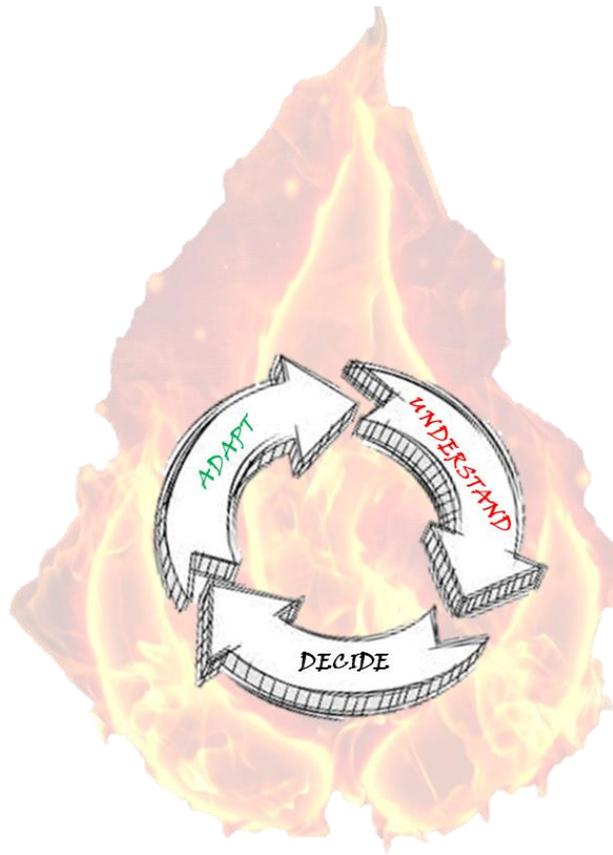


# INTERAGENCY WILDLAND FIRE MANAGEMENT AVIATION STRATEGIC PLAN

*Vision 2027*



**National Interagency Aviation Committee**

**FEDERAL FISCAL YEARS 2018-2027**

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# ***Strategic Overview***

One of the three primary goals of the [National Cohesive Wildland Fire Management Strategy](#) is that ***all jurisdictions participate in making and implementing safe, effective, and efficient risk-based wildfire management decisions.***

The [National Interagency Aviation Committee](#) (NIAC), which is comprised of key federal and state stakeholders (a stakeholder has concern for the organization and can affect or be affected by the organization's actions or objectives) who represent the interagency wildland fire management aviation community, provides a national, intergovernmental venue for a collaborative approach to supporting the National Cohesive Wildland Fire Management Strategy through creating the Interagency Wildland Fire Management Aviation Strategic Plan, *hereinafter referred to as the Aviation Strategy.*

This Aviation Strategy recognizes the contribution that state and local aviation assets make to the national effort. Aviation assets of several different types and categories are made available for interagency use at the local, state and national level. More than 400 state, local and National Guard owned or exclusive use aircraft contribute to the national wildland fire effort. Interagency coordination is critical to maintaining a prompt, effective and scalable response to wildland fires that meets the taxpaying public's expectation of cooperation.

State and local agencies must respond to laws, mandates and objectives which vary from one jurisdiction to another. Collaboration between local, state and federal agencies is critical to understanding

the capabilities, limitations, and opportunities for engaging the aviation assets of each entity in a safe and effective manner.

All stakeholders to this Aviation Strategy have a commitment and responsibility to take necessary actions for implementation of this plan. Those actions should take place in a coordinated, collaborative manner using the actions and activities identified in the respective aviation plans of the stakeholders represented within the NIAC.

Successful implementation of this Aviation Strategy will require the simultaneous occurrence of the following three elements:

- ✓ Doctrinal and Strategic Alignment – All stakeholders agree to the same doctrinal principles, strategic objectives, and courses of action.
- ✓ Communications and Collaborative Engagement – This includes governance, shared information and resources, communications, monitoring and accountability.
- ✓ Programmatic Alignment – Stakeholders support this Aviation Strategy’s objectives, through decisions made and courses of action taken, accounting for fiscal realities and constraints.

## ***Vision***

*Work together seamlessly as a wildland fire management community to procure a safe, effective, and cost-efficient federal aircraft fleet which can be readily employed to achieve realistic, desired outcomes.*

# ***Wildland Fire Aviation in Perspective***

Among all land management jurisdictions, approximately one billion acres across the United States have some degree of exposure to wildland fire. Recent trends have generally been toward warmer, drier, and longer fire seasons, with increasing amounts of extreme fire behavior, risk to responders and citizens, home and property losses, threats to communities and landscapes, and land area burned annually across all jurisdictions. These trends -coupled with ongoing development at the wildland-urban interface, escalating firefighting costs, and sociopolitical constraints- have placed increasing strain on the capabilities and budgets of fire and land management agencies.

