



# US DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION AVIATION SAFETY WORKFORCE PLAN

# 2015

2016

2017

2018

2019

2020

2021

2022

2023

2024

## **[SCOPE OF REPORT]**

This is the FAA's eighth annual update to the Aviation Safety (AVS) Workforce Plan. The FAA issued the first comprehensive AVS workforce plan in March 2006. It provides staffing estimates for all of the FAA's AVS Services and Offices as well as actual onboard levels as of September 2014. This 2015 report incorporates changes in aircraft fleet and operations forecasts, inspector and engineer retirements and other factors.

To meet the requirements in the Consolidated Appropriations Act, 2014 (P.L. 113-76) and the FAA Modernization and Reform Act of 2012 (Public Law 112-95, Section 606(b)), the FAA has prepared an annual Aviation Safety Workforce Plan that:


- Provides the background for current staffing levels
- Describes the evolving aviation safety environment
- Provides an aviation safety inspector and aerospace engineer staffing forecast based on model results
- Forecasts expected attrition and specific hiring targets over a 10-year period
- Details strategies for meeting staffing needs through better management practices






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# AVIATION ENVIRONMENT 2014



	<b>Air Operator Certificates</b>	5,311
	<b>Active Pilots</b>	744,576
	<b>Air Agency Certificates</b>	5,911
	<b>Non-Pilot Air Personnel</b>	742,256
	<b>Airmen Medical Examinations</b>	378,187

For full source information, refer to Appendix 4: Aviation Safety Primary Stakeholders on page 43.



**Aircraft**

210,463



**Flight Instructors**

98,294



**Approved Manufacturers**

1,619



**Mechanics with Inspection Authority**

20,944



**Aviation Authorities, Other Countries**

416

# EXECUTIVE SUMMARY

The Federal Aviation Administration's (FAA) mission is to provide the safest, most efficient aerospace system in the world. In support of this mission, the FAA's Aviation Safety (AVS) organization sets, oversees, and enforces safety standards for any person or product that operates in the National Airspace System (NAS).

## **[INDUSTRY & TECHNOLOGY UPDATES]**

FAA continues to work toward transforming the NAS through the implementation of Next Generation Air Transportation System (NextGen) technologies and use of a Safety Management Systems (SMS) approach to address industry business changes, technological advances, and the need for greater global harmonization.

To stay aligned with these changes, AVS continues to forecast and manage changing workload demands.

## **UNMANNED AIRCRAFT SYSTEMS INTEGRATION OFFICE**

In January 2013, the Unmanned Aircraft Systems (UAS) Integration Office was established, consolidating resources from AVS and the Air Traffic Organization (ATO) to create an FAA focal point for

UAS responsibilities. The UAS Integration Office, within Flight Standards (AFS), is the single advocate for regulations, policies, and procedures for UAS.

The FAA created the UAS Integration Office to facilitate the safe and efficient integration of UAS into the NAS. Toward that goal, the FAA is collaborating with a full spectrum of stakeholders including manufacturers, commercial vendors, industry trade associations, law enforcement and first-responder agencies, technical standards organizations, academic institutions, research and development centers, governmental agencies, and other regulators.

The UAS Integration Office is responsible for developing regulations, policy, procedures, guidance material, and training requirements to support safe and efficient UAS operations in the NAS. It is working collaboratively with other departments and agencies to address related areas of concern such as privacy and national security. Today, the FAA typically gives UAS access to airspace through the issuance of Certificates of Waiver or Authorization (COA) to public operators and special airworthiness certificates in the experimental and restricted category to



# AVIATION SAFETY PROMOTES THE SAFETY OF THE WORLD'S LARGEST, MOST COMPLEX AVIATION SYSTEM BY REGULATING AND PROVIDING OVERSIGHT OF THE CIVIL AVIATION INDUSTRY.

civil applicants. For example, Air Certification (AIR) has issued approvals for research endeavors such as Pathfinder, currently operating in the Arctic Circle. The use of COAs and special airworthiness certificates will transition to more routine integration processes as the FAA puts new or revised operating rules and procedures in place and as UAS prove capable of complying with these rules and procedures.

The process of developing regulations is resource-intensive. To establish and evolve the appropriate UAS oversight framework, the FAA will need to review and revise many policies, guidance, and rules to specifically address UAS integration into the NAS. UAS technology and operations will also need to mature and new products may be required to meet applicable regulations and standards.

## **[STAFFING]**

AVS continues to recruit, hire, and retain highly-qualified safety professionals who have the necessary technical and analytical skills to meet the safety mission. In FY 2014, the enacted staffing level for AVS was 7,238, and AVS ended FY 2014 with a

staffing level of 7,025. The FY 2015 staffing level for AVS remains at 7,238 positions.

## **[ATTRITION]**

In FY 2014, AVS lost 487 employees through attrition, including 89 positions due to a realignment of our Information Technology (IT) personnel to an agency-wide shared services structure.

Due to hiring delays, AVS was only able to hire 493 safety professionals. In FY 2014, the AVS attrition rate was approximately 7.2 percent, which reflects the realignment, resulting in a higher than average attrition that is not being forecasted into the out years. AVS forecasts attrition levels between 5.7 and 5.9 percent for FY 2015 and beyond.

## **[HIRING & TRAINING]**

AVS will continue to hire safety professionals and focus on providing appropriate training to take advantage of the workforce's diverse skill sets. By leveraging a combination of innovative mobile learning and traditional classroom-style instruction,

AVS is preparing its workforce to meet the demands of a dynamic aviation environment.

## **[SUCCESSION PLANNING]**

Since over 46 percent of its workforce is eligible to retire within the next five years, AVS continues to focus on building and maintaining a pipeline of skilled employees who are prepared to take on roles of increasing responsibility within the organization.

# UNDERSTANDING AVS WORKFORCE: WORKFORCE COMPOSITION

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# 2014 HIGHLIGHTS

OFFICES IN OVER

80

LOCATIONS

OVER

7,000

EMPLOYEES

USES NEARLY

10,000

DESIGNEES

73%  
Safety Critical

13%  
Safety Technical

14%  
Operational Support

Percent population per staffing category



For full source information, refer to Appendix 4: Aviation Safety Primary Stakeholders on page 43.

# UNDERSTANDING AVS WORKFORCE

## WORKFORCE COMPOSITION

### [AVS MISSION]

Aviation Safety (AVS) promotes the safety of the world's largest, most complex aviation system by regulating and providing oversight of the civil aviation industry. The AVS workforce is responsible for:

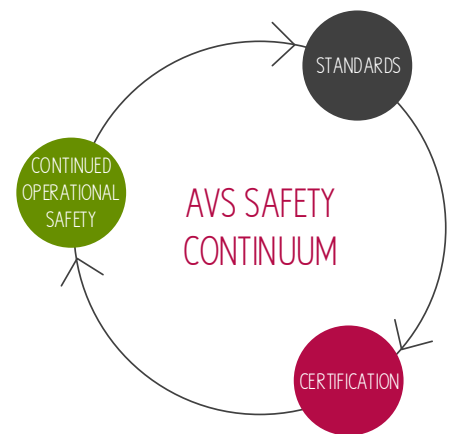
- Setting standards
- Certification
- Continued operational safety

### SETTING STANDARDS

AVS creates and amends the rules, regulations, policies, and associated guidance material that apply to people, organizations, and equipment operating in America's civil aviation system. AVS also develops aviation safety and certification standards and policies in collaboration with the aviation industry, other government agencies, international partners, and other Federal Aviation Administration (FAA) experts.

