

GREENVILLE-SPARTANBURG AIRPORT DISTRICT

REQUEST FOR BID

FOR

AIRCRAFT RESUCE AND FIRE FIGHTING (ARFF) VEHICLE

FOR



GSP INTERNATIONAL
AIRPORT
ROGER MILLIKEN FIELD

ISSUED: MAY 20, 2019

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SECTION 1.0 INVITATION FOR BID (IFB)

The Greenville-Spartanburg Airport District (herein referred to as "District") has a requirement to purchase two (2) Aircraft Rescue and Fire Fighting (ARFF) vehicles. This requirement serves to update the District's Fire Department and its fleet of ARFF vehicles in order to maintain current operational readiness needs as required by the Federal Aviation Administration (FAA). The District invites your company to submit a sealed bid for:

- One (1) Class 4 ARFF vehicle that includes 1,500-gallon water/Aqueous Film Forming Foam (AFFF) fire suppression system
- One (1) Class 5 ARFF vehicle that includes 3,000-gallon water/Aqueous Film Forming Foam (AFFF) fire suppression system

This solicitation document outlines the prerequisites, selection process, and documentation necessary to be considered responsive and submit a responsible bid. It is strongly recommended that you review the entire document prior to submitting a bid. Your company shall base its price generally upon the conditions and specifications contained in this document. Your Company shall furnish, without limitation, all labor, equipment and materials as specified herein all at the successful Bidders expense.

The bid must include all criteria described throughout this solicitation document to be considered responsive and eligible for award. Please submit one (1) hard copy of your sealed bid and one (1) electronic copy to the point of contact at the following address:

Jonathan Stone
Contracts Manager
Greenville-Spartanburg Airport District
2000 GSP Drive, Greer, SC 29651-9202
Attn: Sealed Bid For Two ARFF Vehicles
Email: jstone@gspairport.com
Office Phone: 864.655.5699

This solicitation does not commit the District to enter into a contract for the scope of work and specifications described herein or to pay any costs during the preparation of this IFB.

SECTION 2.0 INSTRUCTIONS TO BIDDERS

2.1 BIDDER QUALIFICATIONS

- A. Each bidder shall provide to the District satisfactory evidence of its competency to provide the proposed equipment and to perform any related work necessary to complete the purchase. Such evidence of competency, unless otherwise specified, shall consist of:
 - i. Statements covering the Bidder's past experience on providing similar equipment or products;
 - ii. Current work load;

- iii. A list of key personnel that would be available throughout the duration of the contract and their experience.
- B. In addition, each Bidder shall provide satisfactory evidence of its financial responsibility. The evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant.
- C. Each bidder shall submit "evidence of competency" and "evidence of financial responsibility" to the District with its Bid. Failure to do so will result in the District determining the bid not responsive and ineligible for further consideration.

2.2 BID REQUIREMENTS

- A. The deadline to submit a sealed bid is Friday, June 14, 2019 at 2:00pm. All bids received after the deadline will be returned unopened. It is the sole responsibility of the bidder to ensure sealed bids are delivered or mailed to the District by the appointed date and time. All responsive bids shall become the property of the District and must be provided without cost to the District.
- B. The deadline to submit questions is Wednesday, June 5, 2019 at 12:00pm. An addendum (if necessary) will be issued with question responses no later than Friday, June 7, 2019 at 5:00pm. All questions regarding the IFB shall be directed to the following:

Jonathan Stone
Contracts Manager
Greenville-Spartanburg Airport District
Email: jstone@gspairport.com
Office Phone: 864.655.5699

- C. Bids that do not conform to the following requirements will be considered not responsive and may be subject to rejection. Any bids received that do not comply with the requirements set forth below shall be considered not responsive and returned unopened.
 - i. Bidders shall submit one (1) hard copy of its complete bid.
 - ii. The bid form and all other information required by the bid documents must be submitted in a sealed envelope and clearly addressed and identified as follows:

Jonathan Stone
Contracts Manager
Greenville-Spartanburg Airport District
2000 GSP Drive, 29651-9202
Greer, SC 29651-9202
Attn: Sealed Bid For One ARFF Vehicle

- iii. Bidders shall furnish all data, exhibits, or statements that it deems essential and pertinent to assure total understanding and evaluation of its bid by the District.
 - iv. Bids must be submitted in such a manner as to make them complete and free from ambiguity, without alterations or erasures.
- D. Bidders shall review the bid conditions in full for additional information relating to the preparation of a bid.
- E. Bidders shall review the General Conditions regarding the requirements of the successful bidder, any time limitations of the work, bonding requirements, and any other requirements of the contract. By submitting a bid, the bidder acknowledges they have reviewed the General Conditions and have no objections with the contract requirements, if awarded a contract.

2.3 BASIS FOR AWARD

- A. An Award will be made to the bid with the lowest overall price based on the procurement specifications as set forth in this solicitation.

2.4 NOTICE OF AWARD

- A. The District anticipates issuing a Notice of Award to the successful bidder within 30 calendar days after the bids are received. However, the District reserves a period of 90 calendar days after such receipt during which time the Notice of Award may be given. The successful bidder to whom an Award is made, shall acknowledge receipt of contract documents within seven (7) calendar days after receiving the Notice of Award.

2.5 EXAMINATION OF SPECIFICATIONS

- A. Each bidder is expected to carefully examine the contract documents. Each bidder shall satisfy itself as to the character, quality, and quantities of equipment, materials to be provided, and as to the requirements of the contract documents. If, as a result of any such examination, any bidder concludes that the materials and labor evidently necessary for proper completion of the work are not included in the contract document, the bidder shall report such deficiencies or omissions to the District on a timely basis and District shall make such corrections as are warranted via addendum. If a bidder fails to make such report, and the District is not otherwise advised of such doubtful matter, the bidder shall be responsible for the costs of any materials or labor reasonably necessary for proper completion of the work as intended by the contract documents if awarded the Contract. Under no circumstances or conditions will such costs be allowed as an extra by the District after Award of the contract.
- i. The examination of specifications includes only the details provided procurement specification related to the base model of the vehicle. Any optional equipment, and associated costs, requested by the District after

an Award is made shall be negotiated by the District and successful bidder separately.

- B. If, in the opinion of any interested bidder, there is any doubt or ambiguity as to the meaning of any part of the contract documents, the bidder shall submit such matter to the District in writing by e-mail prior to the scheduled deadline to submit questions in order that the necessary explanations or corrections may be made before date and time for opening of the bids. Any such additions, changes, clarifications or corrections, if required, will be made in accordance with Section 2.7(A).
- C. Any information in addition to and not included in the bid or contract documents, which have been made available by the District are made available without warranty, express or implied, for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which may make or obtain from its investigation of the information and other records or tests that are furnished as a convenience to the bidder by the District.

2.6 PREPARATION OF BID

- A. The bidder shall submit a bid on the form provided by the District. All blank spaces in the bid forms must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals for as directed in the bid. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern. The bid must be signed in ink by a person who is authorized to contractually commit their company to the price stated on the bid form.

2.7 ACCEPTANCE OR REJECTION OF BIDS

- A. All responsive bids shall be considered valid for a period of ninety (90) calendar days from the deadline date and provide a statement in the bid submittal to that effect. If bidder is unable to validate its bid price for ninety (90) calendar days, bidder must state the number of days its bid price is valid for and provide a statement about why bidder cannot validate its bid price for ninety (90) calendar days. At any time, up to the hour and date set for receipt of bids, bidder may withdraw its bid by requesting in writing to the District. All bids received by the deadline shall be subject to the applicable laws and regulations governing public disclosure and considered part of the public record of this IFB process.
- B. The District reserves the right to reject any and all bids, to waive minor informalities and irregularities in the bid submission process, to extend the date of submittal, to request additional information and data from any or all bidders, to supplement, amend, or otherwise modify the IFB prior to the

closing date. The District also reserves the right to cancel this IFB at any time prior to an award with or without the substitution of another IFB.

- C. Any bid which is incomplete, conditional, ambiguous, obscure, or which contains additions or alterations not specifically requested, or irregularities of any kind, may be rejected. The District may also consider a bid incomplete and may reject it if:
 - i. The Bid Form furnished herein is not used or is altered.
 - ii. The Sub-Contractor(s) Form is not completed and included, or other forms required to be filled in and submitted, are missing at the time of bid.
 - iii. There are alternate Bids not called for or irregularities of any kind, which may tend to make the Bid indefinite or ambiguous as to its meaning.
 - iv. Any documents necessary for Bid purposes, which may include DBE goal, and which are not complete, are improperly executed, or are missing.
- D. If the successful bidder refuses to enter into an Agreement within 30 calendar days after the Agreement is provided for execution, the District shall have the right to exercise the value of the bid bond submitted by the successful offer. The District shall also have the right to engage and accept the bid(s) of any other qualified bidder(s) which submitted a bona fide bid in response to this solicitation, without re-advertisement.
- E. If the District accepts a bid and makes an award as a result of this solicitation, the District reserves the right, in its sole judgement, to negotiate with the successful bidder which may result in a modification to the bid because it is deemed advantageous to the District to do so even though it may appear the successful bid may not be the lowest and best price.

2.8 DISQUALIFICATION OF BID(S)

- A. Any of the following causes may be considered as sufficient for the disqualification of a bidder and the rejection of a Bid.
 - i. Submission of more than one (1) bid hereunder by an individual, firm or corporation under the same or different names.
 - ii. Evidence of collusion among bidders.
 - iii. A bidder's default or arrearage under any other previous or existing agreement with the District or with anyone or business other than the District.
 - iv. Existence of any unresolved claims between the Company and the District.

2.9 GENERAL

- A. The following conditions relate to the submission of bids and any Award to be made as a result of this solicitation:
 - i. The District reserves the right to accept the bid offered by a responsible and qualified bidder which, in the District's sole opinion; best meets all of the goals and requirements stated elsewhere in these bid documents. Responsibility and qualification are to be determined from the information furnished by the bidder, as well as from other sources, determined to be appropriate by the District. The District further reserves the right not to make an award until after such investigations, as are deemed appropriate, are made regarding the experience, financial responsibility and qualifications of the bidder.
 - ii. The District shall not be obligated to respond to any bid submitted, nor shall the District be legally bound in any manner whatsoever by the submission of a bid by any bidder.
 - iii. Any agreement arising out of any bid submitted hereunder, and any negotiations that may follow, shall not be binding or valid against the District, its officers, employees or agents unless reduced to writing and executed by the District.

2.10 SPECIFICATIONS

- A. The bidder shall submit the brand name, descriptive literature and a photograph of the product provided in its bid.
 - i. Included with the descriptive literature, each bidder must include standard and optional warranty information as well as a detailed list of options available for the base ARFF vehicle provided in the bid submittal.
- B. The specifications described in greater detail in the procurement specifications establish a minimum standard of quality only.

2.11 BID CLARIFICATIONS – WRITTEN AND ORAL

- A. Should there be any doubt as to the meaning or content of this solicitation, the bidder shall notify the point of contact provided in Section 2.1(B) in writing. Corrections, changes or clarifications, if required, will be made via addenda that will be issued with sufficient time before the deadline to submit bids to all bidders interested in participating in this solicitation. The District shall not be responsible for any oral or other instructions, interpretations, or explanations not provided via addenda.

SECTION 3.0 GENERAL CONDITIONS

3.1 SCOPE OF WORK

- A. The bidder agrees to manufacture, sell, transfer and deliver, in accordance with the terms set forth in the bid documents, the product, as the District has

described in the procurement specifications. The terms of the bid documents shall supersede any contrary or inconsistent terms set forth on any purchase orders, purchase order acknowledgements, invoices, confirmations and/or other similar documents.

- B. No supplemental provisions of any such purchase orders, purchase order confirmations, invoices, confirmations or other similar documents shall be binding upon the District unless such document is signed by an authorized representative of the District.
- C. The bidder agrees to provide all personnel, labor, supplies and equipment required for the purchase or service as described in this solicitation.

3.2 INSURANCE

- A. The bidder shall obtain, at its sole cost, or provide evidence of insurance coverage as follows:
 - i. Comprehensive General Liability Insurance limits of not less than \$1,000,000 per occurrence. If access to the airfield is required for delivery, a limit of not less than \$2,000,000 is required.
 - ii. Automobile Liability (owned, non-owned, and hired automobiles), Bodily Injury, and Property Damage Insurance with limits of not less than \$1,000,000 per accident. If access to the airfield is required for delivery, a limit of not less than \$2,000,000 is required.
 - iii. Workers Compensation and Employer's Liability Insurance with limits not less than \$1,000,000.
 - iv. All insurance policies must name the "Greenville-Spartanburg Airport District, its Commissioners, Officers, Servants, Agents, and Employees" as additional insureds with respect to general and automobile liability coverage's, and shall not be canceled, terminated or materially changed without at least thirty (30) days prior written notice from Seller to District. Certificates evidencing such insurance must be submitted by Seller to District prior to Seller providing any goods or equipment/material or services, and at least fifteen (15) days prior to the expiration dates of expiring policies. District reserves the right to request complete copies of any insurance policies required by these Terms and Conditions if deemed necessary to ascertain the details of coverage not provided by the Certificates.
 - v. All insurance provided by Seller under this PO shall include a Waiver of Subrogation by the insurers in favor of District, including its Commissioners, Officers, and employees. Seller hereby releases District for losses or claims for bodily injury, property damage or other insured claims arising out of Seller's performance under this PO.
- B. The bidder shall indemnify and hold harmless District, its Commissioners, Officers, and employees of, from, and against any and all claims and demands which may arise out of or is incidental to the performance of this PO.

Contractor further agrees that it is responsible for and shall indemnify, defend, and hold harmless District for all damages to the property of District caused by an act or omission by Seller's agents, employees or independent contractors, and shall pay on behalf of District all sums that District shall become obligated to pay by reason of the liability, if any, imposed by law upon District for damages because of bodily injury, including damages for care and loss of service, and including death at any time resulting from bodily injury, and because of injury to or destruction of property, including loss of use thereof, which may be caused by or result from any of the activities, omissions or operations of its agents, servants, employees or contractors.

- i. Contractor agrees to hold harmless, indemnify and defend District from and against any and all claims, including reasonable attorney's fees and other expense of District, for or in connection with, the accident, injury or damage whatsoever caused to any person or property and arising directly or indirectly, out of any action or omission of Seller or any subcontractor which condition was not specified to be created or maintained by Seller.
- ii. The agreement to hold District, its Commissioners, Officers, and employees harmless shall not be limited to the limits of liability insurance required under the provisions of this PO.

3.3 PROMPT PAYMENT

- A. The District requires that all subcontractors performing work on a DOT/FAA-assisted contract shall be promptly paid for work performed pursuant to their agreements, in accordance with all relevant federal, state and local laws.
- B. In accordance with 49 CFR § Part 26, the District established a contract clause implementing this requirement and requires prime contractors to pay subcontractors for satisfactory performance of their contracts no later than 30 days from the prime contractor's receipt of each payment from the District.
- C. The District shall ensure prompt and full payment of retainage from the prime contractor to the subcontractor within 30 calendar days after the subcontractor's work is satisfactorily completed. The following mechanisms will be in place to ensure prompt payment.
 - i. Prime Contract: The District includes the following clause in each DOT/FAA assisted prime contract:
 - a. "The Prime Contractor agrees to pay each sub-contractor under this prime contract for satisfactory performance of its contract within, but not later than, thirty (30) calendar days from the receipt of each payment the prime contractor receives from the Greenville-Spartanburg Airport District (District). The Prime Contractor agrees to return retainage payments to each sub-contractor within thirty (30) calendar days after the sub-

contractor's work is satisfactorily completed. Any delay or postponement of payment, from the above referenced time frame, may result in held retainage from prime contractor until subcontractor payments are resolved or paid following written approval of the District. Other actions the District has in place may be enforced with a potential of liquidated damages, work-stop order or contract termination. This clause applies to both DBE and non-DBE sub-contractors."

- ii. Subcontracts: The District will consider a subcontractor's work satisfactorily complete when all the tasks called for in the subcontract have been accomplished and documented as required by the District. When the District has made an incremental acceptance of a portion of the prime contract, the work of a subcontractor covered by the acceptance is deemed to be satisfactorily completed.
- iii. The District will provide appropriate means to enforce the requirements of this section, including, but not limited to:
 - a. Withholding of additional payment applications from prime contractor until/unless payment arrangements between prime and subcontractors can be resolved for work performed and deemed satisfactorily complete.
 - b. Any delay or postponement of payment from the prime contractor to the subcontractor(s) must demonstrate good cause by submitting such cause in writing for approval by the District.
 - c. Other mechanisms, consistent with this part and applicable state and local law, to ensure that DBE's and other contractors are fully and promptly paid.

3.4 DISADVANTAGED BUSINESS ENTERPRISE (DBE) GOAL

- A. The District's policy is to provide opportunities for DBE companies to bid or participate as a subcontractor in products or services offered by the District on Airport property. When Federal or State funding is involved in the procurement of a product or service, a DBE Goal is defined for such products or service. Each product or service is evaluated and assigned a goal or the annual goal described within the three year DBE Methodology Goal for the particular fiscal year is utilized, in this case, a goal of **0%** is assigned.
- B. If a DBE goal is assigned, the successful bidder shall make every reasonable effort to meet the DBE goal. If the goal is unable to be obtained or met, a detailed Good Faith Efforts record, as defined in 49 CFR Part 26, shall be completed and provided to the District. If sufficient evidence of Good Faith Efforts is not provided, the Authority may ask for additional means/effort to obtain the DBE goal.
- C. Failure to meet the DBE goal or provide sufficient Good Faith Effort documentation to obtain the goal, may result in a termination of the contract

for default. which could result in a re-bid or consideration of the other Bidders being awarded the Product or Service.

3.5 FEDERAL SOLICITATION PROVISIONS

A. CIVIL RIGHTS – TITLE VI ASSURANCE

i. Solicitation Notice

The Greenville-Spartanburg Airport District, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

B. DISADVANTAGED BUSINESS ENTERPRISE

i. Solicitation Requirements

The requirements of 49 CFR part 26 apply to this contract. It is the policy of the District to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The District encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

C. DEBARMENT AND SUSPENSION

i. Certification of Bidder Regarding Debarment

By submitting a bid under this solicitation, the bidder certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

D. FEDERAL FAIR LABOR STANDARDS

i. Solicitation Notice

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

E. FEDERAL PROVISIONS INCORPORATED BY REFERENCE

i. Buy American Preference (Reference 49 USC § 50101)

ii. Foreign Trade Restriction (Reference 49 USC § 50104 and 49 CFR part 30)

iii. Lobbying and Influencing Federal Employees (31 U.S.C. § 1352 and 49 CFR part 20, Appendix A)

- iv. Procurement of Recovered Materials (Reference 2 CFR § 200.322 and 40 CFR Part 247)

3.6 MISCELLANEOUS

- A. Each Bidder should examine the Draft Agreement for a specific understanding of its terms.
- B. Delivery Schedule: Each bidder shall provide its current delivery schedule for Class 4 and Class 5 ARFF vehicles. The successful bidder shall be bound by this delivery schedule until such time as the Product is delivered and accepted by the Authority in accordance with Section 2.8 (A), acceptance of responsive bids, and Section 2.11, Specifications.
- C. Safety and Security Requirements: Safety and security of Airport operations are a prime and overriding concern of the Authority. Therefore, the Company shall be bound and shall abide by all rules, procedures, regulations and laws of all governmental bodies, including regulations and rules and procedures of the Authority, as the same may be promulgated from time to time, that relate to Airport access, security and/or safety.
- D. The Company agrees to perform and to abide by the covenants, agreements, terms and conditions set forth and mandated by the Federal Aviation Administration (FAA), or other Federal Regulations, to be included in all agreements for projects or equipment funded, in whole or in part, by Federal Grants.

ATTACHMENT 01
PROCUREMENT SPECIFICATION – CLASS 4 ARFF VEHICLE
(1,500 Gallon AFFF Fire Suppression System)

1.0 SCOPE

This Procurement Specification (PS) covers a commercially produced diesel engine driven ARFF vehicle for Greenville-Spartanburg Airport District (GSP), an Index C airport. It includes a 1500-gallon water/Aqueous Film Forming Foam (AFFF) fire suppression system with 450 lbs. potassium-based dry chemical.

The ARFF vehicle is intended to carry rescue and firefighting equipment for the purpose of rescuing aircraft passengers, preventing aircraft fire loss, and combating fires in aircraft.

2.0 CLASSIFICATION

The ARFF vehicle(s) covered by this PS are classified in accordance with Part 139, Certification and Operations: Land Airports Serving Certain Air Carriers, Section 315, Aircraft Rescue and Firefighting: Index Determination; Section 317, Aircraft Rescue and Firefighting: Equipment and Agents; and Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles, Vehicle Class 4 with a minimum rated capacity of 1500 gallons of water/AFFF solution.

Airport Index	Vehicle Class	Minimum Rate Capacities (gallons/liters)
Index C	4	1,500 gallon (5,678-liter water/AFFF solution)

3.0 VEHICLE CONFORMANCE/PERFORMANCE CHARACTERISTICS

The ARFF vehicle will be in accordance with the applicable requirements of National Fire Protection Association (NFPA) 414, Standard for Aircraft Rescue and Fire Fighting Vehicles (2007 Edition), and AC 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles. The manufacturer will allow the addition of other options, at the buyer's expense, after bid acceptance.

3.1 General Administration Requirements

3.1.1 Manuals – Technical manuals will consist of operator, service, and parts manuals. All manuals are required to be provided in hardcopy and in digital format on CDs when requested.

3.1.1.1 Technical Manuals – The overall format for the manuals will be commercial. Each technical manual will have a title page. Line art will be used to the maximum extent possible for illustrations and parts lists. One complete set of engine and transmission parts, service and operator's manuals will be packed with each vehicle.

3.1.1.1.1 The contractor will provide digitized manuals in CD format when requested in addition to or in place of printed paper copies.

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3.1.1.1.2 The contractor will provide two complete sets of hardcopy manuals and / or CDs when requested.