Aviation has been a component of wildland fire management for decades, and aerial resources are an essential tool and a force multiplier for the ground resources they support. At the same time, fire aviation entails significant risks and is a major contributor to wildland fire management costs. In recent years, obsolescence (e.g., continued airworthiness) of older aircraft, conversion of more modern airframes, development of new aircraft, and technical improvements have led to both opportunities and challenges in optimizing and efficiently managing the wildland fire management aircraft fleet.

Mindful of the trends in wildland fire and of the opportunities and challenges in contemporary fire aviation, the purpose of this Strategy is to help devise and guide a safe, effective, and efficient national approach to interagency fire aviation over the next ten years.

**Doctrine in Wildland Fire Management.** Doctrine establishes a particular way of thinking about wildland fire management operations,

and it provides a philosophy for leading wildland firefighters, a mandate for professionalism, and a common language. Doctrine does not consist of procedures to be applied to specific situations so much as it sets forth general guidance that requires judgment in application.

Wildland fire managers are expected to operate under existing policies and doctrine under normal conditions, and, where conflict occurs, they are expected to weigh the risk versus gain and operate within the intent of associated policy and doctrine.

The National Cohesive Wildland Fire Management Strategy provides the following guiding (*doctrinal*) principles:

- Reducing risk to firefighters and the public is the first priority in every fire management activity.
- Fire management decisions are based on the best available science, knowledge, and experience, and used to evaluate risk versus gain.
- Safe aggressive initial attack is often the best suppression strategy to keep unwanted wildfires small and costs down.

The National Interagency Aviation Committee (NIAC) maintains the following, additional aviation-specific guiding (*doctrinal*) principles which were also stated in the previous Interagency Aviation Strategy:

- Aviation resources are one of a number of tools available to accomplish fire related land management objectives. Their use has value only if that use serves to accomplish the mission.

- In order to maximize effectiveness and efficiency, aviation resources must be centrally controlled and de-centrally employed.
- Aviation resources very seldom work independently of ground based resources. When aviation and ground resources are jointly engaged, the effect must be complimentary and serve as a force multiplier.
- The effect of aviation resources on a fire is directly proportional to the speed at which the resource(s) can initially engage the fire, and the effective capacity of the aircraft. These factors are magnified by flexibility in prioritizations, mobility, positioning and utilization of the versatility of many types of aircraft.
- Aviation use must be prioritized based on management objectives and probability of success.
- Risk management is a necessary requirement for the use of any aviation resource. That risk management process must include the risk to ground resources, and the risk of not performing the mission, as well as the risk to the aircrew.

## ***Aviation Strategy Focus***

The interagency wildland fire management aviation community will fulfill its strategic vision by focusing its resources and efforts on:

***Understanding the current system – including its strengths, weaknesses, and opportunities for improvement***

***Making informed decisions*** – guided by doctrine and based on objective information

***Adapting current practices*** – to maintain and improve the safety, effectiveness, and cost-efficiency of aviation operations

**Execution of the Plan.** Successful execution of this plan will be based on advancements in those three major focus areas. Each focus area in turn has one or more supporting objectives with associated courses of action.

*Federal aircraft fleet procurement plans will be appended to this Aviation Strategy on a periodic basis.*

If this Aviation Strategy's vision is achieved by 2027 (or earlier), a precedent for future interagency wildland fire management aviation strategic planning will have been established.

### **Understand the Current System**

**Situation:** The system that orders, manages, coordinates, dispatches, and tactically employs aviation resources is complex, widespread, and multiagency. On a national scale, complexity is inevitable and reflects the complexity of the wildland fire management environment itself. However, effective, accountable management of a complex system requires accurate, current, understandable information regarding its performance relative to adequately defined and identified management objectives. In order to measure the use

and effectiveness of federal aerial suppression aircraft, specifically during tactical employment, the Aerial Firefighting Use and Effectiveness (AFUE) Study was initiated in 2012.

The AFUE Study is, at the time of writing, at the point where it is utilizing data collected during recent fire seasons to summarize aerial suppression activities and effectiveness in terms of tactical objectives, probabilities of success at meeting those objectives, and relative cost-effectiveness of different tactics that are used for the same objective. This information will be further informed by assessing the relative influence of factors such as weather, fuels, supporting resources, and terrain. Additional, planned analysis is reflected in the course of action below and is described in more detail on the [AFUE Study website](#).