### CERTIFICATION

AVS determines compliance with safety standards and issues certificates based on these standards. AVS issues both initial certificates and renewals to airmen, airlines, engineering and manufacturing organizations, aircraft

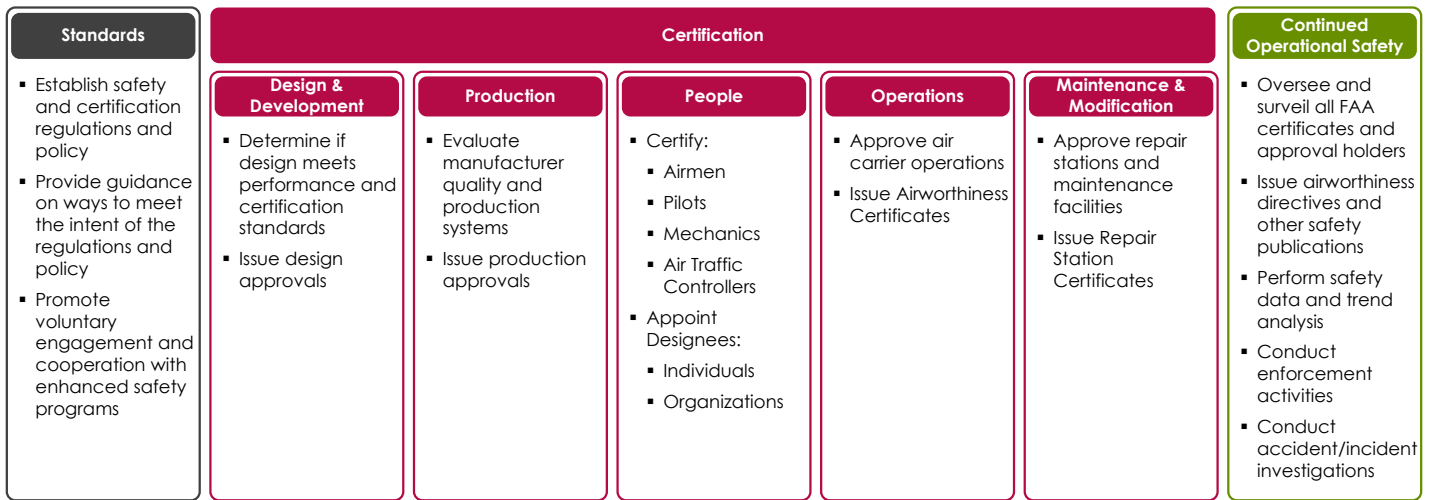


owners, aircraft repair stations, and repairmen. AVS also issues airworthiness approvals for aircraft, engines, propellers, and parts thereof.

### CONTINUED OPERATIONAL SAFETY

Through safety surveillance and oversight programs, audits, evaluations, education and training, research, and accident/incident investigations, AVS ensures existing certificate holders continue to meet the safety requirements, standards, and regulations of their original certification.

As shown in Figure 1, the AVS safety continuum encompasses every aspect within the lifecycle of an aircraft. From design through operation, AVS ensures that every entity certified to operate



**FIGURE 1: LIFECYCLE OF AN AIRCRAFT**

Figure 1 describes the AVS safety continuum and every aspect within the lifecycle of an aircraft.

within the NAS continues to meet safety standards.

## [CURRENT LANDSCAPE]

### STAFFING CATEGORIES

The AVS workforce is divided into three staffing categories each with its own distinct responsibilities.

#### Safety Critical Operational Staff

Safety Critical Operational Staff have a direct operational impact on the AVS safety mission. Their responsibilities include, but are not limited to:

- Monitor and enforce industry compliance with safety regulations through inspections, data analysis, risk management, or other means
- Certify aviation personnel, airlines, repair stations, training centers, and other air agencies
- Monitor and enforce Air Traffic Organization (ATO) compliance with safety standards
- Certify aircraft alterations, equipment, and avionics
- Monitor and enforce industry drug and alcohol testing programs
- Investigate accidents

#### Safety Technical Specialist Staff

Safety Technical Specialist Staff provide the support necessary for safety critical operational staff to efficiently and effectively do their jobs. These responsibilities include, but are not limited to:

- Evaluate and analyze effectiveness of existing AVS certification, regulatory, and compliance programs
- Develop new programs, activities, and methods for improved oversight activities and enhanced industry safety
- Implement new programs and revised approaches as directed by Congress, the Government Accountability Office (GAO), the Office of the Inspector General (OIG), the National Transportation Safety Board (NTSB), and other oversight organizations
- Design, develop, and deliver technical training curricula for safety critical operational staff
- Oversee and monitor AVS designee programs
- Provide information technology support
- Maintain airmen and aircraft

registries and the airmen medical certification system

- Guide development and publication of FAA rules and regulations through the rulemaking process

#### Operational Support Staff

Operational Support Staff perform functions such as planning, finance, and administration. They consist of all AVS personnel, including managers, in functions that are NOT classified as Safety Critical Operational Staff or Safety Technical Specialist Staff.

## [AVS SERVICE AND OFFICE PROFILES]

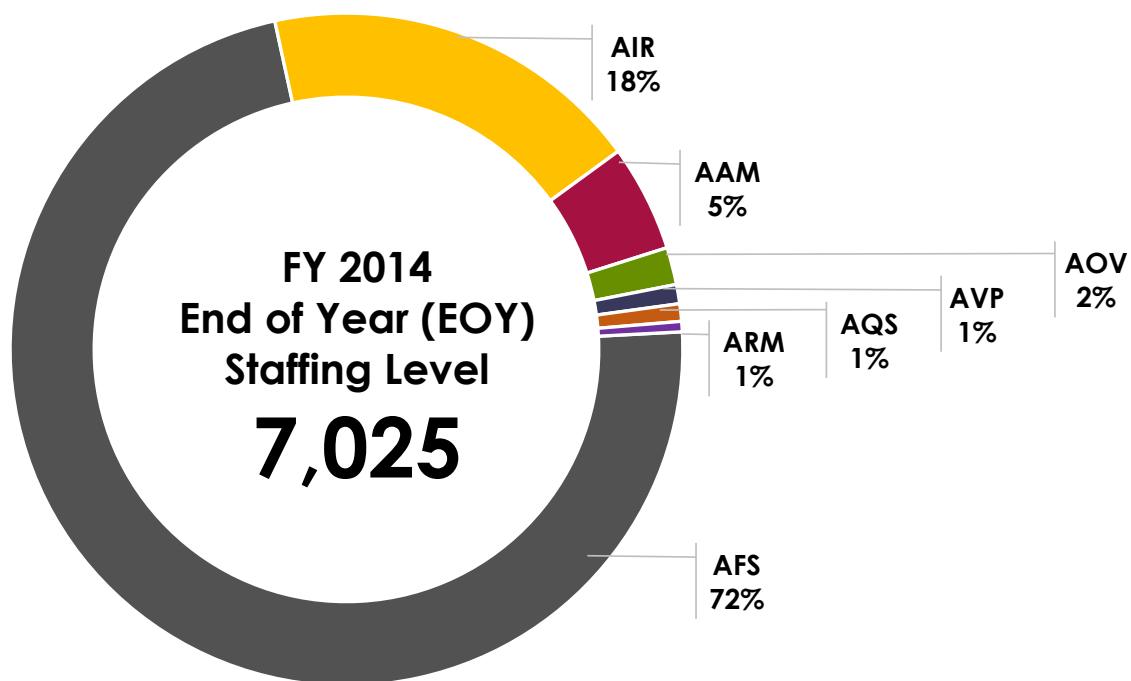
AVS serves the aviation community by promoting safety on all fronts, providing a breadth of services from setting regulations and standards to issuing various certifications. The AVS workforce is dispersed between seven Services/Offices located domestically and abroad. The population distribution charts shown in the following section represent FY 2014 workforce.

### Services

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

### Offices

- Aerospace Medicine (AAM)
- Accident Investigation & Prevention (AVP)
- Rulemaking (ARM)
- Quality Integration & Executive Service (AQS)



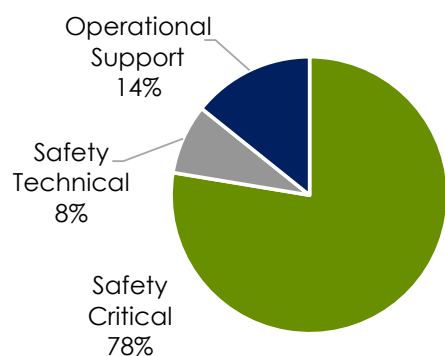
**FIGURE 2: FY 2014 AVS POPULATION**

Figure 2 displays the composition of the Aviation Safety Workforce by Services/Offices.

