



## LEGAL NOTICE

### INVITATION TO SUBMIT QUOTATIONS

The Town of Smyrna will accept quotations on a rescue vehicle for the Fire Department. Bidders shall submit sealed quotations in the format specified in the Invitation to Submit Quotations no later than **10:00 a.m. August 12, 2010** at which time bids will be publicly opened and read aloud. No bid may be withdrawn after the scheduled closing time. Bidding documents may be obtained at Smyrna Town Hall during regular business hours or [www.townofsmyrna.org](http://www.townofsmyrna.org). Quotations should be mailed or hand delivered to:

Rex S. Gaither  
Smyrna Town Hall  
**Sealed Bid on FD Rescue Vehicle / August 12 @ 10:00 a.m.**  
315 South Lowry Street  
Smyrna, TN 37167

The Town of Smyrna will not discriminate in the purchase of all goods and services on the basis of race, color, religion, sex, national origin, age, disability or any other lawfully protected classification.

Verbal quotations or quotations received after the closing date will not be accepted. The Town of Smyrna reserves the right to reject any and all bids, to waive technicalities or informalities and to accept any bid deemed to be in the best interest of the Town.

SUBMITTED BY: REX S. GAITHER  
PURCHASING MANAGER

TO BE RUN: JULY 16, 2010

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Name of Company

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## **SECTION I - GENERAL INFORMATION**

- A. The Town of Smyrna desires to obtain quotes on a rescue vehicle for the Fire Department.

Smyrna City Hall  
315 South Lowry Street  
Smyrna, TN 37167

Smyrna Fire Station  
145 South Lowry Street  
Smyrna, TN 37167

Questions should be directed to Chief Bill Culbertson (615) 459-9735 or e-mail:  
[bill.culbertson@townofsmyrna.org](mailto:bill.culbertson@townofsmyrna.org).

- B. The Town of Smyrna reserves the right to reject any and all bids, to waive technicalities or informalities and to accept any bid deemed to be in the best interest of the Town. No bid may be withdrawn after the scheduled closing time.
- C. The bidder shall abide by and comply with the true intent of the specifications and not take advantage of any unintentional error or omission, but shall fully address the full intent and meaning of each aspect of the specifications.
- D. This bid document must be completed and included as an integral part of each bidders proposal.
- E. Freight shall be paid by vendor and should be included in unit price bid.
- F. The Town is a tax exempt organization.
- G. Mail is delivered after 11:00 a.m. Monday through Friday.

**SECTION II - BID INFORMATION**

Questions regarding these specifications shall be submitted in writing to Chief Bill Culbertson of the Town of Smyrna (Purchaser). It is not the purpose of these specifications to eliminate any qualified bidder.

The bid pricing must be on the form enclosed. **All** yes \_\_\_ no \_\_\_ lines must be checked to indicate whether bidder complies with specifications of that section. Any exception could be grounds for immediate disqualification.

**SUBMISSION OF BIDS**

In addition to these specifications, each bidder is required to submit a complete and accurate description, of their own product to include, but not limited to, size, dimensions, type, model, material grade and material thickness of their apparatus in the form of a detailed bid proposal. Bids will be judged on completeness and accuracy in response to these specifications. Bid proposals not complying with these basic minimum specifications may be judged non-compliant and shall be rejected.

Bid prices and compliance responses are to be entered on these forms **only**. Use of contractor's bid forms will be grounds for bid rejection. The contractor's specifications are to follow and use the same headings and follow the same sequence of these specifications for ease of evaluation (**NO EXCEPTION**).

Bids will be made available to other municipalities and governmental agencies within the USA.

**INDEMNITY REQUIREMENT**

The contractor further agrees to protect, defend, and save the Town its elected and appointed officials, agents, employees and volunteers while working in the scope of their duties as such, harmless from and against all claims, demands, and causes of action of any kind or character, including the cost of their defense, arising in favor of the contractor's employees or third parties on account of bodily or personal injuries, death or damage to property arising out of services performed or omissions of services or in any way resulting from the acts or omissions of the contractor and/or its agents, employees, subcontractors, representative of the Town under this agreement.

**Compliance with laws:**

The contractor must comply with all applicable federal and state law including the prevailing wage laws.

Y\_\_\_ N\_\_\_

**BIDDER QUALIFICATIONS**

The bidder shall have in operation a parts and service facility adequate for actively engaging in the performance of the services specified herein.

The Bidder shall employ qualified personnel to render prompt, efficient, and quality service.

A certified and notarized statement of financial condition and/or current Dunn and Bradstreet rating may be required prior to contract signing.

The manufacturer shall have been in operation for a minimum of thirty (30) years in the manufacture of fire apparatus.

An inspection of the bidder's facility may be made prior to award of the bid, at which time additional information could be requested to verify the bidder's responsibility. The bidder shall identify the location of the manufacturing facility. Location: \_\_\_\_\_

## **BID COMPLIANCE**

The Purchaser shall evaluate all bids received for all variations and exceptions to these specifications. If variations are found and are not listed as an exception, it shall be considered non-compliant and be rejected.

Should the apparatus not comply with all requirements of this document, the apparatus shall be rejected when delivered. All apparatus shall be inspected for material, workmanship, and compliance with specifications prior to acceptance. All items found to be not in compliance shall be identified, and the Purchaser reserves the right to accept or reject those specific items. The non-compliance or rejected items shall be replaced or reworked to meet the requirements of this document at no additional cost to the Purchaser.

## **GENERAL CONSTRUCTION**

The apparatus shall be of the latest type and constructed with due consideration to symmetrical proportion, the distribution of weight and the nature of the load to be carried, and the general character of the service to which the apparatus shall be subjected when placed in service. The apparatus and all major components shall be manufactured in North America.

The importance of public safety associated with all fire fighting vehicles requires that this vehicle meet or exceed these specifications. The minimum level of quality and design detailed in these specifications are required to meet the life cycle objectives of the apparatus.

To extend the expected service life of the vehicle, the body module(s) shall be separate and removable from the chassis frame and be able to be re-installed on a new chassis.

The sheet metal material and gauge throughout the specifications are considered minimum. Since such materials are available to all manufacturers, exceptions to same shall not be accepted. Substitutions of lighter gauge material shall not be acceptable.

All parts not specifically mentioned herein, but which are necessary in order to furnish a complete fire apparatus, shall be furnished and shall conform to the best practices known to the fire apparatus industry. All items furnished shall be new and unused.

Details of design, construction and the sizes and weights of the different parts are left to the discretion of the manufacturer unless specified or shown.

The workmanship shall be of the highest quality in its respective field. Special consideration shall be given to: accessibility of the various components, required periodic maintenance operations, ease of operation, and symmetrical proportioning of the overall apparatus.

Because this project requires the integration of the new custom fabricated components and related accessories to a new cab, chassis and necessary components, the Manufacturer shall accept final responsibility for the merger of the components into a fully integrated and complete vehicle.

Welding shall not be employed in the assembly of the apparatus in a manner that shall prevent the removal of major component parts for service and/or repair.

Construction shall be rugged and ample safety factors shall be provided to carry loads as specified to meet the road requirements and speed conditions.

## **LIABILITY**

The winning Bidder shall defend any and all suits. It will assume all liability for use and all claims made against the Purchaser or any of its officials or agents for the use of any patents, process, device or article forming a part of the apparatus or any appliance furnished under contract.

## **TAXES**

The bid price shall not include any local, State, or Federal taxes. The bidder shall not be liable for any State or Federally mandated tax or program after the sale of this apparatus.

## **DELIVERY**

The Manufacturer shall state the number of calendar days required to complete and deliver the apparatus after the award of the contract. The Manufacturer shall not be held liable for delay in delivery caused by accidents, strikes, or floods, or other Acts of God, not to exceed a maximum one hundred twenty (120) days.; provided however, that the Manufacturer notifies the Purchaser's representative in writing, of the occurrence of any delay, such notification to be by certified mail, e-mail or third party courier and provided within 10 working days of its occurrence. If delivery is not made within 120 days of delay notification, Purchaser shall have the right to terminate this Contract without penalty. The bid price shall be F.O.B. at 145 South Lowry Street. Call 615-459-9735 prior to delivery.

To insure proper break-in of all components while still under warranty, the apparatus shall be delivered over the road and under its own power. Rail and/or truck freight is not acceptable. The apparatus shall be suitably protected against damage from road debris while in transit.

## **INFORMATION REQUIRED AT DELIVERY**

Copies of complete operation and maintenance manuals, covering the completed apparatus, including, but not limited to, the chassis manual, lubrication charts, and fire equipment service information as supplied by brand name component suppliers.

Engine manufacturer's current brake horsepower curve, showing the maximum no-load governed engine RPM.

Manufacturers record of apparatus construction details form including actual vehicle weights.

## **DRAWINGS**

To assure the Purchaser that the bidder fully understands the scope of work to be performed and is familiar with the project, three copies of arrangement drawings shall be included with the bid. The purpose of these drawings is to assist the Purchaser in evaluation and comparison of all bids received in compliance with the specifications. Omission of drawings shall be cause for rejection of bid. The drawings shall depict the proposed apparatus and shall show the front, side and rear views of the proposed apparatus and shall show all principle dimensions. The drawings shall show the location of hardware, lights, discharge outlets, suction inlets, accessories, etc.

Before construction begins, drawings shall be reviewed and approved by Chief Bill Culbertson.

## **MATERIALS**

The material specifications herein shall be considered an absolute minimum. Exceptions shall not be taken or permitted due to the fact that all the raw materials of the specified type and gauge are available to all manufacturers. Since all custom fire apparatus builders have the ability to obtain and fabricate as these specifications require, all basic design specifications stated herein shall be met.

## **CERTIFICATIONS**

The proposed apparatus shall meet or exceed all applicable requirements of the latest editions of NFPA standards unless changed by the requirements of these specifications and all State and Federal regulations in effect at the date required for the submittal of the bid proposal.

Parts and service shall be available for this apparatus for a minimum of twenty (20) years.

The unit proposed is not to be a prototype unit and is to be of an established model and design.

**SERVICE CENTER AND FIELD SERVICE**

Serviceability is of high importance to the town. For that reason, the bidder shall maintain a fully equipped company service center and provide on-call field service when requested. As a condition of bid acceptance, the bidder shall state the location and size, hours of operation, along with number of mechanic bays available for truck service and the experience of employees within the organization. A road service truck is required to afford heavy duty emergency service. Failure to provide this with your bid will be grounds for immediate bid rejection. Please disclose any replacement equipment available while undergoing service. See page 9.

**WARRANTY**

The successful bidder shall furnish a warranty that covers any defects in material and workmanship under normal use and service for the minimum periods listed in the specifications.

The warranties of the various components, (i.e., chassis, pump, equipment etc.) not manufactured by the apparatus builder making up the completed apparatus shall be passed on to the purchaser. To prevent the problems of "divided responsibilities" the successful bidder shall coordinate all warranty claims, the apparatus shall be manufactured by divisions of the same, or associated corporations.

**RESPONSE TIME**

Submit name and address of nearest authorized dealer and hours of operation that will perform warranty work on body and cab/chassis. See page 9.

**LIQUIDATED DAMAGES**

Bidder must agree to fully complete the truck before the calendar days indicated on page 6 from date of notice to proceed from Chief Bill Culbertson. Bidder must also agree to pay, as liquidated damages, the sum of \$50.00 per each calendar day thereafter.

**AGREEMENT CONTRACT**

Successful bidder will be expected to enter into a contract Agreement with the Town of Smyrna. Agreement must be ***signed and attested, but not dated***, by the proper business representative and submitted ***with*** the bid proposal. An executed contract will be forwarded to winning vendor after Council approval.

Y\_\_\_ N\_\_\_

**BID QUOTATION FORM**

The undersigned agrees to meet requirements of the specifications, attached hereto and provide the required insurance coverage and bonds on a state approved insurance company.

In submitting this quotation it is understood that the Purchaser reserves the right to accept or reject any or all proposals and it is further understood that any or all proposals may not be withdrawn from the opening thereof.

**ONE (1) TRUCK FIRE APPARATUS PER SPECIFICATIONS**

Manufacturer \_\_\_\_\_

Manufacturer Location \_\_\_\_\_

Model \_\_\_\_\_

F.O.B. Purchasers Location:        \$ \_\_\_\_\_ each

3 day onsite orientation, operations, maintenance and training by manufacturer representative (not a dealer representative).

State your delivery time in calendar days ARO: \_\_\_\_\_

Bid will be firm from the opening. Terms: net payment on delivery

The undersigned hereby declares that no person or party other than the undersigned have any interest whatever in this proposal, that it is without any connection or collusion with any person or persons making or having made any proposal for the same work and without any previous understanding with such person or persons as to relative prices, obviating competition, and that it is made in good faith.

BIDDER : \_\_\_\_\_

AUTHORIZED SIGNATURE: \_\_\_\_\_

NAME TYPED: \_\_\_\_\_

TITLE: \_\_\_\_\_

STREET ADDRESS: \_\_\_\_\_

CITY, STATE, ZIP: \_\_\_\_\_

TELEPHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

E-MAIL ADDRESS: \_\_\_\_\_ DATE: \_\_\_\_\_



**SECTION III - APPARATUS SPECIFICATIONS**

**INSTRUCTIONS TO BIDDERS**

**23' SERVICE COMPANY VEHICLE - PURPOSE**

Through these specifications it is the intent of the Purchaser to secure an apparatus to withstand the duty encountered in the firefighting and rescue apparatus service.

The apparatus shall be constructed with due consideration to the nature and distribution of the load to be sustained, and to the characteristics of the service.

All parts not specifically mentioned herein, but which are necessary in order to furnish a complete fire apparatus, shall be furnished and shall conform to the best practices known to the emergency vehicle industry.

Subletting any part of the fabrication, painting, or finishing of this apparatus will not be acceptable. The apparatus body is to be built completely by the Bidder or the bid will be excluded from consideration.

Where these specifications require specific brand names, model numbers, dimensions or capacities of components, these shall be supplied, as each has been selected carefully for reliability and availability of replacement on a local basis.

Due to the importance of public safety associated with fire fighting, and to assure a reasonably trouble free life for the body being purchased, Bidders shall have at least thirty (30) years experience manufacturing and field testing aluminum bodies for emergency vehicle duty. Bidders of apparatus that have not manufactured and field tested such apparatus for at least thirty (30) years shall be excluded from consideration. The proposals of such Bidders will not be considered.

Bidders shall state in the proposal, the number years of experience they have building aluminum body emergency vehicles.

The apparatus and all major components shall be manufactured in the United States.

Y\_\_N\_\_

**REGULATION COMPLIANCE**

Where applicable, Bidder's specifications must fully comply with requirements of the respective N.F.P.A. recommendations, Underwriters Laboratories Inc., State Inspection-Insurance Board, and all State and Federal Department of Transportation vehicle regulations at contract signing.

In the event the apparatus fails to meet a required UL test on the first trial, a second trial may be made at the option of the Bidder within thirty (30) days of the date of the first trial. The second trial shall be final or conclusive, and failure to comply with these requirements shall be cause for rejection and exercise of the performance bond.

Permission to keep or store apparatus, in any building owned or occupied by the Purchaser, during the above specified period with the permission of the Bidder, shall not constitute acceptance of the same.

Y\_\_N\_\_

**ROAD REQUIREMENTS**

Road tests shall be conducted by the Bidder with the apparatus fully loaded, and a continuous run of ten (10) miles will be made under typical driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission, drive shafts, front and rear axles, etc. shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus.

Y\_\_N\_\_

**REQUIRED BONDING**

Each bid must be accompanied by a bid bond in the amount of ten (10%) percent of the maximum amount of the bid, to assure the Purchaser of the adherence of the Bidder to his bid, the execution of the Contract, and the ability of the Bidder to furnish a 100% performance bond, if his bid is accepted.

Within ten (10) days after the opening of Bids, the bid bonds of all but the three (3) responsible Bidders who comply with these specifications will be returned, or if all Bids are rejected, the bid bonds of all Bidders will be returned. Within ten (10) days after the execution of the Contract and acceptance of the Bidder's bond by the Purchaser, the bid bond of the successful Bidder, and any remaining Bidders, will be returned.

A 100% performance bond shall be furnished to the Purchaser within two weeks following entry into a contract between the Bidder and the Purchaser. The performance bond shall guarantee the contract was entered into in good faith and the apparatus will be built and delivered within the specifications and terms agreed upon.

If the Bidder to whom the Contract is awarded refuses or neglects to execute, or fails to furnish the required 100% performance bond within two (2) weeks after notice to him of the award, the amount of his deposit may be forfeited and shall be retained by the Purchaser as liquidated damages.

Y\_\_\_N\_\_\_

**FORM AND DOCUMENT REQUIREMENTS**

The Bidder shall submit a certified weight distribution diagram with their bid that includes stating the payload capacity (G.V.W. less empty weight of apparatus).

Color photographs of similar apparatus and features manufactured by the Bidder shall be submitted with the proposal.

The Bidder shall submit with his bid a list of a minimum of 100 vehicles similar to this bid that they have previously manufactured. The complete minimum list of 100 shall include the names, addresses, and telephone numbers of the Purchasers' Fire Chiefs.

A separate listing shall be provided to include a minimum of ten customers that have purchased two or more emergency vehicles similar to this proposal that the Bidder has manufactured in the last ten years. The listing shall include the names, addresses, and telephone numbers of the Purchasers' Fire Chiefs.

A statement that guarantees replacement parts for all components manufactured by the body builder will be available for a period not less than 20 years. The statement shall be signed by an officer of the company.

A sample form of the inspection criteria used during the paint process of the apparatus shall be furnished with the bid. This form shall require information pertaining to the areas of the apparatus painted, when painted, type and quantity of priming and finish paints used, and a graded scale of the finish paint quality. The form shall require signature of the body builder's paint supervisor, with inspection date, to indicate that each particular step is acceptable and approved.

On any vehicle where the driveline work is done for installation of a pump or PTO, a "Driveshaft Alteration Record" shall be completed to show specific angles used for the pump and/or PTO. The form shall be signed by the responsible individual and dated. A copy of this form shall accompany the proposal.

A sample Quality Assurance Certification form used by the body builder's electrical department shall be furnished with the bid. The form shall indicate, via a checklist and dated signature, that all 12 volt and 120 volt items of the apparatus have been inspected and approved. This shall include installation quality as well as function.

An estimated Amp draw analysis of the proposed apparatus 12 volt electrical system shall be provided with the Bidders proposal. The analysis shall show estimated Amp draw of the apparatus responding to the scene and of the apparatus at the scene.

Each bid must give the full business address of the Bidder. The name of each person signing the bid shall also be typed or printed below the signature.

The Bidder must provide the name, full address and phone number of its authorized sales representative who is to coordinate the contract and delivery of the apparatus.

Y\_\_N\_\_

**PAINT TESTING**

The Bidder shall have conducted salt tests on at least three major paint manufacture's product to determine which showed the most desirable results in terms of appearance and durability. A set of test plates of each product shall have been given to each individual paint manufacturer as well as a third party testing firm. The results of the tests shall be in writing and available for inspection by the Purchaser.

Y\_\_N\_\_

**INSURANCE**

The Bidder shall provide with his bid a Certificate of Insurance listing the amount of his company's Product Liability insurance coverage. This insurance shall not be less than \$7,000,000 total aggregate coverage. Certificates for liability coverages shall name the Town as an "additional insured".

The Bidder shall maintain full casualty insurance coverage on the cab and chassis from the time of first possession until title to apparatus is accepted by Purchaser. The Purchaser reserves the right to require adequate proof of insurance from the Bidder's insurance carrier prior to entering into contract with the Bidder.

Y\_\_N\_\_

**APPARATUS DRAWINGS**

The Bidder shall submit, with the proposal, two (2) sets of scaled apparatus drawings done exactly to these specifications.

Said drawings shall be submitted with the bid proposal in order for the Purchaser to permit evaluation of the scope of the work being proposed by the Bidder and its conformance to the specifications.

At a minimum, the drawings shall show left side exterior, right side exterior, front and rear exterior. The body top view shall also be shown.

Y\_\_N\_\_

**THREE DIMENSIONAL BODY DRAWING**

A three dimensional drawing of the Bidders typical extruded aluminum body shall be submitted with the Bidders proposal. The drawing shall show all the aluminum extrusions used including type and shape, and where located. The areas where the body cross members are mounted to the chassis frame shall also be shown.

This three dimensional drawing must be submitted to give the Purchaser a clear understanding of the structural integrity of the unit.

