CITY OF SAN ANTONIO

PURCHASING AND GENERAL SERVICES DEPARTMENT

REQUEST FOR OFFER ("RFO") NO.:6100012039

SAFD-PURCHASE OF A MOBILE COMMAND

APPARATUS

Date Issued: SEPTEMBER 18, 2019

RESPONSES MUST BE RECEIVED **NO LATER** THAN: SEPTEMBER 25, 2019 10:00 AM CENTRAL TIME

Responses may be submitted by any of the following means:
Electronic submission through the Portal
Hard copy in person or by mail

Address for hard copy responses:

Physical Address:
Purchasing & General Services
Riverview Tower
111 Soledad, Suite 500
San Antonio, Texas 78205

Mailing Address:
Purchasing & General Services
P.O. Box 839966
San Antonio, Texas 78283-3966

For Hard Copy Submissions, Mark Envelope

"SAFD-PURCHASE OF A MOBILE COMMAND

APPARATUS"

Offer Due Date: 10:00 A.M CENTRAL TIME, SEPTEMBER 25, 2019

RFO No.: 610001112039

Offeror's Name and Address

Bid Bond: NO Performance Bond: NO Payment Bond: NO Other: NO

See Supplemental Terms & Conditions for information on these requirements.

Affirmative Procurement Initiative: NO DBE / ACDBE Requirements: NO

See Instructions for Offerors and Attachments sections for more information on these requirements.

Pre-Submittal Conference * NO

Staff Contact Person: STEPHANIE CRIOLLO, PROCUREMENT SPECIALIST III, P.O. Box 839966, San Antonio, TX 78283-3966
Email: STEPHANIE.CRIOLLO@SANANTONIO.GOV

SBEDA Contact Information: N/A

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003 – INSTRUCTIONS FOR OFFERORS

Submission of Offers.

Submission of Hard Copy Offers. Submit one original offer, signed in ink, and two copies of the offer enclosed in a sealed envelope addressed to the Purchasing and General Services Department at the address and by the due date provided on the Cover Page. The name and address of offeror, the offer due date and RFO number and title shall be marked on the outside of the envelope(s). All times stated herein are Central Time. Any offer or modification received after the time and date stated on the Cover Page shall be rejected.

Submission of Electronic Offers. Submit one offer electronically by the due date provided on the Cover Page. All times stated herein are Central Time. Any offer or modification received after the time and date stated on the Cover Page shall be rejected. All forms in this solicitation which require a signature must have a signature affixed thereto, either by manually signing the document, prior to scanning it and uploading it with your submission, or affixing it electronically.

Offers sent to City by facsimile or email shall be rejected.

Modified Offers. Offers may be modified provided such modifications are received prior to the time and date set for submission of offers, and submitted in the same manner as original offers. For hard copy offers, provide a cover letter with the offer, indicating it is a modified offer and that the Original offer is being withdrawn. For electronic offers, a modified offer will automatically replace a prior offer submission. See below for information on submitting Alternate Offers.

City shall not be responsible for lost or misdirected offers or modifications.

Offerors must sign the Signature Page on hard copy offers and return the RFO document to City. For electronic offers, Offeror's electronic submission, with accompanying affirmations, constitutes a binding signature for all purposes.

Offerors are cautioned that they are responsible for the security of their log on ID and password, since unauthorized use could result in Offeror's being held liable for the submission.

Certified Vendor Registration Form. If Offeror has not completed the City's Certified Vendor Registration (CVR) Form, Offeror is required to do so prior to the due date for submission of offers. The CVR form may be accessed at http://www.sanantonio.gov/purchasing/. Offerors must identify the correct name of the entity that will be providing the goods and/or services under the contract. No nicknames, abbreviations (unless part of the legal title), shortened or short-hand names will be accepted in place of the full, true and correct legal name of the entity.

Alternate Offers. Alternate offers may be allowed at the sole discretion of City.

Hard Copy Alternate Offers. Hard copy alternate offers must be submitted in separate sealed envelopes in the same manner as submission of other offers. Alternate offers must be marked consecutively on the envelope as Alternate Offer No. 1, 2, etc. Failure to submit alternate offers in separate envelopes may result in rejection of an offer.

Electronic Alternate Offers Submitted Through the Portal. All alternate offers are recorded with original offers when submitted electronically.

Catalog Pricing. (This section applies to offers using catalog pricing, unless this is a cooperative purchase.)

The offer will be based on manufacturer's latest dated price list(s). Said price list(s) must denote the manufacturer, latest effective date and price schedule.

Offerors shall be responsible for providing one copy of the manufacturer's catalog for each manufacturer for which an offer is submitted. Offeror shall provide said catalog at the time of submission of its offer. Manufacturers' catalogs may be submitted in any of the following formats: paper copy or CD ROM for bids submitted on paper, or PDF file for offers submitted electronically.

Offerors may submit price lists other than the manufacturer's price list. Said price list(s) must denote the company name, effective date and price schedule. These price lists are subject to approval of the City Purchasing & General Services Department.

Specified items identified herein, if any, are for overall offer evaluation and represent the commonly and most used items. Net prices entered for those specified items must reflect the actual price derived from quoted price list less all discounts offered.

Restrictions on Communication.

Offerors are prohibited from communicating with: 1) elected City officials and their staff regarding the RFO or offers from the time the RFO has been released until the contract is posted as a City Council agenda item; and 2) City employees from the time the RFO has been released until the contract is awarded. These restrictions extend to "thank you" letters, phone calls, emails and any contact that results in the direct or indirect discussion of the RFO and/or offer submitted by Offeror. Violation of this provision by Offeror and/or its agent may lead to disqualification of the offer from consideration.

Exceptions to the restrictions on communication with City employees include:

Offerors may ask verbal questions concerning this RFO at the Pre-Submittal Conference.

Offerors may submit written questions, or objections to specifications, concerning this RFO to the Staff Contact Person listed on the Cover Page on or before 3 calendar days prior to the date offers are due. Questions received after the stated deadline will not be answered. Questions submitted and the City's responses will be posted with this solicitation. All questions shall be sent by e-mail or through the portal.

Offerors may provide responses to questions asked of them by the Staff Contact Person after responses are received. The Staff Contact Person may request clarification to assist in evaluating the Offeror's response. The information provided is not intended to change the offer response in any fashion. Such additional information must be provided within two business days from City's request.

Offerors and/or their agents are encouraged to contact the Small Business Office of the International and Economic Development Department for assistance or clarification with issues specifically related to the City's Small Business Economic Development Advocacy (SBEDA) Program policy and/or completion of the SBEDA form (s), if any. The point of contact is identified on the Cover Page. Contacting the Small Business Office regarding this RFO after the due date is not permitted. If this solicitation contains Affirmative Procurement Initiatives, it will be noted on the Cover Page.

If this solicitation contains DBE/ACDBE requirements, respondents and/or their agents may contact the Aviation Department's DBE/ACDBE Liaison Officer for assistance or clarification with issues specifically related to the DBE/ ACDBE policy and/or completion of the required form(s). Point of contact is Ms. Lisa Brice, who may be reached via telephone at (210) 207-3505 or through e-mail at lisa.brice@sanantonio.gov. Respondents and/or their agents may contact Ms. Brice at any time prior to the due date for submission of bids. Contacting her or her office regarding this RFO after the due date is not permitted. If this solicitation contains DBE/ACDBE requirements, it will be noted on the Cover Page.

Pre-Submittal Conference.

If a Pre-Submittal Conference is scheduled, it will be held at the time and place noted on the Cover Page. Offerors are encouraged to prepare and submit their questions in writing in advance of the Pre-Submittal Conference in order to expedite the proceedings. City's responses to questions received prior to the conference may be distributed at the Pre-Submittal Conference and posted with this solicitation. Attendance at the Pre-Submittal Conference is optional, but highly encouraged.

This meeting place is accessible to disabled persons. Call the Staff Contact Person for information on the location of the wheelchair accessible entrance, or to request an interpreter for the deaf. Interpreters for the deaf must be requested at least 48 hours prior to the meeting. For other assistance, call (210) 207-7245 Voice/TTY.

Any oral response given at the Pre-Submittal Conference that is not confirmed in writing and posted with this solicitation shall not be official or binding on City.

Changes to RFO.

Changes to this RFO made prior to the offer due date shall be made directly to the original RFO. Changes are captured by creating a replacement version each time the RFO is changed. It is Offeror's responsibility to check for

new versions until the offer due date. City will assume that all offers received are based on the final version of the RFO as it exists on the day offers are due.

No oral statement of any person shall modify or otherwise change or affect the terms, conditions or specifications stated in the RFO.

Preparation of Offers.

All information required by the RFO must be furnished or the offer may be deemed non-responsive and rejected. Any ambiguity in the offer as a result of omission, error, unintelligible or illegible wording shall be construed in the favor of City.

Correct Legal Name. If an Offeror is found to have incorrectly or incompletely stated the name of the entity that will provide goods and/or services, the offer may be rejected.

Line Item Offers. Any offer that is considered for award by each unit or line item must include a price for each unit or line item for which Offeror wishes to be considered. All offers are awarded on the basis of low line item, low total line items, or in any other combination that serves the best interest of City, unless City designates this solicitation as an "all or none" offer in the Supplemental Terms & Conditions.

All or None Offers. Any offer that is considered for award on an "all or none" basis must include a price for all units or line items. In an "All or None" offer, a unit price left blank shall result in the offer being deemed nonresponsive and disqualified from consideration. An "All or None" offer is one in which City will award the entire contract to one offeror only.

Delivery Dates. Proposed delivery dates must be shown in the offer form where required and shall include weekends and holidays, unless specified otherwise in this RFO. Proposed delivery times must be specific. Phrases such as "as required", "as soon as possible" or "prompt" may result in disqualification of the offer. Special delivery instructions, if any, may be found in the Specifications / Scope of Services section of this document, or in the Purchase Order.

Tax Exemption. The City of San Antonio is exempt from payment of federal taxes, and State of Texas limited sales excise and use taxes. Offerors must not include such taxes in offer prices. An exemption certificate will be signed by City where applicable upon request by Offeror after contract award.

Samples, Demonstrations and Pre-award Testing. If requested by City, Offeror shall provide product samples, demonstrations, and/or testing of items offered to ensure compliance with specifications prior to award of the contract. Samples, demonstrations and/or testing must be provided within 7 calendar days of City's request. Failure to comply with City's request may result in rejection of an offer. All samples (including return thereof), demonstrations, and/or testing shall be at Offeror's expense. Samples will be returned upon written request. Requests for return of samples must be made in writing at the time the samples are provided. Otherwise, samples will become property of City at no cost to City. Samples that are consumed or destroyed during demonstrations or testing will not be returned.

Estimated Quantities for Annual Contracts.

Designation as an "annual" contract is found in the contract's title on the Cover Page of this document. The quantities stated are estimates only and are in no way binding upon City. Estimated quantities are used for the purpose of evaluation. City may increase or decrease quantities as needed. Where a contract is awarded on a unit price basis, payment shall be based on the actual quantities supplied.

Offerors shall thoroughly examine the drawings, specifications, schedule(s), instructions and all other contract documents.

Offerors shall make all investigations necessary to thoroughly inform themselves regarding plant and facilities for delivery of material and equipment, or conditions and sites/locations for providing goods and services as required by this RFO. No plea of ignorance by Offeror will be accepted as a basis for varying the requirements of City or the compensation to Offeror.

Confidential or Proprietary Information. All offers become the property of City upon receipt and will not be returned. Any information deemed to be confidential by Offeror should be clearly noted; however, City cannot guarantee that it will not be compelled to disclose all or part of any public record under the Texas Public Information Act, since information deemed to be confidential by Offeror may not be considered confidential under Texas law, or pursuant to a

Court order. Pricing may be tabulated and posted to City's website, so shall not be considered proprietary or confidential.

Costs of Preparation. Offeror shall bear any and all costs that are associated with the preparation of the Offer, attendance at the Pre-Submittal conference, if any, or during any phase of the selection process.

Rejection of Offers.

City may reject any and all offers, in whole or in part, cancel the RFO and reissue the solicitation. City may reject an offer if:

Offeror misstates or conceals any material fact in the offer; or

The offer does not strictly conform to law or the requirements of the

offer; The offer is conditional; or

Any other reason that would lead City to believe that the offer is non-responsive or Offeror is not responsible.

City, in its sole discretion, may also waive any minor informalities or irregularities in any offer, such as failure to submit sufficient offer copies, failure to submit literature or similar attachments, or business affiliation information.

Changes to Offer Form. Offers must be submitted on the forms furnished. Offers that change the format or content of City's RFO may be rejected.

Withdrawal of Offers. Offers may be withdrawn prior to the due date. Written notice of withdrawal shall be provided to the Staff Contact Person for offers submitted in hard copy. Offers submitted electronically may be withdrawn electronically.

Evaluation and Award of Contract.

City reserves the right to make an award on the basis of City's best interests. Award may also be made based on low line item, low total line items, or in any other combination that serves the best interest of City, unless City designates this solicitation as an "all or none" offer in the Supplemental Terms & Conditions.

A written award of acceptance, manifested by a City Ordinance, and a purchase order furnished to Offeror results in a binding contract without further action by either party. Offeror must have the Purchase Order before making any delivery.

City reserves the right to delete items prior to the awarding of the contract, and purchase said items by other means.

Inspection of Facilities/Equipment. Depending on the nature of the RFO, Offerors' facilities and equipment may be a determining factor in making the offer award. All Offerors may be subject to inspection of their facilities and equipment.

Prompt Payment Discount.

Provided Offeror meets the requirements stated herein, City shall take Offeror's offered prompt payment discount into consideration. The evaluation will not be based on the discount percentage alone, but rather the net price as determined by applying the discount to the offer price, either per line item or total offer amount. However, City reserves the right to reject a discount if the percentage is too low to be of value to City, all things considered. City may also reject a discount if the percentage is so high as to create an overly large disparity between the price City would pay if it is able to take advantage of the discount and the price City would pay if it were unable to pay within the discount period. City may always reject the discount and pay within the 30 day period, at City's sole option.

City will not consider discounts that provide fewer than 10 days to pay in order to receive the discount.

For example, payment terms of 2% 5, Net 30 will NOT be considered in offer evaluations or in the payment of invoices. However, payment terms of 2% 10, Net 30 will result in a two percent reduction in the offer price during offer evaluation, and City will take the 2% discount if the invoice is paid within the 10 day time

period.

Prohibited Financial Interest.

The Charter of the City of San Antonio and the City of San Antonio Code of Ethics prohibit a City officer or employee, as those terms are defined in §2-52 of the Code of Ethics, from having a direct or indirect financial interest in any contract with City. An officer or employee has a "prohibited financial interest" in a contract with City or in the sale to City of land materials, supplies or service, if any of the following individual(s) or entities is a party to the contract or sale:

- A City officer or employee; his or her spouse, sibling, parent, child, or other family member within the first degree of consanguinity or affinity;
- An entity in which the officer or employee, or his or her parent, child or spouse directly or indirectly owns (i) 10% or more of the voting stock or shares of the entity, or 10% or more of the fair market value of the entity; or
- An entity in which any individual or entity listed above is (i) a subcontractor on a City contract, (ii) a partner or (iii) a parent or subsidiary entity.

By submitting a proposal, Respondent warrants and certifies, and a contract awarded pursuant to this RFO is made in reliance thereon, that it, its officers, employees and agents are neither officers nor employees of the City.

State of Texas Conflict of Interest Questionnaire (Form CIQ). Chapter 176 of the Texas Local Government Code requires that persons, or their agents, who seek to contract for the sale or purchase of property, goods, or services with the City, shall file a completed Form CIQ with the City Clerk if those persons meet the requirements under 176.006(a) of the statute.

By law this questionnaire must be filed with the City Clerk not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Texas Local Government Code.

Form CIQ is available from the Texas Ethics Commission by accessing the following web address:
http://www.sanantonio.gov/Ethics/ForCompliance/Vendors-And-Conflict-of-Interest-Reports

In addition, please complete the **City's Addendum to Form CIQ (Form CIQ-A)** and submit it with Form CIQ to the Office of the City Clerk. The Form CIQ-A can be found at:

http://www.sanantonio.gov/atty/ethics/pdf/OCC-CIQ-Addendum.pdf

When completed, the CIQ Form and the CIQ-A Form should be submitted together, either by mail or hand delivery, to the Office of the City Clerk. If mailing, mail to:

Office of the City Clerk, P.O. Box 839966, San Antonio, TX 78283-3966.

If delivering by hand, deliver to:

Office of the City Clerk, c/o Municipal Records Facility, 719 S. Santa Rosa Ave., San Antonio, TX 78204.

Do not include these forms with your sealed bid. The Purchasing Division will not deliver the forms to the City Clerk for you.

Certificate of Interested Parties (Form 1295)

The Texas Government Code §2252.908, and the rules issued by the Texas Ethics Commission found in Title 1, Sections 46.1, 46.3 and 46.5 of the Texas Administrative Code, require a business entity to submit a completed Form 1295 to the City before the City may enter into a contract with that business entity.

Form 1295 must be completed online. It is available from the Texas Ethics Commission by accessing the following web address:
https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm.

Print and sign your completed Form 1295. Submit your signed Form 1295 with your response to this

solicitation. Where requested to provide the name of the public entity with whom you are contracting, insert "City of San Antonio". Where requested to provide the contract number, provide the solicitation number shown on the cover page of this solicitation (e.g. IFB 6100001234, RFO 6100001234 or RFCSP 6100001234).

The following definitions found in the statute and Texas Ethics Commission rules may be helpful in completing Form 1295.

"Business entity" includes an entity through which business is conducted with a governmental entity or state agency, regardless of whether the entity is a for-profit or nonprofit entity. The term does not include a governmental entity or state agency. (NOTE: The City of San Antonio should never be listed as the "Business entity".)

"Controlling interest" means: (1) an ownership interest or participating interest in a business entity by virtue of units, percentage, shares, stock, or otherwise that exceeds 10 percent; (2) membership on the board of directors or other governing body of a business entity of which the board or other governing body is composed of not more than 10 members; or (3) service as an officer of a business entity that has four or fewer officers, or service as one of the four officers most highly compensated by a business entity that has more than four officers. Subsection (3) of this section does not apply to an officer of a publicly held business entity or its wholly owned subsidiaries.

"Interested party" means: (1) a person who has a controlling interest in a business entity with whom a governmental entity or state agency contracts; or (2) an intermediary.

"Intermediary," for purposes of this rule, means a person who actively participates in the facilitation of the contract or negotiating the contract, including a broker, adviser, attorney, or representative of or agent for the business entity who:

(1) receives compensation from the business entity for the person's participation;

(2) communicates directly with the governmental entity or state agency on behalf of the business entity regarding the contract; and

(3) is not an employee of the business entity or of an entity with a controlling interest in the business entity.

Publicly traded business entities, including their wholly owned subsidiaries, are exempt from this requirement and are not required to submit Form 1295.

4.0 **SCOPE:** The City of San Antonio is requesting an offer to supply a Mobile Command Unit. This Mobile Command Unit can be used for a command post that will allow command level staff on scene to coordinate response to large incidents such as multiple alarm fires or mass casualty events. This vehicle also has a mobile dispatch capability to execute the plans for large scale events. This vehicle will be used primarily by the Fire Department personnel but will be adequately equipped to also be used by the San Antonio Police Department or other regional emergency response agencies. In addition, this command unit will have multiple communication pathways including satellite, point to point and cellular connectivity.

4.1 GENERAL CONDITIONS: The following general conditions will apply to all items within this bid unless specifically excluded within any item.

4.1.1 City of San Antonio reserves the right to increase or decrease quantity of units being purchased up to the production "cut-off" date submitted on the bid for the particular item, depending on availability of funds. Prices may not be increased during this period; however, the City should benefit from any price decrease. Additional units may be purchased on an "as needed" basis. Successful vendor is required to notify the City of all production "cut-off" dates necessary for order submission. Vehicles are to be year model 2019 or newer.

4.1.2 All components shall be installed new, unused, standard production model, and equipment is to be serviced in accordance with manufacturer's recommended pre-delivery check list, and ready for operation upon delivery, and shall include all manufacturers' standard equipment unless otherwise specified or replaced therein. Equipment offered under the below listed specifications will be considered unacceptable if for any reason its long term availability on the U.S. Market or in the local area is in doubt.

4.1.3 These specifications are intended to describe a complete apparatus of the type identified, ready for operation. Any items omitted from such specifications which are clearly necessary for completion of such equipment and its appurtenances are considered required equipment, although not directly specified or called for in these specifications, and must be included in the equipment provided.

The price quoted shall include all materials, tools, equipment and other costs necessary to fully complete the delivery of the ambulance pursuant to these specifications. All requirements are considered minimums.

4.2 WARRANTY: All items bid must include the maximum standard manufacturer's warranty available, including both parts and labor, for all components and attachments.

4.2.1 ONE (1) YEAR MATERIAL AND WORKMANSHIP - A Pierce basic apparatus limited warranty certificate, WA0008, is included.
4.2.2 THREE (3) YEAR MATERIAL AND WORKMANSHIP - The Pierce custom chassis limited warranty certificate, WA0284, is included.
4.2.3 ENGINE WARRANTY - A Detroit Diesel five (5) year limited engine warranty will be provided. A limited warranty certificate, WA0180, is included with this proposal.
4.2.4 STEERING GEAR WARRANTY - A Sheppard three (3) year limited steering gear warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.
4.2.5 FIFTY (50) YEAR STRUCTURAL INTEGRITY - The Pierce custom chassis frame and crossmembers limited warranty certificate, WA0038, is included.
4.2.6 FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY - The Pierce TAK-4 suspension limited warranty certificate, WA0050, is included.
4.2.7 REAR AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY - A Meritor axle limited warranty certificate, WA0046, is included.
4.2.8 ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY - A Meritor Wabco™ABS brake system limited warranty certificate, WA0232, is included.
4.2.9 TEN (10) YEAR STRUCTURAL INTEGRITY - The Pierce custom cab limited warranty certificate, WA0012, is included.
4.2.10 TEN (10) YEAR PRO-RATED PAINT AND CORROSION - A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included.

4.2.11 FIVE (5) YEAR MATERIAL AND WORKMANSHIP - The Pierce Command Zone electronics limited warranty certificate, WA0014, is included.
4.2.12 CAMERA SYSTEM WARRANTY - A Pierce fifty four (54) month warranty will be provided for the camera system.
4.2.13 COMPARTMENT LIGHT WARRANTY - The Pierce 12 volt DC LED strip lights limited warranty certificate, WA0203, is included.
4.2.14 TRANSMISSION WARRANTY - The transmission will have a five (5) year/unlimited mileage warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission. The transmission cooler is excluded and is not covered under any extended warranty.
4.2.15 TRANSMISSION COOLER WARRANTY - The transmission cooler will carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty will also be in effect for the first three (3) years of the warranty coverage and will not exceed $10,000 per occurrence. A copy of the warranty certificate will be submitted with the bid package.
4.2.16 FIFTEEN (15) YEAR STRUCTURAL INTEGRITY - The Pierce heavy duty rescue apparatus body limited warranty certificate, WA0010, is included.
4.2.17 ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY - An AMDOR roll-up door limited warranty will be provided. The roll-up door will be warranted against manufacturing defects for a period of ten (10) years. A five (5) year limited warranty will be provided on painted roll up doors. The limited warranty certificate, WA0185, is included.
4.2.18 SIX (6) YEAR GENERATOR MATERIAL AND WORKMANSHIP WARRANTY - A Harrison Hydra-Gen limited warranty certificate, WA0285, is included with this proposal.
4.2.19 TEN (10) YEAR PRO-RATED PAINT AND CORROSION - A Pierce body limited pro-rated paint warranty certificate, WA0057, is included.
4.2.20 ONE (1) YEAR MATERIAL AND WORKMANSHIP - The Pierce graphics fading and deterioration limited warranty limited warranty certificate, WA0168, is included with this proposal.
4.2.21 TWO (2) YEAR EXTENDED - The Pierce body limited warranty certificate, WA0096, is included.
4.2.22 TWO (2) YEAR EXTENDED - The Pierce custom chassis warranty certificate, WA0069, is included.

4.2.23 All other warranties must be for a minimum period of twelve months. The warranty shall begin on the date the vehicle is placed in service, not on the delivery date. Vendor shall attach a copy of the manufacturer's warranty to Vendor's bid. City will notify Vendor by letter of the in-service date for each item by serial number. Warranty service and parts must be available within a 50 mile radius of San Antonio City Hall from a factory authorized dealer.
Authorized Warranty Provider:

_____

Warranty Provider Address:

_____

4.3 DELIVERY: The apparatus will be delivered under its own power to insure proper break-in of all components while the apparatus is still under warranty. Delivery will be to a location in San Antonio, Texas, specified by City and identified on Purchase Order. The vendor will be responsible for vehicle(s) until accepted by representative at City of San Antonio Facility in San Antonio, TX. Deliveries will be coordinated with Chief of Fire Department Services or their designee. Delivery to a non-specified location will result in non-acceptance of the equipment by the City. All deliveries must be pre-arranged with a minimum 24-hour notification, NO EXCEPTIONS. Vehicles will not be accepted after 3:00 P.M. CST. All vehicles are required to have a full tank(s) of fuel when delivered to City specified location.

4.4 EQUIPMENT MANUALS: Two operator's manuals will be provided per purchase order, which shall include a paper parts and maintenance manual or two USB drives detailing the equipment, accessories, and components as well as construction drawings complete with wiring diagrams.

4.5 REQUIRED DOCUMENTS AT DELIVERY: The Manufacturer's Statement of Origin (MSO), Dealer Temporary license plates/tags, proper Invoice, signed 130U form, Vehicle Inspection Report, and State Weight Certificate/slip are required upon delivery of each unit and are required before payment can be processed. Any of these missing items will delay the payment process.

4.6 MINIMUM VEHICLE ACCESSORIES: All units to be equipped at the factory with maximum capacity cooling system offered by manufacturer, full headliner, fresh air heater and defroster units, minimum

AM/FM OEM radio, power windows and power door locks and manual tilt steering wheel. All units to be equipped with steering column mounted gear selector unless otherwise specified. Each unit shall have a minimum three keys. All accessories and equipment will be OEM. The manufacturer will rate all equipment provided as low emission on all models available. Vehicles to be equipped with OEM tinted glass.

4.7 SINGLE SOURCE MANUFACTURER: The chassis, cab weldment, cab, pumphouse (including the sheet metal enclosure, valve controls, piping and operators panel) and body will be entirely designed, tested, and hand assembled to the specifications listed herein. The electrical system shall either be hardwired or multiplexed, will be both designed and integrated by Pierce Manufacturing. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) will be provided by Pierce as a single source manufacturer.

4.8 BUILD SHEET INSTRUCTIONS: Upon contract award, vendor shall provide written acknowledgement of order placement. A copy of the finalized build sheet with a San Antonio Fire Department Representative signature confirming equipment build out shall be provided to the City prior to equipment delivery. The delivery date for the completed unit shall be communicated when the build sheet is finalized. Electrical wiring schematics that include lighting and air conditioning systems for body shall be provided at time of delivery. Electrical wiring schematics and finalized build sheet shall be provided in paper in Adobe PDF format.

4.9 VEHICLE INSPECTION: The vendor shall have each vehicle (except cab and chassis units delivered without bodies) properly inspected in compliance with Texas motor vehicle laws.

4.10 CHECK-IN INSPECTION: The City shall check the vehicle upon delivery to ensure compliance with this specification and any other specific requirements. The vendor shall deliver with the vehicle a manufacturer's invoice, and MSO or any official documentation to verify the fact that ordered options, GVWR rating, and other requirements have been met. Failure to provide required documentation as listed may cause the delay of payment. Payment will be made within 30 days after vehicle's acceptance or receipt of correct invoice, whichever is later. Acceptance will not be made, nor payment initiated on vehicles failing to meet specifications (unless they are brought into full compliance), and all necessary documents (i.e. MSO, odometer statement, etc.) are received by the City.