3.1.1.2 Operator's Manual – The operator's manual will include all information required for the safe and efficient operation of the vehicle, including fire extinguishing systems, equipment, and any special attachments or auxiliary support equipment. As a minimum, the operator's manual will include the following:

3.1.1.2.1 The location and function of all controls and instruments will be illustrated and functionally described.

3.1.1.2.2 Safety information that is consistent with the safety standards established by the, occupational Safety and Health Administration (OSHA) and NFPA.

3.1.1.2.3 All operational and inspection checks and adjustments in preparation for placing the vehicle into service upon receipt from the manufacturer.

3.1.1.2.4 Tie down procedures for transport on a low-boy trailer.

3.1.1.2.5 Warranty information and the period of the warranty coverage for the complete vehicle and for any component warranty that exceeds the warranty of the complete vehicle. Addresses and telephone numbers will be provided for all warranty providers.

3.1.1.2.6 General description and necessary step-by-step instructions for the operation of the vehicle and its fire extinguishing system(s) and auxiliary equipment.

3.1.1.2.7 A description of the post-operational procedures (draining, flushing, re-servicing, etc.).

3.1.1.2.8 Daily maintenance inspection checklists that the operator is expected to perform including basic troubleshooting procedures.

3.1.1.2.9 Disabled vehicle towing procedures.

3.1.1.2.10 Procedures and equipment required for changing a tire.

3.1.1.2.11 Schedules (hours, miles, time periods) for required preventative maintenance and, required periodic maintenance.

3.1.1.2.12 Line art drawing of the vehicle, including panoramic views (front, rear, left, and right sides) showing basic dimensions and weights (total vehicle and individual axle weight for the unloaded and fully loaded vehicle). For the purposes of this AC,

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"unloaded" is defined as a lack of agent, occupants and compartment load, and "loaded" is defined as including agent, occupants and compartment load.

3.1.1.3 Service Manual – The service manual will identify all special tools and test equipment required to perform servicing, inspection, and testing. The manual will cover troubleshooting and maintenance as well as minor and major repair procedures. The text will contain performance specifications, tolerances, and fluid capacities; current, voltage, and resistance data; test procedures; and illustrations and exploded views as may be required to permit proper maintenance by qualified vehicle mechanics. The manual will contain an alphabetical subject index as well as a table of contents. The service manual will contain at least the following, where applicable:

3.1.1.3.1 Firefighting system schematic(s).

3.1.1.3.2 Hydraulic schematic.

3.1.1.3.3 Pneumatic schematic.

3.1.1.3.4 Electrical schematic.

3.1.1.3.5 Winterization schematic.

3.1.1.3.6 Fuel schematic.

3.1.1.3.7 Schedules for required preventative maintenance and required periodic maintenance.

3.1.1.3.8 Lubrication locations, procedures, and intervals for parts of the vehicle and equipment that require lubrication.

3.1.1.4 Parts Identification Manual – The parts manual will include illustrations or exploded views (as needed) to identify properly all parts, assemblies, subassemblies, and special equipment. All components of assemblies shown in illustrations or exploded views will be identified by reference numbers that correspond to the reference numbers in the parts lists. All purchased parts will be cross-referenced with the original equipment manufacturers (OEM) name and part number. The parts identification manual will provide the description and quantity of each item used for each vehicle. The size, thread dimensions, torque specifications, and special characteristics will be provided for all nonstandard nuts, bolts, screws, washers, grease fittings, and similar items. The manual will contain a numerical index. The parts manual will contain a list of all of the component vendor names, addresses, and telephone numbers referenced in the parts list.

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3.1.2 Painting, Plating, and Construction

3.1.2.1 Finish – Exterior surfaces will be prepared, primed, and painted in accordance with all of the paint manufacturer's instructions and recommendations. Vehicles will be painted and marked in accordance with AC 150/5210-5, Painting, Marking, and Lighting of Vehicles Used on an Airport. The interior finish of all compartments will be based on the manufacturer's standard production practice. This may include painting, texturing, coating or machine swirling as determined by the manufacturer. All bright metal and anodized parts, such as mirrors, horns, light bezels, tread plates, and roll-up compartment doors, will be painted. All other surfaces capable of being painted must be in the appropriate yellow-green color.

3.1.2.2 Dissimilar Metals – Dissimilar metals, as defined in MIL-STD-889, Dissimilar Metals, will not be in contact with each other. Metal plating or metal spraying of dissimilar base metals to provide electromotively compatible abutting surfaces is acceptable. The use of dissimilar metals separated by suitable insulating material is permitted, except in systems where bridging of insulation materials by an electrically conductive fluid can occur.

3.1.2.3 Protection Against Deterioration – Materials that deteriorate when exposed to sunlight, weather, or operational conditions normally encountered during service will not be used or will have a means of protection against such deterioration that does not prevent compliance with performance requirements. Protective coatings that chip, crack, or scale with age or extremes of climatic conditions or when exposed to heat will not be used.

3.1.2.4 Reflective stripes – A minimum eight (8) inch band of high gloss white reflective tape with 1-inch blue strip on top and bottom (Retroreflective, ASTM-D 4956-09, *Standard Specification for Retroreflective Sheeting for Traffic Control*, TYPE III & above) must be applied around the vehicle's surface.

3.1.2.5 Lettering – The manufacturer will apply the airport's, and 'Insignia' (to be provided) in a contrasting color or by decal on both sides of the vehicle in long radius elliptical arches above and below the lettering center line. The size of the lettering will be a minimum of 2½-inches to a maximum of 6-inches. Reflective lettering is allowed if the material is the same as that which is used for the reflective stripe (as specified in AC 150/5210-5).

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3.1.3 Vehicle Identification Plate – A permanently marked identification plate will be securely mounted at the driver's compartment. The identification plate will contain the following information:

- 3.1.3.1 NOMENCLATURE
- 3.1.3.2 MANUFACTURER'S MAKE AND MODEL
- 3.1.3.3 MANUFACTURER'S SERIAL NUMBER
- 3.1.3.4 VEHICLE CURB WEIGHT: kg (pounds)
- 3.1.3.5 PAYLOAD, MAXIMUM: kg (pounds)
- 3.1.3.6 GROSS VEHICLE WEIGHT (GVW): kg (pounds)
- 3.1.3.7 FUEL CAPACITY AND TYPE: gals (gallons)
- 3.1.3.8 DATE OF DELIVERY (month and year)
- 3.1.3.9 WARRANTY (months and km (miles))
- 3.1.3.10 CONTRACT NUMBER
- 3.1.3.11 PAINT COLOR AND NUMBER

A second permanently marked information data plate will be securely mounted on the interior of the driver's compartment. The plate will contain the information required by NFPA 414, Standard for Aircraft Rescue and Fire Fighting Vehicles (2007 Edition), Section 1.3.5 Vehicle Information Data Plate. A single plate that combines or contains the information required for both plates is acceptable.

3.1.4 Environmental Conditions

3.1.4.1 Vehicle operation and storage temperature conditions will vary with geographical location. Thus, the locality temperature range can go from -40° to 110°F. Refer to NFPA 414 for vehicle winterization criteria.

3.1.4.2 Extreme Temperature Range – The vehicle will be capable of satisfactory storage and operation in temperatures ranging from -40° to 110°F. The vehicle will be equipped with a cab, chassis, and agent winterization system, permitting operation at -40°F. The winterization system will not detract from the performance of the vehicle or the firefighting system in ambient temperatures up to 110°F. The vehicle chassis winterization system will maintain the engine coolant, lubricants, fuel, and electrical systems operational at ambient temperatures of -40°F. The vehicle agent winterization system will provide sufficient insulation and heating capacity, by means of hot circulating liquids and/or forced air heat exchangers, to permit satisfactory operations of the vehicle and firefighting systems for a 2-hour period at ambient temperatures as low as -40°F with the vehicle fully operational and the engine running. At the end of this 2-hour period, the vehicle will be capable of successfully discharging its

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agents. All compartments not winterized will be marked as such on the interior of the compartment. The marking will state that the compartment is not winterized and cannot be used for the storage of items capable of freezing.

3.1.5 Reduction of Potential Foreign Object Damage – All loose metal parts, such as pins, will be securely attached to the vehicle with wire ropes or chains. Removable exterior access panels, if provided, will be attached with captive fasteners.

3.1.6 Vehicle Mobility

3.1.6.1 Operating Terrain – The vehicle will be capable of operating safely on paved roads, graded gravel roads, cross country terrain, and sandy soil environments. Cross country terrain consists of open fields, broken ground, and uneven terrain. An off-road, high-mobility suspension system resulting in no more than 0.5 G_{rms} acceleration at the driver’s seat of the vehicle when traversing an 8-inch (20 cm) diameter half round at 35 mph (56 kph) must be provided. The suspension design by which the manufacturer meets the suspension performance requirements is at the manufacturer’s discretion.

3.1.6.2 Gradeability – The fully loaded vehicle will be able to ascend any paved slope up to and including 50-percent.

3.1.6.3 Side Slope Stability – The fully loaded vehicle will be stable on a 30° side slope when tested in accordance with NFPA 414.

3.1.6.4 Cornering Stability – The fully loaded vehicle will be stable in accordance with NFPA 414 when tested in accordance with NFPA 414.

3.2 Weights and Dimensions

3.2.1 Overall Dimensions – The maximum dimensions listed below are desirable to ensure vehicles can be accommodated in existing fire stations. Likewise, the overall dimensions should be held to a minimum that is consistent with the best operational performance of the vehicle and the design concepts needed to achieve this performance and to provide maximum maneuverability in accordance with NFPA 414.

Vehicle Capacity / Dimensions	1,500 Gallon
Length (inches/cm)	433/1100
Width (inches/cm)	124/315
Height (inches/cm)	154/391

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3.2.2 Angles of Approach and Departure – The fully loaded vehicle will have angles of approach and departure of not less than 30°.

3.2.3 Field of Vision – The vehicle will have a field of vision in accordance with NFPA 414.

3.2.3.1 Mirrors – Combination flat and convex outside rearview mirrors will be installed on each side of the cab. The flat mirrors will be of the motorized remote-control type, providing not less than 60° horizontal rotational viewing range. The flat mirrors will also have electrically heated heads. Mirror remote and heating controls will be located on the instrument panel within reach of the seated driver. To provide the driver a clear view of the area ahead of the vehicle and to eliminate potential blind spots, a rectangular mirror will be installed on the lower corner of each side of the windshield, having a minimum area of 35 square inches.

The vehicle will have a back-up (rear-view) camera with a display monitor mounted above the driver in the cab. Cameras and monitors that are designed to replace the function of the side-view mirrors are not an approved option in this specification. The backup camera will have a view with the same perspective as a rear-view mirror.

3.3 Chassis and Vehicle Components

3.3.1 Engine – The vehicle will have a turbocharged diesel engine that is certified to comply with the Environmental Protection Agency (EPA) and state laws for off-highway emission requirements at the time of manufacture. The engine and transmission must operate efficiently and without detrimental effect to any drive train components when lubricated with standard, commercially available lubricants according to the recommendations of the engine and transmission manufacturers.

3.3.1.1 Acceleration – The fully loaded vehicle will accelerate from 0 to 50 miles per hour (mph) on a level paved road within 25 seconds.

3.3.1.2 Maximum Speed – The fully loaded vehicle will attain a minimum top speed of 70 mph on a level, paved road.

3.3.1.3 Pump and Roll on a 40-Percent Grade – The fully loaded vehicle will be capable of pump and roll operations on a paved, dry, 40-percent grade in accordance with NFPA 414.

3.3.1.4 Altitude – Where justified, the vehicle, including the pumping system, will be designed for operation at 2,000 feet above sea level.

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3.3.2 Engine Cooling System – The engine cooling system will be in accordance with NFPA 414. A label will be installed near the engine coolant reservoir reading “Engine Coolant Fill.”

3.3.3 Fuel system – The fuel system will be in accordance with NFPA 414.

3.3.3.1 Fuel priming pump – The vehicle will be equipped with an electric fuel pump in addition to the mechanical fuel pump. The electric/pneumatic pump will be used as a priming pump capable of re-priming the engines fuel system.

3.3.3.2 Fuel tank – The vehicle will have one or two fuel tanks with a minimum usable capacity in accordance with NFPA 414, as amended by NFPA 414. Each tank will have a fill opening of 3 inches minimum, readily accessible to personnel standing on the ground and designed to prevent fuel splash while refueling. Each tank will be located and mounted so as to provide maximum protection from damage, exhaust heat, and ground fires. If more than one tank is furnished, means will be provided to assure equalized fuel level in both tanks. An overturn fuel valve will be provided for each tank to prevent spillage in the event of a rollover. Each fuel tank must be prominently labeled “Diesel Fuel Only”.

3.3.4 Exhaust System – The exhaust system will be in accordance with NFPA 414. The exhaust system will be constructed of high-grade rust resistant materials and protected from damage resulting from travel over rough terrain. The muffler(s) will be constructed of aluminized steel or stainless steel. Exhaust system outlet(s) will be directed upward or to the rear, away from personnel accessing equipment compartments and the engine air intake and will not be directed toward the ground.

3.3.5 Transmission – A fully automatic transmission will be provided. The transmission will be in accordance with NFPA 414.

3.3.6 Driveline – The vehicle driveline will be in accordance with NFPA 414. If the driveline is equipped with a differential locking control, a warning/caution label will be placed in view of the driver indicating the proper differential locking/un-locking procedures. The operator’s manual will also include a similar warning/caution. All moving parts requiring routine lubrication must have a means of providing for such lubrication. There must be no pressure lubrication fittings where their normal use would damage grease seals or other parts.

3.3.7 Axle Capacity – Each axle will have a rated capacity, as established by the axle manufacturer, in accordance with NFPA 414.

3.3.8 Suspension – The suspension system will be in accordance with NFPA 414 and AC 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles.

3.3.9 Tires and Wheels – Tires and wheels will be in accordance with NFPA 414. The vehicle will be equipped with single tires and wheels at all wheel positions.

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The vehicle will be equipped with tubeless steel belted radial tires with non-directional on/off-road type tread mounted on disc wheel assemblies. Tire and wheel assemblies will be identical at all positions painted black. Tires and wheels will be certified by the manufacturer for not less than 25 miles of continuous operation at 60 mph at the normal operational inflation pressure. A spare tire and wheel assembly will be provided; however, the spare tire and wheel assembly are not required to be mounted on the vehicle. Tires will be new. Retreads, recaps, or re-grooved tires will not be permitted.

Tire bead locks, where justified, may be installed on all tires and rims.

3.3.10 Towing Connections – The vehicle will be equipped with towing connections in accordance with NFPA 414. The vehicle will be designed for flat towing; the capability to lift and tow the vehicle is not required. The tow connections may intrude into the 30-degree approach angle.

3.3.11 Brake system – The vehicle will be equipped with a multi-channel all-wheel antilock brake system with at least one channel for each axle. The brakes will be automatic, self-adjusting and fully air-actuated. Brakes will be in accordance with CFR 49 CFR 393.40 through 393.42(b)), 393.43, and 393.43 through 393.52. The braking system, complete with all necessary components will include:

3.3.11.1 Air compressor having a capacity of not less than 16 standard cubic feet per minute (SCFM).

3.3.11.2 Air storage reservoir(s), each tank equipped with drain (bleed) valves, and with safety and check valves between the compressor and the reservoir tank.

3.3.11.3 Automatic moisture ejector on each air storage reservoir. Manual air tank drains are acceptable if they are labeled, are centrally located in one compartment and are accessible by an individual standing at the side of the vehicle.

3.3.11.4 Automatic slack adjusters on cam brakes or internal self-adjusting brakes on wedge brakes on all axles.

3.3.11.5 Spring set parking brakes.

All components of the braking system will be installed in such a manner as to provide adequate road clearance when traveling over uneven or rough terrain, including objects liable to strike and cause damage to the brake system components. No part of the braking system will extend below the bottom of wheel rims, to ensure, in case of a flat tire, that the weight of the vehicle will be supported by the rim and the flat tire and not be imposed on any component of the braking system. Slack adjusters and air chambers will be located above the bottom edge of the axle carrier.

3.3.11.6 Air Dryer – A replaceable cartridge desiccant air dryer will be installed in the air brake system. The dryer will have the capability of

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removing not less than 95 percent of the moisture in the air being dried. The dryer will have a filter to screen out oil and solid contaminants. The dryer will have an automatic self-cleaning cycle and a thermostatically controlled heater to prevent icing of the purge valve.

3.3.11.7 Compressed Air Shoreline or Vehicle-Mounted Auxiliary Air Compressor – A flush mounted, check valved, auto-eject compressed air shoreline connection will be provided to maintain brake system pressure while the vehicle is not running. The shoreline will be flush mounted (not to extend outside the body line), located on the exterior of the vehicle, either on the left side rear corner of the cab, or at the rear of the vehicle. In lieu of a compressed air shoreline connection, the vehicle may be equipped with a 110-volt shoreline connected vehicle-mounted auxiliary air compressor. In lieu of a compressed air shoreline connection, the vehicle may be equipped with an electrical shoreline connected vehicle mounted auxiliary air compressor.

3.3.12 Steering – The vehicle will be equipped with power steering. Rear-wheel steering technology is not an approved vehicle option.

3.3.12.1 Steering Effort – The steering system performance will be in accordance with NFPA 414.

3.3.12.2 Turning Diameter – The fully loaded vehicle will have a wall to wall turning diameter of less than three times the overall length of the vehicle in both directions in accordance with NFPA 414.

3.3.13 License Plate Bracket – A lighted license plate bracket will be provided at the left rear and left front of the vehicle. The location of the left front bracket will be placed so as not to interfere with the operation of firefighting systems.

3.4 Cab – The vehicle will have a fully enclosed two door cab of materials which are corrosion resistant, such as aluminum, stainless steel, or glass reinforced polyester construction. Steps and handrails will be provided for all crew doors, and at least one grab handle will be provided for each crew member, located inside the cab for use while the vehicle is in motion. The lowermost step(s) will be no more than 22 inches above level ground when the vehicle is fully loaded. A tilt and telescoping steering column will be provided.

3.4.1 Windshield and Windows – The windshield and windows will be of tinted safety glass. Each door window will be capable of being opened far enough to facilitate emergency occupant escape in the event of a vehicle accident. The vehicle windows will have an electric control system.

3.4.2 Cab Interior Sound Level – The maximum cab interior sound level will be in accordance with NFPA 414.

3.4.3 Instruments and Controls – All instruments and controls will be illuminated and designed to prevent or reduce windshield glare. Gauges will be provided for oil pressure, coolant temperature, and automatic transmission temperature. In

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addition to the instruments and controls required by NFPA 414, the following will be provided within convenient reach of the seated driver:

3.4.3.1 Master warning light control switch,

3.4.3.2 Work light switch(es), and

3.4.3.3 Compartment "Door Open" warning light and intermittent alarm that sounds when a compartment door is open, and the parking brakes are released or the transmission is in any position other than neutral.

3.4.4 Windshield Deluge System – The vehicle will be equipped with a powered windshield deluge system. The deluge system will be supplied from the agent water tank and will have an independent pumping system. The deluge system activation switch will be located within reach of the seated driver and turret operator.

3.4.5 Forward Looking Infrared (FLIR) – A forward looking infrared (FLIR) camera and in-cab monitor, meeting the requirements of NFPA 414, will be provided. In addition, the FLIR monitor described in NFPA 414 will have a minimum dimension of 10 in (25 cm) (measured diagonally) and be located in a position where it is visible to both the seated driver and turret operator.

3.4.6 Climate Control System – The offeror/contractor’s standard heater/defroster and air conditioning system will be provided. The climate control system will induct at least 60 cubic feet per minute of fresh air into the cab. Cab mounted components will be protected from inadvertent damage by personnel.

3.4.7 Seats – The driver seat will be adjustable forward and back and for height. The turret operator’s seat, located to the right front of the driver’s seat, will be a fixed (non-suspension) type. Each seat will be provided with a Type 3 seat belt assembly (i.e., 3-point retractable restraint) in accordance with CFR 49 CFR 571.209. Seat belts must be of sufficient length to accommodate crew members in full Personal Protective Equipment (PPE).

3.4.7.1 Seat Options – Two types of seat options are allowed in the vehicle. A standard seat contains a hard/fixed back. For these seats, a remote-mounted bracket designed to store a Self-Contained Breathing Apparatus (SCBA) will be provided. The remote-mounted bracket for the driver and turret operator (at a minimum) must be placed inside the cab. An SCBA seat, on the other hand, contains an opening which can accommodate someone wearing an SCBA. SCBA seats and seat brackets will be compatible with MSA G-1 with 4500 psi, 45-minute cylinders. The chart below represents the user’s stated preference for the vehicle seating configuration.

Position	Standard	SCBA-Seat	N/A
Driver	X		
Turret		X	

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#3		X	
#4		X	

3.4.8 Windshield Wipers and Washer – The vehicle will be equipped with electrically powered windshield wipers. The wiper arms and blades will be of sufficient length to clear the windshield area described by SAE J198, Windshield Wiper Systems – Trucks. Individual wiper controls will include a minimum of two speed settings and an intermittent setting. The wiper blades will automatically return to a park position, out of the line of vision. The vehicle will be equipped with a powered windshield washer system, including an electric fluid pump, a minimum one-gallon fluid container, washer nozzles mounted to the wiper arms (wet arms), and a momentary switch.

3.4.9 Warning Signs – Signs that state “Occupants must be seated and wearing a seat belt when apparatus is in motion” will be provided in locations that are visible from each seated position in accordance with NFPA 414.”

3.4.10 Lateral Accelerometer and/or Stability Control System – The vehicle will be equipped with a lateral accelerometer and/or an electronic stability control system in accordance with NFPA 414.

3.4.11 Monitoring and Data Acquisition System (MADAS) – The vehicle will be equipped with a MADAS as prescribed by NFPA 414.

3.5 Body, Compartments, and Equipment Mounting

3.5.1 Body – The vehicle will have a corrosion-resistant body.

3.5.2 Compartments – The vehicle body will have lighted compartments in accordance with NFPA 414 with a minimum of 10 cubic feet of enclosed storage space.

3.5.2.1 Compartment Doors – Storage compartments will have clear anodized aluminum, counterbalanced, non-locking, roll-up or single hinged doors as determined by the manufacturer. Door latch handles on roll-up doors will be full-width bar type. Door straps will be provided to assist in closing the compartment doors when the rolled up or hinged door height exceeds six feet above the ground.

