically found in fire ground operations. The contractor shall be able to demonstrate the EMI and RFI testing which has been done on similar apparatus and certify that the vehicle proposed meets SAE J1113/14 requirements.

EMI/RFI susceptibility shall be controlled by applying appropriate circuit designs and shielding. The electrical system shall be designed for full compatibility with low level control signals and high powered two (2)-way radio communication systems. Harness and cable routing shall be given careful attention to minimize the potential for conducting and radiated EMI-RFI susceptibility.

DATA RECORDING SYSTEM

The chassis shall have a Vehicle Data Recorder system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the Multiplex electrical system. The following information shall be recorded:

- Vehicle Speed
- Acceleration
- Deceleration
- Engine Speed
- Engine Throttle Position
- ABS Event
- Seat Occupied Status
- Seat Belt Status
- Master Optical Warning Device Switch Position
- Time
- Date

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system.

RADIO ANTENNA MOUNTS

Three (3) antenna mounting bases, model MATM with 17 feet of coax cable and weatherproof cap, shall be provided for 2-way radio or cell phone installation. One (1) of the mounts shall be located on the cab roof, just to the rear of the officer seat and the additional mount(s) shall be located directly to the left, evenly spaced behind the A/C unit. The cables shall be routed to the area behind the driver's seat with enough cable for the customer to route it on to the instrument panel if needed.

RADIO POWER SUPPLY

For customer installation of the radio system, we require a 60 amp resettable circuit breaker installed in a battery compartment with cable feeding directly to the area behind the driver's seat. The radio, antennas and headset controls will all be located in the area behind the driver's seat for the customer to finish the installation of the communications systems.

HEADSET COMMUNICATION SYSTEM

A headset communication system shall be furnished and installed. The system shall be a Sigtronics system and shall be installed and wired with the exception of the mobile radio interface which shall be completed after delivery. The control unit for the system shall be mounted behind the driver's seat. The system shall consist of the following:

- One (1) US-67S intercom control with hands free intercom capabilities, push to talk radio transmit capabilities and 7 positions, 6 cab seat positions plus one at the pump panel.
- Two (2) #SE-8SRPT T for driver and officer, slotted on one side (empty) earpieces to allow hearing ambient noise. These headsets shall have hands free intercom and push-to-talk radio transmit capabilities.
- Four (4) #SE-8P crew cab headsets, one at each seating position. These headsets shall have push-to-talk intercom capabilities only.
- A hanging hook shall be installed at each seating position for stowing the headsets when not in use.

CAB HEATER

There shall be a 40,000 BTU heater in the cab located below the right side cab dash. The heater/defroster ventilation shall be built into the design of the cab dash instrument panel. The heater ducts shall be vented in a manner to provide heat directed towards the officer and the driver. The defroster ducts shall be designed to provide maximum defrosting capabilities for the front cab windows. Heater defroster controls shall be located on the cab dash within easy reach of the driver.

AIR CONDITIONING

A high performance air conditioning system shall be furnished inside the cab and crew cab. The air conditioning system shall perform as follows:

In 100 degree Fahrenheit ambient temperature with 50 percent relative humidity and at maximum compressor speed, the cab and crew cab shall cool down to 75 degrees Fahrenheit within 30 minutes. Actual test results from the manufacturer of the air conditioning system, verifying this performance requirement, shall be submitted with bid. A suitable sized compressor shall be installed on the engine. A roof mounted condenser, with adequate BTU to meet the performance specification, shall be installed on the cab roof. Two (2) evaporator units shall be installed in the cab, in the following locations:

- One (1) in the cab dash, just to the front of the officer
- One (1) in the crew cab, mounted to the front of the raised roof, facing rearward

The evaporator units shall have an adequate BTU rating to meet the performance specifications. The air conditioning system shall have adjustable air outlets incorporated into the cab dash at both the driver and officer positions. The evaporator unit in the crew cab shall have adjustable air outlets located directly on the evaporator unit. The air conditioner refrigerant shall be R-134A, installed by a certified technician.

RADIO WITH CD PLAYER

An ECLIPSE CD1200 - radio / CD / MP3 player / USB flash player shall be provided and include two pairs of high quality speakers, one pair in the front cab and one pair in the crew cab. Controls shall be in the front cab within easy reach of the officers' seat. A second, power only switch, shall be located within reach of the driver to allow the driver to turn the radio on or off in the absence of the officer. The system shall be provided with an iPC-008 Cable for connecting an iPod® to specific ECLIPSE head units to integrate an iPod's contents and controls with the vehicle system.

BATTERY SYSTEM

Six (6)- 12 volt, 950 CCA, 205 reserve capacity, high cycle, maintenance-free, group 31 batteries with a system rating of 5700 CCA at 0 degrees Fahrenheit and 1230 minutes of reserve capacity. The batteries shall be provided with threaded posts.

BATTERY SYSTEM

A single starting system shall be provided. An ignition switch and starter button shall be located on the instrument panel.

MASTER BATTERY SWITCH

A master battery switch, to activate the battery system, shall be provided inside the cab within easy reach of the driver. An indicator light shall be provided on the instrument panel to notify the driver of the status of the battery system.

BATTERY COMPARTMENTS

Batteries shall be placed on non-corrosive mats and be stored in well ventilated compartments located under the cab.

Heavy-duty battery cables shall be used to provide maximum power to the electrical system. Cables shall be color coded. Battery terminal connections shall be coated with an anti-corrosion compound. Battery solenoid terminal connections shall be encapsulated with semi-permanent rubberized compound.

JUMPER STUDS

One (1) set of battery jumper studs with plastic color coded covers shall be installed in an easily accessible location that does not require the cab to be raised for access. They shall allow enough room for easy jumper cable access and a tag shall be provided for positive/negative terminals.

BATTERY CHARGER/ AIR COMPRESSOR

A Kussmaul Pump Plus 1200 single output battery charger/air compressor system shall be provided. A display bar graph indicating the state of charge shall be mounted on the driver's side seat riser.

The automatic charger shall maintain the vehicle batteries with a maximum output current of 40 amps.

The 12-volt air compressor shall be installed to maintain the air system pressure when the vehicle is not in use. A selector switch shall be provided on the charger to operate the air compressor either as a DC compressor or as an AC compressor. If the selector switch is in the DC position the compressor shall operate whenever the pressure switch senses low system pressure, however if in the AC position the shoreline inlet must be plugged in before compressor shall operate.

The battery charger/compressor shall be wired to the 120-volt shoreline to activate automatically when power is connected.

The battery charger shall be located in the crew cab in the riser box under the center forward facing fold up seats.

AUTO-EJECT RECEPTACLE

For the battery charger, one (1) receptacle shall be provided. The receptacle(s) shall be Kussmaul Super Auto-Eject 20 amp, with built in circuit interrupter, and shall be installed on the driver's side of the cab directly behind the driver's door. A battery charge bar graph panel shall be provided and installed directly above the auto-eject connection.

The Auto-Eject shall be connected to the vehicle start buttons, so when the engine is started the Auto-Eject will drive the shoreline connection from the inlet. The electrical inlet shall include a white spring loaded cover to prevent water from entering the receptacle when the shoreline is not connected. The unit shall be completely sealed to prevent contamination of the mechanism, insuring long life.

The electrical receptacle shall be a 120-volt, 20 amp (NEMA 5-20P) and shall be wired to the battery charger with no less than 12-gauge wire that is properly supported and shielded from injury.

SHORELINE INLET PROTECTION

The AC shoreline shall have on-board circuit protection, with rating to match the shoreline requirements.

ALTERNATOR(S)

A high output alternator system is required. The alternator(s) shall feature an integral, fail-safe regulator and rectifier. The alternator(s) shall be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output. The proposed alternator system must supply a rated output equal to the projected apparatus load plus 10%.

AMP DRAW REPORT

The bidder shall provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus shall provide the following:

- 1) Documentation of the electrical system performance tests.

- 2) A written load analysis, which shall include the following:
 - A) The nameplate rating of the alternator.
 - B) The alternator rating under the conditions specified per:
NFPA 1901, 1999 Edition, section 11-3.2.
 - C) The minimum continuous load of each component that is specified per NFPA 1901, 1999 Edition, section 11-3.2.
 - D) Additional loads that, when added to the minimum continuous load, determine the total connected load.
 - E) Each individual intermittent load.

All of the above listed items shall be provided by the bidder per NFPA 1901, 1999 Edition, section 11-15.

There shall be no exception to the amp draw report requirements. Nonconformance shall lead to immediate rejection of bid.

SEQUENCER

A warning light sequencer shall be provided that automatically turns the emergency lights on and off in a preset sequence.

The sequencer shall be wired in conjunction with the emergency master light switch.

When the switch is activated the lights shall be turned on in sequence one by one at 1/2 second intervals thereby protecting the alternator from power surges. Sequenced light switch LED's shall flash while waiting for activation.

When turned off, the same process shall deactivate the warning lights in sequence to allow a gradual decrease in alternator output, rather than dumping the load.

EXTERIOR LIGHTING

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

Front headlights shall be high intensity discharge (HID) type, rectangular shaped, quad style mounted in a chrome and polished aluminum housing.

Marker lights to meet DOT standards shall be installed across the leading edge of the cab roof. The lights shall be Whelen 01-1061272-01 amber marker lights.

DIRECTIONAL (Front)

Front turn signals shall be Whelen 600 series: Model: 60A00TAR arrow shape LED, amber lights.

The turn signals shall be located below the headlights. Each light shall be mounted with an outside polished trim.

BACK-UP ALARM

A solid state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided. The device shall sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum five (5) dba above surrounding environmental noise levels.

MANUAL, FIRE APPARATUS PARTS

Two (2) custom parts manuals for the complete fire apparatus shall be provided in hard copy with the completed unit.

The manual shall contain the following:

- Job number
- Part numbers with full descriptions

- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in Alphabetical order
- Instructions on how to locate a parts

The manual shall be specifically written for the chassis and body model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.

MANUALS, CHASSIS SERVICE

Two (2) chassis service manuals containing parts and service information on major components shall be provided with the completed unit.

The manuals shall contain the following sections:

- Job number
- Table of contents
- Troubleshooting
- Front Axle/Suspension
- Brakes
- Engine
- Tires
- Wheels
- Cab
- Electrical, DC
- Air Systems
- Plumbing
- Appendix

The manual shall be specifically written for the chassis model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.

MANUALS, CHASSIS OPERATION

Two (2) chassis operation manuals shall be provided.

ELECTRICAL WIRING DIAGRAMS

Two (2) electrical wiring diagrams, prepared for the model of chassis and body, shall be provided.

D. WATER AND FOAM TANKS

WATER TANK

Booster tank shall have a water capacity of 750 gallons and there shall be two (2) additional, integral cells for foam, with a capacity of 40 gallons each. The tanks shall be constructed of polypropylene plastic by United Plastic Fabricating, Incorporated.

Tank joints and seams shall be nitrogen welded inside and out, tanks shall be baffled in accordance with NFPA Bulletin 1901 requirements. Baffles shall have vent openings at both the top and bottom to permit movement of air and water between compartments. Longitudinal partitions shall be constructed of .38" polypropylene plastic and shall extend from the bottom of the tank through the top cover to allow for positive welding. Transverse partitions shall extend from 4.00" off the bottom of the tank to the underside of the top cover. All partitions shall interlock and shall be welded to the tank bottom and sides.

Tank top shall be constructed of .50" polypropylene. It shall be recessed .38" and shall be welded to the tank sides and the longitudinal partitions. Tank top shall be sufficiently supported to keep it rigid during fast filling conditions. Construction shall include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two (2) of the dowels shall be drilled and tapped (.50" diameter, 1.300" deep) to accommodate lifting eyes. A sump that is 8.00" long x 8.00" wide x 6.00" deep shall be provided at the bottom of the water tank. Sump shall include a drain plug and the tank outlet.

Tank shall be installed in a fabricated cradle assembly constructed of structural steel. Sufficient cross-members shall be provided to properly support bottom of tank. Cross-members shall be constructed of steel bar channel or rectangular tubing. Tank shall "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, shall be placed on all horizontal surfaces that the tank rests on. Stops or other provision shall be provided to prevent an empty tank from bouncing excessively while moving vehicle. Mounting system shall be approved by the tank manufacturer.