The City shall have a maximum of 20 working days to complete this inspection.

4.11 NON COMPLIANT VEHICLES: Vendor shall remove noncompliant vehicle(s) from City premises within 5 working days after receiving written notification from Fleet Acquisition staff. If vehicle is not removed by vendor within the specified time frame, the City may arrange for vehicle to be removed and secured by a local towing and storage facility. Vendor will be responsible for payment of all related towing and storage charges. The City will not be responsible or liable for damage or loss of noncompliant vehicles which remain on City premises, or which are removed by towing company, 5 working days after vendor notification.

4.12 ELECTRICAL: Heavy duty battery and alternator offered by manufacturer for models being bid. All units to be equipped with oil pressure, water temperature, and volt or amp gauges.

4.13 No dealership nameplates, markings or decals will be permitted on the vehicles.

4.14 BRAND NAMES: Manufacturer names, trade names, brand names, and product numbers used herein are for the purpose of describing and establishing tested, compatible, approved and acceptable products that are of the type and quality required by the City. The use of pre-approved brand names are not intended to limit competition; therefore the phrase "or equal" is added. For purposes of this contract, the proposed "or equal" products shall require close adherence to the established standards of performance and quality inherently derived and reasonably expected from the brand named products specified herein. The City shall be the sole judge of equality and suitability.

4.15 INFORMATION: a permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

4.16 SAFETY VIDEO: At the time of delivery Pierce will also provide one (1) professionally produced apparatus safety video, in DVD format; or access to online instruction offered by Pierce Manufacturing with interactive learning modules. This training shall address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus, including the following: vehicle pre-trip inspection, chassis operation, aerial operation, and safety during maintenance.

4.17 PERFORMANCE TESTS: A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus will meet NFPA 1901 acceleration requirements and NFPA 1901 braking requirements. The apparatus when fully loaded will not have less than 25 percent or more than 50 percent on the front axle and not less than 50 percent or more than 75 percent on the rear axle. VENDOR SHALL PROVIDE ALL CERTIFICATIONS AND PERFORMANCE TESTING CERTIFICATES THAT COME STANDARD WITH THE PIERCE VELOCITY CHASSIS.

4.18 NFPA 2016 STANDARDS: Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".

4.18.1 All vehicles this unit will comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions will be set forth in the statement of exceptions.

4.18.2 To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, will be third-party, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition of NFPA 1901. The certification will include: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus.

4.19 MARKINGS: All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and designated access paths to destination points will be identified on the customer approval print and are shown as approximate. Actual location(s) will be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack.

4.19.1 A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating.

4.19.2 A placard will be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.

4.20 INSPECTION CERTIFICATE: a third party inspection certificate for the truck provided will be furnished upon delivery. The certificate shall be from the Underwriters Laboratories Inc. To assure the vehicle is built to current NFPA 1901 standards in its entirety. The certification will include: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the truck.

4.21 GENERATOR TEST: If the unit has a generator, the generator will be tested, approved, and certified by underwriters laboratories at the manufacturer's expense. The test results will be provided to the fire department at the time of delivery.

4.22 BREATHING AIR TEST: if the unit has breathing air, pierce manufacturing will draw an air sample from the air system and certify that the air quality meets the requirements of NFPA 1989, standard on breathing air quality for fire and emergency services respiratory protection.

4.23 INSPECTION TRIP(S): the bidder will provide three (3) factory inspection trip(s) for preconstruction, mid-point, and final inspection customer representative(s). The inspection trip(s) will be scheduled at times mutually agreed upon between the manufacturer's representative and the customer. All costs such as travel, lodging and meals will be the responsibility of the bidder.

4.24 PRODUCT CHANGES AND IMPROVEMENTS: our components and processes, as described in this proposal document, are as accurate as known at the time of bid submission, but are subject to change for the purpose of product or process improvements, or changes in industry standards providing the change does not affect the meaning or definition of the bid specifications.

4.25 AFTERMARKET SUPPORT WEBSITE: pierceparts.com will provide pierce authorized dealer access to comprehensive information pertaining to the maintenance and service of their customer's apparatus. This tool will provide the pierce authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips. Pierceparts.com is also accessible to the end user through the guest login. Limited access is available and vehicle specific parts information accessible by entering a specific VIN number. All end users should see their local authorized Pierce dealer for additional support and service.

4.26 APPROVAL DRAWING: A drawing of the proposed apparatus will be prepared and provided to the purchaser for approval before construction begins. The pierce sales representative will also be provided with a copy of the same drawing. The finalized and approved drawing will become part of the contract documents. This drawing will indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.

A "revised" approval drawing of the apparatus will be prepared and submitted by Pierce to the purchaser showing any changes made to the approval drawing.

4.27 ELECTRICAL WIRING DIAGRAMS: One (1) USB drive copy and one (1) paper copy of the electrical wiring diagrams, prepared for the model of chassis and body, will be provided.

4.28 **VEHICLE REQUIREMENTS:** The vehicle’s mobile deployment goal defines the design and minimum chassis performance standard requirements. As mentioned, the vehicle shall be a self-propelled truck-body vehicle with an enclosed modular body area. Furthermore, due to quick maintenance turn-around, locally experienced maintenance mechanics, and availably of replacement parts, preference is given to a vehicle that is manufactured in the United States. With this in mind, the sub-sections below define the vehicle’s design and performance requirements.

4.29 **SPECIFICATIONS:**

4.29.1 **VELOCITY CHASSIS**

A Pierce Velocity® , 2-door upgraded model, chassis shall be provided. It shall be a new, tilt-type custom fire apparatus. The chassis will be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis will be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required. The chassis will be the manufacturer's first line tilt cab.

4.29.2 **WHEELBASE**

The wheelbase of the vehicle will be 278".

4.29.3 **GVW RATING**

The gross vehicle weight rating will be 62,800.

4.29.4. **FRAME**

The chassis frame will be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails will have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle. Each rail will have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb. over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb. over the rear axle. The frame rails will be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.

4.29.5 **FRAME REINFORCEMENT**

In addition, a full-length mainframe internal "C" liner will be provided. The liner will be an internal "C" design that steps to a smaller internal "C" design over the rear axle. It will be heat-treated steel

measuring 12.50" x 3.00" x .25" through the front "C" portion of the liner, stepping to 9.38" x 3.00" x .25" through the rear "C" portion of the liner. Each liner will have a section modulus of 13.58 cubic inches, yield strength of 110,000 psi, and rbm of 857,462 in-lb. Total rbm at wheelbase center will be 4,391,869 in-lb.The frame liner will be mounted inside of the chassis frame rail and extend the full length of the frame.

4.29.6 **FRONT NON-DRIVE AXLE**

The Oshkosh TAK-4® front axle will be of the independent suspension design with a ground rating of 22,800 lb. Upper and lower control arms will be used on each side of the axle. Upper control arm castings will be made of 100,000-psi yield strength 8630 steel and the lower control arm casting will be made of 55,000-psi yield ductile iron.

The center cross members and side plates will be constructed out of 80,000-psi yield strength steel. Each control arm will be mounted to the center section using elastomer bushings. These rubber bushings will rotate on low friction plain bearings and be lubricated for life. Each bushing will also have a flange end to absorb longitudinal impact loads, reducing noise and vibrations. There will be nine (9) grease fittings supplied, one (1) on each control arm pivot and one (1) on the steering gear extension. The upper control arm will be shorter than the lower arm so that wheel end geometry provides positive camber when deflected below rated load and negative camber above rated load. Camber at load will be 0 degrees for optimum tire life. The ball joint bearing will be of low friction design and be maintenance free. Toe links that are adjustable for alignment of the wheel to the center of the chassis will be provided. The wheel ends will have little to no bump steer when the chassis encounters a hole or obstacle. The steering linkage will provide proper steering angles for the inside and outside wheel, based on the vehicle wheelbase. The axle will have a third party certified turning angle of 45 degrees. Front discharge, front suction, or aluminum wheels will not infringe on this cramp angle.

4.29.7 **FRONT SUSPENSION**

Front Oshkosh TAK-4™ independent suspension will be provided with a minimum ground rating of 22,800 lb. The independent suspension system will be designed to provide maximum ride comfort. The design will allow the vehicle to travel at highway speeds over improved road surfaces and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment. Each wheel will have torsion bar type spring. In addition, each front wheel end will also have energy absorbing jounce bumpers to prevent bottoming of the suspension. The suspension design will be such that there is at least 10.00" of total wheel travel and a minimum of 3.75" before suspension bottoms. The torsion bar anchor lock system allows for simple lean adjustments, without the use of shims. One can adjust for a lean within 15 minutes per side. Anchor adjustment design is such that it allows for ride height adjustment on each side. The independent suspension was put through a durability test that simulated 140,000 miles of inner city driving.

4.29.8 **FRONT SHOCK ABSORBERS**

KONI heavy-duty telescoping shock absorbers will be provided on the front suspension.

4.29.9 **FRONT OIL SEALS**

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

4.29.10 **FRONT TIRES**

Front tires will be Michelin 425/65R22.50 radials, 20 ply all-position XZY3 wide base tread, rated for 22,800 lb. maximum axle load and 65 mph maximum speed. The tires will be mounted on 22.50" x 12.25" steel disc type wheels with a ten (10)-stud, 11.25" bolt circle.

4.29.11 **REAR AXLE**

The rear axle will be a Meritor™, Model MT-40-14X, tandem axle assembly with a capacity of 40,000 lb. An inter-axle differential lock, which divides torque evenly between axles, will be provided with an indicator light mounted on the cab instrument panel.

4.29.12 **TOP SPEED OF VEHICLE**

A rear axle ratio will be furnished to allow the vehicle to reach a top speed of 60 mph.

4.29.13 **SUSPENSION, REAR**

Rear suspension will be Link® combination air ride and walking beam with a ground rating of 40,000 pounds.

4.29.14 **REAR OIL SEALS**

Oil seals will be provided on the rear axle(s).

4.29.15 **REAR TIRES**

Rear tires will be eight (8) Michelin 12R22.50 radials, load range H, X® WORKS™Z tread, rated for 54,240 lb. maximum axle load and 65 mph maximum speed.

The tires will be mounted on 22.50" x 8.25" steel disc type wheels with a ten (10) stud, 11.25" bolt circle.

4.29.16 **TIRE BALANCE**

All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.

4.29.17 **TIRE PRESSURE MANAGEMENT**

There will be a RealWheels LED AirSecure™ tire alert pressure management system provided, that will monitor each tire's pressure. A sensor will be provided on the valve stem of each tire for a total of 10 tires. The sensor will calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor will activate an integral battery-operated LED when the pressure of that tire drops 5 to 8 psi. Removing the cap from the sensor will indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED will immediately start to flash.

4.29.18 **WHEEL CHOCKS**

There will be one (1) pair of Ziamatic AC-32, aluminum alloy wheel blocks provided.

4.29.19 **ELECTRONIC STABILITY CONTROL**

A vehicle control system will be provided as an integral part of the ABS brake system from Meritor Wabco. The system will monitor and update the lateral acceleration of the vehicle and compare it to a critical threshold where a side roll event may occur. If the critical threshold is met, the vehicle control system will automatically reduce engine RPM, engage the engine retarder (if equipped), and selectively apply brakes to the individual wheel ends of the front and rear axles to reduce the possibility of a side roll event.

The system will monitor directional stability through a lateral accelerometer, steer angle sensor and yaw rate sensor. If spinout or drift out is detected, the vehicle control system will selectively apply brakes to the individual wheel ends of the front and rear axles to bring the vehicle back to its intended direction.

4.29.20 **ANTI-LOCK BRAKE SYSTEM**

The vehicle will be equipped with a Wabco 6S6M, anti-lock braking system. The ABS will provide a six (6) channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology will control the anti-lock braking system. Each wheel will be monitored by the system. When any wheel begins to lockup, a signal will be sent to the control unit. This control unit will then reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

4.29.21 **AUTOMATIC TRACTION CONTROL**

An anti-slip feature will be included with the ABS. The Automatic Traction Control will be used for traction in poor road and weather conditions. The Automatic Traction Control will act as an electronic differential lock that will not allow a driving wheel to spin, thereby supplying traction at all times. The ABS electronic control unit (ECU) will work with the engine ECU, sharing information concerning wheel slip. Engine ECU will use information to control engine speed, allowing only as much throttle application as required for the available traction, regardless of how much the driver is asking for. A

"mud/snow" switch will be provided on the instrument panel. Activation of the switch will allow additional tire slip to let the truck climb out and get on top of deep snow or mud.

4.29.22 **BRAKES**

The service brake system will be full air type.
The front brakes will be Knorr/Bendix disc type with a 17.00" ventilated rotor for improved stopping distance. The brake system will be certified, third party inspected, for improved stopping distance.
The rear brakes will be Meritor™, Disc Plus, EX225 disc operated with automatic slack adjusters and a 17.00" ventilated rotor for improved stopping distance.

4.29.23 **AIR COMPRESSOR, BRAKE SYSTEM**

The air compressor will be a Bendix®, Model BA-921, with 15.80 cubic feet per minute output at 1,250 rpm.

4.29.24 **BRAKE SYSTEM**

The brake system will include:

- Bendix dual brake treadle valve
- Heated automatic moisture ejector on air dryer
- Total air system capacity of 6,653 cubic inches
- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi
- Spring set parking brake system
- Parking brake operated by a push-pull style control valve
- A parking "brake on" indicator light on instrument panel
- Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, will be provided with an automatic spring brake application at 40 psi
- A pressure protection valve will be provided to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa).
- 1/4 turn drain valves on each air tank

The air tank will be primed and painted to meet a minimum 750-hour salt spray test.
To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.

4.29.25 **BRAKE SYSTEM AIR DRYER**

The air dryer will be WABCO System Saver 1200 with spin-on coalescing filter cartridge and 100-watt heater.

4.29.26 **BRAKE LINES**

Color-coded nylon brake lines will be provided. The lines will be wrapped in a heat protective loom in the chassis areas that are subject to excessive heat.

4.29.27 **AIR INLET/OUTLET**

One (1) air inlet/outlet will be installed recessed with the female coupling located in the driver side lower step well of cab. This system will tie into the "wet" tank of the brake system and include a check valve in the inlet line and an 85-psi pressure protection valve in the outlet line. The air outlet will be controlled by a needle valve. A mating male fitting will be provided with the loose equipment. The air inlet will allow a shoreline air hose to be connected to the vehicle. This will allow station air to be supplied to the brake system of the vehicle to insure constant air pressure.

4.29.28 **AIR COMPRESSOR, BRAKE SYSTEM MAINTENANCE**

A Kussmaul, Model 091-9B-1 air compressor will be provided. It will be driven by the 120-volt shoreline electrical system and will be located behind driver seat. The compressor will maintain the air pressure in the chassis air brake system while the vehicle is not in use. A pressure switch will sense when the system pressure drops and automatically start the compressor, which then will run until pressure is restored.

4.29.29 **U-BOLT GUARD OVER PARKING BRAKE KNOB**

There will be one (1) U-bolt type protective guard(s) installed over the "Parking Brake" knob to prevent accidental activation of the brake. The guard will be located on the driver's side.

4.29.30 **AIR TANK DRAINS**

Air tank drains will be mounted at the bottom of the air tank centered on the bottom of the tank for maximum drainage.

4.29.31 **REMOTE AIR TANK DRAIN**

There will be a remote mounted 1/4 turn drain valve installed on each air supply reservoir. The drain valve will be actuated from the underside of the driver side body corner. .375" airline will be provided between each drain valve and the reservoirs.

4.29.32 **COMPRESSION FITTINGS ONLY**

Any nylon tube on the apparatus that is pneumatic will be plumbed with compression type fittings where applicable.

4.29.33 **ENGINE**

The chassis will be powered by an electronically controlled engine as described below:

Make:	Detroit™
Model:	DD13®
Power:	525 hp at 1625 rpm
Torque:	1850 lb.-ft at 1075 rpm
Governed Speed:	Full Load - 1900 rpm Road/2080 rpm Parked PTO
Emissions	EPA 2016 (GHG17)
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	781 cubic inches (12.8L)
Starter:	Delco Remy 39MT™
Fuel Filters:	Dual cartridge style with check valve, water separator, and water in fuel sensor

The engine will include On-board diagnostics (OBD), which provides self-diagnostic and reporting. The system will give the owner or repair technician access to state of health information for various vehicle sub systems. The system will monitor vehicle systems, engine and after treatment. The system will illuminate a malfunction indicator light on the dash console if a problem is detected.

4.29.34 **HIGH IDLE**

A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a preset engine rpm. The high idle will automatically engage when the parking brake is set, and the engine has been idling for 5 minutes. A switch will be installed, at the cab instrument panel, for activation/deactivation override. The high idle will be operational only when the parking brake is on, the truck transmission is in neutral, and the engine has been idling for 5 minutes. A green indicator light will be provided adjacent to the switch. The light will illuminate when the above conditions are met. The light will be labeled "OK to Engage High Idle". The high idle circuit will be programmed to allow high idle with the parking brake applied and transmission is in neutral. High Idle will not be allowed when the pump is in gear. When the truck transmission is shifted into gear with the high idle on, the high idle will drop out for a safe shift condition.

4.29.35 **ENGINE BRAKE**

A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver. The driver will be able to turn the engine brake system on/off and have a high, medium and low setting. The engine brake will be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated. The ABS system will automatically disengage the auxiliary braking device when required.

4.29.36 **CLUTCH FAN**

A Horton® fan clutch will be provided. The fan clutch will be automatic when the pump transmission is in "Road" position, and fully engaged in "Pump" position.

4.29.37 **DIPSTICK RELOCATION**

The engine oil dipstick will be relocated to the driver's side of the engine near the oil fill tube and delete the oil fill tube at the rear of the engine.

4.29.38 **ROCKER COVER BOLTS**

The rear most bolts on the engine rocker cover will be flat head style. This is in place of the "stud" style provided as standard.

4.29.39 **HEAVY DUTY OIL LINE**

A heavy-duty oil line and fittings will be provided between the engine oil pan and the oil level manifold.

4.29.40 **ENGINE AIR INTAKE**

An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) will be mounted at the front of the apparatus, on the passenger side of the engine. The ember separator will be mounted in the air intake with flame retardant, roto-molded polyethylene housing. It will be easily accessible by the hinged access panel at the front of the vehicle.

4.29.41 **EXHAUST SYSTEM**

The exhaust system will be stainless steel from the turbo to the inlet of the selective catalytic reduction (SCR) device and will be 5.00" in diameter. The exhaust system will include a diesel particulate filter (DPF) and an SCR device to meet current EPA standards. An insulation wrap will be provided on all exhaust pipe between the turbo and SCR to minimize the transfer of heat to the cab. The exhaust will terminate horizontally ahead of the left side rear wheels. A tailpipe diffuser will be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.

4.29.42 **EXHAUST MODIFICATION**

A Plymovent® Magnetic Grabber conical shaped adapter will be provided on the end of the tailpipe.

4.29.43 **EXHAUST MODIFICATION**

The exhaust pipe will be brought out from under the body at a 90-degree angle from the truck. The tail ipe will terminate flush with the body rubrail, adaptable for the Plymovent system. The diameter of the diffuser will be 7.00". There will be a clearance of 4.00" completely around the pipe once past the side of the body. A stop will be provided on the tail pipe that will prevent the nozzle from sliding too far on.

4.29.44 **EXHAUST MODIFICATION**

The exhaust pipe will be brought out from under the body at a 90-degree angle from the truck. The tail pipe will terminate at the body side and will be flush with the body side.

4.29.45 **RADIATOR**

The radiator and the complete cooling system will meet or exceed NFPA and engine manufacturer cooling system standards. For maximum corrosion resistance and cooling performance, the entire radiator core will be constructed using long life aluminum alloy. The core will be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes will be brazed to aluminum headers. The radiator core will have a minimum frontal area of 1434 square inches. Supply tank made of glass-reinforced nylon and a return tank of cast aluminum alloy shall be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly. The radiator will be compatible with commercial antifreeze solutions. There will be a full steel frame around the entire radiator core assembly. The radiator core assembly will be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator will be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly will be isolated from the chassis frame rails with rubber isolators. The radiator assembly will include an integral deaeration tank permanently mounted to the top of the radiator framework, with a readily accessible remote-mounted overflow tank. For visual coolant level inspection, the radiator will have a built-in sight

glass. The radiator will be equipped with a 15-psi pressure relief cap. A drain port will be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system. A heavy-duty fan will draw in fresh, cool air through the radiator. Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.

4.29.46**COOLANT LINES**

Gates® silicone hoses will be used for all engine/heater coolant lines installed by the chassis manufacturer.
The chassis manufacturer will also use Gates brand hose on other heater, defroster and auxiliary coolant circuits. There will be some areas in which an appropriate Gates product is not available. In those instances, a comparable silicone hose from another manufacturer will be used. Hose clamps will be stainless steel "constant torque type" to prevent coolant leakage. They will react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

4.29.47**INSULATION WRAP**

The lower radiator hose will be wrapped with orange heat resistant insulation to prevent damage to electrical harness.

4.29.48 **FUEL TANK**

A 100-gallon fuel tank will be provided and mounted at rear of chassis. The tank will be constructed of 12-gauge, hot rolled steel. It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps. A .75" drain plug will be provided in a low point of the tank for drainage. Fill inlets will be located on the left hand and right-hand side of the body and be covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only". A .50" diameter vent will be provided running from top of tank to just below fuel fill inlet. The tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume. AeroQuip® wire braid, reinforced fuel lines will be provided for the chassis fuel system. The fittings will be reusable screw type.

4.29.49 **DIESEL EXHAUST FLUID TANK**

A 4.5-gallon diesel exhaust fluid (DEF) tank will be provided and mounted in the driver's side body forward of the rear axle. A 0.50" drain plug will be provided in a low point of the tank for drainage. A fill inlet will be located on the driver's side of the body and be covered with a hinged, spring loaded, painted door that is marked "Diesel Exhaust Fluid Only". The tank will meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing. The tank will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.

4.29.50 **FUEL COOLER**

An air to fuel cooler will be installed in the engine fuel return line. The fuel filler cap will have a retaining chain and holder provided on the fuel fill door.

4.29.51 **FUEL FILL DOOR**

Fuel fill door will be painted job color.

4.29.52 **TRANSMISSION**

An Allison 5th generation, Model EVS 4500P, electronic, torque converting, automatic transmission will be provided. The transmission will be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display will indicate when service is due. Two (2) PTO openings will be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock). A transmission temperature gauge with red light and buzzer will be installed on the cab instrument panel.

4.29.53 **TRANSMISSION SHIFTER**

A six (6)-speed push button shift module will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation. The transmission ratio will be: 1st - 4.70 to 1.00, 2nd - 2.21 to 1.00, 3rd - 1.53 to 1.00, 4th - 1.00 to 1.00, 5th - 0.76 to 1.00, 6th - 0.67 to 1.00, R - 5.55 to 1.00.

4.29.54 **TRANSMISSION COOLER**

A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature.

4.29.55 **DOWNSHIFT MODE (w/engine brake)**

The transmission will be provided with an aggressive downshift mode. This will provide earlier transmission downshifts to 2nd gear from 6th gear, resulting in improved engine braking performance.

4.29.56 **DRIVELINE**

Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1810 universal joints. The shafts will be dynamically balanced before installation. A splined slip joint will be provided in each driveshaft where the driveline design requires it. The slip joint will be coated with Glidecoat® or equivalent.

4.29.57 **STEERING**

Dual Sheppard, Model M110, steering gears, with integral heavy-duty power steering, will be provided. For reduced system temperatures, the power steering will incorporate an air to oil cooler and an Eaton, Model VN20, hydraulic pump with integral pressure and flow control. All power steering lines will have wire braded lines with crimped fittings. A tilt and telescopic steering column will be provided to improve fit for a broader range of driver configurations.

4.29.58 **STEERING WHEEL**

The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.

4.29.59 **SHROUD**

An aluminum shroud will be mounted over the Wabco main module located in the frame rails to deflect water and debris from above.

4.29.60 **TAG/LABEL**

The following one (1) tags or labels will be provided "POWER STEERING FLUID: 15W40 DO NOT OVER FILL" see photo of 29395 in job efolder on the chassis or cab. The tag/label will be configured and read DS nose cone above fill location.

4.29.61 **STEERING GEAR OIL**

Standard steering gear oil to be replaced with 15W40 CJ-4 motor oil. All labeling will be changed to reflect the 15W40 CJ-4 motor oil.

4.29.62 **BUMPER**

A one (1)-piece, 0.25" thick steel channel bumper, a minimum 10.00" high will be attached to the front of the chassis frame. The bumper will be painted job color. A 9.00" formed steel channel will be mounted directly behind bumper for additional strength. The bumper will be extended 10.00" from front face of cab.

4.29.63 **GRAVEL PAN**

A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and cab face. The gravel pan will be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.

4.29.64 **LIFT AND TOW MOUNTS WITH TOW EYES**

Mounted to the frame extension will be lift and tow mounts. Incorporated in the mounts will be two (2) painted steel tow eyes. The lift and tow mounts will be designed and positioned to adapt to certain tow truck lift systems. The tow eyes will not be used for lifting of the apparatus.
The inner and outer edges of the tow eyes will have a 0.25" radius.
The lift and tow mounts with eyes will be painted orange.

4.29.65 **TOW EYES**

Two (2) cutouts will be provided in the front face of the bumper to allow two (2) Chicago style tow eyes to extend out the front. The inner and outer edges of the utility eyes will have a 0.25 radius. The tow eyes will be designed and positioned to allow up to a 6,000 pound straight horizontal pull in line with the centerline of the vehicle. The tow eyes will not be used for lifting of the apparatus. The utility eyes will be painted red.

4.29.66 **TOW HOOKS**

No tow hooks are to be provided. This truck will be equipped with a lift and tow package with integral tow eyes.

4.29.67 **CAB**

The cab will be designed specifically for the fire service and will be manufactured by the chassis builder. The cab will be constructed of 5052-H32 aluminum skins on extruded aluminum framing. For increased structural integrity and occupant protection, the cab structure will include, directly forward of the driver and passenger areas, a 0.25" firewall plate and 0.50" lateral support plate that will tie the forward corner posts to the engine tunnel. The cab roof will include a heavy one (1)- piece aluminum extrusion with wall thickness up to 0.12", and will extend from side to side, and attach to the upper forward corner posts by customized aluminum castings. To provide quality at the source and single source customer support, the cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises. The cab will be able to tilt. The overall height (from the cab roof to the ground) will be approximately 102.00". The overall height listed will be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight and no personnel weight. Larger tires, wheels and suspension will increase the overall height listed. The cab will have an interior width of not less than 93.50". The driver and passenger seating positions will have a minimum 24.00" clear width at knee level. To reduce injuries to occupants in the seated positions, proper head clearance will be provided. The floor-to-ceiling height inside the cab will be no less than 60.25".

4.29.68 **INTERIOR CAB INSULATION**

The cab walls, ceiling and engine tunnel will be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab will be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling.

4.29.69 **FENDER LINERS**

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

4.29.70 **PANORAMIC WINDSHIELD**

A one (1)-piece, safety glass windshield with more than 2,802 square inches of clear viewing area will be provided. The windshield will be full width and provide the occupants with a panoramic view. The windshield will consist of three (3) layers: the outer light, the middle safety laminate, and the inner light. The 0.114" thick outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage. The inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.

4.29.71 **WINDSHIELD WIPERS**

Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, will be provided. The wiper blades will be 21.65" long, and together will clear a minimum of 1,783 square inches of the windshield for maximum visibility in inclement weather. The windshield washer fluid reservoir will be located at the front of the vehicle and be accessible through the access hood for simple maintenance.

