Table of Contents

Executive Summary 1

Introduction to the AVS Workforce Plan 2

Section 1: Understanding the AVS Workforce 3
  Staffing Categories 4
  Organizational Structure 6
  Occupational Series Within the AVS Workforce 6

Section 2: Advancing the Safety Mission 8
  One Mission, Many Contributors 8
  Delivering Results 11
  Strategic Priorities Driving Workforce Skills Needs 13
  AVS Strategy for Effective Use of Resources 16

Section 3: Forecasting AVS Workforce Needs 17
  AVS Staffing Analytics 18
  Fusion of Inputs 20

Section 4: Looking Forward 21
  Recruiting and Retaining a Skilled Workforce 26
  Workforce Training and Development 30

Supplemental Information: Appendix 35
  Appendix: AVS Staffing (Operations Appropriation) 36
Executive Summary

The Federal Aviation Administration (FAA; Agency) Fiscal Year (FY) 2024 Aviation Safety (AVS) Workforce Plan outlines the staffing plan for existing and future personnel in AVS.

The AVS Workforce Plan is divided into four sections. The first section provides a description of the AVS workforce using three staffing categories to fulfill the safety mission—safety critical, safety technical, and operational support. The second section explains the AVS mission, highlighting major safety objectives. The third section describes modeling for the workforce forecast, using data-driven models to anticipate the needs between FY 2024 and FY 2033. The fourth section explores the challenges of attracting qualified talent while competing with industry to hire from a shared pool of candidates. The plan further describes initiatives to recruit, develop, maintain, and retain technical experts in the workforce.

The overall plan supports the FY 2025 President’s Budget request for 7,923 full-time personnel. At the close of FY 2023, AVS was staffed at 98 percent of the FAA’s enacted staffing target.

The January 2024 incident on Alaska Airlines Flight 1282 involving the Boeing 737 MAX 9 aircraft is a stark reminder of the enormity of the FAA’s safety mission while the Agency works to expand capacity and increase efficiency to meet the future needs of the traveling public. The FAA is undertaking several oversight actions prompted by the January incident and has reprioritized staff and resources to address this important safety issue. This plan also includes outyear increases of personnel to support enhanced air carrier surveillance, designee management, and manufacturing and production oversight, including the Boeing MAX 9 onsite inspections. As we continue to investigate and analyze the MAX 9 incident, additional full-time personnel (FTP) may be requested.
Introduction to the AVS Workforce Plan

To meet the requirements of the Consolidated Appropriations Act, 2024 (Pub. L. 118-42), the FAA prepared this 17th annual update to the AVS Workforce Plan. This plan includes information of interest to key external stakeholders, such as the Congressional Authorization and Appropriations Committees and the White House. It includes staffing estimates for the FAA AVS services and offices, as well as actual onboard levels at the end of September 2023.1 This FY 2024 report accounts for aircraft fleet changes; operations forecasts; inspector, engineer, and physician attrition; and other factors.

Aviation safety is the FAA's mission and the FAA's passion. As of September 2023, AVS had approximately 7,600 skilled and dedicated professionals who make up the AVS workforce and contribute to ensuring the United States (U.S.) National Airspace System (NAS) remains the safest in the world. The U.S. NAS is the world's most complex airspace, encompassing commercial and general aviation, as well as the expanding drone and commercial space launch sectors.

With the FAA safety mission constantly in mind, everything AVS does across the aviation lifecycle ensures that every entity certified to operate within the NAS meets required aircraft design and operational safety standards.

This Workforce Plan is designed to strengthen the recruitment, training, and professional development activities in AVS. It is intended to address rapid change and evolution of the aviation industry in such areas as: safety management systems, human-machine interface, integration of drones, data and information sharing, advanced analytics, data mining, artificial intelligence, mental fitness of pilots and air traffic controllers, and voluntary safety reporting.

The FAA's efforts ensure we can hire and retain the right people, with the right skills, at the right time, with the ability to proactively address risk throughout the lifecycle of aviation systems.

---

1Pay Period 20 ending on September 23, 2023
SECTION 1
UNDERSTANDING THE AVS WORKFORCE

This section of the plan describes the staffing categories, organizational structure, and AVS occupations that enable mission execution.
Staffing Categories

The AVS workforce falls into three broad categories: safety critical, safety technical, and operational support.

1. SAFETY CRITICAL STAFF

The safety critical AVS staffing category (73 percent of the AVS Operations workforce) includes positions where the duties have a direct operational impact on the AVS safety mission. The responsibilities of such members include, but are not limited to:

- Monitoring and enforcing industry compliance with safety regulations through inspections, data analysis, and risk management;
- Certifying aviation personnel, airlines, repair stations, training centers, and other aviation entities;
- Certifying aircraft, including aircraft alterations, equipment, and avionics;
- Investigating aviation accidents and incidents;
- Overseeing the FAA Air Traffic Organization (ATO) safety management system;
- Overseeing and monitoring AVS delegation programs; and
- Overseeing and monitoring new entrant integration into the NAS.

2. SAFETY TECHNICAL STAFF

The safety technical staffing category (18 percent of the AVS Operations workforce) describes those positions providing specialized support to enable safety critical staff to perform their jobs efficiently and effectively. These responsibilities include, but are not limited to:

- Evaluating and analyzing the effectiveness of existing AVS certification, regulatory, and compliance processes;
- Developing new programs, activities, and methods for improved oversight activities and enhanced industry safety;
- Defining, managing, and applying research that informs regulations, policy, standards, and procedures for safe operations;
- Designing, developing, and delivering technical training curricula for the workforce;
- Managing the airman and aircraft registries, and the airman medical certification system; and
- Guiding the development and publication of FAA regulations through the rulemaking process.
3. OPERATIONAL SUPPORT STAFF

The operational support staffing category (9 percent of the AVS Operations workforce) describes those positions providing support for the safety critical and safety technical staff. These responsibilities include, but are not limited to, administrative tasks, research, finance and budget management, international outreach, communications, people management, business planning, and project management.
Organizational Structure

The AVS organization, one of the five FAA lines of business, is structured into business units called services and offices with physical locations in the United States and internationally. An Executive Director, or equivalent head, leads each service and office. The Executive Directors and their respective deputies make up the AVS Management Team. The AVS Management Team is led by the Associate Administrator for Aviation Safety.