Fill tower shall be constructed of .50" polypropylene and shall be a minimum of 8.00" wide x 14.00" long. Fill tower shall be furnished with a .25" thick polypropylene screen and a hinged cover. An overflow pipe, constructed of 4.00" schedule 40 polypropylene, shall be installed approximately halfway down the fill tower and extend through the water tank and dump to the rear of the rear axle.

WATER TANK WARRANTY

The tank shall have a **lifetime** warranty.

E. PUMP AND PLUMBING

MIDSHIP FIRE PUMP

The pump, most of the plumbing and the pump house module itself shall be a Hale pump and module. The apparatus builder will be responsible for purchasing the module and working with Hale's engineering department to assure proper matching of the pump house to the plumbing in the body.

There will be no exceptions allowed to this portion of the bid. Any bid from a manufacturer unwilling to work with Dale City and Hale on this portion of the project will be deemed unresponsive and the bid shall be rejected.

Information is available from Hale, the part # for the module that must be supplied is 122046-P and this module is available to all fire apparatus manufacturers.

The module will consist of:

- An extruded aluminum frame
- A Hale 1500 gpm midship pump with transfer case
- All valves internal to the pump house plumbing will be installed
- The pressure governor will be installed to the pump and the controls will be on the pump panel, the apparatus builder will have to interface with the engine and electronics
- A Hale foam system will be installed and plumbed inside the pump house
- Complete pump panels, labeled and with all components installed
- All controls on the pump panel whether mechanical handles, electric valve controls or air controls will be installed and labeled.
- All gauges will be installed
- All functions on the pump panel will be labeled and matching labels will be supplied to the apparatus builder to attach on the body.
- Crosslays with a folding top cover will be installed
- A dunnage area will be provided over the pump house capable of supporting the components requested elsewhere in this specification (reel and generator).

The body builders responsibilities with this component will be to procure the module and to coordinate with Hales engineering department as to location of external components so as to properly locate components such as discharge piping and intake piping that will be outside of the pump module, pump shift controls in the cab, priming lines, heat exchangers, etc.

The plumbing arrangement for the apparatus will be:

Discharges:

- One (1) 2.5" discharge at driver's side pump panel
- One (1) 2.5" discharge at the officer's side pump panel
- One (1) 4" LDH discharge at the officer's side pump panel
- One (1) 2.5" plumbed discharge with 90 degree chrome swivel elbow and 2.5"F x 1.5"M chrome reducer

- One (1) 3" discharge w/2.5" NST male threads at the front of the hose bed on the drivers side as a pre-connect.
- One (1) 3" discharge w/2.5" NST male threads at the rear, below the hose bed on the drivers side with a chrome elbow terminating in 2.5" NST male threads with a cap and chain.
- One (1) 3" discharge w/2.5" NST male threads at the front of the hose bed on the passengers side as a pre-connect.
- Three crosslay hose beds will be installed over the pump house for single stacks of 1-3/4" hose, the two forward crosslays will have a capacity of 200' of hose and the rearward crosslay will have a capacity of 300'.
- A 3" discharge to the top of the pump house for a fixed mount deck gun.

Inlets:

- A 2.5" inlet with plug and chain on the driver's side pump panel
- A 2.5" inlet with plug and chain on the passenger's side pump panel
- A 4" inlet at the rear of the apparatus on the passenger's side with elbow and 4" storz cap
- A 5" inlet at the front of the apparatus with a 90 degree swivel elbow with 6" NST male threads and a chrome cap.
- A 6" inlet on the driver's side of the pump panel, no valve, with chrome cap.
- A 6" inlet on the passenger's side of the pump panel with a Hale MIV valve, 6" NST with a chrome cap.

The apparatus builder will be responsible for the following items:

INLET (Front)

A 6.00" Inlet front inlet with die cast zinc screens shall be provided using 5.00" stainless steel pipe. Only radiused elbows shall be used in the piping, no mitered joints. Drains shall be furnished in all the low points of piping and have 3/4" ball valves with a hand wheel control. The front suction shall be located on the passenger side of the bumper extension. The inlet shall be gated with a Hale MIV combination butterfly valve and pressure relief valve (the valve will be supplied by Hale in the pump module). The front suction shall have a 6.00" swivel with National Standard hose threads and a long handle chromed plated cap.

INLET (Rear)

A 6.00" Inlet front inlet with die cast zinc screens shall be provided using 5.00" stainless steel pipe. Only radiused elbows shall be used in the piping, no mitered joints. Drains shall be furnished in all the low points of piping and have 3/4" ball valves with a hand wheel control.

The rear suction shall be located on the passenger's side of the apparatus below the hose bed. The inlet shall be gated with a Hale MIV combination butterfly valve and pressure relief valve (the valve will be supplied by Hale in the pump module).

The front suction shall have a 6.00" elbow with 4" storz connection and a 4" storz cap with chain.

DISCHARGE OUTLET (Front of Hose Bed)

There shall be two (2) discharge outlets discharge/s piped to the front of the hose bed and located one (1) each side. Plumbing shall consist of 2.50" piping with a 2.50" full-flow ball valve controlled at the pump operator's panel. The discharge/s shall terminate with a 2.50" male National Standard hose thread adapter.

DISCHARGE OUTLET (Rear of Hose Bed)

There shall be one (1) discharge outlet piped to the rear of the hose bed and located on the driver's side. Plumbing shall consist of 2.50" piping with a 2.50" full-flow ball valve controlled at the pump operator's panel. The discharge shall terminate with a 2.50" chrome elbow and male National Standard hose thread adapter with 2.5" chrome cap and chain.

DISCHARGE OUTLET (Front)

There shall be one (1) 2.50" gated discharge outlet, with a swivel, piped to the driver's side of the front bumper extension. Plumbing shall consist of 2.50" piping with a 2.50" full flow ball valve controlled at the pump operator's panel. Automatic drains shall be provided at all low points in the plumbing.

REAR WATER LEVEL AND FOAM GAUGES

Water level and foam level gauges at rear of apparatus to match the ones supplied by Hale at the pump panel.

F. APPARATUS BODY & HOSE BED

HOSE BED

The hose body shall be fabricated of aluminum, and shall be designed to hold the hose complement described in this document.

The upper inside area of the beavertails shall be covered with smooth stainless steel or aluminum plate to prevent damage to painted surfaces when hose is removed.

The inside dimensions of the hose bed should be approximately 60" wide

Flooring of the hose bed shall be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats shall be a minimum of .50" x 4.50" with spacing between slats for hose ventilation.

Hose bed shall accommodate from left to right when looking at the rear:

- 200 ft of 3.00" hose, pre-connected as a leader line
- 500 ft of 3.00" double jacket hose, supply line
- 1200 ft of 4" double jacket supply line w/4" storz couplings
- 200 ft of 2.50" hose, pre-connected as an attack line

Three (3) adjustable hose bed dividers shall be furnished for separating hose.

Each divider shall be constructed of a heavy brushed aluminum sheet fitted and welded in to a slotted, radiused extrusion along the top, bottom and rear edge for strength.

Divider shall be held in place by tightening four (4) bolts, two (2) at each end.

Acorn nuts shall be installed on all bolts in the hose bed that have exposed threads.

A cross-divider shall be provided just behind the fill tower. The divider shall be bolted to the side sheet.

The rear of the hose bed must not be more than 42" above the tail board at the two outside hose beds (the 3" leader line and 2.5" attack line beds) and no more than 52" above the two inner hose beds (the 3" supply line and the 4" supply line). **No exceptions to this requirement may be taken.**

CUTOUT, HANDHOLD

A cutout with radiused corners shall be provided at the rear of the three (3) hose bed divider(s).

HOSEBED COVERS

The main hose bed shall be covered by an aluminum diamondplate cover. The cover shall extend the entire width and length of the hose bed and shall be designed in two pieces to open upwards from the center. The cover shall be heavily reinforced and supported with an aluminum extrusion framework and designed for personnel to walk on when in the closed position. The surface of the cover shall meet NFPA standards for slip resistance as a walking surface.

When closed, a positive locking system shall be installed to prevent any accidental opening of the cover. Opening of the cover shall require the positive locking device to be disabled and the cover shall be opened by means of gas shock devices that will act to assist with raising the cover and keeping it open when raised.

At the rear of the apparatus, below the aluminum hose bed cover and above the rear of the body, there shall be a heavy duty nylon cover provided to contain the hose. The cover shall be fabricated from a heavy duty 1000 denier cordura nylon, dark green in color, folded and sewn to a double thickness at all edges and further reinforced with brass grommets spaced 8" apart on the top and bottom edges. Each brass grommet shall have a loop of heavy elastic cord installed. On the hose bed cover and at the bottom of the hose bed, there shall be corrosion resistant hooks installed at 8" intervals to match the grommet spacing on the cover, these hooks shall be used to secure the cover with the elastic cord.

In the center of the nylon cover there shall be white lettering sewn to the cover to read "DALE CITY". The letters

shall be approximately 8" high x 4" wide.

There shall be two additional covers provided for the side openings of the crosslays over the pump house. They shall be constructed of the same cordura nylon and be attached in the same fashion.

HOSE BED STORAGE AREA

An enclosed storage area shall be provided in the lower center portion of the hose bed. This portion of the hose bed shall be raised approximately 10". The storage area shall provide adequate space for the following items;

- 2 – 10' lengths of 6" suction hose with long handled female couplings
- 1 – 6' dry wall hook
- 1 – 10' dry wall hook
- 1 – 10' folding attic ladder
- 1 – Model 17 "Little Giant" ladder

A drop down aluminum or stainless steel door with a smooth surface shall be provided on the rear of the storage area. The door shall be secured by means of stainless steel d-ring latches.

RUNNING BOARDS

Running boards shall be fabricated of bright aluminum diamond plate.

Each running board shall be supported by a tubing and channel assembly, which shall be bolted to the pump compartment substructure.

Running boards shall be approximately 12.75" deep and spaced .50" away from the pump panel.

A splash guard shall be provided below the running board diamond plate.

TAILBOARD

Rear step shall also be constructed of bright aluminum diamond plate and spaced .50" from the body, as well as supported by a structural assembly.

The rear tailboard shall be 10.00" deep and extend to the rear of the extended side compartments. The step shall be bolted to the rear of the apparatus, spaced approximately 1" from the apparatus body, be properly supported and have an NFPA approved walking surface. The exterior sides shall be flanged down and in. Flanges shall not be notched.

TOW BAR

A tow bar shall be installed under the tailboard at center of the truck, the tow bar shall be fabricated of 1.00" CRS bar rolled into a 3.00" radius.

Tow bar assembly shall be designed and positioned to allow up to a 30 degree upward angled pull of 17,000 pounds, or a 20,000 pound straight horizontal pull in line with the centerline of the vehicle.

HOSE TRAY

Two (2) hose trays shall be recessed in the passenger's side and driver's side running board. The driver's side hose tray shall have a polished aluminum diamond plate cover. This cover shall be hinged and have a D-ring latch

Capacity of the trays shall be 20' OF 5" LDH.

Rubber matting shall be installed on the floor of the tray to provide proper ventilation.

APPARATUS BODY

The apparatus body and compartments shall be fabricated of the manufacturer's standard stainless steel or aluminum construction. Full details of material alloys, thickness, and strength shall be furnished as part of the proposal.

The side compartments shall be an integral assembly with the rear fenders. Fully enclosed rear wheel housings shall be provided to prevent corrosion pockets, dirt build up and for ease of maintenance. The mounting of the compartments shall be done with body support assemblies bolted to the chassis frame rails.

A support assembly shall be provided under the compartments to provide a secure mounting platform for the body and prevent any body sag or sagging of the compartment floors. Body mounting and support methods shall be fully described in the proposal documents.

The compartment flooring shall be of the sweep out design with the floor higher than the compartment lip. Drip protection shall be provided over all door openings. The side compartment tops shall be covered with bright aluminum diamond plate with a 1.00" rolled over edge on the front, rear and outward sides. All screws and bolts that protrude into a compartment shall have acorn nuts at the ends to prevent injury.