4.29.72 **FAST SERVICE ACCESS FRONT TILT HOOD**

A full width access hood will be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules and ember separator. The hood will also provide complete access to the windshield wiper motor and components. The hood will be contoured to provide a sleek automotive appearance. The hood will be constructed of two (2) fiberglass panels bonded together and will include reinforcing ribs for structural integrity. The hood will include air

cylinders to hold the hood in open and closed positions, and a heavy-duty latch system that will meet FMVSS 113 (Hood Latch System). The spring-loaded hood latch will be located at the center of the hood, with a double action release lever located behind the Pierce logo. The two (2)-step release requires the lever first be pulled to the driver side until the hood releases from the first latch (primary latch), and then to the passenger side to fully release the hood (secondary latch).

4.29.73 **ENGINE TUNNEL**

To provide structural strength, the engine tunnel sidewalls will be constructed of .50" aluminum plate. To maximize occupant space, the top edges will be tapered. The engine tunnel will be insulated on both sides for thermal and acoustic absorption. The underside of the tunnel will be sprayed with insulation. The insulation will keep noise (dBA) levels at or lower than the specifications in the current edition of the NFPA 1901 standards.

4.29.74 **CAB REAR WALL EXTERIOR COVERING**

The exterior surface of the rear wall of the cab will be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.

4.29.75 **CAB LIFT**

A hydraulic cab lift system will be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump will have a backup manual override, for use in the event of an electrical failure. The cab lift controls will be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls will include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote-control tether with on/off switch will be supplied on a coiled cord that will extend from 2.00' (coiled) to 6.00' (extended). The cab will be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots will be located 46.00" apart to provide stability while tilting the cab. The rear of the cab will be locked down by a two (2)-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2.25" diameter hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position. For increased safety, a redundant mechanical stay arm will be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device will be manually stowed to its original position before the cab can be lowered.

4.29.76 **Cab Lift Interlock**

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

4.29.77 **GRILLE**

A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, will be provided on the front center of the cab, and will serve as an air intake to the radiator.

4.29.78 **FRONT CAB TRIM**

Bright finished wrap-around housings will be provided on each side of the front cab face for mounting of the headlights and front directional lights. The housings will mate up to the side edge of the forward grille, and then extend around the front corners of the cab rearward, providing for a streamlined automotive appearance.

4.29.79 **MIRRORS**

Ramco, Model 6001FFHR-750HR, polished aluminum 9.25" wide x 13.50" high mirrors, with full flat glass section, will be mounted on each side of the front cab corner. A convex section will be bolted to the top of each mirror. The flat glass in each mirror will be heated and adjustable with remote controls that are convenient to the driver. The convex section in each mirror will be heated and adjustable with remote controls.

4.29.80 **MIRROR (SIDE VIEW)**

Exterior officer's side view mirror will be provided on the cab. Mirror will allow passenger to view the side cab blind spot and the area to the rear of the truck. Mirror will be located on the cab door, mounted on an adjustable arm. Mirror head will be an 8.00" convex mirror.

4.29.81 **FRONT CROSS VIEW MIRROR**

There will be one (1) 8.00" diameter eyeball mirror provided on the passenger side front corner of the cab. It will be mounted high, above the windshield. The mirror will provide the driver with a view of the front bumper and the front of the truck. The mirror housing, tubing, clamps and hardware will be constructed of corrosion resistant stainless steel. Mirror head will be K-10, EB50S-S, 8.00" stainless steel housing with three (3) arms. A 6.00" riser will be provided between the mirror body and support arm on the right side only.

4.29.82 **DOORS**

The cab doors will be the half-height style door. To enhance entry and egress to the cab, the cab doors will be a minimum of 43.59 " wide x 64.71" high. The cab doors will be constructed of extruded aluminum with a nominal material thickness of .125". The exterior door skins will be constructed from .090" aluminum. The cab door windows will include a 7.50" high x 10.00" wide drop area at the front to enhance visibility. A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The exterior handle will be designed specifically for the fire service to prevent accidental activation and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands. Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands. The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed. A full length, heavy duty, stainless steel, piano-type hinge with a .38" pin and 11-gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.
The cab steps at each door location will be located below the cab doors and will be exposed to the exterior of the cab.

4.29.83 **DOOR PANELS**

The inner cab door panels will be constructed out of brushed stainless steel. The cab door panels will be removable.

4.29.84 **RECESSED POCKET WITH ELASTIC COVER**

To provide organized storage (clutter control) in the cab for miscellaneous equipment, the cab interior will be provided with recessed storage pockets. The pockets will be 5.63" wide x 2.00" high x 4.00" deep. The pockets will be provided with a perforated elastic material cover to secure the equipment in the pocket. The pockets will be installed in all available mounting locations of the overhead console.

4.29.85 **ELECTRIC WINDOW CONTROLS**

Each cab entry door will be equipped with an electrically operated tempered glass window. A window control panel will be ergonomically molded into the armrest of the door panel within easy reach of the respective occupant. Each switch will allow intermittent or auto down operation for ease of use. Auto down operation will be actuated by holding the window down switch for approximately 1 second. The driver control panel will contain a control switch for each cab door's window. All other door control panels will contain a single switch to operate the window within that door. The window switches will be connected directly to the battery power. This allows the windows to be raised and lowered when the battery switch is in the off position.

4.29.86 **ELECTRIC CAB DOOR LOCKS**

The front driver and passenger doors will have a door lock master switch (custom designed rotary lock knob) built into the interior door latch that will control both front side exit door locks. Each door will have a keyed exterior lock mechanism built into the door handle assembly. There will be one (1) concealed switch on the exterior of the cab, located under the front full width service access panel, that operates the cab door locks. The lock system will include two (2) key FOBs that allow for keyless entry into the vehicle. The key FOB system will use code hopping technology for high security and be FCC

part 15 compliant.

4.29.87 **DUAL STEPS**

A dual step will be provided below each cab and crew cab door. The steps will be designed with a grip pattern punched into bright aluminum treadplate material providing support, slip resistance, and drainage. The steps will be a bolt-on design and provide a 24.00" wide x 9.00" deep stepping surface. The step design raises the middle step higher and closer to the cab floor, resulting in a 12" distance from the step to cab floor in the cab and a 13.50" distance from the step to cab floor in the crew cab. Stepping distances from the ground to first step will be 16.50" and from first step to middle step will be 12.00". The first step will be lit by a white 12-volt DC LED light provided on the step.

4.29.88 **CAB EXTERIOR HANDRAILS**

A 1.25" diameter slip-resistant, knurled aluminum handrail will be provided adjacent to each cab door opening to assist during cab ingress and egress.

4.29.89 **STEP LIGHTS**

For reduced overall maintenance costs compared to incandescent lighting, there will be two (2) white LED step lights provided. The lights will be installed at each cab door, one (1) per step, in the driver side front doorstep and passenger side front doorstep. In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light. The lights will be activated when the adjacent door is opened.

4.29.90 **FENDER CROWNS**

Rubber fender crowns will be provided around the cab wheel openings.
Crowns will be black.

4.29.91 **STORAGE COMPARTMENT**

A transverse compartment will be provided behind the cab doors. A shelf will be provided from side to side, over the rear portion of the engine tunnel. The shelf will have a 4.00" lip along the front edge. The edges on the ends, by the doors, will not have a lip. The compartment will have heavy black nylon webbing, made with 2.00" wide nylon material with 2.00" openings, provided along the entire front of the compartment. The nylon webbing shall be permanently fastened at the bottom side of the compartment and have seat belt buckle fasteners on the opposite side to secure it. A wall shall be provided below the front edge of the shelf, behind the driver and officer seats. The wall shall run from the engine tunnel to the side wall. The doors shall be two (2) double pan doors painted to match the cab exterior with a non-locking D-Ring latch, one (1) on each side of the cab. A pneumatic stay arm for each exterior door shall be used as a doorstop. The clear door opening shall be 37.75" high.
The exterior access shall be provided with a polished stainless-steel scuff plate on the lower door frames. The compartment interior will be painted to match the cab interior.

Compartment Light

There will be two (2) white LED strip lights installed, one (1) on the forward side of each cabinet door opening. The lighting will be controlled by automatic door switches.

4.29.92 **CAB DOORS**

All cab doors to open 90 degrees.

4.29.93 **CAB INSULATION**

The underside of the cab and crew cab floor will be sprayed with insulation. The insulation will keep noise (dBA) levels at or lower than the specifications in the current edition of the NFPA 1901 standards.

4.29.94 **CAB ROOF DRIP RAIL**

For enhanced protection from inclement weather, a drip rail will be furnished on the sides of the cab. The drip rail will be constructed of bright polished extruded aluminum and be bonded to the sides of the cab. The drip rail will extend the full length of the cab roof.

4.29.95 **FAIRING**

An aluminum fairing will be installed on the cab roof that extends from behind the lightbar to the top of the body. This fairing will be painted to match the top of the cab.

4.29.96 **MOUNTING PLATE ON ENGINE TUNNEL**

Equipment installation provisions will be installed on the engine tunnel. A .188" smooth aluminum plate will be bolted to the top surface of the engine tunnel. The plate will be located to the left of the officer and on the rear of the tunnel. It will follow the contour of the engine tunnel and will run the entire length of the engine tunnel. The plate will be spaced off the engine tunnel .50" to allow for wire routing below the plate. The front of the plate will be flanged downward to prevent items from rolling underneath it. The mounting surface will be painted to match the cab interior.

4.29.97 **CAB INTERIOR**

With safety as the primary objective, the wrap-around style cab instrument panel will be designed with unobstructed visibility to instrumentation. The dash layout will provide the driver with a quick reference to gauges that allows more time to focus on the road. The center console will be a high impact ABS polymer and will be easily removable for access to the defroster. The center console will include louvers strategically located for optimal air flow and defrost capability to the windshield. The passenger side dashboard will be constructed of painted aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash will include a flat working surface. To provide optional (service friendly) control panels, switches and storage modules, a painted aluminum overhead console will also be provided. To complete the cab front interior design, painted aluminum modesty panels will be provided under the dash on both sides of the cab. The driver side modesty panel will provide mounting for the battery switch and diagnostic connectors, while the passenger side modesty panel provides a glove box, and ground access to the main electrical distribution panel via quick quarter turn fasteners. To provide a deluxe automotive interior, the engine tunnel, side walls and rear wall will be covered by a leather grain vinyl that is resistant to oil, grease, and mildew. The headliner will be installed in both forward and rear cab sections. The headliner panel will be a composition of an aluminum panel covered with a sound barrier and upholstery. The cab structure will include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways will be extruded in the forward door frame, floor, walls and overhead in the area where the walls meet the ceiling. The raceways located in the floor will be covered by aluminum extrusion, while the vertical and overhead raceways will be covered by painted aluminum covers. The raceways will improve harness integrity by providing a continuous harness path that eliminates wire chafing and abrasion associated with exposed wiring or routing through drilled metal holes. Harnesses will be laid in place.

4.29.98 **CAB INTERIOR UPHOLSTERY**

The cab interior upholstery will be dark silver gray. All cab interior materials will meet FMVSS 302 (flammability of interior materials).

4. 29.99 **INTERIOR PAINT (Cab)**

A rich looking interior will be provided by painting all the metal surfaces inside the cab fire smoke gray, vinyl texture paint.

4.29.99.1 **CAB FLOOR**

The cab floor will be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler. The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a .25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.

4.29.99.2 **CAB DEFROSTER**

To provide maximum defrost and heating performance, a 54,961-BTU heater-defroster unit with 558 SCFM of air flow will be provided inside the cab. The defroster unit will be strategically located under the center forward portion of the roto-molded instrument panel. For easy access, a removable roto-molded cover will be installed over the defroster unit. The defroster will include an integral aluminum frame air filter, high performance dual scroll blowers, and ducts designed to provide maximum defrosting capabilities for the one-piece windshield. The defroster ventilation will be built into the design of the cab dash instrument panel and will be easily removable for maintenance. The defroster

will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements.

The heater-defroster will be controlled by a single integral electronic control panel. The heater control panel will allow the driver to control heat flow to the front. The control panel will include variable adjustment for temperature and fan control and be conveniently located on the dash in clear view of the driver. The control panel will include highly visible, progressive LED indicators for both fan speed and temperature. For increased convenience, an optional dual control for the passenger position will also be available.

4.29.99.3 AIR CONDITIONING

Due to the large space inside the cab, a high-performance, customized air conditioning system will be furnished. A 19.10 cubic inch compressor will be installed on the engine.

The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 64 degrees Fahrenheit in the forward section of the cab, and 69 degrees Fahrenheit in the rear section of the cab, at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.

A roof-mounted condenser with a 63,000 BTU output that meets and exceeds the performance specification will be installed on the cab roof. The condenser cover and mounting legs to be painted white as provided by the A/C manufacturer.

The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator will include two (2) high performance cores and plenums with multiple outlets, one (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.

The evaporator unit will have a 49,000 BTU (4.08 tons) rating that meets and exceeds the performance specifications.

There will be a hinge on the forward edge of the filter cover and two (2) quarter turn fasteners with a knob on the rear edge to allow easy access. The filters will be HEPA style filters.

Adjustable air outlets will be strategically located on the evaporator cover per the following:

- Four (4) will be directed towards the driver's location
- Four (4) will be directed towards the officer's location
- Eight (8) will be directed towards crew cab area

The air conditioner refrigerant will be R-134A and will be installed by a certified technician. The air conditioner will be controlled by dual zone integral electronic control panels for the heater, defroster and air conditioner. The cab control panel will be located in the center console. For ease of operation, the control panels will include variable adjustment for temperature and fan control.

4.29.99.4 INTERIOR CAB INSULATION

The cab walls, ceiling and engine tunnel will be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab will be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling. Headliners will be constructed from a 0.20" high density polyethylene corrugated material. Each headliner will be wrapped with a 0.25" thick foil faced poly damp low emissivity foam insulation barrier for acoustic and thermal control.

Designed for maximum sound absorption and thermal insulation, the rear cab wall will be insulated with a 1.50" thick open cell acoustical foam. The thermal protection of the foam will provide and R-value of 4 per 1.00" thickness.

4.29.99.5 SPECIAL DRAIN TUBES

Two (2) condensate drain tubes will be provided for the air conditioning evaporator. The drip pan will

have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan.

4.29.99.6 AIR CONDITIONING SYSTEM PROTECTION

The air conditioning system in the cab will include Red Dot Protecht system protection and diagnostics. The system will include an electronic control module with LED diagnostic indicators, high side pressure transducer, charge sensor and a warning indicator on the instrument panel.

The system will provide the following control features:

- Air conditioning compressor clutch cycling limited to a maximum rate of four (4) cycles/minute, to reduce wear on the clutch in the event of a system failure.
- Low charge warning at 50 percent or lower refrigerant charge, for early detection of refrigerant and oil loss, to reduce repair cost associated with leaks.
- Compressor clutch lockout at 30 percent or lower refrigerant to protect compressor in the event of a leak.
- Low battery voltage AC lock out to prevent damage from system operating at low voltage levels.

4.29.99.7 AIR CONDITIONING WARRANTY

The manufacturer will warrant the air conditioning compressor to be free of defects in material and workmanship for a period of **three (3) years**. All conditions of our standard chassis warranty (included with bid) will apply except the warranty period on the air conditioning compressor will be for **three (3) years**. The warranty covers material and labor for the air conditioning system compressor.

4.29.99.8 SUN VISORS

Two (2) smoked Lexan™ sun visors provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab. There will be no retention bracket provided to help secure each sun visor in the stowed position.

4.29.99.9 GRAB HANDLE

A black rubber covered grab handle will be mounted on the door post of the driver side cab and passenger door to assist in entering the cab. The grab handle will be securely mounted to the post area between the door and windshield. A long rubber grab handle will be mounted on the dashboard in front of the officer.

4.29.99.10 ENGINE COMPARTMENT LIGHTS

There will be one (1) Whelen®, Model 3SC0CDCR, 12-volt DC, 3.00" white LED light(s) with Model 3FLANGEC, chrome flange kit(s) installed under the cab to be used as engine compartment illumination.

These light(s) will be activated automatically when the cab is raised or when the dip stick door is opened.

4.29.99.11 ACCESS TO ENGINE DIPSTICKS

The cab will be tilted for access to the engine oil and transmission fluid dipsticks. NFPA 1901, 2016 edition, section 4.16.1 requires the fire apparatus to be designed so all manufacturer's recommended routine maintenance checks of lubricant and fluid levels can be performed by the operator without lifting the cab of a tilt-cab apparatus or without the need for hand tools.

The design of this cab requires that it be tilted for fluid level and maintenance checks. Per customer specification of this cab, the apparatus will be non-compliant to NFPA 1901 standards effective at time of contract execution.

4.29.99.12 CAB SAFETY SYSTEM

The cab will be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and will include the following:

- A supplemental restraint system (SRS) sensor will be installed on a structural cab member behind the instrument panel. The SRS sensor will perform real time diagnostics of all critical subsystems and will record sensory inputs immediately before and during a side roll or frontal impact event.

- A slave SRS sensor will be installed in the cab to provide capacity for eight (8) crew cab seating positions.
- A fault-indicating light will be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system.
- A driver side front air bag will be mounted in the steering wheel and will be designed to protect the head and upper torso of the occupant, when used in combination with the 3- point seat belt.
- A passenger side knee bolster air bag will be mounted in the modesty panel below the dash panel and will be designed to protect the legs of the occupant, when used in combination with the 3-point seat belt.
- Air curtains will be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.
- Suspension seats will be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event.
- Seat belts will be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event.

4.29.99.13 FRONTAL IMPACT PROTECTION

The SRS system will provide protection during a frontal or oblique impact event. The system will activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis will have been subjected, via third party test facility, to a crash impact during frontal and oblique impact testing. Testing included all major chassis and cab components such as mounting straps for fuel and air tanks, suspension mounts, front suspension components, rear suspensions components, frame rail cross members, engine and transmission and their mounts, pump house and mounts, frame extensions and body mounts. The testing provided configuration specific information used to optimize the timing for firing the safety restraint system. The sensor will activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected.

The SRS system will deploy the following components in the event of a frontal or oblique impact event:

- Driver side front air bag
- Passenger side knee bolster air bag
- Air curtains mounted in the outboard bolster of outboard seat backs
- Suspension seats will be retracted to the lowest travel position
- Seat belts will be pre-tensioned to firmly hold the occupant in place

4.29.99.14 SIDE ROLL PROTECTION

The SRS system will provide protection during a fast or slow 90-degree roll to the side, in which the vehicle comes to rest on its side. The system will analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints.
The SRS system will deploy the following components in the event of a side roll:

- Air curtains mounted in the outboard bolster of outboard seat backs
- Suspension seats will be retracted to the lowest travel position
- Seat belts will be pre-tensioned to firmly hold the occupant in place

4.29.99.15 SEATING CAPACITY

The seating capacity in the cab will be two (2).

4.29.99.16 DRIVER SEAT

A Pierce PS6® seat will be provided in the cab for the driver. The seat design will be a cam action type with air suspension. For increased convenience, the seat will include electric controls to adjust the rake (15 degrees), height (1.75" travel) and horizontal (7.00" travel) position. Electric controls will be located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat will have a reclining back, adjustable from 20 degrees back to 45 degrees forward. Providing for maximum comfort, the seat back will be a high back style with manual lumbar

adjustment lever, for lower back support, and will include minimum 7.50" deep side bolster pads for maximum support. The lumbar adjustment lever will be easily located at the lower outboard position of the seat cushion. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control).

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A suspension seat safety system will be included. When activated in the event of a side roll, this system will pretension the seat belt and retract the seat to its lowest travel position.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

4.29.99.17 **OFFICER SEAT**

A Pierce PS6® seat will be provided in the cab for the officer. The seat will be a cam action type, with air suspension. For increased convenience, the seat will include a manual control to adjust the horizontal position (6.00" travel). The manual horizontal control will be a towel-bar style located below the forward part of the seat cushion. To provide flexibility for multiple passenger configurations, the seat will have a reclining back adjustable from 20 degrees back to 0 degrees forward. The seat back will be a high back style with manual lumbar adjustment lever and will include minimum 7.50" deep side bolster pads for maximum support. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A suspension seat safety system will be included. When activated this system will pretension the seat belt and retract the seat to its lowest travel position.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

4.29.99.18 **DOOR PAN SCUFFPLATE**

There will be a brushed stainless steel scuffplate on the interior door pan of two (2) cabinet door(s) located both sides.

4.29.99.19 **CAB COMPARTMENT LIGHTING**

There will be two (2) Pierce LED compartment light strip(s) provided in each side of the AC in the transverse compartment, the upper corner. Opening the compartment door will automatically turn compartment lighting on.

4.29.99.20 **SEAT UPHOLSTERY**

All seat upholstery will be gray Turnout Tuff material.

4.29.99.21 **SEAT BELTS**

All seating positions in the cab, crew cab and tiller cab (if applicable) will have red seat belts. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.
The 3-point shoulder type seat belts will also include the ReadyReach D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.

4.29.99.22 **SHOULDER HARNESS HEIGHT ADJUSTMENT**

All seating positions furnished with 3-point shoulder type seat belts will include a height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter.

A total of two (2) seating positions will have the adjustable shoulder harness.

4.29.99.23 **HELMET STORAGE**

Helmet storage will be located in a fully enclosed and latched cab compartment.

4.29.99.24 **CAB DOME LIGHTS**

There will be two (2) Whelen, Model 60C*EGCS, 6.00" round dual LED dome lights installed in the cab. The lights will be mounted above the inside shoulder of the driver and officer.

The color of the LED's will be red and white.

The white LED's will be controlled by the door switches and the lens switch.

The color LED's will be controlled by the lens switch.

4.29.99.25 **ADDITIONAL DOME LIGHTING**

There will be two (2) Whelen, Model 60C*EGCS, 6.00" round dual LED dome lights installed in the cab and/or crew cab located one each side in the cab compartment.
The color of the LED's will be red and white.
The white LED's will be controlled by the door switches.
The color LED's will be controlled by the same switching as the crew cab dome lights.
The light(s) may be load managed when the parking brake is applied.

4.29.99.26 **OVERHEAD MAP LIGHTS**

There will be two (2) Peterson, Model M371S, rectangular LED adjustable map lights installed in the cab:

- One (1) overhead in front of the driving position.
- One (1) overhead in front of the passenger's position.

Each light will include a switch on the light housing.

The light switches will be energized when the spare wire cut off switch is on.

4.29.99.27 **HANDHELD SPOTLIGHT**

Additional handlights will be provided. Each light will be a Streamlight, Model Survivor 12v LED flashlight. A charger will be provided with each light.

A total of two (2) lights will be provided.

The light(s) will be installed one the front angled wire raceway by the driver and officer, match 33606.

4.29.99.28 **POWER TO HANDHELD SPOTLIGHT**

The 12-volt DC power to recharge the hand lights will be from the spare wire fuse panel located Front lights mount on the angled section toward the rear door frame each side DS and PS front.

4.29.99.29 **CAB INSTRUMENTATION**

The cab instrument panel will consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches will be identified by a label adjacent to each item. Actuation of the headlight switch will illuminate the labels in low light conditions. Telltale indicator lamps will not be illuminated unless necessary. The cab instruments and controls will be conveniently located within the forward cab section directly

forward of the driver. Gauge and switch panels will be designed to be removable for ease of service and low cost of ownership.

4.29.99.30 **GAUGES**

The gauge panel will include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance:

- Voltmeter gauge (Volts) Low volts (11.8 VDC)

Amber indicator on gauge assembly with alarm High volts (15 VDC)

Amber indicator on gauge assembly with alarm Very low volts (11.3 VDC)

Amber indicator on gauge assembly with alarm Very high volts (16 VDC)

Amber indicator on gauge assembly with alarm

- Tachometer (RPM)
- Speedometer (Primary (outside) MPH, Secondary (inside) Km/H)
- Fuel level gauge (Empty - Full in fractions) Low fuel (1/8 full)

Amber indicator on gauge assembly with alarm Very low fuel (1/32) fuel

Amber indicator on gauge assembly with alarm

- Engine oil pressure gauge (PSI)

Low oil pressure to activate engine warning lights and alarms Red indicator on gauge assembly with alarm

- Front air pressure gauge (PSI)

Low air pressure to activate warning lights and alarm Red indicator on gauge assembly with alarm

- Rear air pressure gauge (PSI)

Low air pressure to activate warning lights and alarm Red indicator on gauge assembly with alarm

- Transmission oil temperature gauge (Fahrenheit)

High transmission oil temperature activates warning lights and alarm Amber indicator on gauge assembly with alarm

- Engine coolant temperature gauge (Fahrenheit)

High engine temperature activates an engine warning light and alarm Red indicator on gauge assembly with alarm

- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions) Low fluid (1/8 full)

Amber indicator on gauge assembly with alarm

All gauges and gauge indicators will perform prove out at initial power-up to ensure proper performance.

4.29.99.31 **INDICATOR LAMPS**

To promote safety, the following telltale indicator lamps will be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have descriptive text or symbols. The following amber telltale lamps will be present:

- Low coolant
  - Trac cntl (traction control) (where applicable)
- Check engine
- Check trans (check transmission)
- Aux brake overheat (Auxiliary brake overheat)
- Air rest (air restriction)

- Caution (triangle symbol)
- Water in fuel
- DPF (engine diesel particulate filter regeneration)
- Trailer ABS (where applicable)

- Wait to start (where applicable)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- SRS (supplemental restraint system) fault (where applicable)
- DEF (low diesel exhaust fluid level)

The following red telltale lamps will be present:

- Warning (stop sign symbol)
- Seat belt
- Parking brake
- Stop engine
- Rack down

The following green telltale lamps will be provided:

- Left turn
- Right turn
- Battery on

The following blue telltale lamp will be provided:

- High beam

4.29.99.32 **ALARMS**

Audible steady tone warning alarm: A steady audible tone alarm will be provided whenever a warning message is present. Audible pulsing tone caution alarm: A pulsing audible tone alarm (chime/chirp) will be provided whenever a caution message is present without a warning message being present. Alarm silence: Any active audible alarm will be able to be silenced by holding the ignition switch at the top position for three (3) to five (5) seconds. For improved safety, silenced audible alarms will intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp will act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition will enable the steady or pulsing tones respectively.

4.29.99.33 **INDICATOR LAMP AND ALARM PROVE-OUT**

Telltale indicators and alarms will perform prove-out at initial power-up to ensure proper performance.

4.29.99.34 **CONTROL SWITCHES**

For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver.

Emergency master switch: A molded plastic push button switch with integral indicator lamp will be provided. Pressing the switch will activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.

Headlight / Parking light switch: A three (3)-position maintained rocker switch will be provided. The first switch position will deactivate all parking lights and the headlights. The second switch position will activate the parking lights. The third switch position will activate the headlights.

Panel backlighting intensity control switch: A three (3)-position momentary rocker switch will be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.

The following standard controls will be integral to the gauge assembly and are located below the right-hand gauges. All switches have backlit labels for low light applications.

High idle engagement switch: A two (2)-position momentary rocker switch with integral indicator lamp will be provided. The first switch position is the default switch position. The second switch position will activate and deactivate the high idle function when pressed and released. The "Ok to Engage

High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.
"Ok to Engage High Idle" indicator lamp: A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.
The following standard controls will be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches will have backlit labels for low light applications.

Ignition switch: A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will deactivate vehicle ignition. The second switch position will activate vehicle ignition. The third momentary position will disable the Command Zone audible alarm if held for three (3) to five (5) seconds. A green indicator lamp will be activated with vehicle ignition.

Engine start switch: A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

4-way hazard switch: A two (2)-position maintained rocker switch will be provided. The first switch position will deactivate the 4-way hazard switch function. The second switch position will activate the 4-way hazard function. The switch actuator will be red and includes the international 4-way hazard symbol.