Services
- Aircraft Certification (AIR)
- Air Traffic Safety Oversight (AOV)
- Flight Standards (FS)

Offices
- Aerospace Medicine (AAM)
- Quality, Integration, and Executive Services (AQS)
- Rulemaking (ARM)
- Unmanned Aircraft Systems Integration (AUS)
- Accident Investigation and Prevention (AVP)
- Organization Designation Authorization (ODA)

Occupational Series Within the AVS Workforce

An occupational series is a subdivision of an occupational group or job family consisting of positions similar to a specialized line of work and qualification requirements. This section describes the occupational series that comprise the majority of the AVS workforce. The two largest occupational series within AVS are Aviation Safety Inspectors (ASI) and Aviation Safety Engineers (ASE), which together account for approximately two-thirds of all AVS positions. Although physicians represent a small number of the total workforce, they are also addressed in this section as they represent a critical function with unique characteristics. Additional series not featured include human factors specialists, economists, business analysts, and program managers, among others.
Aviation Safety Inspector

An ASI is responsible for the certification and surveillance of air carriers, general aviation, aircraft product and part manufacturers, and air operators in accordance with Title 14 of the Code of Federal Regulations (CFR). Major ASI responsibilities include administering, investigating, and enforcing safety regulations and standards for the production, operation, maintenance, and modification of all aircraft flying today. ASIs work in four specialty areas: avionics, manufacturing, maintenance, and operations.

Aviation Safety Engineer

An ASE is responsible for applying engineering knowledge and experience in specific disciplines such as airframes, systems and equipment, propulsion, and flight tests. Major ASE responsibilities include administering safety standards for the design and certification of aeronautical products; evaluating designs for compliance with safety regulations and standards; and ensuring the continued operational safety of aircraft, engines, and propellers.

Physicians

A physician is responsible for the oversight and implementation of policy for the airmen medical certification program and oversight of the air traffic control specialist medical qualification program; this includes using scientific knowledge and clinical judgment to determine applicant eligibility for special issuances and special consideration when medical standards are not met. Physicians direct the administration of the medical certification appeals process and administration of drug and alcohol testing for the aviation industry, as well as the Agency’s internal drug and alcohol testing program. Physicians also operate the FAA’s aeromedical education programs, the planning and conduct of aerospace medical and human factors research, and the investigation of aircraft accident medical factors.
SECTION 2
ADVANCING THE SAFETY MISSION

One Mission, Many Contributors

The AVS mission is to provide the safest, most efficient aerospace system in the world through a data-driven, risk-based, systems approach for standards, certification, and oversight. The scope of responsibilities required to keep the NAS operating safely and efficiently requires AVS to be at the forefront of aerospace technology and human factors. This section describes some of the many tools that AVS employs to help keep the NAS operating safely.

AVS employs many tools to help keep the NAS operating safely, including:
Data-Driven Risk-Based Decision-Making

employs the active use of safety and performance data using methods to assess safety risk and existing safety performance controls.

Safety Management System (SMS)

is a formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk controls. It includes systematic procedures, practices, and policies for the management of safety risk. SMS establishes aviation standards for Safety Policy, Safety Risk Management, Safety Assurance, and Safety Promotion, which enable transparent data sharing and a strong safety culture.

The Compliance Program

is a risk-based approach to ensure industry maintains compliance with regulations by proactively identifying and mitigating problems. The Compliance Program focuses on using the most effective means to fix problems before they cause an accident or serious incident. While recognizing that most operators or manufacturers voluntarily comply with the core principles of safety, the Compliance Program regards intentional noncompliance as the greatest safety risk, which requires strong enforcement.

Government–Industry Cooperative Efforts,

such as the Commercial Aviation Safety Team and General Aviation Joint Steering Committee, use integrated, data-driven strategies to reduce accidents and fatality risk.

Information Sharing Programs,

such as the Aviation Safety Information Analysis and Sharing (ASIAS) system, leverage data and information sources across government and industry, including voluntarily provided safety data, to monitor known risks, evaluate the effectiveness of deployed mitigations, and detect emerging risks. Collaboration with union partners is a critical component to the success of voluntary safety information sharing.

International Cooperation and Collaboration

enhances safety by influencing regional and global alignment and increasing transparency, compatibility, and harmonization of various global approaches to aviation safety. International cooperation and collaboration include mechanisms such as the effective use of bilateral aviation safety agreements, technical assistance, and provision of training and workshops, as well as taking an influential role in the International Civil Aviation Organization (ICAO).
Systems Modernization

ensures FAA's systems keep pace with technological advancements, enabling the FAA's infrastructure and processes to remain up to date and capable of handling the demands of an evolving aerospace industry.

Certification and Safety Oversight Reform

A foundational component of safety is the commitment to continuous improvement. The FAA is driving greater transparency, collaboration, and accountability across the Agency with the FAA's regulated parties. As part of this, the FAA is committed to an integrated approach to implementing all the requirements of the Aircraft Certification, Safety, and Accountability Act (ACSAA), 2020 (P.L. 116-260), as well as the recommendations from investigations and independent reviews related to the 737 MAX accidents, including the most recent door-plug incident.

In the past year, the FAA satisfied several requirements of ACSAA, including issuing a policy statement to require applicants for amendments to Type Certificates for transport category aircraft to provide an outline of system changes and completing a Special Qualification Review of ODA Unit Members at ODA Holders for Transport Airplanes. Additionally, the FAA has published a final rule that requires a Safety Management System for design and manufacturing organizations, Part 135 operators, and Air Tour Operators.