Y\_\_N\_\_

**WIRING DIAGRAM**

The Bidder shall submit a wiring diagram that is typical for the type of unit being bid so that the Purchaser can review the Bidders overall electrical system.

Y\_\_N\_\_

**EXCEPTIONS, VARIATIONS OR CLARIFICATIONS**

Each Bidder is required to provide a complete and accurate description of the proposed apparatus. To provide for a fair and readily comparable evaluation of the proposals, the Bidder must list his apparatus description in the same sequence as provided in this bid specification.

Since all components specified by brand, model number, dimension, size, or capacity are readily available to all Bidders, bidding of variations and alternates must be detailed clearly.

To provide a fair comparison of all Bidder's proposals, any exceptions, variations, or clarifications to these specifications must be set forth on a separate sheet with Bidders letterhead in the bid. These exceptions, variations, or clarifications must be numbered to correspond with items numbered in the specifications.

Specifically, all Bidders are required to submit these specifications with their proposal, underlining each item where the Bidders proposal differs and consecutively number each. The number shall correspond with the Bidders exception, variation, or clarification page which shall be included with the proposal.

NOTE: Failure to list each and every exception in above manner will result in rejection of Bidder's proposal. A general statement taking "total exception" to the specifications will result in rejection of that bid.

Y\_\_N\_\_

**PATENT INDEMNIFICATION BY BIDDER**

The Bidder, if his bid is accepted, shall indemnify the Purchaser against patent infringement claims and will defend any and all suits and assume all liability for use and all claims made against the Purchaser or any of its officials or agents for the use of any patents, process, device or article forming a part of the apparatus or any appliance furnished under contract.

Y\_\_N\_\_

**COMPLETION**

The Bidder shall specify the estimated number of calendar days that the apparatus will be completed after award of contract. The Bidder will not be held liable for delay in delivery caused by events not subject to control such as accidents, strikes or floods.

Y\_\_N\_\_

**PRICING, TERMS AND CONTRACTS**

The bid price shall not include any local, State or Federal taxes. The Bidder shall not be liable for any State or Federally mandated tax which becomes law after the signing of the contract for this apparatus. The Bidder shall state if their price includes delivery to the Purchaser and shall separate out the cost of such delivery for evaluation by the Purchaser.

Bidders shall be required to provide, in exact detail, the payment terms for said apparatus in their fire apparatus proposal. This shall include any prepay discounts which may apply.

Any contract which the Purchaser shall enter into shall include the attached specifications, in addition to Bidders proposal specifications.

Y\_\_N\_\_

**AWARD OF CONTRACT**

The Contract will be awarded as soon as possible to the lowest responsible Bidder, provided the bid is responsive to the specification, reasonable, and in the sole judgment of the Purchaser it is in the best interest of the Purchaser to accept it.

The Purchaser reserves the right to waive any informality in Bids received when such waiver is in the interest of the Purchaser; also to accept any item in the bid, unless otherwise specified by the Purchaser or Bidder.

Each Bidder shall be prepared, if so requested by the Purchaser, to present specific evidence of his

experience, qualifications, and financial ability to carry out the terms of the contract. The financial capability of the Bidder will be seriously considered as part of the bid evaluation.

Y\_\_N\_\_

**REJECTION OF BIDS**

The competency and responsibility of Bidders will be considered in making the award. The Purchaser reserves the right to reject any or all Bids when, in his sole judgment, such rejection is in the best interest of the Purchaser, and to reject the bid of a Bidder who, in the judgment of the Purchaser, is not in a position to fulfill the contract. The Purchaser does not obligate itself to accept the lowest or any bid.

Y\_\_N\_\_

**WITHDRAWAL OF BIDS**

Bids may be withdrawn by Bidders certified mail or telegraphic request prior to the time and date fixed for opening.

Negligence on the part of the Bidder in preparing the bid confers no right of the withdrawal of the bid after it has been opened.

No Bidder may withdraw his bid after the time and date set or the opening thereof.

Y\_\_N\_\_

**FULL DOCUMENTATION AT TIME OF DELIVERY**

-- The Bidder must supply, at time of delivery, complete and detailed operation and maintenance manuals for all apparatus components.

-- A complete and exact wiring diagram of the delivered body electrical system will be provided at the time of delivery.

-- A written procedure, on Company letterhead, shall be provided with the delivered vehicle detailing correct steps to be taken for future mixing of paint for touch up and repaint purposes. This shall include exterior job color paint and compartment interior paint. A copy of this document must be provided with the Bidder's proposal.

-- A high quality, long lasting finish and appearance is critical with this apparatus. A document, on Company letterhead, shall be provided with the delivered vehicle detailing the procedure for maintenance and cleaning of the apparatus paint, lettering, striping, and aluminum treadplate. The document shall detail steps to be taken during the "initial" cleaning process and "final" cleaning process, including type of materials and solutions to be used and required unit measurement of each solution.

-- Procedures shall also be explained for correct waxing of the vehicle. The document shall include an explanation of the danger of acid rain and the proper precautions to be taken to protect the apparatus. A copy of this maintenance, cleaning, and waxing document must be provided with the Bidder's proposal.

-- The delivered apparatus shall have a certified G.V.W.R. weight sticker applied to the vehicle on delivery to assure the apparatus meets all laws pertaining to the weight carrying capacity of the vehicle.

Y\_\_N\_\_

**WARRANTY**

The Successful bidder shall warrant the apparatus to be free from defects in material and workmanship for a period of one (1) year. Component parts, if found to be defective, shall be repaired or replaced without cost to purchaser. This warranty shall be exclusive of the chassis and other trade accessories, which are normally warranted by their respective manufacturers.

In addition to the one year base warranty, the following extended warranties shall be furnished if applicable:

- A fifteen (15) year structural warranty.
- A five (5) year paint warranty.
- A five (5) year electrical warranty.

The Bidder shall include a certified copy of his warranty with bid.

Y\_\_N\_\_

**CONFLICT TO SPECIFICATIONS**

To be considered, all proposals must be made in accordance with these "Instructions to Bidders".

Should any Bidder find, during examination of specifications, any discrepancies, omissions, ambiguities or conflicts, or be in doubt as to their meaning, he shall request from the Purchaser, in writing, an interpretation or correction thereof not later than ten (10) days before the date of the bid opening. The Purchaser will review the question, and where the information sought is not clearly indicated or specified, in his opinion, he will issue a clarifying or correcting addendum bulletin. Proper interpretation or the making of any necessary inquiry will be the Bidders responsibility.

All specifications herein contained are considered as minimum. No exceptions to these minimum standards shall be allowed relating to gauge of metal, size of components, and overall design.

Y\_\_N\_\_

**INSPECTION TRIP**

A final construction inspection trip to the manufacturer shall be supplied for one representative of the fire department to verify the apparatus has been constructed as required by the contract. The bidder shall be responsible for said trip and shall bear costs associated with the trips, including lodging and transportation.

Y\_\_N\_\_

**PRE-CONSTRUCTION MEETING**

A pre-construction meeting shall be held utilizing "GoToMeeting" conferencing prior to any construction processes at the Bidder's manufacturing facility. Authorized representatives of both the Purchaser and the Manufacturer shall be present (a dealer of the Manufacturer is not acceptable). The "GoToMeeting" shall be a secure online meeting with transmit and receive audio capabilities for participants.

Prior to and during the meeting the Manufacturer shall supply complete apparatus drawings and specifications for review and Purchaser approval.

Y\_\_N\_\_

**APPROVAL DRAWINGS**

Two (2) sets of engineering blueprints, CAD drawn to scale specifically for this apparatus, shall be provided. The Fire Department shall review and approve these drawings prior to actual construction of the apparatus.

Both left and right side views, front and rear views, and a top view shall be provided. The blueprints shall also show the overall dimensions of the apparatus, proposed compartment sizes and features, and the location of all emergency warning and work lights that are to be provided by the body builder.

Y\_\_N\_\_

**PERFORMANCE REQUIREMENTS**

The apparatus, when fully equipped and loaded, shall be capable of the following performance on dry, level, paved roads in good condition:

From a standing start the vehicle shall attain a true speed of 35 mph within 25 seconds.

From a steady speed of 15 mph the vehicle shall accelerate to a true speed of 35 mph within 30 seconds. This shall be accomplished without moving the gear selector.

The vehicle shall attain a minimum top speed of not less than 50 mph.

The apparatus shall be able to maintain a speed of at least 20 mph on any grade up to and including six percent.

Y\_\_N\_\_

**MODIFICATIONS TO CHASSIS**

The following modifications shall be performed on the chassis upon arrival at the body builder's facility:

Y\_\_N\_\_

**REEL BOXES WITH FULL EXTENSION DOOR**

Two (2) reel boxes shall be provided in the front platform extension with one on each outer side of the frame rails for mounting of the specified reels. There shall be a roller guide placed toward the front side of each box inside the cover to help guide cord or hose as specified during deployment. There shall be a divider to separate the reel boxes from the center extension. The dividers shall be made to allow for clearance from the cover in the event that it is desired to have hydraulic hose, air hose, or cord placed into the center extension with the cover in the closed position. The boxes shall be equipped with a hinged lift up overlapping door of .125" aluminum treadplate that shall run the full width of the extension leaving the center area between the wells for misc. storage. The storage area shall be as high as possible x 20.25" deep x 36" wide. The door shall have a chrome plated handle in the exterior center and shall be held open/closed with a gas strut.

To efficiently light the area an LED strip light shall be provided along the stationary portion of the cover and shall be wired to operate when the cover is open and the marker turn lights are on. This cover shall also be wired to the open door circuit.

The boxes shall be bolted into the platform extension. Welding the box to the bumper extension is not acceptable due to the fact that it cannot be easily replace if damaged. The floor of the boxes shall be fitted with 4 drain holes and the inside shall have an unpainted buffed aluminum finish.

Y\_\_N\_\_

**WINCH**

A Ramsey QM-9000 12 volt quick mount detachable electric winch shall be provided. The winch will include 95 ft. Of 5/16" galv. cable and clevis hook with a line pull rating of 9,000 lbs. The winch shall have a remote control switch which shall have forward, reverse and off positions. The drive unit shall utilize a self-locking worm gear and have a clutch control lever located at the drum for free spooling.

The winch assembly will include a detachable mounting plate and quick connect battery power lead to allow the unit to be used in a class-three receiver hitch.

Y\_\_N\_\_

**FUEL FILL**

The chassis furnished fuel tank shall be located aft of the rear axle. The body builder shall install the fuel fill on the road side behind the rear axle. The fuel fill will hook up with flexible fuel hose and will have a polished cast aluminum recessed filler with a hinged door. A nametag shall be provided as to the type of fuel the vehicle shall use.

When possible a rear access panel will be provided in rear compartment wall to gain access to the fuel tank sending unit.

Y\_\_N\_\_

**APPARATUS INFORMATION LABEL**

A label shall be provided in the area of the driver seat to notify the driver of the maximum amount of personnel to be carried on the vehicle as well the overall height, overall length, and the GVWR.

Y\_\_N\_\_

**HELMET LABEL**

A label stating "DO NOT WEAR HELMET WHILE SEATED" shall be provided and visible from each seating location.

Y\_\_N\_\_

**CHASSIS EXHAUST**

The chassis exhaust shall be extended just past the body side. A stainless steel exhaust deflector shall be located just above the exhaust pipe and below the body to prevent discoloration of the body side panels.

Y\_\_N\_\_

**REAR TOW EYES**

Two (2) heavy duty eyes, .75" x 4" with a 2.375" elongated hole, shall be furnished at the rear of the body under the step and shall be bolted to the truck frame rails. The subframe shall be adequately reinforced to allow the vehicle to be towed (not lifted) from the rear tow eyes.

Y\_\_N\_\_

**PAINTED TOW EYES - BLACK**

Tow eyes will be painted black.

Y\_\_N\_\_

**REAR SPRING SHACKLE ACCESS**

The rear axle spring shackles, if equipped with grease fittings, shall have the fittings replaced with 90 degree fittings for ease of service once the body is in place.

Y\_\_N\_\_

**FLUID ID PLATE**

The following quantity and type of fluids used in the vehicle will be programmed on the Multiplexing display that is located in the cab:

- Engine oil
- Engine coolant
- Transmission fluid
- Drive axle lubrication fluid
- Air-conditioning refrigerant
- Air-conditioning lubrication oil
- Power steering fluid
- Cab tilt mechanism fluid
- Equipment rack fluid
- Air compressor system lubricant
- Generator system lubricant
- Front tire cold pressure
- Rear tire cold pressure
- Maximum tire speed ratings

Y\_\_N\_\_

**REAR MUDFLAPS**

A black hard rubber mudflap with the manufacturer's logo on it shall be installed behind the rear wheels, one (1) each side.

Y\_\_N\_\_

**HELMET HOLDERS**

Six (6) UHH-1 helmet holders tested to 9 g force to meet compliance to the 2009 edition of NFPA 1901 for use inside of crew cabs shall be provided near each rider position. The holders shall secure traditional and contemporary style helmets without any adjustment being required.

Y\_\_N\_\_

**BODY CONSTRUCTION**

All body framing, doors, skin, etc. shall be of all aluminum construction to enhance vehicle performance, reduce overall maintenance and maximize available payload by minimizing the body weight. For maximum strength, the body framing shall be all extruded construction.

Y\_\_N\_\_

**CROSSMEMBERS**

3" x 2" x .25" wall thickness, 6061-T6 aluminum extruded rectangular tubing on 16" centers.

To eliminate corrosion, all cross members and structural tubing will have the ends capped and solidly welded shut on all sides to eliminate the possibility of dirt, water, and salt from entering (NO EXCEPTIONS).

Y\_\_N\_\_

**UPRIGHTS**

Between exterior side compartments will have 3" X 2" X .25" wall thickness, 6061-T6 aluminum extruded rectangular tubing.

Y\_\_N\_\_

**ROOF RAFTERS**

Roof rafters to be 2" x 1" x .125" wall thickness, 6063-T52 aluminum extruded rectangular tubing on 16" centers.

Y\_\_N\_\_

**ROOF COVE AND CORNER POSTS**

For body strength, the corner posts and roof cove perimeter shall have a 1.5" radius of 6061-T6 extruded .125" aluminum. All corners shall have a 1.5" radius cast aluminum ball cap at the top corners of the body.

Y\_\_N\_\_

**SKIN**

Smooth .125" aluminum, bonded to uprights. Body sides to be one piece with no visible splice seams or rivets, for superior appearance and graphics.

Entire front body panel between the corner posts to be .125" bright aluminum treadplate. The treadplate front wall will prevent paint chips from stones or other debris which may be kicked up from the road.

Y\_\_N\_\_

**ROOF**

Roof material to be .125" bright aluminum treadplate, seams and perimeter to be 100% welded. To insure a water tight non leaking roof, skip welding or caulking will not be acceptable.

Y\_\_N\_\_

**NON-SLIP ROOF SURFACE**

Roof material to be changed to .125" serrated bright aluminum treadplate to meet the NFPA stepping surface requirements.

Y\_\_N\_\_

**RUBRAILS, REMOVABLE EXTRUDED CHANNEL**

Rubrails will be heavy duty extruded aluminum C-channel design with a bright dipped anodized finish. The top edge of the rubrail will include a ribbed design to help hide scratches and the inside of the channel will be striped with 3M diamond grade red-white reflective tape for improved safety. The rubrails shall have a .25" drain gap and will be located under each compartment door flush with the rear step and pump compartment running boards. These shall be fastened to the threshold extrusion on for ease of service and replacement in case of damage.

Y\_\_N\_\_

**STONE SHIELDS**

Stone shields shall be located on the lower front body corner posts and fastened with stainless steel torx head screws. Shields are to be .100" bright aluminum treadplate construction and wrap around the corner posts.

Y\_\_N\_\_

**FENDERS**

Fenders are to be sized to allow ample clearance for tire chains. The fender liners shall extend full depth to the rear springs and be welded to the rear body panels. The fender liners are to be sealed with continuous welds to the outside and inside body panels to provide maximum strength, elimination of any pockets for the accumulation of dirt and road salt, and to provide ease of cleaning.

Y\_\_N\_\_

**FENDERETTES**

The fenderettes shall be polished stainless steel held in place to the wheel housing with stainless steel cap screws and well-nuts for easy replacement. The fenderettes and the fasteners shall be isolated from the wheel housing to prevent electrolysis. A trim molding shall be provided between the fenderettes and wheel housing. The fenderettes shall be mounted to the body thereby affording superior protection from debris hitting the sides of the body.

Y\_\_N\_\_

**FENDER PANELS**

The body panels above the wheel housing shall be .10" bright aluminum treadplate overlay fastened with stainless steel torx head screws for ease of replacement in case of an accident.

Y\_\_N\_\_

**SPRING SHACKLE CLEARANCE**

Since exterior side compartments are full depth, provisions in the compartments, fore and aft of the rear wheels shall be made for special enclosures around the chassis springs and spring hangers. These enclosures shall be large enough for accessibility into grease fittings and spring pins.

Y\_\_N\_\_

**BODY MOUNTS - NYLON**

There shall be 75,000-90,000 PSI yield high strength .625" bolts to attach the body brackets to the chassis frame, mounted so as to prevent any movement of the body.

Full length nylon sills shall be located between the chassis frame rails and the body.

Y\_\_N\_\_

**COMPARTMENT VENTS**

Stamped ventilating louvers shall be provided in each compartment and so located that water cannot normally enter the compartment through the louvers. Louvers shall be punched integrally into the back wall of the compartment and be open to the top. Each compartment shall have a minimum of six (6) louvers 4" long for good air circulation to dry out compartment interiors and equipment. **Added on louvers are not acceptable.**

Y\_\_N\_\_

**EXTERIOR COMPARTMENTS**

All general framing to be aluminum. Compartments shall be an integral part of the body construction and shall also be suspended by the floor cross members. The floor cross members shall be attached to the main body uprights located between the compartment openings.

Y\_\_N\_\_

**COMPARTMENT FLOORS**

Compartment floors will be 100% welded to the threshold extrusion. Floor material to be .125" smooth aluminum and to be of integral support to the front, rear and side compartment walls.

The center portion of the floor will be reinforced with an extruded aluminum channel to prevent

buckling and oil-canning. To eliminate corrosion the channels will be inverted to eliminate the possibility of dirt, water, and salt from entering **(NO EXCEPTIONS)**.

Y\_\_N\_\_

**DOOR THRESHOLD**

The door threshold shall be constructed from a sealed box type 6061-T6 aluminum extrusion. The extrusion shall be tied into the extruded uprights and shall provide a flush "sweep-out" style floor with no lip. The extrusion shall run under the compartment floor to prevent damage when heavy equipment is dropped on the front lip of the floor. The lower door jamb area shall have small extruded ribs which shall eliminate the need for paint in this vulnerable area. A formed up compartment floor providing the sweep out lip area shall not be acceptable.

Y\_\_N\_\_

**TURTLE TILE GRATING**

Black TurtleTile grating shall be installed in all body and chassis exterior compartments. Where appropriate the grating shall have a beveled edge facing the front of the compartment to prevent snagging while loading equipment.

Y\_\_N\_\_

**COMPARTMENT WALLS**

The compartment sidewalls and rear wall to be .125" smooth aluminum. All compartment seams will be 100% sealed so to provide a water tight compartment.

The side compartment walls will be double wall design so all wiring can be hidden and also allow outlets, switches, reel buttons, breaker boxes, etc. to be recessed into the walls. **Separating the compartments with a single shared wall will not be acceptable. (NO EXCEPTIONS)**

Y\_\_N\_\_

**ROLL-UP COMPARTMENT DOORS**

The body side compartments shall be equipped with AMDOR brand roll up doors.

The doors shall be constructed of double wall slats that provide a smooth surface on the interior of the door to prevent interference with compartment contents. The slats shall have recessed bulb type slat seals which provide a weatherproof compartment and reduce the effects of vehicle vibration. The aluminum extrusions shall be equipped with nylon universal end shoes with positive snap-in securements that slide in the track and side frame section. The top frame section shall include a drip rail, non-marring top seal and bumper to cushion the bottom rail.

The latching mechanism will be a lift bar arrangement, which utilizes a door-wide spring loaded bar and two (2) cam-surfaced latch points. Any roll door that exceeds a 63" high door opening from the rubrail or above 30" if over a wheel well shall include a pull down strap to make for easy closing.

Y\_\_N\_\_

**DOOR FINISH**

The body side and rear compartment roll up doors shall have a natural anodized finish.