Heater, defroster, and optional air conditioning control panel: A control panel with membrane switches will be provided to control heater/defroster temperature and heater, defroster, and air conditioning fan speeds. A green LED status bar will indicate the relative temperature and fan speed settings.

Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls will be provided. The windshield wiper control will have high, low, and intermittent modes.

Parking brake control: An air actuated push/pull park brake control valve will be provided. Chassis horn control: Activation of the chassis horn control will be provided through the center of the steering wheel.

4.29.99.35 CUSTOM SWITCH PANELS

The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and up to two (2) switch panels in the engine tunnel console facing the officer. All switches will have backlit labels for low light applications.

4.29.99.36 DIAGNOSTIC PANEL

A diagnostic panel will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow ABS systems to provide blink codes should a problem exist.

The diagnostic panel will include the following:

- Engine diagnostic port
- Transmission diagnostic port
- ABS diagnostic port
- SRS diagnostic port (where applicable)
- Command Zone USB diagnostic port
- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)
- Diesel particulate filter regeneration switch (where applicable)
- Diesel particulate filter regeneration inhibit switch (where applicable)

4.29.99.37 **CAB LCD DISPLAY**

A digital four (4)-row by 20-character dot matrix display will be integral to the gauge panel. The display will be capable of showing simple graphical images as well as text. The display will be split into three (3) sections. Each section will have a dedicated function. The upper left section will display the outside ambient temperature.

The upper right section will display, along with other configuration specific information:

- Odometer
- Trip mileage
- PTO hours
- Fuel consumption
- Engine hours

The bottom section will display INFO, CAUTION, and WARNING messages. Text messages will automatically activate to describe the cause of an audible caution or warning alarm. The LCD will be capable of displaying multiple text messages should more than one caution or warning condition exist.

4.29.99.38 **AIR RESTRICTION INDICATOR**

A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm shall be provided.

4.29.99.39 **"DO NOT MOVE APPARATUS" INDICATOR**

A flashing red indicator light, located in the driving compartment, will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On."

The same circuit that activates the Do Not Move Apparatus indicator will activate a steady tone alarm when the parking brake is released.

4.29.99.40 **DO NOT MOVE TRUCK MESSAGES**

Messages will be displayed on the Command Zone™, color display located within sight of the driver whenever they Do Not Move Truck light is active. The messages will designate the item or items not in the stowed for vehicle travel position (parking brake disengaged).

The following messages will be displayed (where applicable):

- Do Not Move Truck
- DS Cab Door Open (Driver Side Cab Door Open)
- PS Cab Door Open (Passenger's Side Cab Door Open)
- DS Crew Cab Door Open (Driver Side Crew Cab Door Open)
- PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)
- DS Body Door Open (Driver Side Body Door Open)
- PS Body Door Open (Passenger's Side Body Door Open)
- Rear Body Door Open
- DS Ladder Rack Down (Driver Side Ladder Rack Down)
- PS Ladder Rack Down (Passenger Side Ladder Rack Down)
- Deck Gun Not Stowed
- Lt Tower Not Stowed (Light Tower Not Stowed)
- Fold Tank Not Stowed (Fold-A-Tank Not Stowed)
- Aerial Not Stowed (Aerial Device Not Stowed)
- Stabilizer Not Stowed
- Steps Not Stowed
- Handrail Not Stowed

Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause

major damage to the apparatus if the apparatus is moved will be displayed as a caution message after the parking brake is disengaged.

4.29.99.41 **SWITCH PANELS**

The emergency light switch panel will have a master switch for ease of use plus individual switches for selective control. Each switch panel will contain eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments will include non-functioning black appliqués. Documentation will be provided by the manufacturer indicating the rated cycle life of the switches. The switch panel(s) will be located in the overhead position above the windshield on the driver side overhead to allow for easy access.

Additional switch panel(s) will be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout.

The switches will be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch will be illuminated white whenever back lighting is activated and illuminated green whenever the switch is active. An active illuminated switch will flash when interlock requirements are not met or device is actively being load managed. For ease of use, a two (2)-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch will be placed in the center of the switch. The label will allow light to pass through the letters for ease of use in low light conditions.

4.29.99.42 **WIPER CONTROL**

For simple operation and easy reach, the windshield wiper control will be an integral part of the directional light lever located on the steering column. The wiper control will include high and low wiper speed settings, a one (1)-speed intermittent wiper control and windshield washer switch. The control will have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.

4.29.99.43 **SPARE CIRCUIT**

There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:

- The positive wire will be connected to the auxiliary switch located on the instrument panel to the right of the steering wheel, option 614250.
- The negative wire will be connected to ground.
- Wires will be protected to 60 amps at 12 volts DC.
- Power and ground will terminate in the passenger side behind the officer seat, all flashlights, power points, radios and charger, rocket modem to be connected to these terminal strips, exact location to be mounted at final.

Termination will be to a Blue Sea System, model 5026, 12 circuit with negative bus bar, straight blade fuse block. The terminal block will include a cover with circuit labels. Wires to the fuse block will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is applied.

4.29.99.44 **SPARE CIRCUIT**

There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:
The positive wire will be connected directly to the battery power.
The negative wire will be connected to ground.
Wires will be protected to 40 amps at 12 volts DC.
Power and ground will terminate PS behind the officer seat, mounted at final.
Termination will be with 3/8" studs and plastic covers.
Wires will be sized to 125% of the protection.
This circuit(s) may be load managed when the parking brake is set.

4.29.99.45 **SPARE CIRCUIT**

There will be a Cole Hersee part number 75908 disconnect switch installed in the spare wire circuit(s) to connect or disconnect the power to the spare wire(s) located the blue sea junction boxes in the PS rear of the officer seat, to be mounted at pickup. The label and switch will be installed in the panel below the dash where the backup camera speaker would fit, match 30782.

4.29.99.46 **SPARE CIRCUIT**

There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:

- The positive wire will be connected directly to the battery power
- The negative wire will be connected to ground
- Wires will be protected to 15 amps at 12 volts DC
- Power and ground will terminate switch panel #9. All must be wired to the in/out service switch thru the blue sea junction box
- Termination will be with 15-amp, power point plug with rubber cover
- Wires will be sized to 125 percent of the protection

The circuit(s) may be load managed when the parking brake is set.

4.29.99.47 **SPARE CIRCUIT**

There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:
The positive wire will be connected directly to the battery power.
The negative wire will be connected to ground.
Wires will be protected to 15 amps at 12 volts DC.
Power and ground will terminate in the overhead switch panel centered above officer, wiring to be connected to the in service / out of service switch.
Termination will be with heat shrinkable butt splicing. Wires will be sized to 125 percent of the protection.
This circuit(s) may be load managed when the parking brake is set.

4.29.99.48 **SPARE CIRCUIT**

There will be one (1) dual USB fast charge socket mounts installed on the apparatus.

The above wires will have the following features:

- The positive wire will be connected directly to the battery power.
- The negative wire will be connected to ground.
- Wires will be protected to 4.8 amps at 12 volts DC.
- The USB socket mount will be location 9.
- Termination will be a Blue Sea Systems part number 1045 dual USB charger socket.
- Wires will be sized to 125% of the protection.

This circuit(s) may be load managed when the parking brake is applied.

4.29.99.49 **EMERGENCY LIGHT SWITCHES**

The emergency light switching will work as follows: The emergency master switch must be activated for all emergency lighting to function.

The emergency master "saved states" feature will not be activated. This means that if the emergency master switch is on and individual switch is turned off. Then the emergency master is turned off, upon turning the emergency master switch back on the individual switch which was previously turn off will turn back on.

All emergency lighting will be turned on whenever the emergency master switch is turned on.

Individual emergency light switches may be deactivated and/or reactivated after the emergency master switch is turned on.

4.29.99.50 STEREO RADIO

A Jensen, heavy duty AM/FM/CD/Weatherband stereo radio, with front auxiliary input will be installed per switch panel layout. There will be 5.25" speakers installed one (1) pair of 5.25" speakers in the cab. The antenna will be a roof-mounted rubber antenna located in an open space, on the cab roof. The following features will be included:

- Full 7-Channel NOAA Weatherband Tuner with SAME technology
- Built-in Clock
- Radio Broadcast Data System Text Display
- Front panel USB input
- Front and Rear Auxiliary Audio Input
- Receives audio (A2DP/AVRCP) from Bluetooth enabled device
- Supports Bluetooth HFP to receive phone calls from BT-enabled phones
- Low battery alert (<10.8Vdc)
- Heavy Duty design with Conformal Coated Circuit Boards for maximum durability under all conditions

4.29.99.51 SWITCH, MASTER, AM/FM RADIO

There will be a remote switch provided inside the cab to control the AM/FM radio. The switch will be installed driver side switch panel. The radio will automatically turn on with when the battery switch is turned on.

4.29.99.52 PUSH BUTTON MOUNTING BRACKET

A mounting bracket will be provided chrome buttons will be in the wedge bracket near the officer. Match to job 29765 and 29674, 30782, see pictures. They will locate near edge with wiring coming from below the engine tunnel mount plate for the mounting of push button controls. The mounting bracket will be large enough for three (3) push buttons. The controls and labels will be mounted horizontally, next to each other. The bracket will be fabricated from smooth aluminum and painted to match work surface.

4.29.99.53 INFORMATION CENTER

An information center employing a 7.00" diagonal touch screen color LCD display will be encased in an ABS plastic housing.

The information center will have the following specifications:

- Operate in temperatures from -40 to 185 degrees Fahrenheit
- An Optical Gel will be placed between the LCD and protective lens
- Five weather resistant user interface switches
- Grey with black accents
- Sunlight Readable
- Linux operating system
- Minimum of 1000nits rated display
- Display can be changed to an available foreign language
- A LCD display integral to the cab gauge panel will be included as outlined in the cab instrumentation area.
- Programmed to read US Customary

4.29.99.54 GENERAL SCREEN DESIGN

Where possible, background colors will be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background will be used. If a caution or warning situation arises the following will occur:

- An amber background/text color will indicate a caution condition
- A red background/text color will indicate a warning condition
- The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" will change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages.
- A label for each button will exist. The label will indicate the function for each active button for each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol.

4.29.99.55 **HOME/TRANSIT SCREEN**

This screen will display the following:

- Vehicle Mitigation (if equipped)
- Water Level (if the water level system includes compatible communications to the information center)
- Foam Level (if the foam level system includes compatible communications to the information center)
- Seat Belt Monitoring Screen Seat Belt Monitoring Screen
- Tire Pressure Monitoring (if equipped)
- Digital Speedometer
- Active Alarms

4.29.99.56 **ON SCENE SCREEN**

This screen will display the following and will be auto activated with pump engaged (if equipped):

- Battery Voltage
- Fuel
- Oil Pressure
- Coolant Temperature
- RPM
- Water Level (if equipped)
- Foam Level (if equipped)
- Foam Concentration (if equipped)
- Water Flow Rate (if equipped)
- Water Used (if equipped)
- Active Alarms

4.29.99.57 **VIRTUAL BUTTONS**

There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

4.29.99.58 **PAGE SCREEN**

The page screen will display the following and allow the user to progress into other screens for further functionality:

- Diagnostics
- Faults
- Listed by order of occurrence
- Allows to sort by system
- Interlock

- Throttle Interlocks
- Pump Interlocks (if equipped)
- Aerial Interlocks (if equipped)
- PTO Interlocks (if equipped)
- Load Manager
- A list of items to be load managed will be provided. The list will provide a description of the load.
- The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.
- The screen will indicate if a load has been shed (disabled) or not shed.
- "At a glance" color features are utilized on this screen.
- Systems
- Command Zone
- Module type and ID number
- Module Version
- Input or output number
- Circuit number connected to that input or output
- Status of the input or output
- Power and Constant Current module diagnostic information
- Foam (if equipped)
- Pressure Controller (if equipped)
- Generator Frequency (if equipped)
- Live Data
- General Truck Data

- Maintenance
    - Engine oil and filter
    - Transmission oil and filter
    - Pump oil (if equipped)
    - Foam (if equipped)
    - Aerial (if equipped)
    - Setup
        - Clock Setup
        - Date & Time
        - 12- or 24-hour format
        - Set time and date
        - Backlight
        - Daytime
        - Nighttime
        - Sensitivity
        - Unit Selection
        - Home Screen
        - Virtual Button Setup
        - On Scene Screen Setup
        - Configure Video Mode
            - Set Video Contrast
            - Set Video Color
            - Set Video Tint
    - Do Not Move
        - The screen will indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices will be indicated
            - Driver Side Cab Door
            - Passenger's Side Cab Door

- Driver Side Crew Cab Door
- Passenger's Side Crew Cab Door
- Driver Side Body Doors
- Passenger's Side Body Doors
  - Rear Body Door(s)
  - Ladder Rack (if applicable)
  - Deck Gun (if applicable)
  - Light Tower (if applicable)
  - Hatch Door (if applicable)
  - Stabilizers (if applicable)
  - Steps (if applicable)

- Notifications
  - View Active Alarms
  - Shows a list of all active alarms including date and time of the occurrence is shown with each alarm
  - Silence Alarms - All alarms are silenced
  - Timer Screen
  - HVAC (if equipped)
  - Tire Information (if equipped)
  - Ascendant Set Up Confirmation (if equipped)

Button functions and button labels may change with each screen.

4.29.99.59 **INFORMATION CENTER**

There will be two (2) information center(s) each employing a 7.00" diagonal touch screen color LCD display located wall in the body near the AC circuit breaker panel and at the body command area.

The information center(s) will have the following specifications:

- Operate in temperatures from -40 to 185 degrees Fahrenheit
- An Optical Gel will be placed between the LCD and protective lens
- Five weather resistant user interface switches
- Grey with black accents
- Sunlight Readable
- Linux operating system
- Minimum of 1000nits rated display
- Display can be changed to an available foreign language. A LCD display integral to the cab gauge panel will be included as outlined in the cab instrumentation area.
- Programmed to read US Customary

4.29.99.60 **GENERAL SCREEN DESIGN**

Where possible, background colors will be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background will be used. If a caution or warning situation arises the following will occur:

- An amber background/text color will indicate a caution condition
- A red background/text color will indicate a warning condition
- The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert
- Center" will change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages.
- A label for each button will exist. The label will indicate the function for each active button for

each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol.

4.29.99.61 HOME/TRANSIT SCREEN

This screen will display the following:

- Vehicle Mitigation (if equipped)
- Water Level (if equipped)
- Foam Level (if equipped)
- Seat Belt Monitoring Screen
- Tire Pressure Monitoring (if equipped)
- Digital Speedometer
- Active Alarms

4.29.99.62 ON SCENE SCREEN

This screen will display the following and will be auto activated with pump engaged (if equipped):

- Battery Voltage
- Fuel
- Oil Pressure
- Coolant Temperature
- RPM
- Water Level (if equipped)
- Foam Level (if equipped)
- Foam Concentration (if equipped)
- Water Flow Rate (if equipped)
- Water Used (if equipped)
- Active Alarms

4.29.99.63 VIRTUAL BUTTONS

There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

4.29.99.64 PAGE SCREEN

The page screen will display the following and allow the user to progress into other screens for further functionality:

- Diagnostics
- Faults
  - Listed by order of occurrence
  - Allows to sort by system
- Interlock
  - Throttle Interlocks
  - Pump Interlocks (if equipped)
  - Aerial Interlocks (if equipped)
  - PTO Interlocks (if equipped)
- Load Manager
  - A list of items to be load managed will be provided. The list will provide a description of the load.
  - The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.
  - The screen will indicate if a load has been shed (disabled) or not shed.
  - "At a glance" color features are utilized on this screen.
- Systems
    - Command Zone
    - Module type and ID number

- Module Version
- Input or output number
- Circuit number connected to that input or output
- Status of the input or output
- Power and Constant Current module diagnostic information

- Foam (if equipped)
- Pressure Controller (if equipped)
- Generator Frequency (if equipped)

- Live Data
  - General Truck Data
- Maintenance

  - Engine oil and filter
  - Transmission oil and filter
  - Pump oil (if equipped)
  - Foam (if equipped)
  - Aerial (if equipped)
  - Setup
    - Clock Setup
    - Date & Time
    - 12- or 24-hour format
    - Set time and date
- Backlight
  - Daytime
  - Nighttime
  - Sensitivity
- Unit Selection
- Home Screen
- Virtual Button Setup
- On Scene Screen Setup
- Configure Video Mode
  - Set Video Contrast
  - Set Video Color
  - Set Video Tint

- Do Not Move
  - The screen will indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices will be indicated
    - Driver Side Cab Door
    - Passenger's Side Cab Door
    - Driver Side Crew Cab Door
    - Passenger's Side Crew Cab Door
    - Driver Side Body Doors
    - Passenger's Side Body Doors
    - Rear Body Door(s)
    - Ladder Rack (if applicable)
    - Deck Gun (if applicable)
    - Light Tower (if applicable)
    - Hatch Door (if applicable)
    - Stabilizers (if applicable)
    - Steps (if applicable)
- Notifications
  - View Active Alarms

        - Shows a list of all active alarms including date and time of the occurrence is shown with each alarm
        - Silence Alarms - All alarms are silenced
- Timer Screen
- HVAC (if equipped)
- Tire Information (if equipped)

Button functions and button labels may change with each screen.

4.29.99.65 **VEHICLE DATA RECORDER**

There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.

The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position
- Seat Belt Buckled Status - Yes/No by Position
- Master Optical Warning Device Switch - On/Off
- Time - 24 Hour Time
- Date - Year/Month/Day

The system will also be capable of recording when the service brake has been applied and silencing the seat belt monitoring system alarm as part of the silence alarm switch. The alarm to chirp in intervals to remind the operator that an alarm is still sounding.

An additional input will be included with this system. When the VDR is active, this input will record when the light tower is raised.

4.29.99.66 **Seat Belt Monitoring System**

A seat belt monitoring system (SBMS) will be provided on the Command Zone™ color display. The SBMS will be capable of monitoring up to six (6) seating positions indicating the status of each seat position per the following:

- Seat Occupied & Buckled = Green LED indicator illuminated
- Seat Occupied & Unbuckled = Red LED indicator with audible alarm
- No Occupant & Buckled = Red LED indicator with audible alarm
- No Occupant & Unbuckled = No indicator and no alarm

The seat belt monitoring screen will become active on the Command Zone color display when:

- The home screen is active:
- and there is any occupant seated but not buckled or any belt buckled with an occupant.
- and there is no other Do Not Move Apparatus conditions present. As soon as all Do Not Move Apparatus conditions are cleared, the SBMS will be activated.

The SBMS will include an audible alarm that will warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.

4.29.99.67 INTERCOM SYSTEM

There will be digital, dual radio interface, intercom located behind the officer seat in the cab. The front panel will have master volume, and squelch controls with illuminated indicators, allowing for independent level setting of radio and auxiliary audio devices.

There will be two (2) radio listen only / transmit controls, allowing for simulcast interoperability with select, monitor, receive, and transmit indicators. There will be two (2) auxiliary audio inputs with select and receive indicators.

There will be one (1) wireless base station for up to five (1-5) headset users provided.
The wireless base station will have a 100' to 1100' range, line of sight. Objects between the transmitter and receiver affect range.

The following Firecom components will be provided:

- One (1) 5200D Intercom
- One (1) WB505R wireless base station (1-5 wireless positions)
- All necessary power and station cabling

4.29.99.68 RADIO / INTERCOM INTERFACE CABLE

The apparatus manufacturer will supply and install two (2) radio interface cables before delivery of the vehicle.

The radio equipment to be used by the customer will be:

- Make of First Radio: GE, Erickson, M/A Com, or Harris, Model Number: Both are Harris Unity radio.
- Make of Second Radio: GE, Erickson, M/A Com, or Harris, Model Number: XG-100M.

4.29.99.69 WIRELESS UNDER HELMET, RADIO TRANSMIT ONLY HEADSET

There will be two (2) Firecom™, Model UHW-505, wireless under the helmet, radio transmit headset(s) provided. A heavy duty, coiled 12 volt charging pigtail with plug will be provided driver's seat and officer seat.

Each headset will feature:

- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 dB noise reduction
- Stereo Listen-Through Ear dome microphones
- Radio Push to Transmit button (Left or Right Side)
- Rechargeable battery operates for 24 hours on a full charge
- IP-66 when worn

4.29.99.70 MOBILE 2-WAY RADIO

There will be two (2) Harris, Model Unity XG-100M mid power mobile radio(s) provided cab. The following will be provided for each:

- P25 Trunking software
- Remote Control head CH721
- Palm microphone
- Auxiliary speaker

4.29.99.71 CRADLE POINT MULTI-BAND ROUTER

A cradle point multiband router for AT&T, model IBR1100LPE-AT will be provided and mounted ps radio compt.

A multi-band N-MIMO Cell and GPS antenna, white will be included,

4.29.99.72 **HEADSET HANGERS**

There will be two (2) headset hanger(s) installed driver's seat and officer's seat. The hanger(s) will meet NFPA 1901, Section 14.1.11, requirement for equipment mounting.

4.29.99.73 **MDT SYSTEM**

There will still be one (1) Data 911, Model M7 mobile data terminal provided ps radio compt.

4.29.66.74 **AUXILIARY AUDIO CABLE**

An auxiliary 3.5mm stereo male to 2 RCA male audio cable will be provided from the intercom aux inlet to the AM/FM radio. Auxiliary audio will be mixed with the two-way radio and intercom traffic at exactly one half the strength of the signal in the headsets.

4.29.99.75 **COMPLETE MDT INSTALLATION**

There will be one (1) customer supplied Mobile Data Terminal (MDT), Docking station, Mounting bracket, power supply, antenna, GPS, modem, and all cabling sent to the apparatus manufacturers preferred installer to be installed cab. Specific shipping requirements will be followed.

4.29.99.76 **GPS / MULTIMODE ANTENNA INSTALLATION**

There will be one (1) customer supplied GPS / Multimode antenna(s) with stud mount for thick roof material to be installed on the roof. The antenna coax cable(s) will be run per the packing list / instructions provided to the third-party installer.

Specific shipping requirements will be followed. The GPS / Multimode antenna will be sent to the apparatus manufacturers preferred installer prior to cab fabrication.

4.29.99.77 **TWO WAY RADIO INSTALLATION**

There shall be one (1) customer supplied two-way radio(s) installed cab by EVS in Houston TX. This labor allowance option does not include any radio equipment, antenna mounts, whips, mounting bracketry, etc. that may be required to complete the installation.

The customer will meet directly with a representative from EVS, at the EVS facility in North Houston, to finalize the mounting locations and other specifics.

4.29.99.78 **PORTABLE RADIO CHARGER INSTALLATION**

There will be six (6) customer supplied portable two-way radio chargers(s) sent to the apparatus manufacturers preferred radio installer to be installed cab and crew cab. Specific shipping requirements will be followed.

4.29.99.79 **RADIO ANTENNA MOUNT**

There will be two (2) standard 1.125", 18 thread antenna-mounting base(s) installed one each side of the AC on the cab roof on the cab roof with high efficiency, low loss, coaxial cable(s) routed to behind the officer seat. A weatherproof cap will be installed on the mount.

4.29.99.80 **VEHICLE CAMERA SYSTEM**

There will be a color vehicle camera system provided with the following:

- One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse
- One (1) camera located on the right side of the apparatus, pointing rearward, displayed automatically with the right-side turn signal

The camera images will be displayed on the driver's vehicle information center display. Audio from the microphone on the rear camera will be not provided.

The following components will be included:

- One (1) SV-CW134639CAI Camera

- One (1) CS134404CI Side camera
- One (1) Amplified speaker (if applicable)
- All necessary cables

4.29.99.81 ELECTRICAL POWER CONTROL SYSTEM

The primary power distribution will be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting.

Additional electrical distribution centers will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible.

Distribution centers located throughout the vehicle will contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.

Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting). When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.

4.29.99.82 SOLID-STATE CONTROL SYSTEM

A solid-state electronics-based control system will be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network will consist of electronic modules located near their point of use to reduce harness lengths and improve reliability. The control system will comply with SAE J1939-11 recommended practices.

The control system will operate as a master-slave system whereas the main control module instructs all other system components. The system will contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system will utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.

For increased reliability and simplified use, the control system modules will include the following attributes:

- Green LED indicator light for module power
- Red LED indicator light for network communication stability status
- Control system self-test at activation and continually throughout vehicle operation
- No moving parts due to transistor logic
- Software logic control for NFPA mandated safety interlocks and indicators
- Integrated electrical system load management without additional components
- Integrated electrical load sequencing system without additional components
- Customized control software to the vehicle's configuration
- Factory and field re programmable to accommodate changes to the vehicle's operating parameters
- Complete operating and troubleshooting manuals
- USB connection to the main control module for advanced troubleshooting

To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules will meet the following specifications:

- Module circuit board will meet SAE J771 specifications
- Operating temperature from -40C to +70C
- Storage temperature from -40C to +70C
- Vibration to 50g

IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)
Operating voltage from eight (8) volts to 16 volts DC

The main controller will activate status indicators and audible alarms designed to provide warning of problems before they become critical.

4.29.99.83 CIRCUIT PROTECTION AND CONTROL DIAGRAM

Copies of all job-specific, computer network input and output (I/O) connections will be provided with each chassis. The sheets will indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.

4.29.99.84 ON-BOARD ELECTRICAL SYSTEM DIAGNOSTICS

Advanced on-board diagnostic messages will be provided to support rapid troubleshooting of the electrical power and control system. The diagnostic messages will be displayed on the information center located at the driver's position.

The on-board information center will include the following diagnostic information:

- Text description of active warning or caution alarms
- Simplified warning indicators
- Amber caution indication with intermittent alarm
- Red warning indication with steady tone alarm

4.29.99.85 TECH MODULE WITH WIFI

An in-cab module will provide WiFi wireless interface and data logging capability. The WiFi interface will comply with IEEE 802.11 b/g/n capabilities while communicating at 2.4 Gigahertz. The module will provide an external antenna connection allowing a line of site communication range of up to 300 feet with a roof mounted antenna.

The module will transmit a password protected web page to a WiFi enabled device (i.e. most smart phones, tablets or laptops) allowing two levels of user interaction. The firefighter level will allow vehicle monitoring of the vehicle and firefighting systems on the apparatus. The technician level will allow diagnostic access to inputs and outputs installed on the Command Zone™, control and information system.

The data logging capability will record faults from the engine, transmission, ABS and Command Zone, control and information systems as they occur. No other data will be recorded at the time the fault occurs. The data logger will provide up to 2 Gigabytes of data storage.

A USB connection will be provided on the Tech Module. It will provide a means to download data logger information and update software in the device.

4.29.99.86 PROGNOSTICS

A software-based vehicle tool will be provided to predict remaining life of the vehicle’s critical fluid and events.

The system will send automatic indications to the Command Zone, color display and/or wireless enabled device to proactively alert of upcoming service intervals.

Prognostics will include:

- Engine oil and filter
- Transmission oil and filter
- Pump oil (if equipped)
- Foam oil (if equipped)
- Aerial oil and filter (if equipped)

4.29.99.87 **ADVANCED DIAGNOSTICS**

An advanced, Windows-based, diagnostic software program will be provided for this control system. The software will provide troubleshooting tools to service technicians equipped with a Windows-based computer or wireless enabled device.

The service and maintenance software will be easy to understand and use and have the ability to view system input/output (I/O) information.

4.29.99.88 **INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM**

A system will be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

4.29.99.89 **VOLTAGE MONITOR SYSTEM**

A voltage monitoring system will be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system will provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm will activate if the system falls below 11.8 volts DC for more than two (2) minutes.

4.29.99.90 **DEDICATED RADIO EQUIPMENT CONNECTION POINTS**

There will be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment.