In addition, the ODA Office chartered an Interference Review Team which includes representatives from ODA, AIR, and FS, to review allegations of interference with the performance of authorized functions by ODA Unit Members. This team will ensure a consistent application of the Interference Notice requirements across AVS and feedback from the team's review will inform future outreach to ODA holders and future policy changes.

Conclusion

While the AVS services and offices accomplish the FAA's functional activities, they each work interdependently with each other and with external stakeholders to advance our safety mission. The FAA must strive to uphold the Agency's safety standards through transparency and accountability, regardless of the challenges posed by our complex, diverse, and dynamic aviation environment. Investing in people and creating an environment that supports learning, diversity, and inclusion ensures AVS can meet these challenges through a unified approach to managing risks and conducting oversight. The FAA's passion for aviation safety is the driving force for all we do, with AVS services and offices working towards a shared vision for delivering results for the AVS safety mission.
Delivering Results

The numbers in Figure 1 illustrate the broad scope of AVS’s work. Beyond the number of aircraft registered, active pilots, designees, airmen medical examinations, and companies with drug testing programs are tangible accomplishments that enhance safety in our complex system. The scope of work depicted also extends to our international collaboration with the 193 Member States in ICAO.

Figure 1: The AVS purview across the aviation community, as depicted in numbers. Data is as of December 31, 2023.
The post-pandemic resurgence of the airline industry, combined with the expansion of new entrants in the advanced air mobility segment, required AVS to be agile in how we ensure the safety of the National Airspace System.

Numerous examples from this past fiscal year help showcase a varied and extensive array of achievements where AVS has played a key role:

- In a major milestone for introducing emerging entrants such as electric vertical takeoff and landing (eVTOL) aircraft into the NAS, AVS published a Notice of Proposed Airworthiness Criteria for the Joby Model JAS4-1 eVTOL aircraft, the Archer Midnight eVTOL aircraft, and the AgustaWestland AW609 tiltrotor;
- AVS published the Modernization of Special Airworthiness Certification (MOSAIC) Notice of Proposed Rulemaking, a proposal hailed by industry associations as the greatest improvement of general aviation in our lifetime;
- AVS issued 2,000 new Part 137 operating exemptions, enabling a significant increase in the use of drones performing dangerous agricultural tasks, reducing risk to human life;
- AVS reduced the time to register an aircraft from an average of six months to 29 days and reduced the airmen cycle time from 68 days to 28 days. Also, in response to a congressional mandate for Registry Automation, AVS launched CARES—the Civil Aviation Registry Electronic Services initiative. CARES updates the registry, enabling automated registry operations and providing a comprehensive information delivery system that will allow for the decommissioning of legacy infrastructure;
- AVS expanded the use of Safety Management Systems beyond regularly scheduled air carriers to include certificate holders operating under the rules for commuter and on-demand operations, commercial air tour operators, and certain design and manufacturing organizations;
- AVS successfully processed nearly 450,000 Airman Medical Certificate Applications, with over 53,000 Special Issuances; and
- AVS ensured industry compliance with the drug and alcohol testing programs by performing over 1,400 drug and alcohol inspections, adjudicating 226 voluntary disclosures, processing 545 program registrations, and responding to over 1,200 policy inquiries.
Strategic Priorities Driving Workforce Skills Needs

Several FAA strategic objectives drive how we assess AVS workforce needs. In September 2023, AVS determined three strategic priorities to guide our performance on the Agency directives. The priorities focus on organizational excellence, business operations, and people. This section describes each of the priorities to frame and inform the planning of our future workforce. These priorities are designed to function in an interrelated manner to produce useful synergies.

Organizational Excellence

As a learning organization, AVS strives to achieve operational excellence, relying on continuous improvement that is measurable, actionable, and far-reaching. We analyze our current state, identify opportunities for improvement, and take action to refine our operations. To create a balance between quality and an agile environment where employees are engaged, empowered, and aligned with AVS’s strategic direction, we determined several focus areas that underpin this priority:

Service & Responsiveness

Investment in a highly skilled workforce capable of delivering timely and top-quality service is an integral part of AVS’s commitment to providing exceptional, adaptable, and efficient service to both internal and external stakeholders. Responding to emerging risks from airframe production to air carrier operations, for example, requires a workforce that excels in their roles and remains deeply attuned to the evolving technologies and processes in the industry. Reducing the time to register an aircraft from an average of six months to 29 days is a prime example of how we met internal stakeholder expectations by pursuing a culture of proactive problem-solving, efficient communication, and agility. Workforce skills associated with this focus area include active listening, project management, and customer service.

International Leadership

The FAA’s mission to provide the safest, most efficient aerospace system in the world positions AVS as safety leaders in the eyes of other regulatory agencies. We foster collaboration with our international stakeholders to help them achieve their objectives and exchange best practices to harmonize our global safety standards. We will continue to strengthen our relationship with the global aviation community, integrating international perspectives into our own safety policies. AVS plans an increase in safety technical staffing to effectively support corporate international policies, communications, strategic analysis, planning, and implementation. Workforce skills associated with this focus area include geopolitical awareness, intercultural understanding, and collaborative decision making.


**Service Delivery Point**

AVS is committed to optimal stakeholder satisfaction with each service we provide, ensuring the right support from the start by thoroughly understanding the nature of each request before implementing a solution. Careful coordination and follow-through play central roles in this approach, aligning responsiveness and accountability in service delivery. We design efficient administrative processes to ensure that AVS technical experts focus on core responsibilities without the burden of non-technical tasks. Such a strategic approach to stakeholder satisfaction is how, over the past year, we were able to process nearly 450,000 Airman Medical Certificate Applications, with over 53,000 Special Issuances. Workforce skills associated with this focus area include reliability, problem solving, and goal setting.