Y\_\_N\_\_

**BUMPER STEP**

The rear bumper step shall be 12" deep and full width. The outside corners will be a 45 degree chamfer to avoid injuries. A 1" space shall be maintained between the body and the step. Step framing shall be 3" structural steel channel, securely reinforced and bolted to the chassis frame rails.

Bumper step to be completely independent from the body. The step framing shall be thoroughly primed, mylar insulated. The step will be fabricated from .188" serrated bright aluminum treadplate.

There shall be a warning label mounted above the rear step.

"DANGER - DO NOT RIDE ON REAR STEP WHILE VEHICLE IS IN MOTION. DEATH OR SERIOUS INJURY MAY RESULT."

Y\_\_N\_\_

**FRONT AND REAR - RECEIVER HITCHES**

There shall be Reese style hitch tube assemblies mounted underneath the center of the front bumper and also at the rear of the truck for use with portable winches. The receivers shall include caps

secured with pins to protect the openings when the hitches are not in use.

The hitches will be rated for 10,000 lbs and labeled as such.

Y\_\_N\_\_

**SIDE RECEIVERS-WINCH**

There shall be a Reese style hitch tube assembly mounted under the rubrail and behind the wheel on each side of the body for use with a portable winch. The tube assembly shall be fastened as part of the rear drop frame assembly. The receivers shall include a cap secured with a pin to protect the opening when the hitch isn't in use.

The hitch will be rated for 10,000 lbs and labeled as such.

Y\_\_N\_\_

**PORTABLE WINCH CONNECTORS - FOUR**

There shall be a 175 amp power connector located next to each hitch receiver for use of powering a portable winch.

Y\_\_N\_\_

**ZICO LADDER - ROOF ACCESS SWING OUT AND DOWN**

There shall be a Zico swing out and down ladder at the rear of the apparatus. The ladder shall store flat against the body when not in use. The ladder shall pull out to a locked comfortable climbing angle when use is desired also allowing a fold down section to start the ladder climb from the ground. The ladder shall be wired to the compartment open door warning light circuit.

Y\_\_N\_\_

**PAINT**

The complete apparatus body and any applicable doors shall be painted. All exposed metal surfaces which are not chrome plated or polished shall be thoroughly cleaned and prepared.

To prevent corrosion and to insure bonding of primer, the body shall be washed by a chemical etch system. All irregularities in primed surfaces shall be sanded down before application of the finished coats. All removable items such as compartment doors shall be removed and painted separately.

To prevent electrolysis around fasteners, special attention must be given to how components are fastened to the exterior of body. All vendor-supplied screws shall be discarded and the manufacture shall replace them with their own stainless steel screws. In addition, every screw hole possible that protrudes into the body shall be punched with a square hole and then a plastic insert will be installed to isolate the dissimilar metals. Where an insert cannot be used, a zinc-rich type coating will be applied to each screw before they are installed. (NO EXCEPTION TO THIS REQUIREMENT)

Dupont polyurethane enamel "Imron" lead free paint shall be used on the body. Consistent with this requirement and to insure optimum adhesion of final paint and long service of paint, all related materials shall be those specified by the paint manufacturer for use with their finish. These related products shall include, but not be limited to the following: Corlar primer, catalysts, thinners, hardeners and reducers.

The body shall be painted the same color as the chassis. It shall match N-2684 Candy Apple Red.

A container of touch-up paint shall be furnished with the truck.

Y\_\_N\_\_

**CAB PAINT**

The cab and wheel exteriors shall be supplied in the proper color and shall not be repainted. Color shall match N2684 Candy Apple Red.

Y\_\_N\_\_

**COMPARTMENT FINISH**

To reduce marring and scuffing, the insides of the exterior compartments shall be painted with a

durable light gray spatter type coating.

Y\_\_N\_\_

**SHELF & TRAY FINISH**

Any shelves, trays, etc. shall be left a natural aluminum oscillated finish to allow for easy equipment mounting. The edges of all the roll-out items will include a 3M diamond grade red-white reflective stripe to improve safety.

Y\_\_N\_\_

**UNDERCOATING**

The body undercarriage shall be undercoated with Ztech #ZPG-1015 to provide a corrosion resistant surface and dampen road noise. This shall include the underside of the compartments, rear step, and wheel well liners. The undercarriage of the chassis shall be as is provided by the chassis manufacturer unless specified otherwise.

Y\_\_N\_\_

**REFLECTIVE MATERIAL**

All crew compartment doors shall have a minimum of 96 square inches of reflective material affixed to the inside of each door.

Y\_\_N\_\_

**ENCAPSULATED GOLD LEAF LETTERING**

Laminated encapsulated gold leaf lettering shall be furnished on the apparatus. The lettering shall be 23 carat gold leaf (Smart Gold) and have a burnished (engine turned) finish. The letters shall be encapsulated to protect them from the elements. Letters shall be outlined and drop shaded in black. Up to sixty (60) 3" high letters shall be provided. Lettering layout shall be as determined at the pre-construction meeting.

Y\_\_N\_\_

**ENCAPSULATED GOLD LEAF LETTERING**

Forty (40) 7"-9" high laminated encapsulated genuine gold leaf letters shall be furnished on the apparatus. The lettering shall be genuine 23 carat gold leaf (Smart Gold) and have a burnished (engine turned) finish. The letters shall be encapsulated so as to protect them from the elements. Letters shall be outlined and drop shaded in black. Lettering layout shall be as determined at the pre-construction meeting.

Y\_\_N\_\_

**MALTESE CROSS, GOLD LEAF, ENCAPSULATED**

A pair of hand painted gold leaf encapsulated Maltese Crosses will be applied on vehicle. The gold leaf will be genuine 23 carat (Smart Gold) with a burnished (engine turned) finish. The Fire Department will send photos for artist to match.

Y\_\_N\_\_

**REFLECTIVE STRIPING - 2"**

One 2" horizontal, Z patterned white Scotchlite reflective cab and body stripe shall be provided. The 2" stripe shall be below the 4" stripe, separated by a 1" space.

Stripe shall break at all unpainted surfaces. Where necessary, the striping material shall be applied to a smooth aluminum plate mechanically fastened to the apparatus.

Y\_\_N\_\_

**REFLECTIVE STRIPING - 4"**

A 4" horizontal, Z patterned white Scotchlite reflective cab and body stripe shall be provided above the 2" stripe.

Stripe shall break at all unpainted surfaces. Where necessary, the striping material shall be applied to a smooth aluminum plate mechanically fastened to the apparatus.

Y\_\_N\_\_

**REFLECTIVE STRIPING CHEVRON**

A two color 6" Scotchlite diamond grade reflective V pattern Chevron shall be applied to the rear of the apparatus. The Chevron stripe shall alternate between white with red stripes with over laminate and shall cover the entire rear painted body surface.

Y\_\_N\_\_

**PIN STRIPING**

A black 1/8" pin stripe will outline both the Scotchlite stripes, above and below.

Y\_\_N\_\_

**OVERALL WIDTH**

Overall Width = 100" + rubrails.

Y\_\_N\_\_

**ROOF EXTENSION**

The body roof will be raised above the compartment doors as specified. The extension will be fabricated as part of the body and will not be an added on module. The upper raised section will be framed up with intermediate uprights of 2" x 1" x .13" wall thickness, 6063-T52 aluminum extruded rectangular tubing on 16" centers.

Y\_\_N\_\_

**EXTERIOR COMPARTMENT SIZES**

Road Side, front to rear. (Nominal door opening sizes)

- A. 50" wide x 63" high x 28" deep-lower, transverse-upper. Roll-up door.
- B. 50" wide x 63" high x 28" deep-lower, transverse-upper. Roll-up door.
- C. 50" wide x 63" high x 28" deep-lower, transverse-upper. Roll-up door.
- D. 57" wide x 30" high x 28" deep. Roll-up door.
- E. 50" wide x 63" high x 28" deep. Roll-up door.

Curb Side, front to rear. (Nominal door opening sizes)

- F. 50" wide x 63" high x 28" deep-lower, transverse-upper. Roll-up door.
- G. 50" wide x 63" high x 28" deep-lower, transverse-upper. Roll-up door.
- H. 50" wide x 63" high x 28" deep-lower, transverse-upper. Roll-up door.
- I. 57" wide x 30" high x 28" deep. Roll-up door.
- J. 50" wide x 63" high x 28" deep. Roll-up door.

Rear Compartment (Nominal door opening size)

- K. 42" wide x 42.75" high x 35.25" deep-lower. Roll-up door.

Y\_\_N\_\_

**DUALSCBA BOTTLE COMPARTMENT**

Two (2) SCBA bottle compartment(s) shall be provided in the rear fender housing area. Compartment shall be constructed from aluminum with the bottle storage having lining to protect scuffing of the

SCBA bottles. The compartment shall have a treadplate door and will include spring loaded latches.

Y\_\_N\_\_

**ADJUSTABLE VERTICAL DIVIDER (30" MAX DEPTH)**

Two (2) adjustable vertical dividers shall be fabricated from .13 smooth aluminum. The divider should have a 1" lip on the front edge for added strength.

Y\_\_N\_\_

**ADJUSTABLE SHELVES (46" MAX DEPTH)**

Twelve (12) adjustable shelves shall be provided and fabricated from .188" high strength 5052-H32 aluminum. The shelves are to have a double channel break both front and rear to form a reinforced channel. The rear channel is to be bent in the opposite direction of the front so that the shelf is reversible to provide either a lip to retain equipment or a smooth sweep-out front.

For ease of adjustment and as additional shelving reinforcement, the shelves shall not be bolted directly to the standards but shall be supported by angle shelf holders that in turn are fastened to the standards.

Y\_\_N\_\_

**ROLL-OUT TRAY, 1,000 LB CAPACITY, 25-36" EXTENSION**

A 38" (minimum) wide roll out tray shall be provided in the compartment specified. The floor of the tray shall be fabricated of .188" smooth 5052 aluminum and will fit down into the slides, providing 1" high lips on all four sides. The slides will be Slidemaster 1,000 lb. capacity, model SM2-AL all aluminum that extends 70% of the compartment depth. Track will allow the tray to lock in the open and closed position.

Y\_\_N\_\_

**ROLL OUT TRAY, 300 LB. CAPACITY, 32" EXTENSION**

Three (3) roll out trays shall be provided in the compartments specified. Trays shall be fabricated of .188" smooth 5052 aluminum and have a 3" high lip on all four sides. The tray shall be mounted on "300 lb. capacity Accuride 9308, side mount slides which have a 32" extension. A latch shall be provided within the track to hold the tray in the closed and opened position.

Y\_\_N\_\_

**ROLL-OUT/DROP-DOWN TRAY, 250 LB CAPACITY, 45" MAX EXTENSION**

Four (4) roll-out/drop down trays shall be provided in the compartments specified. Trays shall be fabricated of .188" smooth 5052 aluminum and have a 3" high lip on all four sides. The tray shall be mounted on Slidemaster #SMT-R, 250 lb. capacity, side mount slides with a powder coating to prevent corrosion. Tray will extend out as far as possible (45" max) and will tilt down approximately 30 degrees. A chrome plated handle will be installed on the center face of the tray and a latch shall be provided to hold the tray in the closed position.

Y\_\_N\_\_

**ALUMINUM TOOL BOARDS W/ PEG BOARD HOLES- 300 LB CAP. ROLL OUT, 32" EXT.**

Two (2) specified tool boards shall be furnished. Each board shall be fabricated of .13" smooth aluminum with a 1" bend on all four sides. A hand pull cut out trimmed with black molding will be provided on the front face of board. Each board shall be mounted on a 300 lb. capacity Accuride 9308 ball bearing slides that extend up to 32". A gas prop will be provided to hold the board in the open and closed position.

Boards will be left a natural oscillated finish with a peg board design. The entire board will include 1/4" holes on 1" centers so as to provide easy mounting of tools.

Y\_\_N\_\_

**WIRING DIAGRAMS ON CD's**

Two (2) complete copies of the body electrical wiring diagrams on CD's shall be supplied with the unit. Separate diagrams for the 12 volt DC and 120 volt AC (if applicable) electrical systems shall be provided. Diagrams shall be custom drawn for this specific apparatus. Generic wiring diagrams are not acceptable.

Y\_\_N\_\_

**12 VOLT WIRING - MULTIPLEXING**

All of the emergency electrical equipment shall be served by circuits separate and distinct from the vehicle circuits. Body wiring shall be thermo plastic harness type, GXL (125 degree Centigrade) color and number or function coded. The wiring shall be grease, oil and moisture resistant, routed in convoluted looms and in protected locations. Wires and looms shall be neatly and securely fastened, and all apertures with proper grommets for passing wiring.

Solderless insulated crimp connectors shall be provided. Wire nut, insulation displacement, and insulation piercing connections shall not be used. All electrical connections that are exposed to the elements shall be of the heat shrink sealant type (NO EXCEPTIONS).

The body electrical shall incorporate a system for controlling the electrical devices of the vehicle. This system shall utilize a Controller Area Network (CAN) protocol providing multiplexing control signals for "real time" operation. It shall consist of several modules strategically located throughout the vehicle and interconnected via "twisted pair" control wiring. Each module shall be readily available for inspection or service. The multiplexed system shall consist of a universal System Manager Control Module, Vocational Module, input/output switch modules and Power Distribution Modules (NO EXCEPTION).

Junction areas with a removable aluminum covers shall be located inside the front and rear side compartments. The Universal System Manager Control Module shall be located in the front road side compartment for ease of diagnostics, service, and troubleshooting.

The body shall be fabricated so as to provide protected wiring raceways.

Y\_\_N\_\_

**ELECTRICAL TESTING**

Electrical continuity shall be verified from the chassis or body to all line voltage electrical enclosures, light housings, motor housings, light poles, switch boxes, and receptacle ground connections that are accessible to fire fighters in normal operations as per NFPA section 22.15.4.

Y\_\_N\_\_

**CAB CONSOLE PANEL - SPARTAN FURNISHED**

The cab control switch console panel provided by the chassis manufacturer shall have rocker type switches with built-in indicator light. Labels shall be back lighted for night operation. The switches shall control all accessories not controlled by the Touch screen.

Y\_\_N\_\_

**MASTER WARNING LIGHT SWITCH - SPARTAN FURNISHED - VISTA TOUCHSCREEN**

A master warning light switch shall be provided on the Touch screen. The switch shall permit pre-selection of the emergency warning lights so that all warning lights can be turned on simultaneously through the sequencer.

There shall also be an interlock provided with the parking brake to change the visual warning to indicate "BLOCKING RIGHT OF WAY" mode.

Y\_\_N\_\_

**LOAD MANAGER**

Provisions will be provided within the Multiplexing system for sequencing and load management.

In case of a low voltage situation, the system will shed the selected load until the proper voltage is maintained. After the voltage is stabilized the lights will then again switch on sequentially.

Y\_\_N\_\_

**LOW VOLTAGE ALARM - SPARTAN FURNISHED**

An audible alarm and visual warning light will be installed in the cab to alert of a low voltage situation. The alarm and light will be activated when the voltage at the batteries or at the master load disconnect switch drops below 11.8 volts for more than 120 seconds.

Y\_\_N\_\_

**RUNNING LIGHTS LED**

Body shall be equipped with all lighting and reflectors as required by Federal Motor Vehicle Safety Standards.

Clearance lights shall be LED type and located around the roof perimeter or recess mounted behind the rear step depending on the body design.

A chrome license plate light shall be provided.

Y\_\_N\_\_

**MARKER/DIRECTIONAL LIGHTS**

Two (2) amber led marker/directional lights shall be provided, one each side, in rear fender wells.

Y\_\_N\_\_

**STOP, TAIL, AND TURN LIGHTS**

One (1) rectangular Whelen 600 series LED amber light each side of body for turn signals.

One (1) rectangular Whelen 600 series LED red light each side of body for stop and tail.

Y\_\_N\_\_

**BACKUP LIGHTS**

One (1) Whelen 600 series maximum intensity LED light shall be provided on each side of body for the backup light, wired to the reverse circuit of the truck transmission.

Y\_\_N\_\_

**CAST 4 TRIM RINGS, STOP, TURN, BACK-UP, TAIL LIGHTS, & LOWER WARNING**

Bright polished cast aluminum trim rings will be installed at rear and will house the stop, turn, back-up, tail lights, & lower warning light of the 600 Whelen series. The lower warning light shall be the lowest device in the bezel.

Y\_\_N\_\_

**AMDOR COMPARTMENT LED STRIP LIGHTS**

Body compartments specified shall have two (2) Amdor LED strip lights provided. The light will include a translucent lens and have lights located every 3".

Y\_\_N\_\_

**DOOR AJAR INDICATOR LIGHT - SPARTAN FURNISHED**

There shall be a chassis furnished flashing red "do not move apparatus when light is on" indicator light in the cab to indicate that a cab door, entrance door, or compartment door is not in the closed position. Light will only illuminate when the parking brake is not fully engaged.

Y\_\_N\_\_

**STEP LIGHTS**

There shall be two (2) Whelen model 0AC0EDCR LED surface mounted lights with chrome flanges at the rear of the body to illuminate the rear step. Step lights shall be wired through the marker light and parking brake circuit.

Y\_\_N\_\_

**OPTI-SCENE LIGHT SERIES 900 - 24 DIODE LED**

Six (6) scene lights shall be provided in the locations specified at the pre-construction meeting. Lights will be Whelen Series 900, 24 diode LED, model# 90C0ENZR, 8-32 degree with chrome flange, and switched in the cab.

Y\_\_N\_\_

**GROUND LIGHTS**

Trucklite LED rubber mounted ground lights will be installed under each stepping surface. Lights will be mounted under the rear step and activated through the marker light and parking brake circuit.

Y\_\_N\_\_

**GROUND LIGHTS**

The lights under the chassis entrance doors that are provided with the Spartan chassis shall be activated when the doors are opened.

Y\_\_N\_\_

**HANDLIGHTS**

Six (6) Koehler Responder Division 1 Orange handlights, #500221 with 12 volt DC charger bases shall be furnished and installed. The chargers shall be wired direct to the chassis batteries. The locations shall be determined at the pre-construction meeting.

Y\_\_N\_\_

**LIGHTBAR**

The lightbar shall be a modified Whelen Freedom Series LED, Model FN72VLED, 72" long. Lightbar will contain four Red Linear12's Super LED corner modules, two Red Linear12's 400 series LED end modules, two Red inboard Linear12's 400 Series LED's, two Clear inboard Linear12's 400 Series LED's, two Red Linear12's 400 series LED's and clear outer lenses. Lightbar will be mounted on cab roof.

The front layout of the lightbar shall be, from left to right, not including the corner modules: Blank | Red | Clear | Red | Blank | Blank | Red | Clear | Red | Blank.

Y\_\_N\_\_

**TRAFFIC ADVISOR**

A Whelen model #TAL85 LED Traffic Advisor shall be provided in the area specified. The light will be 45" long and will include eight (8) individual LED amber lamps. The controls for the unit shall be installed in the chassis cab.

Y\_\_N\_\_

**SUPER LED, SERIES 900, RED**

Six (6) Whelen series 900 Super LED red lights with clear lenses and chrome flange will be provided and mounted as follows:

Two on each upper side of the body (total of four).

Two at the upper rear of the body.

Y\_\_N\_\_

**SUPER LED, SERIES 600, RED**

Four (4) Whelen series 600 Super LED red lights with clear lens and chrome flange will be provided and mounted as follows:

Two at the lower rear of the body.

One on each lower side of the body in the fender wells.

Y\_\_N\_\_

**120 VOLT WIRING & BREAKER PANEL**

All 120 volt wiring shall be metallic or nonmetallic liquid tight flexible conduit rated at not less than 90 degree Centigrade or type SO cord with a WA suffix, rated at 600 volts at not less than 90 degree Centigrade. The cord will be number or function coded to assist in trouble shooting.

All electrical equipment shall be circuit breaker controlled from a circuit breaker control panel. A plastic engraved label will be installed near the breaker box to identify the function of each circuit breaker.

A power source specification label shall be permanently attached near the breaker box. The label shall provide the operator with the following information:

- Rated voltage and type
- Phase
- Rated frequency
- Rated Amperage
- Continuous rated watts
- Power source engine speed

Y\_\_N\_\_

**BREAKER, GFI 120 VOLT**

Fifteen (15) 120 volt breakers will be of the ground fault interrupt (GFI) type and wired to the items specified.

Y\_\_N\_\_

**TRANSFER SWITCH, 120V, SHORELINE & GENERATOR**

One (1) transfer switch(s) shall be furnished and wired between the generator and the shoreline. The transfer switch will be wired to the electrical items specified. This will provide power to the selected 120 volt items from either the generator or the shoreline. Precautions will be installed so as to prevent back feed into shoreline in case the generator is turned on.