The studs will consist of the following:

- 12-volt 40-amp battery switched power
- 12-volt 60-amp ignition switched power
- 12-volt 60-amp direct battery power

There will also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.

4.29.99.91 **ENHANCED SOFTWARE**

The solid-state control system will include the following software enhancements:

All perimeter lights and scene lights (where applicable) will be deactivated when the parking brake is released.

Cab and crew cab dome lights will remain on for ten (10) seconds for improved visibility after the doors close. The dome lights will dim after ten (10) seconds or immediately if the vehicle is put into gear. Cab and crew cab perimeter lights will remain on for ten (10) seconds for improved visibility after the doors close. The dome lights will dim after ten (10) seconds or immediately if the vehicle is put into gear.

4.29.99.92 **EMI/RFI PROTECTION**

To prevent erroneous signals from crosstalk contamination and interference, the electrical system will meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system will be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.

The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10Khz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, will provide EMC testing reports

from testing conducted on an entire apparatus and will certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10Khz-1GHz to 100 Volts/Meter requirements. EMI/RFI susceptibility will be controlled by applying appropriate circuit designs and shielding. The electrical system will be designed for full compatibility with low-level control signals and high- powered two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

4.29.99.93 **ELECTRICAL**

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

Electrical wiring and equipment will be installed utilizing the following guidelines:

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

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

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

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

4.29.99.94 **BATTERY SYSTEM**

There will be four (4) 12-volt Exide®, Model 31S950X3W, batteries that include the following features will be provided:

- 950 CCA, cold cranking amps
- 190-amp reserve capacity
- High cycle
- Group 31
- Rating of 3800 CCA at 0 degrees Fahrenheit
- 760 minutes of reserve capacity
- Threaded stainless steel studs

Each battery case will be a black polypropylene material with a vertically ribbed container for increased

vibration resistance. The cover will be manifold vented with a central venting location to allow a 45-degree tilt capacity.

The inside of each battery will consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.

4.29.99.95 **BATTERY SYSTEM**

A single starting system will be provided.

An ignition switch and starter button will be located on the instrument panel.

4.29.99.96 **MASTER BATTERY SWITCH**

There will be a Cole Hersee, Model 75908, master battery switch to activate the battery system, provided inside the cab within easy reach of the driver.

An indicator light will be provided on the instrument panel to notify the driver of the status of the battery system.

4.29.99.97 **BATTERY COMPARTMENT**

A well-ventilated battery compartment, with a floor mounted slide-out tray, will be provided, located to the front lower portion of the body driver side forward of axle.

Heavy-duty battery cables will be used to provide maximum power to the electrical system. Cables will be color coded.

Battery terminal connections will be coated with anti-corrosion compound. Battery solenoid terminal connections will be encapsulated with semi-permanent rubberized compound.

4.29.99.98 **ALTERNATOR**

A Delco Remy®, Model 55SI, alternator will be provided. It will have a rated output current of 430 amps, as measured by SAE method J56. The alternator will feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

4.29.99.99 **GUARD**

There will be an aluminum cover installed around the relays/solenoids and fuses located in the frame rail to help deflect water and steam.

4.29.99.99.1 **POWER DISTRIBUTION RELOCATE**

The relays/solenoids and fuses located in the frame rail will be located in between the frame rails, on the driver side, as high as possible.

There will be an aluminum cover installed around the components to help deflect water and steam.

4.29.99.99.2 **ELECTRONIC LOAD MANAGER**

An electronic load management (ELM) system will be provided that monitors the vehicles 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and automatically restoring the shed electrical loads when a low voltage condition expires. This ensures the integrity of the electrical system.

For improved reliability and ease of use, the load manager system will be an integral part of the vehicle's solid-state control system requiring no additional components to perform load management tasks. Load management systems which require additional components will not be allowed.

The system will include the following features:

- o System voltage monitoring.
- o A shed load will remain inactive for a minimum of five minutes to prevent the load from cycling on and off.
- o Sixteen available electronic load shedding levels.
- o Priority levels can be set for individual outputs.

- High Idle to activate before any electric loads are shed and deactivate with the service brake.
- If enabled:
  - "Load Man Hi-Idle On" will display on the information center.
  - Hi-Idle will not activate until 30 seconds after engine start up.
- Individual switch "on" indicator to flash when the particular load has been shed.
- The information center indicates system voltage.

The information center, where applicable, includes a "Load Manager" screen indicating the following:

- Load managed items list, with priority levels and item condition.
- Individual load managed item condition:
- ON = not shed
- SHED = shed

4.29.99.99.3 **SEQUENCER**

A sequencer will be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation will allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12- volt load to prolong the life of the alternator.

For improved reliability and ease of use, the load sequencing system will be an integral part of the vehicle's solid-state control system requiring no additional components to perform load sequencing tasks. Load sequencing systems which require additional components will not be allowed.

Emergency light sequencing will operate in conjunction with the emergency master light switch. When the emergency master switch is activated, the emergency lights will be activated one by one at half-second intervals. Sequenced emergency light switch indicators will flash while waiting for activation.
When the emergency master switch is deactivated, the sequencer will deactivate the warning light loads in the reverse order.

Sequencing of the following items will also occur, in conjunction with the ignition switch, at half- second intervals:

- Cab Heater and Air Conditioning
- Crew Cab Heater (if applicable)
- Crew Cab Air Conditioning (if applicable)
- Exhaust Fans (if applicable)
- Third Evaporator (if applicable)

4.29.99.99.4 **HEADLIGHTS**

There will be four (4) halogen HB5 replaceable round light assemblies mounted in the front chrome trim housing on each side of the cab grille.

The outside light assemblies on each side will contain a low/high headlight bulb.

The inside halogen HB5 replaceable round light assemblies will be used as daytime running lights and will be activated with the following measures:

- Ignition switch turn on.
- Parking brake released.

These lights will be deactivated with any one of the following measures:

- Headlight switch is turned on.
- High-beam flash is turned on.
- Parking brake is applied.

4.29.99.99.5 **DIRECTIONAL LIGHTS**

There will be two (2) Whelen 600® series, LED combination directional/marker lights provided. The lights will be located on the outside cab corners, next to the headlights.

The color of the lenses will be clear.

4.29.99.99.6 **CAB CLEARANCE/MARKER/ID LIGHTS**

There will be seven (7) Whelen, Model 0SA00MCR, amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:

- Three (3) amber LED identification lights will be installed in the center of the cab above the windshield.
- Two (2) amber LED clearance lights will be installed, one (1) on each outboard side of the cab above the windshield.
- Two (2) amber LED marker lights will be installed, one (1) on each side above the cab doors.

4.29.99.99.7 **BACK-UP ALARM**

A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.

4.29.99.99.8 **DEUTSCH CONNECTIONS**

All external 12V electrical light connections will be installed with Deutsch connectors.

4.29.99.99.9 **CAB PERIMETER SCENE LIGHTS**

There will be two (2) Amdor LumaBar H2O, Model AY-9500-012, 12.00" white LED strip lights provided, one (1) for each cab door.

These lights will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.

4.29.99.99.10 **DEACTIVATION SWITCHING FOR THE PERIMETER LIGHTS**

There shall be one (1) switch (es) included in the cab that shall deactivate all the perimeter lights under the cab and body. The perimeter lights shall return to the selected control after the switch is turned back on or the parking brake is applied and released again.

4.29.99.99.11 **ADDITIONAL PERIMETER LIGHTS**

There will be two (2) lights Amdor®, Model AY-LB-12HW012, 190 lumens each, 12.00" white LED perimeter light(s) provided one (1) light under each side of the front bumper spaced evenly.
These lights will be activated the same as the body perimeter lights.

4.29.99.99.12 **LED UNDERBODY GROUND/PERIMETER LIGHTING**

Vehicle shall have LED underbody ground/perimeter lighting that is activated by switch or opening of vehicle or body entrance doors. Said lighting shall be (2) located at cab doors, (2) located at rear bumper, and (2) located on each side.

4.29.99.99.13 **12 VOLT LIGHTING**

There will be one (1) Fire Research Spectra MAX-S, Model SPA851-A28-*, 12-volt DC LED combination spot/flood light(s) provided on the front visor, centered.
The painted parts of this light assembly to be white with a chrome bezel. The light(s) will be steady burning with the selected switch features.
The light(s) will be controlled by the following:

- a switch at the driver's side switch panel
- a switch at the passenger's side switch panel
- no additional switch location
- no additional switch location

These light(s) may be load managed when the parking brake is applied.

4.29.99.99.14 **BODY/CHASSIS INTEGRATION**

The chassis will be designed with parameters based on Frontline Communications body construction.

This will be required detail driveline information and mounting information to be coordinated between Pierce

Rescue and chassis engineering to Frontline Communications.
This is to ensure proper body to chassis fit up and integration.

4.29.99.99.15 **LEVELING SYSTEM**

One (1) Quadra Manufacturing Big Foot QE-2 fully automatic one-touch leveling system will be provided. The system will include one (1) deluxe touch-pad control panel that operates the lift cylinders in pairs or all at once.

An air suspension dump valve will be incorporated into the system to release the air from the rear suspension during leveling of the unit.

Four (4) UHMW pads will be provided for use with the leveling system jacks. Pads will measure 18.00" x 18.00" x 1.00" thick and have a grab strap.

4.29.99.99.16 **BELL**

A chrome plated, 12.00" bronze cast bell, complete with an eagle, will be mounted through the center of the grille. The bell will be mounted on a flat, saddle welded bracket. The bracket will come out from the round tube on the center of the cab located behind the grille and extend straight out for the bell mounting. The bracket will be painted black.

A rope pull for the bell will be installed inside the cab.

4.29.99.99.17 **AIR HORN SYSTEM**

Two (2) Buell air horns will be recessed in the front bumper. Models 1062 and 1063 shall be provided. The horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed in-line to prevent loss of air in the air brake system.

4.29.99.99.18 **AIR HORN LOCATION**

The air horns will be located on each side of the bumper, towards the outside.

4.29.99.99.19 **AIR HORN CONTROL**

The air horns will be actuated by a chrome push button located on the officer's side of the engine tunnel and by the horn button in the steering wheel. The driver will have the option to control the air horns or the chassis horns from the horn button by means of a selector switch located on the instrument panel.

4.29.99.99.20 **ELECTRONIC SIREN**

A Whelen®, Model 295SLSA1, electronic siren with noise canceling microphone will be provided. This siren is to be active when the battery switch is on and that emergency master switch is on.

Electronic siren head will be recessed in the overhead console above the engine tunnel on the driver side.

4.29.99.99.21 **SIREN CONTROL**

The electronic siren will be controllable on the siren head and horn ring only. No foot switches will be required.

The driver will have the option to control the siren or the chassis horns from the horn button by means of a selector switch located on the instrument panel.

4.29.99.99.22 **SPEAKERS**

There will be two (2) Whelen Projector™ Series, Model SA314A, 100-watt, cast aluminum speakers with natural finish provided. Each speaker will be connected to the siren amplifier. The speakers will be recessed in each side of the front bumper, just outside of the frame rails.

4.29.99.99.23 **AUXILIARY MECHANICAL SIREN**

A Federal Q2B® siren will be furnished. A siren brake button will be installed on the switch panel. The control solenoid will be powered up after the emergency master switch is activated.

The mechanical siren will be recessed in the front bumper in the center. The siren will be properly supported using the bumper framework.

4.29.99.99.24 **MECHANICAL SIREN CONTROL**

The mechanical siren WIll be actuated by a push button located on the officer's side instrument panel and by a

foot switch on the driver's side.

A second siren brake switch will be installed on the officer side engine tunnel area. The switch will be a chrome push button style.

4.29.99.99.25 **FRONT ZONE UPPER WARNING LIGHTS**

There will be (1) traffic light controller and (12) Whelen flashing LED warning lights with chrome trim mounted on a box with removable cover on the cab roof.

The lights will be configured per the following:

- One (1) Model 6RBR with red flashing in a semi-circle pattern LEDs in the driver's side end position.
- One (1) Model M6J with blue to the rear and red forward flashing LEDs in the driver's side front corner position. The corner position will be at a 45-degree angle to the front of the cab.
- One (1) Model 6RBR with red flashing in a semi-circle pattern LEDs in the driver's side first front position.
- One (1) Model 6RBB with blue flashing in a semi-circle pattern LEDs in the driver's side second front position.
- One (1) Model 6RBR with red flashing in a semi-circle pattern LEDs in the driver's side third front position.
- One (1) Model M6D with red/white flashing LEDs in the driver's side fourth front position.
- One (1) 792* Strobe traffic light controller set to national standard high priority in the center position.
- One (1) Model M6D with red/white flashing LEDs in the passenger's side fourth front position.
- One (1) Model 6RBR with red flashing in a semi-circle pattern LEDs in the passenger's side third front position.
- One (1) Model 6RBB with blue flashing in a semi-circle pattern LEDs in the passenger's side second front position.
- One (1) Model 6RBR with red flashing in a semi-circle pattern LEDs in the passenger's side first front position.
- One (1) Model M6J with blue to the rear and red forward flashing LEDs in the passenger's side front corner position. The corner position will be at a 45-degree angle to the front of the cab.
- One (1) Model 6RBR with red flashing in a semi-circle pattern LEDs in the passenger's side end position.

The color of the lenses will be clear.
There will be a switch in the cab on the switch panel to control the flashing LEDs.
The traffic light controller will be activated by a cab switch with emergency master control. There will be no momentary switch to activate the traffic light controller.
The white LEDs will be disabled when the parking brake is applied.
The flashing LEDs in the front corner, second, third and fifth positions may be load managed when the parking brake is applied.

4.29.99.99.26 **CAB FACE WARNING LIGHTS**

There will be two (2) Whelen, Model M6*C, LED flashing warning lights with chrome flange provided on the front of the cab above the headlights.

- The driver's side front warning light to be red.
- The passenger's side front warning light to be red.

Both lights will include a clear lens.
There will be a switch located in the cab on the switch panel to control the lights.

4.29.99.99.27 **FRONT WARNING LIGHT**

There will be two (2) Whelen, Model M6*, LED flashing light(s) with chrome trim provided below the headlights as shown on the drawing. The color of the light(s) will be red. The color of the lens will be clear. The light(s) will be activated with the front warning switch.These light may be load managed if colored or disabled if white when the

parking brake is applied. Any white light will be disabled and any amber light activated when the parking brake is applied. NFPA 1901, 2016 edition, section 13.8.1 requires that the optical warning system will consist of an upper and lower warning level. There are no upper zone warning lights provided. Per fire department specifications and request to delete the upper zone warning lights, this apparatus will be non-compliant to NFPA 1901 standards effective at time of contract execution.

4.29.99.99.28 **PAINT**

The exterior custom cab and body painting procedure will consist of a seven (7) step finishing process as follows:

- Manual Surface Preparation - All exposed metal surfaces on the custom cab and body will be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces will be removed and sanded to a smooth finish. Exterior seams will be sealed before painting. Exterior surfaces that will not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.
- Chemical Cleaning and Pretreatment - All surfaces will be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces will be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces will be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion. A final pure water rinse will be applied to all metal surfaces.
- Surfacer Primer - The Surfacer Primer will be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.
- Finish Sanding - The Surfacer Primer will be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.
- Sealer Primer - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.
- Basecoat Paint - Two coats of a high performance, two component high solids polyurethane basecoat will be applied. The Basecoat will be applied to a thickness that will achieve the proper color match. The Basecoat will be used in conjunction with a urethane clear coat to provide protection from the environment.
- Clear Coat - Two (2) coats of Clear Coat will be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors will be Clear Coated to match the body. Paint warranty for the roll-up doors will be provided by the roll-up door manufacture.

Each batch of basecoat color is checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color is verified again to make sure that it matches the color standard. Electronic color measuring equipment is used to compare the color sample to the color standard entered into the computer. Color specifications are used to determine the color match. A Delta E reading is used to determine a good color match within each family color.

All removable items such as brackets, compartment doors, door hinges, and trim will be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.

Pierce Manufacturing paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) meet or exceed the Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels meet or exceed the #6 A.C.T.standard in critical areas. These requirements are met in order for the exterior paint finish to be considered acceptable. The Pierce Manufacturing written paint standards will be available upon request.

The cab will be two-tone, with the upper section painted #10 white along with a shield design on the cab face and lower section of the cab and body painted #90 red.

4.29.99.99.29 **PAINT - ENVIRONMENTAL IMPACT**

Contractor will meet or exceed all current State regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:

- Topcoats and primers will be chrome and lead free.
- Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals.
- Particulate emission collection from sanding operations will have a 99.99% efficiency factor.
- Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98.00%. Water wash systems will be 99.97% efficient
- Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean.
- Paint wastes are disposed of in an environmentally safe manner.
- Empty metal paint containers will be to recover the metal.
- Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse.

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

4.29.99.99.30 **PAINT CHASSIS FRAME ASSEMBLY**

The chassis frame assembly will be finished with primer and gloss paint to match the lower job color before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components that are included with the chassis frame assembly that will be painted are:

- Frame rails
- Frame liners
- Cross members
- Axles
- Suspensions
- Steering gear
- Battery boxes
- Bumper extension weldment
- Frame extensions
- Body mounting angles
- Rear Body support substructure (front and rear)
- Pump house substructure
- Air tanks
- Steel fuel tank
- Castings
- Individual piece parts used in chassis and body assembly

Components treated with epoxy E-coat protection prior to paint:

- Two (2) C-channel frame rails
- Two (2) frame liners

The E-coat process will meet the technical properties shown.

4.29.99.99.31 **PAINT, FRONT WHEELS**

All wheel surfaces, inside and outside, will be provided with powder coat paint #90 red.

4.29.99.99.32 **PAINT, REAR WHEELS**

All wheel surfaces, inside and outside, will be provided with powder coat paint #90 red.

4.29.99.99.33 **FUEL TANK LABEL**

The manufacturer's label on the fuel tank will be taped off so that it does not get painted.

4.29.99.99.34 **CAB DOOR REFLECTIVE STRIPE**

A 6.00" x 16.00" red diamond grade reflective stripe will be provided across the interior of each cab door. The stripe will be located approximately 1.00" up from the bottom, on the door panel.
This stripe will meet the NFPA 1901 requirement.

4.29.99.99.35 **CAB STRIPE**

There will be a reflective stripe provided on both sides of the cab in place of the chrome molding.

4.29.99.99.36 **CAB GRILLE DESIGN**

A Texas flag design will be painted on the cab grille.

4.29.99.99.37 **FIRE APPARATUS PARTS CD MANUAL**

There will be two (2) custom parts manuals for the complete fire apparatus provided in CD format with the completed unit.
The manuals will contain the following:

- Job number
- Part numbers with full descriptions
- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in alphabetical order
- Instructions on how to locate parts

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

4.29.99.99.38 **SERVICE PARTS INTERNET SITE**

The service parts information included in these manuals are also available on the factory website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.

4.29.99.99.39 **CHASSIS SERVICE MANUALS**

There will be one (1) chassis service manuals on USB flash drives containing parts and service information on major components provided with the completed unit.
The manual will contain the following sections:

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

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

4.29.99.99.40 **CHASSIS OPERATION MANUAL**

The chassis operation manual will be provided on two (2) USB flash drives.

4.29.99.99.41 **ONE (1) YEAR MATERIAL AND WORKMANSHIP**

A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.

4.29.99.99.42 **THREE (3) YEAR MATERIAL AND WORKMANSHIP**

The Pierce custom chassis limited warranty certificate, WA0284, is included with this proposal.

4.29.99.99.43 **ENGINE WARRANTY**

A Detroit Diesel **five (5) year** limited engine warranty will be provided. A limited warranty certificate, WA0180, is included with this proposal.

4.29.99.99.44 **STEERING GEAR WARRANTY**

A Sheppard **three (3) year** limited steering gear warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.

4.29.99.99.45 **FIFTY (50) YEAR STRUCTURAL INTEGRITY**

The Pierce custom chassis frame and crossmembers limited warranty certificate, WA0038, is included with this proposal.

4.29.99.99.46 **FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY**

The Pierce TAK-4 suspension limited warranty certificate, WA0050, is included with this proposal.

4.29.99.99.47 **REAR AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY**

A Meritor axle limited warranty certificate, WA0046, is included with this proposal.

4.29.99.99.48 **ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY**

A Meritor Wabco™ABS brake system limited warranty certificate, WA0232, is included with this proposal.

4.29.99.99.49 **TEN (10) YEAR STRUCTURAL INTEGRITY**

The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.

4.29.99.99.50 **TEN (10) YEAR PRO-RATED PAINT AND CORROSION**

A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.

4.29.99.99.51 **FIVE (5) YEAR MATERIAL AND WORKMANSHIP**

The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal.

4.29.99.99.52 **CAMERA SYSTEM WARRANTY**

A Pierce fifty-four (54) month warranty will be provided for the camera system**.**

4.29.99.99.53 **TRANSMISSION WARRANTY**

The transmission will have a **five (5) year/unlimited mileage** warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission.

Note: The transmission cooler is not covered under any extended warranty you may be getting on your Allison Transmission. Please review your Allison Transmission warranty for coverage limitations.

4.29.99.99.54 **TRANSMISSION COOLER WARRANTY**

The transmission cooler will carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty will also be in effect for the first three (3) years of the warranty coverage and will not exceed $10,000 per occurrence. A copy of the warranty certificate will be submitted with the bid package.

- **Quality and Workmanship**

  All steel welding shall follow American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding shall follow American Welding society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding shall follow American welding Society B2.1-2000 requirements for structural welding of sheet metal. Flux core arc welding uses alloy rods, type 7000 and is performed to American Welding Society standards A5.20-E70T1. All welders shall meet the American Welding Society codes .

4.29.99.99.55 **VEHICLE BODY AREA REQUIRMENTS**

(A) Body

The 45ft Modular Custom Body shall be an all-aluminum body manufactured utilizing aluminum alloys capable of carrying the maximum payload allowed by the chassis. All framing and structural supports will be welded in accordance with the current standards as set forth in the American Welding Society Code. The Body shall have a seamless finish with no exposed fasteners. The body shall be attached to the chassis with hardened steel "U" bolts fastened to the chassis and body mounting rails. A neoprene-mounting cushion shall be installed between the modular body and the chassis frame. The body shall be designed and constructed to insure a life expectancy of more than ten years with normal use.

The Body should also include the following features:

- Welded 0.1875 Aluminum 5052-H32 alloy wheel wells with mud flaps must meet Texas DOT length
- All body trim pieces, hinges, and handles shall be stainless steel or other non-corrosive material

(B) Paint Prep Procedure

All bodies and applicable parts will be painted using the Akzo Nobel / Sikkens Autocoat BT System. This is a Base Coat / Clear Coat system that delivers a durable low maintenance and long-lasting finish.

The exterior body paint finishing process is as follows:

Manual Surface Preparation – All exposed metal surfaces on the body will be thoroughly cleaned and sanded for paint. All imperfections on the surface will be removed or filled, then sanded smooth. All welds in the body will be filled and sanded to achieve a smooth seamless finish.

Chemical Cleaning and Treatment – All metal surfaces will be cleaned to remove all dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. An Alodine pretreatment will be applied to ensure proper adhesion and help prevent corrosion.

Sealer Primer Coat – A two-part Epoxy Primer / Sealer will be applied in a single coat, followed by two coats of a High Build Primer Surfacer. This will be sanded smooth prior to Top Coating. All seams and gaps will then be sealed with a Urethane seam sealer.

Topcoat Paint – Akzo Nobel Autocoat BT LV650 Basecoat will be applied to opacity for correct color matching.

Clearcoat – Akzo Nobel Autocoat BT LV650 Clear will be applied in two single coats to achieve gloss.

All removable items such as brackets, compartment doors, trim, etc. will be painted separately to insure paint behind all mounted items.

NFPA striping package – 3M brand reflective vinyl tape shall be adhered to the rear body in chevron stripes, side stripes, front bumper striping, and obstruction indication striping on all doors or other components as required. Front of Mast cover not sides, strip on slide-outs, steps, bumper, all sides of clam shell rack doors, cab doors, side of monitor doors.

Welding Specifications

All materials used for fabrication shall be new and unused. All structural welds shall be continuous bead welds. Skip welds may be used in specific areas as the design permits. All welds shall be of first-quality standard with no slag scale, flux, spatter or pinholes prior to the application of any surface coating.

All welding will follow procedures as recommended by the American Welding Society (AWS). A certified AWS weld inspector will be available for auditing of weld quality in critical locations as required by the design.

(C) **Roof**

(1) Roof Structure

Roof structure shall be T-6063 alloy 2” x 3” x 0.125” aluminum tube welded in place on 12” maximum centers and will be constructed to ensure a 0.50” crown to facilitate water run-off. The roof is framed around the perimeter with a custom aluminum extrusion with an integrated drip rail. All roof beams shall be welded in place to the edge extrusions and to other beams. No mechanical fasteners shall be used for the roof, floor or body construction. Sub structure bracing for aluminum tapping plates of sufficient size and strength shall be welded in place for equipment racks, masts, HVAC platforms, grab handles or other body components.

(2) Roof Skin

A roof that can be walked on and utilized for observation and equipment mounting is required. Therefore, a minimum of 0.125” NFPA aluminum diamond plate shall be utilized and shall be continuously welded around the perimeter to insure watertight integrity. Upon completion the body shall go through a standing water test before moving to the paint finish process. The roof section will be fixtured to hold 1” of standing water for 2 hours. Test will be observed for water intrusion into the body area and the results documented in the body build log.

(3) Roof Antenna

A Tubular antenna raceway installed on roof, custom fabricated, .125" aluminum, approximately 6" x 6", welded to roof with 2" standoffs at 60" spaces. Includes vertical raceway/chimney welded through diamond plate roof for interior wiring routing. Exterior side and ends of raceway painted to match vehicle.

(D) **Walls**

(1) **Wall Structure**

The wall structure shall be designed to incorporate framing around all doors, windows and I/O panels. The design also incorporates the lower compartments and wheel wells into a single piece wall construction, eliminating add on skirts. The construction shall be T-6063 alloy 2” x 2” x 0.125” aluminum tube welded in place on 16” maximum centers. Aluminum tapping plates of sufficient size and strength shall be welded in place for masts, ladders, and any other body mounted components that may be added to the structure. Main door frames and the lower horizontal main tube section will incorporate 2” x 3” x .25” tubing for maximum support. The top tube section will mate perfectly with a custom corner extrusion that creates a 2” continuous seal along the upper body ridge before the wall skin is applied.

(2) Wall Skin

The finished wall skin shall be a 0.125 aluminum 5052-H32 alloy material. The finished wall shall be free of vertical or horizontal seam lines. The aluminum sheet shall be bonded to the wall tubing using a 2-part, glass beaded industrial acrylic adhesive. The wall section will be loaded on a horizon plane with a minimum 10 psi to ensure the proper bonding properties are achieved. All skin joints will be continuously welded to ensure a completely void free seam.

Metal conditioning between the body skin and frame / corner extrusions will be achieved by applying a BASF Chromate Epoxy 801-703 direct to metal primer. Additionally, a 3M brand seam-sealer tape will be applied to the back of the frame extrusions. This process will create a 4-mil barrier between the skin and extrusion to ensure against galvanic or electrolysis corrosion.

(3) **Pocket Door**

A pocket door will be provided to separate the interior sections of the vehicle per vehicle drawing. The pocket doors will be constructed of 3/4" x 1 3/4" aluminum tube frame covered in .063 aluminum skins. The door will be wrapped in carpeting to match the walls. A window will be installed in the upper section of the door. A nylon or fabric cover will be provided for the window and attach to the door with Velcro or snaps.

(4) **Rub Rail**

Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail. Trim will be 2.12" high with 1.38" flanges turned outward for rigidity.

The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.

(5) **Body Fender Crowns**
Stainless steel fender crowns will be provided around the rear wheel openings. These fender crowns must be wide enough to prevent splashing onto the body from the specified tires.