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**SERVICE/OFFICE****DESCRIPTION**

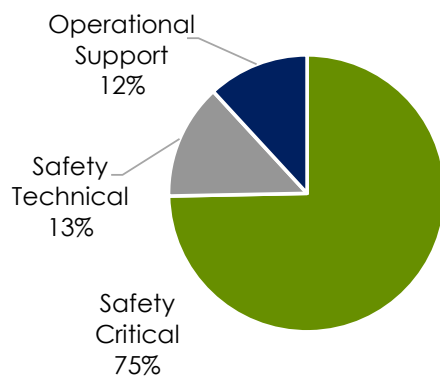
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**Flight Standards (AFS) [72%]**

The Flight Standards Service promotes safety in air transportation by setting the standards for certification and oversight of airmen, air operators, air agencies, and designees as well as safety of flight of civil aircraft in air commerce by:

- Setting regulations and standards that consider the air carrier's duty to operate in the public interest at the highest possible degree of safety
- Setting regulations and standards for other air commerce, air agencies, and airmen at the appropriate level of safety in the public interest
- Accomplishing certification, inspections, surveillance, investigation, and enforcement activities
- Managing the system for registry of civil aircraft and all official airmen records

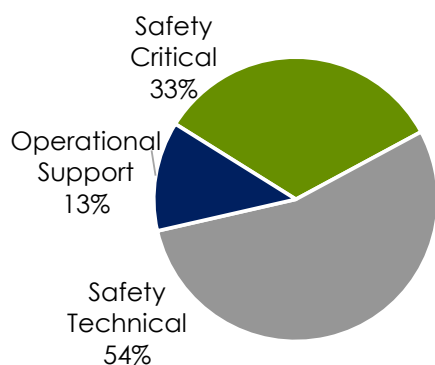
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**Aircraft Certification (AIR) [18%]**

The Aircraft Certification Service develops and administers safety standards governing the design, production, and airworthiness of civil aeronautical products. Their mission is supported by the following:

- Setting safety standards governing the design, production, and airworthiness of civil aeronautical products
- Overseeing design, production, and airworthiness certification programs to ensure compliance with prescribed safety standards
- Establishing and maintaining a safety performance management system for continued operational safety of aircraft and managing safety standards governing the design, production, and airworthiness of civil aeronautical products
- Providing oversight of approval holders, designees, and delegated organizations
- Working with aviation authorities, manufacturers, and other stakeholders to help them improve safety in the international air transportation system

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**Aerospace Medicine (AAM) [5%]**

The Office of Aerospace Medicine is responsible for a broad range of medical programs and services for both the domestic and international aviation communities and provides global leadership for Aerospace Medicine in the 21<sup>st</sup> century. It has the following responsibilities:

- Medical certification of airmen
- Airmen Medical Education and Training
- Inspection and oversight of aviation industry drug and alcohol testing programs
- Medical clearance of air traffic control specialists
- Drug and alcohol testing of FAA employees with safety-sensitive jobs and jobs requiring security clearances
- Aerospace medicine and human factors research
- Oversight of Aviation Medical Examiners

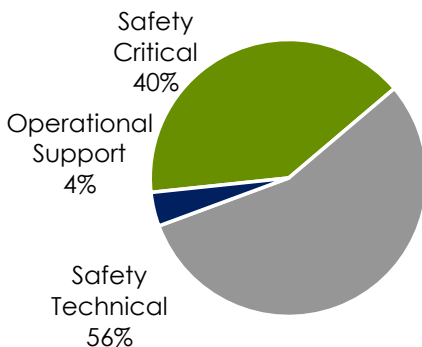
➤ AVS SERVES THE AVIATION COMMUNITY BY PROMOTING SAFETY ON ALL FRONTS, PROVIDING A BREADTH OF SERVICES FROM SETTING REGULATIONS AND STANDARDS TO ISSUING VARIOUS CERTIFICATIONS.

**SERVICE/OFFICE**

**DESCRIPTION**

**Air Traffic Safety Oversight (AOV)**  
[2%]

The Air Traffic Safety Oversight Service is responsible for ensuring compliance of the FAA's Air Traffic Organization (ATO) with safety standards and with its SMS. AOV's oversight of the ATO follows a systems safety approach for continued operational safety, SMS standards, and certification compliance. The organization's responsibilities include:



- Providing safety oversight of the ATO
- Approving the ATO SMS and monitoring the ATO for compliance with the approved SMS
- Reviewing and approving the ATO's safety implementation actions and risk management strategies
- Maintaining the credentialing program for ATO operational personnel
- Performing safety audits of ATO operations and system processes

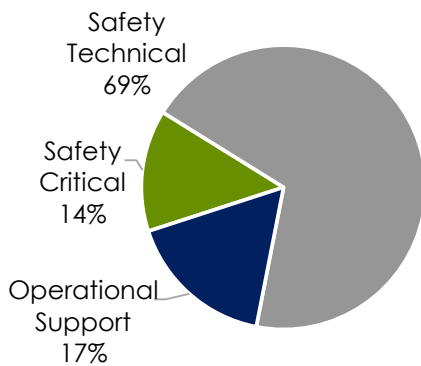
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**SERVICE/OFFICE****DESCRIPTION**

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**Accident Investigation & Prevention (AVP) [1%]**

The Office of Accident Investigation and Prevention investigates aviation accidents and incidents to detect unsafe conditions and trends, and to coordinate the corrective action process. Its overall mission is to make air travel safer through investigation, data collection, risk analysis, and information sharing. Its responsibilities within include:

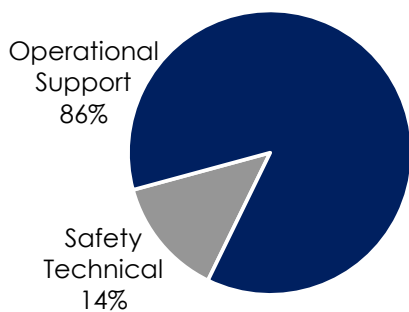


- Investigating major or significant accidents and incidents to identify safety deficiencies and unsafe conditions and recommend policy
- Coordinating with the responsible FAA office for evaluation and corrective action
- Analyzing accident and incident data and other safety data to identify safety issues and trends
- Addressing National Transportation Safety Board (NTSB) and internal FAA Safety Recommendations
- Leading and managing the Aviation Safety Information Analysis and Sharing (ASIAS) initiative, conducting data analysis and creating an environment to share data with government and industry to enhance safety
- Documenting and managing the US State Safety Program
- Leading SMS implementation efforts for the FAA and AVS
- Facilitating the identification of Significant Safety Issues (SSIs), the safety risk analyses of SSIs, tracking approved risk mitigations, and measuring safety performance within AVS, as well as FAA

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**Quality, Integration, & Executive Service (AQS) [1%]**

The Office of Quality, Integration, & Executive Services provides executive oversight and direction of consolidated management support services for all of AVS. AQS manages all phases of planning, financial management, information technology services, and administrative activities for the immediate office of the associate administrator. Its functions include:

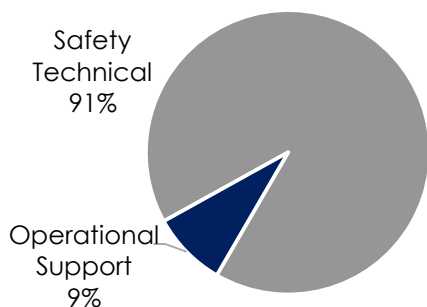


- Approving, overseeing, and facilitating integration initiatives among the AVS services and offices
- Overseeing the AVS quality management system
- Providing budget and labor distribution reporting management
- Providing planning and human resource management

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**Rulemaking (ARM) [1%]**

The Office of Rulemaking manages the FAA's rulemaking program, processes, and timelines through:

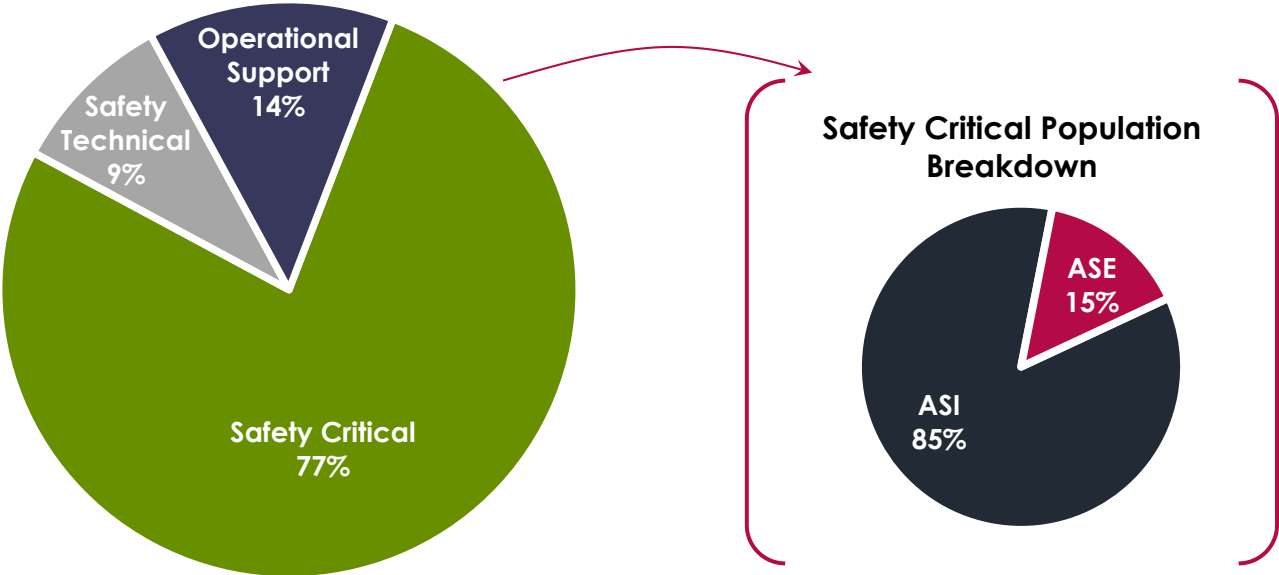


- Developing proposed and final rules, and managing responses to petitions for rulemaking
- Managing responses to petitions for exemption from regulatory requirements
- Overseeing rulemaking advisory committees that provide advice and recommendations on myriad aviation-related issues

**NARROWED FOCUS**

Flight Standards (AFS) and Aircraft Certification (AIR) services are the two largest entities within the Aviation Safety organization, representing 90 percent of the organization. Their workforces will be described in great detail within the report.

