



U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject: Guide Specification for Aircraft
Rescue and Fire Fighting (ARFF) Vehicles

Date: June 26, 2025
Initiated By: AAS-300

AC No: 150/5220-10F
Change:

1 **Purpose.**

This advisory circular (AC) provides guidance for preparing a specification that airports can use in procuring Aircraft Rescue and Fire Fighting (ARFF) vehicles.

2 **Cancellation.**

AC 150/5220-10E, *Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles*, dated June 1, 2011, is cancelled.

3 **Scope.**

The three main phases of the ARFF vehicle procurement process are presented in this AC, including the:

1. Description of the vehicle selection process,
2. Selection of vehicle requirements, and
3. Production of a formal specification.

This AC contains information based on the minimum ARFF vehicle requirements established by Title 14 of the Code of Federal Regulations (CFR) Part 139, *Certification of Airports*. The AC is also based on the Federal Aviation Administration (FAA) additions, exemptions, or amendments made to National Fire Protection Association (NFPA) 1900, *Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus, Wildland Fire Apparatus, and Automotive Ambulances (2024 Edition)*. Only ARFF vehicles and associated vehicle training equipment are discussed in this AC. Other related items, such as the communications equipment, tools, and clothing used in fire fighting, are not covered. However, that information can be found in other guidance materials such as AC 150/5210-14, *Aircraft Rescue Fire Fighting Equipment, Tools and Personal Protective Equipment*.

4 **Application.**

The FAA recommends the guidance and specifications in this AC for procuring ARFF vehicles. In general, use of this AC is not mandatory. However, use of this AC is mandatory for the acquisition of ARFF vehicles through the Airport Improvement Program (AIP) or Passenger Facility Charge (PFC) Program. See Grant Assurance No.

34, *Policies, Standards, and Specifications*, and PFC Assurance No. 9, *Standards and Specifications*. For certificated airports, in the event of a conflict, Part 139 takes precedence over all other documents identified in the AC. For any allowable options requested by the user that require justification, the appropriate text will be entered into the space provided for the FAA's Airport District Office (ADO) or Regional staff review and approval. Additions, exceptions, amendments, and options are noted, referencing applicable NFPA 1900 paragraphs. Features or design details not listed as required or optional in this document are generally considered unnecessary. However, special circumstances or conditions may be addressed through the FAA's Modification to Standards procedures (see FAA Order 5300.1, *Modifications to Agency Airport Design, Construction, and Equipment Standards*).

5 **Principal Changes.**

The AC incorporates the following principal changes:

1. Removed interactive tool.
2. Reformatted to reflect features required and allowable when vehicles are acquired using federal financial assistance.
3. Deleted Classes 2 and 3.
4. Deleted former Appendix A, "Previous FAA Additions, Exemptions, or Amendments to NFPA 1900."
5. Added new Appendix A, "Fire Truck Procurement Specification Considerations."
6. Merged and moved vehicle procurement specifications from the former Chapter 3 to Appendix B.
7. Added Appendix C, "Checklist for Delivery Package."
8. Added Appendix D, Definitions and Acronyms.
9. Updated reference material to NFPA 1900 (*2024 Edition*).
10. Changed terminology "high reach extendable turret (HRET)" to "boom-mounted turret" per NFPA 1900 standards.
11. Halogenated agent is now referred to as clean agent.
12. Wording has been adjusted throughout because Fluorine-Free Foam (F3) cannot currently be used with a premix system truck.
13. Updated the format and made editorial changes throughout.

6 **Using this Document.**

This AC guides the user through the decision process for preparing a Fire Truck Procurement Specification.

Hyperlinks (allowing the reader to access documents located on the Internet and to maneuver within this document) are provided throughout this document and are

identified with underlined text. When navigating within this document, return to the previously viewed page by pressing the “ALT” and “ ← ” keys simultaneously.

7 **Related Documents.**

ACs and Orders referenced in the text of this AC do not include a revision letter, as they refer to the latest version.

1. FAA Order 5100.38, *Airport Improvement Program Handbook*
2. AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport*
3. AC 150/5210-14, *Aircraft Rescue Fire Fighting Equipment, Tools and Personal Protective Equipment*
4. AC 150/5210-19, *Driver’s Enhanced Vision System (DEVS)*
5. AC 150/5210-25, *Performance Specification for Airport Vehicle Runway Incursion Warning Systems (RIWS)*
6. FAA Order 5300.1, *Modifications to Agency Airport Design, Construction, and Equipment Standards*
7. 2 CFR Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*
8. Part 139, *Certification of Airports*
9. NFPA 1900, *Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus, Wildland Fire Apparatus, and Automotive Ambulances (2024 Edition)*, <https://www.nfpa.org/>

8 **Where to Find this AC.**

You can view a list of all ACs at

https://www.faa.gov/regulations_policies/advisory_circulars/. You can view the Federal Aviation Regulations at https://www.faa.gov/regulations_policies/faq_regulations/.

9 **Feedback on this AC.**

If you have suggestions for improving this AC, you may use the Advisory Circular Feedback form at the end of this AC.



Trish Hiatt
Acting Director of Airport Safety and Standards

CONTENTS

| | Page |
|--|-------------|
| Chapter 1. The ARFF Vehicle Selection Process | 1-1 |
| 1.1 General..... | 1-1 |
| 1.2 Background..... | 1-1 |
| 1.3 ARFF Vehicle Requirements..... | 1-1 |
| 1.4 Step 1 – Determining Replacement Need..... | 1-7 |
| 1.5 Step 2 – Determining the Airport’s ARFF Index..... | 1-8 |
| 1.6 Step 3 – Determining Agent Requirements. | 1-9 |
| 1.7 Step 4 – Determining Vehicle Requirements..... | 1-10 |
| Chapter 2. Procurement Specification | 2-1 |
| 2.1 General..... | 2-1 |
| 2.2 Airport Requirements Considerations..... | 2-1 |
| Appendix A. Fire Truck Procurement Specification Considerations | A-1 |
| Appendix B. Vehicle Procurement Specification Boilerplate | B-1 |
| Appendix C. Checklist for Delivery Package | C-1 |
| Appendix D. Definitions and Acronyms | D-1 |
| D.1 Definitions..... | D-1 |
| D.2 Acronyms..... | D-2 |

FIGURES

| | |
|---|-----|
| Figure 1-1. Advisory Circular (AC) Flowchart | 1-1 |
| Figure 1-2. Decision Logic Diagram Summary for Index A or B Airports..... | 1-2 |
| Figure 1-3. Decision Logic Diagram Summary for Index C Airports..... | 1-3 |
| Figure 1-4. Decision Logic Diagram Summary for Index C Airports (continued) | 1-4 |
| Figure 1-5. Decision Logic Diagram Summary for Index D Airports..... | 1-5 |
| Figure 1-6. Decision Logic Diagram Summary for Index E Airports | 1-6 |

TABLES

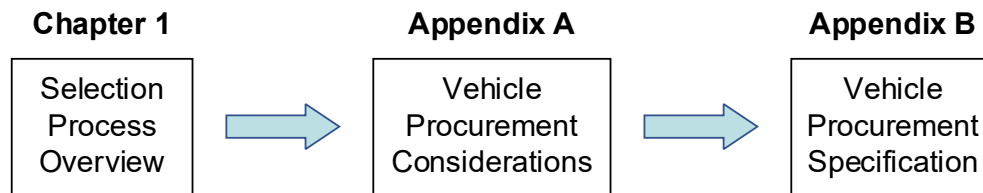
| | |
|--|-----|
| Table 1-1. Sample Aircraft Types by Airport Index..... | 1-9 |
|--|-----|

CHAPTER 1. THE ARFF VEHICLE SELECTION PROCESS

1.1 General.

This chapter provides an overview of the ARFF vehicle selection process. As shown in [Figure 1-1](#), the considerations and requirements outlined in this chapter will be used to enter the appropriate information in [Appendix A](#) (vehicle procurement considerations) which provides the corresponding output in [Appendix B](#) (vehicle procurement specifications).

Figure 1-1. Advisory Circular (AC) Flowchart



1.2 Background.

ARFF vehicles are designed to provide an invaluable service to (a) the commercial and private aviation industry, (b) the safety of passengers, and (c) the cargo they transport. The aviation industry relies on prompt and effective fire and rescue services during aircraft emergencies. These services include fire containment and suppression, airframe and cargo preservation, and site maintenance to aid in after-incident investigations. The vehicles that airport fire departments employ serve as the medium to deliver firefighters, specialized tools and equipment, and fire fighting agents to the scene of an aircraft incident. Design ARFF vehicles to:

- Perform specific functions and include specific features.
- Provide durable construction for long service life.
- Allow ease of maintenance.

1.3 ARFF Vehicle Requirements.

The requirements for ARFF vehicles to transport specific quantities and types of fire fighting agents are established by Title 14 CFR [Part 139.317](#), *Aircraft Rescue and Firefighting: Equipment and Agents*. Decision logic diagrams ([Figure 1-2](#), [Figure 1-3](#), [Figure 1-4](#), [Figure 1-5](#), and [Figure 1-6](#)) identify an airport index and the decision process concerning what vehicles and agents an airport must have as a minimum based on that index. However, there are options in [Part 139.317](#) that allow flexibility in the configuration of firefighting vehicle agent delivery systems. These options include a selection of the type of Class B dry chemical agent (sodium versus potassium based), quantity by type of dry chemical agent, and use of a clean agent (see [AC 150/5210-6](#), *Aircraft Fire Extinguishing Agents for Airports*, for approved products) instead of dry chemical.