3.5.2.2 Scuffplates – Replaceable scuffplates will be provided at each compartment threshold to prevent body damage from sliding equipment in and out of the compartments. The scuffplates will be securely attached to the compartment threshold but will be easily replaceable in the event of damage.

3.5.2.3 Drip Rails – Drip rails will be provided over each compartment door.

3.5.2.4 Shelves – An adjustable and removable compartment shelf will be provided for every 18 inches of each vertical storage compartment door opening. Shelving adjustments will require no more than common hand

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tools and will not require disassembly of fasteners. Shelves will support a minimum of 200 pounds without permanent deformation. Each shelf will be accessible to crew members standing on the ground or using a pull out and tip-down configuration. Each shelf will have drain holes located so as to allow for drainage of any water from the stowed equipment.

3.5.2.5 Drainage Mats – Each compartment floor and shelf will be covered with a removable black mat designed to allow for drainage of any water from the stowed equipment.

3.5.3 SCBA Storage Tubes – A single compartment or tubes for storage of four SCBA bottles will be provided. If tubes are provided, two will be installed on each side of the vehicle. The tubes will be of sufficient size to accommodate the procuring agencies SCBA cylinders.

3.5.4 Ladder, Handrails, and Walkways – Ladder, stepping, standing, and walking surfaces will be in accordance with NFPA 414. Handrails will be provided in accordance with NFPA 414. The lowermost step(s) or ladder rungs will be no more than 22 inches (56 cm) above level ground when the vehicle is fully loaded. The lowermost steps may extend below the angle of approach or departure or ground clearance limits if they are designed to swing clear. The tread of the bottom steps must be at least 8 inches (20 cm) in width and succeeding steps at least 16 inches (40 cm) in width. The full width of all steps must have at least 6 inches (15 cm) of unobstructed toe room or depth when measured from, and perpendicular to, the front edge of the weight-bearing surface of the step.

3.5.5 Ancillary Equipment – Ancillary equipment listed in NFPA 414 A.4.2.1 (1)-(17) is not covered by this Procurement Specification in accordance with AC 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles. Ancillary equipment is funded separately by other sources.

3.6 Agent System

3.6.1 Agent (Fire) Pump – The vehicle will be equipped with a centrifugal pump capable of providing the performance specified herein as prescribed by NFPA 414.

3.6.1.1 Agent System Piping – All piping, couplings, and valves and associated components that come into contact with the agent will be in accordance with NFPA 414.

3.6.1.2 Tank to Pump Connection – A check valve and shutoff valve will be provided in each tank to pump line.

3.6.1.3 Piping, Couplings, and Valves – All agent system piping will conform to NFPA 414 criteria.

3.6.1.4 Overheat Protection – The agent system will be equipped with an overheat protection system in accordance with NFPA 414. Overheat protection is not required on vehicles utilizing a pre-mixed pressurized foam system.

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3.6.1.5 Pressure Relief Valves – The agent system will be equipped with pressure relief valves in accordance with NFPA 414.

3.6.1.6 Drains – The agent system will be equipped with a drainage system in accordance with NFPA 414.

3.6.2 Water Tank – The vehicle will have a water tank with a manufacturer certified minimum capacity of at least 1,500 gallons.

3.6.2.1 Water Tank Construction – The water tank will be constructed of passivated stainless steel, polypropylene, or Glass Reinforced Polyester (GRP) construction. All materials used will be capable of storing water, foam concentrate, and water/AFFF solutions.

3.6.2.2 Water Tank Overhead Fill Cover and Drain – The water tank will be equipped with a 20-inch fill tower. The tower will be designed to allow for video inspection of the water tank interior. The water tank will incorporate a drainage system in accordance with NFPA 414.

3.6.2.3 Water Tank Overflow System and Venting – The water tank will incorporate a venting system to relieve pressure on the tank during fill and discharge operations at maximum flow rates. It will have an overflow system to relieve excess fluid in the event of tank overflow. Drainage from the vent and overflow system will not flow over body panels or other vehicle components and will not be in the track of any of the tires. Tank vent hoses will be of the non-collapsible type.

3.6.2.4 Water Tank Top Fill Opening – A top fill opening of not less than 8 inches internal diameter with a readily removable ¼-inch mesh strainer will be provided. The fill opening may be incorporated as part of the manhole cover and will be sized to accommodate a 2½-inch fill hose.

3.6.2.5 Water Tank Fill Connections – The water tank fills will incorporate National Hose thread connections and will be in accordance with NFPA 414. The vehicle will be fitted with the "structural firefighting capability option" and the additional requirements listed in paragraph 3.6.8 must be incorporated.

3.6.3 Foam System (***NOTE: The requirements of Section 3.6.3 do not apply to pre-mixed pressurized foam systems.***)

3.6.3.1 Foam Concentrate Tank – The foam concentrate tank(s) will have a manufacturer certified working capacity sufficient for two tank loads of water at the maximum tolerance specified in NFPA 412, Standard for Evaluating Aircraft Rescue and Fire-Fighting Foam Equipment for 3 to 6 percent foam concentrate (i.e., 7.0 percent).

3.6.3.1.1 Foam Tank Construction – The foam tank will be constructed of polypropylene construction. All materials used will be capable of storing foam concentrate.

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3.6.3.1.2 Foam Tank Drain – The foam tank will incorporate a drain and drain valve. The valve will be on the left side of the vehicle and controlled by a crew member standing on the ground. The drain line will have a minimum 1½-inch I.D. The foam tank drain outlet will be located so that the contents of the tank can be drained into 5-gallon cans and 55-gallon drums.

3.6.3.1.3 Foam Tank Top Fill Trough – The foam tank will incorporate a top fill trough mounted in the top of the tank readily accessible to at least two crew members on top of the vehicle. The top fill trough will incorporate a cover, latch, and sealed so as to prevent spillage under any operating condition. The top fill trough will be designed to allow two standard 5-gallon foam concentrate containers to be emptied simultaneously. The top fill trough neck will extend sufficiently close to the bottom of the tank to reduce foaming to a minimum during the fill operation. The top fill trough will incorporate readily removable, rigidly constructed 10 mesh stainless steel, brass or polyethylene strainers. All components in and around the top fill trough will be constructed of materials that resist all forms of deterioration that could be caused by the foam concentrate or water.

3.6.3.2 Foam Tank Fill Connections – The foam tank will incorporate a 1½ inch National Hose thread female hose connection on **both sides** of the vehicle to permit filling by an external transfer hose at flow rates up to 25-gpm. The connections will be provided with chained-on long handled plugs or rocker lug plugs. The top of the connections will be no higher than 48 inches above the ground and readily accessible. The fill lines will incorporate check valves and readily removable, rigidly constructed ¼-inch mesh strainers. All components in the foam tank fill system will be constructed of materials that resist all forms of deterioration that could be caused by the foam concentrate or water.

3.6.3.2.1 Foam Tank Vent and Overflow System – The foam tank will incorporate a vent system to relieve pressure on the tank during fill and discharge operations at maximum flow rates and an overflow system to relieve excess liquid in the event of tank overflow. Drainage from the vent and overflow system will not flow over body panels or other vehicle components and will not be in front of or behind any of the tires. Tank vent hoses will be of the non-collapsible type.

3.6.3.3 Foam Transfer Pump – A foam transfer pump will be provided and mounted in a compartment on the vehicle. The pump will be capable of transferring and drawing foam liquid concentrate at adjustable flow rates up to 25-gpm directly through the pump and loading connection (see 3.6.3.2). All materials and components that come in contact with the foam

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will be compatible with the foam concentrate. The pump and its plumbing will have provisions for flushing with water from the water tank. A suitable length of hose with appropriate connections will be provided for filling the foam tank from an external foam storage container.

3.6.3.4 Foam Flushing System – The foam concentrate system will be designed in accordance with NFPA 414 so that the system can be readily flushed with clear water.

3.6.3.5 Foam Concentrate Piping – All metallic surfaces of the piping and associated components that come into contact with the foam concentrate will be of brass, bronze, or passivated stainless steel. The foam concentrate piping will be in accordance with NFPA 414.

3.6.4 Foam Proportioning System – The vehicle will have a foam proportioning system for Aqueous Film-Forming Foam (AFFF) (whether 3- or 6-percent foam concentrate) in accordance with NFPA 414. If a fixed orifice plate system is used, a plate will be provided for each percentage foam concentrate; the additional plate will be securely mounted in a protected location on the vehicle. A fire vehicle mechanic will be able to interchange the plates using common hand tools.

3.6.5 Primary Vehicle Turret – The vehicle will be equipped with a standard roof mounted turret, and high flow bumper mounted turret to serve as the primary sources of agent delivery, as specified below:

3.6.5.1 Roof Turret – The roof turret will be mounted near the front of the roof of the vehicle. It will have a non-air-aspirating, constant flow, variable stream nozzle with dual flow rates for foam or water rated as specified in NFPA 414. The discharge pattern will be infinitely variable from straight stream to fully dispersed. The roof turret will be power operated; power controls will be positioned for use by the driver and the crew member seated to the right of the driver. The type of nozzle or turret drain will be per the manufacturer's recommendation.

3.6.6 Bumper Turret – The vehicle will be equipped with a joystick controlled, constant flow, non-air-aspirating, variable stream type **with a low angle high volume dual rate (minimum 375/750 GPM) bumper turret**. The bumper turret will be capable of discharging at a minimum flow rate of foam or water as specified by the user, with a pattern infinitely variable from straight stream to fully disperse. The bumper turret and LED light will be capable of automatic oscillation, with the range of oscillation adjustable up to 90° each side of center (left and right) with vertical travel capabilities of +45°/20° meeting section 4.20.2 in NFPA 414.

3.6.7 Pre-Connected Handline(s) – **Two (2), 200 foot**, 1¾-inch pre-connected woven jacket handlines, with a 1½-inch control valve and a pistol grip nozzle, will be located on (or accessible from) **each** side of the vehicle. A safety system will be provided to prevent charging of the hose until the hose has been fully deployed.

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The handline(s) and nozzle(s) will be in accordance with NFPA 414 and will allow for a minimum of 95 GPM at 100 psi nozzle pressure. A control for charging **each** handline will be provided for operation by both the driver and the turret operator.

3.6.7.1 In addition, the vehicle will be equipped with the following handline: 100 feet of twinned 1-inch dry chemical foam-water hose on a reel.

3.6.8 Structural Firefighting Capability – The vehicle will be equipped with an agent system structural control panel, on the left side of the vehicle, operable while standing on the ground. Structural panel activation will be interlocked to operate only with the vehicle parking brakes set and the transmission in neutral position. Controls and instruments will be grouped by function. The control panel will be hinged or accessible from the rear for maintenance. Instruments will be lighted for night operation.

3.6.8.1 The structural panel will include, as a minimum, the following:

3.6.8.1.1 Panel activation switch, including the panel lights.

3.6.8.1.2 Engine tachometer.

3.6.8.1.3 Engine oil pressure gauge with low pressure warning light.

3.6.8.1.4 Engine coolant temperature gauge with high temperature warning light.

3.6.8.1.5 A liquid filled gauge, or digital indicator for pump suction, -30 inches Hg vacuum to 600 psi.

3.6.8.1.6 A liquid filled gauge, or digital indicator for pump pressure, 0 to 600 psi.

3.6.8.1.7 An adjustable pump pressure using an electronic pressure governor will be provided.

3.6.8.1.8 Foam or water selection.

3.6.8.1.9 Water and foam tank liquid level indicators located adjacent to the water and foam tank fills.

3.6.8.2 The structural firefighting capability will also require installation of the following items:

3.6.8.2.1 A priming pump and control (for drafting using the large intake connection).

3.6.8.2.2 Water tank isolation valve.

3.6.8.2.3 Discharge connections – Two 2½-inch discharge connections with male National Hose threads will be provided. One 2½-inch discharge will be provided on each side of the vehicle. Each connection will be equipped with a cap, a quarter-

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turn control valve, a bleeder valve, and a pressure gauge. Each connection will be rated at 250-gpm minimum.

3.6.8.2.4 Intake connections – The vehicle will be equipped with one valved 4½-inch intake connection on the left side. The vehicle will be equipped with one valved 2½-inch intake connection on the left side adjacent to the 4½-inch intake connection with both having either a 30° or 45° turn-down fitting. The 4½-inch intake connection will have a Storz connection, a quarter-turn control valve, a bleeder valve, a strainer, and a cap. The 2½-inch intake connection will have rocker lug female National Hose threads, a quarter-turn control valve, a bleeder valve, a strainer, and a plug. The vehicle will be capable of filling its water tank by pumping from a draft, a hydrant, or a nurse truck through either of the intake connections without the use of a hose from a discharge connection to a tank fill connection.

3.6.9 Primary Turret Discharge Nozzle – The vehicle will be equipped with a combination dry chemical/ AFFF nozzle of the entrainment type on the primary turret mounted on the front bumper.

3.7 Dry Chemical Agent System – The vehicle will be equipped with a 450 lb minimum capacity potassium bicarbonate dry chemical auxiliary agent system. The propellant gas cylinder will be replaceable within fifteen minutes by two crew members standing on the ground and be equipped with a cylinder replacement hoisting system. The propellant gas cylinder will be secured to withstand off-road operations. A pressure indicator will be visible to any person opening the tank fill cap. Blow-down piping will be directed beneath the vehicle. The dry chemical agent tank will include lifting rings and will have a nameplate indicating, as a minimum, the following:

- Extinguishing agent.
- Capacity.
- Weight full.
- Weight empty.
- Operating pressure.
- Hydrostatic test date.
- Type of agent required for re-servicing.

3.7.1 Not Applicable.

3.7.2 Dry Chemical Hose Reel – A hose reel, equipped with at least 100 feet of dry chemical hose will be mounted in a compartment. Handline agent and purge controls will be mounted in or adjacent to the compartment. All electrical components will be sealed against entry of water. The hose reel will have both electric and manual rewind provisions. The manual rewind handle will be bracket

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mounted and stored in the compartment. A quick acting control will be provided to activate the handline from the cab of the vehicle.

3.8 Not Applicable.

3.9 Electrical Systems and Warning Devices – The vehicle will have a 12-volt or 24-volt electrical and starting system in accordance with NFPA 414.

3.9.1 Alternator – An appropriate charging system, in accordance with NFPA 414, will be provided. The minimum continuous electrical load will include operation of the air conditioning system.

3.9.2 Batteries – Batteries will be of the maintenance-free type; addition of water will not be required during normal service life. The battery cover and vent system will be designed to prevent electrolyte loss during service and to keep the top of the battery free from electrolyte.

3.9.2.1 Battery Compartment – The batteries will be enclosed in a weatherproof enclosure, cover, or compartment and be readily accessible.

3.9.3 Battery Charger or Conditioner – The vehicle will have a DC taper type battery charger or an automatic battery conditioner, or voltage monitoring system, providing a minimum 12-amp output. The charger/conditioner will be permanently mounted on the vehicle in a properly ventilated, accessible location. The charger/conditioner will be powered from the electrical shoreline receptacle (see 3.10.1). A charging indicator will be installed next to the receptacle. When a battery conditioner is provided, the conditioner will monitor the battery state of charge and, as necessary, automatically charge or maintain the batteries without gassing, depleting fluid level, overheating, or overcharging. A slave receptacle will be provided at the rear or on either side of the vehicle cab. Battery jump studs may be installed on the exterior of the battery box in lieu of a slave receptacle.

3.9.4 Electromagnetic Interference – The vehicle electrical system will be in accordance with SAE J551-2 for electromagnetic interference.

3.9.5 Work Lighting

3.9.5.1 Cab Interior Lights – Cab interior light levels will be sufficient for reading maps or manuals. At least one red and one white cab interior dome light will be provided.

3.9.5.2 Compartment Lights – Red lighting sufficient to provide an average minimum illumination of 1.0 foot-candle will be provided in each compartment greater than 4.0 cubic feet and having an opening greater than 144 square inches. Where a shelf is provided, this illumination will be provided both above and below the shelf. All compartments will be provided with weatherproof lights that are switched to automatically illuminate when compartment doors are opened and the vehicle master switch is in the 'on' position. Light switches will be of the magnetic (non-mechanical) type.

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3.9.5.3 Ladder, Step, Walkway, and Area Lights – Non-glare red lighting will be provided at ladders and access steps where personnel work or climb during night operations. In addition, ground lighting will be provided. Ground lights will be activated when the parking brake is set in accordance with AC 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles. These area lights will be controlled with three-way switches on the cab instrument panel and near the light sources. The switch located in the cab will be a master switch and must be turned on before auxiliary switches near the light sources are operational.

3.9.5.4 Spot/Floodlights – Two spot/floodlights will be attached at the end of the primary turret. The lights will illuminate the area covered by the turret. Both lights will be controlled from switches in the cab. **LED** lights will be used.

3.9.5.5 Flood Lights – Two **telescoping** floodlights will be provided. One light will be mounted on the left and right sides of the vehicle. **250W LED** lights will be used.

Both lights will be mounted on extension tubes and controlled from switches in the cab and manually raised. To prevent these lights from accidental damage, the cab will be equipped with a visual warning signal to alert the driver if the lights are inadvertently left in the “up” position. The lumen rating for each light used shall be included in the bid.

3.9.5.6 Scene Lights – A total of six high mounted floodlights will be provided to illuminate the work areas around the vehicle. Two lights will be mounted on the front and two will be mounted on each side of the vehicle. The lights will be powered by the vehicle alternator driven system or auxiliary generator, and the lights in the front will be controlled from switches in the cab. **LED** lights will be used. The lumen rating for each light used shall be included in the bid.

3.9.6 Audible Warning Devices

3.9.6.1 Siren – The vehicle will be equipped with an electronic siren system. The amplifier unit will include volume control and selection of "Radio," "PA," "Manual," "Yelp," and "Wail" modes, and a magnetic noise canceling microphone. The amplifier, microphone, and controls will be within reach of the driver and the turret operator. Siren activating foot switches will be located in front of the driver and the turret operator. The siren speaker will be rated at 100 watts minimum and will be located in a guarded position as low and as far forward on the vehicle as practical.

3.9.6.2 Horn – Dual forward-facing air horns will be installed in protected locations near the front of the vehicle. Air horn activating foot switches will be located in front of the driver and the turret operator.

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3.9.7 Emergency Warning Lights – All emergency warning lights must meet the requirements of AC 150/5210-5. Where applicable, **LED** lights will be used as the primary light type. Lighting units will be installed on the top front, sides, and rear of the vehicle to provide 360° visibility. A switch will be provided on the instrument panel to control all of the top, side, front and rear emergency warning lights. A switch will also be provided on the instrument panel to disable all lower emergency warning lights when desired. All lighting systems will meet NFPA 414 emergency lighting criteria.

3.9.7.1 Emergency Warning Light Color – All emergency warning lights will meet the requirements of AC 150/5210-5.

3.9.7.2 Headlight Flashing System – A high beam, alternating/flashing, headlight system will be provided. The headlight flasher will be separately switched from the warning light panel.

3.9.8 Radio Circuit – The vehicle will have three separate 30-amp circuits with breakers and connections provided in a space adjacent to the driver and turret operator. The vehicle will be equipped with VHF Air-to-Ground radio system that is capable of including 120.1 and 121.9 frequencies. To facilitate the installation of the communications equipment the manufacturer will provide three antennas pre-installed on top of the cab.

3.9.9 Power Receptacles

3.9.9.1 Primary Power Receptacles – The vehicle will have two duplex 15-amp 110-volt power receptacles, one installed adjacent to the cab door on each side of the vehicle. Each duplex receptacle will include two straight blade connections. These outlets will be powered by the generator.

3.9.9.2 Auxiliary Power Receptacles – The vehicle will have 2-12-volt auxiliary power receptacles mounted adjacent to the driver and crew member positions, preferably in the instrument panel.

3.9.9.3 Cable Reel – The vehicle will be equipped with an electrical cable reel, located within a compartment. The reel will be equipped with 200 feet of 20-amp, 600 volt, 90°C insulated electrical cable. The electrical cable will be equipped with a rubber ball stop to prevent cable pull through during rewinding operations. A four-way roller guide will be provided on the cable reel to prevent chafing of cable insulation. The cable reel will have an electric rewind motor with provisions for manual rewind in the event of motor failure; the manual rewind handle will be securely stored near the cable reel. A portable weatherproof duplex outlet box, with built-in circuit breakers and straight blade receptacles, will be provided for on the cable end. The cable reel will be powered by the auxiliary generator.

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3.9.10 Auxiliary Generator – A minimum **10** kilowatt (kW) (continuous rating), 120/240-volt, 60 hertz, diesel, hydraulic, or split shaft Power Takeoff (PTO)-driven generator will be provided.

3.10 Line Voltage Electrical System

3.10.1 Electrical Shoreline Connection – The battery charger/conditioner will be powered from covered, polarized, insulated, labeled, recessed (flush mounted), male, 110-volt AC auto-eject receptacles. The connection will be located on the exterior of the vehicle on the left side of the cab. A weatherproof charge meter will be installed next to the receptacles. A 15-amp rated, 110-120-volt, AC straight blade (non twist-lock) connector will be provided.

3.11 Air Systems

3.11.1 Air Hose Reel – An air hose reel will be provided in an enclosed compartment on the vehicle. The hose reel will be equipped with 200 feet of 3/8-inch I.D. hoseline. A 3/8-inch National Pipe Taper (NPT) fitting and female style quick disconnect will be connected to the end of the hoseline. A four-way roller guide will be provided for the hose reel to prevent hose chafing and kinking. The hoseline will be equipped with a rubber ball stop to prevent hose pull through on roller guides during rewinding operations. The hose reel will have an electric rewind motor and provisions for manual rewind in the event of motor failure; the manual rewind handle will be securely stored near the hose reel. A pressure protected air supply from the chassis air system will be connected to the hose reel. The air supply lines will be routed with minimum bends and located or guarded from damage from the carried equipment.

3.12 Quality of Workmanship – The vehicle, including all parts and accessories, will be fabricated in a thoroughly workmanlike manner. Particular attention will be given to freedom from blemishes, burrs, defects, and sharp edges; accuracy of dimensions, radii of fillets, and marking of parts and assemblies; thoroughness of welding, brazing, soldering, riveting, and painting; alignment of parts; tightness of fasteners; et cetera. The vehicle will be thoroughly cleaned of all foreign matter.