A large focus of this report will be on Aviation Safety Inspectors (ASIs) and Aerospace Engineers (ASEs) as these safety critical positions make up 77 percent of the personnel within the two Services.



\*Staffing Categories within AFS and AIR

**FIGURE 3: AFS AND AIR STAFFING CATEGORIES**

Figure 3 illustrates the significant proportion of safety critical positions within AFS and AIR for FY 2014. In addition, the figure displays the ASI and ASE positions comprising the safety critical population.



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**PROFESSIONAL DISCIPLINE****DESCRIPTION**

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**Aviation Safety Inspector (ASI)**

Aviation Safety Inspectors are responsible for the certification and surveillance of air carriers, aircraft manufacturers, and air operators in accordance with Title 14 of the Code of Federal Regulations (14 CFR). ASIs reside within AFS and AIR where their specific responsibilities are as follows.

## AFS ASI responsibilities:

- Work within the aviation community to promote safety and enforce FAA regulations
- Provide oversight of aircraft operators, pilots, flight attendants, dispatchers, flight and maintenance schools, and maintenance facilities
- Develop FAA rules, policy, and guidance for operations, maintenance, and avionics-related issues (ASI headquarters level responsibility)

## AIR ASI responsibilities:

- Administer and enforce safety regulations and standards governing the production, airworthiness, and continued operational safety of aircraft, aircraft engines, propellers, and parts
- Provide oversight of approval holders, designees and delegated organizations
- Ensure continued operational safety of aircraft

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**Aerospace Engineers (ASEs)**

Aerospace Engineers apply advanced engineering knowledge and experience in specific engineering disciplines such as airframe, systems and equipment (electronics/avionics, electrical or mechanical), propulsion, and flight test. A majority of ASEs reside in AIR and their responsibilities are:

- Administer safety standards governing design of aeronautical products
  - Evaluate designs for compliance with safety regulations and standards
  - Provide oversight of approval holders, designees and delegated organizations
  - Ensure continued operational safety of aircraft, engines and propellers
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# FORECASTING AVS NEEDS: LABOR PROJECTIONS

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# INDUSTRY HIGHLIGHTS

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49.6MIL

TAKEOFFS/LANDINGS<sup>+</sup>

740.2MIL

PASSENGERS  
ENPLANED<sup>++</sup>

434.8MIL

INTERNATIONAL  
PASSENGERS BY 2034\*

1.1%

ANNUAL GROWTH  
IN NUMBER OF  
COMMERCIAL AIRCRAFT\*

2.7%

ANNUAL INCREASE  
IN AIR CARRIER  
ACTIVITY\*

1.7%

FORECASTED GROWTH  
FOR TOTAL OPERATIONS  
AT LARGE HUB AIRPORTS\*

Information contained above provided by the following sources:

+Air Traffic Activity System (ATADS) database for total operations.

++Calendar Year (CY) 2013 Passenger Boarding (Enplanement) and All-Cargo Data for U.S. Airports

\*FAA Aerospace Forecasts Fiscal Years 2014-2034

# FORECASTING AVS NEEDS

## LABOR PROJECTIONS

### **[WORKLOAD IMPACTS]**

The type and amount of services provided by AVS is driven by aviation industry characteristics. These characteristics include but are not limited to the number of aircraft, types of aircraft (fixed-wing, helicopter, turbine engine, reciprocating engine, and unmanned aircraft systems), scheduled and on-demand operations, domestic and foreign operations, number of company employees, experience of employees, and location of operations and manufacturing facilities.

As the aviation industry continually adapts to economic conditions, AVS must likewise adapt to the situations and conditions that impact its workload. For instance, as operators, manufacturers, and suppliers change their business practices to gain competitive advantages by adjusting variables such as fleet size, fleet mix, maintenance/production location, manufacturing/certification tools/techniques, and operating stations, AVS must adapt alongside with new training, techniques, and tools to maintain a safe environment. In addition, as new technologies such as Unmanned Aircraft Systems (UAS) emerge, AVS must

be able to meet those growth demands for the foreseeable future.

AVS continues to focus its resources, tools, training, and techniques to meet the projected workload changes within the aviation industry. By focusing on the areas of highest risk through Safety Management System (SMS), and expanded use of designees, AVS is able to focus resources on continued operational safety workload demand.

Through the use of complementary tools and risk based decision making, AVS increases its data driven decision making practices to focus on the top priority of safety. Through these and the other efforts discussed in this plan, AVS supports the FAA Strategic Initiatives of ensuring the Workforce of the Future and Risk Based Decision Making.

### **RISK BASED DECISION MAKING**

The aviation landscape has changed over the last decade, and several factors in particular are introducing different types of safety risk into the aerospace system. These factors include new aerospace designs and technologies (e.g., Unmanned Aircraft Systems (UAS)), changes in the FAA's surveillance and oversight model (e.g., designee management programs), and

different business models for the design and manufacture of aircraft and products (e.g., supply chains).

The FAA has built the foundation to address these challenges by developing and implementing SMS that enables better informed decisions from a safety perspective.

This risk-based decision making initiative flows from these SMS components, builds on existing processes, and directly addresses the challenges faced by the FAA. The following sections provide more detail on SMS and other complementary tools that inform risk based decision making.

## SAFETY MANAGEMENT SYSTEM

SMS is a formal, comprehensive, process-oriented approach to managing safety throughout an organization. It has been adopted as a standard for managing safety activities throughout the international aviation community.

The overarching goal of an SMS is to improve safety by helping to ensure that the outcomes of any management or system activity incorporate safety considerations.

Safety is the FAA's top priority and, as such, AVS is leading the FAA in the integration of SMS principles across the organization.

An SMS includes organization-wide safety policy, formal methods for identifying hazards, processes for continually assessing and controlling risk and safety performance, and the promotion of a safety culture. Specifically, SMS consists of four main components: Safety Policy, Safety Risk Management (SRM), Safety Assurance, and Safety Promotion. These components work together to enable AVS to manage the safety risk in the aerospace system.

- **Safety Policy** – Establishes and documents senior management commitment to safety, defines safety objectives, and outlines the accountabilities and responsibilities of its employees with regard to safety.
- **Safety Risk Management** – A formalized method of safety-related hazard identification, risk assessment, risk analysis, and risk mitigation.
- **Safety Assurance** – Provides a means to ensure the performance

and effectiveness of safety risk controls; ensures that the organization meets or exceeds its safety objectives through the collection, analysis, and assessment of information.

- **Safety Promotion** – Establishes and maintains a positive safety culture through training and communication of safety information.

The implementation of SMS focuses on creating a more risk-based oversight system, allowing the FAA to more efficiently identify, address, and mitigate risk in the aerospace system and allocate resources to the areas of greatest concern. The SMS will build on existing processes, procedures, and tools, thereby enabling integration and interoperability across FAA lines of business (LOBs) and AVS Services/ Offices. It also allows for the introduction of new capabilities to meet the requirements in FAA Order VS 8000.367A, "Aviation Safety (AVS) Safety Management System Requirements."

## COMPLEMENTARY TOOLS

To meet the challenges of a changing aviation environment, AVS, alongside

other organizations within the aviation industry, must develop and implement advanced tools and techniques to assess and mitigate aviation risks. Several technological capabilities are currently being used, or implemented, by AVS that were developed to manage the risk of accidents. These include the Safety Assurance System (SAS), Aviation Safety Information Analysis and Sharing (ASIAS), Monitor Safety/Analyze Data (MSAD), Risk Based Resource Targeting (RBRT), and the Aerospace Medicine Safety Information System (AMSIS).