Surfaces at the front of the body at the pump panel and the rear of the body at the compartment and the insides of the beavertails that are traditionally covered with diamondplate are to be furnished with smooth aluminum or stainless steel to match the body materials. This material shall have a brushed finish. This smooth finish will be designed to make cleaning of these surfaces easier than diamondplate. The only diamondplate surfaces on the apparatus body shall be running boards, rear steps and the top of the truck hose bed cover and hatch compartments since they are all potential stepping surfaces.

APPARATUS BODY MEASUREMENTS

The following shall be the approximate measurements for the apparatus body.

Length 152.00" Not to include rear tailboard extension

Width 100.00" Not to include rear fenderettes

Height 90.00" Body dimension or 120" O.A.H.

AGGRESSIVE WALKING SURFACE

All exterior surfaces designated as stepping, standing, and walking areas shall comply with the required average slip resistance of NFPA section 13-7.3.

LOUVERS

All body compartments shall have a minimum of one (1) set of louvers stamped into a wall to provide the proper airflow inside the compartment and to prevent water from dripping into the compartment. These louvers shall be formed into the metal and not added to the compartment as a separate plate.

TESTING OF BODY DESIGN

Body structural analysis shall be fully tested. Bidders shall provide the testing procedures in the proposal.

BODY WARRANTY

A copy of the fire apparatus manufacturer's warranty shall be included with the bid. The warranty shall state that the body shall be free of structural failures caused by defective design or workmanship for a warranty period of **ten (10) years** from the date the new vehicle is first delivered **or 100,000 miles**, whichever occurs first and that defective parts, under the warranty, shall be repaired or replaced without charge to the original purchaser.

COMPARTMENTS

Due to the multi-functional nature of a pumper in Dale City, maximum compartment space is desired. Bidders, as a part of their proposal, shall furnish a complete description of the compartments proposed. At a minimum this will include inside useable dimensions of all compartments and clear door opening dimensions. The detailed drawing submitted, as a part of the proposal shall include reference numbers to aid with easily identifying compartments on the drawing in reference to the proposal text. There are approximate compartment measurements provided below.

COMPARTMENTATION, DRIVER'S SIDE

Front Compartment: A full height, roll-up door compartment ahead of the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 30-34" wide x 60-65" high x 24-26" deep. The compartment interior shall be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections.

Over wheel compartment: A roll-up door compartment over the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 58-60" wide x 30" high x 24-26" deep. A smooth aluminum or polished stainless steel scuff plate shall be furnished on the horizontal lower lip of the compartment opening turning approximately 1.5" down on the vertical outer surface of the body to protect the body from chips and scratches when equipment is removed from this compartment.

Rear compartment: A full height, roll-up door compartment behind the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 44-48" wide x 60-65" high x 24-26" deep. The compartment interior shall be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections.

Hatch Compartments: A full length hatch type compartment shall be located above the left side compartments and be as long as the apparatus body, as high as the hose bed sides and as wide as the lower compartments are deep. The compartment shall include drains directed to the underside of the body. The compartment shall have two (2) interlocking diamondplate lift up doors. The doors shall be hinged to the outside of the body. Gas shock stay arms will assist with lifting the hatch doors and keeping the doors open. Each door shall be provided with a recessed lift and turn latch or paddle latch. All hardware on the hatch doors shall be constructed of aluminum or stainless steel with maximum corrosion prevention in mind.

COMPARTMENTATION, PASSENGER'S SIDE

Front compartment: A roll-up door compartment ahead of the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 30-34" wide x 26-28" high x 24-26" deep. The compartment interior shall be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections.

Rear compartment: A roll-up door compartment behind the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 44-48" wide x 26-28" high x 24-26" deep. The compartment interior shall be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections.

Hatch Compartments: A full length hatch type compartment shall be located above the right side compartments and be as long as the apparatus body and as high as the hose bed sides. The width of these compartments should be 12-13" so as not to protrude into the hose bed area. The compartment shall include drains directed to the underside of the body. The compartment shall have two (2) interlocking diamondplate lift up doors. The doors shall be hinged to the outside of the body. Gas shock stay arms will assist with lifting the hatch doors and keeping the doors open. Each door shall be provided with a recessed lift and turn latch or paddle latch. All hardware on the hatch doors shall be constructed of aluminum or stainless steel with maximum corrosion prevention in mind.

REAR BULKHEAD WALL

Above the right side compartments at the rear and below the upper hatch compartments, a bulkhead wall shall be fabricated and installed. This wall will provide a smooth rear surface at the right side at the rear rather than an open area at the rear where the ladders are mounted. The wall shall be fabricated of aluminum or stainless steel to match the body material and shall be a smooth finish (no diamondplate). The rear side will be smooth and covered with the reflective materials to match the balance of the rear of the truck surface area.

COMPARTMENTATION, REAR (FLAT BACK)

A compartment above the rear tailboard shall be provided. This compartment shall extend rearward to the same vertical plane as the side compartments rear surface. Interior dimensions of this compartment shall be approximately 36-40" wide x 38-40" high x 40-44" deep. A louvered, removable access panel shall be furnished on the back wall of the compartment. Rear compartment shall be partitioned from the rear side compartments using aluminum or stainless steel material to match the body material. These partitions shall be securely bolted into place but shall be removable should we determine we want transverse storage in the future.

The top of this compartment will provide an intermediate step between the 10" extended tailboard and the hose bed. As such, the top side of the compartment must be covered with an aluminum diamondplate that meets the NFPA standards for traction.

ALL COMPARTMENTS

All side body compartment doors shall be of the roll-up design and be Gor-Tite brand. They shall be painted or powder coated to match the color of the body with the exception of the rear door which shall be of an anodized satin finish. These doors shall also be lockable with the keys to match all of the locks installed on this vehicle. A full description including brand and specifications of roll up doors shall be furnished as part of the proposal.

The height of the compartments shall be measured from the compartment floor to the bottom edge of the door roll. The depth of the compartments shall be calculated with the compartment door closed. Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.

PULL STRAP, DOORS

The three (3) compartments on the drivers side shall be provided with pull straps inside the compartments to aid with closing the doors.

LADDER STORAGE

The following ladders shall be stored on the right side of the body between the lower compartments and the upper compartment;

- One (1) 2 section 24' extension ladder, Alco-Lite brand, model PEL-24
- One (1) 14' roof ladder, Alco-Lite brand, model PRL-14

The ladders shall be held securely in place by spring loaded brackets.

The ladders shall be placed forward of the rear "bulkhead" towards the pump module. The ladders may extend forward into the pump module area if necessary.

PULL-OUT TRAYS (FLOOR MOUNTED)

There shall be three (3) floor mounted slide out trays with 2.00" sides and a maximum capacity of 500 pounds provided in compartments. Capacity rating shall be in the extended position. Slides shall be heavy duty, ball bearing type for the ease of operation and years of dependable service.

Automatic locks shall be provided for both the "in" and "out" positions. The trip mechanism for it shall be located at the front of the tray for ease of use with a gloved hand. The location of these trays shall be the front and rear full height compartments on the drivers side and the rear center tailboard compartment.

PULL-OUT TRAYS (ADJUSTABLE HEIGHT)

There shall be two (2) adjustable height slide-out trays with 2.00" sides and a minimum capacity of 215 pounds provided. The vertical position within the compartment shall be adjustable. Capacity rating shall be in the extended position. Slides shall be heavy duty, ball bearing type for the ease of operation and years of dependable service.

Automatic locks shall be provided for both the "in" and "out" positions. The trip mechanism for it shall be located at the front of the tray for ease of use with a gloved hand. The location of these trays shall be the front and rear full height compartments on the drivers side.

SLIDE-OUT / TILT-DOWN TRAYS

There shall be one (1) slide-out tilt-down tray provided. The capacity rating shall be 215 pounds minimum in the extended position. Approximately two-thirds of the tray shall slide-out from its stored positions and shall tilt 30 degrees down from the horizontal. The vertical position within the compartment shall be adjustable. Slides shall be heavy duty, ball bearing type for the ease of operation and years of dependable service. Two spring loaded locks shall be provided to retain the tray in the "in" position. The trip mechanism for it shall be located at the front of the tray for ease of use with a gloved hand. There shall be rubber padded stops for both the in / out tray position. The location of this tray shall be the rear full height compartment on the driver's side.

SLIDE OUT TOOL BOARD

A slide out aluminum tool board shall be provided in one (1) compartment. The tool board shall be mounted on a heavy-duty ball bearing type track on the bottom to allow easy extension and retraction with the maximum tool load of 250 pounds. The board shall positive lock in the stowed and extended position. The location of this tool board will be the rear full height compartment on the driver's side.

ADJUSTABLE SHELVES

There shall be three (3) shelves, with a minimum capacity of 215 pounds provided. The shelf construction shall consist of .125" pan-shaped aluminum with 2.00" sides. The shelves shall be infinitely adjustable by means of threaded fasteners, which slide in four tracks, one in each corner of the compartment. The location of these trays shall be the front driver's side compartment, the front officer's side compartment and the rear center compartment

over the tailboard.

FIXED DIVIDERS IN COMPARTMENTS

There shall be one (1) compartments provided with a fixed, vertical aluminum divider. The divider shall be full height and full depth of the compartment and shall be securely bolted in place, top and bottom, to allow for removal at a later date if necessary. This divider shall be located in the drivers side rear compartment between the vertical tool board and the shelves.

RUB RAIL

Bottom edge of the side compartments shall be trimmed with a bright aluminum extruded rub rail. The rub rails shall not be an integral part of the body construction, which allows replacement in the event of damage.

BODY FENDER CROWNS

Stainless steel or polished aluminum fender crowns shall be provided around the rear wheel openings. A rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier shall be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.

HANDRAILS

The handrails shall be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface. Chrome plated end stanchions shall support the handrail. Plastic gaskets shall be used between end stanchions and any painted surfaces.

Drain holes shall be provided in the bottom of all vertically mounted handrails.

- Two (2) handrails shall be provided above each side pump panel.
- One (1) vertical handrail, not less than 29.00" long, shall be located on each rear beavertail.

AIR CYLINDER STORAGE (Single bottle)

A total of two (2) single air cylinder compartments shall be provided. Compartments will be provided one (1) each side. The compartments shall be in the form of a round tube (7.63" diameter minimum) and of adequate depth to accommodate different size air bottles. Flooring shall be rubber lined and have a drain hole. A stainless steel or aluminum door with a latch shall be provided to contain the air bottle. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.

AIR CYLINDER STORAGE (Double)

A total of two (2) double air cylinder compartments shall be provided. Compartments will be provided one (1) each side. Each compartment shall be of adequate size to accommodate two (2) air bottles. Flooring shall be rubber lined and be furnished with a drain hole. A stainless steel or aluminum door with a latch shall be provided to contain the air bottles. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal. The door to this compartment shall be wide enough for two cylinders to be stored with a divider between them to prevent the cylinders from rolling into and abrading each other. A single door where the cylinders have to roll into a hidden area shall not be acceptable.

LADDERS

The following Alco-Lite ladders shall be furnished and must meet or exceed the latest NFPA standards:

- 24', two (2) section, Series PEL-24
- 14' roof, aluminum, Series PRL-14
- 10' folding, aluminum, Series FL-10

FOLDING STEPS

Three (3) steps shall be provided on the front of the driver's side compartments at the pump panel. One (1) step shall be provided on the front of the passenger side compartments at the pump panel. Sufficient folding steps shall be furnished at the rear to provide access to the hose bed. These steps shall be shown on the proposal drawings. The steps shall be a bright finished folding type of adequate size with a non-slip stepping surface meeting NFPA

standards. Exact locations will be determined at the pre-build conference.

G. 12 VOLT ELECTRICAL SYSTEM

ELECTRICAL

All 12 -volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. All wiring shall be high temperature crosslink type. Wiring shall be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic or manual reset circuit breakers shall be provided which conform to SAE Standards. Wiring shall be color, function and number coded. Function and number codes shall be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors shall be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Electrical wiring and equipment shall be installed utilizing the following guidelines:

- (1) All holes made in the roof shall be caulked with silicon, rope caulk is not acceptable. Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof.
- (2) Any electrical component that is installed in an exposed area shall be mounted in a manner that shall not allow moisture to accumulate in it. Exposed area shall be defined as any location outside of the cab or body.
- (3) Electrical components designed to be removed for maintenance shall not be fastened with nuts and bolts. Metal screws shall be used in mounting these devices. Also a coil of wire shall be provided behind the appliance to allow them to be pulled away from the mounting area for inspection and service work.
- (4) Corrosion preventative compound shall be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections shall require this compound in the plug to prevent corrosion and for easy separation (of the plug).
- (5) All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.
- (6) All electrical terminals in exposed areas shall have silicon (1890) applied completely over the metal portion of the terminal. Identification of the switches shall be done by either printing or etching on the switch panel. The switches and identification shall be illuminated.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, shall be furnished. Rear identification lights shall be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads shall be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test shall be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests shall be recorded and provided to the purchaser at time of delivery.