Y\_\_N\_\_

**GENERATOR - ONAN 25 KW PTO DRIVEN**

The vehicle shall be equipped with a 25 KW Onan generator, 120/240 volts, single phase at 1800 RPM.

The generator is driven by the chassis engine VIA a "HOT SHIFT" power take off unit from the chassis transmission. Power take-off engagement control to be located in cab, and identified by name plate. A console switch will be provided with a light to indicate "Generator Engaged" and an additional green light will be provided to indicate "OK to Operate Generator".

The drive shaft between the generator and the power take-off shall be a tubular type, minimum outside diameter of 2" with a minimum wall thickness of .083. It shall have Spicer #1280 U-joints and be dynamically balanced to insure vibration free performance. NOTE; Solid bar stock type drive shafting is unacceptable. The drive shaft shall have a slip yoke with a minimum of 1.5" travel so that it can be easily removed. Tube shall be D.O.M. (Drawn over Mandrel) made for drive shafts.

They shall be electrically MIG welded by a certified welder on a specially designed drive shaft fabrication machine. After welding, the drive shaft shall be checked for straightness and dynamically balanced by computerized machinery. All drive shafts shall be balanced (No exceptions). A shield shall be provided in front of the generator to prevent road spray from splashing directly on the generator.

Wiring from the generator to the circuit breaker panel shall be routed in liquid tight conduit.

The generator will be wired with interlocks that will only allow the generator to operate when the transmission is in the neutral shift position and the parking brake is on. Chassis is to remain "parked" while the generator is engaged as this system is not designed to provide 120 volt power while under way.

Y\_\_N\_\_

**GENERATOR CONTROL PANEL**

There shall be a Fire Research FROG-D waterproof digital instrument cluster display to show the vital statistics of the generator. The FROG-D will display Frequency, Current Draw per line, Voltage and total accumulated High Temperature & Run Time Hours.

The panel shall be located near the 120/240 current breaker panel.

Y\_\_N\_\_

**GENERATOR LOAD TEST**

The generator shall be load tested at the body builders facility by a third-party testing firm. The generator shall be tested at various loads, from no load to full load to ensure reliable power delivery at various loads. The department shall be given a certificate proving completion of this test. The test shall last for two (2) hour and shall be completed after the generator has been installed on the apparatus.

Y\_\_N\_\_

**OUTLET, INTERIOR**

One (1) 120 volt AC power strip shall be furnished and located as directed by the purchaser. The power strip shall be surface mounted and labeled with a permanent nameplate listing the voltage, type of current, phase and amp rating.

Y\_\_N\_\_

**120 VOLT OUTLETS**

Four (4) 120 volt AC outlets shall be furnished, located as directed by the purchaser. The outlets shall be mounted inside cast aluminum outlet boxes, flush mounted inside compartments. The receptacles shall be labeled with permanent nameplates listing the voltage, type of current, phase and amp rating.

Outlet configuration will be a NEMA #L5-15R.

Y\_\_N\_\_

**240 VOLT OUTLETS**

Two (2) 240 volt AC outlets shall be furnished, located as directed by the purchaser. The outlets shall be mounted inside cast aluminum outlet boxes, flush mounted inside compartments. The receptacles shall be labeled with a permanent nameplate listing the voltage, type of current, phase and amp rating.

One of these outlets shall be switched at the front bumper.

Outlet configuration will be a NEMA #L6-30R.

Y\_\_N\_\_

**LIGHT - SCENE - 500 WATT BUILT IN**

There shall be four (4) 120 volt, 500 watt, quartz lights recessed into the side of the body. The light head shall fit inside a recessed aluminum box. The box shall be big enough so that air can circulate around the lamp and easily escape to the outside air (not inside the body) thereby prolonging lamp life. The lights shall be turned on and off at the circuit breaker.

Y\_\_N\_\_

**TELESCOPING TRIPOD QUARTZ LIGHT**

When specified there shall be one (1) Fire Research Tripod Optimum OPA600-S75 telescoping tripod, 750 watt quartz light(s) installed as directed by Fire Chief. Light to be switched from the circuit breaker panel. The light pole will fit into quick release brackets, so it can be easily removed from the vehicle and used for portable applications.

The lamp head shall have one (1) quartz halogen 750 watt 120 volt bulb. The bulb will draw 6.3 amps and generate 19,600 lumens. The bulb shall be accessible through the front. The lamp head shall incorporate a vacuum deposit polished reflector and two optimizing mirrors to produce a uniform beam that lights up an area 100° vertically by 150° horizontally. The lamp head shall have a heat dissipating curved front lens. The curve of the lens shall have a radius of 5.16 inches to optimize light emission. The lamp head shall be no more than 4 3/4" deep by 5 1/8" high by 8 3/4" wide. Lamp head and brackets shall be powder coated white.

The light shall be furnished with a plug to match the outlet on the body. A 120 volt AC outlets shall be furnished and mounted inside a cast aluminum outlet box, flush mounted to the body side. The receptacle shall be labeled with a permanent nameplate listing the voltage, type of current, phase and amp rating. A weatherproof snap cover shall be provided.

Y\_\_N\_\_

**SWITCH, REMOTE, QUARTZ LIGHT**

One (1) rocker switch will be installed remote from the light for turning the specified quartz light on and off. The rocker switch will be wired through a low voltage relay for safety.

Y\_\_N\_\_

**LIGHT TOWER**

There shall be one (1) Command Light Model #CL611, low profile extendable lighting system(s) installed as specified. The lights to be wired directly to the generator system circuit breaker panel with conduit and standard copper wire.

The lights shall telescope at 10-1/2 feet above the mounting surface and rotate 360 degrees by a remote control pistol grip having a 20' non-coiled cable.

The light will be equipped with six (6) 1000 watt quartz floodlights, 240 volt.

Instruction and warning labels shall be provided near the operating position of the light tower. A label shall also be provided that states the extended tower height from the ground and bulb replacement data. The light tower shall be equipped with a proximity switch. The switch will be wired into the "do not move apparatus when light is on" indicator light in cab and a light located in the area of the light tower controls. The lights will be activated when the light tower is not fully nested.

A 12-volt observation light will be installed on light tower. The light will be activated as soon as the up position switch is activated. The light is position so it will shine up in the air to help check for any overhead obstacles.

Y\_\_N\_\_

**ROOF RECESS, LIGHT TOWER**

The roof of the body will be recessed to accommodate the light tower. The recess will be deep enough so that the light tower does not protrude over the roof line. The floor of the recessed area will be tapered to a drain tube which is routed to the ground.

Y\_\_N\_\_

**ELECTRIC CORD REEL- TWO (2)**

There shall be two Hannay #ECR 1620-17-18 cord reels mounted in the compartment(s) specified. The color of the reels shall be red.

The reels shall be equipped with a 12 volt DC electric rewind motor. A guarded push button switch, no higher than 72" from the ground, shall be located next to the reel to activate the rewind motor. A label will be provided next to the rewind switch that states the reel type.

A label shall be provided in a readily visible location near reels. The label shall indicate:

- Current rating
- Current type
- Phase
- Voltage
- Total cable length

Y\_\_N\_\_

**10/3 YELLOW SO CORD**

500 feet of 10/3 yellow SO cord will be provided and installed as specified.

Y\_\_N\_\_

**FOLDING ROLLER GUIDE- QUANTITY OF TWO (2)**

To aid in pulling off and rewinding the cord, there shall be a roller guide mounted on the compartment wall closest to the reel. The guide shall have bottom and side rollers but be open on the top so the cord can be lifted out from the roller guide unit. The roller guide will be mounted on a bracket that allows the guide to be folded out of the way with one hand when not in use.

Y\_\_N\_\_

**HYDRAULIC HOSE REEL, AMKUS**

There shall be four (4) Hannay #EF2016-17-18 hydraulic hose reels painted red and mounted in the compartment(s) specified.

The reels shall be equipped with a 12 volt DC electric rewind motor. A guarded push button switch, no higher than 72" from the ground, shall be located next to the reel to activate the rewind motor. A label will be provided next to the rewind switch that states the reel type.

The reels shall be equipped with 100' of 10,500 psi colored twin hose, compatible with 10,500 psi operating pressure rescue tool systems. To include "drop lines" only with proper fittings for hookup to a power system.

Y\_\_N\_\_

#### **FOLDING ROLLER GUIDE - QUANTITY OF FOUR (4)**

To aid in pulling off and rewinding the hose, there shall be a roller guide mounted on the compartment wall closest to the reel. The guide shall have bottom and side rollers but be open on the top so the hose can be lifted out from the roller guide unit. The roller guide will be mounted on a bracket that allows the guide to be folded out of the way with one hand when not in use.

Y\_\_N\_\_

#### **FOUR BOTTLE CASCADE SYSTEM**

A four (4) bottle cascade air system shall be provided with independent circuits for the true cascading of high pressure air.

All gauges will be a No-Shok 2-1/2" panel mount gauge with a stainless steel bezel and will be constructed of heavy brass cases and shall be glycerin filled. **GAUGES MADE OF LEXAN OR PLASTIC CASES WILL NOT BE ACCEPTED.** There will be a gauge for each storage bank in the system and a gauge on the inlet side of the regulator. Gauges used for the individual storage banks and the inlet side of the regulator will have a 0-7500 psi range.

All control valves shall be rated at 6000 psi working pressure with a 4:1 safety factor. Valves shall be constructed of chrome plated brass and shall be of the soft seat type with the seats being easily replaced without removing the valve from the panel or having to disturb any of the plumbing. Valves will be metering type valve for ease of flow control. The valves will have a non rising stem and will be easily turned at the rated working pressure. **QUARTER TURN VALVES WILL NOT BE ACCEPTED.**

An inlet fitting with a control valve for refilling the cascade system without having to disassemble any of the system. The system refill on the control panel will have a soft seat shut-off valve with a quick disconnect fitting rated at 6000 psig.

The inlet connections from the storage banks to the control panel will be #4 JIC (37 degree flare) male connections.

All tube fittings used on the panel shall be rated at 7000 psi minimum static pressure with a 4:1 safety factor.

All pipe fittings shall be rated at 6200 psi minimum with a 4:1 safety factor. All tubing shall be constructed of 304 seamless stainless steel and shall be .25" O.D. x .049 wall thickness. The tubing shall have a working pressure of 7200 psi with a 4:1 safety factor. A 1/8" thick brushed stainless steel fill panel shall be included to fill bottles and will include a valve and gauge for each bank in the storage system.

The panel shall be hinged to a box which shall contain the hoses and tubing to maintain a neat appearance. Appropriate tags and warning labels shall be affixed where necessary for safety and proper operation on the control panel. Gauges, valves and other components that are relied upon for normal operation and monitoring of the control panel shall be identified with color coded labels that are mounted in a chrome plated bezel.

Y\_\_N\_\_

#### **SPACE SAVER FILL ENCLOSURE**

There shall be a Space Saver model 100A fill enclosure 42.56" high x 22" wide x 23.25" deep designed for mobile filling of two (2) SCBA or SCUBA bottles either individually or simultaneously. The unit will enclose the cylinder during the fill process. The enclosure will contain the cylinder and all fragments

and a break away rubber seal will be provided in the compartment floor in the event of rupture during the fill process.

Construction will be of .18" inch plate steel. The fill enclosure door will be constructed of .25" stainless steel with cylinder holders lined with material to protect each cylinder from abrasion. Access to the enclosure for loading the cylinder will be through a manually operated slide up door and tilt out bottle holder. The door will be provided with a device to assist opening and provide smooth operation at waist height on average height vehicles.

The maximum length of either the SCBA or SCUBA bottle with the valve and fill adapter will be 29 inches in the lower holder and 27 inches in the upper holder.

Automatic safety interlocks will prevent cylinder filling until the door is completely closed. Two (2) fill hoses with SCBA or SCUBA adapters will be provided within the enclosure.

Y\_\_N\_\_

#### **HIGH TEMPERATURE ALARM & LIGHT**

An audible and visual alarm shall be installed in the air compressor compartment at the fill station operator's panel. The alarm shall actuate when the ambient temperature in the compartment exceeds 140 deg. F.

Y\_\_N\_\_

#### **PANEL TO CASCADE BOTTLE CONNECTION (6,000 PSI BOTTLES)**

The panel is connected to the storage tanks by thermo-plastic hose designed for a working pressure of 6000 PSI with a minimum safety factor of 3:3:1.

Y\_\_N\_\_

#### **BOTTLE, 6000 PSI**

The storage tanks are to be DOT 6000 PSI tanks with CGA #702 outlets. Four (4) bottles shall be furnished with all of them filled with breathing air.

A label will be provided near the operator's panel that provides the following:

- The original cylinder test date stamped on the cylinder.
- The recommended testing interval.
- Five additional open spaces, appropriately labeled, for the user to enter actual retesting dates.

Y\_\_N\_\_

#### **FOUR BOTTLE HORIZONTAL RACK**

A four (4) bottle horizontal rack will be furnished between the frame rails and accessed through the rear compartment door.

The rack will be fabricated out of 1" x 2" x .13" aluminum tubing with v-shape troughs on the bottom. The front of the rack will have a removable cover that will hold the bottles in. This cover will enclose the complete bottle except for the valve, which will be exposed to allow turning bottles on and off.

Y\_\_N\_\_

#### **LADDER COMPARTMENT**

An enclosed ladder compartment shall be furnished designed for the ladders carried. The enclosure shall utilize all extruded aluminum supports.

The rear of the compartment shall have a lift-up, horizontally hinged aluminum box pan style door to allow ready access to the ladders at the back of the apparatus. The door shall have a D-ring style latch.

The ladders shall rest on teflon slides to prevent wear and tear on the ladders.

The compartment shall be designed to accommodate the following equipment:

- One (1) 10' collapsible ladder
- One (1) 14' roof ladder
- One (1) 24' extension ladder
- One (1) 6' pike pole
- One (1) 8' pike pole
- One (1) 10' pike pole

One (1) 12' pike pole

Y\_\_N\_\_

**MISCELLANEOUS EQUIPMENT**

The following equipment items listed shall be furnished by the body builder with the apparatus. All equipment shall be shipped loose unless otherwise specified.

Y\_\_N\_\_

**PIKE POLE BRACKETS**

Four (4) aluminum tubes with retaining notch shall be provided for mounting of the pike poles.

Y\_\_N\_\_

**WHEEL CHOCKS**

One set (pair) of Zico Model #SAC-44 folding type wheel chocks shall be provided. Wheel chocks will be mounted under the body in Zico Model #SQCH-44-H brackets.

Y\_\_N\_\_

**MISCELLANEOUS FASTENERS**

A bag of miscellaneous fasteners that was used on the construction of the apparatus will be provided with the completed unit.

Y\_\_N\_\_

**CORROSION PROTECTION**

A bottle of ECK corrosion prevention chemical shall be supplied loose with final delivery of the apparatus to ensure the customer will be able to place this on any screws inserted or removed from the body in the future.

Y\_\_N\_\_

**NFPA REQUIRED ITEMS**

It shall be the purchaser's responsibility to provide all equipment items required by NFPA 1901 that are not otherwise addressed in these specifications. These items shall be installed on the apparatus prior to it being put into active service.

Y\_\_N\_\_

**WEBSITE UPDATES**

Production photos of the apparatus being built will be provided by the body builder. The photos will be taken every two - three weeks as production allows and posted to a private website designed only for the Fire Department to view. These photos will allow the Department to view the manufacturing process of the truck and possibly detect things that they may want changed earlier in the production process.

Y\_\_N\_\_

**CHASSIS MODEL - SPARTAN GLADIATOR**

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

Y\_\_N\_\_

**MODEL YEAR**

The chassis shall have a vehicle identification number that reflects a 2010 model year.

Y\_\_N\_\_

**COUNTRY OF SERVICE**

The chassis shall be put in service in the country of United States of America (USA).

Y\_\_N\_\_

**APPARATUS TYPE**

The apparatus shall be a rescue vehicle designed for emergency service use which shall include the functions of a multipurpose vehicle which primarily provides support services at emergency scenes.

Y\_\_N\_\_

**VEHICLE TYPE**

The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.

Y\_\_ N\_\_

**AXLE CONFIGURATION**

The chassis shall feature a 4 X 2 axle configuration consisting of a single rear drive axle with a single front steer axle.

Y\_\_ N\_\_

**GROSS AXLE WEIGHT RATINGS FRONT**

The front gross axle weight rating (GAWR) of the chassis shall be 21,500 pounds.

This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

Y\_\_ N\_\_

**GROSS AXLE WEIGHT RATINGS REAR**

The rear gross axle weight rating (GAWR) of the chassis shall be 24,000 pounds.

This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

Y\_\_ N\_\_

**CAB STYLE - LONG FOUR DOOR WITH 10 INCH RAISED ROOF**

The cab shall be a custom, enclosed model, built specifically for as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications.

The cab shall be manufactured for heavy-duty service utilizing adequate strength and capacity for the application of protecting the occupants of the vehicle. The cab shall be of a modular design offering improved strength, durability and reduced weight. The modular design shall allow for faster, less costly replacement of components. Per pound, 6061-T6 aluminum extrusions offer a higher tensile strength, 45,000 PSI, and yield strength, 40,000 PSI, than that of lower grade sheet such as 3003-H13. For this reason, the cab shall be of aluminum extrusion construction, which shall offer superior strength and the truest, flattest surface ensuring less expensive paint repairs if needed.

The method of cab construction shall use a process incorporating techniques outlined in accordance with the American Welding Society D1.1-96 requirements for structural steel welding. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side panels shall be assembled using proven industrial adhesives, designed specifically for aluminum fabrication, which exceed the strength of a weld, for construction.

All interior and exterior seams shall be sealed for optimum noise reduction in addition to the most favorable efficiency for heating and cooling retention.

The cab shall be constructed of 5052-H32 corrosion resistant aluminum plate. A single formed, one (1) piece extrusion, manufactured from 6061-T6 0.125 inch thick aluminum shall be used for the "A" pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls, rear walls, and roof skin shall be 0.09 inch thick; the front structure shall be 0.125 inch thick.

The cab shall incorporate tongue and groove fitted 6061-T6 0.13 & 0.19 inch thick aluminum extrusions for extreme duty situations. The cab shall include multi-layer composite insulation for improved cab heating and cooling in addition to noise reduction.

Proposals offering products built with anything less than the alloy-temper mentioned or from any other material, other than aluminum, shall not be considered.

The cab shall incorporate a fully enclosed design, allowing for a spacious cab area with no partition between the front and rear sections of the cab. The walls of the vehicle shall include roof supports allowing for an open design. The outside dimension of the cab shall be 99.40 inches wide with a minimum interior width of 91.00 inches.

The overall cab length shall be 144.6 inches with 67.50 inches from the centerline of the front of the axle to the back of the cab. The cab shall offer an interior height of 57.50 inches from the front floor to the headliner and a rear floor to headliner height of 65.00 inches in the crew area, at a minimum. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

In order to offer the optimum amount of cab space to occupants, there shall be no consideration given for any cab unable to comply with the minimum measurements for interior cab space as listed.

The cab shall include a driver and officer area with two (2) cab doors. The front doors shall provide a clear opening of 40.00 inches wide X 53.50 inches high. The cab shall also include a crew area with two (2) cab doors. The rear doors shall provide a clear opening of 31.00 inches wide X 61.00 inches high. This style of cab shall provide up to ten (10) seating positions.

The cab shall incorporate a two (2) step configuration from the ground to the cab floor at each door opening. The first step for the driver and officer area shall measure 11.25 inches deep X 31.13 inches wide. The intermediate step shall measure 8.38 inches deep X 32.13 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure 10.38 inches deep X 20.44 inches wide. The intermediate step shall measure 10.20 inches deep X 21.00 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.80 inches.

Y\_\_ N\_\_

**CAB FRONT FASCIA - EVOLUTION**

The front cab fascia shall be the Evolution style, constructed of lightweight, impact resistant fiberglass reinforced plastic which shall be attached to the front cab skin to offer an appealing exterior. The cab fascia will encompass the front of the aluminum cab structure from the bottom of the windshield to the lower section of the cab.

The fascia shall include modules for two (2) single Hi/Low beam headlamps with integrated side turn/marker light assemblies. The hinged modules shall permit easy access for maintenance of the light assemblies as well as access to the engine air intake ember separator, the electrical bulkhead connections, and the transmission electronic communications module. Stylized louvers are incorporated into the design of the fascia to enhance air flow to the cooling system.