The **Safety Assurance System (SAS)** is an information technology (IT) system that supports the Safety Assurance component of the Flight Standards Service (AFS) Safety Management System (SMS). SAS supports a new proactive systems safety approach that will significantly improve the FAA's ability to identify and address hazards and safety risks before they result in accidents. The SAS oversight system is being designed, developed, and implemented under the System Approach for Safety Oversight (SASO) Program. The SASO Program improves, automates, and standardizes the FAA's Flight Standards Service (AFS) safety

oversight and inspection processes by implementing the International Civil Aviation Organization (ICAO) Safety Management System (SMS). SMS within AFS consists of four primary "pillars" or components: Safety Assurance (SA), Safety Risk Management (SRM), Safety Policy (SPO) and Safety Promotion (SPR).

**Aviation Safety Information Analysis and Sharing (ASIAS)** enables users to perform integrated queries across multiple databases of safety data, search an extensive warehouse of stored data, and display pertinent elements in multiple formats for efficient trend analysis. AVS expanded its ASIAS capabilities to aggregate and integrate safety information from across the aviation industry. By developing new analytical methodologies and leveraging state-of-the-art information technology, AVS and its industry stakeholders are able to identify emerging risks, establish baselines and trending capability using safety metrics, and monitor the effectiveness of implemented safety enhancements.

AIR uses the **Monitor Safety/Analyze Data (MSAD)** process and IT tool to analyze event-based safety data,

identify the appropriate response to significant events in support of continued operational safety, and detect trends that could lead to future events. The MSAD process helps us identify safety issues in in-service aircraft fleets and identify corrective actions to mitigate safety risks across the fleet. The process uses product-defined hazard criteria to pinpoint potential hazards from pools of safety data. With MSAD, AIR can better identify emerging safety trends through dependent variable analysis. In addition, MSAD establishes a causal analysis approach to identify the underlying contributing factors of significant events, such as process breakdowns, which are then communicated to the appropriate AVS oversight business process owner.

The **Risk Based Resource Targeting (RBRT)** process and IT tool assess risk and identify risk management options in order to establish work priorities and allocate resources. It is a sub-process used in other AIR business processes such as type and production certification, certificate management, and designee management. This process establishes risk thresholds that provide a consistent approach for AIR

## FIGURE 4

Figure 4 explains the tasks performed by designees, delegated organizations, and check airmen on behalf of FAA.

### DESIGNEES & DELEGATED ORGANIZATIONS

- 1** DESIGNEES AND DELEGATED ORGANIZATIONS ACT AS REPRESENTATIVES OF THE FAA ADMINISTRATOR AUTHORIZED BY LAW TO EXAMINE, TEST, AND/OR MAKE INSPECTIONS NECESSARY TO ISSUE AIRMAN OR AIRCRAFT CERTIFICATES.
- 2** DESIGNEES ARE PRIVATE PERSONS (INDIVIDUALS) WHERE DELEGATED ORGANIZATIONS ARE AN IDENTIFIABLE UNIT OF TWO OR MORE INDIVIDUALS WITHIN AN ORGANIZATION PERFORMING THE DELEGATED FUNCTIONS ON BEHALF OF THE FAA.

### CHECK AIRMEN

- 1** THE ROLE OF CHECK AIRMEN IS TO ENSURE THAT THE FLIGHTCREW MEMBER HAS MET COMPETENCY STANDARDS BEFORE THE CHECK PILOT OR CHECK FLIGHT ENGINEERS RELEASE THE FLIGHTCREW MEMBER FROM TRAINING AND TO ENSURE THAT THE FLIGHTCREW MEMBER MAINTAINS THOSE STANDARDS WHILE REMAINING IN LINE SERVICE.
- 2** THERE ARE TWO TYPES OF CHECK AIRMEN, CHECK PILOT AND CHECK FLIGHT ENGINEERS.
- 3** A CHECK PILOT IS AN AIRMAN APPROVED BY THE FAA TO EVALUATE AND TO CERTIFY THE KNOWLEDGE AND SKILLS OF OTHER PILOTS.
- 4** CHECK FLIGHT ENGINEERS ARE AIRMEN APPROVED BY THE FAA TO EVALUATE AND TO CERTIFY THE KNOWLEDGE AND SKILLS OF OTHER FLIGHT ENGINEERS

involvement and prioritization decisions, allowing AIR to manage resources with a consistent understanding of the risks based on real-time data. RBRT provides a means to identify what activities warrant the assignment of FAA resources and allows us to make risk-based business and safety decisions.

The **Aerospace Medicine Safety Information System (AMSIS)** will provide a state-of-the-art aerospace medical information network that integrates critical medical information from a dispersion of national and international locations. The program re-engineers the Office of Aerospace Medicine (AAM) safety program business processes by deploying next generation information systems. It will enable AAM to analyze information to make risk-based policy decisions through an automated method of collecting, reviewing, and analyzing medical information for airmen and air traffic control specialists (ATCSs). The system will ensure timely and comprehensive access to data by reducing delays, thereby improving timeliness and accuracy while eliminating paper-based correspondence. AMSIS will also

enable collaboration within the aviation community, both domestic and international, as well as among personnel, designees, and applicants. Programs such as the Aviation Safety Knowledge Environment (ASKME), ASIAs, and NextGen require certification information on pilots, controllers, and safety personnel from within and outside of AVS. AMSIS will enable collaboration domestically with internal FAA programs and internationally among ICAO countries and will improve the timeliness of significant findings to address National Transportation Safety Board (NTSB) reports. AMSIS is currently projected for implementation in FY18.

Finally, FAA is developing a new **Hazard Identification, Risk Management and Tracking (HIRMT)** capability. AVS is leading this FAA-level effort to address the lack of a comprehensive capability to: categorize identified hazards using a consistent, systematic methodology; facilitate consistent organizational use of prescribed safety risk management and safety assurance processes; and track the status of hazard analysis and risk management efforts to provide an overall view of FAA and organizational

safety portfolios.

### Regulation and Certification Infrastructure for System Safety (RCISS)

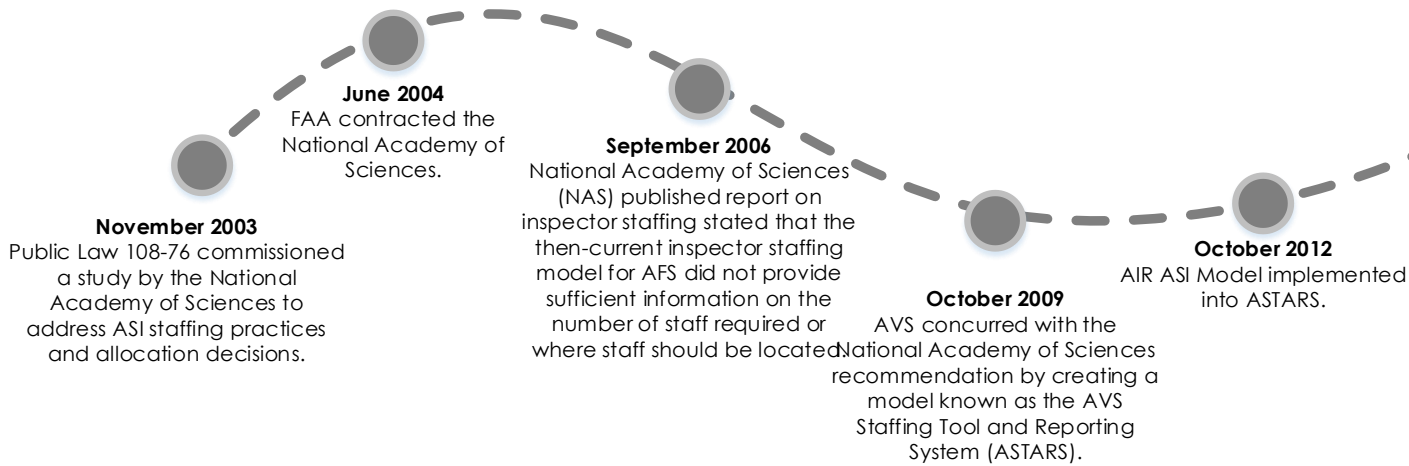
provides hardware and software capability for the complementary tools. These tools assist in prioritizing limited AVS resources based on changing workload demands.