STEP LIGHTS

Two (2) LED step lights shall be provided at the rear of the apparatus to illuminate the tailboard stepping area.

These step lights shall be actuated with the parking brake when set.

REAR FMVSS LIGHTING

The rear stop/tail and directional LED lighting shall consist of the following:

- Two (2) Whelen, Model M6BTT, red LED stop/tail lights.
- Two (2) Whelen, Model M6T, amber LED arrow turn lights.
- Two (2) Whelen, Model: M6BUW Halogen, backup lights shall be provided.

Each light shall be installed separately at the rear with M6FC flange kit.

Four (4) red reflectors shall be provided.

A Weldon, Model 23882-2600-00, license plate bracket shall be mounted on the driver's side above the warning lights. A Weldon, Model 9186-23882-30, step lamp shall illuminate the license plate.

Three (3) red LED identification/marker lights shall be located at the rear, recessed in the tailboard, one in the center and the other two approximately 6 inches from center, one to the left and one to the right.

Four (4) red LED clearance lights, Whelen 01-1061272-05, shall be located at the rear at the uppermost corners, two each side, one visible from the side and one visible from the rear.

COMPARTMENT LIGHTING

Each compartment shall have Whelen Fluorescent LED perimeter lighting system installed. This lighting shall be clear tubes housing LED's to provide continuous illumination to the compartment interiors. The lighting shall run continuously down both sides of the compartment door frame and shall be permanently mounted using the Whelen "P" clips. Opening the compartment door shall automatically turn compartment lighting on.

PERIMETER SCENE LIGHTS, CAB

There shall be a Truck-Lite (or equal), model 44042C, 4.00" grommet mount weatherproof LED light provided for each cab door. Lighting shall be designed to provide illumination on areas under the driver, officer, and crew cab riding area exits, which shall be activated automatically when the exit doors are opened and by the same means as the body perimeter lights.

The lighting shall be capable of providing illumination at a minimum level of one (1) foot-candle on ground areas within 30.00" of the edge of the apparatus in areas, which personnel climb in or out of the apparatus or descend from the apparatus to the ground level.

PERIMETER SCENE LIGHTS, BODY

There shall be a total of six (6) Truck-Lite (or equal), model 44042C, 4.00" grommet mount weatherproof LED lights provided on the apparatus. Two (2) lights shall be provided under the rear step area, two (2) lights shall be provided, one each side, under the front body area ahead of the rear wheels and two (2) lights shall be provided, one each side, under the rear body area behind the rear wheels. The perimeter scene lights shall be activated by the parking brake.

12 VOLT LIGHTING, CAB BROW

A Whelen Engineering Pioneer Plus floodlights shall be provided. The light shall be mounted on a special bracket, fitted for the light, on the front of the cab roof. The light fixture shall be a Whelen PFP2 floodlight, dual lamp, 12V light, providing 14,000 usable lumens of light. This light shall be switched in the cab on the driver's side and officer's side and at the pump panel. The switch shall be labeled "Brow Light".

12 VOLT LIGHTING, CAB SIDES

Two (2) Whelen Engineering 9SCOENZR Super LED scene shall be furnished and installed, one on each side of upper area of crew cab. These lights shall be switched in the cab on the driver's side and officer's side and at the pump panel. The switches shall be labeled "Drivers Side Cab Scene Light" and "Officers Side Cab Scene Light".

H. EMERGENCY LIGHTS AND WARNING SYSTEMS

CAB MASTER SWITCH FOR EMERGENCY LIGHTS AND SIRENS

The cab master switch for emergency warning lights shall also be interlocked to the sirens, mechanical and electronic. The sirens will be de-activated unless the master warning light switch has been turned on.

AIR HORN SYSTEM

Two (2) Grover AL1510 stutter-tone air horns shall be provided and located in the front bumper, recessed one (1) each side. The horn system shall be piped to the air brake system wet tank utilizing .38" tubing. A pressure protection valve shall be installed in-line to prevent the loss of air in the air brake system.

AIR HORN CONTROL

Two (2) lanyard rope pull controls shall be provided, one (1) within reach of the driver and one (1) within reach of

the officer.

The air horns shall also be actuated by one (1) foot switch located on the passenger's side near the engine tunnel and as far forward as possible. A wedge style bracket shall be provided on the passenger's side of cab floor. The bracket shall be large enough to hold two (2) foot switches, one for the air horn control and one for the Federal Q2B.

Additionally, the air horns shall be controlled by the drivers' side horn button in the steering wheel. A switch shall be provided in the cab, with in easy reach of the driver, to allow the driver to switch between chassis horns and air horn actuation with the horn button on the steering wheel.

ELECTRONIC SIREN

A FTS Mobile Electronics, Power Call Plus, model DX5, 100-watt electronic siren with noise canceling microphone shall be provided and installed in an overhead swivel bracket. The siren control head shall be mounted in a location convenient to the officer and driver. The electronic siren shall be controllable on the siren head and horn ring only. No foot switches shall be required. The driver shall have the option to control the siren or the chassis horns from the horn button by means of a selector switch located on the instrument panel.

SPEAKER

There shall be one (1) speaker recessed in the front bumper. The speaker shall be a Federal Signal, Model BP100 speaker, 100-watt, in the bumper mount with a stainless steel speaker grill. The speaker shall be connected to the siren amplifier.

MECHANICAL SIREN, (Auxiliary)

A Federal Q2B siren shall be furnished. A siren brake button shall be installed on the switch panel. The mechanical siren shall be mounted on the bumper deck plate in the center. The siren mounting shall include a reinforcement plate.

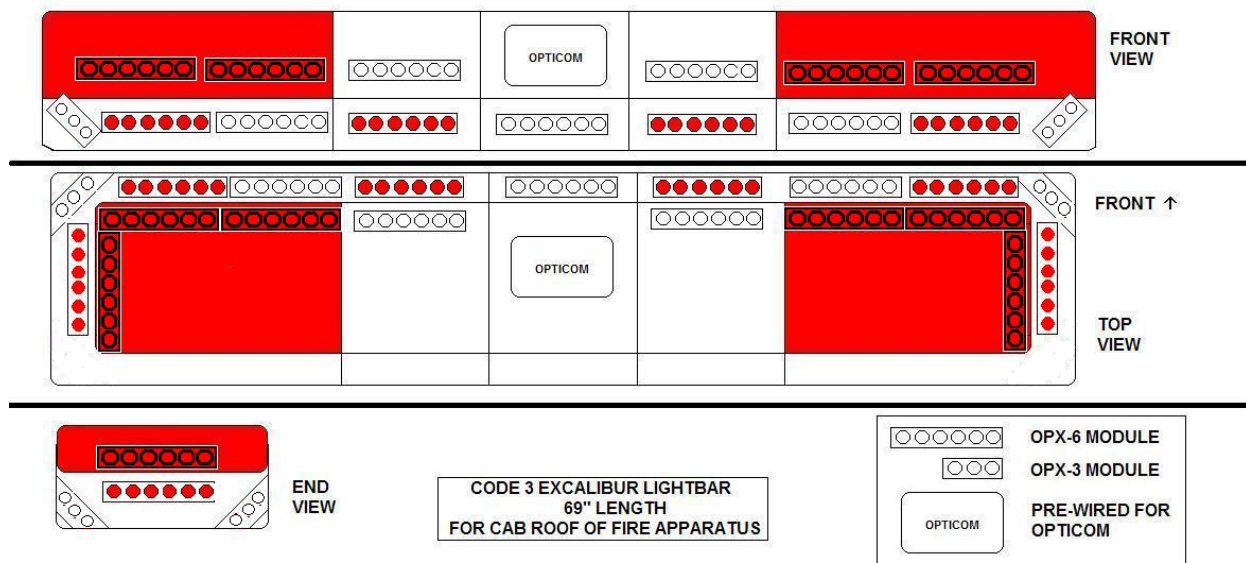
The mechanical siren shall be actuated by two (2) foot switches, one (1) on the officer's side and one (1) on drivers' side. A siren brake switch shall be installed within easy reach of the driver and a second siren brake switch shall be installed on the passenger side.

WARNING LIGHT (Cab Roof)

A Code 3 Excalibur, Model: X69A, lightbar shall be mounted on the cab roof. The length of the lightbar shall be 69.00".

The lightbar shall include the following:

- Eight (8) OPX6 LED modules in the upper deck
- Nine (9) OPX6 LED modules in the lower deck
- Two (2) OPX3 LED modules in the lower deck



The center upper section of the lightbar must be pre-wired installation of a 3M Opticom traffic pre-emption light that will be installed by the fire department after delivery.

All clear LED lights and the Opticom shall be deactivated when the parking brake is set.

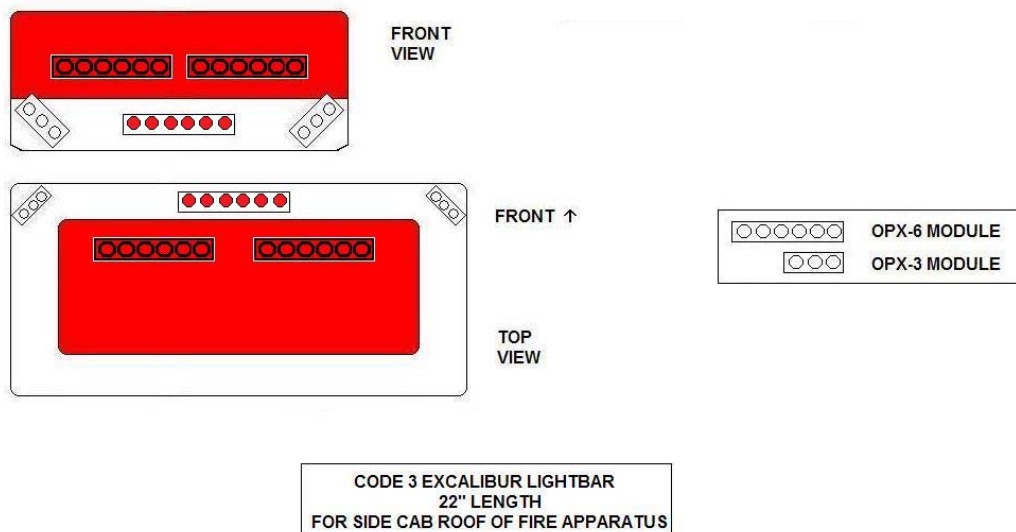
On the lighting control panel in the cab there shall be a switch installed for manual disabling of all forward facing clear lights to include the Opticom.

WARNING LIGHTS (CAB ROOF SIDES)

Two (2), Code 3 Excabur, X22A, lightbars shall be mounted on the cab roof, one (1) each side over the cab doors. The length of each lightbar shall be 22.00".

Each lightbar shall include the following:

- Two (2) OPX6 LED modules in the upper deck
- Three (3) OPX6 LED modules in the lower deck



The lights in each lightbar may be load managed if colored, or shall be disabled if clear when the parking brake is set.

SIDE ZONE LOWER LIGHTING

Whelen, Model M6R, LED red lights shall be located at the following positions, one on each side of the apparatus:

- Two (2) lights, one each side on the bumper extension
- Two (2) lights, to the rear of the crew cab door.
- Two (2) lights, centered in the rear fender panel

The above six (6) lights shall be required to meet the lower level optical warning and optical power requirements of NFPA. The lights shall be controlled by a lighted switch on the cab instrument panel. These lights shall be installed with the M6FC flange kit.

SIDE UPPER ZONE LIGHTING

Code 3, Model 85BZR red LED lights with red lenses shall be located in the upper area of the apparatus body. There shall be two (2) lights installed on each side of the body, one at the front of the body and one at the rear. The lights shall be controlled by a lighted switch on the cab instrument panel. These lights shall be installed with a chrome flange Kit.