Figure 1-2. Decision Logic Diagram Summary for Index A or B Airports

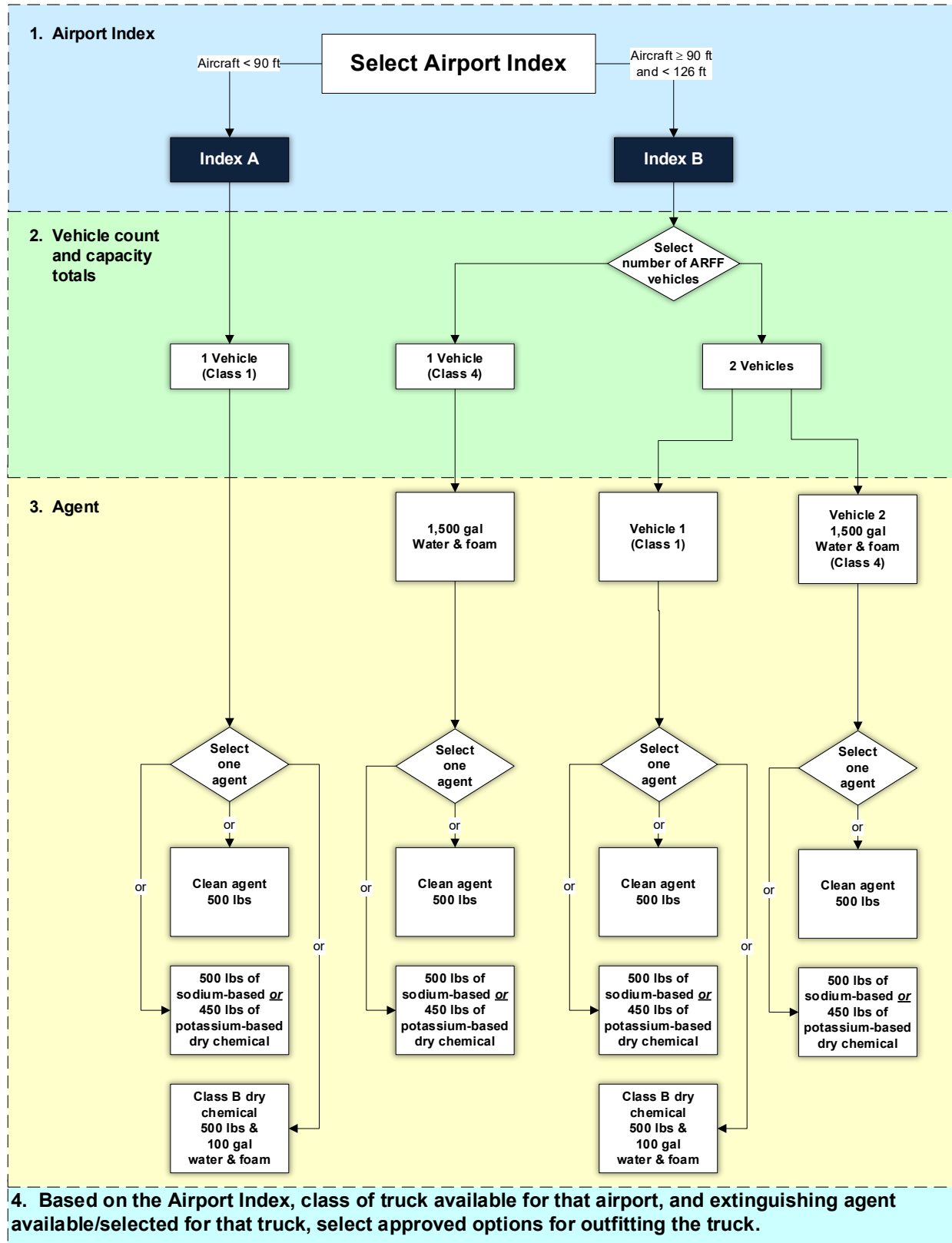


Figure 1-3. Decision Logic Diagram Summary for Index C Airports

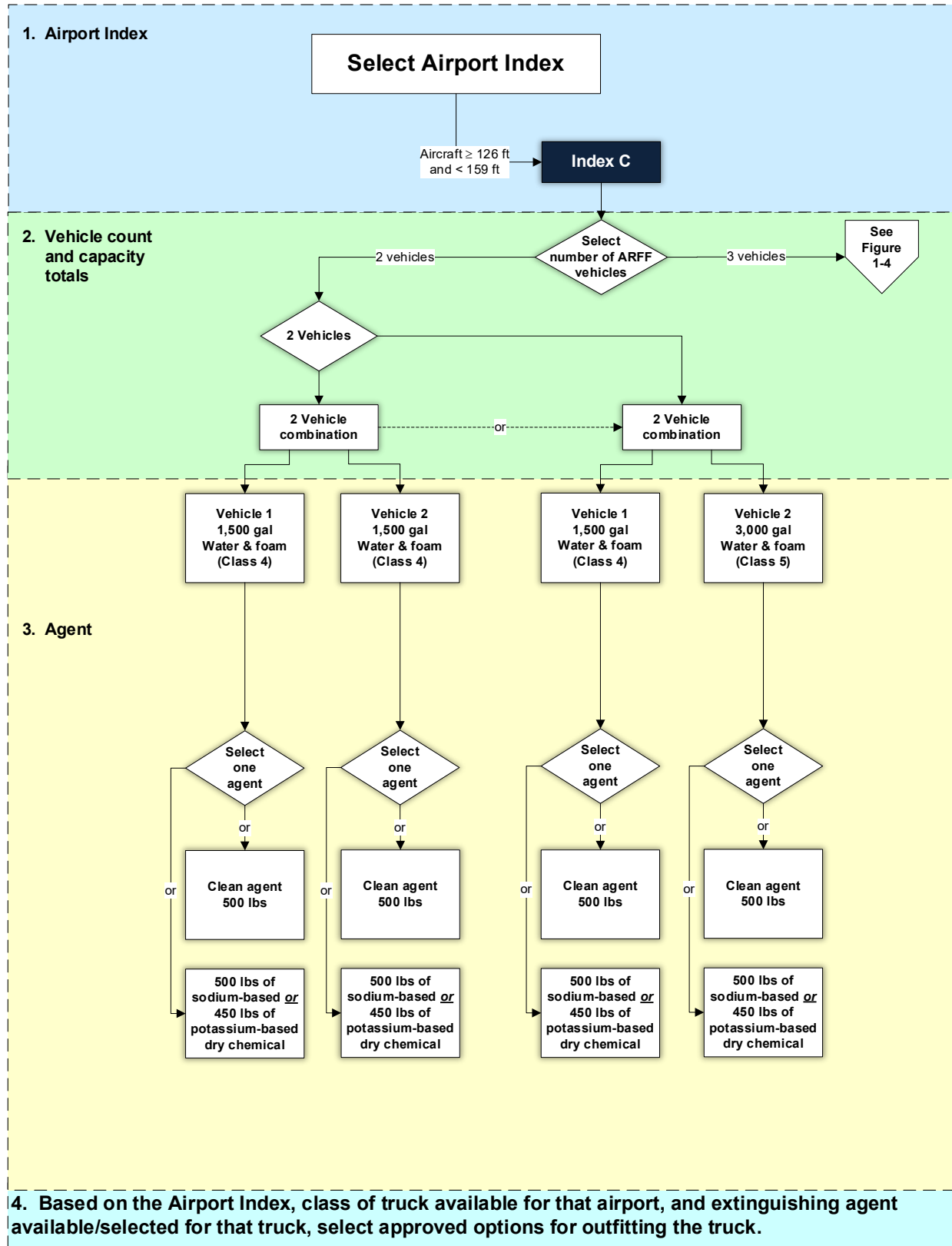


Figure 1-4. Decision Logic Diagram Summary for Index C Airports (continued)