### DESIGNEES AND DELEGATION PROGRAMS

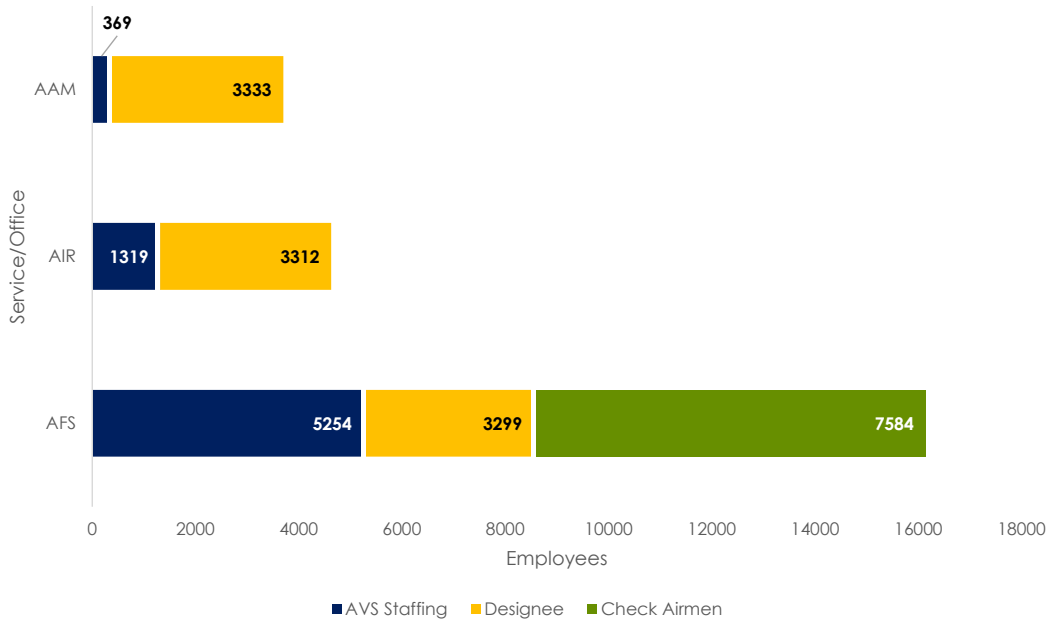
Designees and delegated organizations are vital to the FAA. Designees and delegated organizations are the private persons and organizations that AVS assigns a limited authority to perform functions on behalf of the Administrator. Through risk management, designees and delegated organizations enable the FAA to focus its personnel resources on the most safety critical issues. AFS, AIR, and AAM combined oversee nearly 10,000 designees or delegated organizations.

Figure 4 provides further explanation of tasks performed by designees, delegated organizations, and check airmen on behalf of FAA.

As the aviation industry grows, the FAA increases the numbers and types of designees to keep up with increased



**FIGURE 5: LEVERAGING THE AVS SAFETY WORKFORCE - FY 2015 PLAN**



NOTE: The AVS FY 2015 end of year workforce target is 7,238 employees. The above graphic does not include AOV, AVP, AQS, and ARM as these organizations do not have a delegated authority component.

workload enabling the FAA to better leverage federal resources to focus on efforts that cannot be delegated.

Figure 5 provides further detail on how AFS, AIR, and AAM leverage delegated authorities to offset workload.

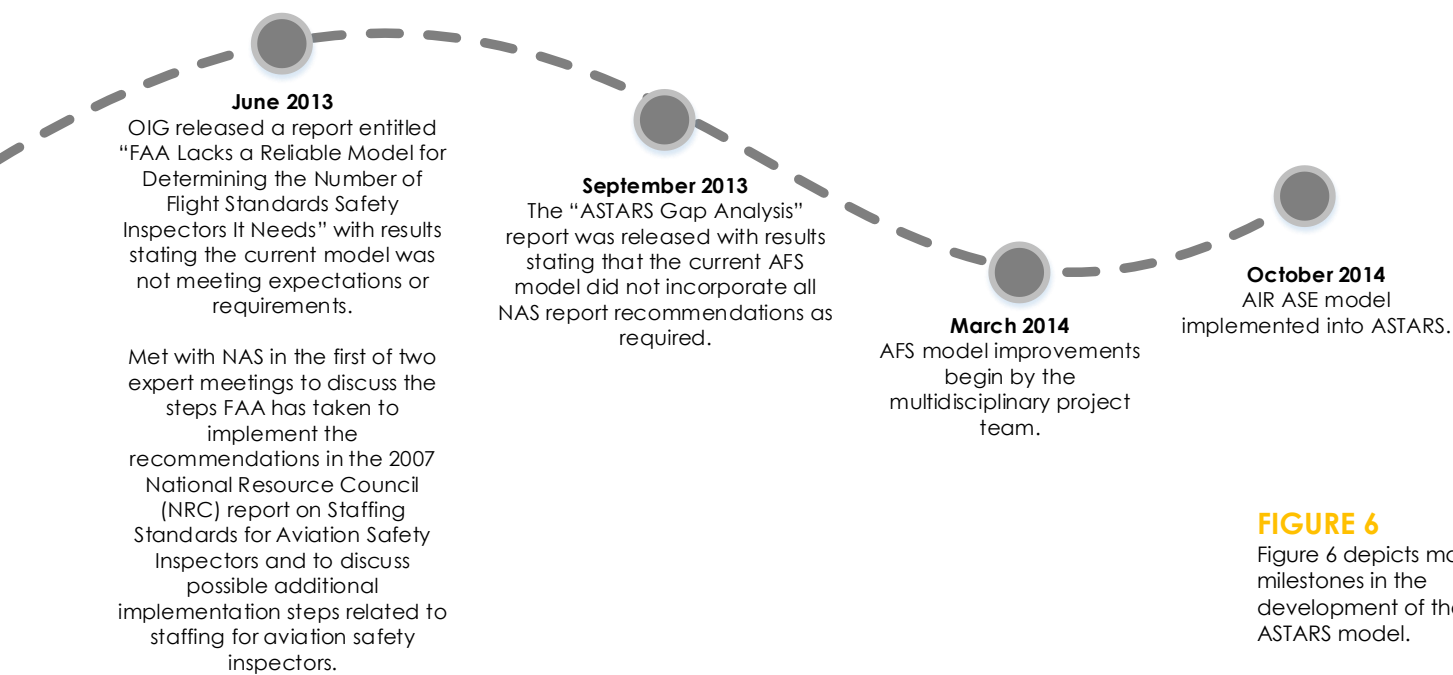
By expanding the number and types of designees, our role is being further transformed to monitor the performance of designees who perform the certification activities

rather than performing those activities ourselves. It is important for FAA to have the data, evaluative processes, and a well-trained staff to effectively monitor the designee program to ensure that goals are met and a positive impact on safety and efficiency are attained.

The model forecast for AVS responsibilities associated with designees is based on current policies and processes for approving and

oversight requirements. The ASTARS model (discussed in the next subsection) includes forecast of designee approvals and oversight responsibilities by employee at the current levels/rates applied for certification and supervision requirements. As the aviation system changes, the number of designees will change at the current rate/volume. As AVS implements and integrates Safety Management System principles and practices for oversight responsibilities





**FIGURE 6**

Figure 6 depicts major milestones in the development of the ASTARS model.

into its business processes, the number and location of designees may change at different rates/levels than currently forecasted by the ASTARS model.

**[FORECASTING MODELS & METHODS]**

**HISTORY OF THE ASTARS MODEL**

In November 2003, Public Law 108-76 commissioned a study by the National Academy of Sciences to address ASI staffing practices and allocation decisions. A September 2006 National Academy of Sciences published report on AVS staffing stated that the then-current staffing model did not provide sufficient information on the number of staff required. The report recommended that a new staffing model be developed. AVS concurred and created a model known as the AVS Staffing Tool and Reporting System (ASTARS) first released in October 2009.

In June 2013, OIG released a report entitled *FAA Lacks a Reliable Model for Determining the Number of Flight Standards Safety Inspectors It Needs* with results stating the current model was not meeting expectations or requirements.

In September 2013, the Office of Labor Analysis (ALA) commissioned an independent study, entitled *ASTARS Gap Analysis*, stating that the current model did not incorporate all NAS report recommendations as required. Recommendations not incorporated, referred to as gaps, provided the FAA with clear opportunities for model improvement with enhancement beginning March 2014.