The Evolution fascia shall also provide two (2) warning light positions below each of the headlamp modules for the installation of up to four (4) warning lights on the front cab fascia.

Y\_\_ N\_\_

**FRONT GRILLE**

The fascia shall include a fixed stainless steel raised front grille. The grille shall be installed on the front of the cab fascia.

Y\_\_ N\_\_

**CAB UNDERCOAT**

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

Y\_\_ N\_\_

**CAB PAINT EXTERIOR**

The cab shall be painted prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum in corrosion protection of all metal surfaces.

All metal surfaces on the entire cab shall be ground by disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once the surface is machine ground a high quality acid etching of base primer shall be applied. Upon the application of body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The maximum thickness of the primer coat shall be 2.00 mils.

The entire cab shall then be coated with an intermediate solid or epoxy surfacing agent that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be a sanding of the cab with 360 grit paper, the seams shall be sealed with SEM brand seam sealer and painted with two (2) to four (4) coats of an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene.

The cab shall then be painted with the specific color designated by the customer with a minimum thickness of 2.00 mils of paint, followed by a clear top coat not to exceed 2.00 mils.

Y\_\_ N\_\_

**CAB PAINT MANUFACTURER**

The cab shall be painted with PPG Industries paint.

Y\_\_ N\_\_

**CAB PAINT PRIMARY/LOWER COLOR**

Cab exterior paint shall match N-2684 (PPG FTB904823) Candy Apple Red.

Y\_\_ N\_\_

**CAB PAINT WARRANTY**

The cab and chassis shall be covered by a limited manufacturer paint warranty which shall be in effect for ten (10) years from the first owner's date of purchase or in service or the first 100,000 actual miles, whichever occurs first.

Y\_\_ N\_\_

**CAB PAINT INTERIOR**

The visible cab structure surfaces shall be painted with a Zolatone #20-72 silver gray texture finish.

Y\_\_ N\_\_

**CAB ENGINE TUNNEL**

The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade, .190 of an inch thick, aluminum alloy plate.. The tunnel shall be a maximum of 46.50 inches wide X 29.00 inches high.

**CAB ENTRY DOORS**

The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors as high as possible for ease of entering and egress when outfitted with an SCBA. The doors shall be full height and constructed of extruded aluminum with a nominal thickness of .125 inch. The exterior skins shall be constructed of .125 inch aluminum plate.

All cab and crew doors shall be of substantial weight for the optimum strength and rigidity for the best performance in all cab crash testing. Any cab with front and crew doors manufactured of less than the material thickness of .125 inch in both the extrusion and exterior skin shall not be considered.

The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.

All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38 inch pin and shall be constructed of stainless steel.

The piano style hinge and hidden flush mounted door is the most favorable construction keeping dirt and debris out of the hinge allowing for optimum operation throughout the lifetime of the door.

Proposals offering door hinge thickness any less than stated shall not be considered.

Proposals including doors that do not comply with the flush mounting as described or those including exposed hinges shall not be considered.

Y\_\_ N\_\_

**CAB ENTRY DOOR TYPE**

All cab entry doors shall be full length in design to fully enclose the lower cab steps.

Y\_\_ N\_\_

**CAB ENTRY DOOR SCUFF PLATES**

There shall be scuff plates installed on the inside of the Cab Entry Doors to protect the finish of the door. The scuff plates shall be constructed of .10" bright aluminum treadplate overlay fastened with stainless steel torx head screws for ease of replacement in case of an accident.

Y\_\_ N\_\_

**LH EXTERIOR REAR COMPARTMENT**

The cab shall offer an exterior compartment on the left side of the cab behind the rear door. The compartment opening shall be 10.00 inches wide X 21.19 inches high. The compartment size shall be 11.34 inches wide X 21.19 inches high X 21.19 inches deep. The compartment shall have a 10.63 inch wide, 32.00 inch high and 1.50 inch thick hinged box pan style flush mount door with a bright aluminum tread plate inner panel and a bent D-ring slam latch. There shall be a switch to activate a light inside the compartment and the open compartment warning light in the cab in the event the door is left ajar.

Y\_\_ N\_\_

**LH EXTERIOR REAR COMPARTMENT LIGHTING**

There shall be one (1) SoundOff Signal brand LED strip light installed to illuminate the exterior rear compartment on the left side of the cab. The strip light shall be 10" long and shall include three (3) bright white Gen3 LEDs for long life and low amp draw.

Y\_\_ N\_\_

**LH EXTERIOR COMPARTMENT INTERIOR FINISH**

The interior of the left hand exterior compartment shall have a Zolatone #20-72 silver gray texture finish.

Y\_\_ N\_\_

**RH EXTERIOR REAR COMPARTMENT**

The cab shall offer an exterior compartment on the right side of the cab behind the rear door. The compartment opening shall be 10.00 inches wide X 21.19 inches high. The compartment size shall be 11.34 inches wide X 21.19 inches high X 21.19 inches deep. The compartment shall have a 10.63 inch wide, 32.00 inch high and 1.50 inch thick hinged box pan style flush mount door with a bright aluminum tread plate inner panel and a bent D-ring slam latch. There shall be a switch to activate a light inside the compartment and the open compartment warning light in the cab in the event the door is left ajar.

Y\_\_ N\_\_

**RH EXTERIOR REAR COMPARTMENT LIGHTING**

There shall be one (1) SoundOff Signal brand LED strip light installed to illuminate the exterior rear compartment on the right side of the cab. The strip light shall be 10" long and shall include three (3) bright white Gen3 LEDs for long life and low amp draw.

Y\_\_ N\_\_

**RH EXTERIOR COMPARTMENT INTERIOR FINISH**

The interior of the right hand exterior compartment shall have a Zolatone #20-72 silver gray texture finish.

Y\_\_ N\_\_

**CAB STRUCTURAL WARRANTY**

The cab structure shall be warranted for a period of ten (10) years or one hundred thousand (100,000) miles which ever may occur first. Warranty conditions may apply and shall be listed in the detailed warranty document that shall be provided upon request.

Y\_\_ N\_\_

**CAB TEST INFORMATION**

The cab shall have successfully achieved survival of the International crash test ECE-R29, Addendum 28, Revision 1 standards as indicated below. It shall also meet SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks and SAE J2422 Cab Roof Strength Quasi-Static Roof Load test requirements.

As part of testing, the frontal area of the cab is struck by a 3,700 pound pendulum weight. The weight is brought back to a sixty degree angle and then the weight is released and allowed to swing forward, imparting some 32,600 lbs/ft of force to the cab front face.

The cab shall be so constructed that after the test, there will be minimal intrusion of the cab structure into the passenger area. The doors shall remain usable for both entry and exit. Also, as part of the test the cab roof must withstand a static load bearing test. The cab shall withstand a weight of over 60,000 pounds without permanent damage or collapse.

The above tests shall be witnessed by and attested to by an independent third party. The test results shall be recorded on/by cameras, high speed imagers, accelerometers and strain gauges. Documentation of the testing shall be provided upon request.

Y\_\_ N\_\_

**ELECTRICAL SYSTEM**

The chassis shall include a single starting electrical system which shall include a 12 volt direct current Weldon brand of multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311 degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.

Y\_\_ N\_\_

**APPARATUS WIRING PROVISION**

An apparatus wiring panel shall be installed on the officer side bulkhead below the dash which shall include eight (8) open circuits consisting of three (3) 20 amp, one (1) 30 amp, three (3) 10 amp, and one (1) 15 amp circuit, with relays and breakers with trigger wires which shall be routed to the rocker switch panel.

Y\_\_ N\_\_

**MULTIPLEX DISPLAY**

The multiplex electrical system shall include a Weldon Vista III Touch screen display which shall be located on the left side of the dash in the switch panel. The Touch screen display shall feature a full color LCD screen. The display shall include a message bar displaying the time of day, and important messages requiring acknowledgement by the user. There shall be virtual controls for the auto climate control and on-board diagnostics. The display screen shall be video ready for back- up cameras, thermal cameras, and DVD. A DIN type input connector ready for GPS interfacing shall be incorporated into the back of the display.

The Touch screen display shall measure approximately 6.25 inches wide x 3.38 inches in height. The display shall offer varying fonts and background colors. The display shall be fully programmable to the needs of the customer and shall offer virtually infinite flexibility for screen configuration options.

Y\_\_ N\_\_

#### **DATA RECORDING SYSTEM**

The chassis shall have a Weldon Vehicle Data Recorder system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the Weldon 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.

Y\_\_ N\_\_

#### **POWER & GROUND STUD**

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40 amp battery direct load. One (1) power stud shall be capable of carrying up to a 15 amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud that shall be 0.38 inch diameter.

Y\_\_ N\_\_

#### **EXTERIOR ELECTRICAL TERMINAL COATING**

All terminals exposed to the elements will be sprayed with a yellow protective rubberized coating to prevent corrosion.

Y\_\_ N\_\_

#### **ENGINE**

The engine shall be a Cummins ISL 450 diesel fueled, turbo charged engine. The engine shall offer a rating of 450 horse power at 2100 RPM which shall be governed at 2200 RPM. The engine shall produce 1250 foot pounds of torque at 1400 RPM with 543 cubic inches of displacement.

The Cummins ISL 450 shall be an air charge cooled, in-line six (6) cylinder, four cycle engine. The engine shall feature an electronic governor, a high pressure common rail fuel system, and fully integrated electronic controls. This system shall be coupled with a Holset VGT™ (Variable Geometry Turbocharger) which delivers outstanding performance at ratings up to 450 HP. The Cummins ISL engine shall include replaceable wet liners plus heavy duty roller followers, and targeted piston cooling. The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for the lubrication system. The engine shall include Citgo brand Citgard 500 (or equivalent) SAE 15W40 CJ4 low ash engine oil for proper engine lubrication.

The engine shall be EPA certified to meet the 2010 emissions standards without compromising performance, reliability or durability using cooled exhaust gas recirculation and selective catalytic reduction technology.

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.

Y\_\_ N\_\_

**DIESEL PARTICULATE FILTER CONTROLS**

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.

Y\_\_ N\_\_

**ENGINE PROGRAMMING HIGH IDLE SPEED**

The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.

Y\_\_ N\_\_

**ENGINE HIGH IDLE CONTROL**

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 indication on the Vista screen for the high idle speed control.

Y\_\_ N\_\_

**ENGINE PROGRAMMING ROAD SPEED GOVERNOR**

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

Y\_\_ N\_\_

**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.

Y\_\_ N\_\_

**AUXILIARY ENGINE BRAKE CONTROL**

An engine variable geometry turbo brake control device shall be included. 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 a virtual button on the Vista control screen.

Y\_\_ N\_\_

**FLUID FILLS**

The engine oil, coolant, transmission, and power steering fluid fills shall be located under the cab. The windshield washer fill shall be accessible through the front left side mid step.

Y\_\_ N\_\_

**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.

Y\_\_ N\_\_

**ENGINE WARRANTY**

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

Y\_\_ N\_\_

**ENGINE PROGRAMMING REMOTE THROTTLE**

The engine ECM (Electronic Control Module) discreet wire remote throttle circuit shall be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required.

Y\_\_ N\_\_

**ENGINE PROGRAMMING IDLE SPEED**

The engine low idle speed will be programmed at 700 rpm.

Y\_\_ N\_\_

**ENGINE FAN DRIVE**

The engine cooling system fan shall be direct drive belt driven on the engine.

Y\_\_ N\_\_

**ENGINE COOLING SYSTEM**

There shall be a heavy-duty aluminum 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 to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components shall include a surge tank, a charge air cooler bolted to the front of the radiator, recirculation shields, a shroud, a fan, and required tubing.

The radiator shall be a down-flow design constructed with aluminum cores, plastic end tanks, and a steel frame. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The cooling system shall include a one piece injected molded polymer eleven (11) blade fan with a fiberglass fan shroud.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and sight glass to monitor the level of the coolant. The surge tank shall have a dual seal cap that meets the engine manufacturer's pressure requirements, and allows for expansion and recovery of coolant to a separate tank.

All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.

The charge air cooler shall be a cross-flow design constructed completely of aluminum with cast tanks. All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel "constant torque" style clamps meeting the engine manufacturer's requirements.

Y\_\_ N\_\_

### ENGINE SKIDPLATE

The engine cooling system shall include a recirculation shield that shall act as a skid plate below the radiator to provide additional protection for the cooling system.

Y\_\_ N\_\_

### ENGINE COOLANT

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.

Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.

Y\_\_ N\_\_

### ELECTRONIC COOLANT LEVEL INDICATOR

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.

Y\_\_ N\_\_

### COOLANT HOSES

The cooling systems hose shall be formed silicone hose and formed aluminized steel tubing and include stainless steel constant torque band clamps.

Y\_\_ N\_\_

### ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter which shall be located in the front of the cab behind the officer side fascia. This filter shall protect the downstream air filter from embers using a combination of unique flat and crimped metal screens constructed into a galvanized steel frame. This multilayered screen shall be designed to trap embers or allow them to burn out before passing through the pack, while creating only minimal air flow restriction through the system. Periodic cleaning or replacement of the screen shall be all that is required after installation.

The engine shall also include an air intake filter which shall be bolted to the frame and located under the front of the cab on the officer side. 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 within easy access via a hinged panel behind the headlight module. 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.

Y\_\_ N\_\_

### ENGINE EXHAUST SYSTEM

The exhaust system shall include a diesel particulate filter, a diesel oxidation catalyst, and a selective catalytic reduction 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 system shall utilize 0.065 inch thick stainless steel exhaust tubing between the engine turbo and the diesel particulate filter. This section of the exhaust system shall be wrapped with a thermal cover in order to retain the necessary heat for system regeneration. Zero leak clamps seal all system joints between the turbo and diesel particulate filter.

From the diesel particulate filter to the end of the tailpipe the system shall be plumbed with 0.065 inch thick aluminized steel tubing connected with overlapping band style clamps. The discharge shall terminate horizontally on the officer side of the vehicle ahead of the rear tires.

The exhaust system shall be mounted below the frame in the inboard position with the selective catalytic reduction catalyst in line rearward of the diesel particulate filter.

Y\_\_ N\_\_

**DIESEL EXHAUST FLUID TANK**

The exhaust system shall include a molded cross linked polyethylene tank integrated into the battery tray for diesel exhaust fluid. The tank shall have a capacity of 6.00 usable gallons and shall be mounted on the LH side of the chassis frame. The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step.

Y\_\_ N\_\_

**ENGINE EXHAUST ACCESSORIES**

An exhaust temperature mitigation device shall be shipped loose for installation by the body manufacturer on the vehicle. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet.

Y\_\_ N\_\_

**ENGINE EXHAUST WRAP**

The exhaust shall include an insulated wrap to protect the surrounding components from any radiant heat which might be transferred from the exhaust.

Y\_\_ N\_\_

**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 295 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
6th	0.65:1 (if applicable)
Rev	5.03:1

Y\_\_ N\_\_

**TRANSMISSION MODE PROGRAMMING**

The transmission, upon start-up, will automatically select a four (4) speed operation. The fifth speed over drive shall be available with the activation of the mode button on the shifting pad.

Y\_\_ N\_\_

**TRANSMISSION FEATURE PROGRAMMING**

The EVS group package number 127 shall contain the 199 vocational package in consideration of the duty of this apparatus for rescue. 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.

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		Wire assignment	
C	PTO Request	143	
F	Aux. Function Range Inhibit (Special)	101/142	
G	PTO Enable Output (See Input Function C)	130	
S	Neutral Indicator for PTO	145	
	Signal Return	103	Y__ N__

**ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR**

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.

Y\_\_ N\_\_

**TRANSMISSION SHIFT SELECTOR**

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.

Y\_\_ N\_\_

**TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE**

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.

Y\_\_ N\_\_

**TRANSMISSION COOLING SYSTEM**

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.

Y\_\_ N\_\_

**TRANSMISSION WARRANTY**

The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

Y\_\_ N\_\_

**LH PTO**

A Spartan supplied ten (10) bolt standard duty clutched drive PTO shall be installed on the transmission. Installation shall include mounting of the PTO and wiring the unit with a control switch.

Y\_\_ N\_\_

**LH PTO MODEL**

A ten (10) bolt Chelsea model 277-XDFJP-B5RA heavy duty transmission driven PTO shall be installed. The clutched shifted PTO is designed specifically for the Allison world transmission and provides torque ranges from 250 to 335 lb. ft.

Y\_\_ N\_\_

**PTO LOCATION**

The transmission driven power take off (PTO) shall be mounted in the 9:00 o'clock position.

Y\_\_ N\_\_

## PTO CONTROL

The left hand power take off shall be controlled by the transmission. It will use a virtual switch on vista with text messages. Disable is displayed when switch is off. Enable is displayed when the switch is turned on. Active is displayed when the switch is on with positive engagement of the power take off.

Required operating conditions for enabling this function are:

- Throttle position is low
- Engine speed is within customer modifiable constant limits
- Output speed is within customer modifiable constant limits

Park brake set

Y\_\_ N\_\_

## 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<sup>®</sup>.

Y\_\_ N\_\_

## FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Fleetguard FS1003 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.

A water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.

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

Y\_\_ N\_\_

## FUEL LINES

The fuel system lines shall be black textile braid covered high tensile steel reinforced wire braided supply and return hoses with steel reusable fittings installed from the tank to engine.

Y\_\_ N\_\_

## FUEL TANK

The fuel tank shall have a capacity of sixty-eight (68) gallons and shall measure 35.00 inches in width X 17.00 inches in height X 29.00 inches in length. The baffled tank shall be made of 14 gauge aluminized steel. The exterior of the tank shall be painted with a PRP Corsol™ black anti-corrosive exterior metal treatment finish. This results in a tank which offers the internal and external corrosion resistance.

The tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.

The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00 inch NPT fill ports for right or left hand fill. A 0.50 inch NPT drain plug shall be centered in the bottom of the tank.

The fuel tank shall be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with "U" straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the hanger strap assemblies. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

Y\_\_ N\_\_

## FUEL TANK FILL PORT

The fuel tank fill ports shall be provided with the right fill port located in the middle position and the left fill ports located one (1) in the forward position and one (1) in the middle position of the fuel tank.

Y\_\_ N\_\_

**FRONT AXLE**

The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-20. 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 21,500 pounds FAWR.

Y\_\_ N\_\_

**FRONT AXLE WARRANTY**

The front axle shall be warranted by Meritor for two (2) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

Y\_\_ N\_\_

**FRONT WHEEL BEARING LUBRICATION**

The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

Y\_\_ N\_\_

**FRONT SHOCK ABSORBERS**

Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the front suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.

The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and "road sensing" shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.

Proposals offering the use of conventional twin tube or "road sensing" designed shocks shall not be considered.

Y\_\_ N\_\_

**FRONT SUSPENSION**

The front suspension shall include a nine (9) leaf spring pack in which the longest leaf measures 54.00 inch long and 4.00 inches wide and shall include a military double wrapped front eye. Both spring eyes shall have a case hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 21,500 pounds.

Y\_\_ N\_\_

**STEERING COLUMN/ WHEEL**

The cab shall include a Douglas Autotech steering column which shall include a seven (7) position tilt, a 2.25 inch telescopic adjustment, and an 18.00 inch, two (2) spoke steering wheel located at the driver's position. The steering wheel shall be covered with black polyurethane foam padding.

The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

Y\_\_ N\_\_

**POWER STEERING PUMP**

The hydraulic power steering pump shall be a TRW PS and shall be gear driven from the engine. The pump shall be a balanced, positive displacement, sliding vane type.

Y\_\_ N\_\_

**ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR**

The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.

Y\_\_ N\_\_

**FRONT AXLE CRAMP ANGLE**

The chassis shall have a front axle cramp angle of 48 degrees to the left and 44 degrees to the right.

Y\_\_ N\_\_

**POWER STEERING GEAR**

The power steering gear shall be a TRW model TAS 65 with an assist cylinder.

Y\_\_ N\_\_

**CHASSIS ALIGNMENT**

The chassis frame rails shall be measured to insure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.

The completed apparatus shall be rechecked for proper alignment once the chassis has been fully loaded and before being placed in service.

Y\_\_ N\_\_

**REAR AXLE**

The rear axle shall be a Meritor model number RS-24-160. 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 housings for extra strength and rigidity. The axles shall also include torsion flow axle shafts that feature a surface hardness which resists fatigue and a resilient core which absorbs shock. There shall be unitized pinion seals within the axle helping to prevent leakage and harmful road contaminants from entering the axle components. The axle shall include a rigid differential case for high axle strength and reduced maintenance.

The axle shall include single reduction gearing and shall have a rated capacity of 24,000 pounds.