**Objective 1.0: Measure the use and effectiveness of aerial suppression aircraft during tactical employment and then develop outcome-based, best-value modeling as the key fleet composition decision-support tool.**

**Course of Action:** The AFUE Study will:

1. Perform empirical analysis to determine how the factors that influence outcomes affect performance and probabilities of success,
2. Create outcome models based on the capabilities and limitations of all federal aerial suppression and ground suppression resources,

3. Execute cost benefit trade-off analyses utilizing all federally procured aerial suppression aircraft and all other ground suppression resources, and
4. In as early as late 2018, (1) provide expected outcome-based, best-value models as tools to support key fleet composition decision making and, (2) begin to expand its focus to include other aircraft that support wildland fire management.

### **Make Informed Decisions**

**Situation:** The National Interagency Aviation Committee (NIAC) is comprised of representatives from the interagency wildland fire management aviation community who, in addition to being key stakeholders, provide national leadership in wildland fire aviation. NIAC is a collaborative partnership where common aviation interests and professional aviation management skills are pooled in order to coordinate efforts and promote and achieve common outcomes that benefit all interagency aviation stakeholders.

**Objective 2.0: Utilize aircraft performance and effectiveness data in decisions concerning the future composition of the federal aircraft fleet.**

**Course of Action:** NIAC will obtain outcome-based, best-value models from the AFUE Study to support federal aircraft fleet composition decision-making.

**Objective 2.1: To ensure common interests are understood and considered, involve interagency aviation stakeholders**

**in decisions regarding future federal aircraft fleet composition and technology enhancements (e.g., to aid in real-time decision making, automate data collection, etc.).**

**Course of Action:** Prior to making any final decisions about the composition of the future federal aircraft fleet or the incorporation of emerging technologies, the senior federal aviation managers on NIAC will ensure the common interests of all organizations represented within the committee are solicited, received, and considered.

**Situation:** While few aircraft (such as the Bombardier CL-215 and CL-415, and the Air Tractor AT-802F) have been purpose-built for aerial firefighting, former commercial and former military passenger, cargo, and utility, aircraft, as well as commercial agricultural aircraft, are also configured for and used in these missions.

For many years, the aviation industry has conducted research and development on aircraft modifications and adapted existing airframes and designs to enhance wildland fire management mission capabilities. Examples of operational improvements include, but are not limited to, increasing operating speed, carrying more weight, “tanking” an aircraft, enhancing drop capabilities, operating at higher density altitudes, and integrating intelligence, surveillance, and reconnaissance sensors.

Today’s emerging development and integration of unmanned aircraft systems (UAS) may be the first aviation-associated operational innovation for wildland fire management operations in almost fifty years.

**Objective 2.2: Involve and consider developments, improvements, and innovations in the aviation industry during decision-making on future federal aircraft fleet composition and technology enhancements.**

**Course of Action:** Prior to making any final decisions about the composition of the future federal aircraft fleet and about what emerging technologies to incorporate, the senior federal aviation managers on NIAC will utilize respective federal acquisitions support resources to solicit, receive, and consider aviation industry improvements and innovations. Trade shows, exhibitions, and industry aviation conferences (e.g., Helicopter Association International Exposition) will also help inform decisions. States will commit to supporting this course of action through their own respective channels and processes.

### **Adapt Current Practices**

**Situation:** The interagency wildland fire management community has an opportunity to refresh, improve, and increase collaboration in its strategic approach for cost effective procurement in building and maintaining the federal wildland fire management aircraft fleet. The following are among the factors that influence this procurement strategy:



**Objective 3.0: Eliminate redundant federal aircraft procurement efforts and adapt future procurement strategies to reflect decisions informed by aircraft performance and effectiveness, stakeholders, and the aviation industry.**

**Course of Action:** The senior federal aviation managers on NIAC will (1) collaboratively plan to procure a safe, effective, and cost-efficient aircraft fleet in order to eliminate redundancy and (2) adapt the future aircraft procurement plans of the Bureau of Land Management and Forest Service in order to reflect decisions informed by outcome-based, best-value models, stakeholder input, and industrial aviation operational improvements and innovations. Bureau of Land Management and Forest Service aircraft procurement plans will then be incorporated into the appendix of this document (including periodic updates as needed).

**Situation:** Operational improvements in aircraft often require improvements in the associated infrastructure that supports them. For example, larger, heavier aircraft require longer runways in order to

fully exploit the associated increased operational capabilities. These aircraft also require increased maneuvering room on surfaces capable of bearing increased loads in order to prevent damage to aircraft, surfaces, and surrounding facilities.