**ABOUT THE ASTARS MODEL**

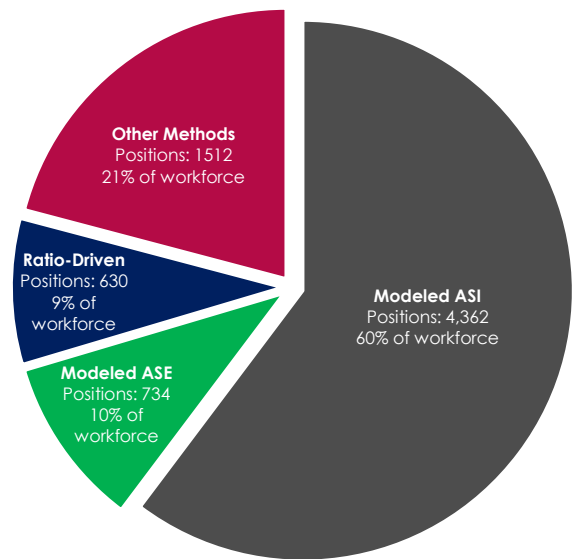
The ASTARS model is used as a tool to assist management in the process of identifying staffing requirements for inspectors and engineers. The ASTARS model is composed of two components, with an AIR section and an AFS section serving their respective workforces.

The AIR portion of the ASTARS model forecasts staffing levels needed to meet workload requirements associated with the design and manufacturing of aircraft and products. It is used to predict the staffing levels for the AIR ASI and ASE positions. The calculations are driven by several factors such as aircraft parts criticality, company experience and location, and other key components.

The AFS ASTARS Model predicts the staffing requirement of non-supervisory ASIs residing in Field District Offices (FSDOs) and Certificate Management Offices (CMOs) at the national level.

Both models share the same general structure. Total recorded LDR hours are divided by the total number of activities completed to determine an average time per activity, also known as the "nominal time." The number of activities expected to occur over the next ten years is then forecasted based upon a mathematically supported relationship to demand drivers, such as number of Passenger and Cargo Jets, which was determined through regression analysis.

The required workforce is then calculated by multiplying the nominal time per activity by the number of expected activities for each year for ten years. The model determines the staffing levels that would be required if the same level of effort shown today were forecasted based upon growth or contraction of the current industry. The current model does not account for new industry efforts for UAS or the implementation of new automation applications. Separate



**FIGURE 7: METHODS FOR FORECASTING POSITIONS WITHIN AVS**

Figure 7 explains methods used to calculate various staffing forecasts within AVS. Information shown represents forecasts for FY 2015. ASTARS serves as the foundation for the modeled forecasts.

estimates must be added to the existing model results to account for introduction of new types of workload.

**MODEL TRANSPARENCY AND DATA QUALITY IMPROVEMENTS**

Model improvement opportunities have been the focus this fiscal year and will be for future fiscal years for the multidisciplinary project team. With a focus on data quality, the project team continues to take steps to enhance the inputs, assumptions, and calculations used to deliver a defensible, transparent model result used to determine staffing needs for ASIs and ASEs.

In addition to model improvements, AVS continues to make strides towards improving data quality as it expands its use of Labor Distribution Reporting (LDR) data. The time measurements provided by LDR are important as this data is the agency source for the effort required to complete a work activity. As LDR data continues to improve, the project team aligns forecasting indicators to predict the work activity counts required by ASIs and ASEs each year for ten years.

Because of the LDR improvement efforts over the past four years, the

ASTARS model can now rely upon actual recorded time per inspection rather than survey responses or estimates. Inspector and Engineer work products are reported annually and forecasted using indicators aligned with LDR work hours to assist AVS in identifying staffing requirements.

AVS is continuing to improve data quality and the identification of products and services completed below the national level. The identification and analysis of inspector and engineering workload activities completed within the model is an ongoing effort with initial forecast available by FY 2016. As AVS expands the ASTARS models capability to provide information at more granular levels, processes and procedures are being developed and incorporated by the program team to ensure data integrity.

**RATIO METHODOLOGY USED FOR SAFETY TECHNICAL SPECIALIST AND OPERATIONAL SUPPORT**

For both AIR and AFS, the safety technical specialist and operational support workforces are forecasted using historic staffing ratios that

compare managers and administrative support personnel to safety critical staff requirements. Safety technical specialist and operational support positions are projected to grow based on historical ratios to the ASI and ASE positions.

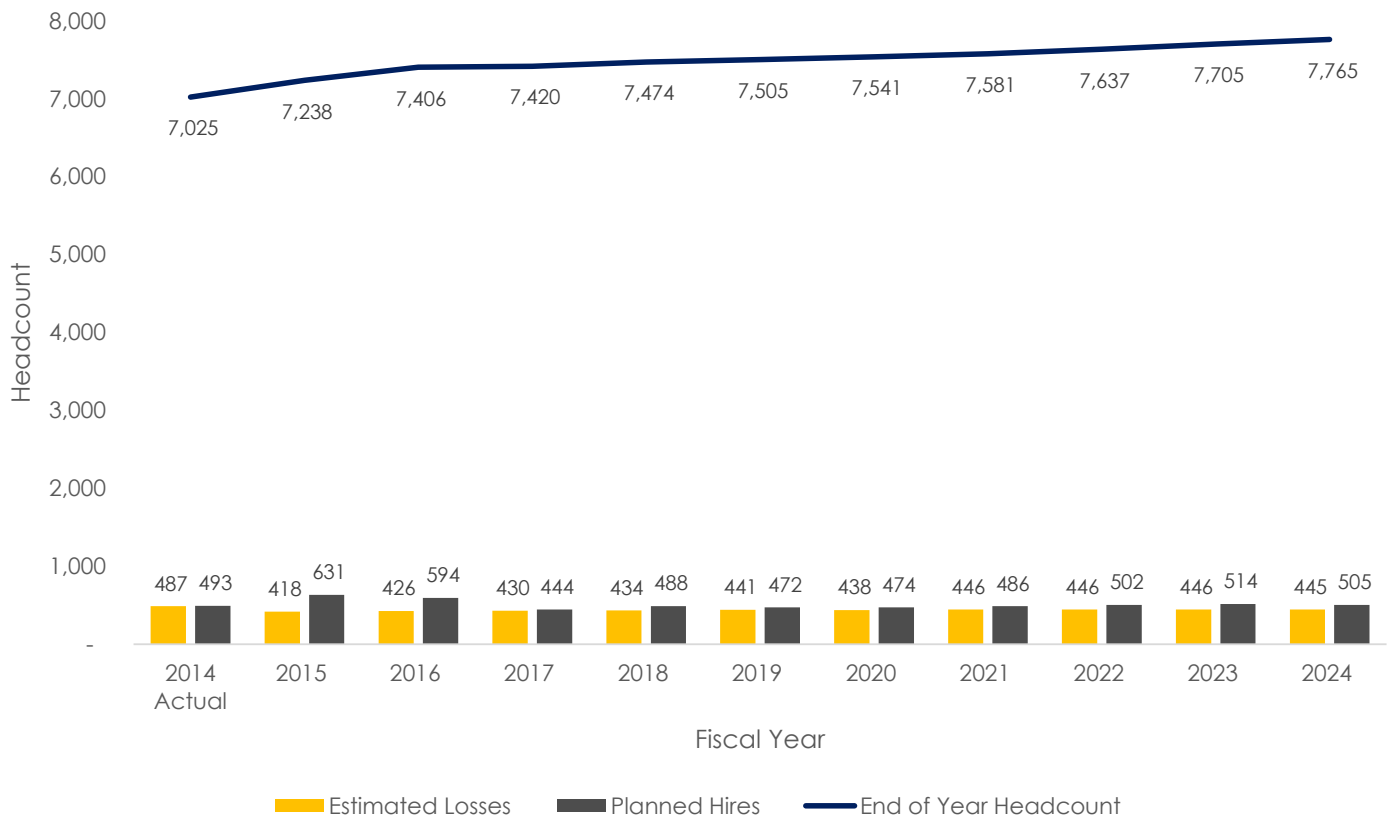
Figure 7 shows which positions are determined by ASTARS, which are ratio-driven based upon ASTARS outputs, and which are forecasted outside of the ASTARS process. This figure reflects which method is used to calculate various staffing forecasts within AVS. Forecasts of ASI and ASE positions are generated by the ASTARS staffing models and together comprise 70 percent of all AVS staffing. An additional 630 positions are Safety Critical Operational Staff derived as a ratio of the ASTARS forecasts. The remaining 1,512 positions are determined independently of the ASTARS model.