Y\_\_ N\_\_

**REAR AXLE DIFFERENTIAL LUBRICATION**

The rear axle differential shall be lubricated with oil.

Y\_\_ N\_\_

**REAR AXLE WARRANTY**

The rear axle shall be warranted by Meritor for two (2) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

Y\_\_ N\_\_

**REAR WHEEL BEARING LUBRICATION**

The rear axle wheel bearings shall be lubricated with oil.

Y\_\_ N\_\_

**VEHICLE TOP SPEED**

The top speed of the vehicle shall be approximately 65 MPH +/-2 MPH at governed engine RPM.

Y\_\_ N\_\_

**REAR SUSPENSION**

The single rear axle shall feature a Reyco 79KB suspension which shall offer a vari-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 21,000 to 31,500 pounds.

Y\_\_ N\_\_

**REAR SHOCK ABSORBERS**

Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the rear suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.

The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and "road sensing" shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.

Proposals offering the use of conventional twin tube or "road sensing" designed shocks shall not be considered.

Y\_\_ N\_\_

**FRONT TIRE**

The front tires shall be Michelin 425/65R22.5 "L" tubeless radial XFE regional tread.

The front tire stamped load capacity shall be 22,800 pounds per axle with a speed capacity of 65 miles per hour when properly inflated to 120 pounds per square inch.

The front tire US Fire Service Intermittent Usage load capacity shall be 23,000 pounds per axle with a speed capacity of up to 75 miles per hour when properly inflated to 120 pounds per square inch.

Y\_\_ N\_\_

**REAR TIRE**

The rear tires shall be Michelin 12R-22.5 16PR "H" tubeless radial XDS regional tread.

The rear tire stamped load capacity shall be 27,120 pounds per axle with a speed capacity of 65 miles per hour when properly inflated to 120 pounds per square inch.

The rear tire US Fire Service Intermittent Usage load capacity shall be 28,880 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 120 pounds per square inch.

Y\_\_ N\_\_

**TIRE PRESSURE INDICATOR**

There shall be a pop up style tire pressure indicator at each tire valve stem. The indicator shall provide visual indication of pressure in the specific tire.

Y\_\_ N\_\_

**FRONT WHEEL**

The front wheels shall be Alcoa hub piloted, 22.50 inch X 12.25 inch polished aluminum wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts. The wheels shall feature one-piece forged strength and a polished finish that lasts.

Y\_\_ N\_\_

**REAR WHEEL**

The outer rear wheels shall be Alcoa hub piloted, 22.50 inch X 8.25 inch LvL One™ aluminum wheels with a polished outer surface. The inner rear wheels shall be Alcoa hub piloted, 22.50 inch X 8.25 inch

aluminum wheels with LvL One™ bright machine finish. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

Y\_\_ N\_\_

**WHEEL TRIM**

The front wheels shall include stainless steel lug nut covers and stainless steel baby moons shipped loose with the chassis for installation by the apparatus builder. The baby moons shall have cutouts for oil seal viewing when applicable.

The rear wheels shall include stainless steel lug nut covers and band mounted spring clip stainless steel high hats shipped loose with the chassis for installation by the apparatus builder.

The lug nut covers, baby moons, and high hats shall be RealWheels® brand constructed of 304L grade, non-corrosive stainless steel with a mirror finish. Each wheel trim component shall meet D.O.T. certification.

Y\_\_ N\_\_

**TIRE CHAINS**

RUD, ten (10) strand automatic ice chains shall be installed on the rear axle of the chassis to provide instant traction on ice and snow at speeds below 35 mph.

Y\_\_ N\_\_

**TIRE CHAINS ACTIVATION**

The tire chain system shall be controlled through a virtual switch on the multiplex display. The virtual switch shall display "Active" when the tire chains are engaged. The tire chains shall be interlocked with the transmission and shall engage when the vehicle is traveling 30 MPH or less. After traveling over 30 MPH, the vehicle must be reduced to a speed below 5 MPH for the tire chains to be engaged or re-engaged.

Y\_\_ N\_\_

**BRAKE SYSTEM**

A rapid build-up air brake system shall be provided. The air brakes shall include a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. 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 controlled service brake application during an unlikely event including 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 four (4) sensor, four (4) modulator anti-lock braking system (ABS) shall be 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 electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

Y\_\_ N\_\_

**FRONT BRAKES**

The front brakes shall be Meritor 16.5" x 6" S-cam drum type.

Y\_\_ N\_\_

**REAR BRAKES**

The rear brakes shall be Meritor 16.50 inch X 7.00 inch S-cam drum type.

Y\_\_ N\_\_

**PARK BRAKE**

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

Y\_\_ N\_\_

**PARK BRAKE CONTROL**

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.

The parking brake actuation valve shall be mounted on the left hand dash to the right of the steering column within easy reach of the driver.

Y\_\_ N\_\_

**FRONT BRAKE SLACK ADJUSTERS**

The front brakes shall include Meritor automatic slack adjusters shall be installed on the chassis 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.

Y\_\_ N\_\_

**REAR BRAKE SLACK ADJUSTERS**

The rear brakes shall include Meritor automatic slack adjusters shall be installed on the chassis 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.

Y\_\_ N\_\_

**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.

Y\_\_ N\_\_

**FRONT BRAKE CHAMBERS**

The front brakes shall be provided with MGM type 30 brake chambers.

Y\_\_ N\_\_

**REAR BRAKE CHAMBERS**

The rear axle shall include TSE 30/36 brake chambers 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.

Y\_\_ N\_\_

**AIR COMPRESSOR**

The air compressor provided for the engine shall be a Wabco® SS318 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 increasing the system component life.

Y\_\_ N\_\_

**AIR GOVERNOR**

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. The air governor shall be located on the air cleaner bracket on the right frame rail behind the officer step.

Y\_\_ N\_\_

**AUXILIARY AIR RESERVOIR**

One (1) auxiliary air tank, 1200 cubic inch reservoir, shall be installed on the chassis to act as an additional reserve supply to the air system for air horn, air tool, or other non-service brake use. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

Y\_\_ N\_\_

**MOISTURE EJECTORS**

An automatic moisture ejector with a manual drain provision shall be installed on the wet tank of the air supply system. Manual cable actuated drain valves shall be installed on all remaining reservoirs of the air supply system. The actuation pull cables shall be coiled and tied at each drain valve. The supplied cables when extended shall be sufficient in length to allow each drain to be activated from the side of the apparatus.

Y\_\_ N\_\_

**AIR SUPPLY LINES**

A dual air system plumbed with color coded reinforced nylon tubing air lines shall be installed on the chassis. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

Y\_\_ N\_\_

**AIR INLET CONNECTION**

A Kusmaul air automatic eject connection for the shoreline air inlet shall be supplied.

Y\_\_ N\_\_

**AIR INLET/ AUTO EJECT CONNECTION COVER**

The air auto eject connection shall be red in color.

Y\_\_ N\_\_

**AIR INLET LOCATION**

The air inlet shall be installed on the left hand side of the cab above the wheel well in the forward position.

Y\_\_ N\_\_

**PLUMBING AIR INLET CONNECTION**

The cab mounted air inlet connector shall be plumbed to the air system with a check valve to prevent air from escaping through the inlet connector.

Y\_\_ N\_\_

**AIR INLET/ OUTLET FITTING TYPE**

The air connector supplied shall be a 0.25 inch size Tru-Flate Interchange style manual connection which is compatible with Milton 'T' style, Myers 0.25 inch Automotive style and Parker 0.25 inch 10 Series connectors.

Y\_\_ N\_\_

**WHEELBASE**

The chassis wheelbase shall be 210.00 inches.

Y\_\_ N\_\_

**REAR OVERHANG**

The chassis rear overhang shall be 51.00 inches.

Y\_\_ N\_\_

**FRAME**

The frame shall consist of double channel side rails and cross members forming a ladder style frame. The sides of the rails shall be formed in the shape of a "C" channel, 10.25 inches high X 3.50 inches deep upper and lower flanges X .38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and .38 inches thick. The high strength low alloy steel shall have a Tensile Elastic Limit of 110,000 psi. Each double rail shall be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame shall measure 35.00 inches in width.

Proposals calculating the frame strength using the "box method" shall not be considered.

Proposals including heat treated rails shall not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.

A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The head bolts shall be flanged type with distorted threads, held in place by flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.

Any proposals not including additional reinforcement for each cross member shall not be considered.

Frame rails will be manufactured such that bolt attachment holes are specific for each component and shall not include any unnecessary holes.

All relief areas shall be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

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

Proposals offering warranties for frames not including cross members shall not be considered.

Y\_\_ N\_\_

**FRAME WARRANTY**

The frame and cross members shall carry a limited lifetime warranty to the original purchaser. The warranty shall include conditional items listed in the detailed warranty document which shall be provided upon request.

Y\_\_ N\_\_

**FRAME CLEAR AREA**

The chassis frame shall be left clear of chassis mounted components inside or outside the frame rails within the first 30.00 inches behind the cab to allow space for OEM installed components. Cross members may be installed in the clear area if required for proper frame or driveline configuration.

Y\_\_ N\_\_

**FRAME PAINT**

The frame shall be powder coated black prior to any attachment of components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils. The salt spray resistance per ASTM B-117-97 shall pass 500 hours of salt spray test. The applied process shall allow the application of other products over it and still maintain or exceed the 500 hours salt spray test.

Any proposals offering painted frame with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

Y\_\_ N\_\_

**FRONT BUMPER**

The chassis shall include a one piece wrap-around style bumper. The bumper shall be constructed of polished 10.00 gauge 304 grade stainless steel and shall be .38 thick and shall be 12.00 inches high and 99.00 inch wide. The bumper shall include a molded rib at the top and a rib at the bottom of the bumper along the entire length. The bumper shall be bolted to the frame.

Y\_\_ N\_\_

**FRONT BUMPER EXTENSION LENGTH**

The front bumper shall be extended approximately 28.00 inches ahead of the cab.

Y\_\_ N\_\_

**FRONT BUMPER EXTENSION WIDTH**

The front bumper extension shall an overall width of 48.25 inches.

Y\_\_ N\_\_

**FRONT BUMPER APRON**

The 28.00 inch extended front bumper shall include an apron constructed of 0.19 inch thick embossed aluminum tread plate.

The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.

Y\_\_ N\_\_

**AIR HORN**

The front bumper shall include two (2) Grover brand air horns which shall measure 24.50 inches long with a 6.00 inch round flare. The air horn shall be a trumpet style and shall include a chrome finish.

Y\_\_ N\_\_

**AIR HORN LOCATION**

The air horns shall be recess mounted in the front bumper face, (1) on the driver side of the bumper in the outboard position relative to the left hand frame rail and (1) on the officer side of the bumper in the outboard position relative to the right hand frame rail.

Y\_\_ N\_\_

**AIR HORN RESERVOIR**

One (1) air tank, with a 1200 cubic inch reservoir, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

Y\_\_ N\_\_

**ELECTRONIC SIREN SPEAKER**

The bumper shall include two (2) Cast Products Inc. model SA4301, 100 watt speaker which shall be recess mounted within the bumper fascia. The speaker shall include a flat mounting flange and be chrome in color.

Y\_\_ N\_\_

**ELECTRONIC SIREN SPEAKER LOCATION**

The two (2) electronic siren speakers shall be located on the front bumper face outboard of the frame rails with one (1) on the right side and one (1) on the left side in the inboard positions.

Y\_\_ N\_\_

**FRONT BUMPER TOW EYES**

The bumper shall include two (2) chrome plated tow eyes which shall be installed below the front bumper. The tow eyes shall be fabricated from 0.75 inch thick 1020 ASTM-A36 hot rolled steel. The inside diameter of the eye shall be 2.00 inches and include a chamfered edge.

Y\_\_ N\_\_

## CAB TILT SYSTEM

The entire cab shall be capable of tilting 45.00 degrees to allow for easy maintenance of the engine and transmission.

The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the "Down" button to indicate safe road operation.

It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit.

Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.

Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90 inch ball and be anchored to frame brackets with 1.25 inch diameter studs.

A steel safety channel assembly shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.

Y\_\_ N\_\_

## CAB TILT LIMIT SWITCH

A cab tilt limit switch shall be installed. The switch will effectively limit cab's travel when being tilted. The final adjustment of the switch shall be performed by the apparatus manufacturer to prevent damage to the cab or any bumper mounted option mounted in the cab tilt arc.

Y\_\_ N\_\_

## CAB TILT CONTROL RECEPTACLE

A 25.00 foot harness shall be provided on the right side of frame just behind the cab and include a 6 pin Deutsch connector with cap for mounting in a compartment in the body, which shall include a 17.00 foot extension harness which shall be provided between the connector on the harness from the tilt pump and the connector on the remote control pendant. The remote control pendant shall also

include 20.00 feet of cable which includes a mating connector to a mating connector to mate with the 25.00 foot harness.

Y\_\_ N\_\_

## CAB TILT LOCK DOWN INDICATOR

The cab dash shall include a message located within the speedometer which shall alert the driver when the cab is unlocked and ajar. The alert message shall cease to be displayed when the cab is in the fully lowered position and the hold down hooks are secured and locked to the cab mounts.

In addition to the alert message an audible alarm shall sound when the cab is unlocked and ajar and the parking brake is released.

Y\_\_ N\_\_

## GLASS FRONT DOOR

The front cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished via electric actuation. The power windows shall be controlled via switching on the driver door and by a switch on each respective door.

There shall be an irregular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as "cozy glass" ahead of the front door roll down windows.

The windows shall be mounted within the frame of the front doors trimmed with a black anodized ring on the exterior.

Y\_\_ N\_\_

**GLASS TINT FRONT DOOR**

The windows located in the left and right front doors shall have a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

Y\_\_ N\_\_

**GLASS REAR DOOR RH**

The rear right hand side crew door shall include a window which is 27.00 inches in width X 26.00 inches in height. The window shall be a powered type and shall be controlled by a switch on the inner door panel and on the driver's door panel.

Y\_\_ N\_\_

**GLASS TINT REAR DOOR RH**

The window located in the right hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

Y\_\_ N\_\_

**GLASS REAR DOOR LH**

The rear left hand side crew door shall include a window which is 27.00 inches in width X 26.00 inches in height. The window shall be a powered type and shall be controlled by a switch on the inner door panel and on the driver's door panel.

Y\_\_ N\_\_

**GLASS TINT REAR DOOR LH**

The window located in the left hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

Y\_\_ N\_\_

**GLASS SIDE MID RH**

The cab shall include a window on the officer's side behind the front and ahead of the crew doors which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

Y\_\_ N\_\_

**GLASS TINT SIDE MID RH**

The window located on the right hand side of the cab between the front and rear doors shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

Y\_\_ N\_\_

**GLASS SIDE MID LH**

The cab shall include a window on the driver's side behind the front door and ahead of the crew door and above the wheel well which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

Y\_\_ N\_\_

**GLASS TINT SIDE MID LH**

The window located on the left hand side of the cab between the front and rear doors shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

Y\_\_ N\_\_

**CLIMATE CONTROL**

The cab shall include a minimum 44,000 BTU/Hr front overhead heater/defroster system which shall be mounted on the ceiling between the sun visors.

The system shall include two (2) adjustable comfort louvers, defrost duct(s) for windshield defrost/defog, and two (2) side demist louvers for side window defog. The comfort louvers shall face rearward at center of cab to direct air towards the driver, officer, and mid-crew area. The defrost duct(s) shall be fixed in position to direct air to the windshield and shall not have adjustable louvers. The side demist louvers shall face rearward in the outboard position towards the front side door windows.

The cab shall also include a combination heater air-conditioning unit mounted on the engine tunnel. This unit shall offer eight (8) adjustable louvers, (4 forward facing, four rearward facing) and a temperature control valve, and shall be capable of circulating 550 cubic feet of air per minute. The unit shall be rated for 42,500 BTU/Hr of cooling and 36,000 BTU/Hr of heating. The outer cover of this unit shall be metal with a black powder coat finish.

All defrost/heating systems shall be plumbed with one (1) seasonal shut-off valve at the front corner on the right side of the cab.

The air conditioner lines shall use Aeroquip GH 134 flexible hose with Aeroquip EZ-clip fittings.

Y\_\_ N\_\_

**CLIMATE CONTROL ACTIVATION**

The forward heating and defrosting controls, shall be located on the dash next to driver panel, in a position which is easily accessible to the driver. The tunnel mounted heating and air conditioning controls shall be mounted on the heater/air conditioning unit.

Y\_\_ N\_\_

**A/C CONDENSER LOCATION**

A roof mounted A/C condenser shall be installed centered on cab forward of raised roof against the slope rise.

Y\_\_ N\_\_

**A/C COMPRESSOR**

The air-conditioning compressor shall be a belt driven, engine mounted, open type compressor that shall be capable of producing a minimum of 32000 BTU at 1500 engine RPMs. The compressor shall utilize R-134A refrigerant and PAG oil.

Y\_\_ N\_\_

**CAB INSULATION**

The cab ceiling and walls shall include 1.00 inch thick foam insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

Y\_\_ N\_\_

**UNDER CAB INSULATION**

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

The insulation shall act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation shall assist in sustaining the desired temperature within the cab interior.

The engine tunnel insulation shall measure approximately .75 inch thick including a vertically lapped polyester fiber layer, a 1.0 lb/ft<sup>2</sup> PVC barrier layer, an open cell foam layer, and a moisture and heat reflective foil facing reinforced with a woven fiberglass layer. The foil surface acts as protection against moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.

The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by 3 mils of acrylic pressure sensitive adhesive and aluminum pins with hard hat, hold in place fastening heads.

Y\_\_ N\_\_

**INTERIOR TRIM FLOOR**

The floor of the cab shall be covered with a multi-layer mat consisting of 0.25 inch thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive and aluminum trim molding. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

Y\_\_ N\_\_

**INTERIOR FLOOR MAT COLOR**

The cab interior floor mat shall be gray in color.

Y\_\_ N\_\_

**INTERIOR TRIM VINYL**

The cab interior shall include trim on the front ceiling, rear crew ceiling, and the cab walls. It shall be easily

removable to assist in maintenance. The trim shall be constructed of insulated vinyl over a hard board backing.

Y\_\_ N\_\_

**INTERIOR TRIM VINYL COLOR**

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

Y\_\_ N\_\_

**REAR WALL INTERIOR**

The rear wall of the cab shall be trimmed with vinyl.

Y\_\_ N\_\_

**INTERIOR ABS TRIM COLOR**

The cab interior vacuum formed ABS composite trim surfaces shall be gray in color.

Y\_\_ N\_\_

**HEADER TRIM**

The cab interior shall include the header above the driver and officer positions which shall be constructed of vacuum formed ABS panel.

Y\_\_ N\_\_

**INTERIOR TRIM SUNVISOR**

The header shall include two (2) sun visors, one each side forward of the driver and officer seating positions above the windshield. Each sun visor shall be constructed of Masonite and covered with padded vinyl trim.

Y\_\_ N\_\_

**TRIM CENTER DASH**

The main center dash area shall be constructed of durable vacuum formed ABS composite.

Y\_\_ N\_\_

**TRIM LH DASH**

The left hand dash shall be a one (1) piece durable vacuum formed ABS composite housing which shall be custom molded for a perfect fit around the instrument panel and the lower control panels to the left and right of the steering column.

Y\_\_ N\_\_

**TRIM RH DASH**

The right hand dash trim shall consist of a vacuum formed ABS composite module, which contains a glove compartment with a hinged locking door and a Mobile Data Terminal (MDT) provision. The glove

compartment size shall be 13.50 inches wide X 6.25 inches high X 5.50 inches deep. The MDT provision shall be provided above the glove compartment.

Y\_\_ N\_\_

**TRIM RH DASH ACCESSORIES**

The MDT provision on the right hand dash shall be provided with a slide-out tray. The MDT slide-out tray shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate. The mounting surface of the tray shall measure 11.75 inches wide X 10.75 inches deep which will allow for the mounting of a MDT with the added luxury of sliding it toward the officer as much as 11.00 inches.

Y\_\_ N\_\_

**RH DASH ACCESSORIES INTERIOR PAINT**

The right hand dash accessories shall be coated with black powder coat.

Y\_\_ N\_\_

**ENGINE TUNNEL TRIM**

The cab engine tunnel shall be covered with .44 of an inch thick multi-layer mat consisting of .25 inch closed cell foam, .13 of an inch thick PVC acoustical barrier and .06 inch thick non-slip pebble grain. The engine tunnel mat shall be trimmed with anodized aluminum stair nosing trim for an aesthetically pleasing appearance.