4.0 REGULATORY REQUIREMENTS

4.1 Recoverable Materials – The contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with Title 48: Federal Acquisition Regulations System, Part 2823 Environment, Conservation, Occupational Safety, and Drug-free Workplace, Subpart 2823.4 Use of Recovered Material, 403 Policy and 404 Procedures.

4.2 Green Procurement Program – Green Procurement Program (GPP) is a mandatory federal acquisition program that focuses on the purchase and use of environmentally preferable products and services. GPP requirements apply to all acquisitions using appropriated funds, including services and new requirements. FAR 23.404(b) applies and states the GPP requires 100% of EPA designated

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product purchase that are included in the Comprehensive Procurement Guidelines list that contains recovered materials, unless the item cannot be acquired:

- 4.2.1 Competitively within a reasonable timeframe;
- 4.2.2 Meet appropriate performance standards, or
- 4.2.3 At a reasonable price.

The prime contractor is responsible for ensuring that all subcontractors comply with this requirement. Information on the GPP can be found at:

http://www.dot.gov/ost/m60/DOT_policy_letters/apl8_04.pdf

or FAR 23.404 (b):

<http://www.acquisition.gov/far/current/html/Subpart%20234.html>

5.0 PRODUCT CONFORMANCE PROVISIONS.

- 5.1 Classification of Inspections – The inspection requirements specified herein are classified as follows:
 - 5.1.1 Performance inspection (see 5.2).
 - 5.1.2 Conformance inspection (see 5.3).
- 5.2 Performance Inspection – The vehicle will be subjected to the examinations and tests described in 5.6.3.1 through 5.6.3.5 (if applicable). The contractor will provide or arrange for all test equipment, personnel, schedule, and facilities.
- 5.3 Conformance Inspection – The vehicle will be subjected to the examinations and tests described in 5.6.3.1 through 5.6.3.5 (if applicable). The contractor will provide or arrange for all test equipment, personnel, and facilities.
- 5.4 Product Conformance – The products provided will meet the performance characteristics of this PS, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial marketplace. The purchaser reserves the right to require proof of such conformance.
- 5.5 Technical Proposal – The offeror/contractor will provide an itemized technical proposal that describes how the proposed model complies with each characteristic of this PS; a paragraph by paragraph response to the characteristics section of this PS will be provided. The offeror/contractor will provide two copies of their commercial descriptive catalogs with their offer as supporting reference to the itemized technical proposal. The offeror/contractor will identify all modifications made to their commercial model in order to comply with the requirements herein. The vehicle furnished will comply with the "commercial item" definition of FAR 2.101 as of the date of award. The purchaser reserves the right to require the offeror/contractor to prove that their product complies with the referenced commerciality requirements and each conformance/performance characteristics of this PS.

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5.6 Inspection Requirements

5.6.1 General Inspection Requirements – Apparatus used in conjunction with the inspections specified herein will be laboratory precision type, calibrated at proper intervals to ensure laboratory accuracy.

5.6.2 Test Rejection Criteria – Throughout all tests specified herein, the vehicle will be closely observed for the following conditions, which will be cause for rejection:

5.6.2.1 Failure to conform to design or performance requirements specified herein or in the contractor's technical proposal.

5.6.2.2 Any spillage or leakage of any liquid, including fuel, coolant, lubricant, or hydraulic fluid, under any condition, except as allowed herein.

5.6.2.3 Structural failure of any component, including permanent deformation, or evidence of impending failure.

5.6.2.4 Evidence of excessive wear.

5.6.2.5 Interference between the vehicle components or between the vehicle, the ground, and all required obstacles, with the exception of normal contact by the tires.

5.6.2.6 Misalignment of components.

5.6.2.7 Evidence of undesirable road ability characteristics, including instability in handling during cornering, braking, and while traversing all required terrain.

5.6.2.8 Conditions that present a safety hazard to personnel during operation, servicing, or maintenance.

5.6.2.9 Overheating of the engine, transmission, or any other vehicle component.

5.6.2.10 Evidence of corrosion.

5.6.2.11 Failure of the firefighting system and sub-systems.

5.6.3 Detailed Inspection Requirements

5.6.3.1 Examination of Product – All component manufacturer' certifications, as well as the prototype and production/operational vehicle testing outlined in Table 1, will be examined to verify compliance with the requirements herein. Attention will be given to materials, workmanship, dimensions, surface finishes, protective coatings and sealants and their application, welding, fastening, and markings. Proper operation of vehicle functions will be verified as defined by NFPA 414, Acceptance Criteria Chapter. A copy of the vehicle manufacturer's certifications will be provided with each vehicle in accordance with NFPA 414. The airport may accept a manufacturer or third-party certification for any/all prototype and

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production/operation vehicle testing performed prior to delivery which proves that the vehicle meets the performance parameters of NFPA 414.

NFPA 414 Paragraph	Test
Production Vehicle Operational Tests (NFPA 414 - Section 6.4)	
(6.4.1)	Vehicle Testing, Side Slope
(6.4.2)	Weight / Weight Distribution
(6.4.3)	Acceleration. NOTE: <i>With the modification that the instrumentation must be a GPS-based electronic data collection system.</i>
(6.4.4)	Top Speed
(6.4.5)	Brake Operational Test
(6.4.6)	Air System / Air Compressor Test
(6.4.7)	Agent Discharge Pumping Test
(6.4.8)	Dual Pumping System Test (As Applicable)
(6.4.9)	Pump and Maneuver Test
(6.4.10)	Hydrostatic Pressure Test
(6.4.11)	Foam Concentration Test
(6.4.12)	Primary Turret Flow Rate Test
(6.4.13)	Piercing/Penetration Nozzle Testing (As Applicable)
Prototype Vehicle Tests (NFPA 414 – Section 6.3)	
(6.3.1)	Rated Water and Foam Tank Capacity Test
(6.3.2)	Cornering Stability. NOTE: <i>With the modification that the evasive maneuver / double-lane change test must be conducted at 35 mph (56</i>
(6.3.3)	Vehicle Dimensions
(6.3.4)	Driver Vision Measurement
(6.3.5)	Pump and Roll on a 40 Percent Grade
(6.3.6)	Electrical Charging System
(6.3.7)	Radio Suppression
(6.3.8)	Gradability Test
(6.3.9)	Body and Chassis Flexibility Test
(6.3.10)	Service/Emergency Brake Test
(6.3.11)	Service/Emergency Brake Grade Holding Test
(6.3.12)	Steering Control Test
(6.3.13)	Vehicle Clearance Circle Test
(6.3.14)	Agent Pump(s)/Tank Vent Discharge Test
(6.3.15)	Water Tank Fill and Overflow Test
(6.3.16)	Flushing System Test
(6.3.17)	Primary Turret Flow Rate Test
(6.3.18)	Primary Turret Pattern Test

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(6.3.19)	Primary Turret Control Force Measurement
(6.3.20)	Primary Turret Articulation Test
(6.3.21)	Handline Nozzle Flow Rate Test
(6.3.22)	Handline Nozzle Pattern Test
(6.3.23)	Ground Sweep/Bumper Turret Flow Rate Test
(6.3.24)	Ground Sweep/Bumper Turret Pattern Control Test
(6.3.25)	Undertruck Nozzle Test
(6.3.26)	Foam Concentration/Foam Quality Test
(6.3.27)	Warning Siren Test
(6.3.28)	Propellant Gas
(6.3.29)	Pressure Regulation
(6.3.30)	AFFF Premix Piping and Valves
(6.3.31)	Pressurized Agent Purging and Venting
(6.3.32)	Complementary Agent Handline Flow Rate and Range
(6.3.33)	Dry Chemical Turret Flow Rate and Range
(6.3.34)	Cab Interior Noise Test

6.0 PACKAGING

- 6.1 Preservation, packing, and marking will be as specified in the Procurement Specification, contract or delivery order.
- 6.2 The vehicle must be delivered with full operational quantities of lubricants, brake and hydraulic fluids, and cooling system fluid all of which must be suitable for use in the temperature range expected at the airport.
- 6.3 The vehicle must be delivered with one complete load of firefighting agents and propellants. One complete load is defined as all of the agents and propellants necessary for the vehicle to be fully operational. One load would include, at a minimum: one fill of a foam tank; one fill of a dry chemical tank; and one spare nitrogen cylinder for a dry chemical system. Agents and propellants for required testing or training are not included. For the initial training period, water should be used in place of other extinguishing agents. The manufacturer may pre-ship agents and propellants to Blue Grass Airport to reduce overall procurement costs.
- 6.4 The vehicle manufacturer must provide initial adjustments to the vehicle for operational readiness and mount any ancillary appliances purchased through the vehicle manufacturer as part of the vehicle.

7.0 TRAINING

- 7.1 Upon delivery of the vehicle to the airport, the manufacturer must, at no additional cost, provide the services of a qualified technician for five consecutive days for training. This is considered sufficient time for the purchaser to adjust shift work schedules to get maximum employee attendance to training sessions at some point during the training period. During this time sufficient repetitive learning

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opportunities must be provided by the manufacturer to allow various shifts to complete the training requirements.

- 7.2 The technician must provide thorough instruction in the use, operation, maintenance and testing of the vehicle. This setup must include operator training for the primary operators, which will give them sufficient knowledge to train other personnel in the functional use of all firefighting and vehicle operating systems. Prior to leaving the vehicle, the technician should review the maintenance instructions with the purchaser's personnel to acquaint them with maintenance procedures as well as how to obtain support service for the vehicle.
- 7.3 Training must include written operating instructions, electronic training aids (videos/power point), or other graphics that depict the step-by-step operation of the vehicle. Written instructions must include materials that can be used to train subsequent new operators.

8.0 REFERENCED DOCUMENTS

8.1 Source of Documents

8.1.1 The CFR may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington DC 20402.

Title 14, Code of Federal Regulations (CFR), Part 139, Certification of Airports (14 CFR Part 139)

Section 139.315 Aircraft Rescue and Firefighting: Index Determination.

Section 139.317 Aircraft Rescue and Firefighting: Equipment and Agents.

Section 139.319 Aircraft Rescue and Firefighting: Operational Requirements.

Title 49; Code of Federal Regulations (CFR), Part 393: Parts and Accessories Necessary for Safe Operation: Subpart C—Brakes.

Title 49; Code of Federal Regulations (CFR), Part 571, Motor Carrier Vehicle Safety Standards, Part 209, Standard No. 209; Seat Belt Assemblies.

8.1.2 SAE documents may be obtained from SAE, Inc., 400 Commonwealth Drive, Warrendale PA 15096.

8.1.3 National Fire Protection Association (NFPA): NFPA documents may be obtained from NFPA, Batterymarch Park, Quincy MA 02269-9101.

NFPA 412, Standard for Evaluating Aircraft Rescue and Fire-Fighting Foam Equipment (2009 Edition)

NFPA 414, Standard for Aircraft Rescue and Fire Fighting Vehicles (2007 Edition)

NFPA 1901, Standard for Automotive Fire Apparatus (2009 Edition)

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8.1.4 Federal Aviation Administration (FAA): FAA ACs may be obtained from the FAA website:

http://www.faa.gov/regulations_policies/advisory_circulars/

AC 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles

AC 150/5210-5, Painting, Marking, and Lighting of Vehicles Used on an Airport

FAA Orders, Specifications, and Drawings may be obtained from: Federal Aviation Administration, ATO-W CM-NAS Documentation, Control Center, 800 Independence Avenue, SW, Washington, DC 20591. Telephone: (202) 548-5256, FAX: (202) 548-5501 and website:

http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/atc_facilities/cm/cm_documentation/

END OF CLASS 4 PROCUREMENT SPECIFICATIONS

ATTACHMENT 02
PROCUREMENT SPECIFICATION – CLASS 5 ARFF VEHICLE
(3,000-4,500 Gallon AFFF Fire Suppression System)

1.0 SCOPE

This Procurement Specification (PS) covers a commercially produced diesel engine driven ARFF vehicle for Greenville-Spartanburg Airport District (GSP), an Index D airport. It includes a 3,000-4,500 gallon water/Aqueous Film Forming (AFFF) fire suppression system with 450 lbs. potassium-based dry chemical only.

The ARFF vehicle is intended to carry rescue and firefighting equipment for the purpose of rescuing aircraft passengers, preventing aircraft fire loss, and combating fires in aircraft.

2.0 CLASSIFICATION

The ARFF vehicle(s) covered by this PS are classified in accordance with Part 139, Certification and Operations, Land Airports Serving Certain Air Carriers; Section 315, Aircraft Rescue and Firefighting, Index Determination; Section 317, Aircraft Rescue and Firefighting, Equipment and Agents; and Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles, as follows:

Airport Index	Vehicle Class	Minimum Rated Capacities (gallons/liters)
Index D	5	3,000 gallon (11,356-liter water/AFFF solution)
Index D	5	3,500 gallon (13,249-liter water/AFFF solution)
Index D	5	4,000 gallon (15,142-liter water/AFFF solution)
Index D	5	4,500 gallon (17,034-liter water/AFFF solution)

3.0 VEHICLE CONFORMANCE/PERFORMANCE CHARACTERISTICS

The ARFF vehicle will be in accordance with the applicable requirements of National Fire Protection Association (NFPA) 414, Standard for Aircraft Rescue and Fire Fighting Vehicles (2007 Edition), and AC 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles. The manufacturer will allow the addition of other options, at the buyer’s expense, after bid acceptance.

3.1 General Administration Requirements

3.1.1 Manuals – Technical manuals will consist of operator, service, and parts manuals. All manuals are required to be provided in hardcopy and in digital format on CDs when requested.

3.1.1.1 Technical Manuals – The overall format for the manuals will be commercial. Each technical manual will have a title page. Line art will be used to the maximum extent possible for illustrations and parts lists. One complete set of engine and transmission parts, service and operator’s manuals will be packed with each vehicle.

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3.1.1.1.1 The contractor will provide digitized manuals in CD format when requested in addition to or in place of printed paper copies.

3.1.1.1.2 The contractor will provide two complete sets of hardcopy manuals and / or CDs when requested.

3.1.1.2 Operator's Manual – The operator's manual will include all information required for the safe and efficient operation of the vehicle, including fire extinguishing systems, equipment, and any special attachments or auxiliary support equipment. As a minimum, the operator's manual will include the following:

3.1.1.2.1 The location and function of all controls and instruments will be illustrated and functionally described.

3.1.1.2.2 Safety information that is consistent with the safety standards established by the, occupational Safety and Health Administration (OSHA) and NFPA.

3.1.1.2.3 All operational and inspection checks and adjustments in preparation for placing the vehicle into service upon receipt from the manufacturer.

3.1.1.2.4 Tie down procedures for transport on a low-boy trailer.

3.1.1.2.5 Warranty information and the period of the warranty coverage for the complete vehicle and for any component warranty that exceeds the warranty of the complete vehicle. Addresses and telephone numbers will be provided for all warranty providers.

3.1.1.2.6 General description and necessary step-by-step instructions for the operation of the vehicle and its fire extinguishing system(s) and auxiliary equipment.

3.1.1.2.7 A description of the post-operational procedures (draining, flushing, re-servicing, etc.).

3.1.1.2.8 Daily maintenance inspection checklists that the operator is expected to perform including basic troubleshooting procedures.

3.1.1.2.9 Disabled vehicle towing procedures.

3.1.1.2.10 Procedures and equipment required for changing a tire.

3.1.1.2.11 Schedules (hours, miles, time periods) for required preventative maintenance and, required periodic maintenance.

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3.1.1.2.12 Line art drawing of the vehicle, including panoramic views (front, rear, left, and right sides) showing basic dimensions and weights (total vehicle and individual axle weight for the unloaded and fully loaded vehicle). For the purposes of this AC, "unloaded" is defined as a lack of agent, occupants and compartment load, and "loaded" is defined as including agent, occupants and compartment load.

3.1.1.3 Service Manual – The service manual will identify all special tools and test equipment required to perform servicing, inspection, and testing. The manual will cover troubleshooting and maintenance as well as minor and major repair procedures. The text will contain performance specifications, tolerances, and fluid capacities; current, voltage, and resistance data; test procedures; and illustrations and exploded views as may be required to permit proper maintenance by qualified vehicle mechanics. The manual will contain an alphabetical subject index as well as a table of contents. The service manual will contain at least the following, where applicable:

3.1.1.3.1 Firefighting system schematic(s).

3.1.1.3.2 Hydraulic schematic.

3.1.1.3.3 Pneumatic schematic.

3.1.1.3.4 Electrical schematic.

3.1.1.3.5 Winterization schematic.

3.1.1.3.6 Fuel schematic.

3.1.1.3.7 Schedules for required preventative maintenance and required periodic maintenance.

3.1.1.3.8 Lubrication locations, procedures, and intervals for parts of the vehicle and equipment that require lubrication.

3.1.1.4 Parts Identification Manual – The parts manual will include illustrations or exploded views (as needed) to identify properly all parts, assemblies, subassemblies, and special equipment. All components of assemblies shown in illustrations or exploded views will be identified by reference numbers that correspond to the reference numbers in the parts lists. All purchased parts will be cross-referenced with the original equipment manufacturers (OEM) name and part number. The parts identification manual will provide the description and quantity of each item used for each vehicle. The size, thread dimensions, torque specifications, and special characteristics will be provided for all nonstandard nuts, bolts, screws, washers, grease fittings, and similar items. The manual will contain a numerical index. The parts manual will contain a list of all of the

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component vendor names, addresses, and telephone numbers referenced in the parts list.

3.1.2 Painting, Plating, and Construction

3.1.2.1 Finish – Exterior surfaces will be prepared, primed, and painted in accordance with all of the paint manufacturer's instructions and recommendations. Vehicles will be painted and marked in accordance with AC 150/5210-5, Painting, Marking, and Lighting of Vehicles Used on an Airport. The interior finish of all compartments will be based on the manufacturer's standard production practice. This may include painting, texturing, coating or machine swirling as determined by the manufacturer. All bright metal and anodized parts, such as mirrors, horns, light bezels, tread plates, and roll-up compartment doors, will be painted. All other surfaces capable of being painted must be in the appropriate yellow-green color.

3.1.2.2 Dissimilar Metals – Dissimilar metals, as defined in MIL-STD-889, Dissimilar Metals, will not be in contact with each other. Metal plating or metal spraying of dissimilar base metals to provide electromotively compatible abutting surfaces is acceptable. The use of dissimilar metals separated by suitable insulating material is permitted, except in systems where bridging of insulation materials by an electrically conductive fluid can occur.

3.1.2.3 Protection Against Deterioration – Materials that deteriorate when exposed to sunlight, weather, or operational conditions normally encountered during service will not be used or will have a means of protection against such deterioration that does not prevent compliance with performance requirements. Protective coatings that chip, crack, or scale with age or extremes of climatic conditions or when exposed to heat will not be used.

3.1.2.4 Reflective stripes – A minimum eight (8) inch band of high gloss white reflective tape with 1-inch blue strip on top and bottom (Retroreflective, ASTM-D 4956-09, *Standard Specification for Retroreflective Sheeting for Traffic Control*, TYPE III & above) must be applied around the vehicle's surface.

3.1.2.5 Lettering – The manufacturer will apply the airport's, and 'Insignia' (to be provided) in a contrasting color or by decal on both sides of the vehicle in long radius elliptical arches above and below the lettering center line. The size of the lettering will be a minimum of 2½-inches to a maximum of 6-inches. Reflective lettering is allowed if the material is the same as that which is used for the reflective stripe (as specified in AC 150/5210-5).

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3.1.3 Vehicle Identification Plate – A permanently marked identification plate will be securely mounted at the driver's compartment. The identification plate will contain the following information:

- 3.1.3.1 NOMENCLATURE
- 3.1.3.2 MANUFACTURER'S MAKE AND MODEL
- 3.1.3.3 MANUFACTURER'S SERIAL NUMBER
- 3.1.3.4 VEHICLE CURB WEIGHT: kg (pounds)
- 3.1.3.5 PAYLOAD, MAXIMUM: kg (pounds)
- 3.1.3.6 GROSS VEHICLE WEIGHT (GVW): kg (pounds)
- 3.1.3.7 FUEL CAPACITY AND TYPE: gals (gallons)
- 3.1.3.8 DATE OF DELIVERY (month and year)
- 3.1.3.9 WARRANTY (months and km (miles))
- 3.1.3.10 CONTRACT NUMBER
- 3.1.3.11 PAINT COLOR AND NUMBER

A second permanently marked information data plate will be securely mounted on the interior of the driver's compartment. The plate will contain the information required by NFPA 414, Standard for Aircraft Rescue and Fire Fighting Vehicles (2007 Edition), Section 1.3.5 Vehicle Information Data Plate. A single plate that combines or contains the information required for both plates is acceptable.

3.1.4 Environmental Conditions

3.1.4.1 Vehicle operation and storage temperature conditions will vary with geographical location. Thus, the locality temperature range can go from -40° to 110°F. Refer to NFPA 414 for vehicle winterization criteria.

3.1.4.2 Extreme Temperature Range – The vehicle will be capable of satisfactory storage and operation in temperatures ranging from -40° to 110°F. The vehicle will be equipped with a cab, chassis, and agent winterization system, permitting operation at -40°F. The winterization system will not detract from the performance of the vehicle or the firefighting system in ambient temperatures up to 110°F. The vehicle chassis winterization system will maintain the engine coolant, lubricants, fuel, and electrical systems operational at ambient temperatures of -40°F. The vehicle agent winterization system will provide sufficient insulation and heating capacity, by means of hot circulating liquids and/or forced air heat exchangers, to permit satisfactory operations of the vehicle and firefighting systems for a 2-hour period at ambient temperatures as low as -40°F with the vehicle fully operational and the engine running. At the end of this 2-hour period, the vehicle will be capable of successfully discharging its

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agents. All compartments not winterized will be marked as such on the interior of the compartment. The marking will state that the compartment is not winterized and cannot be used for the storage of items capable of freezing.

3.1.5 Reduction of Potential Foreign Object Damage – All loose metal parts, such as pins, will be securely attached to the vehicle with wire ropes or chains. Removable exterior access panels, if provided, will be attached with captive fasteners.