REAR ZONE LOWER LIGHTING

Two (2) Whelen, Model M6R, red LED warning lights shall be located at the rear of the apparatus, required to meet the lower level optical warning and optical power requirements of NFPA. One (1) switch in the cab on the switch panel shall control these lights. These lights shall be installed with the M6FC flange below the stop/ turn tail light cluster.

REAR UPPER ZONE LIGHTING

There shall be two (2) Code 3, Model 85BZR, red LED flashing lights with red lenses provided at the rear of apparatus upper area at the outboard upper corners of the body. The lights shall have a red lens. The lights shall be controlled by a lighted switch on the cab instrument panel. These lights shall be installed with a chrome flange kit.

HEADLIGHT FLASHER

The high beam headlights shall flash alternately between the left and right side, with a control switch located on the cab instrument panel. The flash mode shall automatically cancel whenever the headlight (high or low beam) switch is activated and when the parking brake is set.

WARNING LIGHTS (Side, Additional)

One (1) pair of Whelen, Model M6R, LED red flashing lights shall be provided. The lights shall be located on the sides of the crew cab mounted high, just under drip rail. The light shall be installed with the M6FC flange kit.

WARNING LIGHTS (Rear, Additional)

Six (6) Whelen model 500 series surface mount Super LED lights shall be furnished and installed at the rear of the apparatus. These lights shall be installed on the rear edge of the aluminum lift up hose bed cover and shall be protected inside an extruded aluminum channel. The channel shall be a U-channel, similar to a rub rail, of polished aluminum. There shall be three lights on each side of the split hose bed cover, two red (5SR00FRR) and one amber (SSA00FAR). The red lights shall be in the outside positions with the amber lights in the center. Each light shall flash independently.

WARNING LIGHTS (Front, Additional)

Two (2) Whelen, Model 60R00FRR, red LED warning lights shall be provided and installed in a headlight bezel above and matching the vehicle headlight bezel. These shall be mounted outboard in the headlight bezel.

Two (2) Power Arc M90HL-W 90 degree oscillating LED lights, clear in color, shall be provided and installed in the headlight bezel in the inboard position. These shall be part of the white light cut-out circuitry.

WARNING LIGHTS (Rear, Additional)

Two (2) PowerArc LED warning light model LED210-1R shall be mounted on the rear of the apparatus, one each side, above the stop/turn/tail light cluster.

SWITCH, MASTER FOR CLEAR WARNING LIGHTS

A master on/off switch shall be provided for the clear, forward facing, warning lights. The switch shall be in addition to the standard emergency master switch. Switch shall be located in the cab instrument panel.

I. GENERATOR AND A/C ELECTRICAL SYSTEM

ELECTRICAL SYSTEM GENERAL DESIGN for ALTERNATING CURRENT

The following guidelines shall apply to the 120/240 VAC system installation:

General

Any fixed line voltage power source producing alternating current (ac) line voltage shall produce electric power at 60 cycles plus or minus 5 cycles.

Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures shall conform to NFPA 70, National Electrical Code (herein referred to as the NEC).

Line voltage electrical system equipment and materials included on the apparatus shall be listed and installed in accordance with the manufacturer's instructions. All products shall be used only in the manner for which they have been listed.

Grounding

Grounding shall be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems shall not be used. Only stranded or braided copper conductors shall be used for grounding and bonding.

Equipment grounding means shall be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.

The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.

In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. This conductor shall have a minimum ampere rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements shall be permitted to be used.

All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source.

Operation

Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, shall be permanently attached to the apparatus at any point where such operations can take place.

Provisions shall be made for quickly and easily placing the power source in to operation. The control shall be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train shall be equipped with a means to prevent the unintentional movement of the control device from its set position.

A power source specification label shall be permanently attached to the apparatus near the operator's control station. The label shall provide the operator with the information detailed in Figure 19-4.10. Direct drive (PTO) and portable generator installations shall comply with Article 445 (Generators) of the NEC.

Overcurrent protection

The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 144 inches. (3658 mm) in length.

For fixed power supplies, all conductors in the power supply assembly shall be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius).

For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device shall be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).

Wiring Methods

Fixed wiring systems shall be limited to the following:

- Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)
- or
- Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)

Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring shall be run as follows.

- Separated by a minimum of 12 inches (305 mm), or properly shielded, from exhaust piping
- Separated from fuel lines by a minimum of six (6) inches (152 mm) distance.

Electrical cord or conduit shall be supported within six (6) inches (152 mm) of any junction box and at a minimum of every 24 inches (610 mm) of continuous run. Supports shall be made of nonmetallic materials or corrosion protected metal. All supports shall be of a design that does not cut or abrade the conduit or cable and shall be mechanically fastened to the vehicle.

Wiring Identification

All line voltage conductors located in the main panel board shall be individually and permanently identified. The identification shall reference the wiring schematic or indicate the final termination point. When pre-wiring for future power sources or devices, the unterminated ends shall be labeled showing function and wire size.

Wet Locations

All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, shall be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.

All receptacles located in a wet location shall be not less than 24 inches (610 mm) from the ground. Receptacles on off-road vehicles shall be a minimum of 30 inches (762 mm) from the ground. The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle shall be installed in a face up position.

Dry Locations

All receptacles located in a dry location shall be of the grounding type. Receptacles shall be not less than 30 inches (762 mm) above the interior floor height.

All receptacles shall be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they shall be so marked.

Listing

All receptacles and electrical inlet devices shall be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages shall be rated for the appropriate service.

Electrical System Testing

The wiring and associated equipment shall be tested by the apparatus manufacturer or the installer of the line voltage system.

The wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand

test of 900-volts for one (1) minute. The test shall be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test shall be conducted after all body work has been completed.

Electrical polarity verification shall be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

Operational Test per NFPA 1901 Chapter 19-14.4

The apparatus manufacturer shall perform the following operation test and shall certify that at the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order.

The prime mover shall be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.

The power source shall be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in NFPA 1901 chapter 19-14.5.

Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in NFPA 1901 Chapter 9 shall be applied to the low voltage electrical system during the operational test.

GENERATOR

The apparatus shall be equipped with a complete electrical power system. The generator shall be an Onan HG6000 6.0 kW Hydraulic unit. The wiring and generator installation shall conform to the present National Electrical Codes Standards of the National Fire Protection Association. The installation shall be designed for continuous operation without overheating and undue stress on components.

Generator Performance

- Continuous Duty Rating: 6,000 watts
- Nominal Volts: 120/240
- Amperage: 50 @ 120volts, 25 @ 240 volts
- Phase: Single
- Cycles: 60 hertz
- Engine Speed at Engagement: Idle
- RPM range: 850 to 3,200

Generator Dimensions

- Length: 32 inches
- Width: 13 inches
- Height: 12 inches
- Weight: 247 pounds (generator only)

The output of the generator shall be controlled by an internal hydraulic system. An electrical instrument gauge panel shall be provided for the operator to monitor and control all electrical operations and output.

The generator shall utilize the main chassis transmission to power the generator. The generator shall be driven by an engine transmission power take off unit, through a hydraulic pump and motor.

The generator shall be operable with an electrical control inside the cab with a pilot light to note engagement.

An electric/hydraulic valve shall supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.

The generator hydraulic circuit shall include a soft start valve to protect the generator components during PTO engagement.

Generator Instruments and Controls

To properly monitor the generator performance a digital meter panel shall be furnished and mounted next to the circuit breaker panel. The meter shall indicate the following items:

- Voltage
- Amperage for both lines
- Frequency
- Generator run hours
- Over current indication
- Over temperature indication
- Service required indication
- "PTO" engagement indication
- "Power On" indication
- Two (2) fuse holders with two (2) amp fuses (for indicator light protection)

The meter and indicators shall be installed near eye level in the compartment. Instruments shall be flush mounted in an appropriate sized weatherproof electrical enclosure. All instruments used shall be accurate within +/- Two (2) percent.

Generator Wiring:

The system shall be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators. The wiring, electrical fixtures and components shall be to the highest industry quality standards available on the domestic market. The equipment shall be the type as designed for mobile type installations subject to vibration, moisture and severe continuous usage. The following electrical components shall be the minimum acceptable quality standards for this apparatus:

Wiring:

All electrical wiring shall be fine stranded copper S.O. type. The wire shall be sized to the load and circuit breaker rating; ten (10) gauge on 30 amp circuits, 12 gauge on 20 amp circuits and 14 gauge on 15 amp circuits. The S.O. cable shall be run in corner areas and extruded aluminum pathways built into the body for easy access.

Load Center:

The main load center shall be a Cutler Hammer with circuit breakers rated to load demand.

Circuit Breakers:

Individual breakers shall be provided for all on-line equipment to isolate a tripped breaker from affecting any other on-line equipment.

GENERATOR LOCATION

The generator shall be mounted in the area above the pump. The flooring in this area shall be either reinforced or constructed, in such a manner, that it shall handle the additional weight of the generator.

GENERATOR START

A switch shall be located on the cab instrument panel to engage the generator.

GENERATOR REMOTE FIELD SWITCH

A remote switch shall be provided in the cab switch panel for the driver and officer along with one on the pump panel to engage the field of the hydraulic generator. A light shall be provided to indicate that the generator field is active.

CIRCUIT BREAKER PANEL

The circuit breaker panel shall be located in a compartment to be determined

120 VOLT LIGHTING, BODY

Two (2) Havis Magnafire 3000, 750 watt lights shall be provided. The lights shall be mounted on 10 degree special brackets, fitted for the light, recessed in the upper center area of the apparatus body. The light fixtures shall be a single 750 watt, 120 volt and shall draw 6.25 amps and have an output of 20,600 lumens. These lights shall be switched in the cab on the driver's side and officer's side and at the pump panel. The switches shall be labeled "Drivers Body Quartz Light" and "Officers Body Quartz Lights".

120 VOLT LIGHTING, TELESCOPING, DE-MOUNTABLE

Two (2) Havis Magnafire 3000, 750 watt lights shall be provided. The lights shall be mounted on KR-SB-800 series top raise tripod poles. Each light head shall be 120 volt, 750 watts, with a 6.25 amp draw and have an output of 20,600 lumens. The light head shall swivel 360 degrees left or right and tilt up and down. The lights shall be located one on each side on rear of the apparatus body. The lights shall be secured by a "Kwik-Release" cam latch and a lower receiver cup that keeps the legs closed. These lights shall both be switched by a single switch in the cab on the driver's side and officer's side and at the pump panel. The switches shall be labeled "Rear Quartz Lights".

A NEMA L5-20 receptacle with wet area cover shall be provided near the base of each light. These receptacles shall be wired from the junction box and labeled "Drivers Side 20 Amp Receptacle" and "Officers Side 20 Amp Receptacle". A NEMA L5-20, 20 amp, 120 volt, twist-lock plug with waterproof boot shall be provided on the end of the light cord.

ELECTRIC CORD REELS

Furnished with AC electrical system shall be one (1) Hannay, series 1600, cord reel. The reel shall be provided with a 12-volt electric rewind switch that is guarded to prevent accidental operation and labeled for its intended use. The switch shall be protected with a fuse and installed at a height not to exceed 72 inches above the operators standing position.

A captive roller assembly shall be provided to aid in the payout and loading of the reel. A ball stop shall be provided to prevent the cord from being wound on the reels. A label shall be provided in a readily visible location adjacent to the reel. The label shall indicate current rating, current type, phase, voltage and total cable length.

The reel shall be mounted on the officers side of the apparatus in the area over the pump house and shall pay out through a port in the side sheet of the pump house dunnage area.