Y\_\_ N\_\_

**POWER POINT DASH MOUNT**

The cab shall include two (2) 12 volt cigarette lighter type receptacles in the dash dedicated as a power source for additional portable or mobile items. The receptacles shall be wired to be live with the battery master switch.

Y\_\_ N\_\_

**STEP TRIM**

Each cab entry door shall include a three step entry. The first step closest to the ground shall be constructed of polished 5032 H32 aluminum Grip Strut® grating with angled outer corners. The step shall feature a splash guard to reduce water and debris from splashing in to the step. The splash guard shall have an opening on the outer edge to allow debris and water to flow through rather than becoming trapped within the stepping surface. The lower step shall be mounted to a frame which is

integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed with a Flex-Tred® adhesive grit surface material.

Y\_\_ N\_\_

**UNDER CAB ACCESS DOOR**

The cab shall include an access door in the left crew step riser constructed of DA finish aluminum with a push and turn latch. The under cab access door shall provide access to the diesel exhaust fluid fill.

Y\_\_ N\_\_

**INTERIOR DOOR TRIM**

The doors of the cab shall include an aluminum plate the same weight and grade as the cab on the interior of the door. The aluminum shall be then painted.

Y\_\_ N\_\_

**CAB PAINT INTERIOR DOOR TRIM**

The inner door panel surfaces shall be painted with a Zolatone #20-72 silver gray texture finish.

Y\_\_ N\_\_

**DOOR TRIM CUSTOMER NAMEPLATE**

The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for their Department.

Y\_\_ N\_\_

**CAB DOOR TRIM REFLECTIVE**

The interior of each door shall include high visibility reflective tape. A white reflective tape that measures 1.00 inch in width shall be provided vertically along the rear outer edge of the door. The

lowest portion of each door skin shall include a reflective tape chevron with red and white stripes and a Spartan logo. The chevron tape shall measure 6.00 inches in height.

Y\_\_ N\_\_

**INTERIOR GRAB HANDLE "A" PILLAR**

A rubber covered 11.00 inch grab handle shall be provided on the inside of the cab on the hinge post at the driver and officer doors. The handle shall assist personnel in exiting and entering the cab.

Y\_\_ N\_\_

**INTERIOR GRAB HANDLE FRONT DOOR**

Each front door shall include one (1) ergonomically contoured 9.00 inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured black powder coat finish to assist personnel entering and exiting the cab.

Y\_\_ N\_\_

**INTERIOR GRAB HANDLE REAR DOOR**

A black powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door. A 30.00 inch long handle shall extend horizontally the width of the window just above the window sill. The handle shall assist personnel in exiting and entering the cab.

Y\_\_ N\_\_

**DASH PANEL GROUP**

The main center dash area shall include three (3) removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The center panel shall be within comfortable reach of both the driver and officer.

Y\_\_ N\_\_

**SWITCHES CENTER PANEL**

The center dash panel shall include no rocker switches or legends.

Y\_\_ N\_\_

**SWITCHES LEFT PANEL**

The left dash panel shall include one (1) windshield wiper/washer control switch located in the left hand side of the panel. The switch shall have backlighting provided.

Y\_\_ N\_\_

**SWITCHES RIGHT PANEL**

The right dash panel shall include no rocker switches or legends.

Y\_\_ N\_\_

**SEAT BELT WARNING**

A Weldon seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall provide visual and audible warning when any seat is occupied (sixty pounds minimum), the corresponding seat belt remains unfastened, and the park brake is released.

Once activated, the visual and audible indicators shall remain active until all occupied seats have the seat belts fastened. The dash shall include a display on the Weldon Vista screen(s) indicating the occupancy of each seat.

Y\_\_ N\_\_

**OCCUPANCY ROLLOVER PROTECTION**

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

The system shall function using a microprocessor-controlled, solid-state sensing device which, when the system detects a side roll shall provide instantaneous occupant protection (less than 0.3 seconds from trigger to total deployment) by automatically initiating the following sequence:

1. The seat belt shall tighten around the occupant on all seats excluding theatre flip-up style seating.
2. The air suspension on each seat shall be reduced to its lowest position, tightens belt around occupant and locking the seat in this position thereby providing more survivable space and minimizing head contact with the interior roof (available when air suspension seats are specified).
3. An inflatable curtain shall deploy which includes an air filled bag across the driver's and passenger's side windows which shall protect and cushion the head and neck of the occupant thereby reducing movement and the chance of head contact with the side of the vehicle. The inflatable curtain shall be applicable on all seats adjacent to the cab side excluding theatre flip-up style seating.

System Components Shall Include:

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

Integrated Belt Pretension IBP device (not available with air suspension 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 (air suspension seats only) - 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 head/neck and shields occupant from dangerous surfaces. Remains inflated for 8-10 seconds. This device shall affect the driver, officer and adjacent seats to cab side excluding theatre flip-up style seating.

Y\_\_ N\_\_

**SEAT MATERIAL**

The seats shall include a covering of high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.

Y\_\_ N\_\_

**SEAT COLOR**

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

Y\_\_ N\_\_

**SEAT BACK LOGO**

The seat back shall include a black and gray diamond logo which features a capital S in red located in the middle of the diamond. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

Y\_\_ N\_\_

**SEAT DRIVER**

The driver's seat shall be an H.O. Bostrom Sierra model seat with air suspension. The four-way seat shall feature 3.00 inch vertical travel air suspension and manual fore and aft adjustment with 5.00 inches of travel. The suspension control shall be located on the seat below the left front corner of the bottom cushion. The seat shall also feature integral springs to isolate shock.

The seat position shall include a three-point shoulder harness with lap belt and an automatic retractor attached to the cab. The buckle portion of the seat belt shall be mounted on a semi-rigid stalk extending from the seat base within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 37.00 inches measured with the seat suspension height adjusted to the upper limit of its travel.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207, 209, and 210 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity.

The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

Y\_\_ N\_\_

**SEAT BACK DRIVER**

The driver's seat shall feature a two (2) way adjustable lumbar support and offer an infinite fully reclining adjustable titling seat back. The seat back shall also feature a contoured head rest.

Y\_\_ N\_\_

**OCCUPANCY ROLLOVER PROTECTION DRIVER**

The driver's position shall be equipped with the RollTek® Rollover Occupant Protection System.

Y\_\_ N\_\_

**SEAT OFFICER**

The officer's seat shall be a H.O. Bostrom Firefighter series. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of

the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

Y\_\_ N\_\_

**SEAT BACK OFFICER**

The officer's seat shall feature a SecureAll™ SCBA locking system which shall be one bracket model and store all U.S. and International SCBA brands and sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable with all adjustment points using similar hardware and adjustments with one tool.

The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the taken in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed against the pivot arm to engage the patented auto- locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions.

The SecureAll™ shall include a release handle which shall be integrated into the seat cushion for quick and easy release. This shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.

Y\_\_ N\_\_

**OCCUPANCY ROLLOVER PROTECTION OFFICER**

The officer's position shall be equipped with the RollTek® Rollover Occupant Protection System.

Y\_\_ N\_\_

**SEAT REAR FACING OUTER LOCATION**

The crew area shall include two (2) rear facing crew seats, which include one (1) located directly behind the driver seat and one (1) located directly behind the officer seat.

Y\_\_ N\_\_

**SEAT CREW REAR FACING OUTER**

The crew area shall include a seat in the rear facing outboard position which shall be a H.O. Bostrom Firefighter series. The seat shall feature a tapered and padded seat, and cushion. The seat and cushion shall be spring load hinged and compact in design for additional room and shall remain in the stored position until occupied.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

Y\_\_ N\_\_

**SEAT BACK REAR FACING OUTER**

The rear facing outboard seat shall feature a Bostrom SecureAll™ SCBA locking system which shall store all U.S. and International SCBA brands and bottle sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable at all adjustment points with one tool.

The bracket system shall be free of straps, that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the SCBA bottle in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions.

The SecureAll™ shall include a release handle which shall be integrated into the center of the bottom seat cushion for easy access and to eliminate hooking the release handle with clothing or other equipment.

Y\_\_ N\_\_

**SEAT MOUNTING REAR FACING OUTER**

The rear facing outer seat shall be mounted facing the rear of the cab.

Y\_\_ N\_\_

**OCCUPANCY ROLLOVER PROTECTION RFO**

The rear facing outboard seating position shall be equipped with the RollTek® Rollover Occupant Protection System.

Y\_\_ N\_\_

**SEAT BELT ORIENTATION CREW**

The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip.

Y\_\_ N\_\_

**SEAT FORWARD FACING OUTER LOCATION**

The crew area shall include two (2) forward facing outboard seats, which include one (1) located next to the outer wall of the cab on the driver side of the cab and one (1) located next to the outer wall on the officer side of the cab.

Y\_\_ N\_\_

**SEAT CREW FORWARD FACING OUTER**

The crew area shall include a seat in the forward facing outer position which shall be a H.O. Bostrom Firefighter series. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

Y\_\_ N\_\_

**SEAT BACK FORWARD FACING OUTER**

The forward facing outboard seat shall feature a SecureAll™ SCBA locking system which shall be one bracket model and store all U.S. and International SCBA brands and sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable with all adjustment points using similar hardware and adjustments with one tool.

The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the tank in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed against the pivot arm to engage the patented auto- locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions.

The SecureAll™ shall include a release handle which shall be integrated into the seat cushion for quick and easy release. This shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.

Y\_\_ N\_\_

**SEAT MOUNTING FORWARD FACING OUTER**

The forward facing outer seat shall be mounted in the furthest outboard position facing the front of the cab. Y\_\_ N\_\_

**OCCUPANCY ROLLOVER PROTECTION FFO**

The forward facing outboard seating position shall be equipped with the RollTek® Rollover Occupant Protection System. Y\_\_ N\_\_

**SEAT FRAME FORWARD FACING**

The forward facing outboard seating positions shall include individual enclosed seat frames for each position which are located and installed at the outer rear wall positions. The seat frames shall measure 21.81 inches wide X 12.38 inches high X 22.00 inches deep. The seat frames shall be constructed of 5052-H32 Marine Grade, .190 inch thick, 100 percent primary smooth aluminum plate. The seat frames shall be painted with the same color as the remaining interior. Y\_\_ N\_\_

**SEAT FRAME FORWARD FACING STORAGE ACCESS**

There shall be two (2) access points to the storage area centered on the front of the seat frame. Each access point shall be covered by a hinged door to allow maximum available access for storage in the seat box. Y\_\_ N\_\_

**CAB FRONT UNDERSEAT STORAGE ACCESS**

The left and right under seat storage areas shall have a removable aluminum cover. Y\_\_ N\_\_

**SEAT COMPARTMENT DOOR FINISH**

All underseat storage compartment access doors shall have a Zolatone #20-72 silver gray texture. Y\_\_ N\_\_

**WINDSHIELD WIPER SYSTEM**

The cab shall include a dual arm wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers which shall be affixed to a radial wet arm. The system shall include a single motor which shall initiate the arm in which both the left hand and right hand windshield wipers are attached, initiating a back and forth motion for each wiper. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position. Y\_\_ N\_\_

**ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR**

The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow "Check Message Center" indicator light on the instrument panel shall illuminate and the message center in the speedometer shall display a "Check Washer Fluid Level" message. Y\_\_ N\_\_

**CAB DOOR HARDWARE**

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be aluminum with a polished chrome plated finish. The exterior pull handles shall include a scuff plate behind the handle constructed of polished stainless steel. All doors shall be keyed alike and designed to prevent accidental lockout.

The interior latches shall be black flush paddle type, which are incorporated into an upper door panel. Y\_\_ N\_\_

**DOOR LOCKS**

Each cab entry door shall include a manually operated door lock. The each door lock may be actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door or by using a TriMark key from the exterior. The door locks are designed to prevent accidental lock out.

Y\_\_ N\_\_

**DOOR LOCK LH REAR CAB COMPARTMENT**

The driver side rear compartment shall feature a manual door lock.

Y\_\_ N\_\_

**DOOR LOCK RH REAR CAB COMPARTMENT**

The officer side rear compartment shall feature a manual door lock.

Y\_\_ N\_\_

**GRAB HANDLES**

The cab shall include one (1) 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The assist handle shall be made of 14 gauge 304- stainless steel and be 1.25 inch diameter to enable easy grabbing with the gloved hand. Each assist handle shall include a stainless steel plate which saves the cab from scuffs through continued use of the handle.

Y\_\_ N\_\_

**REARVIEW MIRRORS**

Retrac Aerodynamic West Coast style dual vision mirror heads model 613295 shall be provided and installed on each of the front cab doors.

The mirrors shall be mounted via 1.00 inch diameter tubular stainless steel arms to provide a rigid mounting to reduce mirror vibration.

The mirrors shall measure 8.00 inches wide X 19.00 inches high and shall include integral convex mirrors installed in the mirror head below the flat glass to provide a wider field of vision. The flat and convex mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver.

The mirrors shall be constructed of a vacuum formed chrome plated ABS plastic housing that is corrosion resistant and shall include the finest quality non-glare glass.

Y\_\_ N\_\_

**TRIM LOWER SIDE**

A stainless steel trim band, 10.00 inches high, with upper and lower black and chrome trim moldings, shall be installed on the lower exterior sides of the cab and doors. The trim shall be installed so that the top edge approximately 1.00 inch below the top of the front bumper, and shall be affixed without holes and fasteners.

Y\_\_ N\_\_

**TRIM LOWER SIDE FRONT**

A stainless steel trim band, 10.00 inches high, with upper and lower black and chrome trim moldings, shall be installed on the lower exterior sides of the cab between the front bumper and the front doors. The trim shall be installed so that the top edge is approximately 1.00 inch below the top of the front bumper, and shall be affixed without holes and fasteners.

Y\_\_ N\_\_

**CAB FENDER**

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. The two-piece liners shall consist of an inner liner 16" wide made of vacuum formed ABS composite and an outer fenderette 3.50" wide made of 12 gauge polished aluminum.

Y\_\_ N\_\_

**CAB EXTERIOR FRONT & SIDE EMBLEMS**

The cab shall include one (1) Spartan emblem installed on the exterior of the cab above each front wheel well. Y\_\_ N\_\_

**IGNITION**

A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a ¼ turn Cole Hersee switch, both of which shall be mounted to the left of the steering wheel on the dash. A chrome push type starter button shall be provided adjacent to the master battery and ignition switches.

Each switch shall illuminate a green LED indicator light on the dash when the respective switch is placed in the "ON" position.

The starter button shall only operate when both the master battery and ignition switches are in the "ON" position. Y\_\_ N\_\_

**BATTERY**

The single start electrical system shall include (6) Harris BCI 31 950 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541. The cables shall have encapsulated ends with heat shrink and sealant.

Y\_\_ N\_\_

**BATTERY TRAY**

The batteries shall be installed within two (2) steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be coated with the same material as the frame.

The battery trays shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the trays to allow for air flow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards.

Y\_\_ N\_\_

**BATTERY BOX COVER**

Each battery box shall include a steel cover which protects the top of the batteries. Each cover shall include flush latches which shall keep the cover secure as well as a black powder coated handle for convenience when opening. Y\_\_ N\_\_

**BATTERY CABLE**

The starting system shall include cables which shall be protected by 275 degree F. minimum high temperature flame retardant loom, sealed and encapsulated at the ends with heat shrink and sealant. Y\_\_ N\_\_

**BATTERY JUMPER STUD**

The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure. Y\_\_ N\_\_

**ALTERNATOR**

The starting system shall include a 320 amp Leece-Neville 12 volt alternator. The alternator shall include a self-exciting integral regulator. Y\_\_ N\_\_

**BATTERY CONDITIONER**

A Kussmaul 35/10 battery conditioner shall be supplied. The battery conditioner shall provide a 35

amp output for the chassis batteries and a 10 amp battery saver output. The battery conditioner shall be mounted in the cab behind the driver's seat. Y\_\_ N\_\_

**BATTERY CONDITIONER DISPLAY**

A Kussmaul battery conditioner display shall be supplied. The battery conditioner display shall be mounted in the cab, viewable through the cab mid side window behind the left front door. Y\_\_ N\_\_

**ELECTRICAL INLET**

A Kussmaul 20 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.

A single item or an addition of multiple items must not exceed the rating of the electric inlet that it's connected to.

**Amp Draw Reference List:**

- Kussmaul 1000 Charger - 3.5 Amps*
- Kussmaul 1200 Charger - 10 Amps*
- Kussmaul 35/10 Charger - 10 Amps*
- 1000W Engine Heater - 8.33 Amps*
- 1500W Engine Heater - 12.5 Amps*
- 120V Air Compressor - 4.2 Amps*

Y\_\_ N\_\_

**ELECTRICAL INLET LOCATION**

An electrical inlet shall be installed on the left hand side of the cab ahead of the front door in the lower position.

Y\_\_ N\_\_

**ELECTRICAL INLET CONNECTION**

The electrical inlet shall be connected to the battery conditioner.

Y\_\_ N\_\_

**ELECTRICAL INLET COLOR**

The Kussmaul electrical inlet connection shall include a red cover.

Y\_\_ N\_\_

**HEADLIGHTS**

A hinged headlamp and combination side marker/turn lamp module shall be part of the front cab fascia. This combination shall include two (2) rectangular halogen High/Low beam headlamps with integrated side marker/turn signal lamps. The headlamps shall be equipped with a "Daytime Running" light feature, which will illuminate the headlights to 80% brilliance when the ignition switch is in the "On" position and the parking brake is released.

Y\_\_ N\_\_

**FRONT TURN SIGNALS**

The headlamp assembly shall include a turn signal and side marker lamp combination within the same module. This light assembly shall be amber in color and shall have a visibility radius of 125 degrees.

Y\_\_ N\_\_

**HEADLIGHT LOCATION**

The headlights shall be located on the front fascia of the cab directly above the front warning lights. Y\_\_ N\_\_

**SIDE TURN/MARKER LIGHTS**

The headlight module shall include two (2) side turn and marker lights which shall be integral with the headlights.

Y\_\_ N\_\_

**MARKER AND ICC LIGHTS**

In accordance with FMVSS, there shall be five (5) cab LED marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level.

Y\_\_ N\_\_

**HEADLIGHT AND MARKER LIGHT ACTIVATION**

The headlights and marker lights shall be controlled via a virtual button on the Vista display. There shall be a virtual dimmer control on the Vista display to adjust the brightness of the dash lights.

Y\_\_ N\_\_

**GROUND LIGHTS**

Each door shall include an LED NFPA compliant ground light mounted to the under side of the cab step below each door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life. The ground lighting shall be activated by the opening of the door on the respective cab side, when the parking brake is set and through the Vista screen.

Y\_\_ N\_\_

**STEP LIGHTS**

The middle step located at each door shall include a recess mounted LED light which shall activate with the opening of the respective door.

Y\_\_ N\_\_

**ENGINE COMPARTMENT LIGHT**

There shall be an LED NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

Y\_\_ N\_\_

**SIDE SCENE LIGHTS**

The side of the cab shall include two (2) Whelen 900 series 90C0ENZR model scene lights, one (1) each side which shall be recess mounted with a chrome bezel. The Whelen lights shall offer LED lighting at a gradient 32-degree angle.

Y\_\_ N\_\_

**SIDE SCENE LIGHT LOCATION**

The scene lighting located on the left and right sides of the cab shall be mounted rearward of the cab "B" pillar in the 10.00 inch raised roof portion of the cab between the front and rear crew doors.

Y\_\_ N\_\_

**SIDE SCENE ACTIVATION**

The left and right side scene lights shall be activated by opening the respective side door and by individual virtual buttons on the MUX display(s) in the cab.

Y\_\_ N\_\_

**INTERIOR OVERHEAD LIGHTING**

The cab shall include a two-section incandescent dome lamp with a red and white lens located over each door. The dome lamps shall be rectangular in shape and shall measure approximately 9.50 inches in length X 5.00 inches in width with a black colored bezel. The white portion of each lamp shall be activated by opening the respective door and via the multiplex display and both the red and white portion can be activated by individual switches on each lamp.

An additional two-section incandescent red and white lamp shall be provided over the engine tunnel which can be activated by individual switches on the lamp.

Y\_\_ N\_\_

**MAP LIGHTS**

A Federal Signal gooseneck style map light shall be provided. The light shall have a clear lens with

a sliding red filter, shall be 18.00 inches tall, and shall have a rheostat control switch on the base. The light shall be located on the right hand side of the dash. Y\_\_ N\_\_

**DO NOT MOVE APPARATUS LIGHT**

The front headliner of the cab shall include a red flashing light, located in the center for greatest visibility. The light shall be 6.00 inches long X 2.50 inches wide X 1.75 inches high and shall be clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound when a door is open and the parking brake is released.