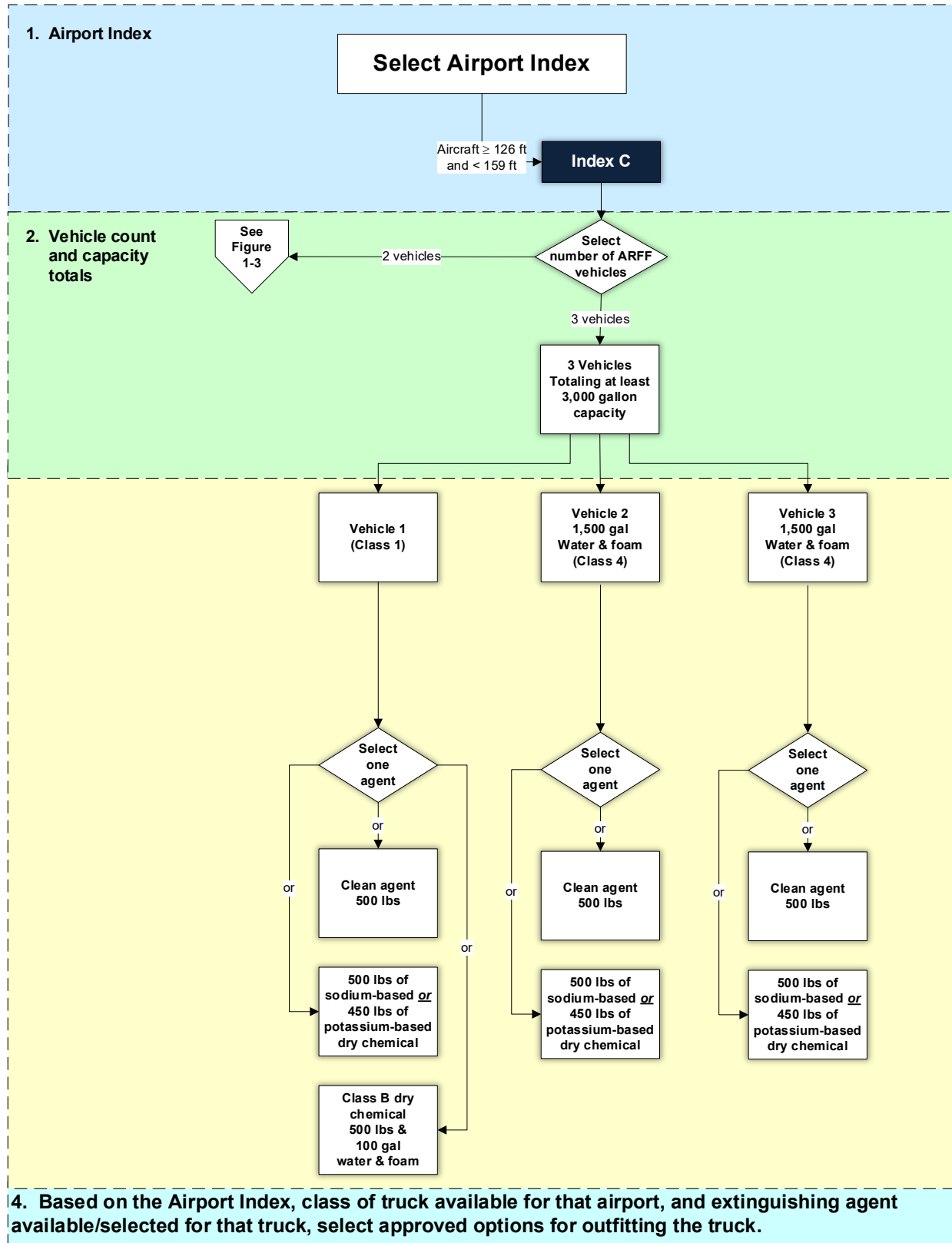


Figure 1-5. Decision Logic Diagram Summary for Index D Airports

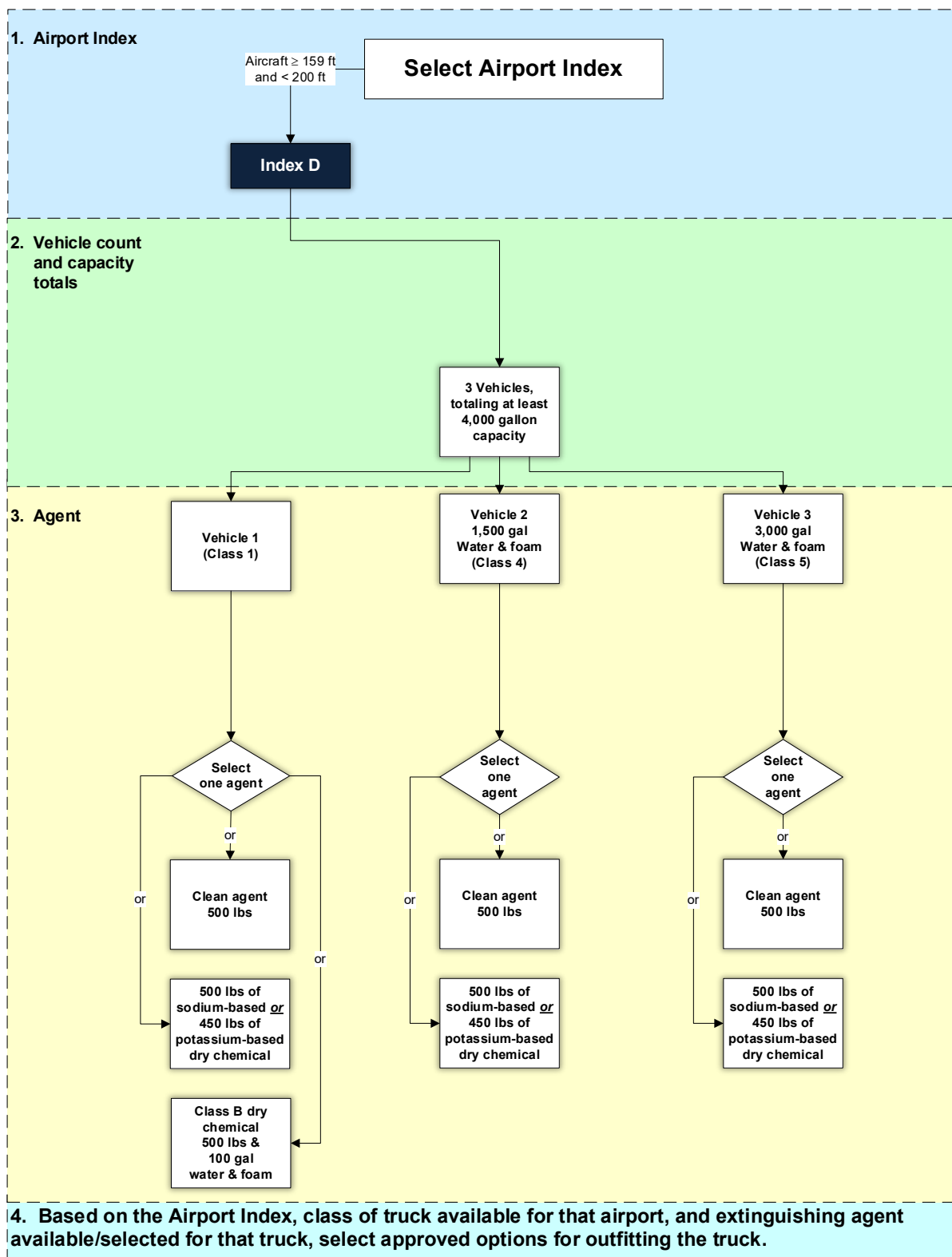
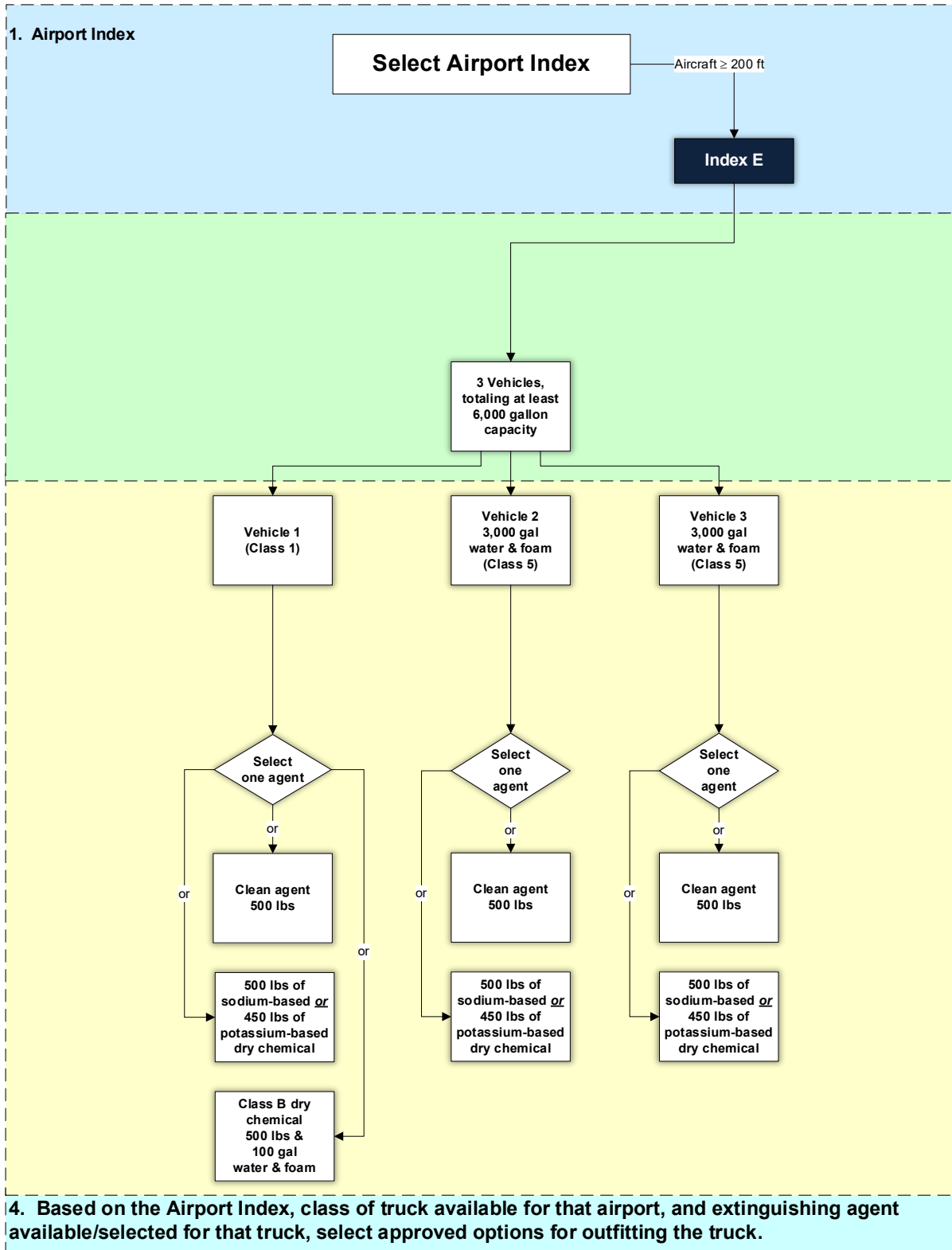


Figure 1-6. Decision Logic Diagram Summary for Index E Airports



There are four (4) basic steps to establish and validate requirements for an ARFF vehicle.

1. **Step 1.** Determine the need to replace an existing vehicle or procure a new vehicle. Refer to paragraph 1.4.
2. **Step 2.** Determine the airport's ARFF index. Consult paragraph 1.5 of this AC and Part 139.315, *Aircraft Rescue and Firefighting: Index Determination*.
3. **Step 3.** Determine the firefighting vehicle agent requirements. Consult paragraph 1.6 of this AC and Part 139.317.
4. **Step 4.** Determine the ARFF vehicle requirements based on Steps (1), (2), and (3) above by consulting paragraph 1.7 and Chapter 2 which are based on NFPA 1900.

1.4 **Step 1 – Determining Replacement Need.**

Fire departments do not have hard and fast rules as to when a vehicle is recommended for replacement. However, the fire equipment manufacturing industry does develop, as part of its customer service focus, forecast models based on life expectancy and life cycle operating and maintenance costs. These models predict hours of operation, mileage, material wear and longevity, and operating costs. On average, an ARFF vehicle has a 15-year service life cycle or as maintenance dictates as identified by the FAA Airport Certification Safety Inspector (ACSI) and, in many cases, even longer based on an airport's level of activity. Consider the following items as relevant factors when determining firefighting vehicle replacement (**Note:** See the AIP Handbook to determine AIP Eligibility and <https://www.faa.gov/airports/aip/overview> for additional information):

1. Reliability and serviceability are questionable.
2. Parts for repair (including after-market) are no longer available.
3. Annual operating costs become excessive.
4. Service life has been extended beyond the vehicle's normal field service life.
5. Repair cost exceeds 75% of the current estimated value of a new apparatus. All remanufactured ARFF vehicles must meet the standards of this AC.
Remanufactured ARFF vehicles must not exceed 75% of the cost of newly manufactured vehicles of the same class with comparable options. Remanufacturing costs that exceed 75% of a new vehicle are not considered best-value engineering for federal funding.
6. Introduction of different design aircraft to the airport that changes the airport's ARFF index.
7. Relative overall age of the airport fire fighting vehicle fleet, to allow for programmed replacement over a span of years.
8. Vehicle model design changes that offer a significant increase in safety to the occupants of the vehicle during response.

1.5 Step 2 – Determining the Airport’s ARFF Index.

An airport’s ARFF index is determined by the requirements of Part 139.315. See Part 139.5 for definitions of air carrier aircraft, air carrier operations, and average daily departures.

1. An airport’s ARFF index is determined by a combination of two factors. These include:
 - a. The length of air carrier aircraft.
 - b. The average daily departures of air carrier aircraft.
 - i. If there are five or more average daily departures of air carrier aircraft in a single Index group serving that airport, the longest Index group with an average of five or more daily departures is the Index required for the airport.
 - ii. If there are fewer than five average daily departures of air carrier aircraft in a single Index group serving that airport, the next lower Index from the longest Index group with air carrier aircraft in it is the Index required for the airport. The minimum designated index is Index A.
2. Air carrier aircraft are grouped by length to determine an airport’s index as described below:
 - a. Index A includes aircraft less than 90 feet in length.
 - b. Index B includes aircraft at least 90 feet but less than 126 feet in length.
 - c. Index C includes aircraft at least 126 feet but less than 159 feet in length.
 - d. Index D includes aircraft at least 159 feet but less than 200 feet in length.
 - e. Index E includes aircraft at least 200 feet in length.
3. See Table 1-1 for a general sampling of various aircraft and the indices they are assigned based on their respective lengths. The list is not all-inclusive and is provided to serve as an example only. To ensure accuracy, consult with airlines and/or aircraft manufacturers to obtain aircraft lengths.

Table 1-1. Sample Aircraft Types by Airport Index

| Type Aircraft* | Index A | Index B | Index C | Index D | Index E |
|-----------------------|----------------|----------------|----------------|----------------|----------------|
| ATR 72 | X | | | | |
| Beech Kingaire 200 | X | | | | |
| Bombardier CRJ100/200 | X | | | | |
| Cessna 414 | X | | | | |
| DeHavilland Dash 8 | X | | | | |
| Gulfstream 3 | X | | | | |
| Lear 55 | X | | | | |
| Piper Cheyenne 2 | X | | | | |
| Airbus A320 300 | | X | | | |
| BAE 146-200 | | X | | | |
| Bombardier CRJ700/900 | | X | | | |
| Embraer 170/175 | | X | | | |
| Embraer 190 | | X | | | |
| Boeing 757 | | | X | | |
| Boeing 737-800 | | | X | | |
| Bombardier CRJ1000 | | | X | | |
| Embraer 195 | | | X | | |
| MD-88 | | | X | | |
| Airbus A300 | | | | X | |
| Airbus A330-200 | | | | X | |
| Airbus A350-800 | | | | X | |
| Boeing 767-300 | | | | X | |
| Boeing 787-8 | | | | X | |
| Airbus A330-300 | | | | | X |
| Airbus A340-300 | | | | | X |
| Airbus A350-900 | | | | | X |
| Airbus A380 | | | | | X |
| Boeing 747-8 | | | | | X |
| Boeing 787-9 | | | | | X |
| Boeing 777-8 | | | | | |

* Sources: Data has been extracted from NFPA, International Civil Aviation Organization (ICAO), FAA, and aircraft manufacturer documents to validate the aircraft placement into a specific index.

1.6 Step 3 – Determining Agent Requirements.

The minimum levels of firefighting agents by type and quantity within a vehicle system to support a specific airport index are addressed in [Part 139.317](#). The FAA's standardized ARFF vehicle classifications are Classes 1, 4, and 5. These classifications segregate vehicles by the type of firefighting agent employed on the vehicle and the vehicle's agent carrying capacity.