A rubber welting will be provided between the body and the crown to seal the seam and restrict moisture from entering.

A dielectric barrier will be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.

(6) **Rear Bumper**
A rear bumper will be provided with the vehicle. It will be constructed of ASTM A36 and structural A500 steel material. The bumper will be a minimum of 3" high with a minimum 10" top deck covered in 1/8" NFPA diamond plate for walking. The bumper will be 96" wide with 45-degree chamfers on the back outside corners.

To provide adequate support strength, the bumper will be mounted directly to the rear of the stock chassis frame. The bumper will be mounted using 1/2" grade 8 bolts to attach to pre-drilled holes in the chassis frame.

(E) **Floor**

(1) **Floor Structure**

The floor structure shall be 2” x 3” x 0.25” T-6063 aluminum tubing on 16” maximum centers. The cross section of the floor is as follows:

- ½” Neoprene spacer glued in place on top of the chassis frame rails.
- Body floor structure will be welded to two 4” x 8” aluminum I-beams for maximum stability. This creates a flat floor interior and maximizes underbody compartment capacity.
- Aluminum 0.063 sheeting on the bottom of the body floor structure is welded in place, then completely sealed between each tube section using a Dow urethane sealant to provide a moisture barrier before the sub-floor is installed.
- Main frame section is 2” x 3” x 0.25” aluminum tubing on 16” maximum centers welded in place to the I-beams.
- A minimum 2” of a 2-part Dow Chemical polyethylene insulating foam is sprayed in place between floor structure tubing members.
- The sub-flooring is ¾” Okume 10-ply; void free plywood screwed in place to the floor tube structure. Each fastener location is countersunk, treated with body filler and sanded to a smooth even finish.
- The floor shall be finished with black Lonseal heavy-duty vinyl flooring. An 8-foot-wide material will be used to eliminate seams in the finished floor.

- Custom sized slide-out, from 9' to 12' in width and 30" extension depth, with a raised floor area. Utilizes an HWH side mounted hydraulic slide system to extend and retract the slide- out section. Operated with a rocker switch placed in a convenient location. Two amber flashing lights installed one in each end of slide out. Controlled by switch.

(F) **Personnel and Compartment Doors**

(1) **Door Construction**
The doors shall be fabricated by design of the vendor. Doors to be installed with 3” continuous stainless-steel hinges. All door hardware shall be fully adjustable to maintain a perfect alignment throughout the life of the vehicle.

Entry door shall have a minimum width of 29” with a minimum height of 6 feet and include heavy- duty spring-loaded devices to keep the door open or closed as required.

Compartment and utility doors shall all include heavy-duty stops or stainless-steel cable stops for operator convenience.

Compartment doors include automatic DC compartment lights that may be manually turned off at the power panel.

(2) **Door Design**
The door design is a pan formed and welded assembly with 0.125” aluminum sheet forming the exterior skin. Two rotary latches shall be installed in the edge of each door.

(3) **Door Jamb**
The door jamb extrusion shall be welded to the body wall structure. Two striker pins shall be installed in each entry door jamb.

(4) **Door Handles**
The door handles shall be stainless steel to include locking two stage rotary latches with paddle-type handles and dual door striker pins for secure closure.

(5) **Hinges**
All exterior hinges used for entry and compartment doors shall be stainless steel, continuous, (piano type), with a 3” open dimension with a 1/4” diameter hinge pin. Hinge mounting holes shall be slotted to allow door adjustment in two planes. Holes shall be drilled and tapped in door and jamb extrusions to accept stainless steel fasteners protected with an anti-corrosion material.

(6) **Gaskets**
The passenger and compartment door gaskets shall be designed to match the door jamb extrusions. The gaskets will be extruded from a material designed to satisfy use in extreme ambient temperatures. There shall be no interruptions in the gasket for door locks, latches or hinges. Gaskets shall be miter cut at the corners and sealed with weather strip adhesive.

(7) **Door Window**
Each entry door shall have a tempered tinted glass non-opening window

(8) **Entry Steps**
A fold out / flip down entry step system shall be provided in a dedicated compartment below the curbside entry door. The compartment is reinforced with a welded 2” x 3” aluminum sub frame integrated into the sidewall design.

The step system is behind a custom door that matches the other storage doors on the body. The door folds out flat, with an additional two-step extension that extends down. The step system creates a 4-step entry that is ergonomically designed for a nominal 8” to 9” step height.

The surfaces are welded in place and made of 0.125” NFPA bright aluminum diamond plate material. A 12VCD light is installed in the lower portion for step

visibility.

(9) **Grab Handles**
For entry step safety, two 1¼" non-slip grab handles with rubber inserts that meet NFPA 1901 shall be installed. One shall be installed vertically on the modular body at the opening side of the entry door and one shall be installed on the inside of the door at a 45-degree angle. The grab handles will be approximately 30-36 inches in length and be securely mounted to properly reinforced locations within the structure.

(G) **Compartments**

(1) **Generator Compartment**
The generator compartment shall be designed and constructed from 0.125" aluminum sheet, continuously welded to prevent carbon monoxide intrusion into the user area of the vehicle. The floor of the compartment shall be reinforced to withstand a minimum static load of 1000 pounds. This requirement is needed support the generator and all related equipment.

Air flow through the compartment is critical to the extended operation of the generator in high ambient temperature conditions. Fresh air intake and exhaust are located to provide maximum air flow while minimizing noise. Air louvers that are exposed to the exterior painted surfaces of the vehicle shall custom designed and manufactured units fabricated from 0.125 aluminum welded to an aluminum frame and shall match the exterior of the vehicle. The design of the louver will provide a minimum air flow and provide a minimum of 85 percent free air efficiency. Behind the louvers shall be a wire mesh screen to prevent small object infiltration, while maximizing air flow.

The compartment shall be lined with thermal and acoustical insulation to minimize thermal and audible intrusion into the personnel area. The material shall be Polymer Technologies or equal and provide a triple composite insulation system. The thickness shall be 1.3875 inches minimum and shall be bonded to the generator compartment walls and ceiling.

The compartment shall be lighted by a minimum of two compartment lights. All 12 VDC circuits and battery cables shall be protected in high temperature loom and supported. All high voltage wiring will be run in flexible metallic conduit properly sized to handle the circuits and cables.

Service points shall be readily accessible and not blocked by added equipment or devices. An oil drain system shall be included to prevent drain oil from entering the compartment and provide a secure shutoff and drain hose extension system.

(2) **Battery Compartment**
The battery compartment shall be constructed from 0.125" aluminum sheet, continuously welded to prevent battery gas intrusion into the user area of the vehicle. Vent fittings shall be installed on the inboard side of the compartment. This vent system includes a 120VAC fan that is activated during charger operation and shall allow for air circulation around the batteries.

(3) **Storage Compartments**
Storage Compartments shall be installed on the street and curbsides of the modular area body and shall be a continuously welded all-aluminum design. The compartment shall be fabricated from 0.125" aluminum sheet and be a "Sweep out" design. These compartments will offer quick access for easy service and maintenance from the exterior of the vehicle. All compartments have weather strip gaskets around the full perimeter of the doors, and non-skid material installed on the sills.

All compartments include locking two stage rotary latches with stainless steel paddle-type handles and dual “Nader Pins” for secure closure. All compartments will have automatic DC LED lighting and alarm system protection.

Compartments will be made of smooth aluminum. All storage compartments will have a small circular filtered air vent in the upper rear corner to allow moisture to escape.

All compartments include heavy duty gas shock closers, one installed per door.

(4) **Storage / Air Compressor Compartment**
A storage compartment shall be installed at the rear street side of the modular body that is used for the air compressor, if required by selected options. The compartment shall be fabricated from 0.125” aluminum sheet and be “Sweep out” design.

(5) **Electrical Connection Compartment**
A compartment shall be installed on the curbside of the modular body that is used for the electrical connections. The compartment shall be fabricated from 0.125” aluminum sheet and be “Sweep out” design.

(6) **Fasteners**
All exterior fasteners such as machine screws, bolts and sheet metal screws shall be stainless steel.

(7) **Expandable Room Section (Slide-out)**
Custom sized slide-out, from 9' to 12' in width and 30" extension depth, with a raised floor area. Utilizes an HWH side mounted hydraulic slide system to extend and retract the slide-out section. Operated with a rocker switch placed in a convenient location. Two amber flashing lights installed one in each end of slide-out. Controlled by switch. Back and lower edge of slide-out shall have chevron.

4.29.99.99.56 **LADDERS**
A Zico Model 3096 Quic- Ladder folding ladder shall be installed on rear of vehicle.

4.29.99.99.57 **Electrical**

(1) **12 VDC Wiring**
All DC wires are heat resistant type that meets SAE J1128 type SXL and/or Multi-Conductor, Tinned Copper Conductors, PVC Insulation Cable. (Multi-conductors are used only for Control and Instrumentation inside the modular body) The wires are loomed and routed the maximum distance away from possible high heat sources and properly clamped to body or frame members to preclude chaffing on other components.

Where holes are cut in the body structure for wiring, they shall have the whole circumference grounded and filed smooth and rubber grommets shall be installed. The wiring harnesses are function coded every 4 inches and of a gauge that is rated to carry 125% of the maximum current for which the circuit is projected. All wires and cables will be marked at each end with a function number that is documented in the DC schematic and described in the wire list.

Battery cables are sized to match the OEM cables with crimped terminals and a black shrink tubing protecting the negative terminals and red for the positive terminals.

An As-Built DC schematic and wire list accompany each unit upon delivery.

(2) **Modular Body Battery System**
The modular body shall be equipped with a dual battery system. Two Group 31

lead acid batteries with a minimum of 210-amp hours are used to support the modular body and communications loads. The batteries shall be charged by a converter/charger. The system batteries are protected by a 300 amp in-line fuse.

(3) **Power Converter/Charger**
One 120VAC to 12VDC Progressive Dynamic marine grade 80-amp power converter shall be provided to support the 12VDC electrical load and charge the batteries during generator or shore power operations.

(4) **120/240 VAC Wiring**
Wire sizes shall be determined per circuit requirements and in accordance with the National Electrical Code. All 120/240VAC wiring shall be routed through cable raceways. Fixed wiring systems that are not in raceway are routed in metallic flexible conduit rated at not less than 194 degrees Fahrenheit. Type SO cord with a rating at least 600 volts are use on equipment plugged into receptacles. All wires shall be type THHN, THW or Type SO cord. Electrical cords or conduits shall be supported within 6 inches of any junction box and at a minimum of every 24 inches of continuous run. All wiring shall be secured and fastened at all bends and shall be protected against chaffing and damage. Wiring shall be concealed but easily accessible for repairs.

All circuits will be properly grounded in accordance with the National Electrical Code NEC-250-6. All wires and cables will be mark at each end with a function number that is documented in the AC schematic and described in the wire list.

All wiring and associated equipment shall be tested by the manufacturer or Installer and Quality assurance personnel. Electrical Polarity verification shall be made on all permanently mounted equipment and receptacles.

An as built AC schematic and wire list accompany each unit upon delivery.

(5) **Power Distribution Panel**
The Power Distribution Panel shall consist of an anodized black aluminum panel with white laser etched descriptions for every breaker and switch. The panel is equipped with 120/240-volt, 50 amps, single-phase, three-wire system that has appropriately sized circuit breakers.

An Analog Frequency/Amps/Volt meter is located on the main power distribution panel. Its features are frequency display 55 to 65Hz, Ammeter display 0 to 100amps, AC Voltmeter display 0 to 150vac with selector switch between phases. A surge suppression device that meets the requirements of ANSI and IEEE shall be installed per phase located in the power distribution enclosure. Other appropriately sized circuit breakers shall be installed for 12 VDC applications.

A manual power transfer switch shall be located in the electrical distribution panel for selection of either generator power or shore power. The transfer switch will switch both hot legs and the neutral keeping all power sources isolated.

The panel shall also contain DC meters for monitoring voltage and generator hours. A Generator remote start/stop switch and Line Alive indicators for Shore power, generator and night service shall be provided.

The panel is hinged to provide easy service entrance for maintenance.

(6) **UPS Backup System**
Vehicle shall be supplied with a a Liebert GXT3, Model GXT3- 3000RT120, 3000 VA/2700 Watts Capacity, 120VAC input & output. UPS back up system 3 KVA true regenerative online UPS. Converts incoming AC to regulated AC. Built in surge protection. This UPS is online at all times. Superior to the line interactive and offline designs. Transfer time in event of power loss is zero. Rack mounted using 6 rack units. Typical location is bottom of rack. Approximate back up time is 10-20 minutes depending on type of load. External bypass switch is included in the event

of a critical failure of the UPS.

(7) **External Shore Power Input Connector(s)**
An external Power Inlet, Cam Lock 100A 120/240V, single phase with neutral 4 wire Cam-lock shall be installed on the street side of the modular body. The stainless-steel shore power inlet has a self- closing cover so that the interior is shielded from the elements when not in use. It is watertight when the cover is securely fastened. This connector shall be used to provide the required 240-volt, 100 amp, single-phase, three-wire AC service to the power distribution panel. CanLock 4 wire connector and 25ft cables are required. A Blue Sea Auto Eject 7851, Shoreline, 20A 120V, is required, A cable entry mouse hole shall be located above shore power on curbside.

(8) **120 VAC Outlets**
One (1) 120VAC quad outlet will be installed in the conference area. One (1) 120VAC/USB duplex outlet will be installed in the raceway at each of the workstations.

Two (2) 120VAC GFCI duplex outlets with weatherproof covers shall be installed on the exterior curbside; each exterior duplex will be on separate circuits.

(9) **12 VDC Lighting (Interior)**
12-volt ceiling mounted I2 red/white dimmable light fixtures with switches shall be installed in the interior areas.

These lights shall be individually switched in zones or by switches on each light fixture or at the electrical Power Distribution Panel.

(10) **12 VDC Lighting (Exterior)**
Seven (7) FRC SPA-260-Q20 series LED exterior scene lights shall be installed on the exterior of the vehicle, with three (3) curbside, three (3) street side and one (1) on the rear.

All scene and emergency lights will be white with chrome bezels.

The one (1) on the rear shall also serve as back up lights that will be activated along with the standard reverse lights when the transmission is placed in the reverse gear.

The scene lights shall be two-way switched from the electrical control panel or cab dash. Each exterior compartment shall have a 12VDC LED lighting.

(11) **Rear FMVSS Lighting**
The rear (D.O.T.) LED lighting will consist of the following:

Two (2) Whelen®, Model M6BTT, red LED stop/taillights Two (2) Whelen Model M6BUW, LED backup lights

Two (2) Whelen, Model M6T, amber LED arrow turn lights Two (2) Whelen, Model M6, red LED emergency lights

The lights will be mounted in polished combination housing.

Two (2) Whelen, Model M6FCV3P, three (3) place chromed ABS housings provided for the rear M6 series stop/tail, directional, and back up lights.

The marker and clearance lights will be Whelen, seven (7) 0SA00MCR and nine (9) 0SR00MCR LED light fixtures.

Truck-Lite NYK-77 anti-corrosive shall be applied to lamp-plug interfaces.

4.29.99.99.58 **Generator**

(1) **Generator Description**
A 25KW 120/240VAC 60 Hz water-cooled diesel-powered generator shall be provided. The generator compartment will be soundproofed to attenuate noise to the maximum degree possible. The generator and muffler shall be mounted as required to suppress sound and vibration. Generator supplied shall be controlled by a dash mounted generator start/stop control.

(2) **Shutdown System**
The generator shall be equipped with sensors that will activate the generator shut down system on low oil pressure and high-water temperature.

(3) **Block Heater**
The generator shall be equipped with engine block heater if available from the generator manufacturer as an OEM feature.

(4) **Remote Start**
The generator shall include a remote Start/Stop preheat switch and hour meter located in the modular body power distribution panel.

(5) **Fuel Supply**
Fuel supply for the generator shall be from the chassis fuel tank. The system shall be designed and installed to leave a minimum of 10% of fuel in the tank when the generator runs out of fuel.

(6) **12VDC Alternator**
The generator shall be equipped with a 12VDC alternator that will be wired to charge the modular body battery as well as satisfy all 12VDC systems of the generator.

(7) **Night Service**
A "Night Service" 120VAC auxiliary AC input allows connection of chassis and generator block heaters, and the battery charger/converter. This circuit is used when the vehicle is on the road and standard external power is not available overnight.

(8) **Generator Remote**
Remote digital generator function display installed in power panel. Displays battery voltage, water temp., oil pressure, faults, hours. Includes remote generator start.

4.29.99.99.59 **Alarms**

(1) **Smoke and CO Detectors**
The modular body shall be provided with smoke and CO detectors, per zone (ops / conference), powered by the 12-volt system.

4.29.99.99.60 **HVAC**

(1) **HVAC**
Four (4) air conditioners will be roof-mounted units rated at 15,000 BTU each. Each unit shall be centrally located with respect to each area and will discharge through a ceiling mounted discharge / return air vent. Two (2) 110V wall-mounted heaters rated at 5000 BTU each will be installed in the interior of the body. One will be mounted on the back wall and one will be mounted in the forward area.

Custom air conditioner condensation drain system shall be installed to support the four (4) roof top air conditioners stated above.

4.29.99.99.61 **Interior**

(1) **Walls**
The walls shall be insulated with minimum 2” sprayed in two-part Dow Chemical polyethylene insulating foam. The insulation will be covered with 3/8” plywood and screwed to the aluminum wall structure. The walls shall be finished with gray colored

commercial grade non-static sound absorbing carpet.

(2) **Floor**
The floor shall be insulated with minimum 2” sprayed in two-part Dow Chemical polyethylene insulating foam. The insulation will be covered with 3/4” plywood and screwed to the aluminum floor tubes. The floor shall be finished with Loncoin flooring installed 8" up base of walls for mopboard feature. Exact finish, pattern, and color selection shall be determined at the pre-construction meeting.

(3) **Ceiling**
The ceiling shall be insulated with minimum 2” sprayed in two-part Dow Chemical polyethylene insulating foam. 3/8” plywood shall be applied to the bottom of the roof structure and finished with gray colored commercial grade non-static sound absorbing carpet that matches the interior walls.

(4) **Access Doors & Stairs**
Add Entry / Exit door with fold down steps for access ease. These steps will manually fold down while in use and store in a recessed sealed compartment while vehicle is in motion. These steps will be integrated into the systems “Do Not Move Truck” warning. The entry door will have an integrated grab handle to assist in entering and exiting apparatus.

(5) **Windows**
Mobile command apparatus shall have the following upgraded windows added to the basic model mobile command apparatus. Specific location for each shall be determined at the pre-construction conference:

- 20 x 30 stationary glass window
- 16 x 16 Lower rear door window
- 9 x 18 Lower rear door window

4.29.99.99.62 **Cabinet**

(1) **Cabinet Construction**
Interior cabinets shall be constructed of aluminum panels, aluminum extrusions and zinc plated, aluminum or stainless-steel fasteners. No rivets shall be used, and all components shall be CNC punched. The principal walls, shelves and frames shall be fabricated from .063” aluminum and pre- punched with all required assembly and mounting slotted holes. Latches shall be a full width extruded pull handle with integrated self-latching mechanisms that allow one hand unlatching and opening on the entire width of the panel. The finish shall be a polyester powder coat, color to be light gray. Drawer slides shall be all steel double carriage ball bearing, full extension slides capable of withstanding 234 lbs. loading per drawer. Doors are formed to a 1” thickness from a single sheet of aluminum. 95 square feet of solid surface countertops of shall be provided; exact finish shall be determined during the pre-construction conference.

4.29.99.99.63 **Conference Area**
All per the vehicle drawing. The conference areas located in the front will have a conference table with seating for 8 and rolling chairs. These chairs will be secured with bungee cords while the vehicle is in transit. The slide-out section on the curbside will have one (1) workstation with pedestal chair and a bench seat with storage. The slide-out section on the street side will have two

- workstations with pedestal chairs.
- Install a Mockett PC9S Recessed enclosure with hinged covers installed in conference table. Approximately 12" X 7". Includes four duplex 120V outlets and six duplex Cat 5 outlets wired to equipment rack. Bench seat
- Additional eight (8) interior or exterior duplex 120VAC outlets/each.
- Additional eight (8) interior or exterior duplex 120VAC/USB outlets/each.
- Additional eight (8) interior Phone or Data jacks / each
-

4.29.99.99.64 **Galley Area**

Storage cabinets for printer, microwave, refrigerator per drawing will be provided. Power panel is located in this section. Galley shall be supplied with a Microwave Oven- Domestic 1.2 cubic foot, 1000W, installed in cabinet or on countertop. Includes mounting flange. Also, to be supplied is a Norcold 2.7 cubic foot refrigerator, AC/DC, installed in lower cabinet.

4.29.99.99.65 **Dispatch Area**

Overhead Storage cabinets and workstation per drawing will be provided. There will be seven (7) workstations with pedestal chairs. The curbside will have storage cabinet over the workstations, the street side will not have storage cabinets to allow for stacking monitors.

4.29.99.99.66 **Rack/ Server Area**

Overhead Storage cabinet and workstation per drawing will be provided. Three (3) equipment racks. One (1) rolling desk chair will be provided for the rear area workstation. Chair will be secured with bungee cords while vehicle is in transit.

4.29.99.99.67 **Workstation Wiring Provisions**

A minimum 1” x 4” cable duct will be run from the equipment racks to provide for communication cabling to the work stations.

Marker Board

Vehicle shall be supplied with five (5) Magnetic 24" X 36" Glass Marker Board, White Glass.

4.29.99.99.68 **Equipment Rack**

Three (3), custom-built, EIA 19” equipment rack will be installed for maximum strength and best utilization of space. See drawing for locations. The rack will be manufactured from angled steel rails drilled and tapped per industry standards. The rack frame will be constructed of 0.125” aluminum sheet reinforced with 0.25” aluminum plate as required. The rack frame will be securely fastened to 0.25” plate that is welded to modular body frame. A 0.5” wide braided ground strap will be installed between the racks and the modular body frame. No wood shall be used for any structural component of equipment racks.

All racks include edge protected circular openings for clean routing of cables, and full-length cable tie-off bars to facilitate secure and reliable equipment installation.

The rear of the rack will have a minimum of 16 AC outlets for equipment power distribution.

Racks are to have maximum amount of vertical space for equipment installation and will be 30” deep with rear mounting rails at 18” and 24”.

Racks will have exterior access doors constructed to fold up/down for work area and weather protection.

(1) Phone Box IO rear driver side/ (1) - charging station next to rear monitor I/O Compartment for external cable connections to rack/interior. Custom fabricated aluminum frame and door approximately 18" x 18". Painted to match body. Includes two stage lockable latch to allow cables to exit and prevent access to I/O panel and connections. Includes custom aluminum anodized panel with etched connector identification, two door stays, and compartment lighting.

Monitors

Large monitor in front , smaller monitor in rear - LCD Display Compartment for external mounted LCD display. Custom fabricated aluminum frame and door. Painted to match body. Includes two stage lockable latch to allow cables to exit and prevent access to I/O panel and connections. Includes custom aluminum anodized panel with etched connector identification, two door stays, and compartment lighting. Includes raceway and wiring for power/video/audio.

Large monitor and charging station - Fold down tray for keyboard, mouse at exterior LCD Monitor Compartment

4.29.99.99.69 **Securing the Interior**

Various methods will be provided for positively securing all drawers, tables, TV, chairs, doors, or other items within the interior of the unit.

Interior Door
A sliding, locking pocket door with window installed in upper door to divide conference from other work spaces..

4.29.99.99.70 **Safety**
Two (2) five (5) pound fire extinguishers – one in cab and one in body
A set of three (3) reflective safety triangles

4.29.99.99.71 **Documentation**
- OEM Chassis manuals and individual OEM component manuals are included as provided by the OEM manufacturers
- Two sets of As-built Electrical Schematics in B size (11 x 17) AC and DC schematics, and one set of laminated A size (8 1/2 x 11) AC and DC schematics will be supplied.
- Two sets of As-built Systems Diagrams in B size (11 x 17) (Audio, Video, Network/data, Phones, RF, and systems DC diagrams minimum), and one set of laminated As-built Systems Diagrams in A size (8 1/2 x 11) will be supplied.

4.29.99.99.72 **Roadworthiness of the Modular Body Area**
The body area shall be designed as to equally distribute the curbside-to-street side payload to the maximum degree possible. Payload distribution with respect to the front and rear axles shall be arranged as to not to exceed the load of either axle. The modular body is designed to withstand intermittent use on unimproved surfaces.

4.29.99.99.73 **Customer Furnished Equipment (CFE)**
A list of all CFE must be provided to allow for consideration of vehicle preparation, materials and labor for installation and integration.

City of San Antonio Fire Department furnished equipment will be handled and integrated with due care and will be delivered in the same condition it was received.

Customer furnished equipment includes: Mobile radio with antennas and remote heads. Work Station Computers

4.29.99.99.74 **Cellular Terminal**

Additional Included Equipment
A list of all optional equipment must be provided to allow for consideration of vehicle preparation, materials and labor for installation and integration.