3.1.6 Vehicle Mobility

3.1.6.1 Operating Terrain – The vehicle will be capable of operating safely on paved roads, graded gravel roads, cross country terrain, and sandy soil environments. Cross country terrain consists of open fields, broken ground, and uneven terrain. An off-road, high-mobility suspension system resulting in no more than 0.5 G_{rms} acceleration at the driver’s seat of the vehicle when traversing an 8-inch (20 cm) diameter half round at 35 mph (56 kph) must be provided. The suspension design by which the manufacturer meets the suspension performance requirements is at the manufacturer’s discretion.

3.1.6.2 Gradeability – The fully loaded vehicle will be able to ascend any paved slope up to and including 50-percent.

3.1.6.3 Side Slope Stability – The fully loaded vehicle will be stable on a 30° side slope when tested in accordance with NFPA 414.

3.1.6.4 Cornering Stability – The fully loaded vehicle will be stable in accordance with NFPA 414 when tested in accordance with NFPA 414.

3.2 Weights and Dimensions

3.2.1 Overall Dimensions – The maximum dimensions listed below are desirable to ensure vehicles can be accommodated in existing fire stations. Likewise, the overall dimensions should be held to a minimum that is consistent with the best operational performance of the vehicle and the design concepts needed to achieve this performance and to provide maximum maneuverability in accordance with NFPA 414.

Vehicle Capacity / Dimensions	3,000 Gallon	4,500 Gallon
Length (inches/cm)	480/1219	540/1372
Width (inches/cm)	124/315	122/310
Height (inches/cm)	154/391	154/391

3.2.2 Angles of Approach and Departure – The fully loaded vehicle will have angles of approach and departure of not less than 30°.

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3.2.3 Field of Vision – The vehicle will have a field of vision in accordance with NFPA 414.

3.2.3.1 Mirrors – Combination flat and convex outside rearview mirrors will be installed on each side of the cab. The flat mirrors will be of the motorized remote-control type, providing not less than 60° horizontal rotational viewing range. The flat mirrors will also have electrically heated heads. Mirror remote and heating controls will be located on the instrument panel within reach of the seated driver. To provide the driver a clear view of the area ahead of the vehicle and to eliminate potential blind spots, a rectangular mirror will be installed on the lower corner of each side of the windshield, having a minimum area of 35 square inches.

The vehicle will have a back-up (rear-view) camera with a display monitor mounted above the driver in the cab. Cameras and monitors that are designed to replace the function of the side-view mirrors are not an approved option in this specification. The backup camera will have a view with the same perspective as a rear-view mirror.

3.3 Chassis and Vehicle Components

3.3.1 Engine – The vehicle will have a turbocharged diesel engine that is certified to comply with the Environmental Protection Agency (EPA) and state laws for off-highway emission requirements at the time of manufacture. The engine and transmission must operate efficiently and without detrimental effect to any drive train components when lubricated with standard, commercially available lubricants according to the recommendations of the engine and transmission manufacturers.

3.3.1.1 Acceleration – The fully loaded vehicle will accelerate from 0 to 50 miles per hour (mph) on a level paved road within 35 seconds.

3.3.1.2 Maximum Speed – The fully loaded vehicle will attain a minimum top speed of 70 mph on a level, paved road.

3.3.1.3 Pump and Roll on a 40-Percent Grade – The fully loaded vehicle will be capable of pump and roll operations on a paved, dry, 40-percent grade in accordance with NFPA 414.

3.3.1.4 Altitude – Where justified, the vehicle, including the pumping system, will be designed for operation at 2,000 feet above sea level.

3.3.2 Engine Cooling System – The engine cooling system will be in accordance with NFPA 414. A label will be installed near the engine coolant reservoir reading “Engine Coolant Fill.”

3.3.3 Fuel System – The fuel system will be in accordance with NFPA 414.

3.3.3.1 Fuel priming pump – The vehicle will be equipped with an electric fuel pump in addition to the mechanical fuel pump. The electric/pneumatic pump will be used as a priming pump capable of re-priming the engines fuel system.

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3.3.3.2 Fuel tank – The vehicle will have one or two fuel tanks with a minimum usable capacity in accordance with NFPA 414, as amended by NFPA 414. Each tank will have a fill opening of 3 inches minimum, readily accessible to personnel standing on the ground and designed to prevent fuel splash while refueling. Each tank will be located and mounted so as to provide maximum protection from damage, exhaust heat, and ground fires. If more than one tank is furnished, means will be provided to assure equalized fuel level in both tanks. An overturn fuel valve will be provided for each tank to prevent spillage in the event of a rollover. Each fuel tank must be prominently labeled "Diesel Fuel Only".

3.3.4 Exhaust System – The exhaust system will be in accordance with NFPA 414. The exhaust system will be constructed of high-grade rust resistant materials and protected from damage resulting from travel over rough terrain. The muffler(s) will be constructed of aluminized steel or stainless steel. Exhaust system outlet(s) will be directed upward or to the rear, away from personnel accessing equipment compartments and the engine air intake and will not be directed toward the ground.

3.3.5 Transmission – A fully automatic transmission will be provided. The transmission will be in accordance with NFPA 414.

3.3.6 Driveline – The vehicle driveline will be in accordance with NFPA 414. If the driveline is equipped with a differential locking control, a warning/caution label will be placed in view of the driver indicating the proper differential locking/un-locking procedures. The operator's manual will also include a similar warning/caution. All moving parts requiring routine lubrication must have a means of providing for such lubrication. There must be no pressure lubrication fittings where their normal use would damage grease seals or other parts.

3.3.7 Axle Capacity – Each axle will have a rated capacity, as established by the axle manufacturer, in accordance with NFPA 414.

3.3.8 Suspension – The suspension system will be in accordance with NFPA 414 and AC 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles.

3.3.9 Tires and Wheels – Tires and wheels will be in accordance with NFPA 414. The vehicle will be equipped with single tires and wheels at all wheel positions. The vehicle will be equipped with tubeless steel belted radial tires with non-directional on/off-road type tread mounted on disc wheel assemblies. Tire and wheel assemblies will be identical at all positions painted black. Tires and wheels will be certified by the manufacturer for not less than 25 miles of continuous operation at 60 mph at the normal operational inflation pressure. A spare tire and wheel assembly will be provided; however, the spare tire and wheel assembly are

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not required to be mounted on the vehicle. Tires will be new. Retreads, recaps, or re-grooved tires will not be permitted.

Tire bead locks, where justified, may be installed on all tires and rims.

3.3.10 Towing Connections – The vehicle will be equipped with towing connections in accordance with NFPA 414. The vehicle will be designed for flat towing; the capability to lift and tow the vehicle is not required. The tow connections may intrude into the 30-degree approach angle.

3.3.11 Brake system – The vehicle will be equipped with a multi-channel all-wheel antilock brake system with at least one channel for each axle. The brakes will be automatic, self-adjusting and fully air-actuated. Brakes will be in accordance with CFR 49 CFR 393.40 through 393.42(b)), 393.43, and 393.43 through 393.52. The braking system, complete with all necessary components will include:

3.3.11.1 Air compressor having a capacity of not less than 16 standard cubic feet per minute (SCFM).

3.3.11.2 Air storage reservoir(s), each tank equipped with drain (bleed) valves, and with safety and check valves between the compressor and the reservoir tank.

3.3.11.3 Automatic moisture ejector on each air storage reservoir. Manual air tank drains are acceptable if they are labeled, are centrally located in one compartment and are accessible by an individual standing at the side of the vehicle.

3.3.11.4 Automatic slack adjusters on cam brakes or internal self-adjusting brakes on wedge brakes on all axles.

3.3.11.5 Spring set parking brakes.

All components of the braking system will be installed in such a manner as to provide adequate road clearance when traveling over uneven or rough terrain, including objects liable to strike and cause damage to the brake system components. No part of the braking system will extend below the bottom of wheel rims, to ensure, in case of a flat tire, that the weight of the vehicle will be supported by the rim and the flat tire and not be imposed on any component of the braking system. Slack adjusters and air chambers will be located above the bottom edge of the axle carrier.

3.3.11.6 Air Dryer – A replaceable cartridge desiccant air dryer will be installed in the air brake system. The dryer will have the capability of removing not less than 95 percent of the moisture in the air being dried. The dryer will have a filter to screen out oil and solid contaminants. The dryer will have an automatic self-cleaning cycle and a thermostatically controlled heater to prevent icing of the purge valve.

3.3.11.7 Compressed Air Shoreline or Vehicle-Mounted Auxiliary Air Compressor – A flush mounted, check valved, auto-eject compressed air

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shoreline connection will be provided to maintain brake system pressure while the vehicle is not running. The shoreline will be flush mounted (not to extend outside the body line), located on the exterior of the vehicle, either on the left side rear corner of the cab, or at the rear of the vehicle. In lieu of a compressed air shoreline connection, the vehicle may be equipped with a 110-volt shoreline connected vehicle-mounted auxiliary air compressor. In lieu of a compressed air shoreline connection, the vehicle may be equipped with an electrical shoreline connected vehicle mounted auxiliary air compressor.

3.3.12 Steering – The vehicle will be equipped with power steering. Rear-wheel steering technology is not an approved vehicle option.

3.3.12.1 Steering Effort – The steering system performance will be in accordance with NFPA 414.

3.3.12.2 Turning Diameter – The fully loaded vehicle will have a wall to wall turning diameter of less than three times the overall length of the vehicle in both directions in accordance with NFPA 414.

3.3.13 License Plate Bracket – A lighted license plate bracket will be provided at the left rear and left front of the vehicle. The location of the left front bracket will be placed so as not to interfere with the operation of firefighting systems.

3.4 Cab – The vehicle will have a fully enclosed two door cab of materials which are corrosion resistant, such as aluminum, stainless steel, or glass reinforced polyester construction. Steps and handrails will be provided for all crew doors, and at least one grab handle will be provided for each crew member, located inside the cab for use while the vehicle is in motion. The lowermost step(s) will be no more than 22 inches above level ground when the vehicle is fully loaded. A tilt and telescoping steering column will be provided.

3.4.1 Windshield and Windows – The windshield and windows will be of tinted safety glass. Each door window will be capable of being opened far enough to facilitate emergency occupant escape in the event of a vehicle accident. The vehicle windows will have an electric control system.

3.4.2 Cab Interior Sound Level – The maximum cab interior sound level will be in accordance with NFPA 414.

3.4.3 Instruments and Controls – All instruments and controls will be illuminated and designed to prevent or reduce windshield glare. Gauges will be provided for oil pressure, coolant temperature, and automatic transmission temperature. In addition to the instruments and controls required by NFPA 414, the following will be provided within convenient reach of the seated driver:

3.4.3.1 Master warning light control switch,

3.4.3.2 Work light switch(es), and

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3.4.3.3 Compartment "Door Open" warning light and intermittent alarm that sounds when a compartment door is open, and the parking brakes are released or the transmission is in any position other than neutral.

3.4.4 Windshield Deluge System – The vehicle will be equipped with a powered windshield deluge system. The deluge system will be supplied from the agent water tank and will have an independent pumping system. The deluge system activation switch will be located within reach of the seated driver and turret operator.

3.4.5 Forward Looking Infrared (FLIR) – A forward looking infrared (FLIR) camera and in-cab monitor, meeting the requirements of NFPA 414, will be provided. In addition, the FLIR monitor described in NFPA 414 will have a minimum dimension of 10 in (25 cm) (measured diagonally) and be located in a position where it is visible to both the seated driver and turret operator.

3.4.6 Climate Control System – The offeror/contractor’s standard heater/defroster and air conditioning system will be provided. The climate control system will induct at least 60 cubic feet per minute of fresh air into the cab. Cab mounted components will be protected from inadvertent damage by personnel.

3.4.7 Seats – The driver seat will be adjustable forward and back and for height. The turret operator’s seat, located to the right front of the driver’s seat, will be a fixed (non-suspension) type. Each seat will be provided with a Type 3 seat belt assembly (i.e., 3-point retractable restraint) in accordance with CFR 49 CFR 571.209. Seat belts must be of sufficient length to accommodate crew members in full Personal Protective Equipment (PPE).

3.4.7.1 Seat Options – Two types of seat options are allowed in the vehicle. A standard seat contains a hard/fixed back. For these seats, a remote-mounted bracket designed to store a Self-Contained Breathing Apparatus (SCBA) will be provided. The remote-mounted bracket for the driver and turret operator (at a minimum) must be placed inside the cab. An SCBA seat, on the other hand, contains an opening which can accommodate someone wearing an SCBA. SCBA seats and seat brackets will be compatible with MSA G-1 with 4500 psi, 45-minute cylinders. The chart below represents the user’s stated preference for the vehicle seating configuration.

Position	Standard	SCBA-Seat	N/A
Driver	X		
Turret		X	
#3		X	
#4		X	

3.4.8 Windshield Wipers and Washer – The vehicle will be equipped with electrically powered windshield wipers. The wiper arms and blades will be of sufficient length to clear the windshield area described by SAE J198, Windshield

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Wiper Systems – Trucks. Individual wiper controls will include a minimum of two speed settings and an intermittent setting. The wiper blades will automatically return to a park position, out of the line of vision. The vehicle will be equipped with a powered windshield washer system, including an electric fluid pump, a minimum one-gallon fluid container, washer nozzles mounted to the wiper arms (wet arms), and a momentary switch.

3.4.9 Warning Signs – Signs that state “Occupants must be seated and wearing a seat belt when apparatus is in motion” will be provided in locations that are visible from each seated position in accordance with NFPA 414.”

3.4.10 Lateral Accelerometer and/or Stability Control System – The vehicle will be equipped with a lateral accelerometer and/or an electronic stability control system in accordance with NFPA 414.

3.4.11 Monitoring and Data Acquisition System (MADAS) – The vehicle will be equipped with a MADAS as prescribed by NFPA 414.

3.5 Body, Compartments, and Equipment Mounting

3.5.1 Body – The vehicle will have a corrosion-resistant body.

3.5.2 Compartments – The vehicle body will have lighted compartments in accordance with NFPA 414 with a minimum of 10 cubic feet of enclosed storage space.

3.5.2.1 Compartment Doors – Storage compartments will have clear anodized aluminum, counterbalanced, non-locking, roll-up or single hinged doors as determined by the manufacturer. Door latch handles on roll-up doors will be full-width bar type. Door straps will be provided to assist in closing the compartment doors when the rolled up or hinged door height exceeds six feet above the ground.

3.5.2.2 Scuffplates – Replaceable scuffplates will be provided at each compartment threshold to prevent body damage from sliding equipment in and out of the compartments. The scuffplates will be securely attached to the compartment threshold but will be easily replaceable in the event of damage.

3.5.2.3 Drip Rails – Drip rails will be provided over each compartment door.

3.5.2.4 Shelves – An adjustable and removable compartment shelf will be provided for every 18 inches of each vertical storage compartment door opening. Shelving adjustments will require no more than common hand tools and will not require disassembly of fasteners. Shelves will support a minimum of 200 pounds without permanent deformation. Each shelf will be accessible to crew members standing on the ground or using a pull out and tip-down configuration. Each shelf will have drain holes located so as to allow for drainage of any water from the stowed equipment.

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3.5.2.5 Drainage Mats – Each compartment floor and shelf will be covered with a removable black mat designed to allow for drainage of any water from the stowed equipment.

3.5.3 SCBA Storage Tubes – A single compartment or tubes for storage of four SCBA bottles will be provided. If tubes are provided, two will be installed on each side of the vehicle. The tubes will be of sufficient size to accommodate the procuring agencies SCBA cylinders.

3.5.4 Ladder, Handrails, and Walkways – Ladder, stepping, standing, and walking surfaces will be in accordance with NFPA 414. Handrails will be provided in accordance with NFPA 414. The lowermost step(s) or ladder rungs will be no more than 22 inches (56 cm) above level ground when the vehicle is fully loaded. The lowermost steps may extend below the angle of approach or departure or ground clearance limits if they are designed to swing clear. The tread of the bottom steps must be at least 8 inches (20 cm) in width and succeeding steps at least 16 inches (40 cm) in width. The full width of all steps must have at least 6 inches (15 cm) of unobstructed toe room or depth when measured from, and perpendicular to, the front edge of the weight-bearing surface of the step.

3.5.5 Ancillary Equipment – Ancillary equipment listed in NFPA 414 A.4.2.1 (1)-(17) is not covered by this Procurement Specification in accordance with AC 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles. Ancillary equipment is funded separately by other sources.

3.6 Agent System

3.6.1 Agent (Fire) Pump – The vehicle will be equipped with a centrifugal pump capable of providing the performance specified herein as prescribed by NFPA 414.

3.6.1.1 Agent System Piping – All piping, couplings, and valves and associated components that come into contact with the agent will be in accordance with NFPA 414.

3.6.1.2 Tank to Pump Connection – A check valve and shutoff valve will be provided in each tank to pump line.

3.6.1.3 Piping, Couplings, and Valves – All agent system piping will conform to NFPA 414 criteria.

3.6.1.4 Overheat Protection – The agent system will be equipped with an overheat protection system in accordance with NFPA 414. Overheat protection is not required on vehicles utilizing a pre-mixed pressurized foam system.

3.6.1.5 Pressure Relief Valves – The agent system will be equipped with pressure relief valves in accordance with NFPA 414.

3.6.1.6 Drains – The agent system will be equipped with a drainage system in accordance with NFPA 414.

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3.6.2 Water Tank – The vehicle will have a water tank with a manufacturer certified minimum capacity of at least 3,000 gallons.

3.6.2.1 Water Tank Construction – The water tank will be constructed of passivated stainless steel, polypropylene, or Glass Reinforced Polyester (GRP) construction. All materials used will be capable of storing water, foam concentrate, and water/AFFF solutions.

3.6.2.2 Water Tank Overhead Fill Cover and Drain – The water tank will be equipped with a 20-inch fill tower. The tower will be designed to allow for video inspection of the water tank interior. The water tank will incorporate a drainage system in accordance with NFPA 414.

3.6.2.3 Water Tank Overflow System and Venting – The water tank will incorporate a venting system to relieve pressure on the tank during fill and discharge operations at maximum flow rates. It will have an overflow system to relieve excess fluid in the event of tank overflow. Drainage from the vent and overflow system will not flow over body panels or other vehicle components and will not be in the track of any of the tires. Tank vent hoses will be of the non-collapsible type.

3.6.2.4 Water Tank Top Fill Opening – A top fill opening of not less than 8 inches internal diameter with a readily removable ¼-inch mesh strainer will be provided. The fill opening may be incorporated as part of the manhole cover and will be sized to accommodate a 2½-inch fill hose.

3.6.2.5 Water Tank Fill Connections – The water tank fills will incorporate National Hose thread connections and will be in accordance with NFPA 414. The vehicle will be fitted with the "structural firefighting capability option" and the additional requirements listed in paragraph 3.6.8 must be incorporated.

3.6.3 Foam System (**NOTE:** The requirements of Section 3.6.3 do not apply to pre-mixed pressurized foam systems.)

3.6.3.1 Foam Concentrate Tank – The foam concentrate tank(s) will have a manufacturer certified working capacity sufficient for two tank loads of water at the maximum tolerance specified in NFPA 412, Standard for Evaluating Aircraft Rescue and Fire-Fighting Foam Equipment for 3 to 6 percent foam concentrate (i.e., 7.0 percent).

3.6.3.1.1 Foam Tank Construction – The foam tank will be constructed of polypropylene construction. All materials used will be capable of storing foam concentrate.

3.6.3.1.2 Foam Tank Drain – The foam tank will incorporate a drain and drain valve. The valve will be on the left side of the vehicle and controlled by a crew member standing on the ground. The drain line will have a minimum 1½-inch I.D. The foam tank

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drain outlet will be located so that the contents of the tank can be drained into 5-gallon cans and 55-gallon drums.

3.6.3.1.3 Foam Tank Top Fill Trough – The foam tank will incorporate a top fill trough mounted in the top of the tank readily accessible to at least two crew members on top of the vehicle. The top fill trough will incorporate a cover, latch, and sealed so as to prevent spillage under any operating condition. The top fill trough will be designed to allow two standard 5-gallon foam concentrate containers to be emptied simultaneously. The top fill trough neck will extend sufficiently close to the bottom of the tank to reduce foaming to a minimum during the fill operation. The top fill trough will incorporate readily removable, rigidly constructed 10 mesh stainless steel, brass or polyethylene strainers. All components in and around the top fill trough will be constructed of materials that resist all forms of deterioration that could be caused by the foam concentrate or water.

3.6.3.2 Foam Tank Fill Connections – The foam tank will incorporate a 1½ inch National Hose thread female hose connection on **both sides** of the vehicle to permit filling by an external transfer hose at flow rates up to 25gpm. The connections will be provided with chained-on long handled plugs or rocker lug plugs. The top of the connections will be no higher than 48 inches above the ground and readily accessible. The fill lines will incorporate check valves and readily removable, rigidly constructed ¼-inch mesh strainers. All components in the foam tank fill system will be constructed of materials that resist all forms of deterioration that could be caused by the foam concentrate or water.

3.6.3.2.1 Foam Tank Vent and Overflow System – The foam tank will incorporate a vent system to relieve pressure on the tank during fill and discharge operations at maximum flow rates and an overflow system to relieve excess liquid in the event of tank overflow. Drainage from the vent and overflow system will not flow over body panels or other vehicle components and will not be in front of or behind any of the tires. Tank vent hoses will be of the non-collapsible type.

3.6.3.3 Foam Transfer Pump – A foam transfer pump will be provided and mounted in a compartment on the vehicle. The pump will be capable of transferring and drawing foam liquid concentrate at adjustable flow rates up to 25gpm directly through the pump and loading connection (see 3.6.3.2). All materials and components that come in contact with the foam will be compatible with the foam concentrate. The pump and its plumbing will have provisions for flushing with water from the water tank. A suitable length of hose with appropriate connections will be provided for filling the foam tank from an external foam storage container.

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3.6.3.4 Foam Flushing System – The foam concentrate system will be designed in accordance with NFPA 414 so that the system can be readily flushed with clear water.

3.6.3.5 Foam Concentrate Piping – All metallic surfaces of the piping and associated components that come into contact with the foam concentrate will be of brass, bronze, or passivated stainless steel. The foam concentrate piping will be in accordance with NFPA 414.