1.6.1 Types of Firefighting Agents.

There are four types of firefighting agents (either as a single agent or in combination with another agent) that are carried on ARFF vehicles. These agents can include:

1. Foam
2. Water
3. Class B dry chemical (sodium or potassium based)
4. Clean agent

Each ARFF vehicle is designed to be capable of carrying and delivering the specific types of firefighting agents cited above either as a standalone system or complementary to one another. The types of agents are based on their respective extinguishing effectiveness and compatibility to complement each other, hence the term “complementary agent.” NFPA refers to an “auxiliary agent.” This term has the same meaning as “complementary agent” used herein.

1.6.2 Vehicle Agent Carrying Capacity.

The agent carrying and delivery capability of an ARFF vehicle is limited by several factors. These include chassis design, propulsion system and drive train, axle capacity, firefighting systems, and the manufacturer’s capability to provide either a commercial or custom produced ARFF vehicle.

1.7 **Step 4 – Determining Vehicle Requirements.**

These specifications incorporate NFPA 1900, with additions, exceptions, and amendments cross-referenced to the paragraph numbers in NFPA 1900, Chapter 4, ARFF Vehicles and Chapter 6, Acceptance Criteria. Optional equipment cited in Annex A of NFPA 1900 is not covered by these specifications except where noted. For ancillary equipment, see AC 150/5210-14, Aircraft Rescue Fire Fighting Equipment, Tools and Personal Protective Equipment. The three vehicle classifications are generic in nature, describe vehicles’ performance requirements and are not name brand product specific. The three vehicle classifications are as follows:

1.7.1 Class 1 ARFF Vehicle.

This Procurement Specification covers a commercially produced 4-wheel drive ARFF vehicle for an Index A through E airport. It includes the choice of a vehicle with a minimum 500 pounds (lbs) Class B dry chemical fire suppression system, a 500 lbs Class B dry chemical fire suppression system with 100 gallons (gal) of water/foam, or a 500 lb clean agent fire suppression system.

Note: F3 foams cannot be used with a premix system truck.

1.7.2 Class 4 ARFF Vehicle.

This Procurement Specification covers a commercially produced ARFF vehicle for an Index B, C, D, or E airport. It includes a 1500-gallon water/foam fire suppression system and can also have one of the following complementary agents:

1. 500 lb Class B dry chemical (sodium or potassium based) fire suppression system, or
2. 500 lb clean agent fire suppression system.

1.7.3 Class 5 ARFF Vehicle.

This Procurement Specification covers a commercially produced ARFF vehicle for an Index C, D, or E airport. It includes a 3000-gallon water/foam fire suppression system and can also have one of the following complementary agents:

1. 500 lb dry chemical fire suppression system, or
2. 500 lb clean agent fire suppression system.

1.7.4 Relation to NFPA Usable Capacities.

- Performance requirements for Class 1 vehicles follow the NFPA 1900 performance requirements for ≥ 120 and ≤ 528 gallons.
- Performance requirements for Class 4 vehicles follow the NFPA 1900 performance requirements for > 528 and ≤ 1585 gallons.
- Performance requirements for Class 5 vehicles follow the NFPA 1900 performance requirements for > 1585 gallons.

Page Intentionally Blank

CHAPTER 2. PROCUREMENT SPECIFICATION

2.1 General.

Appendix A contains selection options for Class 1, 4, and 5 ARFF vehicles. This document has been aligned to the performance requirements of NFPA 1900 and incorporates amended criteria. Specifically, all the options that are allowed by the FAA are included in this AC.

The numbering system listed in this section directly corresponds to Chapter 4 in the NFPA 1900 (2024 Edition). To properly use this document, first refer to NFPA 1900 for the base requirements, then refer to this advisory circular for any additions, exceptions, amendments, or selections. When an option requires justification for funding under federal financial assistance programs, rationale must be provided by the user for the FAA Airports Regional or District Office review and approval. This document will serve as the baseline for submission of specifications for AIP and PFC funded vehicles – thus it is a specification for a commercially available vehicle without extraneous items that an airport may fund on its own. Extraneous items requested by an airport cannot be used in determining the low responsive bidder when AIP or PFC funding is used. FAA submittal pages follow each specification.


Note: Commercially manufactured chassis used to manufacture Class 1 vehicles must comply with Federal Motor Vehicle Safety Standards (FMVSS). If the AC and FMVSS differ, the more demanding applies.

For more information on the development and use of the equipment, agents, and technologies discussed in the following pages, visit the [FAA Airport Technology Research and Development Branch Home Page](#), where detailed technical reports (i.e., final reports and Technical Notes) can be found in the [Aircraft Rescue and Fire Fighting Technology](#) section.

2.2 Airport Requirements Considerations.

Appendix A represents information that may be requested in the Fire Truck Procurement Specification. Not all features are available in each scenario.

Note: Consider possible upcoming extinguishing agent changes and the potential impact on equipment requirements when making selections.

Appendix B shows the procurement specification boilerplate. Items in [**square brackets**] indicate selections. Empty blue text boxes  indicate portions of the procurement specification that are to be completed by the Sponsor.

Page Intentionally Blank

APPENDIX A. FIRE TRUCK PROCUREMENT SPECIFICATION CONSIDERATIONS

| Class 1 | Class 4 | Class 5 |
|---|---|---|
| <ul style="list-style-type: none"> • Airport name • Airport POC • Airport LOC ID Identifier • Airport address • Phone number • Grant number | <ul style="list-style-type: none"> • Airport name • Airport POC • Airport LOC ID Identifier • Airport address • Phone number • Grant number | <ul style="list-style-type: none"> • Airport name • Airport POC • Airport LOC ID Identifier • Airport address • Phone number • Grant number |
| Airport index: <ul style="list-style-type: none"> • A, B, C, D, or E | Airport index: <ul style="list-style-type: none"> • B, C, D, or E | Airport index: <ul style="list-style-type: none"> • D or E |
| Primary extinguishing agent: <ul style="list-style-type: none"> • 100 gallons water/foam • Class B dry chemical • clean agent | Primary extinguishing agent: <ul style="list-style-type: none"> • 100 gallons water/foam | Primary extinguishing agent: <ul style="list-style-type: none"> • 100 gallons water/foam |
| Complementary extinguishing agent system: <ul style="list-style-type: none"> • Class B dry chemical • clean agent • none | Complementary extinguishing agent system: <ul style="list-style-type: none"> • Class B dry chemical • clean agent | Complementary extinguishing agent system: <ul style="list-style-type: none"> • Class B dry chemical • clean agent |
| Primary extinguishing agent discharge location: <ul style="list-style-type: none"> • bumper turret • hose reel • bumper turret and hose reel | Primary extinguishing agent discharge location: <ul style="list-style-type: none"> • roof turret • bumper turret • boom mounted turret | Primary extinguishing agent discharge location: <ul style="list-style-type: none"> • roof turret • bumper turret • boom mounted turret |
| Complementary extinguishing agent discharge location: <ul style="list-style-type: none"> • bumper turret • hose reel • bumper turret and hose reel | Complementary extinguishing agent discharge location: <ul style="list-style-type: none"> • bumper turret • hose reel • bumper turret and hose reel | Complementary extinguishing agent discharge location: <ul style="list-style-type: none"> • bumper turret • hose reel • bumper turret and hose reel |

| Class 1 | Class 4 | Class 5 |
|--|---|---|
| Bumper turret type: <ul style="list-style-type: none"> • single agent turret • dual agent turret • no bumper turret | Bumper turret type: <ul style="list-style-type: none"> • single agent turret • dual agent turret • fixed mount low volume single rate (minimum 250 GPM) bumper turret • fixed mount high volume dual rate (minimum 375/750 GPM) bumper turret • low angle high volume dual rate (minimum 375/750 GPM) bumper turret | Bumper turret type: <ul style="list-style-type: none"> • single agent turret • dual agent turret • fixed mount low volume single rate (minimum 250 GPM) bumper turret • fixed mount high volume dual rate (minimum 600/1200 GPM) bumper turret • low angle high volume dual rate (minimum 600/1200 GPM) bumper turret |
| | Boom-mounted extendable turret: <ul style="list-style-type: none"> • single agent turret • dual agent turret • fixed mount low volume single rate (minimum 500 GPM) turret • fixed mount high volume dual rate (minimum 1000 GPM) turret • low angle high volume dual rate (minimum 1000 GPM) turret | Boom-mounted extendable turret: <ul style="list-style-type: none"> • single agent turret • dual agent turret • fixed mount low volume single rate (minimum 500 GPM) turret • fixed mount high volume dual rate (minimum 1000 GPM) turret • low angle high volume dual rate (minimum 1000 GPM) turret |
| If foam is provided, specify proportioning system: <ul style="list-style-type: none"> • electronic • mechanical | If foam is provided, specify proportioning system: <ul style="list-style-type: none"> • electronic • mechanical | If foam is provided, specify proportioning system: <ul style="list-style-type: none"> • electronic • mechanical |
| Input-based Testing System: <ul style="list-style-type: none"> • onboard • cart-based (cart and vehicle plumbing kit) • cart-based (vehicle plumbing kit only) | Input-based Testing System: <ul style="list-style-type: none"> • onboard • cart-based (cart and vehicle plumbing kit) • cart-based (vehicle plumbing kit only) | Input-based Testing System: <ul style="list-style-type: none"> • onboard • cart-based (cart and vehicle plumbing kit) • cart-based (vehicle plumbing kit only) |

| Class 1 | Class 4 | Class 5 |
|---|---|---|
| | Structural fire fighting capability: ¹ <ul style="list-style-type: none"> • Yes • No | Structural fire fighting capability: ³ <ul style="list-style-type: none"> • Yes • No |
| Primary Turret Nozzle: <ul style="list-style-type: none"> • water/foam discharge • complementary agent discharge • dual agent parallel stream • dual agent entrained stream • clean agent or dry chemical | Primary Turret Nozzle: <ul style="list-style-type: none"> • Roof mounted turret: <ul style="list-style-type: none"> ○ water/foam ○ dual agent parallel stream ○ dual agent entrained stream OR <ul style="list-style-type: none"> • Bumper mounted turret: <ul style="list-style-type: none"> ○ water/foam ○ dual agent parallel stream ○ dual agent entrained stream OR <ul style="list-style-type: none"> • Boom mounted turret: <ul style="list-style-type: none"> ○ water/foam ○ dual agent parallel stream ○ dual agent entrained stream ○ ASPN nozzle: <ul style="list-style-type: none"> ▪ water (required) ▪ clean agent (optional) | Primary Turret Nozzle: <ul style="list-style-type: none"> • Roof mounted turret: <ul style="list-style-type: none"> ○ water/foam ○ dual agent parallel stream ○ dual agent entrained stream OR <ul style="list-style-type: none"> • Bumper mounted turret: <ul style="list-style-type: none"> ○ water/foam ○ dual agent parallel stream ○ dual agent entrained stream OR <ul style="list-style-type: none"> • Boom mounted turret: <ul style="list-style-type: none"> ○ water/foam ○ dual agent parallel stream ○ dual agent entrained stream ○ ASPN nozzle: <ul style="list-style-type: none"> ▪ water (required) ▪ clean agent (optional) |

¹ This option provides for a 'limited' structural fire fighting capability, in that an operator's panel is provided outside of the vehicle to engage and disengage the fire pump, monitoring pressures, engine RPM, flow rates, controlling water distribution, and the installation of additional suction inlets (including a priming capability for drafting from a body of water or other source) and discharge outlets on the vehicle.