**Business Operations**

AVS strives to operate efficiently, meeting its strategic priorities and consistently delivering high-quality products and services to stakeholders while effectively managing resources. This effort encompasses day-to-day activities from managing workflows and logistics to optimizing internal procedures and systems, contributing to overall mission success. The following two focus areas help us succeed in Business Operations:
Consolidation

Consolidation in business operations plays a central role in enhancing organizational excellence, eliminating duplicative efforts, and optimizing resource allocation. Streamlined processes reduce redundancies and allow employees to focus on meaningful core tasks and innovations, which, in turn, fosters engagement and boosts morale and productivity. This enables AVS to mature into a leaner, more focused, and adaptable organization capable of responding to changes with agility and excellence. Examples include: creating an Integrated Certificate Management Division to focus on transport airplanes and their engines to better communicate and integrate certification activities between FAA and aviation stakeholders; consolidating 12 offices into three certification branches; and realigning the Senior Technical Expert Program and the research and development functions into one office. Workforce skills associated with this focus area include modeling, organizing, and explaining.

Production Focus

AVS fosters the right balance between agility and efficiency by placing a higher priority on products over processes. In our pursuit to create effective products and services, we design lean but impactful processes, embracing simplicity without sacrificing quality results. AVS processes are well-defined but straightforward, focused on content without unnecessary complexities, ensuring consistency and quality without hindering adaptability and innovation. This production-focused approach enabled AVS to accomplish a major milestone in introducing eVTOL aircraft into the NAS by publishing a Notice of Proposed Airworthiness Criteria for three types of eVTOL aircraft. Workforce skills associated with this focus area include open-mindedness, flexibility, and simplification.

People

The AVS workforce is the cornerstone of organizational excellence, driving every aspect of our success. The knowledge, skills, dedication, and commitment of our people play a crucial role in ensuring consistent delivery of excellent service, which is imperative in achieving our safety mission. We foster employee engagement to inspire and motivate a more innovative workforce that can tackle the challenges of the future. AVS workforce needs to be adept in the development and consumption of quality data, which is the foundation for advanced analytics and the application of artificial intelligence. These capabilities are essential for effective and efficient safety management by enabling accurate forecasting, improved insights, and well-informed and agile decision-making. These focus areas help us achieve this strategic priority:
Leadership

Leaders play a crucial role in providing the vision and guidance necessary for AVS to realize its mission, define and communicate strategic priorities, and ensure that all efforts align with the Agency’s strategic objectives. Effective leadership, combined with a supportive and inclusive work environment, empowers individuals to reach their full potential by encouraging collaboration and nurturing a culture of continuous improvement. Examples of leadership as an AVS strategic priority include: the issuance of a supplemental policy to prevent ODA holder interference with ODA unit members and to facilitate open communication between unit members and the FAA; the leadership selection and hiring processes; and the leadership training offered in AVS. Workforce skills associated with this focus area include decisiveness, change management, and relationship-building.

Accountability

AVS is committed to a culture of accountability, ensuring our workforce is aligned with our strategic goals and priorities through clear communication up, down, and across the organization. AVS promotes a culture of transparency, integrity, and trust, which, in turn, motivates employees to deliver their best work and meet their commitments. Accountability plays a critical role in problem-solving and continuous improvement by identifying areas for growth and addressing issues promptly. An example of accountability as an AVS strategic priority is how we are leading the national effort to ensure the U.S. is well-positioned to achieve a high score in ICAO’s July 2024 audit of the U.S. to determine our capability to provide safety oversight and effectively implement ICAO standards. Workforce skills associated with this focus area include coaching, communicating expectations, and prioritizing.

AVS Strategy for Effective Use of Resources

At the close of FY 2023, AVS was at 98 percent of our enacted staffing target. Maintaining staffing levels with skilled and experienced personnel who have completed all onboarding training and are positioned to effectively deliver against job requirements is a delicate balance of sustaining a primed pipeline while anticipating attrition. Our commitment to efficiently detect and address the shifting demands of the aviation safety system requires a strategic approach to managing our staffing numbers across the AVS enterprise.

AVS is evaluating opportunities to streamline business operations and gain efficiencies. We are transforming the Office of Quality, Integration, and Executive Services into the Office of Business Integration to centralize and enhance how we provide financial and human capital services to our part of the Agency. Using risk-based analysis and decision-making will enable us to direct resources to critical needs. This would be achieved through attrition and repurposing of the open positions to address unmet high priority needs. In addition, AVS is working to evolve workforce modeling to enable sensitivity analysis across a greater breadth of variables, allowing for improved strategic planning.
SECTION 3
Forecasting AVS Workforce Needs

ASIs and ASEs constitute the majority of positions within AVS. As a result, forecasting and modeling concentrate on assessing the requirements for these positions. Although a smaller portion of the workforce, AVS also models and forecasts the demand for medical professionals. The AVS staffing model, in conjunction with more targeted assessments by each organization, assists the FAA in identifying staffing requirements for ASIs, ASEs, and medical staff.

The workforce continues to evolve as advances are made in the aviation safety environment. Using and improving established methods of workforce forecasting and modeling will ensure we continue to meet our obligations to promote and improve safety in the NAS.
AVS Staffing Analytics

AVS uses a data-driven model to perform the initial analysis of our staffing needs. The model is comprised of specialized modules that assess ASI, ASE, and medical staffing requirements within AVS. The model uses data inputs, such as historical work activities and work hours, as a baseline for future staffing requirements. AVS continues efforts to improve the staffing tool to better position the model for the future.