3.6.4 Foam Proportioning System – The vehicle will have a foam proportioning system for Aqueous Film-Forming Foam (AFFF) (whether 3- or 6-percent foam concentrate) in accordance with NFPA 414. If a fixed orifice plate system is used, a plate will be provided for each percentage foam concentrate; the additional plate will be securely mounted in a protected location on the vehicle. A fire vehicle mechanic will be able to interchange the plates using common hand tools.

3.6.5 Primary Vehicle Turret – The vehicle will be equipped with a standard roof-mounted turret, high reach extendable turret, and/or high flow bumper mounted turret to serve as the primary sources of agent delivery, as specified below:

3.6.5.1 The vehicle will be equipped with a high reach extendable turret (capable of penetrating the second level of the New Large Aircraft (NLA) class of aircraft, in accordance with paragraph 3.5.6.2. The NLA class aircraft are equivalent to the Airplane Design Group VI category, as specified in AC 150/5300-13, Airport Design.

3.6.5.2 High Reach Extendable Turret (capable of penetrating all aircraft except the second level of an NLA) – The high reach extendable turret (HRET) must be in accordance with NFPA 414 and will have the vertical and horizontal reach necessary to service the highest placed engine of the aircraft being serviced. It will have a non-air-aspirating, constant flow, variable stream nozzle with dual flow rates for foam or water rated as specified in NFPA 414. The discharge pattern will be infinitely variable from straight stream to fully dispersed. The type of nozzle or turret drain will be per the manufacturer's recommendation. The ET will be controlled by one or two joysticks, each with a pistol grip handle, positioned for use by the driver and the crew member seated to the right of the driver (the turret operator). The cab design will provide clear visibility of the turret to both the driver and the turret operator with the turret in any position.

3.6.5.2.1 Video camera and monitor – The HRET will be equipped with a remote video camera and a cab mounted monitor. The system will be a complete video system consisting of a single color camera equipped with auto-focus and a cab controlled zoom. The camera/lens assembly will be protected from the heat of the fire and from the same climatic extremes as the truck. A color video monitor with a minimum dimension of 10 inches (measured diagonally) will be positioned in the cab within

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view of both the driver's and the turret operator's seated positions. One monitor may be provided for both the FLIR (see 3.4.5) and the camera with a switch to change between the FLIR and the camera.

3.6.5.2.2 Aircraft skin penetrator – The HRET will be equipped with an aircraft skin penetrator and agent application tool. The skin penetrator will be a minimum of 20 inches long, installed at the tip of the HRET, and connected to the water/AFFF agent discharge line. Agent application through the skin penetrator will be controlled from the cab. NOTE: If a high reach extendable turret is specified by the purchaser, a skin penetrating nozzle must be provided. The penetrating nozzle must be movable to allow for proper alignment of the penetrator to the aircraft fuselage for piercing operations. It must be capable of the minimum water/flow rate and pattern requirements of NFPA 414, Tables 4.1.1(c) and 4.1.1(d).

3.6.6 Bumper Turret – The vehicle will be equipped with a joystick controlled, constant flow, non-air-aspirating, variable stream type **with a low angle high volume dual rate (minimum 600/1200 GPM) bumper turret**. The bumper turret will be capable of discharging at a minimum flow rate of foam or water as specified by the user, with a pattern infinitely variable from straight stream to fully disperse. The bumper turret and LED light will be capable of automatic oscillation, with the range of oscillation adjustable up to 90° each side of center (left and right) with vertical travel capabilities of +45°/20° meeting section 4.20.2 in NFPA 414.

3.6.7 Pre-Connected Handline(s) – **Two (2), 200 foot**, 1¾-inch pre-connected woven jacket handlines, with a 1½-inch control valve and a pistol grip nozzle, will be located on (or accessible from) **each** side of the vehicle. A safety system will be provided to prevent charging of the hose until the hose has been fully deployed. The handline(s) and nozzle(s) will be in accordance with NFPA 414 and will allow for a minimum of 95gpm at 100psi nozzle pressure. A control for charging **each** handline will be provided for operation by both the driver and the turret operator.

3.6.7.1 In addition, the vehicle will be equipped with the following handline: 100 feet of twinned 1-inch dry chemical foam-water hose on a reel.

3.6.8 Structural Firefighting Capability – The vehicle will be equipped with an agent system structural control panel, on the left side of the vehicle, operable while standing on the ground. Structural panel activation will be interlocked to operate only with the vehicle parking brakes set and the transmission in neutral position. Controls and instruments will be grouped by function. The control panel

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will be hinged or accessible from the rear for maintenance. Instruments will be lighted for night operation.

3.6.8.1 The structural panel will include, as a minimum, the following:

3.6.8.1.1 Panel activation switch, including the panel lights.

3.6.8.1.2 Engine tachometer.

3.6.8.1.3 Engine oil pressure gauge with low pressure warning light.

3.6.8.1.4 Engine coolant temperature gauge with high temperature warning light.

3.6.8.1.5 A liquid filled gauge, or digital indicator for pump suction, -30 inches Hg vacuum to 600 psi.

3.6.8.1.6 A liquid filled gauge, or digital indicator for pump pressure, 0 to 600 psi.

3.6.8.1.7 An adjustable pump pressure using an electronic pressure governor will be provided.

3.6.8.1.8 Foam or water selection.

3.6.8.1.9 Water and foam tank liquid level indicators located adjacent to the water and foam tank fills.

3.6.8.2 The structural firefighting capability will also require installation of the following items:

3.6.8.2.1 A priming pump and control (for drafting using the large intake connection).

3.6.8.2.2 Water tank isolation valve.

3.6.8.2.3 Discharge connections – Two 2½-inch discharge connections with male National Hose threads will be provided. One 2½-inch discharge will be provided on each side of the vehicle. Each connection will be equipped with a cap, a quarter-turn control valve, a bleeder valve, and a pressure gauge. Each connection will be rated at 250gpm minimum.

3.6.8.2.4 Intake connections – The vehicle will be equipped with one valved 4½-inch intake connection on the left side. The vehicle will be equipped with one valved 2½-inch intake connection on the left side adjacent to the 4½-inch intake connection with both having either a 30° or 45° turn-down fitting. The 4½-inch intake connection will have a Storz connection, a quarter-turn control valve, a bleeder valve, a strainer, and a cap. The 2½-inch intake connection will have rocker lug female National Hose threads, a quarter-turn control valve, a bleeder

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valve, a strainer, and a plug. The vehicle will be capable of filling its water tank by pumping from a draft, a hydrant, or a nurse truck through either of the intake connections without the use of a hose from a discharge connection to a tank fill connection.

- 3.6.9 Primary Turret Discharge Nozzle – The vehicle will be equipped with a combination dry chemical/ AFFF nozzle of the entrainment type on the primary turret mounted on the front bumper.
- 3.7 Dry Chemical Agent System – The vehicle will be equipped with a 450 lb minimum capacity potassium bicarbonate dry chemical auxiliary agent system. The propellant gas cylinder will be replaceable within fifteen minutes by two crew members standing on the ground and be equipped with a cylinder replacement hoisting system. The propellant gas cylinder will be secured to withstand off-road operations. A pressure indicator will be visible to any person opening the tank fill cap. Blow-down piping will be directed beneath the vehicle. The dry chemical agent tank will include lifting rings and will have a nameplate indicating, as a minimum, the following:
- Extinguishing agent.
 - Capacity.
 - Weight full.
 - Weight empty.
 - Operating pressure.
 - Hydrostatic test date.
 - Type of agent required for re-servicing.
- 3.7.1 Not Applicable.
- 3.7.2 Dry Chemical Hose Reel – A hose reel, equipped with at least 100 feet of dry chemical hose will be mounted in a compartment. Handline agent and purge controls will be mounted in or adjacent to the compartment. All electrical components will be sealed against entry of water. The hose reel will have both electric and manual rewind provisions. The manual rewind handle will be bracket mounted and stored in the compartment. A quick acting control will be provided to activate the handline from the cab of the vehicle.
- 3.8 Not Applicable.
- 3.9 Electrical Systems and Warning Devices – The vehicle will have a 12-volt or 24-volt electrical and starting system in accordance with NFPA 414.
- 3.9.1 Alternator – An appropriate charging system, in accordance with NFPA 414, will be provided. The minimum continuous electrical load will include operation of the air conditioning system.
- 3.9.2 Batteries – Batteries will be of the maintenance-free type; addition of water will not be required during normal service life. The battery cover and vent system

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will be designed to prevent electrolyte loss during service and to keep the top of the battery free from electrolyte.

3.9.2.1 Battery Compartment – The batteries will be enclosed in a weatherproof enclosure, cover, or compartment and be readily accessible.

3.9.3 Battery Charger or Conditioner – The vehicle will have a DC taper type battery charger or an automatic battery conditioner, or voltage monitoring system, providing a minimum 12-amp output. The charger/conditioner will be permanently mounted on the vehicle in a properly ventilated, accessible location. The charger/conditioner will be powered from the electrical shoreline receptacle (see 3.10.1). A charging indicator will be installed next to the receptacle. When a battery conditioner is provided, the conditioner will monitor the battery state of charge and, as necessary, automatically charge or maintain the batteries without gassing, depleting fluid level, overheating, or overcharging. A slave receptacle will be provided at the rear or on either side of the vehicle cab. Battery jump studs may be installed on the exterior of the battery box in lieu of a slave receptacle.

3.9.4 Electromagnetic Interference – The vehicle electrical system will be in accordance with SAE J551-2 for electromagnetic interference.

3.9.5 Work Lighting

3.9.5.1 Cab Interior Lights – Cab interior light levels will be sufficient for reading maps or manuals. At least one red and one white cab interior dome light will be provided.

3.9.5.2 Compartment Lights – Red lighting sufficient to provide an average minimum illumination of 1.0 foot-candle will be provided in each compartment greater than 4.0 cubic feet and having an opening greater than 144 square inches. Where a shelf is provided, this illumination will be provided both above and below the shelf. All compartments will be provided with weatherproof lights that are switched to automatically illuminate when compartment doors are opened, and the vehicle master switch is in the 'on' position. Light switches will be of the magnetic (non-mechanical) type.

3.9.5.3 Ladder, Step, Walkway, and Area Lights – Non-glare red lighting will be provided at ladders and access steps where personnel work or climb during night operations. In addition, ground lighting will be provided. Ground lights will be activated when the parking brake is set in accordance with AC 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles. These area lights will be controlled with three-way switches on the cab instrument panel and near the light sources. The switch located in the cab will be a master switch and must be turned on before auxiliary switches near the light sources are operational.

3.9.5.4 Spot/Floodlights – Two spot/floodlights will be attached at the end of the primary turret. The lights will illuminate the area covered by the

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turret. Both lights will be controlled from switches in the cab. **LED** lights will be used.

3.9.5.5 Flood Lights – Two **telescoping** floodlights will be provided. One light will be mounted on the left and right sides of the vehicle. **250W LED** lights will be used.

Both lights will be mounted on extension tubes and controlled from switches in the cab and manually raised. To prevent these lights from accidental damage, the cab will be equipped with a visual warning signal to alert the driver if the lights are inadvertently left in the “up” position. The lumen rating for each light used shall be included in the bid.

3.9.5.6 Scene Lights – A total of six high mounted floodlights will be provided to illuminate the work areas around the vehicle. Two lights will be mounted on the front and two will be mounted on each side of the vehicle. The lights will be powered by the vehicle alternator driven system or auxiliary generator, and the lights in the front will be controlled from switches in the cab. **LED** lights will be used. The lumen rating for each light used shall be included in the bid.

3.9.6 Audible Warning Devices

3.9.6.1 Siren – The vehicle will be equipped with an electronic siren system. The amplifier unit will include volume control and selection of "Radio," "PA," "Manual," "Yelp," and "Wail" modes, and a magnetic noise canceling microphone. The amplifier, microphone, and controls will be within reach of the driver and the turret operator. Siren activating foot switches will be located in front of the driver and the turret operator. The siren speaker will be rated at 100 watts minimum and will be located in a guarded position as low and as far forward on the vehicle as practical.

3.9.6.2 Horn – Dual forward-facing air horns will be installed in protected locations near the front of the vehicle. Air horn activating foot switches will be located in front of the driver and the turret operator.

3.9.7 Emergency Warning Lights – All emergency warning lights must meet the requirements of AC 150/5210-5. Where applicable, **LED** lights will be used as the primary light type. Lighting units will be installed on the top front, sides, and rear of the vehicle to provide 360° visibility. A switch will be provided on the instrument panel to control all of the top, side, front and rear emergency warning lights. A switch will also be provided on the instrument panel to disable all lower emergency warning lights when desired. All lighting systems will meet NFPA 414 emergency lighting criteria.

3.9.7.1 Emergency Warning Light Color – All emergency warning lights will meet the requirements of AC 150/5210-5.

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3.9.7.2 Headlight Flashing System – A high beam, alternating/flushing, headlight system will be provided. The headlight flasher will be separately switched from the warning light panel.

3.9.8 Radio Circuit – The vehicle will have three separate 30-amp circuits with breakers and connections provided in a space adjacent to the driver and turret operator. The vehicle will be equipped with VHF Air-to-Ground radio system that is capable of including 120.1 and 121.9 frequencies. To facilitate the installation of the communications equipment the manufacturer will provide three antennas pre-installed on top of the cab.

3.9.9 Power Receptacles

3.9.9.1 Primary Power Receptacles – The vehicle will have two duplex 15-amp 110-volt power receptacles, one installed adjacent to the cab door on each side of the vehicle. Each duplex receptacle will include two straight blade connections. These outlets will be powered by the generator.

3.9.9.2 Auxiliary Power Receptacles – The vehicle will have 2-12-volt auxiliary power receptacles mounted adjacent to the driver and crew member positions, preferably in the instrument panel.

3.9.9.3 Cable Reel – The vehicle will be equipped with an electrical cable reel, located within a compartment. The reel will be equipped with 200 feet of 20-amp, 600 volt, 90°C insulated electrical cable. The electrical cable will be equipped with a rubber ball stop to prevent cable pull through during rewinding operations. A four-way roller guide will be provided on the cable reel to prevent chafing of cable insulation. The cable reel will have an electric rewind motor with provisions for manual rewind in the event of motor failure; the manual rewind handle will be securely stored near the cable reel. A portable weatherproof duplex outlet box, with built-in circuit breakers and straight blade receptacles, will be provided for on the cable end. The cable reel will be powered by the auxiliary generator.

3.9.10 Auxiliary Generator – A minimum **10** kilowatt (kW) (continuous rating), 120/240-volt, 60 hertz, diesel, hydraulic, or split shaft Power Takeoff (PTO)-driven generator will be provided.

3.10 Line Voltage Electrical System

3.10.1 Electrical Shoreline Connection – The battery charger/conditioner will be powered from covered, polarized, insulated, labeled, recessed (flush mounted), male, 110-volt AC auto-eject receptacles. The connection will be located on the exterior of the vehicle on the left side of the cab. A weatherproof charge meter

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will be installed next to the receptacles. A 15-amp rated, 110-120-volt, AC straight blade (non-twist-lock) connector will be provided.

3.11 Air Systems

3.11.1 Air Hose Reel – An air hose reel will be provided in an enclosed compartment on the vehicle. The hose reel will be equipped with 200 feet of 3/8-inch I.D. hoseline. A 3/8-inch National Pipe Taper (NPT) fitting and female style quick disconnect will be connected to the end of the hoseline. A four-way roller guide will be provided for the hose reel to prevent hose chafing and kinking. The hoseline will be equipped with a rubber ball stop to prevent hose pull through on roller guides during rewinding operations. The hose reel will have an electric rewind motor and provisions for manual rewind in the event of motor failure; the manual rewind handle will be securely stored near the hose reel. A pressure protected air supply from the chassis air system will be connected to the hose reel. The air supply lines will be routed with minimum bends and located or guarded from damage from the carried equipment.

3.12 Quality of Workmanship – The vehicle, including all parts and accessories, will be fabricated in a thoroughly workmanlike manner. Particular attention will be given to freedom from blemishes, burrs, defects, and sharp edges; accuracy of dimensions, radii of fillets, and marking of parts and assemblies; thoroughness of welding, brazing, soldering, riveting, and painting; alignment of parts; tightness of fasteners; et cetera. The vehicle will be thoroughly cleaned of all foreign matter.

4.0 REGULATORY REQUIREMENTS

4.1 Recoverable Materials – The contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with Title 48: Federal Acquisition Regulations System, Part 2823 Environment, Conservation, Occupational Safety, and Drug-free Workplace, Subpart 2823.4 Use of Recovered Material, 403 Policy and 404 Procedures.

4.2 Green Procurement Program – Green Procurement Program (GPP) is a mandatory federal acquisition program that focuses on the purchase and use of environmentally preferable products and services. GPP requirements apply to all acquisitions using appropriated funds, including services and new requirements. FAR 23.404(b) applies and states the GPP requires 100% of EPA designated product purchase that are included in the Comprehensive Procurement Guidelines list that contains recovered materials, unless the item cannot be acquired:

4.2.1 Competitively within a reasonable timeframe;

4.2.2 Meet appropriate performance standards, or

4.2.3 At a reasonable price.

The prime contractor is responsible for ensuring that all subcontractors comply with this requirement. Information on the GPP can be found at:

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http://www.dot.gov/ost/m60/DOT_policy_letters/apl8_04.pdf

or FAR 23.404 (b):

<http://www.acquisition.gov/far/current/html/Subpart%20234.html>

5.0 PRODUCT CONFORMANCE PROVISIONS

- 5.1 Classification of Inspections – The inspection requirements specified herein are classified as follows:
- 5.1.1 Performance inspection (see 5.2).
 - 5.1.2 Conformance inspection (see 5.3).
- 5.2 Performance Inspection – The vehicle will be subjected to the examinations and tests described in 5.6.3.1 through 5.6.3.5 (if applicable). The contractor will provide or arrange for all test equipment, personnel, schedule, and facilities.
- 5.3 Conformance Inspection – The vehicle will be subjected to the examinations and tests described in 5.6.3.1 through 5.6.3.5 (if applicable). The contractor will provide or arrange for all test equipment, personnel, and facilities.
- 5.4 Product Conformance – The products provided will meet the performance characteristics of this PS, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial marketplace. The purchaser reserves the right to require proof of such conformance.
- 5.5 Technical Proposal – The offeror/contractor will provide an itemized technical proposal that describes how the proposed model complies with each characteristic of this PS; a paragraph by paragraph response to the characteristics section of this PS will be provided. The offeror/contractor will provide two copies of their commercial descriptive catalogs with their offer as supporting reference to the itemized technical proposal. The offeror/contractor will identify all modifications made to their commercial model in order to comply with the requirements herein. The vehicle furnished will comply with the "commercial item" definition of FAR 2.101 as of the date of award. The purchaser reserves the right to require the offeror/contractor to prove that their product complies with the referenced commerciality requirements and each conformance/performance characteristics of this PS.
- 5.6 Inspection Requirements
- 5.6.1 General Inspection Requirements – Apparatus used in conjunction with the inspections specified herein will be laboratory precision type, calibrated at proper intervals to ensure laboratory accuracy.

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5.6.2 Test Rejection Criteria – Throughout all tests specified herein, the vehicle will be closely observed for the following conditions, which will be cause for rejection:

5.6.2.1 Failure to conform to design or performance requirements specified herein or in the contractor's technical proposal.

5.6.2.2 Any spillage or leakage of any liquid, including fuel, coolant, lubricant, or hydraulic fluid, under any condition, except as allowed herein.

5.6.2.3 Structural failure of any component, including permanent deformation, or evidence of impending failure.

5.6.2.4 Evidence of excessive wear.

5.6.2.5 Interference between the vehicle components or between the vehicle, the ground, and all required obstacles, with the exception of normal contact by the tires.

5.6.2.6 Misalignment of components.

5.6.2.7 Evidence of undesirable road ability characteristics, including instability in handling during cornering, braking, and while traversing all required terrain.

5.6.2.8 Conditions that present a safety hazard to personnel during operation, servicing, or maintenance.

5.6.2.9 Overheating of the engine, transmission, or any other vehicle component.

5.6.2.10 Evidence of corrosion.

5.6.2.11 Failure of the firefighting system and sub-systems.

5.6.3 Detailed Inspection Requirements

5.6.3.1 Examination of Product – All component manufacturer' certifications, as well as the prototype and production/operational vehicle testing outlined in Table 1, will be examined to verify compliance with the requirements herein. Attention will be given to materials, workmanship, dimensions, surface finishes, protective coatings and sealants and their application, welding, fastening, and markings. Proper operation of vehicle functions will be verified as defined by NFPA 414, Acceptance Criteria Chapter. A copy of the vehicle manufacturer's certifications will be provided with each vehicle in accordance with NFPA 414. The airport may accept a manufacturer or third-party certification for any/all prototype and production/operation vehicle testing performed prior to delivery which proves that the vehicle meets the performance parameters of NFPA 414.