**Objective 3.1: Assess, maintain, and improve infrastructure capacity and capabilities to ensure that operational demands and logistical requirements of the evolving firefighting aircraft fleet are safely and efficiently met.**

**Course of Action:** The NIAC will create and promulgate a National Interagency Airport/Aviation Facility Utilization Approval document which will provide comprehensive information on airports, helibases, and associated aviation facilities approved for use by each specific make and model of federally procured wildland fire management aircraft. Coincident with the development of a National Interagency Airport/Aviation Facility Utilization Approval document, updated facility requirements and gaps in existing facilities will be identified. Investments will then be made to improve infrastructure capacities and capabilities. Common interests of state interagency aviation stakeholders, of each respective bureau and service, and of the aviation resource coordination and dispatching communities will be considered when developing the document.

**Situation:** Operational improvements in aircraft frequently require adaptations in aviation resource coordination and dispatching. Newer, larger aerial suppression aircraft travel 40-50% faster than the legacy aircraft historically coordinated and dispatched by the interagency community.

**Objective 3.2: Adapt the existing interagency aviation resource coordination and dispatch system to fully exploit the operational improvements in federally procured aircraft.**

**Course of Action:** The NIAC and representatives from the national aviation resource coordination and dispatching communities will collaboratively develop a plan to fully exploit the operational improvements in federally procured aircraft. *The National Interagency Airport/Aviation Facility Utilization Approval document (refer to Objective 3.1 Course of Action) will inform this plan by providing the approved airports, helibases, and associated aviation facilities for use by each specific make and model of federally procured aircraft.* Common interests of state interagency aviation stakeholders will be considered when developing the plan.

**Situation:** As previously stated, the system that orders, manages, coordinates, dispatches, and tactically employs federally procured, interagency aviation resources is complex and decentralized. Multiple personnel at various levels perform aviation management functions. But insufficient formal instruction exists for a majority of them to learn how to manage aviation-specific risks and how to weigh those risks along with the probability of achieving wildfire incident outcomes utilizing specific aviation resources. As a result of these training gaps, those responsible for aviation risk management oversight and operational control often:

- Rely solely on those piloting aircraft (helicopters and airplanes) to make consequential risk management decisions.

- Without fully understanding potential consequences, transfer risk to aviation resources (helicopters, airplanes, and the associated aircrews) in order to mitigate risks to ground resources.
- Repeatedly request aerial drops (from helicopters and airplanes) with low likelihoods of effectiveness. In some cases drops are too distant from ground resources (e.g., considering the time period over which payloads are effective), while others drops may occur in fire behavior conditions so severe that no amount of water or retardant would be effective.

**Objective 3.3: Adapt aviation resource employment workforce-related training to train wildland fire managers how to manage aviation risk and effectively employ all aviation resources (not just those that deliver water and retardant) in support of wildland fire management efforts.**

**Course of Action:** The NIAC, the Operations and Training Committee (OTC), and the National Advanced Fire and Resource Institute (NAFRI) will collaboratively develop and implement a plan to train wildland fire managers *at all levels* about how to manage aviation risk and what can realistically be achieved by, and how to effectively employ, all types of aviation resources in support of wildland fire management efforts.

**Situation:** While agency administrators defer to the expertise of wildland fire managers, it is critical that those responsible understand how increasingly expensive aviation resources should be employed in order to effectively support the ground personnel achieving desired incident management (derived from land management) outcomes.

Improved, up-to-date understanding of effective (and ineffective) employment of aviation resources and aviation-specific doctrine will better enable agency administrators to support and constructively communicate both with and on behalf of incident managers.

**Objective 3.4: Adapt agency administrator-related training to build situational awareness about what can realistically be achieved utilizing aviation resources during wildland fire management efforts.**

**Course of Action:** The NIAC, the OTC, NAFRI, and the Interagency Geographic Area Training Representatives (GATRs) will collaboratively develop and implement a plan to train agency administrators *at all levels* about what can realistically be achieved by aviation resources in support of wildland fire management efforts. *The plan to train wildland fire managers at all levels about how to manage aviation risk and what can realistically be achieved by, and how to effectively employ, aviation resources in support of wildland fire management efforts (Objective 3.3 Course of Action) will inform this plan. Once Agency Administrator training is developed, the NIAC will collaborate with public affairs officials to ensure similar information is shared with the general public to build greater awareness within the general public.*

## **Conclusion**

This Aviation Strategy has been written to offer as much flexibility as possible to the organizations tasked with its implementation. It

provides a framework for the interagency wildland fire management community, through the National Interagency Aviation Committee, to assure that (1) decisions about the federal aircraft fleet are informed by stakeholders and (2) aviation resources are readily and efficiently employed to meet realistic objectives, and achieve desired outcomes.

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