Data Quality

As with any software tool, the quality of analytical output is only as good as the data inputs. AVS has applied significant effort over the last ten years to improve the data quality of workload and work-hour tracking systems. With improved data, analysts have been able to:

- Identify and review actual working time for various ASI, ASE, and medical activities;
- Categorize activities;
- Identify and quantify the potential change in activities associated with staffing increases or shortfalls;
- Examine the relationship between activity categories and industry growth;
- Research training times for employees at different experience levels;
- Compare workload recorded in various oversight applications (i.e., the Safety Assurance System);
- Examine the year-over-year change in time spent per activity and estimate future workload;
- Quantify and project all work hours, including those spent on training, administrative activities, leave, and travel; and
- Examine the workload impact associated with designee oversight.
Historical Work Activities and Work Hours

The staffing tool modules all share the same general structure. Activities and work hours are classified and quantified by work type. The average time per activity referred to as the nominal time, is calculated annually by using hours recorded in the Labor Distribution and Reporting system and other appropriate oversight activity tracking systems.

Forecasting

The number of activities forecasted for the next ten years is based on their relationship to demand drivers. Where possible and applicable, FAA-produced forecasts are used to predict workload changes associated with industry growth. These forecasts are combined with field-level knowledge of expected workload changes.

The required modeled workforce is then calculated by multiplying the nominal time per activity by the number of forecasted activities for each year for ten years. The model determines the staffing levels that will be required if the same level of effort needed to support current activities is forecasted based on the growth or contraction of the current industry. The model results are reviewed and adjusted, if necessary, based on subject matter expertise to account for new industry efforts such as drones and the implementation of new automation applications.

The resurgence of the travel industry, further exacerbated by hiring in the rapidly growing advanced air mobility segment of the aviation industry, continues to sustain a highly competitive environment for talent acquisition for aviation organizations, including AVS. It is reasonable to expect such hiring pressures to continue in the coming years, thus presenting more challenges to AVS in hiring technical experts.

Ratio Methodology Used for Safety Technical Specialist and Operational Support Staff

For AVS, the number of safety technical specialist staff and operational support staff are forecasted using current and projected staffing ratios that compare managers and administrative support personnel to safety critical operational staff requirements. Safety technical specialist and operational support positions are projected to grow based on historical ratios to the ASI and ASE positions. As work activities and structural office dynamics change, we plan to review ratio-based positions in the future to determine if modifications to existing calculations are required.
Fusion of Inputs

Figure 2 depicts the different components of the analysis process. The figure shows which positions are determined by the AVS staffing tool, which are ratio-driven, based upon the staffing tool's outputs, and which positions are forecasted outside of the staffing model's process.
SECTION 4
LOOKING FORWARD

AVS is witnessing several key drivers that will shape its workforce over the next decade. Rapid technological advancements, the emergence of new types of aerospace operations, the constant evolution of the regulatory landscape, the growth of the aerospace industry itself, and latent system risks are compelling us to be in the best possible position to respond to these changes. We must continuously assess where expertise is needed.

Projected Staff by Staffing Category

Figure 3: Anticipated needs for safety critical, safety technical, and operational support staff in AVS for FY 2023 through FY 2033
Technological advancements are rapidly unfolding, introducing advanced materials for aircraft structures, systems, alternate fuels, airports, and airspace. These materials will be pivotal in designing and manufacturing various systems. Moreover, the industry will witness the integration of innovative electric and hybrid systems, diversifying propulsion methods. The aerospace sector will be significantly impacted by the widespread use of artificial intelligence, including technologies like machine learning, neural networks, and machine vision. These developments will overhaul various aspects of aerospace, from vehicle design to maintenance.

These groundbreaking changes will pave the way for novel aerospace vehicles capable of operation at supersonic speeds, suborbital and orbital profiles, and highly or fully automated flight.

In view of these rapid advances in types of operations, vehicle design, and materials, AVS maintains a robust Senior Technical Experts Program (STEP) comprised of Chief Scientific and Technical Advisors, as well as Senior Technical Specialists whose technical disciplines span a wide range of safety and operational considerations. These disciplines include, but are not limited to, human factors, avionics, composites, cabin safety, flight meteorological effects, and software.

The regulatory landscape will also undergo continuous evolution as we seek to strike a balance between safety and innovation for a diverse range of operators. It will demand expertise in areas such as spectrum allocation, medical assessment, environmental impact measurement, sustainability, understanding new complex business models, and assessment of growing reliance on outsourced aircraft maintenance and growth in numbers of certified repair stations.

The AVS workforce faces a growing number of tasks as the aerospace industry expands. According to the FAA Aerospace Forecast Fiscal Years 2023–2043 released on May 8, 2023, a 3.5 percent increase in the active General Aviation fleet between 2023 and 2043 is predicted. Additionally, the FAA anticipates that the recreational small drone fleet will grow from its current 1.69 million units to approximately 1.82 million units by 2027, resulting in a cumulative annual growth rate of 1.6 percent during 2022-2027. AVS expects a future need for increased staffing to support the work resulting from the anticipated increase in the number of small drones and from enabling more complex operations through the implementation of new rulemaking to normalize UAS Beyond Visual Line of Site Operations.

This growth impacts the AVS workforce through various means, such as expanding manufacturer and operator SMS capabilities to meet Safety Risk Management demands, increased demands for medical special issuances, ongoing supply chain disruptions that necessitate safety scrutiny due to downstream effects on aircraft manufacturing and maintenance, and the introduction of new market segments like Advanced Air Mobility, all of which affect the AVS workforce.
These four dynamic drivers of change necessitate advanced expertise in both legacy and new concepts in engineering, mathematics, science, and safety management.

To address these anticipated workforce needs, AVS forecasts staffing needs, estimated levels of attrition, and planned hiring over the next ten years (FY 2024 to FY 2033).

Total AVS Workforce with Planned Hires and Estimated Losses

Figure 4: FY 2023 actual staffing level, actual hires, and actual losses, as well as planned staffing levels, planned hires, and estimated losses for FY 2023 through FY 2033 for AVS Operations personnel

As shown in Figure 4, in FY 2023, AVS hired 544 FTP positions, 14.1 percent lower than planned, to achieve 98 percent of the enterprise staffing target. While this did not significantly diminish our ability to execute the mission, challenges in finding qualified applicants continue to be an issue.