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NFPA 414 Paragraph	Test
Production Vehicle Operational Tests (NFPA 414 - Section 6.4)	
(6.4.1)	Vehicle Testing, Side Slope
(6.4.2)	Weight / Weight Distribution
(6.4.3)	Acceleration. NOTE: <i>With the modification that the instrumentation must be a GPS-based electronic data collection system.</i>
(6.4.4)	Top Speed
(6.4.5)	Brake Operational Test
(6.4.6)	Air System / Air Compressor Test
(6.4.7)	Agent Discharge Pumping Test
(6.4.8)	Dual Pumping System Test (As Applicable)
(6.4.9)	Pump and Maneuver Test
(6.4.10)	Hydrostatic Pressure Test
(6.4.11)	Foam Concentration Test
(6.4.12)	Primary Turret Flow Rate Test
(6.4.13)	Piercing/Penetration Nozzle Testing (As Applicable)
Prototype Vehicle Tests (NFPA 414 – Section 6.3)	
(6.3.1)	Rated Water and Foam Tank Capacity Test
(6.3.2)	Cornering Stability. NOTE: <i>With the modification that the evasive maneuver / double-lane change test must be conducted at 35 mph (56</i>
(6.3.3)	Vehicle Dimensions
(6.3.4)	Driver Vision Measurement
(6.3.5)	Pump and Roll on a 40 Percent Grade
(6.3.6)	Electrical Charging System
(6.3.7)	Radio Suppression
(6.3.8)	Gradability Test
(6.3.9)	Body and Chassis Flexibility Test
(6.3.10)	Service/Emergency Brake Test
(6.3.11)	Service/Emergency Brake Grade Holding Test
(6.3.12)	Steering Control Test
(6.3.13)	Vehicle Clearance Circle Test
(6.3.14)	Agent Pump(s)/Tank Vent Discharge Test
(6.3.15)	Water Tank Fill and Overflow Test
(6.3.16)	Flushing System Test
(6.3.17)	Primary Turret Flow Rate Test
(6.3.18)	Primary Turret Pattern Test
(6.3.19)	Primary Turret Control Force Measurement
(6.3.20)	Primary Turret Articulation Test
(6.3.21)	Handline Nozzle Flow Rate Test

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(6.3.22)	Handline Nozzle Pattern Test
(6.3.23)	Ground Sweep/Bumper Turret Flow Rate Test
(6.3.24)	Ground Sweep/Bumper Turret Pattern Control Test
(6.3.25)	Undertruck Nozzle Test
(6.3.26)	Foam Concentration/Foam Quality Test
(6.3.27)	Warning Siren Test
(6.3.28)	Propellant Gas
(6.3.29)	Pressure Regulation
(6.3.30)	AFFF Premix Piping and Valves
(6.3.31)	Pressurized Agent Purging and Venting
(6.3.32)	Complementary Agent Handline Flow Rate and Range
(6.3.33)	Dry Chemical Turret Flow Rate and Range
(6.3.34)	Cab Interior Noise Test

6.0 PACKAGING

- 6.1 Preservation, packing, and marking will be as specified in the Procurement Specification, contract or delivery order.
- 6.2 The vehicle must be delivered with full operational quantities of lubricants, brake and hydraulic fluids, and cooling system fluid all of which must be suitable for use in the temperature range expected at the airport.
- 6.3 The vehicle must be delivered with one complete load of firefighting agents and propellants. One complete load is defined as all of the agents and propellants necessary for the vehicle to be fully operational. One load would include, at a minimum: one fill of a foam tank; one fill of a dry chemical tank; and one spare nitrogen cylinder for a dry chemical system. Agents and propellants for required testing or training are not included. For the initial training period, water should be used in place of other extinguishing agents. The manufacturer may pre-ship agents and propellants to Blue Grass Airport to reduce overall procurement costs.
- 6.4 The vehicle manufacturer must provide initial adjustments to the vehicle for operational readiness and mount any ancillary appliances purchased through the vehicle manufacturer as part of the vehicle.

7.0 TRAINING

- 7.1 Upon delivery of the vehicle to the airport, the manufacturer must, at no additional cost, provide the services of a qualified technician for five consecutive days for training. This is considered sufficient time for the purchaser to adjust shift work schedules to get maximum employee attendance to training sessions at some point during the training period. During this time sufficient repetitive learning

ATTACHMENT 02
PROCUREMENT SPECIFICATION – CLASS 5 ARFF VEHICLE
(3,000-4,500 Gallon AFFF Fire Suppression System)

opportunities must be provided by the manufacturer to allow various shifts to complete the training requirements.

- 7.2 The technician must provide thorough instruction in the use, operation, maintenance and testing of the vehicle. This setup must include operator training for the primary operators, which will give them sufficient knowledge to train other personnel in the functional use of all firefighting and vehicle operating systems. Prior to leaving the vehicle, the technician should review the maintenance instructions with the purchaser's personnel to acquaint them with maintenance procedures as well as how to obtain support service for the vehicle.
- 7.3 Training must include written operating instructions, electronic training aids (videos/power point), or other graphics that depict the step-by-step operation of the vehicle. Written instructions must include materials that can be used to train subsequent new operators.

8.0 REFERENCED DOCUMENTS

8.1 Source of Documents

8.1.1 The CFR may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington DC 20402.

Title 14, Code of Federal Regulations (CFR), Part 139, Certification of Airports (14 CFR Part 139)

Section 139.315 Aircraft Rescue and Firefighting: Index Determination.

Section 139.317 Aircraft Rescue and Firefighting: Equipment and Agents.

Section 139.319 Aircraft Rescue and Firefighting: Operational Requirements.

Title 49; Code of Federal Regulations (CFR), Part 393: Parts and Accessories Necessary for Safe Operation: Subpart C—Brakes.

Title 49; Code of Federal Regulations (CFR), Part 571, Motor Carrier Vehicle Safety Standards, Part 209, Standard No. 209; Seat Belt Assemblies.

8.1.2 SAE documents may be obtained from SAE, Inc., 400 Commonwealth Drive, Warrendale PA 15096.

8.1.3 National Fire Protection Association (NFPA): NFPA documents may be obtained from NFPA, Batterymarch Park, Quincy MA 02269-9101.

NFPA 412, Standard for Evaluating Aircraft Rescue and Fire-Fighting Foam Equipment (2009 Edition)

NFPA 414, Standard for Aircraft Rescue and Fire Fighting Vehicles (2007 Edition)

NFPA 1901, Standard for Automotive Fire Apparatus (2009 Edition)

ATTACHMENT 02
PROCUREMENT SPECIFICATION – CLASS 5 ARFF VEHICLE
(3,000-4,500 Gallon AFFF Fire Suppression System)

8.1.4 Federal Aviation Administration (FAA): FAA ACs may be obtained from the FAA website:

http://www.faa.gov/regulations_policies/advisory_circulars/

AC 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles

AC 150/5210-5, Painting, Marking, and Lighting of Vehicles Used on an Airport

FAA Orders, Specifications, and Drawings may be obtained from: Federal Aviation Administration, ATO-W CM-NAS Documentation, Control Center, 800 Independence Avenue, SW, Washington, DC 20591. Telephone: (202) 548-5256, FAX: (202) 548-5501 and website:

http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/atc_facilities/cm/cm_documentation/

END OF CLASS 5 PROCUREMENT SPECIFICATION

ATTACHMENT 03
BID FORM – CLASS 4 AND CLASS 5 ARFF VEHICLE

BIDDER’S DECLARATIONS

The undersigned, having examined the conditions associated with the proposed Product or Service to be provided, and having carefully read and examined all of the Bid Documents and having become familiar with the specifications, requirements and procedures thereof, hereby proposes and offers to perform all obligations associated herewith and proposes to furnish all labor, supplies, and equipment required to perform all of the work in strict accordance with the Bid Documents.

The undersigned certifies that it has examined and is fully familiar with all of the provisions of the Bid Documents and specifications and is satisfied that they are accurate; that it has carefully checked all words and figures, and other matters that in any way affect the work or the cost thereof.

SECTION 1.0 BID PRICE

1.1 1,500 Gallon ARFF Vehicle Suppression System (Quantity: 1)

\$ _____ (Enter Unit Price of vehicle using *numbers*)

Written Words (Enter Unit Price of vehicle using printed words)

1.2 3,000 – 4,000 Gallon ARFF Vehicle Suppression System (Quantity: 1)

\$ _____ (Enter Unit Price of vehicle using *numbers*)

Written Words (Enter Unit Price of vehicle using printed words)

1.3 Total Bid Price

\$ _____ (Enter Total Price for both vehicles using *numbers*)

Written Words (Enter Total Price of vehicle using printed words)

SECTION 2.0 WARRANTY

2.1 Bidder agrees to construct, manufacture, sell, transfer and deliver in accordance with the terms of the Agreement, such Product or Service as specified in the Specifications and as the Authority may request.

ATTACHMENT 03
BID FORM – CLASS 4 AND CLASS 5 ARFF VEHICLE

- 2.2** The Product furnished under this Agreement shall be new and unused, of the latest product in production to commercial trade and shall be of the highest quality as to materials used. Manufacturer furnishing the Product shall be experienced in design and production of such Product and shall be an established supplier of the Bid item.
- 2.3** Bidder shall provide a minimum written warranty for materials and workmanship on the equipment based on the Procurement Specifications for each piece of equipment. Please include warranty information separately for review.
- 2.4** The District will consider the cost of purchasing an extended warranty in addition to the minimum warranty provided by the Manufacturer of the equipment. All extended warranty information and costs associated with extended warranties will not be considered in the base bid of this solicitation. Please included extended warranty information separately for review.
- 2.5** Bidder warrants to the District that it will strictly conform to the specifications, drawings, samples, symbols, or other descriptions specified in this solicitation. That the Product will be free from any liens or encumbrances and be new, merchantable, and other wise be free from defects in design, material and workmanship. Bidder also warrants that no conflict of interest exists between the services and products to be provided under this solicitation and the Bidder's other activities. If a conflict of interest arises during this solicitation, and prior to contract award, Bidder shall immediately inform the District of any such conflict or potential conflict.
- 2.6** The Bidder warrants to the District that the Product shall be free from defects in materials and workmanship and shall conform to the requirements of the project/order. The apparent silence of specifications as to any detail, or the apparent omission from it of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and that only material and workmanship of the finest quality are to be used. All interpretations of specifications shall be made on the basis of this statement. The equipment furnished under this contract shall be newly manufactured and unused, of the latest product in production to commercial trade. In the event of equipment or vehicles, a refurbished or remanufactured vehicle shall not be considered and shall be cause for the bid to be considered non-responsive. The manufacturer furnishing the Product shall be experienced in design and construction of such Product and shall be an established supplier of the Product.
- 2.7** In the event the Product is not provided in accordance with the Agreement Documents, notice shall be given to the Seller to immediately provide personnel, equipment and supplies necessary to correct any deficiencies. If within two days of such notice, Seller has not corrected specified deficiencies to the satisfaction of the District, and according to the Specifications, the District may, at its option, provide such personnel, equipment and supplies from its own source or by contract

ATTACHMENT 03
BID FORM – CLASS 4 AND CLASS 5 ARFF VEHICLE

as required to correct the deficiencies, and the Seller shall pay such costs incurred to affect such remedy. Any such amounts so charged to the Seller shall be deducted from any sums due or becoming due from the District to the Seller.

SECTION 3.0 EXCEPTIONS

Bidder shall list below any exceptions (if any) from the specifications provided in these Bid Documents that apply to their bid. Bidders disclosure of any exception to the specifications does not constitute acceptance on the part of the District of such exception. The District reserves the right in its sole discretion to consider exceptions to the specifications as either acceptable or not acceptable, and to consider the bid invalid or non-responsive. If the bidder requires additional space for exclusions, please attach such exclusions separately.

Exclusion #1
Exclusion #2
Exclusion #3
Exclusion #4
Exclusion #5

SECTION 4.0 BUY AMERICAN COMPLIANCE FOR MANUFACTURED PRODUCTS

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate how they intend to comply with 49 USC § 50101 by selecting one on the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (not both) by checking the box.

- Bidder or offeror hereby certifies that it will comply with 49 USC § 50101 by:
 - (a) Only installing steel and manufactured products produced in the United States;
 - (b) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
 - (c) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

- To provide to the Owner evidence that documents the source and origin of the steel and manufactured product.

ATTACHMENT 03
BID FORM – CLASS 4 AND CLASS 5 ARFF VEHICLE

- To faithfully comply with providing U.S. domestic product.
 - To furnish U.S. domestic product for any waiver request that the FAA rejects
 - To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
- The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for either a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:
- (a) To submit to the Owner within 15 calendar days of the bid opening, a formal waiver request and required documentation that supports the type of waiver being requested.
 - (b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination may result in rejection of the proposal.
 - (c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
 - (d) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 3 Waiver – The cost of the item components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the “item”. The required documentation for a Type 3 waiver is:

- (a) Listing of all product components and subcomponents that are not comprised of 100 percent U.S. domestic content (Excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
- (b) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly at place of manufacture.
- (c) Percentage of non-domestic component and subcomponent cost as compared to total “item” component and subcomponent costs, excluding labor costs associated with final assembly at place of manufacture.

Type 4 Waiver – Total cost of project using U.S. domestic source product exceeds the total project cost using non-domestic product by 25 percent. The required documentation for a Type 4 of waiver is:

- (a) Detailed cost information for total project using U.S. domestic product
- (b) Detailed cost information for total project using non-domestic product

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious or

ATTACHMENT 03
BID FORM – CLASS 4 AND CLASS 5 ARFF VEHICLE

fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

SECTION 5.0 CERTIFICATION AND DISCLOSURE REGARDING LOBBYING

The Bidder certifies by signing and submitting this bid, to the best of their knowledge and belief, that:

- (a) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, 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.
- (b) 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.
- (c) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients 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. Code. 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.

render the maker subject to prosecution under Title 18, United States Code.

SECTION 6.0 DEBARMENT, SUSPENSION, INELIGIBILITY, AND VOLUNTARY EXCLUSION

The Bidder certifies to the best of its knowledge and belief that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily or involuntarily declared ineligible for the award of contracts by any Local, State, or Federal agency;
- (b) Have not, within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state

ATTACHMENT 03
BID FORM – CLASS 4 AND CLASS 5 ARFF VEHICLE

- antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and
- (c) Are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in paragraph (b) of this certification.
 - (d) Have not within a three-year period preceding this offer, been notified of any delinquent Federal taxes in an amount that exceeds \$3,000 for which the liability remains unsatisfied; and
 - (e) Have not within a three-year period preceding this offer had one or more public contracts or subcontracts (Federal, State, or local) terminated for cause or default; and

Where the Bidder is unable to certify to any of the statements in this certification, the Bidder shall attach an explanation to this application.

SECTION 7.0 ACKNOWLEDGEMENT OF ADDENDA

The undersigned acknowledges receipt of the following addenda to the documents:

Addendum No.: _____ Date: _____
Addendum No.: _____ Date: _____
Addendum No.: _____ Date: _____

Company Name of Bidder: _____
Company Address: _____
Telephone Number: _____
Email Address: _____
Authorized Signature: _____
Printed Name and Title: _____
Date Signed: _____

ATTACHMENT 04
BID BOND

Date of Bond (Month, Day) 20(Year)

Name and Address of Principal (Bidder): _____

Name and Address of Surety: _____

Name and Address of Obligee (Owner): Greenville-Spartanburg Airport District
2000 GSP Drive, Suite 1
Greer, SC 29651

Amount of Bond: _____

Project: One (1) 1,500 Gallon ARFF Vehicle
One (1) 3,000-4,500 ARFF Vehicle

KNOW ALL MEN BY THESE PRESENTS, that we, the Principal above named and the Surety above named, which is duly licensed under the laws of South Carolina to execute bid bonds, are held and firmly bound unto the Obligee above named in the penal sum of five percent (5%) of the amount offered in the bid above described in lawful money of the United States of America for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, assigns and successors, jointly and severally, firmly by these presents.

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such, that if the Principal shall be awarded the contract for which the bid above described is submitted and shall execute the contract, give bond for the faithful performance of the contract, and give bond for the payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, within ten (10) days after the award of the same to the Principal, then this obligation shall be null and void. but if the Principal fails to so execute such contract and give the performance bond and the payment bond as required by South Carolina General Statutes, as amended, as amended, the Surety shall, upon demand, forthwith pay to the Obligee the amount of this bond set forth above.

Regardless of any statement to the contrary, the terms and provisions of this bond shall not be altered, amended or limited by any attachment, rider or condition.

**ATTACHMENT 04
BID BOND**

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed, and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

DISTRICT:

SELLER:

Greenville-Spartanburg Airport District

By: _____

By: _____

Printed Name:

Printed Name:

Title: _____

Title: _____

Attested By: _____

Attested By: _____

Printed Name:

Printed Name:

Title: _____

Title: _____

Note: If Principal and Surety are corporations, the respective corporate seals shall be affixed and attached.

Surety shall execute and attach a certified copy of Power of Attorney Appointing Individual Attorney-In-Fact for execution of Bid Bond on behalf of Surety.

**ATTACHMENT 05
PURCHASE AGREEMENT**

AGREEMENT

GREENVILLE-SPARTANBURG AIRPORT DISTRICT

FOR

AIRPORT RESCUE FIRE FIGHTING (ARFF) VEHICLES

THIS AGREEMENT made as of XXX, 2019 between the **Greenville-Spartanburg Airport District**, hereinafter referred to as "**District**", and **XXXX**, hereinafter referred to as the "**Seller**".

WITNESSETH

WHEREAS, District anticipates a need for *One (1) 1,500 Gallon Aircraft Rescue Fire Fighting (ARFF) Vehicle and One (1) 3,000-4,000 Gallon Aircraft Rescue Fire Fighting (ARFF) Vehicle* (hereinafter called "Product"); and

WHEREAS, Seller is desirous of providing such Product;

NOW THEREFORE, in consideration of the mutual covenants, terms, conditions, privileges, obligations and agreements herein contained, the parties hereby mutually undertake, promise, and agree and as follows:

Seller hereby agrees to construct, manufacture, sell, transfer and deliver the Product to District subject to and in accordance with the Contract Documents herein contained in this Agreement.

This Agreement, together with the following documents, constitute the "Agreement Documents" and are attached hereto and made a part hereof:

- (a) Advertisement for Bid
- (b) Invitation to Bid
- (c) Bid Form
- (d) Attachments

ATTACHMENT 05
PURCHASE AGREEMENT

1. SCOPE OF WORK

The Seller agrees to construct, manufacture, sell, transfer and deliver the Product in accordance with the terms set forth in the Bid Form Document and subsequent Agreement Documents.

2. TERM

This Agreement shall be binding upon execution by both parties and the term of this Agreement shall begin _____, 20____ and end within a maximum of 365 calendar days, on or before _____, 20____ or upon inspection and acceptance of the Product by the District.

If the Seller fails to complete the work and deliver the Product by the date specified herein for achievement of Substantial Completion, such as date may be adjusted pursuant to the Agreement Documents, District shall deduct from progress payments or any other funds remaining due to the Seller or, if no funds remain due, Seller shall pay to District the amount specified under the General Provisions for each day that the Work remains uncompleted beyond the specified delivery date. Such sum is hereby, in view of the difficulty of estimating such damages, mutually agreed upon, fixed and determined by the Seller and the District as the liquidated damages that the District shall suffer by such default and not by way of penalty.

3. COMPENSATION

The District shall pay to Seller the lump sum amount of \$ _____ for the construction, manufacture, transfer and delivery of the Product. Except as provided herein, no price changes, additions, or subsequent qualifications will be honored during the course of the contract without prior approval from an authorized representative of the District.

4. ACCEPTANCE

This Agreement shall become a binding agreement between Seller and the District upon: (a) written acceptance by Seller, (b) commencement of performance by Seller, or (c) otherwise acknowledging acceptance of this Agreement, whichever occurs first. By acceptance of this Agreement, Seller agrees to strictly comply with all the Terms and Conditions and specifications, including those contained in all documents incorporated into the Agreement by reference. Any reference to Seller's quotation, bid, or proposal does not imply acceptance of any terms, conditions, or instruction contained in such document. District reserves the right to reject any different or additional terms in Seller's acceptance of this Agreement or in any documentation provided by Seller. District's acceptance of any goods shall not operate as a waiver of rights hereunder or otherwise relieve Seller from its responsibility for supplying and delivering goods or any other obligation of the Seller in accordance with the requirements of this Agreement.

5. CHANGES

The District reserves the right to make any change to quantities, delivery schedule and/or specifications upon reasonable notice to Seller. If such changes cause a material increase or decrease in the Seller's costs or time of performance of this Agreement, Seller

ATTACHMENT 05 PURCHASE AGREEMENT

shall notify the District immediately and negotiate an adjustment. The Seller shall submit any change requests in writing to the District. Amendments or changes to this Agreement shall only be issued at the sole discretion of the District.

6. PAYMENT

Terms of payment shall be Net Thirty (30) Days as mutually agreed between Seller and District unless otherwise stipulated in this Agreement. The total amount of money due to the Seller from the District shall be clearly stated in Agreement Documents. Seller is only entitled to payment for goods or equipment/material that are specifically named in the Agreement Documents and these Terms and Conditions. The District shall not be required to pay for additional costs incurred by the Seller related to extra services, overtime or holiday pay, or other costs required to meet the specifications of goods or equipment/material in this Agreement.

7. INVOICES

Seller's invoices must contain all necessary information required for the District to properly review the goods or equipment/material for which the seller has submitted an invoice. If an invoice does not contain all necessary information required to authorize payment, the District shall reject the invoice. Once an invoice is rejected, the Seller must submit a new invoice and the payment period of Net 30 Days will be reset to the date the new invoice is received and accepted.

8. INSURANCE

Seller shall, at its sole cost, during the performance of the Work maintain insurance coverage as follows:

- Comprehensive General Liability Insurance, including but not limited to, Personal and Advertising Injury, Manufactured Products Liability, Contractual Liability broad form Property Damage Liability coverage with limits of not less than \$1,000,000 per occurrence. *A limit of not less than \$2,000,000 is required if access to the Airfield is required.*
- Automobile Liability (owned, non-owned, and hired automobiles), Bodily Injury, and Property Damage Insurance with limits of not less than \$1,000,000 per accident. *A limit of not less than \$2,000,000 is required if access to the Airfield is required.*
- Workers Compensation and Employer's Liability Insurance with limits not less than \$1,000,000.

All insurance policies must name the **"Greenville-Spartanburg Airport District, its Commissioners, Officers, Servants, Agents, and Employees"** as additional insureds with respect to general and automobile liability coverage's, and shall not be canceled, terminated or materially changed without at least thirty (30) days prior written notice from Seller to District. Certificates evidencing such insurance must be submitted by Seller to District prior to Seller providing any goods or equipment/material or services, and at least fifteen (15) days prior to the expiration dates of expiring policies. District reserves the right to

ATTACHMENT 05
PURCHASE AGREEMENT

request complete copies of any insurance policies required by these Terms and Conditions if deemed necessary to ascertain the details of coverage not provided by the Certificates.

All insurance provided by Seller under this Agreement shall include a Waiver of Subrogation by the insurers in favor of District, including its Commissioners, Officers, and employees. Seller hereby releases District for losses or claims for bodily injury, property damage or other insured claims arising out of Seller's performance under this Agreement.