CORD

Provided for electric distribution each reel shall be equipped with 200 feet of yellow 10/3 electrical cord, weather resistant 105 degree C to -50 degree C, 600 volt jacketed SOOW cord. An Akron junction box shall be provided for the end of the cord reel. The junction box shall have a L5-20 flanged plug, the end of the cord shall have a mating L5-20 connector. The outlets on the junction box shall be as follows:

- Three (3) 20 amp, 120 volt L5-20 receptacles
- One (1) 120 volt duplex house current receptacle

A mounting bracket shall be provided and installed to hold the junction box in place

J. LOOSE EQUIPMENT

The following equipment shall be furnished with the completed unit:

- 1 each Alco-Lite pumper style 2-section 24' extension ladder
- 1 each Alco-Lite pumper style 14' roof ladder w/ hooks
- 1 each Alco-Lite 10' folding ladder
- 2 each 10' lengths 6" PVC hard suction hoses w/ 6" NST couplings, LHF x RLM
- 1 each Little Giant Model 17 folding ladder
- 1 each Fire Hooks Unlimited DWHS-10 dry wall hook
- 1 each Fire Hooks Unlimited DWHS-6 dry wall hook

K. PAINT AND GRAPHICS

PAINT

The exterior custom cab and body painting procedure shall be performed utilizing top quality automotive finishes and proper surface preparation. A full description of your paint preparation, paint application and paint finishing techniques shall be supplied as part of your proposal.

All removable items such as brackets, compartment doors, door hinges, trim, etc. shall be removed and painted separately to insure paint behind all mounted items. Body assemblies that can not be finish painted after assembly shall be finish painted before assembly.

The cab and body shall be three-tone. The upper portion of the cab and body shall be painted white #10, the center area shall be painted green #160 (8" painted stripe) and lower portion shall be painted white #10.

PAINT - ENVIRONMENTAL IMPACT

Contractor shall meet or exceed all current State (his) regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. A complete description of your paint facility and environmental safeguards shall be included as part of your proposal.

Additionally, the finished apparatus shall not be manufactured with or contain products that have ozone depleting substances. Contractor shall, upon demand, present evidence that his manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.

PAINT CHASSIS FRAME ASSEMBLY

The chassis frame assembly shall be painted black before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc. Components that are included with the chassis frame assembly that shall be painted black are frame rails, cross members, axles, suspension, steering gear, fuel tank, body substructure supports, miscellaneous mounting brackets, etc.

WARRANTY - PAINT AND CORROSION

The cab and body exterior paint finish shall be warranted against blistering, peeling, bubbling, lack of adhesion or any other manufacturing or material defect for a minimum period of **ten (10) years**.

The cab and body shall also be warranted against corrosion perforation for a minimum period of **ten (10) years**. A copy of the manufacturer's warranty shall be included with the bid.

PAINT, COMPARTMENT INTERIOR

Interior of compartmentation shall be painted with a durable gray paint or other coating such as Line-X.

REFLECTIVE STRIPES

A reflective stripe shall be provided along the sides of the cab, body and rear body. The reflective band shall consist of:

- 1.00" Gold Stripe
- 1.00" White Stripe
- 6.00" gap
- 1.00" White Stripe

➤ 1.00" Gold Stripe

The reflective band located on each side of the apparatus body shall contain one (1) jog(s) and shall be angled at approximately 45 degrees when installed.

The reflective stripe shall continue from the sides, wrap around the rear body corners, and continue on the rear compartment bulkheads.

The reflective band shall continue around the front of the apparatus and shall be provided on the cab face at the headlight level.

Each piece of reflective striping shall be free of seams. In no case may smaller pieces of reflective striping be pieced together to make the full design.

On the rear of the apparatus, there shall be reflective striping installed on all vertical surfaces, the intent is to meet the NFPA 1901 standard. The striping shall be in a chevron pattern and shall be red and yellow striping. Exact colors shall be determined at the pre-construction conference.

On the front bumper, there shall be reflective striping installed across the entire front face of the bumper and on the wraparound portion on the sides. This striping shall be a diagonal stripe alternating between dark green and white. Exact colors shall be determined at the pre-construction conference.

GOLD LEAF STRIPING

All gold leaf striping shall be totally encapsulated between two (2) layers of clear vinyl; a black pin stripe shall accent the gold stripe. The manufacturer shall provide a **three (3) year** warranty against defects in material and workmanship with the graphics process. A copy of the fire apparatus manufacturer's warranty shall be included with the bid.

There shall be a gold leaf stripe around the top, bottom, front and rear edges of the body compartments with scrolls in each corner. It shall include black outline with an accent stripe.

There shall be a gold leaf stripe across the face of the cab with an end point on each end, located just below the windshield.

There shall be one (1) gold leaf stripe located just below the window line on each side of the cab.

There shall be one (1) gold leaf stripe on each side of the cab, low and over the fender. It shall include black outline with an accent stripe.

GOLD LEAF LETTERING

The lettering shall be genuine gold leaf lettering totally encapsulated between two (2) layers of clear vinyl. The manufacturer shall provide a **three (3) year** warranty against defects in material and workmanship with the graphics process. A copy of the fire apparatus manufacturer's warranty shall be included with the bid.

The lettering shall be outlined in green and shaded in black.

- There shall be lettering, approximately 4" high, to read "DALE CITY" in a block text above the cab grille, below the windshield.
- There shall be lettering, approximately 4" high, to read "Second to None" in a script text on the cab brow over the windshield.
- There shall be lettering, approximately 5" high, to read "ENGINE" in a block text on each crew cab door.
- There shall be lettering, approximately 7"- 8" high, to read "DALE CITY" on each side of the upper body hatch compartments on either side of the recessed quarter lights. Centered below that line, in letters approximately 4" high, shall be "VOLUNTEER FIRE DEPARTMENT".

LETTERING, REFLECTIVE

There shall be reflective lettering cut and installed in each location described below. The lettering shall be cut from high quality retro -reflective material such as 3 M Scotch lite or equal. The lettering shall be installed in a professional manner with no bubbles under the material.

There shall be two (2) 12.00" high gold reflective decals, "Dial 911 Emergency", provided and installed to match previous units on each side on the rear compartment doors.

There shall be one (1) set of reflective lettering, "KEEP BACK 500 FEET", supplied and installed on the rear roll up door on top of 4" white reflective stripe. The lettering shall be green in color.

There shall be reflective lettering, approximately 3" high, to read "PRINCE WILLIAM COUNTY" in a block text on a compartment roll up door on each side of the body. The lettering shall be green in color.

There shall be four (4) plates fabricated of aluminum or stainless steel, approximately 8" high x 12" long. These plates shall first be completely covered in white reflective material and then three (3) numerals, green in color, shall be applied over the white. The numerals shall be approximately 6"-7" high. Additionally, there shall be frames fabricated and installed for these plates, from aluminum or stainless steel, which shall allow the plates to be removed and moved to other apparatus. The exact size, location and numbering of these plates shall be determined at the pre-construction conference.

DECAL INSTALLATION, CUSTOMER SUPPLIED DECALS

There shall be one (1) pair of Dale City Volunteer Fire Department decals furnished by the fire department and applied to the cab doors by the apparatus manufacturer.

EMBLEMS

A numeral shall be installed on the front grille of the apparatus. The numeral shall be in dark green reflective material with a gold reflective border. The number should be as tall and wide as possible to fit as needed on the grille.

FLAG EMBLEMS

There shall be one (1) pair of color imaged emblems, 8.00" high x 11.00" wide, featuring a "Flying American Flag" and an "Eagle Head", installed on the crew cab window. The pair shall be mirror images of each other.

MALTESE CROSS INSTALLATION

There shall be one (1) pair of Maltese crosses, approximately 12" in diameter, comprised of genuine gold leaf material, provided and installed. These Maltese crosses shall have black text imprinted on them and shall be installed on each side of the cab.

Photographs and dimensions of all graphics will be provided to the successful bidder to match the existing apparatus in Dale City.

L. ADDITIONAL BID REQUIREMENTS

FACTORY TRIPS

There shall be three trips required to the factory where the apparatus will be manufactured. The first trip shall be called a "pre-construction conference". This trip shall be scheduled after the factory engineers have had sufficient time to review the build requirements of the apparatus. The purpose of this conference will be to iron out any design problems, to answer any questions as to specific placement of components or equipment and to make any final decisions required before actual construction of the apparatus begins.

The second trip shall be called a "mid-construction conference". This trip shall be scheduled when the major apparatus components such as chassis, body and aerial are substantially complete but not yet assembled. This trip will provide an opportunity to assure the Dale City VFD that construction has progressed as planned, that all major components are correct as ordered, and will allow for correction of problems before the apparatus is completed.

The third trip shall be called a "final inspection – customer acceptance conference". This trip shall be scheduled when the apparatus builder has completed the apparatus and will allow the Dale City VFD to inspect the finished

product before accepting the apparatus for delivery to Virginia. Any deficiencies discovered during this inspection will be resolved at the factory before the apparatus is accepted by the Dale City VFD.

All trips shall be planned for four (4) members or agents of the Dale City Volunteer Fire Department. Each trip shall provide enough time to spend two full days at the factory. To allow proper scheduling, the members/agents of the Dale City VFD will require a minimum three weeks advance notice of the trip itineraries. The cost of these trips will be paid for solely by Prince William County, Dale City Volunteer Fire Department.

It is required that the dealer representative meet with the fire department personnel at the manufacturing facility during these trips to manage communications between the department members and the manufacturer and to assist with scheduling of trips, meetings and itineraries at the factory.

III.2 Pricing Schedule

Bidder's Name _____

Description	Qty	Unit Price	TOTAL
Class A Pumpers	2	\$_____	\$_____

III.3 Qualifications and References

1. Business Street Address: _____
2. Type of work performed by this company: _____
3. Number of years this company has been in business: _____
4. Number of employees: Full Time _____ Part Time _____
5. Business License: Type _____ Issued _____
6. Contractor's License: Type _____ Class _____
Issued _____ Expires _____
7. Attach a list of equipment which will be used for this project.
(Specify: Type, Age/Hours, Owned/Rented)
8. List degrees, certifications, and training, of key personnel within your company applicable to this Solicitation:
 - a) _____
 - b) _____
 - c) _____
9. List at least three (3) State, County, Federal Agencies and/or commercial references with whom the company has had contracts with in the past year, equal in size and scope as this Solicitation. Include contacts and telephone numbers.
 - a) _____
 - b) _____
 - c) _____
10. Has the company ever defaulted or failed to complete any contract: No / Yes, Explain below

III.4 Insurance

The successful Offeror will be required to provide evidence of the minimum coverages described within the enclosed "Insurance Checklist". No contract shall be finalized and no work shall commence until the County's insurance requirements are met.

Each Offeror shall comply with the Insurance Requirements set forth in the following numbered paragraphs, plus the coverages and limits indicated on the "Insurance Checklist" at the end of this section of the Solicitation. Technical proposals must note any desired exceptions to the insurance coverage which may include the submission of proposed alternatives.

1. The firm shall be responsible for its work and every part thereof, and for all materials, equipment, and property of any and all description used in connection therewith. The firm assumes all risks of direct and indirect damage or injury to any person or property wherever located, resulting from any action, omission, commission, or operation under the contract, or in connection in any way whatsoever with the contracted work.
2. The firm shall, during the continuance of all work under the contract provide and agree to maintain the following unless omitted from the attached "Insurance Checklist":
 - a. Workers' Compensation and Employers' Liability insurance under the Commonwealth of Virginia statutory requirements, to protect the firm from any liability or damages for any injuries (including death and disability) to any and all of its employees, volunteers, or subcontractors, including any and all liability or damage which may arise by virtue of any statute or law in force within the Commonwealth of Virginia, or which may be hereinafter enacted.
 - b. General Liability insurance in the amount prescribed by the County, to protect the Contractor, its subcontractors, and the interest of the County, against any and all injuries to third parties, including bodily injury and personal injury, wherever located, resulting from any action or operation under the Contract or in connection with the contracted work. The General Liability insurance shall also include the Broad Form General Liability endorsement, in addition to coverages for explosion, collapse, and underground hazards, where required. Completed Operations Liability coverage shall continue in force for one year after completion of work.
 - c. Automobile liability insurance, including property damage, covering all owned, non-owned, borrowed, leased, or rented vehicles operated by the Contractor. In addition, all mobile equipment used by the Contractor in connection with the contracted work, will be insured under either a standard Automobile Liability policy, or a Commercial General Liability policy.
3. Liability insurance may be arranged by General Liability and Automobile Liability policies for the full limits required, or by a combination of underlying Liability policies for lesser limits with the remaining limits provided by an Excess or Umbrella Liability policy.
4. The Contractor agrees to provide insurance issued by companies admitted within the Commonwealth of Virginia, with the Best's Key Rating of at least A:VI.
5. The Contractor will provide an original, signed Certificate of Insurance, evidencing such insurance and such endorsements as prescribed herein, and shall have it filed with the County Purchasing Manager before a contract is executed and any work is started.
6. The Contractor will secure and maintain all insurance policies of its subcontractors which shall be made available to the County on demand.