| Class 1 | Class 4 | Class 5 |
|---|---|---|
| Complementary Agent Handline Type: <ul style="list-style-type: none"> • dry chemical - >100 feet of 1-inch dry chemical hose on a reel • dual agent - >100 feet of twinned 1-inch dry chemical/ foam-water hose on a reel • clean agent – >100 feet of 1-inch clean agent hose on a reel | Complementary Agent Handline Type: <ul style="list-style-type: none"> • dry chemical - >100 feet of 1-inch dry chemical hose on a reel • dual agent - >100 feet of twinned 1-inch dry chemical/ foam-water hose on a reel • clean agent – >100 feet of 1-inch clean agent hose on a reel | Complementary Agent Handline Type: <ul style="list-style-type: none"> • dry chemical - >100 feet of 1-inch dry chemical hose on a reel • dual agent - >100 feet of twinned 1-inch dry chemical/ foam-water hose on a reel • clean agent – >100 feet of 1-inch clean agent hose on a reel |
| Hose Reel Nozzle: <ul style="list-style-type: none"> • a complementary agent discharge • dual agent discharge of the entrainment type • a clean agent • none | Hose Reel Nozzle: <ul style="list-style-type: none"> • a water/foam discharge • a complementary agent discharge • a dual agent discharge of the entrainment type • a clean agent | Hose Reel Nozzle: <ul style="list-style-type: none"> • a water/foam discharge • a complementary agent discharge • a dual agent discharge of the entrainment type • a clean agent |
| Cab doors: <ul style="list-style-type: none"> • 2 • 4 | | |
| Compartment doors lockable: <ul style="list-style-type: none"> • yes • no | Compartment doors lockable: <ul style="list-style-type: none"> • yes • no | Compartment doors lockable: <ul style="list-style-type: none"> • yes • no |
| Turret power: <ul style="list-style-type: none"> • manual • with manual override • with secondary parallel controls powered by an alternative source • without secondary control | Turret power: <ul style="list-style-type: none"> • manual • with manual override • with secondary parallel controls powered by an alternative source • without secondary control | Turret power: <ul style="list-style-type: none"> • manual • with manual override • with secondary parallel controls powered by an alternative source • without secondary control |
| Undertruck nozzles: <ul style="list-style-type: none"> • yes • no | Undertruck nozzles: <ul style="list-style-type: none"> • yes • no | Undertruck nozzles: <ul style="list-style-type: none"> • yes • no |

| Class 1 | Class 4 | Class 5 |
|--|--|--|
| Elevation less than 2,000 feet: Is elevation 2,000 feet or more? <ul style="list-style-type: none"> • Yes • No | Elevation less than 2,000 feet: Is elevation 2,000 feet or more? <ul style="list-style-type: none"> • Yes • No | Elevation less than 2,000 feet: Is elevation 2,000 feet or more? <ul style="list-style-type: none"> • Yes • No |
| Temperature range: Is extreme temperature range equipment needed? <ul style="list-style-type: none"> • Cold weather -40°F to 32°F • Hot weather Above 110°F [Justification for High or Low] | Temperature range: Is extreme temperature range equipment needed? <ul style="list-style-type: none"> • Cold weather -40°F to 32°F • Hot weather Above 110°F [Justification for High or Low] | Temperature range: Is extreme temperature range equipment needed? <ul style="list-style-type: none"> • Cold weather -40°F to 32°F • Hot weather Above 110°F [Justification for High or Low] |
| | Tires and wheels: Tire bead locks <ul style="list-style-type: none"> • Yes • No | Tires and wheels: Tire bead locks <ul style="list-style-type: none"> • Yes • No |
| | Additional Seats: Non-suspension type <ul style="list-style-type: none"> • Select up to 2 | Additional Seats: Non-suspension type <ul style="list-style-type: none"> • Select up to 2 |
| Runway Incursion Warning Systems (RIWS): <ul style="list-style-type: none"> • Yes • No | Runway Incursion Warning Systems (RIWS): <ul style="list-style-type: none"> • Yes • No | Runway Incursion Warning Systems (RIWS): <ul style="list-style-type: none"> • Yes • No |
| If RIWS is selected, provide the following information: Power source Select all that apply: <ul style="list-style-type: none"> • direct hardwire power connection • 12V quick plug-in • Battery • battery backup | If RIWS is selected, provide the following information: Power source Select all that apply: <ul style="list-style-type: none"> • direct hardwire power connection • 12V quick plug-in • Battery • battery backup | If RIWS is selected, provide the following information: Power source Select all that apply: <ul style="list-style-type: none"> • direct hardwire power connection • 12V quick plug-in • Battery • battery backup |

| Class 1 | Class 4 | Class 5 |
|--|--|--|
| If an RIWS is selected, provide the following information: System type <ul style="list-style-type: none"> • preconfigured system • custom system | If an RIWS is selected, provide the following information: System type <ul style="list-style-type: none"> • preconfigured system • custom system | If an RIWS is selected, provide the following information: System type <ul style="list-style-type: none"> • preconfigured system • custom system |
| If an RIWS system is selected, provide the following information: Check all options that apply <ul style="list-style-type: none"> • custom areas • additional audible signals • additional visual signals | If an RIWS system is selected, provide the following information: Check all options that apply <ul style="list-style-type: none"> • custom areas • additional audible signals • additional visual signals | If an RIWS system is selected, provide the following information: Check all options that apply <ul style="list-style-type: none"> • custom areas • additional audible signals • additional visual signals |
| If an RIWS system is selected, provide the following information: Additional feature requiring justification: <ul style="list-style-type: none"> • historical tracking and vehicle trails | If an RIWS system is selected, provide the following information: Additional features requiring justification: <ul style="list-style-type: none"> • historical tracking and vehicle trails | If an RIWS system is selected, provide the following information: Additional features requiring justification: <ul style="list-style-type: none"> • historical tracking and vehicle trails |
| If an RIWS system is selected, provide the following information: <ul style="list-style-type: none"> • Justification for additional RIWS features | If an RIWS system is selected, provide the following information: <ul style="list-style-type: none"> • Justification for additional RIWS features | If an RIWS system is selected, provide the following information: <ul style="list-style-type: none"> • Justification for additional RIWS features |
| DEVS Options: <ul style="list-style-type: none"> • Low-Visibility Enhanced Vision subsystem | DEVS Options: <ul style="list-style-type: none"> • Low-Visibility Enhanced Vision subsystem | DEVS Options: <ul style="list-style-type: none"> • Low-Visibility Enhanced Vision subsystem |
| DEVS Options: <ul style="list-style-type: none"> • Add navigation subsystem | DEVS Options: <ul style="list-style-type: none"> • Add navigation subsystem | DEVS Options: <ul style="list-style-type: none"> • Add navigation subsystem |
| DEVS Options: <ul style="list-style-type: none"> • Add tracking subsystem | DEVS Options: <ul style="list-style-type: none"> • Add tracking subsystem | DEVS Options: <ul style="list-style-type: none"> • Add tracking subsystem |
| Seat Type: Driver <ul style="list-style-type: none"> • Standard (hard/fixed back) • SCBA | Seat Type: Driver <ul style="list-style-type: none"> • Standard (hard/fixed back) • SCBA | Seat Type: Driver <ul style="list-style-type: none"> • Standard (hard/fixed back) • SCBA |

| Class 1 | Class 4 | Class 5 |
|--|--|--|
| Seat Type: Turret Operator <ul style="list-style-type: none"> • Standard (hard/fixed back) • SCBA | Seat Type: Turret Operator <ul style="list-style-type: none"> • Standard (hard/fixed back) • SCBA | Seat Type: Turret Operator <ul style="list-style-type: none"> • Standard (hard/fixed back) • SCBA |
| Seat Type: #3 <ul style="list-style-type: none"> • Standard (hard/fixed back) • SCBA • N/A | Seat Type: #3 <ul style="list-style-type: none"> • Standard (hard/fixed back) • SCBA • N/A | Seat Type: #3 <ul style="list-style-type: none"> • Standard (hard/fixed back) • SCBA • N/A |
| Seat Type: #4 <ul style="list-style-type: none"> • Standard (hard/fixed back) • SCBA • N/A | Seat Type: #4 <ul style="list-style-type: none"> • Standard (hard/fixed back) • SCBA • N/A | Seat Type: #4 <ul style="list-style-type: none"> • Standard (hard/fixed back) • SCBA • N/A |
| Self-Contained Breathing Apparatus (SCBA) mounting type: <ul style="list-style-type: none"> • Enter SCBA equipment manufacturer name and model number: _____ • 30-minute bottles • 45-minute bottles | Self-Contained Breathing Apparatus (SCBA) mounting type: <ul style="list-style-type: none"> • Enter SCBA equipment manufacturer name and model number: _____ • 30-minute bottles • 45-minute bottles | Self-Contained Breathing Apparatus (SCBA) mounting type: <ul style="list-style-type: none"> • Enter SCBA equipment manufacturer name and model number: _____ • 30-minute bottles • 45-minute bottles |
| Mirrors: Electrically heated heads <ul style="list-style-type: none"> • Yes • No | Mirrors: Electrically heated heads <ul style="list-style-type: none"> • Yes • No | Mirrors: Electrically heated heads <ul style="list-style-type: none"> • Yes • No |
| Towing Device: Type <ul style="list-style-type: none"> • Pintle Hook • Ball Mount | Towing Device: Type <ul style="list-style-type: none"> • Pintle Hook • Ball Mount | Towing Device: Type <ul style="list-style-type: none"> • Pintle Hook • Ball Mount |

| Class 1 | Class 4 | Class 5 |
|--|--|--|
| Back-up Camera: with Monitor <ul style="list-style-type: none"> • Yes • No | Back-up Camera: with Monitor <ul style="list-style-type: none"> • Yes • No | Back-up Camera: with Monitor <ul style="list-style-type: none"> • Yes • No |
| Emergency warning lights: Lighting type (LED) <ul style="list-style-type: none"> • flasher • rotating beacon • strobe | Emergency warning lights: Lighting type (LED) <ul style="list-style-type: none"> • flasher • rotating beacon • strobe | Emergency warning lights: Lighting type (LED) <ul style="list-style-type: none"> • flasher • rotating beacon • strobe |
| Monitoring and Data Acquisition System (MADAS) capability: <ul style="list-style-type: none"> • Yes • No | Monitoring and Data Acquisition System (MADAS) capability: <ul style="list-style-type: none"> • Yes • No | Monitoring and Data Acquisition System (MADAS) capability: <ul style="list-style-type: none"> • Yes • No |
| License plate bracket: <ul style="list-style-type: none"> • Yes • No | License plate bracket: <ul style="list-style-type: none"> • Yes • No | License plate bracket: <ul style="list-style-type: none"> • Yes • No |
| | Electrical Cable: Cord reel <ul style="list-style-type: none"> • Yes • No | Electrical Cable: Cord reel <ul style="list-style-type: none"> • Yes • No |
| | Air Systems: Hose reel <ul style="list-style-type: none"> • Yes • No | Air Systems: Hose reel <ul style="list-style-type: none"> • Yes • No |
| | Foam tank fill connections: Number of connections <ul style="list-style-type: none"> • 1-Standard (left side) • 1-Standard (right side) • Dual (both sides) | Foam tank fill connections: Number of connections <ul style="list-style-type: none"> • 1-Standard (left side) • 1-Standard (right side) • Dual (both sides) |
| Windows: Control system <ul style="list-style-type: none"> • electric • manual | Windows: Control system <ul style="list-style-type: none"> • electric | Windows: Control system <ul style="list-style-type: none"> • electric |