9. INDEMNIFICATION

Seller shall indemnify and hold harmless District, its Commissioners, Officers, and employees of, from, and against any and all claims and demands which may arise out of or is incidental to the performance of this Agreement. Contractor further agrees that it is responsible for and shall indemnify, defend, and hold harmless District for all damages to the property of District caused by an act or omission by Seller's agents, employees or independent contractors, and shall pay on behalf of District all sums that District shall become obligated to pay by reason of the liability, if any, imposed by law upon District for damages because of bodily injury, including damages for care and loss of service, and including death at any time resulting from bodily injury, and because of injury to or destruction of property, including loss of use thereof, which may be caused by or result from any of the activities, omissions or operations of its agents, servants, employees or contractors.

Seller agrees to hold harmless, indemnify and defend District from and against any and all claims, including reasonable attorney's fees and other expense of District, for or in connection with, the accident, injury or damage whatsoever caused to any person or property and arising directly or indirectly, out of any action or omission of Seller or any subcontractor which condition was not specified to be created or maintained by Seller.

The agreement to hold District, its Commissioners, Officers, and employees harmless shall not be limited to the limits of liability insurance required under the provisions of this Agreement.

10. NOTICES

All official notices shall be in writing and be served by email, hand-delivered, or registered or certified mail (return receipt requested), addressed to the party to be served at the address set forth below or at such other address as may be designated in writing. Service of notice shall be complete upon receipt of notice.

To District:
Greenville-Spartanburg Airport District
2000 GSP Drive, Suite 1
Greer, SC 29651
Attn: President/CEO

To Seller:

Attn:

11. WARRANTY

Seller warrants to District this Agreement shall strictly conform to the specifications, drawings, samples, symbols or other descriptions specified by District; shall be free from any liens or encumbrances; shall be new (certified used substitutions are acceptable with written

ATTACHMENT 05 PURCHASE AGREEMENT

approval from District), merchantable, and free from defects in design, material and workmanship; that no conflict of interest exists between the services and products to be provided under this Agreement and Seller's other activities. Seller shall immediately advise District of any such conflict of interest or potential conflict of interest which arises during performance of this Agreement and all goods or equipment/material covered by this Agreement, which are in accordance with Seller's design, drawings or specifications, shall be fit and suitable for the purpose intended.

Seller warrants that the goods shall continue to be free from defects in design, material and workmanship in accordance with Seller's standard warranty policy from the date of final acceptance. In addition to any other remedies available to District, District may return any nonconforming goods or equipment/material to Seller for correction or replacement, with all transportation charges and District's handling charges for return and redelivery to be borne by Seller. If Seller fails to accept return of nonconforming goods or equipment/material or fails promptly to correct or replace same, at District's election, Seller, without limiting its other rights, may, at Seller's expense, correct or replace the nonconforming goods or equipment/material or procure the goods or equipment/material from another subcontractor and charge the cost to Seller.

Products which have been rejected for warranty under this clause shall not thereafter be tendered for acceptance unless the former rejection and correction is identified, and such repaired or replacement goods or equipment/material shall be subject to the provisions of this clause to the same extent as the original goods or equipment/material and shall be from the delivery date of the repaired or replaced goods or equipment/material. If the products provided under this Agreement includes services, then Seller warrants and represents that the services will be performed in a professional and workmanlike manner and will conform in all material respects to the statement of work or, to standard industry practice if there is no statement of work.

If Seller breaches this warranty, the District may demand Seller to re-perform the non-conforming services or, at the District's option, to request a refund for the non-conforming services. These warranties are in addition to all other warranties specified herein or implied by law and shall survive acceptance and payment. All warranties shall favor District, its successors, customers, and the users of the goods or equipment/material.

12. TITLE AND RISK OF LOSS

The Seller warrants that it has the right to sell the goods or equipment/material and the ability to deliver good title to all goods or equipment/material. Title to the goods or equipment/material shall pass to District upon District's final inspection and acceptance of the goods or equipment/material. In addition to its other insurance obligations, the Seller shall insure the full value of the goods or equipment/material while in transit and in storage prior to acceptance of the goods or equipment/material by the District. The Seller shall promptly execute and provide the District with any and all documentation necessary to transfer title to the goods or equipment/material or evidence of District's title thereto.

ATTACHMENT 05
PURCHASE AGREEMENT

13. RESERVATION OF RIGHTS

The making or failure to make any inspection of, or payment for, the goods or equipment/material covered by this Agreement shall in no way impair District's right to reject nonconforming or defective goods or equipment/material, District's knowledge of the non-conformity or defect, or the ease of its discovery, nor District's earlier failure to reject the goods or equipment/material.

14. DELIVERY

Time is of the essence and shipment must occur within the time or times stated in this Agreement. If the goods or equipment/material are not shipped at such time and in such quantity as provided in this Agreement or in supplemental schedules furnished by the District, the District reserves the right, without liability and in addition to its other rights and remedies, to terminate this Agreement in whole or in part by notice effective when received by the Seller, for stated goods not yet delivered or equipment/material not yet rendered and to purchase substitute goods or equipment/material elsewhere. If the District terminates this Agreement because of delay, the Seller agrees that the District may return all or part of any shipment already made, at Seller's risk and expense, and may charge Seller with any loss, expense or injury sustained as a result of such shipment. If at any time either party has reason to believe that delivery will not be made as scheduled in this Agreement, it shall immediately give written notice to the other and set forth the cause of the anticipated delay.

Any goods or equipment/material in excess of quantity ordered may be returned by District to Seller at Seller's risk and expense. Any goods or equipment/material to be rendered in installments under this Agreement shall not be construed as making the obligations of the Seller severable.

15. INSPECTION

All goods or equipment/material shall be subject to inspection and approval within a reasonable time after delivery. District reserves the right to reject and refuse acceptance of goods or equipment/material which are not in accordance with the instructions, specifications, drawings, samples, data and/or descriptions specified or furnished or Contractor's warranty (expressed or implied) or the warranties provided in paragraph 10. District may charge Seller for the cost of inspecting goods or equipment/material that are rejected. Goods or equipment/material not accepted may be returned to Seller at Seller's risk and expense. Receipt of or payment for any goods or equipment/material ordered hereunder shall not be deemed an acceptance thereof.

Such inspection, or the waiver thereof, shall not relieve the Seller from full responsibility for furnishing goods or equipment/material conforming to the requirements of this Agreement, nor prejudice any claim, right or remedy of the District resulting from defective or unsatisfactory goods or equipment/material.

16. TERMINATION FOR DEFAULT

When Seller has not performed or has unsatisfactorily performed the obligations required by these Terms and Conditions, payment shall be withheld in the sole and absolute discretion of District. Failure on the part of Seller to fulfill the Agreement obligations shall be

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considered just cause for termination of the Agreement and Seller shall only be entitled to recover any undisputed costs incurred by Seller up to the date of termination, and Seller waives any and all claims for costs resulting from termination (including but not limited to consequential damages, lost profits, demobilization costs, termination costs, etc.).

17. TERMINATION FOR CONVENIENCE

At any time, District may terminate Agreement, in whole or in part, without showing cause upon written notice to Seller specifying the extent and the effective date of the termination. In connection with such termination, District shall pay Seller, as Seller's sole and exclusive remedy, a termination payment comprised of any amounts due for the items received prior to the termination date and Seller's reasonable and necessary direct costs resulting from the termination which are substantiated by evidence satisfactory to District (and determined in the sole and absolute discretion of District). In no event shall Seller be entitled to any payment or profit for any items received, but not accepted by District, nor shall Seller be entitled to any consequential damages of any type arising from the termination.

18. FORCE MAJURE

Neither party shall be liable for delays in delivery caused by circumstances beyond its reasonable control and without its fault or negligence, including strikes, lockouts, riots, epidemics, war, fire, flood, explosion, acts of God, or acts of terrorism. In no event shall shipping delays, product shortages, or lack of finances or cash flow shortages be considered as a cause beyond the control of a party. The party affected by the Force Majeure shall give prompt written notice thereof and, upon end of the Force Majeure, take all reasonable steps to resume compliance with its obligations. Notwithstanding the above, if such delays extend Seller's delivery or performance date by more than thirty (30) days, District may terminate such part of the Agreement remaining to be performed. In the event of such termination, the rights and obligations of the parties shall be determined in accordance with the provisions of section 14 above.

19. GOVERNING LAW

This Agreement and any and all extensions and/or modifications thereof shall be governed by and enforced in accordance with the laws of South Carolina and all proceedings with respect to this Agreement shall be commenced in the State of South Carolina, located in Greenville County. Additionally, this Agreement is agreed by the Seller to be made and performed in the State of South Carolina. In any legal proceedings, District is entitled to recover reasonable attorney's fees from Seller. If any provision or portion of any provision shall be deemed unenforceable or invalid for any reason whatsoever, this Agreement shall be deemed amended to exclude any such provision or portion and the balance of this Agreement shall remain in full force and effect.

20. INDEPENDENT CONTRACTOR

It is mutually agreed and understood that the Seller, in performing the Work set forth in this Agreement, acts as an independent contractor in every respect and shall not hold itself out as, nor shall it be deemed, an agent, servant, or employee of the District. The selection,

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retention, assignment, direction and payment of the Seller's employees and associates shall be the sole responsibility of the Seller. The District shall not attempt to exercise any control over the daily performance of duties by the Seller's employees. The Seller shall maintain all tax records for its employees who perform Work pursuant to this Agreement, and the Seller shall withhold and remit income taxes, federal insurance contribution act taxes and unemployment insurance taxes to the appropriate governmental agencies with respect to amounts paid by the Seller to its employees for their Work.

21. ENTIRE AGREEMENT

This Agreement, together with all attachments hereto, constitutes the entire agreement between the parties in respect to its subject matter and supersedes all prior and contemporaneous agreements between the parties in connection with the same subject matter. The Seller shall not assign, subcontract or transfer this Agreement or any part thereof, by operation of law or otherwise, or any Product to be rendered by the Seller hereunder, without the prior express written consent of the District.

IN WITNESS WHEREOF, the parties hereto have executed and entered into this Agreement as of the day and year first above written.

DISTRICT:

SELLER:

Greenville-Spartanburg Airport District

By: _____

By: _____

Printed Name: _____

Printed Name: _____

Title: _____

Title: _____

Attested By: _____

Attested By: _____

Printed Name: _____

Printed Name: _____

Title: _____

Title: _____

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SPECIAL TERMS – FEDERAL CONTRACT PROVISIONS

ACCESS TO RECORDS AND REPORTS

Reference: 2 CFR § 200.333, 2 CFR § 200.336, and FAA Order 5100.38

The contractor must maintain an acceptable cost accounting system. The contractor agrees to provide the Sponsor, the Federal Aviation Administration, and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers, and records of the contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

BUY AMERICAN PREFERENCE

Reference: 49 USC § 50101

The Contractor agrees to comply with 49 USC § 50101, which provides that Federal funds may not be obligated unless all steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

A bidder or offeror must complete and submit the Buy America certification included herein with their bid or offer. The Owner will reject as nonresponsive any bid or offer that does not include a completed Certificate of Buy American Compliance.

CIVIL RIGHTS – GENERAL

Reference: 49 USC § 47123

The Contractor agrees that it will comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance. If the Contractor transfers its obligation to another, the transferee is obligated in the same manner as the Contractor.

This provision binds the contractor and sub-tier contractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

CIVIL RIGHTS – TITLE VI ASSURANCE

Reference: 49 USC § 47123 and FAA Order 1400.11

A) Title VI Solicitation Notice

The Greenville-Spartanburg Airport District, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

B) Title VI Clauses for Compliance with Nondiscrimination Requirements

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

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2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The contractor will provide all information and reports required by the Nondiscrimination Acts and Authorities, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
 - a) Withholding payments to the contractor under the contract until the contractor complies; and/or
 - b) Cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Nondiscrimination Acts and Authorities, and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

C) Title VI List of Pertinent Nondiscrimination Authorities

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination in Federally-Assisted Programs of The Department of Transportation—Effectuation of Title VI of The Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);

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SPECIAL TERMS – FEDERAL CONTRACT PROVISIONS

- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration’s Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

DISADVANTAGED BUSINESS ENTERPRISE

Reference: 49 CFR part 26

The Owner’s award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR §26.53.

As a condition of bid responsiveness, the Bidder or Offeror must submit the following information with its proposal on the forms provided herein:

- 1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
- 2) A description of the work that each DBE firm will perform;
- 3) The dollar amount of the participation of each DBE firm listed under (1)
- 4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner’s project goal; and

If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26.

Contract Assurance (§ 26.13) The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT assisted contracts.

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SPECIAL TERMS – FEDERAL CONTRACT PROVISIONS

Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the recipient deems appropriate.

Prompt Payment (§26.29) The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than thirty (30) calendar days from the receipt of each payment the prime contractor receives from the Sponsor. The prime contractor agrees further to return retainage payments to each subcontractor within thirty (30) calendar days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Sponsor. This clause applies to both DBE and non-DBE subcontractors.

ENERGY CONSERVATION REQUIREMENTS

Reference: 2 CFR § 200, Appendix II (H)

Contractor and each subcontractor agree to comply with mandatory standards and policies relating to energy efficiency as contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6201 et seq).

FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

Reference: 29 USC § 201, et seq.

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part time workers.

The contractor/consultant has full responsibility to monitor compliance to the referenced statute or regulation. The contractor/consultant must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Wage and Hour Division.

OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

Reference: 20 CFR part 1910

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. Contractor must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The Contractor retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). Contractor must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

RIGHT TO INVENTIONS

Reference: 2 CFR § 200 Appendix II (F) and 37 CFR §401

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR part 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within in the 37 CFR §401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental or research work.

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SEISMIC SAFETY

Reference: 49 CFR part 41

In the performance of design services, the Consultant agrees to furnish a building design and associated construction specification that conform to a building code standard which provides a level of seismic safety substantially equivalent to standards as established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their building code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety. At the conclusion of the design services, the Consultant agrees to furnish the Owner a "certification of compliance" that attests conformance of the building design and the construction specifications with the seismic standards of NEHRP or an equivalent building code.

TRADE RESTRICTION CERTIFICATION

Reference: 49 USC § 50104 and 49 CFR part 30

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror:

- a. is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (U.S.T.R.);
- b. has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the U.S.T.R.; and
- c. has not entered into any subcontract for any product to be used on the Federal on the project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the U.S.T.R.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances. Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to an Offeror or subcontractor:

- a. who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the U.S.T.R. or
- b. whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such U.S.T.R. list or
- c. who incorporates in the public works project any product of a foreign country on such U.S.T.R. list;

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the

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list of countries that discriminate against U.S. firms as published by U.S.T.R, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

VETERAN'S PREFERENCE

Reference: 49 USC § 47112(c)

In the employment of labor (excluding executive, administrative, and supervisory positions), the contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 U.S.C. 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$2,000

COPELAND "ANTI-KICKBACK ACT"

Reference: 2 CFR § 200, Appendix II (D) and 29 CFR Parts 3 and 5

Contractor must comply with the requirements of the Copeland "Anti-Kickback" Act (18 USC 874 and 40 USC 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

DAVIS-BACON REQUIREMENTS

Reference: 2 CFR § 200, Appendix II (D) and 29 CFR Part 5

Minimum Wages

1. All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided* that the employer's payroll records accurately set forth the time spent in each

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classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

2. The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
 - a) The work to be performed by the classification requested is not performed by a classification in the wage determination;
 - b) The classification is utilized in the area by the construction industry; and
 - c) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
3. If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
4. In the event the Contractor, the laborers, or mechanics to be employed in the classification, or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
5. The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
6. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
7. If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program: *Provided* that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

Withholding

The Federal Aviation Administration or the sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime contractor, or any other

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federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

Payrolls and Basic Records

1. Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and that show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.
2. The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (*e.g.* the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at www.dol.gov/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, Sponsor, or Owner).
3. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

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- a) The payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i), and that such information is correct and complete;
 - b) Each laborer and mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations 29 CFR Part 3;
 - c) Each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
4. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.
 5. The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.
 6. The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the sponsor, the Federal Aviation Administration, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, Sponsor, applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

Apprentices and Trainees

1. Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid

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the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

2. Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
3. Equal Employment Opportunity. The utilization of apprentices, trainees, and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

Compliance with Copeland Act Requirements

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

Subcontracts

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR Part 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

Contract Termination: Debarment

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

Compliance with Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

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SPECIAL TERMS – FEDERAL CONTRACT PROVISIONS

Disputes Concerning Labor Standards

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

Certification of Eligibility

1. By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
2. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
3. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC 1001.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$3,500

DISTRACTED DRIVING

Reference: Executive Order 13513 and DOT Order 3902.10

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving" (10/1/2009) and DOT Order 3902.10 "Text Messaging While Driving" (12/30/2009), the FAA encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or sub-grant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding \$3,500 and involve driving a motor vehicle in performance of work activities associated with the project.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$10,000

PROCUREMENT OF RECOVERED MATERIALS

Reference: 2 CFR § 200.322, 40 CFR Part 247, Solid Waste Disposal Act

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

The contract requires procurement of \$10,000 or more of a designated item during the fiscal year; or

The contractor has procured \$10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products.

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

- a. Not reasonably available within a timeframe providing for compliance with the contract performance schedule;

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- b. Fails to meet reasonable contract performance requirements; or
- c. Is only available at an unreasonable price.

PROHIBITION OF SEGREGATED FACILITIES

Reference: 41 CFR §60

The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.

"Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

TERMINATION OF CONTRACT

Reference: 2 CFR § 200 Appendix II (B)

Termination for Convenience

The Owner may, by written notice to the Consultant, terminate this Agreement for its convenience and without cause or default on the part of Consultant. Upon receipt of the notice of termination, except as explicitly directed by the Owner, the Contractor must immediately discontinue all services affected.

Upon termination of the Agreement, the Consultant must deliver to the Owner all data, surveys, models, drawings, specifications, reports, maps, photographs, estimates, summaries, and other documents and materials prepared by the Engineer under this contract, whether complete or partially complete.

Owner agrees to make just and equitable compensation to the Consultant for satisfactory work completed up through the date the Consultant receives the termination notice. Compensation will not include anticipated profit on non-performed services.

Owner further agrees to hold Consultant harmless for errors or omissions in documents that are incomplete as a result of the termination action under this clause.

Termination by Default

Either party may terminate this Agreement for cause if the other party fails to fulfill its obligations that are essential to the completion of the work per the terms and conditions of the Agreement. The party initiating the termination action must allow the breaching party an opportunity to dispute or cure the breach.

The terminating party must provide the breaching party [7] days advance written notice of its intent to terminate the Agreement. The notice must specify the nature and extent of the breach, the conditions necessary to cure the breach, and the effective date of the termination action. The rights and remedies in this clause are in addition to any other rights and remedies provided by law or under this agreement.

1. Termination by Owner: The Owner may terminate this Agreement in whole or in part, for the failure of the Consultant to:
 - a. Perform the services within the time specified in this contract or by Owner approved extension;
 - b. Make adequate progress so as to endanger satisfactory performance of the Project;

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- c. Fulfill the obligations of the Agreement that are essential to the completion of the Project.

Upon receipt of the notice of termination, the Consultant must immediately discontinue all services affected unless the notice directs otherwise. Upon termination of the Agreement, the Consultant must deliver to the Owner all data, surveys, models, drawings, specifications, reports, maps, photographs, estimates, summaries, and other documents and materials prepared by the Engineer under this contract, whether complete or partially complete.

Owner agrees to make just and equitable compensation to the Consultant for satisfactory work completed up through the date the Consultant receives the termination notice. Compensation will not include anticipated profit on non-performed services.

Owner further agrees to hold Consultant harmless for errors or omissions in documents that are incomplete as a result of the termination action under this clause.

If, after finalization of the termination action, the Owner determines the Consultant was not in default of the Agreement, the rights and obligations of the parties shall be the same as if the Owner issued the termination for the convenience of the Owner.

2. Termination by Consultant: The Consultant may terminate this Agreement in whole or in part, if the Owner:
- a. Defaults on its obligations under this Agreement;
 - b. Fails to make payment to the Consultant in accordance with the terms of this Agreement;
 - c. Suspends the Project for more than [180] days due to reasons beyond the control of the Consultant.

Upon receipt of a notice of termination from the Consultant, Owner agrees to cooperate with Consultant for the purpose of terminating the agreement or portion thereof, by mutual consent. If Owner and Consultant cannot reach mutual agreement on the termination settlement, the Consultant may, without prejudice to any rights and remedies it may have, proceed with terminating all or parts of this Agreement based upon the Owner's breach of the contract.

In the event of termination due to Owner breach, the Engineer is entitled to invoice Owner and to receive full payment for all services performed or furnished in accordance with this Agreement and all justified reimbursable expenses incurred by the Consultant through the effective date of termination action. Owner agrees to hold Consultant harmless for errors or omissions in documents that are incomplete as a result of the termination action under this clause.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$25,000

DEBARMENT AND SUSPENSION

Reference: 2 CFR part 180 (Subpart C), 2 CFR part 1200, and DOT Order 4200.5

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that at the time the bidder or offeror submits its proposal that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

The successful bidder, by administering each lower tier subcontract that exceeds \$25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: <https://www.sam.gov>.
2. Collecting a certification statement similar to the Certificate Regarding Debarment and Suspension (Bidder or Offeror), above.

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3. Inserting a clause or condition in the covered transaction with the lower tier contract

If the FAA later determines that a lower tier participant failed to tell a higher tier that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedy, including suspension and debarment.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$100,000

LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

Reference: 31 U.S.C. § 1352 – Byrd Anti-Lobbying Amendment; 2 CFR part 200, Appendix II (J); and 49 CFR part 20, Appendix A

The Bidder or Offeror certifies by signing and submitting this bid or proposal, 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 Bidder or Offeror, 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 sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients 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. Code. 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.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$150,000

BREACH OF CONTRACT TERMS

Reference: 2 CFR § 200 Appendix II (A)

Any violation or breach of terms of this contract on the part of the Manufacturer or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

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SPECIAL TERMS – FEDERAL CONTRACT PROVISIONS

CLEAN AIR AND WATER POLLUTION CONTROL

Reference: 2 CFR § 200 Appendix II (G)

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 U.S.C. § 740-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. § 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

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