4.29.99.99.75 **Additional included truck equipment:**

13.2		1	Will-Burt	TMD-7-42-35X-36X	42' heavy-duty Will-Burt mast TMD-7-42-35X-36X. Includes air compressor, oiler, regulator, hoses and controls. All air hose fitting will be compression fittings
13.4		1	Frontline		Custom aluminum mast cover. Painted to match body. Includes uncoil nest at top of enclosure.
Unpublished		1	Card Key Readers	Customer specked	(1) Access Control System, (2) Door Hardware, (1) Brivo Access Control Service, (1) Installation and Configuration at Clearwater

16.5		1	Carefree of Colorado	Mirage	14' 110V Electric Awning-Carefree of Colorado, Mirage with Direct Response, Acrylic.
16.6		1	Carefree of Colorado	Mirage	18' 110V Electric Awning-Carefree of Colorado, Mirage with Direct Response, Acrylic.
Unpublished		2	Frontline	Custom	Paint awning cover to match color of body.
18.1		1	Frontline	Custom	Vehicle manual, custom produced for vehicle operation and service. 2 hard copies and 1 electronic format copy provided.
19.1		2	Frontline		Communications systems training by Frontline systems engineer at customer site. (Per 8-hour day)
21.1		1198	Frontline		Professional drive-away service to customer facility. (Per mile)
Unpublished		1	Frontline	Custom Graphics	Graphics allocation

Additional included systems equipment:

		Video Equipment			
Item#	**FPN**	**QTY**	**Manufacturer**	**Model**	**Description**
	BTT	1	Extron	60-1546-010843	XTP II Crosspoint 3200 Modular Digital Matrix Switcher Custom 32X32 Digital Video Router Includes: (7) XTP CP 4i HDMI Boards, Part # 70-685-11 (8) XTP CP 4o HDMI Boards, Part # 70-687-11
	BTT	8	Extron	MKP 3000	X-Y Remote Control Panel for Extron Matrix Switchers
	BTT	1	Extron	60-1558-01	Wireless Collaboration Gateway - Dual Band; US Wirelessly share content from personal mobile devices Supports Microsoft Windows® and OS X® computers as well as
					Apple® and Android™ smartphones and tablets Integrated dual band wireless access point at 2.4 GHz or 5 GHz

	BTT	12	Monoprice	14234	75' OPTICAL HDMI /FIBER CONVERSION CABLE
	BTT	1	Apple	MP7P2LL/A	Apple - Apple TV 4K - 64GB (latest model) - Black (Or Current Version)
	88417	3	Middle Atlantic	RC-2	RACKSHELF, CLAMPING, 2RU (FOR HR24)
	BTT	1	Tracvision	01-0385-01	Low-profile Satellite TV Antenna,
	BTT	8	Asus	VT168H	15.6" LED HD Touch-Screen Monitor, HDMI Input, 75mm VESA (Or Equivalent)
	BTT	6	Viewsonic	XG2401	24" Gaming Monitor with Speakers, 1080P, 144 Hz, USB 2x HDMI DP, VESA 100mm (Or Equivalent)
	BTT	8	Sceptre	E205W-16003R	20" Monitor with Speakers, 1080P, 2x HDMI, 75mm VESA (Or Equivalent)
	BTT	1	Viewsonic	VA2259-SMH	22" Monitor with Speakers, 1920x1080, HDMI, 100mm VESA (Or Equivalent)
	BTT	3	Samsung	DC32E	32" Commercial Ultra-Thin Digital Display, 2x HDMI, Up to 40℃ Operating Conditions, VESA 200mm (Or Equivalent)
	BTT	1	Samsung	QM49F	49" Commercial Ultra-Thin Display, Anti-Glare, Up to 40℃ Operating Conditions (Or Equivalent)
	BTT	1	Viewsonic	IFP6550	65" 4K Ultra HD resolution and an immersive 20-point touch screen (Or Equivalent)
	96635	1	Chief	LSM1U	Fusion Series Fixed Wall Mount for 37 to 63" Displays
	94930	1	Chief	RLF2	FIT Low-Profile Hinge Mount for 32-72-Inch Displays
	94556	6	Peerless	STL637	Tilting Wall Mount for 22-40" Displays
	97598	16	Moryde	TV1-051H	Snap-In Rigid Wall Mount, Small
	BTT	4	Atlantic	63607073	Low Profile Fixed Wall Mount for 10-37" Displays
		2	Dish Network	ViP211z	Compact HD Satellite Receiver (service not included), Or Equivalent
	98729	1	Shakespeare	3004	SeaWatch Marine TV Antenna, 4"
	98730	1	Shakespeare	4710	SS Flange Mount for off-air antenna

	95383	3	iView	3500STBII	Multi-Function Digital ATSC Tuner. Built-in HDMI and Analog Output or Equivalent
	91038	1	Blonder Tongue	LPD-4	4-Way RF Splitter
	BTT	2	BRG	HP440R	DuraTime HP High Precision Factory Synchronized Clocks 24 Hour Format
	FLC	1	FLC	ATEBC	Additional Terminal equipment, Brackets, and cables for AV system
	REQ	1	Programming	SCP	Custom System Programming
		Microwave Receive Equipment			
Item#	**FPN**	**QTY**	**Manufacturer**	**Model**	**Description**
	BTT	1	CNC Technologies	AR6X	A6RX Diversity Receive Panel Antenna System, Includes: > Mobile, small, lightweight panel antenna system > Internal 6 Channel UHF Receiver - Frequency: 6.4 GHz to 6.5 GHz - Gain: 15 dBi > Six (6) Internal 6.5 GHz Block Down Converters - Frequency: 6415 MHz - 6535 MHz - LO: 6020 MHz, 33 dB Gain - Output: 395-515MHz> System Processor > Power and Control over Single Ethernet Connection (Cat6) > 120-240 VAC Power > Fully enclosed system > POE Injector included

	BTT	1	CNC Technologies	NPN	Stand-Alone IP Decoder with B-Crypt Decryption and Echo Transport Stream > Output Resolution: Up to 1080P (user selectable) > Output Type: HDMI and simultaneous Composite (RCA Video, Audio) (Composite is down converted from HDMI) > Control: IR remote (included with external IR detector for remote mounting) > Supports full decryption – managed from VNS (server side, managed as “user” by server) - B-Crypt decryption (direct connection to receiver) > Full support for CP-TAS-4000 (Troll Archive Server, required, sold separately) - Pause, FF, RW – Play archives
	BTT	1	CNC Technologies	NPN	Ethernet Cable 200' with Weathizered Connector
	BTT	1	CNC Technologies	NPN	> Engineering Support > Compete System Drawing Package > Telephonic Installation Supervision of third-party integrator > System Support / Warranty - 1 Year
	BTT	1	CNC Technologies	NPN	On-Site Training for up to 10 Operators/Maintenance Personnel > Includes equipment configuration and final commissioning
	50007	1	Moog	QPT-20XD	Pan-Tilt Positioner, 12VDC 435˚/90˚ 8˚/3˚
	FLC	1	Frontline	PT CTLR	Frontline Communications Custom Rack Mount Pan/Tilt Controller, Includes Exterior P/T Control, all Components, and Custom Wiring Harnesses
	BTT	1	Ubiquiti	PBE-5AC-GEN2	Point-To-Point 5 GHz High Performance airMAX® ac Bridge
	FLC	1	Frontline	MWRXBRKT	Custom Fabbed Mount System for Ubiquiti Antenna & Pan-Tilt

	BTT	1	Frontline	-	Mounting, integration, configuration
		HD Mast Camera Equipment			
Item#	**FPN**	**QTY**	**Manufacturer**	**Model**	**Description**
	BTT	1	WTI	VS720-H.264-HD30L-POE-SE	SW 1.5 PTZ Camera, H.264, HD30L, POE, Side Egress, ENG Brakes
	BTT	1	WTI	SWCPOE-AVS-MS	Sidewinder Cable, POE, AVS, MS, Length: 3 Ft
	98040	1	WTI	WTI-POE-I-ALT	Wall Mounted SIDEWINDER POE++ INJECTOR
	4442	1	Carlon	E989NNJ	4" x 4" x 2" Nonmetallic Junction Box
	FLC	1	Frontline	MTCB	Mast Top Camera Bracket
	95299	1	WTI	DTC-720-A	SIDEWINDER DESKTOP CONTROLLER, INCLUDES WALL BLOCK TERMINAL JUNCTION BOX, PATCH CABLE AND POWER SUPPLY
	BTT	1	Bosch	VJD-3000	IP Video Decoder, 1080p30/i60 Output
	FLC	1	FLC	ATEBCC	Additional Terminal equipment, Brackets, and cables for camera system
		Thermal Mast Camera Equipment			
Item#	**FPN**	**QTY**	**Manufacturer**	**Model**	**Description**
	BTT	1	WTI	VS720-H.264-TI-POE-SE	Thermal 1.5 PTZ Camera, H.264, POE, Side Egress, ENG Brakes
	BTT	1	WTI	SWCPOE-AVS-MS	Sidewinder Cable, POE, AVS, MS, Length: 3 Ft
	98040	1	WTI	WTI-POE-I-ALT	Wall Mounted SIDEWINDER POE++ INJECTOR
	4442	1	Carlon	E989NNJ	4" x 4" x 2" Nonmetallic Junction Box
	FLC	1	Frontline	MTCB	Mast Top Camera Bracket
	BTT	1	Bosch	VJD-3000	IP Video Decoder, 1080p30/i60 Output
	FLC	1	FLC	ATEBCC	Additional Terminal equipment, Brackets, and cables for camera system
		Security Camera Equipment			
Item#	**FPN**	**QTY**	**Manufacturer**	**Model**	**Description**
	BTT	1	Speco	N16NXP16TB	16-Channel 4K PoE+ NVR with 16TB HDD
	BTT	6	Speco	O4VLD5	4MP Dome IP Camera, 2.8mm Fixed Lens, Includes Junction Box, White Housing

	BTT	2	Speco	O4MD3	4MP Outdoor Network Mini-Dome Camera with Low- Light Enhanced Vision
	BTT	1	Logitech	M525	2.4 GHz Optical Mouse - Red, 3 Yr. Battery,
	97618	1	Speco	ERS1V	DVR Shelf
	BTT	1	Frontline	ATEMCS	Additional terminal equipment, mounting hardware, and cables for Security System
		Columbia Weather Station Equipment			
Item#	**FPN**	**QTY**	**Manufacturer**	**Model**	**Description**
	BTT	1	Airmar	WS-150WX	150WX —WeatherStation® Instrument with WeatherCaster PC Software™ • True wind speed and direction • 10 Hz GPS (COG/SOG/Position) • Two-axis solid state compass • Three-axis accelerometer for pitch and roll • Output options include: -RS422/CAN BUS -RS232/CAN BUS(Uses Customer Supplied PC)
	BTT	1	Airmar	WS-150WX-RH	Relative humidity Sensor for 150WX —WeatherStation® Instrument
	BTT	1	Airmar	WS-USB	USB Data Converter for connection to laptop
	BTT	1	Airmar	WS-C10	10M Cable for connection weather station to data converter
	BTT	1	Microsoft	FJR-00001	Surface Pro 2017
	BTT	1	Rokku	540ROKB	Surface Pro Flush Mount Security Enclosure
	10903	1	West Marine	159348 #4187-HD	Custom Weather Station Mounting Bracket
		Computer Equipment			
Item#	**FPN**	**QTY**	**Manufacturer**	**Model**	**Description**
	CFE	2	TBD	TBD	Installation of Customer Supplied Workstation Computers, Including Mounting Brackets If Applicable
	BTT	1	HP	M402N	Laser Printer with Built-in Ethernet (or equivalent)
	BTT	1	HP	CQ891C#B1K	Designjet 24-in Large Format Printer

	BTT	1	Tripp-Lite	B040-008-19	8-Port 1RU Rack Console KVM Switch with Built-In 19" LCD, Keyboard, and Trackpad. VGA PS/2 USB
	BTT	1	Frontline	ATEMCP	Additional terminal equipment, mounting hardware, and cables for Phone System
		3G, 4G Network Equipment			
Item#	**FPN**	**QTY**	**Manufacturer**	**Model**	**Description**
	BTT	1	PepWave	MAX-HD4-LTEA-WF-T	Cellular Router With 1x FirstNet / 3x 4G LTEA Modems,
	BTT	1	PepWave	ACW-609	Pepwave PoE Activation Kit
	BTT	2	Taoglas	MA750.A.ABICG.003	Pantheon MA750 5in1 Permanent Mount GNSS, 2G/3G/4G 2xMIMO, Wi-Fi 2xMIMO NO GROUND PLANE REQUIRED IP67 Waterproof
	d006470	2	FLC	FAB	Fabricated bracket for MIMO Antennas
	BTT	1	Wilson	470510-RV	Cell Booster System 3G/4G For All Major US Carriers, with interior antenna and power supply
	95138	1	Laird Technologies	TRA6927M3NB-TS1	3G/4G Multiband Antenna Black NMO (Or Latest Model)
	88439	1	Tessco	MABTO	NMO Bases
	BTT	1	Frontline	ATEMCP	Additional terminal equipment, mounting hardware, and cables for Cellular Equipment
		Cisco Network, and LTE Equipment, Polycom VOIP Phones			
Item#	**FPN**	**QTY**	**Manufacturer**	**Model**	**Description**
	FLC	1	Cisco	ICTLE	Installation, Configuration, and Testing of listed equipment. This includes network documentation
	BTT	1	Cisco	ISR4351-V/K9	Cisco ISR 4351 UC Bundle, PVDM4-64, UC License, CUBEE25 (Included)
	BTT	1	Cisco	CON-SNT-ISR4351V	SNTC-8X5XNBD Cisco ISR 4351 UC Bundle, PVDM4-64, UC L (Included)
	BTT	1	Cisco	SL-4350-IPB-K9	IP Base License for Cisco ISR 4350 Series
	BTT	1	Cisco	SL-4350-UC-K9	Unified Communication License for Cisco ISR 4350 Series (Included)
	BTT	1	Cisco	SL-4350-SEC-K9	Security License for Cisco ISR 4350 Series (Included)

	BTT	1	Cisco	PWR-4450-AC	AC Power Supply for Cisco ISR 4450 and ISR4350 (Included)
	BTT	1	Cisco	CAB-AC	AC Power Cord (North America), C13, NEMA 5-15P, 2.1m (Included)
	BTT	1	Cisco	MEM-FLSH-4G	4G Flash Memory for Cisco ISR 4300 (Soldered on motherboard) (Included)
	BTT	1	Cisco	POE-COVER-4450	Cover for empty POE slot on Cisco ISR 4450 (Included)
	BTT	1	Cisco	MEM-43-4G	4G DRAM (1 x 4G) for Cisco ISR 4300 (Included)
	BTT	1	Cisco	FL-CUBEE-25	Unified Border Element Enterprise License - 25 sessions (Included)
	BTT	1	Cisco	SM-S-BLANK	Removable faceplate for SM slot on Cisco 2900,3900,4400 ISR (Included)
	BTT	1	Cisco	PVDM4-64	64-channel DSP module (Included)
	BTT	12	Cisco	CON-ECMU-CMEULCTG	SWSS UPGRADES Cisco Communication Manager Express (CME (Included)
	BTT	1	Cisco	SISR4300UK9-166	Cisco ISR 4300 Series IOS XE Universal (Included)
	BTT	1	Cisco	SM-X-NIM-ADPTR	SM-X Adapter for one NIM module for Cisco 4000 Series ISR (Included)
	BTT	1	Cisco	NIM-4FXO	4-port Network Interface Module - FXO (Universal) (Included)
	BTT	1	Cisco	NIM-4FXSP	4-Port Network Interface Module - FXS, FXS-E and DID (Included)
	BTT	1	Cisco	NIM-4G-LTE-VZ	4G LTE NIM for Verizon (Included)
	BTT	2	Cisco	4G-AE010-R	Single Unit antenna Extension Base (10-foot cable included) (Included)
	BTT	2	Cisco	4G-LTE-ANTM-D	4G LTE articulating dipole antenna 700MHz-2600MHz bands (Included)
	BTT	1	Cisco	NIM-4G-LTE-NA	4G LTE NIM for North America AT&T and Canada (Included)
	BTT	1	Cisco	FW-MC7354-LTE-AT	FW Switching Load for MC7354 North America ATT (Included)
	BTT	1	Cisco	AIR-AP3802I-B-K9	802.11ac W2 AP w/CA; 4x4:3; Mod; Int Ant; mGig B Domain (Included)

	BTT	1	Cisco	CON-SNT-AIRPIBK9	SNTC-8X5XNBD 802.11ac W2 AP w/CA; 4x43; Mod; Int Ant; (Included)
	BTT	1	Cisco	AIR-AP-T-RAIL-R	Ceiling Grid Clip for Aironet APs - Recessed Mount (Default) (Included)
	BTT	1	Cisco	AIR-AP-BRACKET-1	802.11 AP Low Profile Mounting Bracket (Default) (Included)
	BTT	1	Cisco	SW3802-CAPWAP-K9	Cisco Aironet 3800 Series CAPWAP Software Image (Included)
	BTT	1	Cisco	AIR-CT3504-K9	Cisco 3504 Wireless Controller (Included)
	BTT	1	Cisco	CON-SNT-AIRCTRTK	SNTC-8X5XNBD Cisco 3504 Wireless Controller SW Rel. 8
	BTT	1	Cisco	PWR-115W-AC	Cisco 3504 Wireless Controller Power Supply (Included)
	BTT	1	Cisco	AIR-CT3504-SW-8.5	Cisco 3504 Wireless Controller SW Rel. 8.5 (Included)
	BTT	1	Cisco	CON-SNT-AIRWCT354	SNTC-8X5XNBD Cisco 3504 Wireless Controller SW Rel. 8 (Included)
	BTT	1	Cisco	CAB-AC-C5	AC Power Cord, Type C5, US, Canada (Included)
	BTT	1	Cisco	AIR-CT3504-RMNT	3504 Wireless Controller Rack Mount Tray (Included)
	BTT	1	Cisco	WS-C2960X-48LPS- L	Catalyst 2960-X 48 GigE PoE 370W, 4 x 1G SFP, LAN Base (Included)
	BTT	1	Cisco	CON-SNT-WSC248SL	SNTC-8X5XNBD Catalyst 2960-X 48 G (Included)
	BTT	1	Cisco	CAB-AC15A-90L-USA	15A AC Pwr Cord, right-angle (United States) (bundle option) (Included)
	BTT	1	Cisco	AIR-PWRINJ-60RGD1=	Power Injector, 60W, outdoor, North America plug (Included)
	BTT	5	Polycom	PLY-WX300	Desktop Phone, POE
	BTT	1	Comprehensive Communication Services	NPN	Programming Charge
		8W AVL Maverick KU IP 1.2M			
Item#	**FPN**	**Manufacturer**		**Model**	**Description**

	BTT	AVL	1258K	Low-Stow Ku-Band Motorized Mobile VSAT Antenna Includes: * 1.2m AvL Engineered Composite Reflector (Single-Piece) * 2-port Ku-band Feed (Cross-Pol: >30 dB On-Axis Isolation) * AvL Compact Pol Drive: +/-90° with Manual/Emergency Stow Mechanism * Compact (Low-Stow) AvL El-over-Az Cable-Drive Antenna Positioner with Manual/Emergency Stow Mechanism: 400° (+/-200°) Az & 0-90° El * Vehicle Interface Pallet with Integral I/O Connector Panel at Base * Embedded Auto-Acquisition Controller (includes GPS, Compass & Receiver) * 1RU Power Supply & Antenna Controller Interface
				* Ku Band PLL LNB - (frequency to be defined on order)

				L.O. Stability: +/-10 kHz - Noise Figure: 0.7 dB - Output Connector: F-Type Female - L.O. Frequency: 10.75 GHz - Conversion Gain: 60 dB * 8W Ku-Band BUC F-Type - Output Frequency: 14.0 - 14.5 GHz - Local Frequency: 13.05 GHz - IF Frequency: 950 - 1450 MHz - Input Power: +12 to +30 VDC Power - Power Consumption: 45W - Input Connector: F-Type Female - Output Interface: WR75G Waveguide flange * Stow alarm/interlock switch (stow position set at factory for standard vehicle interface pallet) * Hand Crank (for Emergency/Manual Stowing * Colorization: Standard AvL metallic gray (NOTE: custom colors available)
	BTT	1	iDirect	Evolution Series Satellite Router
	BTT	1	Norsat	LNB KU-BAND PLL L.O. STABILITY ±4 kHz, NOISE FIGURE 0.7 dB, 11.70 - 12.20 GHz, "F" Connector
	BTT	1	Frontline	Additional terminal equipment, mounting hardware, and cables for Satellite Equipment

		Cab Equipment			
Item#	**FPN**	**QTY**	**Manufacturer**	**Model**	**Description**
	CFE	2	Harris	XG-100M	Install Customer supplied mobile radio with antennas, and
	88439	2	Tessco	MABTO	NMO Bases
	CFE	2	Harris	XG-100M	Install Customer supplied mobile radio with antennas, and remote heads.

	CFE	1	Havis	Various	Cab Install Customer supplied Mobile Data Terminal package for Getac K120 Tablet, Havis Package PKG-DS-GTC-902 (docking station, power supply w/mounting bracket, and tablet bracket,). Also, will include mounting plate and arm specific to vehicle chassis.
	CFE	1	Cradlepoint	Various	Cab Install Customer Supplied Cellular Router (IBR1700) and Two MIMO Antennas (CP-1020-1-PAN, CP-1030-1-PAN) For Use with MDT
		Workstation 2-Way Radio Equipment			
Item#	**FPN**	**QTY**	**Manufacturer**	**Model**	**Description**
	CFE	16	Harris	XG-100M	Install Customer supplied mobile radio with antennas and (11) remote heads
	88439	22	Tessco	MABTO	NMO Bases
	CFE	2	COLLCOM	NCS-250	Install Customer supplied Mobile Radio Multi-Switcher, and provided accessories to include speakers, mics, or headsets. Location TBD
	BTT	1	Frontline	ATEMCR	Additional terminal equipment, mounting hardware, and cables for Radio System
		Telex System			
Item#	**FPN**	**QTY**	**Manufacturer**	**Model**	**Description**
	BTT	2	TELEX	F.01U.307.026	C-Soft 24 Line Software License v7
	BTT	6	TELEX	F.01U.306.547	IP-224 Base Hardware, No Options, Dual Radio (16 Radios Total, All Rack Radios)
	BTT	2	TELEX	F.01U.149.779	ADHB-4 Advanced Headset Control
	BTT	2	TELEX	F.01U.163.360	Headset Control Mounting Brackets
	BTT	2	TELEX	F.01U.117886	Dispatch Headset, Single Side Mono

	BTT	2	TELEX	F.01U.117.884	ADHB-4 Headset Cord w/PTT
	BTT	1	TELEX	F.01U.117.426	Alignment Handset, For IP224 Troubleshooting Without Use of C-Soft Software
	BTT	2	DELL	KN6RG	OptiPlex 3060 - SFF - Core i5 8500 3 GHz - 8 GB - 128 GB
	BTT	2	DELL	KM636 V2	Wireless Keyboard/Mouse
	FLC	12	Frontline	NPN	Custom Cable Interfacing IP-224 and CFE Harris Radios
	BTT	3	Cooper General	CGCG-4	CAN Gateway, 4-port, for Interfacing Harris XG Radios to Telex System
	BTT	12	Cooper General	CGCG-CAN-10	Interface cable for Harris XG-100M Transceiver, 10 Ft
		Additional Systems equipment			
Item#	**FPN**	**QTY**	**Manufacturer**	**Model**	**Description**
	FLC	1	Frontline	1.25XNYCOIL	NYCOIL, 1.25" DIA. FOR 42' MAST WITH STANDARD CABLES
	FLC	1	Frontline	Training	Training (per day)
	REQ	2	Laser Panel	EXTIOP	External I/O Panel with Connectors
	REQ	2	Laser Panel	WSIOP	Laser Etched Workstation I/O Panel with Connectors
	REQ	2	Laser Panel	MBIOP	Recessed Box I/O Panel with Connectors (conf table)
	REQ	2	Kramer	10BUS-10XL(B)	Large Conference I/O Box with Retractable Lid, Black
	REQ	1	Laser Panel	DCIOP	Communications DC Equipment Panel with fabricated enclosure for rack mounting, Individually Labeled Fuses for all Comms DC Equipment (Radios, remote heads, etc.)
	FLC	1	Frontline	System C Lot	Engineering, installation, wiring, test and documentation of all audio, video, test, and communications equipment. All cables and wires are

					numbered and referenced to customer approved flow diagrams. All audio, video and RF cables and construction techniques meet highest industry standards. Fiber and specialized cables will be billed separately

4.29.99.99.76 **Vehicle Warranty**

Frontline Communications warrants the vehicle against defects in material and workmanship for a period of one (1) year.

Frontline Communications warrants the welded structure and skin of the body of this unit against defects in material and workmanship for a period of ten (10) years.
Frontline Communications warrants the fabricated parts and paint of this unit against defects in material and workmanship for a period of five (5) years.

Frontline Communications warrants the electrical system of this unit against defects in material and workmanship for a period of two (2) years.

OEM equipment warranties shall be provided by the OEM.

See warranty document for complete terms and conditions of the Frontline warranty.

4.29.99.99.77 **FRONTLINE SYSTEMS DESIGN, ENGINEERING AND INSTALLATION SERVICES**

Frontline will install all equipment listed in this proposal. This includes equipment provided by Frontline and customer furnished equipment (CFE). Installation service includes all required miscellaneous hardware for complete systems installation. All cables are labeled on both ends with wire numbers that match customer approved flow diagrams. All cables, connectors, and construction techniques meet highest industry standards.

Frontline will provide acceptance testing and one day of operation and maintenance training at our facilities in Clearwater, Florida upon completion of the vehicle.

005 – SUPPLEMENTAL TERMS & CONDITIONS

Original Contract Term.

This contract shall begin upon the effective date of the ordinance awarding the contract, or date specified in the award letter if this contract does not exceed $50,000. This contract shall terminate upon completion of all work described herein or delivery of all goods ordered, as applicable.

Cooperative Contract Provisions.

Term Consistent with Cooperative Contract. Notwithstanding anything to the contrary herein, no new orders may be placed hereunder after the expiration or termination of the underlying cooperative contract. Renewals cannot extend beyond the term of the underlying cooperative contract. Extensions cannot extend beyond the term of the underlying cooperative contract.

Contract Documents. The terms and conditions for performance and payment of compensation for this contract are set forth in the following contract documents, true and correct copies of which are attached hereto and fully incorporated herein for all purposes:

This Request for Offer, including any attachments identified herein and addenda issued by City prior to acceptance of an offer from Offeror;

Any Purchase Orders Issued hereunder by City of San Antonio ("City"); and

Exhibit I – All applicable terms and conditions of the Cooperative Purchasing HGAC CONTRACT through FS12-17.

Order of Priority of Contract Documents. Should a conflict arise among the provisions of the contract documents, this RFO and any Purchase Order issued hereunder shall govern over Exhibit I, unless otherwise specifically provided herein.

This RFO includes the following: Instructions to Offerors, General Terms and Conditions, Supplemental Terms and Conditions, Product Specifications and Description of Services, Definitions, Price Schedule, any Attachments identified herein.

Warranty.

A minimum of 90-days product guarantee or the manufacturer's standard commercial warranty, whichever is greater, shall apply to all products and/or services purchased under this RFO, unless otherwise specified in the Specifications/Scope of Services section of this RFO. This warranty shall provide for replacement of defective merchandise, parts, and labor, and shall include pick-up of the defective merchandise from City and delivery of the replacement(s) to the same location. The warranty shall be effective from the date of acceptance of the merchandise, or completion of the service, as applicable.

ANY TERM OR CONDITION IN ANY DOCUMENT FURNISHED BY VENDOR, DISCLAIMING THE IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR ATTEMPTING TO LIMIT VENDOR'S LIABILITY SHALL BE OF NO FORCE OR EFFECT, AND SHALL BE STRICKEN FROM THE CONTRACT DOCUMENTS AS IF NEVER CONTAINED THEREIN.

All Or None Bid.

City of San Antonio will make award to one vendor only.

Insurance.

A) Prior to the commencement of any work under this Agreement, Contractor shall furnish copies of all required endorsements and completed Certificate(s) of Insurance to the City's Finance Department, which shall be clearly labeled "*Purchase of A Mobile Command Apparatus*" in the Description of Operations block of the Certificate. The Certificate(s) shall be completed by an agent and signed by a person authorized by that insurer to bind coverage on its behalf. The City will not accept a Memorandum of Insurance or Binder as proof of insurance. The certificate(s) must be signed by the Authorized Representative of the carrier, and list the agent's signature and phone number. The

certificate shall be mailed, with copies of all applicable endorsements, directly from the insurer's authorized representative to the City. The City shall have no duty to pay or perform under this Agreement until such certificate and endorsements have been received and approved by the City's Finance Department. No officer or employee, other than the City's Risk Manager, shall have authority to waive this requirement.

B) The City reserves the right to review the insurance requirements of this Article during the effective period of this Agreement and any extension or renewal hereof and to modify insurance coverages and their limits when deemed necessary and prudent by City's Risk Manager based upon changes in statutory law, court decisions, or circumstances surrounding this Agreement. In no instance will City allow modification whereby City may incur increased risk.

C) A Contractor's financial integrity is of interest to the City; therefore, subject to Contractor's right to maintain reasonable deductibles in such amounts as are approved by the City, Contractor shall obtain and maintain in full force and effect for the duration of this Agreement, and any extension hereof, at Contractor's sole expense, insurance coverage written on an occurrence basis, unless otherwise indicated, by companies authorized to do business in the State of Texas and with an A.M Best's rating of no less than A- (VII), in the following types and for an amount not less than the amount listed below:

TYPE	AMOUNTS
1. Workers' Compensation 2. Employers' Liability	Statutory $1,000,000/$1,000,000/$1,000,000
3. Commercial General Liability Insurance to include coverage for the following: a. Premises/Operations b. Products/Completed Operations c. Personal/Advertising Injury d. Contractual Liability e. Independent Contractors	For Bodily Injury and Property Damage $1,000,000 per occurrence; $2,000,000 general aggregate, or its equivalent in Umbrella or Excess Liability Coverage.
4. Business Automobile Liability a. Owned/leased vehicles b. Non-owned vehicles c. Hired Vehicles	Combined Single Limit for Bodily Injury and Property Damage of $2,000,000 per occurrence.
5. Professional Liability (Claims-made Coverage)	$1,000,000 per claim damages by reason of any act, malpractice, error, or omission in the professional service. Coverage to be maintained and in effect for no less than two years subsequent to the completion of the professional service.
6. Garage keepers Liability	$1,000,000 per occurrence; $2,000,000 general aggregate, or its equivalent in Umbrella or Excess Liability Coverage.
7. Umbrella or Excess Liability Coverage	$5,000,000 per occurrence combined limit Bodily Injury (including death) and Property Damage.