| Class 1 | Class 4 | Class 5 |
|---|---|---|
| Floodlights: Style to include adjustment knuckle <ul style="list-style-type: none"> • fixed • telescoping | Floodlights: Style to include adjustment knuckle <ul style="list-style-type: none"> • fixed • telescoping | Floodlights: Style to include adjustment knuckle <ul style="list-style-type: none"> • fixed • telescoping |
| Radio wiring (power, control, antenna): Any that would require partial dismantling of vehicle components (e.g., cab headliner) if added after delivery. | Radio wiring (power, control, antenna): Any that would require partial dismantling of vehicle components (e.g., cab headliner) if added after delivery. | Radio wiring (power, control, antenna): Any that would require partial dismantling of vehicle components (e.g., cab headliner) if added after delivery. |
| Radio wiring (power, control, antenna): Specify antennas, wire types and location of antennas and wire terminations. | Radio wiring (power, control, antenna): Specify antennas, wire types and location of antennas and wire terminations. | Radio wiring (power, control, antenna): Specify antennas, wire types and location of antennas and wire terminations. |
| | Lubrication system: Continuous duty cycle for suspension parts and other mechanical equipment joints. <ul style="list-style-type: none"> • Yes • No | Lubrication system: Continuous duty cycle for suspension parts and other mechanical equipment joints. <ul style="list-style-type: none"> • Yes • No |

| Class 1 | Class 4 | Class 5 |
|---|---|---|
| <p>Provisions for storing/mounting all Personal Protection Equipment (PPE), to be part of a matching ensemble that meets current NFPA 1970 standards. Only the storing/mounting will be provided by the vehicle manufacturer, not the equipment. When specifying provisions for storing/mounting, be mindful of the total space available; not all items will fit on one truck.</p> <ul style="list-style-type: none"> • 1, 2, or 3 set(s) of NFPA-compliant suit, including coat, trousers, and gloves • 1, 2, or 3 pair(s) ARFF boots • 1, 2, or 3 complete SCBA including bottle, and face piece • 1, 2, or 3 Nomex hood(s) • 0, 1, 2, or 3 NFPA-compliant helmet(s) | <p>Provisions for storing/mounting all Personal Protection Equipment (PPE), to be part of a matching ensemble that meets current NFPA 1970 standards. Only the storing/mounting will be provided by the vehicle manufacturer, not the equipment. When specifying provisions for storing/mounting, be mindful of the total space available; not all items will fit on one truck.</p> <ul style="list-style-type: none"> • 1, 2, or 3 set(s) of NFPA-compliant suit, including coat, trousers, and gloves • 1, 2, or 3 pair(s) ARFF boots • 1, 2, or 3 complete SCBA including bottle, and face piece • 1, 2, or 3 Nomex hood(s) • 0, 1, 2, or 3 NFPA-compliant helmet(s) | <p>Provisions for storing/mounting all Personal Protection Equipment (PPE), to be part of a matching ensemble that meets current NFPA 1970 standards. Only the storing/mounting will be provided by the vehicle manufacturer, not the equipment. When specifying provisions for storing/mounting, be mindful of the total space available; not all items will fit on one truck.</p> <ul style="list-style-type: none"> • 1, 2, or 3 set(s) of NFPA-compliant suit, including coat, trousers, and gloves • 1, 2, or 3 pair(s) ARFF boots • 1, 2, or 3 complete SCBA including bottle, and face piece • 1, 2, or 3 Nomex hood(s) • 0, 1, 2, or 3 NFPA-compliant helmet(s) |

Any features not provided for in the standard specification will require FAA approval of a Modification to Standards prior to starting work. Enter any additional features desired along with justification on the Modification to Standards page.

APPENDIX B. VEHICLE PROCUREMENT SPECIFICATION BOILERPLATE**PROCUREMENT SPECIFICATION****Class 1, Class 4, or Class 5****Aircraft Rescue and Fire Fighting (ARFF) Vehicle**

Airport name: _____

Airport POC: _____

Airport LOC ID identifier: _____

Airport address: _____

Phone number: _____

Grant number: _____

I Scope. (Class 1)

This Procurement Specification covers a commercially produced 4-wheel drive ARFF vehicle with a minimum:

It incorporates the delivery of combined and/or single firefighting agents through handlines, hose reels and/or a bumper mounted turret. The ARFF vehicle is intended to carry ancillary equipment to aid aircraft passengers, preventing aircraft fire loss, and combating fires in aircraft.

I Scope. (Class 4)

This Procurement Specification covers an ARFF vehicle for an index airport. It includes a 1500-gallon water/ foam fire suppression system with a complementary agent:

It incorporates the delivery of combined and/or single firefighting agents through handlines, hose reels and/or a bumper mounted turret. The ARFF vehicle is intended to carry ancillary equipment to aid aircraft passengers, preventing aircraft fire loss, and combating fires in aircraft.

I Scope. (Class 5)

This Procurement Specification covers an ARFF vehicle for an index airport. It includes a 3000-gallon water/foam fire suppression system with a complementary agent:

It incorporates the delivery of combined and/or single firefighting agents through handlines, hose reels and/or a bumper mounted turret. The ARFF vehicle is intended to

carry ancillary equipment to aid aircraft passengers, preventing aircraft fire loss, and combating fires in aircraft.

II Classification.

The ARFF vehicle(s) covered by this Procurement Specification is classified in Part 139, Certification of Airports, 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*.

II.1 Fully Loaded Vehicle.

A fully loaded vehicle consists of a fully assembled vehicle, complete with a full complement of crew, fuel, and fire-fighting agent. Inflate the tires to the recommended pressure. For any test that calls for the vehicle to be “fully loaded”, load each storage compartment with 250 lbs. of ballast, up to a total of 1000 lbs. Load each seat that is not occupied during the test with 225 lbs. of ballast seat belted into the seat. Load ballast to represent the weight of the complementary agent not yet on board as close to the height of the complementary agent vessel as possible, taking care that the anticipated vehicle movement during the test will not cause a shift in the ballast damaging vehicle components.

III Vehicle Conformance/Performance Characteristics.

The ARFF vehicle will be in accordance with the applicable requirements of AC 150/5220-10F, *Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles*, and National Fire Protection Association (NFPA) 1900, *Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus, Wildland Fire Apparatus, and Automotive Ambulances (2024 Edition)*, except as specified herein.

Note: The numbering system listed in this section directly corresponds to Chapter 4 in the NFPA 1900 (2024 Edition). To properly use this document, first refer to NFPA 1900 for the base requirements then refer to this advisory circular for any additions, exceptions, amendments, or selections. Additional references to specific paragraphs of NFPA 1900 are indicated in parentheses.

Specific terms that apply to this AC are listed below:

- **ADDITION:** A new item has been added to the standard in the reference document.
- **EXCEPTION:** A restriction has been imposed on the standard in the reference document.
- **AMENDMENT:** Subject matter has been rewritten to modify part, or all, of the original text of the reference document.
- **SELECTION:** NFPA 1900 requires or allows an option to be selected. Options are noted in [**square brackets**].

Note: Requirements referring to complementary agents and/or water/foam systems apply only if those systems are installed. All federal funded procurements must adhere to 2 CFR Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*.

NFPA 1900, Chapter 4, Aircraft Rescue and Fire-Fighting Vehicles.**ADDITION: 4.2 General.****AMENDMENT: 4.2.1**

The operating temperature range includes [**cold weather -40°F to 32°F**] [**hot weather above 110°F**] which is in the extreme range.

ADDITION (Class 1): Table 4.2.1.2(d) Agent System Performance Parameters.

Vehicle Water Tank Capacity. Except where noted below, the requirements for vehicles with a water tank capacity from 120 gallons to 528 gallons apply.

EXCEPTION (Class 1): Table 4.2.1.2(d) Agent System Performance Parameters.

Item 2a, Roof Turret. This item does not apply.

EXCEPTION: Table 4.2.1.2(d) Agent System Performance Parameters.

Item 2d, Ground Sweep Nozzles. Ground sweep nozzles are not an approved option.

Item 3, Primary Agent. The primary agent discharge location will be the [**turret**] [**handline**].

Item 4, Complementary Agent. The complementary agent discharge location will be the [**turret**] [**handline**].

NFPA 1900, 4.3 Requirements for All Aircraft Rescue and Fire-Fighting Vehicles — Responsibility of Contractors/Suppliers.**ADDITION (Class 1): 4.3.1 Certification.**

Warranty. The firefighting unit system will be covered by a minimum one-year warranty after delivery. The commercially purchased chassis and drive train will be warranted by the manufacturer. All associated warranties will accompany the vehicle at the time of delivery. All water and foam tanks will be covered by a lifetime warranty.

NFPA 1900, 4.3.3 Metal Finish.**EXCEPTION: 4.3.3.1 – 4.3.3.5**

Vehicles will be painted and marked in accordance with AC 150/5210-5, Painting, Marking, and Lighting of Vehicles Used on an Airport.

NFPA 1900, 4.3.4 Lettering, Numbering, and Striping.**AMENDMENT: 4.3.4.5, 4.3.4.6**

Vehicle numbering, lettering, and striping will conform with AC 150/5210-5.

NFPA 1900, 4.5 Propulsion System.**SELECTION: 4.5.1.2.3**

Elevation. The vehicle, including the pumping system, will be designed for operation up to [_____] feet above sea level.

SELECTION: 4.5.2.3.3

Radiator shutters. [yes] [no]

| |
|--|
| |
|--|

NFPA 1900, 4.5.3 Fuel Systems.**ADDITION (Class 4, Class 5): 4.5.3.4**

Each fuel tank will have a fill opening readily accessible to personnel standing on the ground and designed to prevent fuel splash while refueling. If more than one tank is furnished, means will be provided to ensure equalized fuel levels in both tanks. An overturn fuel valve will be provided for each tank to prevent spillage in the event of a rollover. Prominently label each fuel tank with the appropriate type of fuel.

NFPA 1900, 4.9 Rims, Tires, and Wheels.**ADDITION: 4.9**

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.

NFPA 1900, 4.10 Towing Connections.**SELECTION: 4.10**

The vehicle will be provided with a [pintle hook] [ball mount] towing device. The maximum towing capacity of the vehicle will be labeled on the vehicle dashboard and at the towing device location.

NFPA 1900, 4.12 Steering.**ADDITION: 4.12**

A tilt steering column will be provided.

NFPA 1900, 4.13 Cab.**ADDITION (Class 4, Class 5): 4.3**

The vehicle will have a cab constructed of materials which are corrosion resistant, such as aluminum, stainless steel, or glass reinforced polyester construction.

ADDITION (Class 4, Class 5): 4.13

The cab will have a watertight roof hatch for emergency exit out of the cab.

SELECTION (Class 1): 4.13.1.7

Cab entry and exit features. The cab will have [2] [4], doors. At least one grab handle will be provided for each crew member, located inside the cab for use while the vehicle is in motion.

ADDITION: 4.13.4 Instruments, Warning Lights, and Controls.

All instruments and controls will be designed to minimize windshield glare.

ADDITION: 4.13.4.5

Power window controls.

SELECTION: 4.13.4.7

DEVS option. A DEVS system, including [low-visibility enhanced vision subsystem,] [navigation subsystem,] [tracking subsystem,] meeting AC 150/5210-19, Driver's Enhanced Vision System (DEVS), will be provided.

AMENDMENT: 4.13.4.7.1

DEVS Monitors for a Class 1 Vehicle. Minimum dimension of low visibility enhanced subsystem monitors is seven inches.

AMENDMENT: 4.13.4.7.2

DEVS System Requirements. AC 150/5210-19 will be met in its entirety.