7. The Contractor will provide on demand, certified copies of all insurance coverage on behalf of the Contract within ten (10) days of demand by the County. These certified copies will be sent to the County from the Contractor's insurance agent or representative.
8. No change, cancellation, or non-renewal shall be made in any insurance coverage without a thirty (30) day written notice to the County Purchasing Manager. The Contractor shall furnish a new certificate prior to any change or cancellation date. The failure of the Contractor to deliver a new and valid certificate will result in suspension of all payments until the new certificate is furnished to the County Purchasing Manager.
9. Insurance coverage required in these specifications shall be in force throughout the Contract term. Should the Contractor fail to provide acceptable evidence of current insurance within five (5) days of written notice at any time during the Contract term, the County shall have the absolute right to terminate the Contract without any further obligation to the Contractor, and the Contractor shall be liable to the County for the entire additional cost of procuring the incomplete portion of the Contract at time of termination.
10. Compliance by the contractor and all subcontractors with the foregoing requirements as to carrying insurance shall not relieve the Contractor and all subcontractors of their liabilities and obligations under this heading or under any other section or provisions of the Contract.
11. Contractual and other Liability insurance provided under the Contract shall not contain a supervision, inspection, or services exclusion that would preclude the County from supervising and/or inspecting the project as to the end result. The Contractor shall assume all on-the-job responsibilities as to the control of persons directly employed by it and of the subcontractors and any person employed by the subcontractor.
12. Nothing contained herein shall be construed as creating any contractual relationship between any subcontractor and the County. The Contractor shall be as fully responsible to the County for the acts and omissions of the subcontractors and of persons employed by them as it is for acts and omissions of persons directly employed by it.
13. Precaution shall be exercised at all times for the protection of persons (including employees) and property.
14. The Contractor and all subcontractors and sub-subcontractors are to comply with the Occupational Safety and Health Act of 1970, Public Law 91-956, as it may apply to the Contract.
15. If the Contractor does not meet the specifications of these insurance requirements, alternate insurance coverage, satisfactory to the Purchasing Manager, may be considered.
16. The County shall be named additional insured in the General Liability policies and stated so on the Certificate.

PRINCE WILLIAM COUNTY, VIRGINIA**Insurance Checklist**

Coverage types marked "X" must be provided if award is made to your firm.

COVERAGE		REQUIRED	LIMITS (FIGURE DENOTES MINIMUM)
Yes	No*		
—	—	X 1. Workers' Compensation and Employers' Liability;	1. Statutory Limits of the Commonwealth of VA:
—	—	X Admitted in Virginia	Yes
—	—	X Employers' Liability	\$1,000,000.00
—	—	X All States Endorsement	Statutory
—	—	USL&H Endorsement	Statutory
—	—	Voluntary Compensation	Statutory
—	—	X 2. General Liability	2. \$1,000,000.00 Combined
—	—	X Products	Single Limit Bodily
—	—	X Completed Operations	Injury and Property
—	—	X Contractual Liability	Damage Each Occurrence
—	—	X Personal Injury	
—	—	X Independent Contractors	
—	—	XCU Prop. Damage Excl	
—	—	X 3. Automobile Liability	3. \$1,000,000.00 Combined
—	—	X Owned, Hired, & Non-Owned	Single Limit Bodily
—	—	X Motor Carrier Act End.	Injury and Property
			Damage Each Occurrence
—	—	X 4. Prof. Errors and Omissions	4 \$1,000,000.00 Limit Each Occurrence
—	—	X 5. Garage Liability	
—	—	X 6. Garagekeepers' Legal Liability	
—	—	X 7. Fire Legal Liability	
—	—	8. Other Insurance:	
—	—	X 9. County named as additional insured on General Liability Policies (This coverage is primary to all other coverages the County may possess)	
—	—	X 10. 30 day cancellation notice required.	
—	—	X 11. Best's Guide Rating - A:VI or Better, or Equivalent	
—	—	X 12. The Certificate must state Bid/RFP No. and Bid/RFP Title	
—	—	X 13. Umbrella Liability	

ATTACHMENT A

S-A-M-P-L-E

STANDARD CONTRACT FOR SUPPLIES AND/OR SERVICES

CONTRACT:

SUBJECT: Class A Pumpers for Dale City Volunteer Fire Department

Between:

PRINCE WILLIAM COUNTY
1 COUNTY COMPLEX COURT (MC460)
PRINCE WILLIAM, VA 22182-9201

703-792-6770 METRO 631-1703 EXT 6770

and the Contractor:

This Contract is entered into this _____ day of _____, _____, by and between the Board of County Supervisors of Prince William County, Virginia, or its authorized agents, and the Contractor identified herein for supplies and/or services identified herein, on the following terms and conditions. This Contract is prepared in accordance with the Purchasing Regulations of Prince William County, which are incorporated herein by reference.

Attachment A, Section I

Contract No. (I\$CONTRACT-NO)

SECTION I

SPECIAL PROVISIONS

I.1 Definitions

"County" shall mean the Board of County Supervisors of Prince William County, Virginia, or the requesting agency identified below and authorized by the Purchasing Regulations or other law to enter into Contracts.

"Requesting Agency" for the purpose of this Contract shall mean Department of Fire and Rescue.

"Contract Administrator" assigned to administer this Contract for the County is _____,

"Contractor" shall mean:

whose authorized representative is _____, _____, who is responsible for the performance obligation of the Contractor under this Contract.

I.2 Incorporation of Documents

The following documents are hereby incorporated by reference into this Contract:

1. Contractor's Bid Response dated _____.
2. County's Solicitation number IFB110040 entitled Class A Pumpers for Dale City Volunteer Fire Department and dated April 14, 2011.

In the event of an inconsistency between the above referenced documents the inconsistency shall be resolved by giving precedence to the following: (I\$AUTHORATIVE-DOC). This Contract shall take precedence over all the documents referenced above.

I.3 Contract Period

The Contract Period shall be from Contract award date through completion and accepted delivery of units.

I.4 Provision of Supplies and/or Services

The Contractor hereby agrees to provide the Class A Pumpers for Dale City Volunteer Fire Department supplies and/or services to the County as described and further outlined herein. This Contract shall take precedence over the documents set forth in provision, Incorporation of Documents, in the event of inconsistency.

I.5 Contract Amount

In return for the supplies and/or services identified herein, and subject to the "Termination for Non-Appropriation of Funds" clause, the County shall compensate the Contractor in accordance with the Contract Pricing Schedule.

I.6 Placement of Orders

A County Purchase Order which may be accompanied by a Task Order or a Work Order shall be issued to the Contractor to provide the goods and/or services identified in the Contract. The Purchase Order indicates sufficient funds are budgeted and appropriated and shall compensate the Contractor in accordance with the Contract Pricing Schedule.

I.7 Subcontractors

Contractors desiring to utilize subcontractors on County jobs must receive prior written County approval to do so before subcontractors perform any services for the County.

I.8 Delivery and/or Pick-Up of Goods

Unless otherwise notified, all goods are required to be delivered within 365 calendar days after receipt of order from the County. Deliveries shall be F.O.B. destination, freight full prepaid and allowed in Prince William County. No collect shipments will be accepted. Deliveries shall be made between 8:30 A.M. and 4:00 P.M., Monday through Friday, less established County holidays, unless otherwise approved by the County. Inside delivery required unless otherwise specified.

The County shall notify the Contractor if/when the County wishes to pick-up the goods from Contractor's place of business. In this event, the goods shall be available for County pick-up within 365 calendar days after County notification.

The Contractor shall give 48 hour advance delivery notice to the requesting agency for deliveries that require unloading assistance from the County and/or for deliveries made to County job site locations.

All shipments/deliveries shall be accompanied by packing slips or delivery tickets, which shall contain the following information for package or load.

Contractor's Name and Address
 Contract Number
 Purchase Order Number
 Task Order Number/Work Order Number, if applicable
 Goods Ordered
 Goods Delivered (article/quantity/date)
 Goods Back Ordered

Failure to comply with these conditions shall be considered sufficient reason for refusal to accept the goods.

I.9 Time of the Essence and Completion

Time shall be of the essence to this Contract, except where it is herein specifically provided to the contrary.

I.10 Insurance

The Contractor shall maintain insurance in an amount and form as set forth in IFB110040.

I.11 Invoicing and Payments

Contractor's invoices shall be submitted to the "Invoice To" address as reflected on the County's Purchase Order.

The Contractor shall submit detailed invoices listing the goods and/or services provided to the County.

As a minimum, invoices shall reflect the following:

Contractor's Name and Address
Contract Number
Purchase Order Number
Task Order Number/Work Order Number, if applicable
Date Goods and/or Services were provided
Receipts and/or Delivery Tickets, if applicable

The County shall make payment to the Contractor, net 30 days and may accept prompt payment discounts if offered, after receipt of an acceptable invoice and the requested goods and/or services have been received and accepted by the County.

I.12 Inspection and Acceptance

Goods and/or services (which term throughout this clause includes without limitation raw materials, components, intermediate assemblies, end products and work performed) shall be subject to inspection and testing by the County, to the extent practicable at all times and places including the place of manufacture, and in any event prior to acceptance.

In case goods are defective in material or workmanship or otherwise not in conformity with the County's requirements, the County shall have the right either to reject them (with or without instructions as to their disposition) or to require their correction. Goods which have been rejected or required to be corrected shall be removed or, if permitted or required by the Purchasing Manager, corrected in place by and at the expense of the Contractor promptly after notice, and shall not thereafter be tendered for acceptance unless the former rejection or requirement of correction is disclosed. If the Contractor fails to promptly remove such goods that are required to be removed or replaced or to correct such goods, the County either 1) may by Contract or otherwise replace or correct such goods and charge to the Contractor the cost occasioned the County thereby; or 2) may terminate the Contract for default as provided by the "Termination for Default" Clause. Unless the Contractor corrects or replaces such goods within the specified delivery

schedule, the Purchasing Manager may require the delivery of such goods to be provided at a reduction in price that is equitable under the circumstances.

Any and all services provided shall be conducted and completed in accordance with recognized and customarily accepted industry practices, unless otherwise specified by the County, and shall be considered complete when the services are approved as acceptable by the County's Contract Administrator or its designee. In the event of rejection of any services provided, the Contractor shall be notified and shall have 10 calendar days from date of the deficiency notice to correct the deficiencies and resubmit for inspection.

I.13 Warranties

The Contractor warrants that (1) goods provided to the County are fit and sufficient for the purpose intended; (2) goods are merchantable, of good quality, and free from defects, whether patent or latent, in material or workmanship, and (3) goods provided to the County conform to the County's specified requirements.

Manufacturer's standard product warranties shall also apply.

I.14 Hazardous Products

Where applicable, the Contractor shall comply with all Virginia Occupational Safety and Health Administration Standards. Specifically, the Contractor shall ensure that all products provided to Prince William County are properly labeled and that Material Safety Data Sheets (MSDS) are provided for those products classified as "hazardous" by the Virginia Occupational Safety and Health Administration.

I.15 Law Compliance

The Contractor shall be solely responsible for complying with all applicable federal, state and municipal laws, codes and regulations relating to this procurement.

I.16 Tax Exemption

Prince William County Government is exempt from the payment of any Federal excise or Virginia sales tax. However, when under established trade practice any such tax is included in bidders list price, the bidder shall bid the list price and shall show separately the amount of tax as a flat sum that will not be paid by the County.

SECTION II

GENERAL PROVISIONS

II.1 Assignability of Contract

Neither this Contract, nor any part hereof, may be assigned by the Contractor to any other party without the express written permission of the County.

II.2 Modifications or Changes to the Contract

All modifications and changes to the Contract shall be in writing.