The planned hiring target of 654 FTPs in FY 2024 is driven primarily by the continued need to increase the safety critical and safety technical positions (see Figure 3) needed to enhance aviation safety oversight. Average annual hiring for FY 2024 through FY 2033 is forecasted at 547 positions, reflecting requirements related to certification and safety oversight reform and addressing significant industry growth and the rapid expansion of Urban Air Mobility (UAM), Optionally Piloted Aircraft (OPA), and support for Safety Management Systems implementation.
In FY 2023, 415 FTPs were lost due to net attrition, of which 268 were due to retirement. The projected average annual net attrition through FY 2033 is 400 FTPs, which is consistent with historical trends.

AVS continues to hire additional staff with expertise across a wide range of disciplines, such as, but not limited to, human factors, systems safety engineering, software engineering, manufacturing and industrial engineering, data analytics, mathematics, medicine, science, and safety management.

Detailed views into anticipated staffing requirements for safety critical, safety technical, and operational support personnel, as well as ASIs and ASEs, are presented in figures 4, 5, and 6.

**ASI² Forecast with Planned Hires and Estimated Losses**

Figure 5: FY 2023 actual staffing level, actual hires, and actual losses, as well as planned staffing levels, planned hires, and estimated losses for FY 2024 through FY 2033 for all ASIs in AVS

²ASIs are 1825 occupational series in FS and AIR
Table 1 reflects the number of non-supervisory ASIs by functional area, comparing the actuals on board at the end of FY 2023 to the modeled staffing projections for the 2024 and 2025 fiscal years.

<table>
<thead>
<tr>
<th>Non-Supervisory ASIs by Functional Area</th>
<th>FY23 Actuals on Board</th>
<th>FY24 Forecast</th>
<th>FY25 Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Aviation Safety Assurance</td>
<td>1,730</td>
<td>1,798</td>
<td>1,809</td>
</tr>
<tr>
<td>Air Carrier Safety Assurance</td>
<td>1,014</td>
<td>1,074</td>
<td>1,080</td>
</tr>
<tr>
<td>Other Manufacturing</td>
<td>175</td>
<td>199</td>
<td>199</td>
</tr>
<tr>
<td>Large Transport Manufacturing</td>
<td>33</td>
<td>37</td>
<td>38</td>
</tr>
</tbody>
</table>

Table 1: The number of non-supervisory ASIs by functional area

Figure 6: FY 2023 actual staffing level, actual hires, and actual losses, as well as planned staffing levels, planned hires, and estimated losses for FY 2024 through FY 2033 for all ASEs in AVS

ASEs include all 800 (8XX) occupational series in AIR
Recruiting and Retaining a Skilled Workforce

AVS requires a skilled workforce to deliver on the Aviation Safety mission. Our inspectors, scientists, and medical officers, who make up a large part of the workforce, must have significant experience to meet the qualification standards. AVS also needs skilled data scientists, analysts, engineers, human factors, and others with varying levels of experience, allowing for recruitment of professionals at different points in their career path, including those just entering the workforce. AVS has a robust recruitment strategy to reach skilled applicants from all communities.

As a result of workforce needs, the average age of AVS employees when hired is 46, and the current average age of AVS employees is 54. Attrition analysis shows that a low percentage of employees retire immediately upon becoming eligible, and there is no mandatory retirement age for AVS employees. Over the last two years, the average age at retirement for safety critical AVS personnel was 66, and for non-mission-critical personnel, it was 64. The chart below shows the historical rates of retirement with respect to the year of eligibility.

Figure 7: Forecasted percentage of AVS employees expected to retire during each year of retirement eligibility

![Retirement Behavior Profile Chart](chart.png)
In FY 2024, AVS will leverage knowledge gained through federal best practices for workforce development by assessing talent readiness, career desire, and development gaps while mitigating the potential loss of talent and experience. AVS continues to focus on building and maintaining a pipeline of skilled employees trained and prepared to take on increasing responsibility using recruitment, retention, and development initiatives, as detailed in the following sections.

Recruitment and Outreach

AVS must compete with private industry and other government agencies to recruit and retain experts from a specialized talent pool. The FAA recognizes the ongoing challenge of identifying and attracting talent into key safety positions, and we are pursuing a number of initiatives, activities, and incentives to do so.

The FAA’s recruitment efforts to attract experienced inspectors, scientists, and medical officers include promoting the AVS hiring incentives and flexibilities at professional conferences, career fairs, aviation events, and airshows. Another avenue is the use of social media. Both practices are used to reach a greater pool of experienced applicants nationwide.

Over the last fiscal year, AVS participated in twelve virtual recruitment events reaching 2,500 potential candidates to support the hiring of safety critical and safety technical positions, spanning all levels of required experience, with candidates at varying levels of their professional careers.
To ensure AVS is effective, we must invest in the workforce of the future – specifically, engaging with STEM programs in primary and secondary schools and colleges to encourage an interest in the aviation domain. This allows us to nurture the talent pool early and establish a pipeline to meet future workforce needs.

In FY 2023, AVS participated in 111 STEM/early outreach events reaching K-12 and collegiate students to broaden awareness of FAA/AVS and its STEM/aviation-related career fields and occupations. AVS also hosted the 7th annual AVS STEM Career Symposium for middle school, high school, and college students nationwide with a goal of fostering an interest in aviation careers. AVS’s STEM/Early outreach efforts directly support FAA’s strategic goal to enrich the FAA talent pool and support AVS efforts to build and foster a pipeline for the workforce of the future by coordinating efforts with internal and external partners to educate students about STEM/aviation-related careers and broaden awareness of FAA and AVS.