AMENDMENT: 4.13.4.8, 4.13.4.9

FLIR System Requirements. AC 150/5210-19 will be met in its entirety.

NFPA 1900, 4.13.5 Equipment.**SELECTION: 4.13.5.1(11)**

Self-Contained Breathing Apparatus (SCBA) Mounting. The vehicle will have mounting to secure [] SCBA equipment from the following manufacturer: [].

SELECTION: 4.13.7

Monitoring and Data Acquisition System (MADAS). [yes] [no]

ADDITION (Class 4, Class 5): 4.13.8

Lateral accelerometer. The vehicle will be equipped with a lateral accelerometer.

NFPA 1900, 4.14 Body.**ADDITION: 4.14**

License plate bracket. [yes] [no]

A lighted license plate bracket be provided at the rear and/or front of the vehicle, as required by state law. The location of the front bracket will be placed so as not to interfere with the operation of fire fighting systems.

The vehicle will have a corrosion-resistant body.

ADDITION: 4.14

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.

NFPA 1900, 4.15 Fire-Fighting Systems and Agents.**ADDITION (Class 1): 4.15**

Compressed Air Foam System (CAFS). Where specified, the CAFS will have expansion ratios of 6:1 to 10:1 with 8:1 being optimal.

Any hand line that is dedicated specifically for CAFS will have a smooth bore nozzle. Hand line discharge rates of 30 GPM and primary and auxiliary turret discharge rates of 60 GPM are permissible.

NFPA 1900, 4.16 Agent Pump(s) and Pump Drive.**ADDITION (Class 1): 4.16.1.1**

Priming pump. The vehicle will be equipped with a priming pump.

NFPA 1900, 4.17 Water Tank, 4.17.1 Water Tank Capacity.**AMENDMENT (Class 4): 4.17.1.1**

Water tank. The vehicle will have a water tank with a manufacturer certified minimum capacity of at least 1500 gallons.

AMENDMENT (Class 5): 4.17.1.1

Water tank. The vehicle will have a water tank with a manufacturer certified minimum capacity of at least 3000 gallons.

NFPA 1900, 4.18 Foam System.**ADDITION (Class 1 (optional), Class 4, Class 5): 4.18**

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 10-gpm directly through the pump and loading connection. 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 length of hose with appropriate connections will be provided for filling the foam tank from an external foam storage container.

ADDITION (Class 4, Class 5): 4.18.1 Foam–Liquid Concentrate Tank(s).

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 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.

ADDITION: 4.18.4.1 Foam Proportioning Systems.

There are two categories of foam proportioning systems on ARFF apparatus, mechanical and electronic. Mechanical foam proportioning systems control the flow of foam concentrate into the discharge stream preset by designed flow rates of the discharge devices on the vehicle. These systems have no sensors or feedback loop, so they do not adjust based on variations in water flow or viscosity of the foam concentrate. Electronic foam proportioning systems control the volume of foam concentrate into the discharge stream through inputs provided by electronic flow meters. These systems adjust to compensate for variations in the discharge flow rate and the viscosity of the foam concentrate. This functionality can be very important with the approved F3 products which have more variations in viscosity between approved products than legacy AFFFs. The vehicle will have [a mechanical] [an electronic] foam proportioning system.

ADDITION: 4.18.4.4 Foam Proportioning Systems.

Use one of the approved foam testing systems, accepted by the FAA for use, to satisfy the Part 139 testing requirement while minimizing any possible environmental impact (See Cert Alert 21-01, 6/1/21). The airport will have [an onboard] [a cart-based (cart and vehicle plumbing kit)] [a cart-based (vehicle plumbing kit only)] foam testing system.

NFPA 1900, 4.19 Premixed Foam Solutions.**EXCEPTION: 4.19**

A premixed foam solution is not allowable.

NFPA 1900, 4.20 Turret Nozzles.**SELECTION: 4.20.4.1, 4.20.4.2**

[Manually operated] [Power assisted] turret.

SELECTION: 4.20.4.2(3) and (4)

Manual override or secondary parallel controls powered by an alternative source of all roof turret movement functions.

NFPA 1900, 4.21 Preconnected Handlines.**ADDITION: 4.21**

A safety system will be provided to prevent charging of the hose until the hose has been fully deployed. A control for charging each handline will be provided for operation.

ADDITION (Class 4, Class 5): 4.21.5

Two 200-foot, 1¾-inch pre-connected woven jacket handlines, with a 1½-inch control valve and nozzle, will be 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 handlines and nozzles will be in accordance with NFPA 1900 (paragraph 4.21.5) and will allow for a nozzle flow rate of at least 95 gpm. A control for charging each handline will be provided for operation.

NFPA 1900, 4.22 Turret, Ground Sweep, and Undertruck Nozzles.**SELECTION: 4.22.1**

Bumper turret. [yes] [no]

SELECTION: 4.22.3

Undertruck nozzles. [yes] [no]

NFPA 1900, 4.24 Halogenated Agent.**SELECTION: 4.24.1.1.1**

Reservice Kit. [yes] [no]

NFPA 1900, 4.25 Dry Chemical Turret.**SELECTION: 4.25.1**

Auxiliary Agent Discharge. [Auxiliary agent discharge mounted parallel to the foam solution discharge] [Entrained within the foam solution discharge stream]

Agent Discharge Locations.

The primary agent discharge location will be the [bumper turret] [hose reel] [bumper turret and hose reel].

The complementary agent discharge location will be the [bumper turret] [hose reel] [bumper turret and hose reel].

NFPA 1900, 4.26 Lighting and Electrical Equipment.**ADDITION: 4.26.4**

All emergency warning lights will meet the requirements of AC 150/5210-5.

EXCEPTION: 4.26.5.1.2, 4.26.5.2

The provisioning of radios is an airport responsibility and not part of this specification.

The paragraph numbering of the following provisions does not conform to the numbering in NFPA 1900:

IV Product Conformance Provisions.

Product Conformance Provisions must be per NFPA 1900, *Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus, Wildland Fire Apparatus, and Automotive Ambulances (2024 Edition)*.

IV.1 Classification of Inspections.

The inspection requirements specified herein are classified as follows:

IV.1.1 Performance Inspection.

The vehicle will be subjected to the examinations and tests described in this Procurement Specification. The contractor will provide or arrange for all test equipment, personnel, schedule, and facilities.

IV.1.2 Conformance Inspection.

The vehicle will be subjected to the examinations and tests described in this Procurement Specification. The contractor will provide or arrange for all test equipment, personnel, and facilities.

IV.2 Product Conformance.

The products provided will meet the performance characteristics of this Procurement Specification, 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.

IV.3 Technical Proposal.

The offeror/contractor will provide an itemized technical proposal that describes how the proposed model complies with each characteristic of this Procurement Specification; a paragraph-by-paragraph response to the characteristics section of this Procurement Specification 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 to comply with the requirements herein. The vehicle furnished will comply with the commercial requirements of this Procurement Specification as of the date of the award. The purchaser reserves the right to require the offeror/contractor to prove that their product complies with the referenced commercial requirements of this Procurement Specification and each conformance/performance characteristic of this Procurement Specification.

IV.4 Inspection Requirements.**IV.4.1 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.

IV.4.2 Test Rejection Criteria.

Throughout all tests specified herein, the vehicle will be closely observed for the following conditions, which will be cause for rejection:

- Failure to conform to design or performance requirements specified herein or in the contractor's technical proposal.
- Any spillage or leakage of any liquid, including fuel, coolant, lubricant, or hydraulic fluid, under any condition, except as allowed herein.
- Structural failure of any component, including permanent deformation, or evidence of impending failure.
- Evidence of excessive wear.
- Interference between the vehicle components or between the vehicle, the ground, and all required obstacles, with the exception of normal contact by the tires.
- Misalignment of components.
- Evidence of undesirable roadability characteristics, including instability in handling during cornering, braking, and while traversing all required terrain.
- Conditions that present a safety hazard to personnel during operation, servicing, or maintenance.

- Overheating of the propulsion system, transmission, or any other vehicle component.
- Evidence of corrosion.
- Failure of the fire fighting system and sub-systems.

IV.4.3 Detailed inspection requirements.

IV.4.3.1 Examination of product.

All component manufacturers' certifications, as well as the prototype and production/operational vehicle testing outlined in NFPA 1900, 6.3 Prototype Vehicle Test (**EXCEPTION:** the vehicle will demonstrate the ability to traverse the "J" turn test in both directions on smooth, level pavement without the brakes being applied), 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. The airport may accept a manufacturer or third-party certification for any/all prototype and production/operational vehicle testing performed prior to delivery that proves that the vehicle meets the required performance parameters.

The component manufacturer's certification, prototype test certifications, and production vehicle test certifications will be arranged in the same order and numbering system called out in NFPA 1900. The Operational Test certifications will be provided as part of the delivery package with each vehicle.

Note: If an airport requires the vehicle's operational test data in addition to the test certification, the manufacturer will provide it to them upon request.

V **Packaging.**

- V.1 Preservation, packing, and marking will be as specified in the Procurement Specification, contract, or delivery order.
- V.2 Deliver the vehicle with full operational quantities of lubricants, brake and hydraulic fluids, and cooling system fluid all of which are suitable for use in the temperature range expected at the airport.
- V.3 Deliver the vehicle with one complete load of firefighting agents and propellants. One complete load is defined as all 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 (if applicable); one fill of a clean agent tank (if applicable); one spare nitrogen cylinder for a dry chemical fire suppression system (if applicable); and one spare argon cylinder for a clean agent fire suppression system (if applicable). Agents and propellants for required testing or training are not included. For the initial training period,

use water in place of other extinguishing agents. The manufacturer may pre-ship agents and propellants to a receiving airport to reduce overall procurement costs.

- V.4 The vehicle manufacturer will provide initial adjustments to the vehicle for operational readiness and mount any ancillary appliances purchased through the vehicle manufacturer as part of the vehicle.

VI Training.

AMENDMENT: 4.3.2.5.8, 4.3.2.5.9

- VI.1 Upon delivery of the vehicle to the airport, the manufacturer will, at no additional cost, provide the services of a qualified technician for five consecutive days (or up to 8 days for a vehicle equipped with a boom-mounted turret) 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 opportunities will be provided by the manufacturer to allow various shifts to complete the training requirements.
- VI.2 The technician will provide thorough instruction in the use, operation, maintenance, and testing of the vehicle. This setup includes operator training for the primary operators, which will give them sufficient knowledge to train other personnel in the functional use of all fire fighting and vehicle operating systems. Prior to leaving the vehicle, the technician will 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.
- VI.3 Training will 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 will include materials that can be used to train subsequent new operators.

VII Referenced Documents.

VII.1 **Federal Aviation Administration (FAA).**

ACs may be obtained from the FAA website:

https://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: <https://www.faa.gov/>

VII.2 **CFR.**

The CFR may be obtained from <https://www.ecfr.gov>.

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.

VII.3 **National Fire Protection Association (NFPA).**

NFPA documents may be obtained from <https://www.nfpa.org/>.

- NFPA 460, *Standard for Aircraft Rescue and Firefighting Services at Airports*
- NFPA 1900, *Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus, Wildland Fire Apparatus, and Automotive Ambulances (2024 Edition)*

FAA Submittal

If this procurement is [**subject to approval by the Federal Aviation Administration**] [**to be funded under the Airport Improvement Program or the Passenger Facility Charge Program**], provide the following to the appropriate FAA Airports office for review and approval.