The light and alarm shall be interlocked for activation when a cab door is not firmly closed, an apparatus cabinet door is not closed and the parking brake is released. Y\_\_ N\_\_

**MASTER WARNING SWITCH**

A master switch shall be included, as a button on the MUX display screen and be labeled "E Master" for identification. The switch shall feature control over all devices wired through it. Any warning device switches left in the "ON" position when the master switch is activated shall automatically power up. Y\_\_ N\_\_

**HEADLIGHT FLASHER**

An alternating high beam headlamp flashing system shall be installed into the high beam headlamp circuit which shall allow the high beams to flash alternately from left to right.

Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled "On Scene" when the park brake is applied. Y\_\_ N\_\_

**ALTERNATING HEADLIGHT SWITCH**

The flashing headlights shall be activated through a virtual button on the MUX display. Y\_\_ N\_\_

**INBOARD FRONT WARNING LIGHTS**

The cab front fascia shall include dual Whelen series 600 Super LED warning lights which shall offer multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be surface mounted to the front fascia of the cab within a chrome bezel in the inboard position. Y\_\_ N\_\_

**INBOARD FRONT WARNING LIGHTS COLOR**

The front warning lights mounted on the fascia in the inboard positions shall be clear. Y\_\_ N\_\_

**OUTBOARD FRONT WARNING LIGHTS**

The cab front fascia shall include dual Whelen series 600 Super LED warning lights which shall offer 14 flash patterns plus a steady burn for solid colors and 20 flash patterns plus a steady burn for split colors. The lights shall be surface mounted to the front fascia of the cab within a chrome bezel in the outboard position. Y\_\_ N\_\_

**OUTBOARD FRONT WARNING LIGHTS COLOR**

The front warning lights mounted on the fascia for the outboard position shall be red with a clear lens. Y\_\_ N\_\_

**FRONT WARNING SWITCH**

The front warning lights shall be controlled through a virtual control on the MUX display. This switch shall be clearly labeled for identification. Y\_\_ N\_\_

**INTERSECTION WARNING LIGHTS**

The chassis shall include two (2) Whelen series 600 Super LED 4.00 inch X 6.00 inch intersection warning lights, one (1) each side, which shall offer multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. Y\_\_ N\_\_

**INTERSECTION WARNING LIGHTS COLOR**

The intersection lights shall be red with a clear lens. Y\_\_ N\_\_

**INTERSECTION WARNING LIGHTS LOCATION**

The intersection lights shall be mounted in the rear position on the side of the bumper. Y\_\_ N\_\_

**SIDE WARNING LIGHTS**

The cab sides shall include a Whelen series 600 Super LED 4.00 inch X 6.00 inch warning light, one (1) each side, which shall offer multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. Y\_\_ N\_\_

**SIDE WARNING LIGHTS COLOR**

The warning lights located on the side of the chassis shall be red with clear lens. Y\_\_ N\_\_

**SIDE WARNING LIGHTS LOCATION**

The warning lights on the side of the cab shall be mounted over the front wheel well directly over the center of the front axle. Y\_\_ N\_\_

**SIDE AND INTERSECTION WARNING SWITCH**

The side warning lights shall be controlled through a virtual control on the MUX display. This switch shall be clearly labeled for identification. Y\_\_ N\_\_

**LIGHTBAR PROVISION**

There shall be two (2) junction boxes located on the left and right hand sides of the roof with electrical connections for two (2) light bars. The light bars shall be provided and installed by the body manufacturer. Y\_\_ N\_\_

**LIGHTBAR SWITCH**

The light bar shall be controlled through a virtual button located on the MUX display. Y\_\_ N\_\_

**SIREN CONTROL HEAD**

A Federal EQ2B 200 watt electronic siren head shall be provided and installed in the switch panel with a location specific to the customer's needs. The siren shall feature "Q" wail, yelp, air horn, PA, radio broadcast and "Q" brake. The siren shall produce 122 decibels at 10 feet away and shall include a noise cancelling microphone. Y\_\_ N\_\_

**HORN RING SELECTOR SWITCH**

A virtual button on the MUX display shall allow control to either the air horn or the electric horn from the steering wheel horn button. The electric horn shall sound by default when the selector switch is in either position which is in accordance with FMVSS requirements. Y\_\_ N\_\_

**AIR HORN ACTIVATION**

The air horn actuation shall be accomplished by the steering wheel horn button and a right side

officer's mounted Linemaster model SP491-S81 foot switch. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector.

Y\_\_ N\_\_

### ELECTRONIC SIREN AUXILIARY ACTIVATION

The electronic siren actuation shall also be accomplished by driver and officer foot switches.

Y\_\_ N\_\_

### BACK-UP ALARM

An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of not less than 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.

Y\_\_ N\_\_

### INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. The gauges shall be backlit with red LED lamps. All gauges shall be driven by stepper motor movements. The instrumentation system shall be multiplexed and shall receive engine and transmission information over the J1939 data bus to reduce redundant sensors.

The instrument panel shall contain the following gauges:

One (1) electronic tachometer shall be included. The scale on the tachometer shall read from 0 to 3000 RPM.

One (1) electronic speedometer with an integral LCD odometer/ trip odometer and hour meter shall be included. The speedometer shall have a dual scale with miles per hour (MPH) as the dominant scale and kilometers per hour (KPH) on the minor scale. The speedometer scale shall read from 0 to 90 MPH (0 to 140 KPH). The odometer shall display up to 9,999,999.9 miles. The trip odometer shall display up

to 9,999.9 miles. The LCD screen shall also be capable of displaying certain diagnostic functions. The hour meter shall display engine hours of operation.

One (1) three function gauge with primary system, secondary system and fuel level shall be included. The scale on the air pressure gauges shall read from 0 to 140 pounds per square inch (PSI). The air pressure scales shall be non-linear to expand the scales in the region of normal operation. A red indicator light in the gauge shall indicate a low air pressure. The scale on the fuel level gauge shall read from empty to full. A yellow indicator light shall indicate low fuel at the quarter tank level.

One (1) four function gauge with engine oil pressure, coolant temperature, transmission oil temperature and a voltmeter shall be included. The scale on the engine oil pressure gauge shall read from 0 to 140 pounds per square inch (PSI). The engine oil pressure scale shall be non-linear to expand the scale in the region of normal operation. A red indicator light in the gauge shall indicate low engine oil pressure. The scale on the coolant temperature gauge shall read from 160 to 250 degrees Fahrenheit (F). A red indicator light in the gauge shall indicate high coolant temperature. The scale on the transmission oil temperature gauge shall read from 100 to 300 degrees Fahrenheit (F). A red indicator light in the gauge shall indicate high transmission oil temperature. The scale on the voltmeter shall read from 8 to 16 volts. A red indicator light shall indicate high or low system voltage.

The instrument panel shall contain an Annunciator Module that contains the following indicator lights. All indicator lights shall contain LED lamps.

### RED LAMPS

Stop Engine - indicates critical engine fault. (5)

Park Brake - indicates park brake is set.

Volts - indicates high or low system voltage. (4)

Low Oil Press - indicates low engine oil pressure. (4)

High Coolant Temp - indicates excessive engine coolant temperature. (4)

High Trans Temp - indicates excessive transmission oil temperature. (4)

Low Air - indicates low air pressure in either system one or system two. (4)

Low Coolant Level - indicates low engine coolant level. (1) (5)  
Air Filter - indicates excessive engine air intake restriction. (5)  
Brake System Fault - indicates a failure in the brake system (hydraulic brake systems only). (5)  
Seat Belt Indicator - indicates when a seat is occupied and corresponding seat belt remains unfastened.

#### **YELLOW LAMPS**

Check Engine - indicates engine fault. (5)  
Check Trans - indicates transmission fault. (5)  
Wait to Start - indicates active engine air preheat cycle. (2) (5)  
ABS - indicates anti-lock brake system fault. (5)  
Water in Fuel - indicates presence of water in fuel filter. (1) (5)  
Check Message Center - indicates there is a fault message present in the LCD digital display.  
SRS - indicates a problem in the RollTek supplemental restraint system. (1) (5)  
DPF - indicates a restriction of the diesel particulate filter. (3) (5)  
HEST - indicates a high exhaust system temperature. (3) (5)  
MIL - indicates an engine emission control system fault. (3) (5)  
Low Fuel - indicates low fuel. (4)

#### **GREEN LAMPS**

Left and Right turn signal indicators.  
Aux Brake Active - indicates secondary braking device is active. (1)  
High Idle - indicates engine high idle is active. (1)

#### **BLUE LAMPS**

High beam indicator.

The instrumentation system shall provide a constant audible alarm for the following situations:

Low air pressure.  
Low engine oil pressure.  
High engine coolant temperature.  
High transmission oil temperature.  
Low coolant level. (1)  
High or low system voltage  
Critical engine fault (Stop Engine).

The Check Message Center icon will illuminate and a message will be displayed in the LCD screen for the following situations:

Cab Ajar  
Low Oil Level  
Door Ajar  
Engine Communication Error  
Transmission Communication Error  
ABS Communication Error  
High Coolant Temp  
Turn Signal Reminder (turn signal left on for more than one (1) mile)  
Low Fuel  
Low Oil Pressure  
Low Coolant Level  
Low Battery Voltage  
High Battery Voltage  
Low Primary Air Pressure  
Low Secondary Air Pressure  
High Trans Temp

The instrumentation system will provide a continuous alarm for the following situations:

Stop Engine  
Low Coolant Level (1)

Brake System Fault  
Check Trans  
Check Engine  
ABS  
Engine Communications Error  
Transmission Communications Error  
ABS Communications Error  
Low Fuel  
Low Primary Air Pressure  
Low Secondary Air Pressure  
Low or High Battery Voltage  
High Trans Temp  
Low Oil Pressure  
High Coolant Temp

The instrumentation system will provide a 160 millisecond second alarm every 880 milliseconds for the following situations:

Seat Belt  
Air Filter  
Water in Fuel (1)  
Cab Ajar  
Low Oil Level  
Door Ajar

The instrumentation system will provide a 160 millisecond second alarm every 5 seconds for the following situation:  
Turn Signal Reminder (turn signal left on for more than one (1) mile).

- (1) Feature only available when optionally equipped.
- (2) Feature only available on engines with pre-heat capability.
- (3) Feature only on vehicles with diesel particulate filter (DPF).
- (4) Warning light is present in gauge.
- (5) A message in the LCD screen will also be displayed.

Y\_\_ N\_\_

#### **BACKLIGHTING COLOR**

The instrumentation gauges and the switch panel legends shall be backlit using red LED backlighting. Y\_\_ N\_\_

#### **CAB EXTERIOR PROTECTION**

The cab face shall have a removable plastic film installed over the painted surfaces to protect the paint finish during transport to the body manufacturer. Y\_\_ N\_\_

#### **FIRE EXTINGUISHER**

A 2.50 pound D.O.T approved fire extinguisher with BC rating shall be shipped loose with the cab. Y\_\_ N\_\_

#### **DOOR KEYS**

The cab and chassis shall include a total of four (4) door keys for the manual door locks. Y\_\_ N\_\_

#### **DIAGNOSTIC SOFTWARE ROLLTEK**

The cab and chassis shall include diagnostic software for the RollTek system shipped loose with the vehicle. The software kit number F101560 shall include an interface module with connectors to link a laptop computer to the vehicle for diagnostic purposes. Y\_\_ N\_\_

**AS BUILT WIRING DIAGRAMS**

The cab and chassis shall include two (2) complete sets of wiring schematics and option wiring diagrams.

Y\_\_ N\_\_

**WARRANTY - CAB AND CHASSIS**

The chassis manufacturer shall provide a limited parts and labor warranty to the original purchaser of the custom built cab and chassis for a period of twenty-four (24) months, or the first 36,000 miles, whichever occurs first. The warranty period shall commence on the date the vehicle is delivered to the end user. The warranty shall include conditional items listed in the detailed warranty document which shall be provided upon request.

Y\_\_ N\_\_

**OPERATORS AND PARTS LIST MANUAL**

There shall be two (2) chassis operator's manual which includes a parts list. Also, wiring and air plumbing diagrams shall be provided as well as a list of any parts or equipment that is shipped loose with the vehicle. All standard wiring and plumbing diagrams shall be created specifically to the chassis model.

Y\_\_ N\_\_

**ENGINE AND TRANSMISSION OPERATION MANUALS**

There shall be two (2) sets of engine operation and maintenance manuals and two (2) sets of transmission operation manuals specific to the models ordered included with the final vehicle in the ship loose items.

Y\_\_N\_\_

**THE FOLLOWING ITEMS SHALL BE QUOTED AS OPTIONS TO BE ADDED TO THE BASE SPECIFICATION WITH THE COSTS FILLED IN AS FOLLOWS:**

**REFRIGERATOR, 120V/12V ---**

ADD \$ \_\_\_\_\_

A 120 volt/12 volt refrigerator will be furnished and installed in a body compartment to be determined at the pre-construction meeting. This refrigerator will be a Norcold brand, model #DE490, which will measure 30.88" high x 23.50" wide x 24" deep. Refrigerator will be plugged into one of the interior outlets and will also switch over to 12 volt power when no 120 volt power is present.

Y\_\_ N\_\_

**ALCO-LITE 10' FOLDING LADDER ---**

ADD \$ \_\_\_\_\_

One 10' 6" FL-10 Alco-Lite aluminum folding ladder shall be provided.

Y\_\_ N\_\_

**ALCO-LITE 14' ROOF LADDER ---**

ADD \$ \_\_\_\_\_

One 14' Alco-Lite aluminum roof ladder shall be provided

Y\_\_ N\_\_

**ALCO-LITE 24' EXTENSION LADDER---**

ADD \$ \_\_\_\_\_

One 24' aluminum extension ladder shall be provided.

Y\_\_ N\_\_

**ROOF TOP COMPARTMENT (SKY BOX)---**

ADD \$ \_\_\_\_\_

There will be two (2) storage compartments located on the roof of the body. Compartments will be designed so they can be dropped down to ground level to easily access equipment. Each box will be capable of storing 1,000 lbs. of equipment and will be labeled as such. FOR SAFETY REASONS, COMPARTMENTS THAT REQUIRE CLIMBING ON THE ROOF TO ACCESS COMPARTMENTS WILL NOT BE ACCEPTABLE.

The compartments will be built utilizing the same extrusions as the rest of the vehicle and will have a painted exterior finish . A separate storage box lined with black TurtleTile will be provided within the exterior box and

will drop down for ease of equipment storage. To prevent maintenance, the inner box will be left a natural oscillated finish and shall be striped with reflective tape so as to indicate a hazard or obstruction.

The roof top compartment lowering device will be controlled by switches located at the rear part of the body in sight of the box be lowered. An audible warning device shall sound when the rack is in motion. In addition if the truck has swing type doors, an interlock switch shall be provided to prevent the rack from being lowered when these compartment doors are open.

The rack will be wired into the "do not move apparatus when light is on" indicator light in cab. The light will be activated when the rack is not fully nested.

Y\_\_\_ N\_\_\_

**REAR VIEW CAMERA---**

ADD \$ \_\_\_\_\_

An Audiovox rear vision camera will be provided and will include built in audio. Mounting location to provide 120 degrees horizontal field of view, at the rear of the vehicle. It will be wired to the Weldon Vista TouchScreen monitor in the cab.

Y\_\_\_ N\_\_\_

**DIGITAL DVD VIDEO RECORDER---**

ADD \$ \_\_\_\_\_

A digital DVD video color recorder shall be installed which is to record onto re-writable DVD+RW discs designed to play directly on standard DVD players. It may be an overhead mounted system or a modular type of mounting. Components shall include the DVD drive, a hard drive, processing hardware, a 5" display screen, speakers, and backlit user controls. There shall be two cameras, one front zoom and one for the cabin, and be capable of supporting up to three cameras. Also, a cabin microphone, hardware and cabling, and an uninterrupted power supply as well as lifetime software updates shall be furnished. The recorder shall activate when the park brake is released. Additionally, a GPS (global positioning system) capability feature shall be included. The system shall be a WATCHGUARD brand.

Y\_\_\_ N\_\_\_

**HAND HELD SPOTLIGHT - OPTRONICS---**

ADD \$ \_\_\_\_\_

There shall be a hand held spotlight installed in cab, Optronics Nightblaster Model QH-100. The light shall be wired direct through a coiled cord. The light switch to be the momentary type. A mounting bracket shall be installed in a convenient location to hang the light on when not in use.

Y\_\_\_ N\_\_\_

**BEACON, WHELEN MINI ULTRA FREEDOM, PAIR---**

ADD \$ \_\_\_\_\_

There shall be Two (2) Whelen NFPA zone C approved model FT8RRRRF front facing linear LED light assemblies flush mounted one each over the rear cab doors. The lights shall be switched in the cab.

Y\_\_\_ N\_\_\_

**TOTAL OF ALL OPTIONS**

\$ \_\_\_\_\_



## **AGREEMENT**

This Agreement is made and entered into as of this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between \_\_\_\_\_, a \_\_\_\_\_, \_\_\_\_\_ Company (the "Bidder") and the Town of Smyrna, Tennessee, a Tennessee municipal corporation (the "Town") for the purchase of a **Rescue Vehicle for the Fire Department**.

WHEREAS, the Bidder has submitted a quotation for the provision of certain products and/or services to the Town, all in accordance with the terms of the Invitation to Submit Quotations attached hereto and incorporated herein by reference as if set forth at length verbatim as Exhibit A (the "ISQ"), and which Quotation from the Bidder is attached hereto and incorporated herein by reference as if set forth at length verbatim as Exhibit B (the "Quotation"); the ISQ and the Quotation, together with any and all ancillary documents thereto, shall be collectively referred to herein as the "Bid Documents"); and

WHEREAS, the Town now desires to accept the Bidder's quotation, in accordance with the terms set forth in such Bid Documents.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the undersigned do hereby agree as follows:

1. Acceptance of Bid Documents. The terms of the Bid Documents, as incorporated herein by reference, are hereby accepted by the parties hereto. The Bidder hereby agrees to provide the goods and/or services contemplated by such Bid Documents in accordance with the terms set forth therein. The Town hereby accepts the Bidder's quotation to provide the goods and/or services contemplated by such Bid Documents in accordance with the terms set forth therein.

2. Entire Agreement. This Agreement, including the exhibits and any other documents referred to herein or therein, which form a part hereof, contains the entire understanding of the parties with respect to its subject matter. There are no restrictions, agreements, promises, warranties, covenants or undertakings other than those expressly set forth herein or therein. This Agreement supersedes all prior written or oral agreements and understandings between the parties with respect to its subject matter and may not be altered, modified or amended, in whole or in part, except by the express written authorization and consent of the parties hereto.

3. Severability. This agreement constitutes the product of negotiations of the parties hereto and any enforcement of hereof will be interpreted in a neutral manner and not more strongly against any party based upon the source of the draftsmanship of this Agreement. If any provision of this Agreement shall be held invalid or unenforceable by a court of competent jurisdiction, the remaining provisions hereof shall continue to be fully effective.

4. Limitation of Liability. The Town of Smyrna shall not be liable for any loss, claim, expense or damage caused by, contributed to by or arising out of the acts or omission of Bidder or third parties, whether negligent or otherwise.

5. Warranties. The Bidder warrants to the Town that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all work will be of good quality, free from faults and defects, suitable for the purpose for which the materials and equipment are furnished, and in conformance with the Agreement. All work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective.

6. Governing Law. This Agreement shall be deemed to have been executed and delivered within the State of Tennessee, and the rights and obligations of the parties shall be construed and enforced in accordance with, and governed by, the laws of the State of Tennessee.

7. Applicable Law / Choice of Forum and Venue. The parties' choice of forum and venue shall be exclusively in the courts of Rutherford County, Tennessee. Any provision of the Agreement held to violate a law or regulation shall be deemed void, and all remaining provisions shall continue in force.

IN WITNESS WHEREOF, the undersigned have executed this Agreement as of the date set forth above.

**BIDDER:** \_\_\_\_\_

By: \_\_\_\_\_

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

ATTEST: \_\_\_\_\_

**TOWN OF SMYRNA, TENNESSEE**

By: \_\_\_\_\_

Name: Tony Dover

Title: Mayor

ATTEST:

\_\_\_\_\_  
Dianne Waldron, Town Clerk