As part of AVS’s outreach to college students, in FY 2023, AVS launched the AVS College Exchange Program (CEP). The AVS CEP is designed to help college students gain academic credit for work experience. This semester-long program provides students with meaningful work and mentorship while establishing ongoing relationships to build their knowledge and foster interest in pursuing a career in AVS. It also provides students with a greater understanding of how their studies fit into the AVS mission and potential career paths. AVS also offers student internships for undergraduate and graduate level students to promote interest in aviation. These efforts will help build a talent pipeline to increase the pipeline of qualified pilots and aviation mechanics across industry and government.
Currently, the primary recruitment and hiring vehicle AVS uses is the Office of Personnel Management’s automated hiring system, USAJOBS. AVS also uses applicable recruitment resources like the On-the-Spot hiring authority to expedite the process of hiring ASIs and ASEs, as well as physicians.

AVS continues to use the FAA’s Managerial and Employee Leadership Competency Profiles to correlate and define the required core competencies AVS needs for interpersonal, business, and specific technical skills. This model allows us to compare the competencies of employees against the requirements of positions across AVS.

Retention

We strive to be a workplace of choice to ensure that AVS retains talented employees. AVS will continue to promote a professional and safe work culture that encourages innovation, empowerment, and growth. AVS senior leaders actively embrace their roles by promoting employee engagement through numerous interactions, education and advancement opportunities, and idea and knowledge-sharing efforts that join pertinent information with employee engagement.

Additionally, in alignment with ACSAA, AVS works closely with the unions to develop and implement a strategy to improve recruitment and retention. This strategy targets a wide group of technical employees, including engineers, safety inspectors, human factors specialists, chief scientific and technical advisors, and software and cybersecurity experts.
Compensation Incentives

To better compete with aviation industry recruitment, AVS offers a number of incentives, such as leave enhancements (included in job announcement), new hire pay flexibilities, telework, and degree completion programs.

In FY 2018, AVS introduced recruitment incentives for Operations ASIs, including higher entry-level employee salaries, such as Step 5 within the qualified grade level, to increase the pool of eligible applicants. Such recruitment incentives were in place in FY 2023 and will continue to be offered from January through June 2024. AVS expanded recruitment incentives for Operations ASIs and, wherever possible, extended them to other Aviation Safety specialties. In FY 2022 and 2023, AVS began offering a $10,000 relocation incentive (with one-year service agreement) to airworthiness applicants moving more than 100 miles to their new duty location who accepted hard-to-fill positions. Hard-to-fill positions are those that have taken longer than six months to fill from the date the vacant position was identified and approved.

In FY23, AVS continued to offer the $10,000 relocation incentive to all Operations ASIs, as well as the higher entry-level employee salaries (Step 5 within the qualified grade level). AVS began offering a new $25,000 recruitment incentive (with a three-year service agreement) to Operations ASIs who accepted hard-to-fill positions.

AVS continues to evaluate the use of incentives for other high demand skillsets.

Expanding Recruitment and Workforce

In the fall of 2022, the FAA published Flight Plan 21 (FP21), the Agency’s Strategic Plan for FY 2022-2026. FP21 focuses on four pillars — Safety, People, Global Leadership, and Operational Excellence — to build the 21st-century FAA. The People Pillar of this plan emphasizes the importance of recruiting and maintaining a diverse workforce of the future.

To support efforts to create a future pipeline of candidates, AVS works with the Office of Human Resource Management (AHR) to host student interns through the Minority Serving Institute Internship Program. AVS also holds STEM Career Symposiums to include middle, high school, and college students, featuring a variety of learning activities and speakers provided by internal and external stakeholders.

These practices facilitate the organization in attracting and hiring talented applicants from all backgrounds and communities and meeting future needs to create a workforce with the leadership, technical, and functional skills necessary to ensure the United States has the world’s safest and most productive aviation sector.
Workforce Training and Development

Training Goals

AVS regularly assesses skills and competencies we rely on to meet future needs, and where necessary, AVS locates or develops requisite staff and training resources. Understanding the FAA’s role as a regulator to manage risk and provide safety oversight, AVS maintains a well-trained workforce that supports learning and equal employment opportunity.

In order to sustain today’s required skills and develop tomorrow’s skills, AVS encourages professional development opportunities and provides employees with training. AVS training includes synchronous web-based virtual learning, where students and instructors are present at the same time; asynchronous web-based training, which is self-paced; and traditional classroom-based instruction.

While services and offices within AVS maintain their own mission-specific training programs/courses, these efforts align with and support AVS’s overarching workforce development program, which focuses on the development, delivery, and evaluation of specialized technical training. AVS workforce development goals include:

- Identifying training needs, continuing education, and recurrent training and requirements for inspectors, engineers, physicians, and other safety critical occupations;
- Providing training and professional development opportunities to fill any skill or competency gap and to enhance current performance;
• Continuing to use technology for training delivery as appropriate, such as virtual training platforms, training webinars, self-paced web-based training, adaptive learning, and mobile learning;

• Providing an Introduction to AVS course for all new hires, including a panel session with senior AVS leadership, to understand how roles in aviation safety contribute to the safety mission, AVS safety culture, the AVS Safety Management System, the Voluntary Safety Reporting Program, and creating a safe and professional workplace;

• Identifying training gaps for international knowledge and job functions and developing innovative training solutions to fill those gaps. To fill those gaps, two web-based training courses were launched in FY23; and

• Developing a human factors education program that addresses the effects of modern flight deck systems, including automated systems, on human performance for transport airplanes and the approaches for better integration of human factors in aircraft design and certification.

Initial Technical Training

Training provided to new safety critical operational staff varies across the different services and offices and ranges from one to 15 weeks, depending on specialty. For most employees, initial technical training is provided within the first 12 months of employment.

AVS requires all safety critical operational staff to attend onboarding training to introduce and familiarize employees with the AVS mission and values.

Employees with other technical specialties in AVS (e.g., drug abatement inspectors, air traffic safety inspectors, and rulemaking staff) receive structured, initial, technical training specific to their field of expertise.