This specification has been produced using Advisory Circular 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles. No alterations have been made to the resultant specification.

[**The attached request for additional items needed to address unusual requirements is submitted in accordance with FAA Order 5300.1, *Modifications to Agency Airport Design, Construction, and Equipment Standards.***]

(Airport POC signature and title)

The following justifications are provided for FAA approval:

Paragraph Number: **AMENDMENT: 4.5.1.2.2**

| <u>Extreme Temperature Justification</u> |
|--|
| |

Approved

Disapproved:

Paragraph Number: **SELECTION: 4.5.2.3.3**

| <u>Radiator Shutters Justification</u> |
|--|
| |

Approved

Disapproved:

(FAA signature and date)

We have requested approval of a Modification to Standards (MOS) at Airport Data and Information Portal (ADIP) for the following items that are not provided for in the standard specifications. For more than four requests, provide additional justification pages.

Item 1:

Justification:

☐ Approved☐ Disapproved:**Item 2:**

Justification:

☐ Approved☐ Disapproved:**Item 3:**

Justification:

☐ Approved☐ Disapproved:**Item 4:**

Justification:

☐ Approved☐ Disapproved:

(FAA signature and date)

APPENDIX C. CHECKLIST FOR DELIVERY PACKAGE

- C.1 The delivery package is an important component of this AIP purchase. The delivery package will include each of the applicable documents identified in this checklist and be included in a tabbed binder, two copies (one for the customer and one for the FAA ADO).

| Checklist for Delivery Package AC 150/5220-10 NFPA 1900, Chapter 6 Acceptance Criteria | | FAA Approval (Initials) |
|--|---------------------------------------|----------------------------|
| Customer (Airport) | | |
| Authorized Airport Representative Name & Title | | |
| Airport Call Sign for Vehicle(s) | | |
| Manufacturer Name | | |
| Model | | |
| Year of Manufacture | | |
| VIN or Build # | | |
| NFPA 1900, 6.1 General | | |
| 6.1.1 – Manufacturer’s quality assurance documents for their manufacturing processes | | |
| 6.1.2 – Documentation of test results for: | | |
| 1 | Component Manufacturers Certification | |
| 2 | Prototype Vehicle Tests | |
| 3 | Operational Tests | |

| Reference | Comments | (Initials) |
|--|----------|------------|
| NFPA 1900, 6.2 Component Manufacturer's Certification | | |
| Propulsion System | | |
| Transmission | | |
| Axles | | |
| Transfer Case | | |
| Wheels | | |
| Tires | | |
| Hand line Hose with couplings attached | | |
| Propellant Gas Cylinder (CAFS) | | |
| Propellant Gas Cylinder (DC) | | |
| Propellant Gas Cylinder Regulating Device (CAFS) | | |
| Propellant Gas Cylinder Regulating Device (DC) | | |
| Complementary Agent Storage Container | | |
| Complementary Agent Pressure Relief Device | | |
| Cooling System | | |
| Fire Pump | | |
| Foam Tank | | |
| Water Tank | | |
| Propulsion System or PTO Driven Generator | | |
| Brake System Certified data for Air Brake System | | |

| Reference | Test Name | Comments | (Initials) |
|---|---|----------|------------|
| NFPA 1900, 6.3 Prototype Vehicle Tests | | | |
| 6.3.6 | Rated Water and Foam Tank Capacity Test | | |
| 6.3.7 | Cornering Stability | | |
| 6.3.7.4 | AMENDMENT: Evasive maneuver test will be conducted at 35 MPH | | |
| 6.3.8 | Vehicle Dimensions | | |
| 6.3.9 | Driver Vision Measurement | | |
| 6.3.10 | Pump and Roll on a 40% Grade | | |
| 6.3.11 | Electrical Charging System | | |
| 6.3.11.3 | Electrical System Performance Test | | |
| 6.3.12 | Radio Suppression | | |
| 6.3.13 | Gradability Test | | |
| 6.3.14 | Body and Chassis Flexibility Test | | |
| 6.3.15 | Service / Emergency Brake Test | | |
| 6.3.16 | Service / Parking Brake Grade Holding Test | | |
| 6.3.17 | Steering Control Test | | |
| 6.3.18 | Vehicle Clearance Circle Test | | |
| 6.3.19 | Agent Pump(s) / Tank Vent Discharge Test | | |
| 6.3.20 | Water Tank Fill and Overflow Test | | |
| 6.3.21 | Flushing System Test | | |
| 6.3.22 | Primary Turret Flow Rate Test | | |
| 6.3.23 | Primary Turret Pattern Test | | |
| 6.3.24 | Primary Turret Control Force Measurement | | |
| 6.3.25 | Primary Turret Articulation Test | | |
| 6.3.26 | Handline Nozzle Flow Rate Test | | |
| 6.3.27 | Handline Nozzle Pattern Test | | |
| 6.3.28 | Ground Sweep / Bumper Turret Flow Rate | | |
| 6.3.29 | Ground Sweep / Bumper Turret Pattern Test | | |

| Reference | Test Name | Comments | (Initials) |
|---|--|----------|------------|
| 6.3.30 | Undertruck Nozzle Test | | |
| 6.3.31 | Foam Concentration / Foam Quality Test | | |
| 6.3.32 | Warning Siren Test | | |
| 6.3.33 | Propellant Gas | | |
| 6.3.34 | Pressure Regulation | | |
| 6.3.35 | Pressurized Agent Purging and Venting | | |
| 6.3.36 | Complementary Agent Handline Flow Rate and Range | | |
| 6.3.37 | Dry Chemical Turret Flow Rate and Range | | |
| 6.3.38 | Cab Interior Noise Test | | |
| NFPA 1900, 6.4 Operational Tests | | | |
| 6.4.1 | Vehicle Testing, Side Slope | | |
| 6.4.2 | Weight / Weight Distribution | | |
| 6.4.3 | Acceleration | | |
| 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 | | |
| 6.4.9 | Pump and Maneuver Test | | |
| 6.4.10 | Hydrostatic Pressure Test | | |
| 6.4.11 | Foam Concentration Test | | |

| As Applicable | Comments | (Initials) |
|---|----------|------------|
| NFPA 1900, 4.3.2.3 Operator's Manual | | |
| Chassis (As Built) | | |
| Boom-mounted Turret (2) and 1 CD (As Built) | | |
| PTO Generator | | |
| HVLA Bumper Turret | | |
| MADAS | | |

| As Applicable | Comments | (Initials) |
|---|----------|------------|
| Continuous Lubrication System | | |
| (Other) (As Built) | | |
| Electrical Schematics (As Built) | | |
| Engineered Drawing (As Built) | | |
| Photo Documentation during the production process | | |
| Warranties – General Requirements | | |
| Base Vehicle – Bumper to Bumper | | |
| Propulsion System | | |
| Transmission | | |
| Water Pump | | |
| Water / Foam Tank | | |
| Paint | | |
| NFPA 1900, 4.3.2.5 Parts Manual | | |
| Chassis (As Built) | | |
| Boom-mounted Turret (As Built) | | |
| CAFS (As Built) | | |
| Complementary Agent System | | |
| PTO Generator | | |
| HVLA Bumper Turret | | |
| Continuous Lubrication System | | |
| (Other) (As Built) | | |

The undersigned authorized representative has inspected the delivery documents for this ARFF Vehicle and find it meets the requirements of AC 150/5220-10F.

Inspector Name: _____

Inspector Signature: _____

Inspector Title: _____

Date: _____

A signed copy of this signed checklist must be submitted to the ADO.

Page Intentionally Blank

APPENDIX D. DEFINITIONS AND ACRONYMS**D.1 Definitions.**

1. **Aqueous Film-Forming Foam Concentrate (AFFF).** A concentrate based on fluorinated surfactants plus foam stabilizers to produce a foam which, when drained, creates a fluid aqueous film for suppressing hydrocarbon fuel vapors. Concentrate is usually diluted with water to a 1%, 3%, or 6% solution.
2. **Clean Agent.** Clean agent means an electrically nonconducting volatile or gaseous fire extinguishing agent that does not leave a residue upon evaporation and has been shown to provide extinguishing action.
3. **Electronic Proportioning.** A foam concentrate proportioning system which controls the volume of foam concentrate into the discharge stream through inputs provided by electronic flow meters. These systems fluctuate to compensate for variations in the water discharge and foam concentration viscosity.
4. **Mechanical Proportioning.** A foam concentrate proportioning system which controls the volume of foam concentrate into the discharge stream through fixed openings set by expected flow rates of the discharge devices on the vehicle. The devices are typically activated by a pneumatic valve (plunger?) operation or mechanical levers. These systems are set to a specific volume and do not adjust based on variation in water flow or foam concentration viscosity.
5. **Fluorine-Free Foam (F3).** A synthetic foam concentrate based on a mixture of hydrocarbon surface active agents that are fluorine free.
6. **Foam.** An aggregation of small bubbles used to form an air-excluding, vapor-suppressing blanket over the surface of a flammable liquid fuel. With the development of the new fluorine-free foam, airports are starting to transition away from using Aqueous Film-Forming Foam.
7. **Foam Concentrate.** A concentrated liquid foaming agent as received from the manufacturer.
8. **Halogenated Agent.** A hydrocarbon extinguishing agent in which one or more hydrogen atoms are replaced by atoms from the halogen series – fluorine, chlorine, bromine, or iodine.

D.2 Acronyms.

| | |
|-------|---|
| AC | Advisory Circular |
| ACSI | Airport Certification Safety Inspector |
| ADO | Airport District Office |
| AFFF | Aqueous Film Forming Foam |
| AIP | Airport Improvement Program |
| ARFF | Aircraft Rescue and Fire Fighting |
| CAFS | Compressed Air Foam System |
| CFR | Code of Federal Regulations |
| DEVS | Driver's Enhanced Vision System |
| F3 | Fluorine-Free Foam |
| FAA | Federal Aviation Administration |
| GPM | Gallons per minute |
| HVLA | High Volume, Low Attack |
| ICAO | International Civil Aviation Organization |
| LED | Light Emitting Diode |
| MADAS | Monitoring and Data Acquisition System |
| NFPA | National Fire Protection Association |
| PFC | Passenger Facility Charge |
| PPE | Personal Protection Equipment |
| Psi | Pounds per square inch |
| PTO | Power Take-Off |
| RIWS | Runway Incursion Warning Systems |
| SCBA | Self-Contained Breathing Apparatus |

Advisory Circular Feedback

Paperwork Reduction Act Burden Statement: A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB Control Number for this information collection is 2120-0746. Public reporting for this collection of information is estimated to be approximately 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information. All responses to this collection of information are voluntary. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, Federal Aviation Administration, 10101 Hillwood Parkway, Fort Worth, TX 76177-1524.

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) mailing this form to Manager, Airport Safety Policy Branch, Federal Aviation Administration ATTN: AAS-310, 800 Independence Avenue SW, Washington DC 20591 or (2) faxing it to the attention of the Office of Airport Safety and Operations AAS-300 at (202) 267-8821.

Subject: AC 150/5220-10F

Date: _____

Please check all appropriate line items:

☐ An error (procedural or typographical) has been noted in paragraph _____ on page ____.

☐ Recommend paragraph _____ on page _____ be changed as follows:

☐ In a future change to this AC, please cover the following subject:
(Briefly describe what you want added.)

☐ Other comments:

☐ I would like to discuss the above. Please contact me at (phone number, email address).

Submitted by: _____

Date: _____

Forms with past expiration dates are still valid as long as the associated OMB collection number appears in the OMB Information Collection Current Inventory.