D) Contractor agrees to require, by written contract, that all subcontractors providing goods or services hereunder obtain the same categories of insurance coverage required of Contractor herein, and provide a certificate of insurance and endorsement that names the Contractor and the CITY as additional insureds. Policy limits of the coverages carried by subcontractors will be determined as a business decision of Contractor. Respondent shall provide the CITY with said certificate and endorsement prior to the commencement of any work by the subcontractor. This provision may be modified by City's Risk Manager, without subsequent City Council approval, when deemed necessary and prudent, based upon

changes in statutory law, court decisions, or circumstances surrounding this agreement. Such modification may be enacted by letter signed by City's Risk Manager, which shall become a part of the contract for all purposes.

E) As they apply to the limits required by the City, the City shall be entitled, upon request and without expense, to receive copies of the policies, declaration page, and all required endorsements. Contractor shall be required to comply with any such requests and shall submit requested documents to City at the address provided below within 10 days. Contractor shall pay any costs incurred resulting from provision of said documents.

City of San Antonio
Attn: Finance Department
P.O. Box 839966
San Antonio, Texas 78283-3966

F) Contractor agrees that with respect to the above required insurance, all insurance policies are to contain or be endorsed to contain the following provisions:

- Name the City, its officers, officials, employees, volunteers, and elected representatives as additional insureds by endorsement, as respects operations and activities of, or on behalf of, the named insured performed under contract with the City, with the exception of the workers' compensation and professional liability policies;

- Provide for an endorsement that the "other insurance" clause shall not apply to the City of San Antonio where the City is an additional insured shown on the policy;

- Workers' compensation, employers' liability, general liability and automobile liability policies will provide a waiver of subrogation in favor of the City.

- Provide advance written notice directly to City of any suspension or non-renewal in coverage, and not less than ten (10) calendar days advance notice for nonpayment of premium.

A) Within five (5) calendar days of a suspension, cancellation or non-renewal of coverage, Contractor shall provide a replacement Certificate of Insurance and applicable endorsements to City. City shall have the option to suspend Contractor's performance should there be a lapse in coverage at any time during this contract. Failure to provide and to maintain the required insurance shall constitute a material breach of this Agreement.

B) In addition to any other remedies the City may have upon Contractor's failure to provide and maintain any insurance or policy endorsements to the extent and within the time herein required, the City shall have the right to order Contractor to stop work hereunder, and/or withhold any payment(s) which become due to Contractor hereunder until Contractor demonstrates compliance with the requirements hereof.

C) Nothing herein contained shall be construed as limiting in any way the extent to which Contractor may be held responsible for payments of damages to persons or property resulting from Contractor's or its subcontractors' performance of the work covered under this Agreement.

D) It is agreed that Contractor's insurance shall be deemed primary and non-contributory with respect to any insurance or self insurance carried by the City of San Antonio for liability arising out of operations under this Agreement.

E) It is understood and agreed that the insurance required is in addition to and separate from any other obligation contained in this Agreement and that no claim or action by or on behalf of the City shall be limited to insurance coverage provided.

F) Contractor and any Subcontractors are responsible for all damage to their own equipment and/or property.

Clean Air Act & Federal Water Pollution Control Act Contract Clause

Clean Air Act & Federal Water Pollution Control Act - (1) Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. §§7401-7671q) and the Federal Water Pollution Control Act (33 U.S.C. §§1251-1387), as amended. Contractor agrees to report each violation to the City and understands that the City will, in turn, report each violation as required to the federal agency providing funds for this contract and the appropriate EPA Regional Office. (2) Contractor agrees to include these requirements in each subcontract to this contract exceeding $150,000 financed in whole or in part with federal funds.

Suspension and Debarment Contract Clause

This contract is a covered transaction for purposes of 2 CFR Part 200. As such, the contractor is required to verify that neither the contractor, nor its principals, as defined at 2 CFR 180.995, are excluded or disqualified as defined at 2 CFR 180.940 and 2 CFR 180.935, respectively.

By signing and submitting its offer, Contractor certifies that:

- Neither it nor its principals are presently debarred, suspended for debarment, declared ineligible or voluntarily excluded from participation in any State or Federal Program;
- Contractor shall provide immediate written notice to City if, at any time during the term of this contract, including any renewals hereof, Contractor learns that its certification was erroneous when made or has become erroneous by reason of changed circumstances.

The certification in this clause is a material representation of fact relied upon by the City. If it is later determined that Contractor knowingly rendered an erroneous certification, in addition to remedies available to the City, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. Contractor agrees to comply with the requirements of 2 CFR Part 200 throughout the term of the contract and any renewals. Contractor agrees to include a provision requiring such compliance in its lower tier covered transactions.

Certification Regarding Lobbying Contract Clause

By submitting a proposal, Respondent warrants and certifies, and a contract awarded pursuant to this RFO is made in reliance thereon, that it, certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S.C. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Procurement Of Recovered Materials Contract Clause

Contractor and its subcontractors shall comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, including, but not limited to, the regulatory provisions of 40 CFR

Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

Incorporation of Attachments.

Each of the attachments listed below is an essential part of this contract, which governs the rights and duties of the parties, incorporated herein by reference, and shall be interpreted in the order of priority as appears below, with this document taking priority over all attachments:

Attachment A – PRICE SCHEDULE
Attachment B – VETERAN OWNED SMALL BUSINESS TRACKING FORM

006 – GENERAL TERMS & CONDITIONS

Electronic Offer Equals Original. If Vendor is submitting an electronic offer, City and Vendor each agree that this transaction may be conducted by electronic means, as authorized by Chapter 322, Texas Business & Commerce Code, known as the Electronic Transactions Act.

Delivery of Goods/Services.

Destination Contract. Vendor shall deliver all goods and materials F.O.B., City of San Antonio's designated facility, inside delivery, freight prepaid, to the address provided in this RFO or, if different, in the Purchase Order. Vendor shall bear the risk of loss until delivery. Freight charges will be paid only when expedited delivery is requested and approved in writing by City. Vendor shall be responsible for furnishing necessary personnel or equipment and/or making necessary arrangements to off load at City of San Antonio facility, unless otherwise noted herein.

Failure to Deliver. When delivery is not met as provided for in the contract, City may make the purchase on the open market, with any cost in excess of the contract price paid by Vendor, in addition to any other direct, indirect, consequential or incidental damages incurred by City as a result thereof. In addition, Vendor may be removed from City's list of eligible bidders.

Purchase Orders. Each time a City department wishes to place an order against this contract, it will issue Vendor a purchase order. Vendor must have the purchase order before making any delivery.

Acceptance by City. City shall have a reasonable time (but not less than 30 days) after receipt to inspect the goods and services tendered by Vendor. City at its option may reject all or any portion of such goods or services which do not, in City's sole discretion, comply in every respect with all terms and conditions of the contract. City may elect to reject the entire goods and services tendered even if only a portion thereof is nonconforming. If City elects to accept nonconforming goods and services, City, in addition to its other remedies, shall be entitled to deduct a reasonable amount from the price thereof to compensate City for the nonconformity. Any acceptance by City, even if non-conditional, shall not be deemed a waiver or settlement of any defect in such goods and services.

Testing. After award of contract, City may, at its sole option, test the product delivered to ensure it meets specifications. Initial testing shall be at City's expense. However, if the product does not to meet specifications, Vendor shall reimburse City for the costs of testing. City may withhold the cost of testing from any amounts owed to Vendor under this or any other contract, or invoice Vendor for same. If invoiced, Vendor shall pay City within 30 calendar days' of the invoice.

Invoicing and Payment.

Address for Invoices. All original invoices must be sent to: City of San Antonio, Attn: Accounts Payable, P.O. Box 839976, San Antonio, Texas 78283-3976.

Information Required On Invoice.

All invoices must be in a form and content approved by City. City may require modification of invoices if necessary in order to satisfy City that all billing is proper and pursuant to the terms of the contract. Invoices are required to show each City Purchase Order Number. Invoices must be legible. Items billed on invoices must be specific as to applicable stock, manufacturer, catalog or part number (if any). All invoices must show unit prices for each item being billed, the quantity of items being billed and the total for each item, as well as the total for all items on the invoice. If prices are based on list prices basis, then the list prices, the percentage discount or percentage surcharge, net unit prices, extensions and net total prices must be shown. Prompt payment discounts offered shall be shown separately on the invoice.

Payment by City.

In accordance with the Texas Prompt Payment Act, City shall have not less than 30 days to pay for goods or services. Time for payment, including payment under discount terms, will be computed from the later of: (1) the date City receives conforming goods under the contract; (2) the date performance of the service under the contract is completed; or (3) the date City receives a correct and valid invoice for the goods or services. Payment is deemed to be made on the date of mailing of the check. Payment is made in US dollars only.

This provision shall not apply where there is a bona fide dispute between City and Vendor about the goods delivered or the service performed that causes the payment to be late, or where the invoice is not mailed to the address provided herein.

The payment amount due on invoices may not be manually altered by City personnel. Once disputed items are reconciled, Vendor must submit a corrected invoice or a credit memorandum for the disputed amount. City will not make partial payments on an invoice where there is a dispute.

NECESSITY OF TIMELY INVOICE / WAIVER OF PAYMENT. NOTWITHSTANDING THE FORGOING, CITY CANNOT PAY FOR ANY GOODS OR SERVICES WITHOUT AN INVOICE. VENDOR MUST INVOICE CITY NO LATER THAN 90 CALENDAR DAYS FROM THE DATE GOODS ARE DELIVERED OR SERVICES RENDERED. FAILURE TO SUBMIT AN INVOICE WITHIN SAID 90 DAY SHALL NEGATE ANY LIABILITY ON THE PART OF CITY AND CONSTITUTE A **WAIVER** BY VENDOR OF ANY AND ALL RIGHT OR CLAIMS TO COLLECT MONEYS THAT VENDOR MAY RIGHTFULLY BE OTHERWISE ENTITLED TO FOR GOODS OR SERVICES PERFORMED.

The total price for all goods and/or services is shown on the Price Schedule. No additional fees or expenses of Vendor shall be charged by Vendor nor be payable by City. The parties hereby agree that all compensable expenses of Vendor are shown on the Price Schedule. If there is a discrepancy on the Price Schedule between the unit price for an item, and the extended price, the unit price shall govern.

Amendments. Except where the terms of this contract expressly provide otherwise, any alterations, additions, or deletions to the terms hereof, shall be effected by amendment, in writing, executed by both City and Vendor. The Director of the Purchasing and General Services Department, or Director's designee, shall have authority to execute amendments on behalf of City without further action by the San Antonio City Council, subject to and contingent upon appropriation of funds for any increase in expenditures by City.

Termination.

Termination-Breach. Should vendor fail to fulfill in a timely and proper manner, as determined solely by the Director, its material obligations under this contract, or violate any of the material terms of this contract, City shall have the right to immediately terminate the contract in whole or in part. Notice of termination shall be provided in writing to the Vendor, effective upon the date set forth in the notice. City may, in City's sole discretion, provide an opportunity for Vendor to cure the default. If City elects to offer an opportunity to cure, City shall provide notice to Vendor specifying the matters in default and the cure period. If Vendor fails to cure the default within the cure period, City shall have the right, without further notice, to terminate the contract in whole or in part. Such termination shall not relieve Vendor of any liability to the City for damages sustained by virtue of any breach by Vendor.

Termination-Notice. City may terminate this contract, in whole or in part, without cause. City shall be required to give Vendor notice ten days prior to the date of termination of the contract without cause.

Termination-Funding. City retains the right to terminate this contract at the expiration of each of City's budget periods. This contract is conditioned on a best efforts attempt by City to obtain and appropriate funds for payment of any debt due by City herein.

City shall pay Vendor for conforming goods delivered and services provided prior to the date of termination, offset by any amounts due and owing from Vendor to City.

Termination by City may be effected by Director, without further action by the San Antonio City Council.

Independent Contractor. Vendor covenants and agrees that it is an independent contractor and not an officer, agent, servant or employee of City. City shall not be liable for any claims which may be asserted by any third party occurring in connection with the services to be performed by Vendor under this contract and that Vendor has no authority to bind City. The doctrine of respondeat superior shall not apply as between City and Vendor.

INDEMNIFICATION.

VENDOR covenants and agrees to FULLY INDEMNIFY, DEFEND and HOLD HARMLESS, CITY and the elected officials, employees, officers, directors, volunteers and representatives of CITY, individually and collectively, from and against any and all costs, claims, liens, damages, losses, expenses, fees, fines, penalties, proceedings, actions, demands, causes of action, liability and suits of any kind and nature, including but not limited to, personal or bodily injury, death and property damage, made upon CITY directly or indirectly arising out of, resulting from or related to VENDOR'S activities under this Agreement, including any acts or omissions of VENDOR, any agent, officer, director, representative, employee, consultant or subcontractor of

VENDOR, and their respective officers, agents employees, directors and representatives while in the exercise of the rights or performance of the duties under this Agreement. The indemnity provided for in this paragraph shall not apply to any liability resulting from the negligence of CITY, it s officers or employees, in instances where such negligence causes personal injury, death, or property damage. IN THE EVENT VENDOR AND CITY ARE FOUND JOINTLY LIABLE BY A COURT OF COMPETENT JURISDICTION, LIABILITY SHALL BE APPORTIONED COMPARATIVELY IN ACCORDANCE WITH THE LAWS FOR THE STATE OF TEXAS, WITHOUT, HOWEVER, WAIVING ANY GOVERNMENTAL IMMUNITY AVAILABLE TO CITY UNDER TEXAS LAW AND WITHOUT WAIVING ANY DEFENSES OF THE PARTIES UNDER TEXAS LAW. In addition, Vendor agrees to indemnify, defend, and hold City harmless from any claim involving patent infringement, trademarks, trade secrets, and copyrights on goods supplied.

The provisions of this INDEMNITY are solely for the benefit of the parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity. VENDOR shall advise CITY in writing within 24 hours of any claim or demand against CITY or VENDOR known to VENDOR related to or arising out of VENDOR's activities under this AGREEMENT and shall see to the investigation and defense of such claim or demand at VENDOR's cost. CITY shall have the right, at its option and at its own expense, to participate in such defense without relieving VENDOR of any of its obligations under this paragraph.

Assignment. Except as otherwise stated herein, Vendor may not sell, assign, pledge, transfer or convey any interest in this contract, nor delegate the performance of any duties hereunder, by transfer, by subcontracting or any other means, without the consent of Director. As a condition of such consent, if such consent is granted, Vendor shall remain liable for completion of the services and provision of goods outlined in this contract in the event of default by the successor vendor, assignee, transferee or subcontractor. Any attempt to transfer, pledge or otherwise assign this Contract without said written approval, shall be void ab initio and shall confer no rights upon any third person.

Ownership of Documents. Pursuant to Texas Local Government Code Chapter 201, any and all Records produced by Vendor pursuant to the provisions of this contract are the exclusive property of City; and no such Record shall be the subject of any copyright or proprietary claim by Vendor. The term "Record" as used herein shall mean any document, paper, letter, book, map, photograph, sound or video recording, microfilm, magnetic tape, electronic medium, or other information recording medium, regardless of physical form or characteristic. Vendor understands and acknowledges that as the exclusive owner of any and all such Records, City has the right to use all such Records as City desires, without restriction.

Records Retention.

Vendor and its subcontractors, if any, shall properly, accurately and completely maintain all documents, papers, and records, and other evidence pertaining to the services rendered hereunder ("Documents"), and shall make such Documents available to City at their respective offices, at all reasonable times and as often as City may deem necessary during the contract period, including any extension or renewal hereof, and the record retention period established herein, for purposes of audit, inspection, examination, and making excerpts or copies of same by City and any of its authorized representatives.

Vendor shall retain any and all Documents produced as a result of services provided hereunder for a period of four years ("Retention Period") from the date of termination of the contract. If, at the end of the Retention Period, there is litigation or other questions arising from, involving or concerning these Documents or the services provided hereunder, Vendor shall retain the records until the resolution of such litigation or other such questions. Vendor acknowledges and agrees that City shall have access to any and all such Documents at any and all times, as deemed necessary by City, during said Retention Period. City may, at its election, require Vendor to return the documents to City at Vendor's expense prior to or at the conclusion of the Retention Period. In such event, Vendor may retain a copy of the documents.

Vendor shall notify City, immediately, in the event Vendor receives any requests for information from a third party, which pertain to the Documents referenced herein. Vendor understands and agrees that City will process and handle all such requests.

Severability. If any clause or provision of this contract is held invalid, illegal or unenforceable under present or future federal, state or local laws, including but not limited to the City Charter, City Code, or ordinances of the City of San Antonio, Texas, then and in that event it is the intention of the parties hereto that such invalidity, illegality or unenforceability shall not affect any other clause or provision hereof and that the remainder of this contract shall be construed as if such invalid, illegal or unenforceable clause or provision was never contained herein. It is also the intention of the parties hereto that in lieu of each clause or provision of this contract that is invalid, illegal, or unenforceable, there be added as a part of the contract a clause or provision as similar in terms to such invalid, illegal or unenforceable clause or provision as may be possible, legal, valid and enforceable.

Compliance with Law. Vendor shall provide and perform all services required under this Agreement in compliance with all applicable federal, state and local laws, rules and regulations.

Certifications. Vendor warrants and certifies that Vendor and any other person designated to provide services hereunder has the requisite training, license and/or certification to provide said services, and meets all competence standards promulgated by all other authoritative bodies, as applicable to the services provided herein.

Non-waiver of Performance. Unless otherwise specifically provided for in this Agreement, a waiver by either Party of a breach of any of the terms, conditions, covenants or guarantees of this Agreement shall not be construed or held to be a waiver of any succeeding or preceding breach of the same or any other term, condition, covenant or guarantee herein contained. Further, any failure of either Party to insist in any one or more cases upon the strict performance of any of the covenants of this Agreement, or to exercise any option herein contained, shall in no event be construed as a waiver or relinquishment for the future of such covenant or option. In fact, no waiver, change, modification or discharge by either party hereto of any provision of this Agreement shall be deemed to have been made or shall be effective unless expressed in writing and signed by the party to be charged. No act or omission by a Party shall in any manner impair or prejudice any right, power, privilege, or remedy available to that Party hereunder or by law or in equity, such rights, powers, privileges, or remedies to be always specifically preserved hereby.

Venue. Unless this contract provides otherwise, all claims, counterclaims, disputes and other matters in question between City and Vendor arising out of or relating to this agreement or its breach will be decided in a court of competent jurisdiction. **Venue of any court action brought directly or indirectly by reason of this contract shall be in Bexar County, Texas. This contract is made and is to be performed in Bexar County, Texas, and is governed by the laws of the State of Texas.**

Non-discrimination. As a condition of entering into this agreement, Vendor represents and warrants that it will comply with City's Commercial Nondiscrimination Policy, as described under Section IILC.1 of the SBEDA Ordinance. As part of such compliance, Vendor shall not discriminate on the basis of race, color, religion, ancestry or national origin, sex, age, marital status, sexual orientation, or on the basis of disability or other unlawful forms of discrimination in the solicitation, selection, hiring or commercial treatment of subcontractors, vendors, suppliers, or commercial customers, nor shall Vendor retaliate against any person for reporting instances of such discrimination. Vendor shall provide equal opportunity for subcontractors, vendors and suppliers to participate in all of its public sector and private sector subcontracting and supply opportunities, provided that nothing contained in this clause shall prohibit or limit otherwise lawful efforts to remedy the effects of marketplace discrimination that have occurred or are occurring in City's Relevant Marketplace. Vendor understands and agrees that a material violation of this clause shall be considered a material breach of this agreement and may result in termination of this agreement, disqualification of Vendor from participating in City contracts, or other sanctions. This clause is not enforceable by or for the benefit of, and creates no obligation to, any third party. Vendor shall include this nondiscrimination clause in all subcontracts for the performance of this contract.

As a party to this contract, Vendor understands and agrees to comply with the *Non-Discrimination Policy* of the City of San Antonio contained in Chapter 2, Article X of the City Code and further, shall not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, veteran status, age or disability, unless exempted by state or federal law, or as otherwise established herein.

Attorney's Fees. The Parties hereto expressly agree that, in the event of litigation, each party hereby waives its right to payment of attorneys' fees.

Prohibition on Contracts with Companies Boycotting Israel

Texas Government Code §2270.002 provides that a governmental entity may not enter into a contract with a company for goods or services, unless the contract contains a written verification from the company that it:

(1) does not boycott Israel; and
(2) will not boycott Israel during the term of the contract.

This section only applies to a contract that:

(1) is between a governmental entity and a company with 10 or more full-time employees; and
(2) has a value of $100,000 or more that is to be paid wholly or partly from public funds of the governmental entity.

"Boycott Israel" means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes.

"Company" means a for-profit organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or limited liability company, including a wholly owned subsidiary, majority-owned subsidiary, parent company, or affiliate of those entities or business associations that exists to make a profit. This term does not include a sole proprietorship.

By submitting an offer to or executing contract documents with the City of San Antonio, Company hereby verifies that it does not boycott Israel, and will not boycott Israel during the term of the contract. City hereby relies on Company's verification. If found to be false, City may terminate the contract for material breach.

Delinquent Taxes. In the event that Vendor is or subsequently becomes delinquent in the payment of taxes owed to the City of San Antonio, City reserves the right to deduct any delinquent taxes from payments that City may owe to the delinquent Vendor as a result of this contract.

Binding Contract. This contract shall be binding on and inure to the benefit of the parties hereto and their respective heirs, executors, administrators, legal representatives, and successors and assigns, except as otherwise expressly provided for herein.

Entire Agreement. This contract, including City's final electronically posted online version, together with its authorizing ordinance, and its price schedule(s), addendums, attachments, purchase orders, and exhibits, if any, constitutes the final and entire agreement between the parties hereto and contains all of the terms and conditions agreed upon. No other agreements, oral or otherwise, regarding the subject matter of this contract shall be deemed to exist or to bind the parties hereto, unless same be in writing, dated subsequent to the date hereof, and be duly executed by the parties, in accordance with the Amendment provision herein. **Parties agree that City's final electronically posted online version of this solicitation contains the agreed upon specifications, scope of services, and terms and conditions of this contract, and shall control in the event of a conflict with any printed version signed and submitted by Vendor.**

007 – SIGNATURE PAGE

By submitting an offer, whether electronically or by paper, Offeror represents that:

(s)he is authorized to bind Offeror to fully comply with the terms and conditions of City's Request for Offer for the prices stated therein;

(s)he has read the entire document, including the final version issued by City, and agreed to the terms therein;

Offeror is in good standing with the Texas State Comptroller's Office; and

to the best of his/her knowledge, all information is true and correct.

If submitting your offer by paper, complete the following and sign on the signature line below. Failure to sign and submit this Signature Page will result in rejection of your offer.

Offeror Information
Please Print or Type

Vendor ID No.	10027925
Signer's Name	Travis Walden
Name of Business	Siddons-Martin Emergency Group
Street Address	1362 E. Richey Rd
City, State, Zip Code	Houston TX, 77073
Email Address	travis.walden@siddons-martin.com
Telephone No.	512-848-5847
Fax No.	512-868-8290
City's Solicitation No.	6100012039

Patrick F. Siddons

Signature of Person Authorized to Sign Offer

008 – STANDARD DEFINITIONS

Whenever a term defined by the Uniform Commercial Code ("UCC"), as enacted by the State of Texas, is used in the Contract, the UCC definition shall control, unless otherwise defined in the Contract.

All-or-None Offer – an RFO in which City will award the entire contract to one offeror only.

Alternate Offer – two or more offers with substantive variations in the item or service offered from the same offeror in response to a solicitation.

Assignment – a transfer of claims, rights or interests in goods, services or property.

Bid Bond – security to ensure that Offeror (a) will not withdraw the offer within the period specified for acceptance, and (b) will furnish any required bonds and any necessary insurance within the time specified in the solicitation.

City – the City of San Antonio, a Texas home-rule municipal corporation.

Contractor – the offeror whose offer is accepted by City and is, therefore, the person, firm or entity providing goods or services to City under a contract.

Director – the Director of City's Purchasing & General Services Department, or Director's designee.

Line Item – a listing of items in an offer for which an offeror is expected to provide separate pricing.

Offer – a complete, signed response to an RFO that, if accepted, would bind Offeror to perform the resultant contract.

Offeror – a person, firm or entity that submits an offer in response to a solicitation. The offeror whose offer is accepted by City may also be referred to herein as Contractor, Vendor or Supplier.

Payment Bond – a particular form of security provided by the contractor to protect City against loss due to the contractor's failure to pay suppliers and subcontractors.

Performance Bond – a particular form of security provided by the contractor to protect City against loss due to the contractor's inability or unwillingness to complete the contract as agreed.

Performance Deposit – security provided by the contractor to protect City against loss due to the contractor's inability or unwillingness to complete the contract as agreed.

Pre-Submittal Conference – a meeting conducted by City, held in order to allow offerors to ask questions about the proposed contract and particularly, the contract specifications.

Purchase Order – a validly issued order placed by an authorized City department for the purchase of goods or services, written on City's standard purchase order form, and which is the vendor's authority to deliver to and invoice City for the goods or services specified in an RFO for the price stated in vendor's offer.

Specifications – a description of what City requires and what Offeror must offer; a description of the physical or functional characteristics of a product or material, or the nature of a service or construction item.

Subcontractor – a person, firm or entity providing goods or services to a vendor to be used in the performance of the vendor's obligations under the contract with City.

Supplier – the offeror whose offer is accepted by City and is, therefore, the person, firm or entity providing goods or services to City under a contract.

Vendor – the offeror whose offer is accepted by City and is, therefore, the person, firm or entity providing goods or services to City under a contract.

ATTACHMENT A-PRICE SCHEDULE

ITEM	QUANTITY	DESCRIPTION
1	1	Pierce Mobile Command Apparatus

PRICE EACH TOTAL $ 1,859,000

EXTENDED TOTAL $ 1,860,000 including HGAC Fee

YEAR, MAKE & MODEL OFFERED: 2020 Velocity Command Vehicle

SPECIFIC MAKE & MODEL OF ENGINE OFFERED (INCLUDE SAE NET HP):

Detroit Diesel DD13 - 525 HP

WARRANTY:

One Year

AUTHORIZED WARRANTY SERVICE PROVIDER FACILITY NAME & ADDRESS:

Siddons-Martin Emergency Group

5511 Binz-Engleman Kirby, TX 78219

PRODUCTION CUT-OFF DATE: 10-30-19

INDICATE THE LAST DAY THAT THE CITY CAN PLACE ORDERS UNDER THIS CONTRACT WITHOUT MISSING THE PRODUCTION CUT OFF DATE: 10-30-19.

BID PRICES SHALL REMAIN FIRM FOR ALL ORDERS PLACED PRIOR TO THIS CUT OFF DATE. IN THE EVENT THAT CITY DOES NOT AWARD A CONTRACT PRIOR TO PRODUCTION CUT OFF DATE, CAN BIDDER PROVIDE BID ITEMS, AT THE BID PRICE SUBMITTED, AFTER THE PRODUCTION CUT OFF DATE? No.

ITEM	QUANTITY	DESCRIPTION
2	1	HGAC FEE

PRICE EACH TOTAL $ 1000

Prompt Payment Discount: $2500 w/in 10 days. (If no discount is offered, Net 30 will apply.)

Delivery will be made within 165 calendar days after receipt of purchase order.