Additional/Recurrent Technical Training

After employees complete the initial technical courses, AVS identifies additional training needs during annual calls for training requirements. These requirements are role-based and focused on competency. Supervisors work with their employees to determine what kind of training the employees need and when they need it. Inspectors, designee advisors, and flight test pilots are required to receive initial and recurrent training tailored to their particular job responsibilities.

Supervisors and their employees continually review training requirements to keep pace with changes in the aviation industry.
Foundational Skills and Managerial/Leadership Training

Of the 1,105 AVS executives and managers at the close of FY 2023, 398 are eligible for retirement, representing 36 percent of the management population. Within the next one to five years, another 314 will become retirement eligible, representing an additional 28 percent of the total current management population.

Like other positions within AVS, executives and managers are not required to retire immediately upon eligibility. However, it is important to build and maintain a pipeline of skilled employees who are trained and prepared to take on roles of increasing responsibility.

AVS strongly encourages participation in leadership development opportunities offered by the Agency, such as the Aspiring Managers Program for staff-level personnel aspiring to be managers, the Federal Executive Institute for all levels of management, and the Aspiring Senior Managers Program for high-potential senior managers.

The intent is to provide a standardized, comprehensive approach to hiring leaders at every level, which supports AVS’s culture of collaboration and organizational excellence. Additionally, AVS trains managers in effective communications via the Crucial Accountability course.
Funding

Staffing is the AVS organization’s largest cost. Because personnel compensation and benefits consumed more than 84 percent of the AVS FY 2023 actual expenditure, continuing to support these costs will be critical to the long-term sustainability of operations and ensuring the safety of the NAS. AVS requires specialized training and equipment as well as supplies, travel, and other non-payroll funding to perform the organization’s safety oversight and surveillance responsibilities effectively. AVS policy is to maintain an agile workforce that is not geographically constrained; is reliant on tools, equipment, and technology to operate in dispersed work areas; and is both trained and equipped to carry out the organization’s safety mission.

**Personnel Compensation and Benefits (PC&B) and Non-PC&B Shares**

![Chart showing percentage allotments for PC&B and Non-PC&B for FY 2016 to FY 2025]

Figure 8: Percentage allotments for PC&B, FY 2016 – FY 2025
SUPPLEMENTAL INFORMATION: APPENDIX
## APPENDIX: AVS STAFFING (Operations Appropriation)

<table>
<thead>
<tr>
<th>AVS Services and Offices</th>
<th>FY 2023 ACTUAL</th>
<th>FY 2024 REQUEST</th>
<th>FY 2025 REQUEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety Critical</td>
<td>4,066</td>
<td>4,156</td>
<td>4,160</td>
</tr>
<tr>
<td>Safety Technical</td>
<td>727</td>
<td>727</td>
<td>727</td>
</tr>
<tr>
<td>Operational Support</td>
<td>491</td>
<td>376</td>
<td>316</td>
</tr>
<tr>
<td>AIR</td>
<td>1,443</td>
<td>1,565</td>
<td>1,504</td>
</tr>
<tr>
<td>Safety Critical</td>
<td>1,122</td>
<td>1,217</td>
<td>1,227</td>
</tr>
<tr>
<td>Safety Technical</td>
<td>190</td>
<td>235</td>
<td>235</td>
</tr>
<tr>
<td>Operational Support</td>
<td>131</td>
<td>113</td>
<td>42</td>
</tr>
<tr>
<td>AAM</td>
<td>413</td>
<td>435</td>
<td>420</td>
</tr>
<tr>
<td>Safety Critical</td>
<td>142</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Safety Technical</td>
<td>230</td>
<td>242</td>
<td>242</td>
</tr>
<tr>
<td>Operational Support</td>
<td>41</td>
<td>43</td>
<td>28</td>
</tr>
<tr>
<td>AOV</td>
<td>129</td>
<td>133</td>
<td>129</td>
</tr>
<tr>
<td>Safety Critical</td>
<td>97</td>
<td>110</td>
<td>106</td>
</tr>
<tr>
<td>Safety Technical</td>
<td>25</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Operational Support</td>
<td>7</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>AQS/AVS</td>
<td>99</td>
<td>183</td>
<td>321</td>
</tr>
<tr>
<td>Safety Critical</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Safety Technical</td>
<td>51</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>Operational Support</td>
<td>23</td>
<td>107</td>
<td>245</td>
</tr>
<tr>
<td>ARM</td>
<td>34</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>Safety Critical</td>
<td>5</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Safety Technical</td>
<td>26</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Operational Support</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>AVP</td>
<td>85</td>
<td>118</td>
<td>142</td>
</tr>
<tr>
<td>Safety Critical</td>
<td>44</td>
<td>71</td>
<td>85</td>
</tr>
<tr>
<td>Safety Technical</td>
<td>38</td>
<td>41</td>
<td>50</td>
</tr>
<tr>
<td>Operational Support</td>
<td>3</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>AUS</td>
<td>88</td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>Safety Critical</td>
<td>12</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Safety Technical</td>
<td>45</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td>Operational Support</td>
<td>31</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>ODA</td>
<td>47</td>
<td>61</td>
<td>61</td>
</tr>
<tr>
<td>Safety Critical</td>
<td>34</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>Safety Technical</td>
<td>11</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Operational Support</td>
<td>2</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>AVS Grand Total</td>
<td>7,622</td>
<td>7,897</td>
<td>7,923</td>
</tr>
<tr>
<td>Safety Critical</td>
<td>5,547</td>
<td>5,787</td>
<td>5,811</td>
</tr>
<tr>
<td>Safety Technical</td>
<td>1,343</td>
<td>1,405</td>
<td>1,414</td>
</tr>
<tr>
<td>Operational Support</td>
<td>732</td>
<td>705</td>
<td>698</td>
</tr>
</tbody>
</table>

*As of Pay Period 20 ending on September 23, 2023*