The Head of the Using Department of this Contract, with the concurrence of the Purchasing Manager (except as otherwise provided by the Purchasing Regulations), shall, without notice to any sureties, have the authority to order changes in this Contract which affect the cost or time of performance. Such changes shall be ordered in writing specifically designated to be a "Change Order." Such orders shall be limited to reasonable changes in the services to be performed or the time of performance; provided that the Contractor shall not be excused from performance under the changed Contract by failure to agree to such changes, and it is the express purpose of this provision to permit unilateral changes in the Contract subject to the conditions and limitations herein.

The Contractor need not perform any work described in any change order unless it has received a certification from the County that there are funds budgeted and appropriated sufficient to cover the cost of such changes.

The Contractor shall make a demand for payment for completed changed work within 30 days of receipt of a change order, unless such time period is extended in writing, or unless the Purchasing Manager requires submission of a cost proposal prior to the initiation of any changed work or supplies. Later notification shall not bar the honoring of such claim or demand unless the County is prejudiced by such delay.

No claim for changes ordered hereunder shall be considered if made after final payment in accordance with the Contract.

II.3 Employment Discrimination for Contracts Over \$10,000

1. During the performance of this Contract, the Contractor agrees as follows:

a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.

c. Notices, advertisements, and solicitations placed in accordance with Federal law, rule, or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

2. The Contractor will include the provisions of the foregoing paragraphs a, b, and c in every Subcontract or purchase order over \$10,000.00, so that the provisions will be binding upon each Subcontractor or Contractor.

II.4 Drug-free Workplace to be Maintained by Contractor for Contracts over \$10,000.00

During the performance of this Contract, the Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every Subcontract or purchase order over \$10,000.00, so that the provisions will be binding upon each Subcontractor or Contractor.

For the purpose of this section, "drug-free workplace" means a site for the performance of work done in connection with a specific Contract awarded to a Contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession, or use of any controlled substance or marijuana during the performance of this Contract.

II.5 Claims/Disputes

In accordance with Section 2.2-4363, VA Code Ann., this provision shall be followed for consideration and handling of all claims by the Contractor under this contract. Section 2.2-4365, VA Code Ann., is not applicable to this Contract, and under no circumstances is this paragraph to be construed as an administrative appeals procedure governed by Section 2.2-4365, VA Code Ann.

Notice of the intent to submit a claim setting forth the basis for any claim shall be submitted in writing within ten (10) days after the occurrence of the event giving rise to the claim, or within ten (10) days of discovering the condition giving rise to the claim, whichever is later. In no event, shall any claim arising out of this Contract be filed after the submission of the request for Final Payment by the Contractor.

Claims by the Contractor with respect to this Contract shall be submitted in writing in the first instance for consideration by the Contract Administrator. The decision of the Contract Administrator shall be rendered in writing within forty-five (45) days from the receipt of the claim from the Contractor. If the Contractor is not satisfied with the decision or resolution of the Contract Administrator, the Contractor may file a formal dispute with regards to the claim with the Prince William County Director of Finance, which claim shall be received within thirty (30) days of the date of decision of the Contract Administrator. The Director of Finance shall reduce his or her decision to writing and shall mail or otherwise furnish a copy of this decision to the Contractor within forty-five (45) days of the receipt of the claim from the Contractor. The decision of the Director of Finance shall be final on behalf of Prince William County unless the Contractor submits the claim to the County Executive within thirty (30) days

of the Director of Finance's decision. The Contractor may submit the claim to the County Executive by mailing or otherwise furnishing the Purchasing Manager a copy of the claim and a request for the County Executive's determination.

The County Executive's decision on the claim shall be rendered in writing to the Contractor within forty-five (45) days of the Purchasing Manager's receipt of the request from the Contractor, and shall be final and binding on behalf of Prince William County, unless the Contractor submits the claim for determination by the Board of County Supervisors by mailing or otherwise furnishing the Purchasing Manager a copy of the claim, along with a request for determination by the Board within thirty (30) days of the County Executive's decision. The Board shall consider the claim and render a decision within forty-five (45) days of the date on which the Board hears the claim in open meeting. The Board's procedure in considering claims under this Contract shall be the same as that for other decisions of the Board on claims made under Section 15.2-1245 et seq., VA Code Ann. The decision of the Board shall be final.

Should any decision-maker designated under this procedure fail to make a decision within the time period specified, then the claim is deemed to have been denied by the decision-maker.

Pending a final determination of a claim, the Contractor shall proceed diligently with the performance of the Work under the Contract.

In accordance with the provisions of Section 2.2-4363, VA Code Ann., full compliance with this procedure set forth in the provision shall be a precondition to the filing of any lawsuit by the Contractor against the Board of County Supervisors of Prince William County arising out of this Contract.

II.6 Termination for Convenience of the County

The parties agree that the County may terminate this Contract, or any work or delivery required hereunder, from time to time either in whole or in part, whenever the County Executive of Prince William County shall determine that such termination is in the best interests of the County.

Termination, in whole or in part, shall be effected by delivery of a Notice of Termination signed by the County Executive or his designee, mailed or delivered to the Contractor, and specifically setting forth the effective date of termination.

Upon receipt of such Notice, the Contractor shall:

1. Cease any further deliveries or work due under this Contract, on the date, and to the extent, which may be specified in the Notice;
2. Place no further orders with any subcontractors except as may be necessary to perform that portion of this Contract not subject to the Notice;
3. Terminate all subcontracts except those made with respect to Contract performance not subject to the Notice;
4. Settle all outstanding liabilities and claims which may arise out of such termination, with the ratification of the Purchasing Manager of Prince William County; and
5. Use its best efforts to mitigate any damages which may be sustained by it as a consequence of termination under this clause.

After complying with the foregoing provisions, the Contractor shall submit a termination claim, in no event later than six (6) months after the effective date of its termination, unless an extension is granted by the Purchasing Manager.

The Purchasing Manager, with the approval of the County's signatory to this Contract, shall pay from the using department's budget reasonable costs of termination, including a reasonable amount for profit on supplies or services delivered or completed. In no event shall this amount be greater than the original Contract price, reduced by any payments made prior to Notice of Termination and further reduced by the price of the supplies not delivered, or the services not provided. This Contract shall be amended accordingly, and the Contractor shall be paid the agreed amount.

In the event that the parties cannot agree on the whole amount to be paid to the Contractor by reason of termination under this clause, the Purchasing Manager shall pay to the Contractor the amounts determined as follows, without duplicating any amounts which may have already been paid under the preceding paragraph of this clause:

1. With respect to all Contract performance prior to the effective date of Notice of Termination, the total of:
 - a. Cost of work performed or supplies delivered;
 - b. The cost of settling and paying any reasonable claims as provided in subparagraph (4), above;
 - c. A sum as profit on (a) determined by the Purchasing Manager to be fair and reasonable.
2. The total sum to be paid under (a) above shall not exceed the Contract price, as reduced by the amount of payments otherwise made, and as further reduced by the Contract price of work or supplies not provided.

In the event that the Contractor is not satisfied with any payments which the Purchasing Manager shall determine to be due under this clause, the Contractor may appeal any claim to the Board of County Supervisors in accordance with the "Claims/Disputes" clause of this Contract.

The Contractor shall include similar provisions in any subcontract, and shall specifically include a requirement that subcontractors make all reasonable efforts to mitigate damages which may be suffered. Failure to include such provisions shall bar the Contractor from any recovery from the County whatsoever of loss or damage sustained by a subcontractor as a consequence of termination for convenience.

II.7 Termination for Default

Either party may terminate this Contract, without further obligation, for the default of the other party or its agents or employees with respect to any agreement or provision contained herein.

II.8 Termination for Non-Appropriation of Funds

If funds are not appropriated for any succeeding fiscal year subsequent to the one in which this Contract is entered into, for the purposes of this Contract, then the County may terminate this Contract upon thirty (30) days prior written notice to the Contractor. Should termination be accomplished in accordance with this Section, the County shall be liable only for payments due through the date of termination.

II.9 Payments to Subcontractors

In the event that the Contractor utilizes a subcontractor for any portion of the work under this Contract, the Contractor hereby agrees to:

1. The Contractor shall take one (1) of the two (2) following actions within seven (7) days after receipt of amounts paid to the Contractor by the County for work performed by a subcontractor under the Contract.
 - a. Pay a subcontractor for the proportionate share of the total payment received from the County attributable to the work performed by that subcontractor under the Contract; or
 - b. Notify the agency and any subcontractors, in writing, of its intention to withhold all or a part of the subcontractor's payment with the reason for nonpayment.
2. The Contractor shall be obligated to pay interest to a subcontractor on all monies owed by the Contractor that remain unpaid after seven (7) days following receipt by the Contractor of payment from the County for work performed by a subcontractor under the Contract, except for amounts withheld under Subsection 1 b. of this section. The Contractor's obligation to pay an interest charge to a subcontractor pursuant to the provisions of this section may not be construed to be an obligation by the County. A contract modification may not be made for the purpose of providing reimbursement for any such interest charge. A cost reimbursement claim may not include any amount for reimbursement for such interest charge.
3. Unless otherwise provided under the terms of this Contract, interest shall accrue at the rate of one percent (1%) per month.
4. The Contractor is hereby required to include in each of its subcontracts a provision requiring each subcontractor to otherwise be subject to the same payment and interest requirements set forth in subsection 2. and 3. of this section with respect to each lower-tier subcontractor.

II.10 Examination of Records

The Contractor agrees that the County, or any duly authorized representative, shall, until the expiration of five (5) years after final payment hereunder, have access to and the right to examine and copy any directly pertinent books, documents, papers and records of the Contractor involving transactions related to this Contract.

The Contractor further agrees to include in any subcontract for more than \$10,000 entered into as a result of this Contract, a provision to the effect that the subcontractor agrees that the County or any duly authorized representative shall, until the expiration of five (5) years after final payment under the subcontract, have access to and the right to examine and copy any directly pertinent books, documents, papers and records of such Contractor involved in transactions related to such subcontract, or this Contract. The term "subcontract" as used herein shall exclude subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public. The period of access provided herein for records, books, documents and papers which may relate to any arbitration, litigation, or the settlement of claims arising out of the performance of this Contract or any subcontract shall continue until any appeals, arbitration, litigation or claims shall have been finally disposed of.

II.11 Immigration Reform and Control Act of 1986

The Contractor certifies that it does not and will not during the performance of this contract violate the provisions of the Federal Immigration Reform and Control Act of 1986 which prohibits employment of illegal aliens. The Contractor agrees that its employment of any person without legal status may subject it to termination of this contract for default and agrees to include a similar provision in any subcontract.

II.12 Ethics in Public Contracting

The Contractor hereby certifies that it has familiarized itself with Article 6 of Title 2.2 of the Virginia Public Procurement Act, Sections 2.2-4367 through 2.2-4377, VA Code Ann., and that all amounts received by it, pursuant to this Procurement, are proper and in accordance therewith.

II.13 Governing Law and Choice of Forum

This Contract and any disputes hereunder shall be governed by the laws of the Commonwealth of Virginia. It is further agreed that all disputes and matters whatsoever arising under, in connection with or incident to this Contract, shall be litigated, if at all, in and before a state Court located in the County of Prince William in the Commonwealth of Virginia or a federal Court located in the Eastern District of Virginia, and any appropriate appellate Court thereof, to the exclusion of the courts of any other state, territory, country or other jurisdiction.

II.14 Integration

This Contract shall constitute the whole agreement between the parties. There are no promises, terms, conditions, or obligations other than those contained herein, and this Contract shall supersede all previous communications, representations, or agreements, written or verbal, between the parties hereto.

II.15 Hold Harmless

The Contractor hereby agrees to indemnify and hold harmless Prince William County, Virginia, its officers, agents and all employees and volunteers, from any and all injuries, damages and losses however or by whomever sustained, including cost of investigation, all reasonable attorneys fees, and the cost of appeals arising out of any such claims or suits, because of any and all acts of omission or commission of the Contractor, including its agents, Subcontractors, employees and volunteers, in connection with work under this Contract.

It is understood and agreed that the Contractor is at all times herein acting as an independent Contractor.

BOARD OF COUNTY SUPERVISORS OF (I\$CONTRACTOR)
PRINCE WILLIAM COUNTY, VIRGINIA (I\$CONTRACTOR-1)

County Representative

Contractor Representative

Title

Title

ATTEST:

Purchasing Manager

APPROVED AS TO FORM COUNTY ATTORNEY'S OFFICE

_____ Date: _____