**MANAGERIAL INPUT**

As the ASTARS model and data quality continue to be enhanced, it should be kept in mind that the ASTARS model is not the sole determinant for the staffing level decisions each fiscal year. The ASTARS model is a tool used to provide managers with macro-level

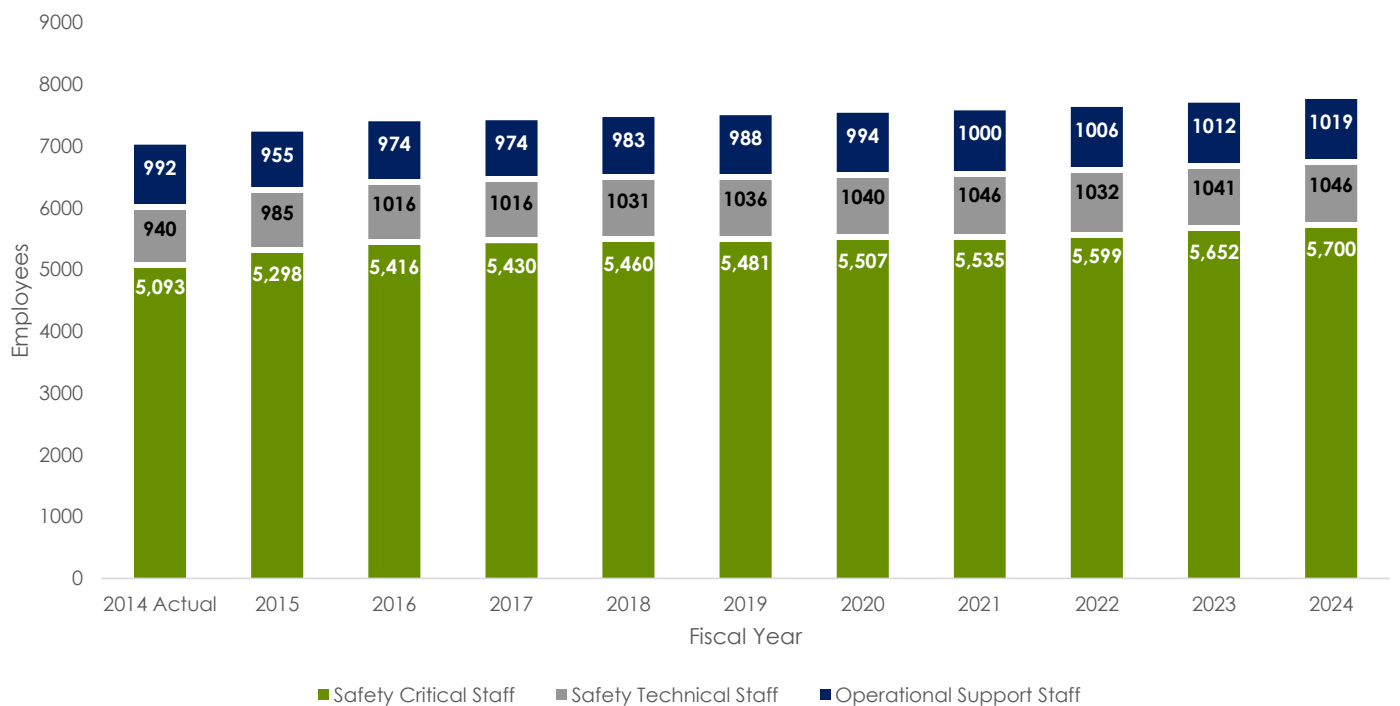
### FIGURE 8: TOTAL AVS FORECAST WITH ESTIMATED STAFFING LOSSES AND PLANNED HIRES

Figure 8 shows FY 2014 actual staffing levels, as well as the FY 2015 enacted level and out-year projected staffing levels through 2024. The staffing target for FY 2015 is 7,238 with estimated growth to 7,765 in FY 2024.



### FIGURE 9: PROJECTED STAFF BY STAFFING CATEGORY

Figure 9 illustrates the anticipated needs specifically for safety critical staff, safety technical staff, and operational support staff.



resource guidance. For instance, the ASTARS model forecasts out-year (beyond 2016) staffing levels for AFS Inspectors, AIR Inspectors, and AIR Engineers. The macro-level resource guidance is further refined with expertise and judgment from field managers, division managers, executive management, and subject matter experts to finalize staffing decisions.

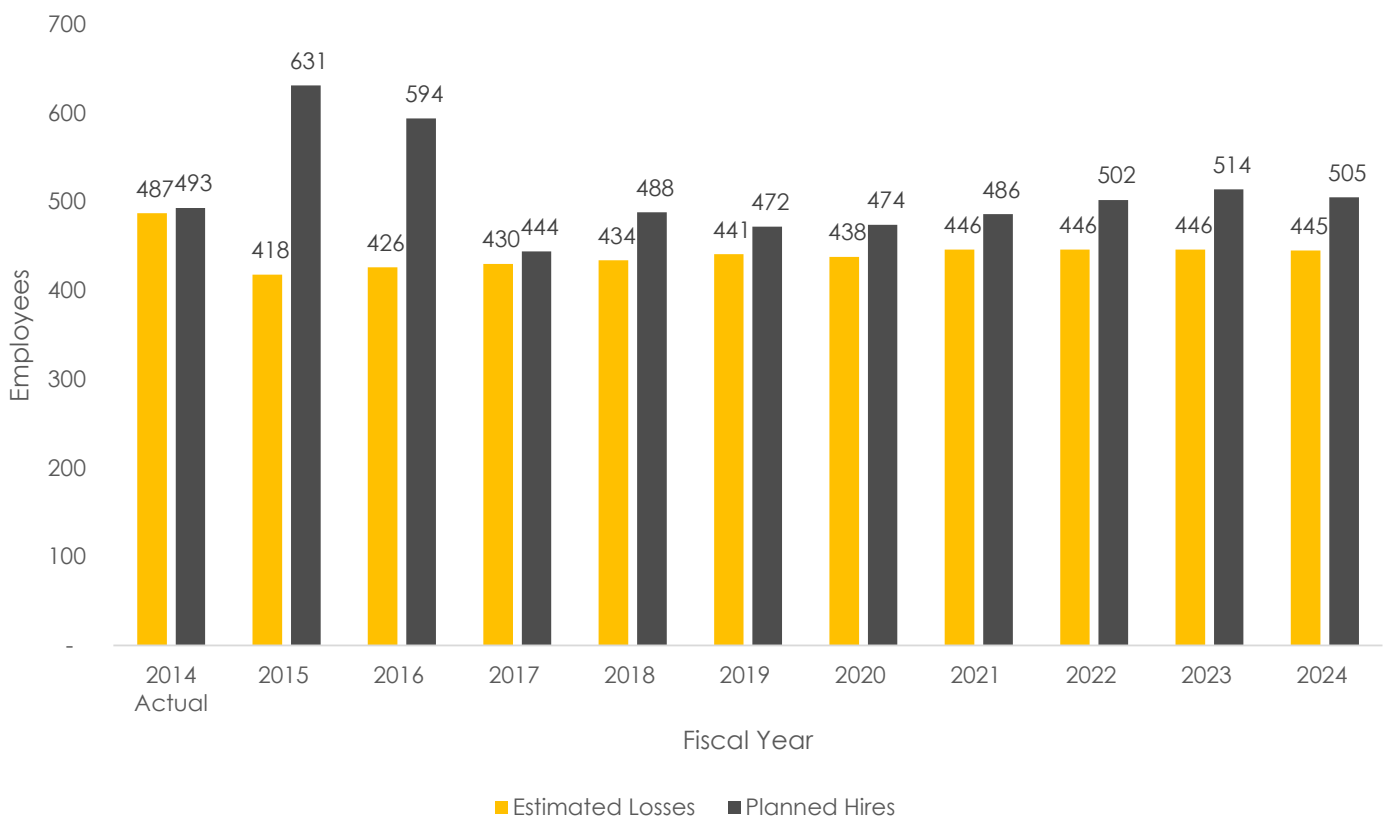
### **[FORECAST OF ANTICIPATED WORKFORCE NEEDS]**

This section provides anticipated workforce needs, estimated levels of attrition, and the planned hiring for AVS from FY 2015 to FY 2024. FY 2014 is provided in each figure to illustrate end-of-year actual levels. A detailed view into anticipated staffing requirements for safety critical and

operational support personnel, as well as aviation safety inspectors and aerospace engineers is also presented below.

Figure 10, AVS Projected Staffing Losses, projects estimated losses due to natural attrition, retirements, net transfers, and other losses. In FY 2014, actual losses were 487, including 89 positions transferred out due to a one-time realignment of our Information

**FIGURE 10: AVS PROJECTED STAFFING LOSSES AND PLANNED HIRES**



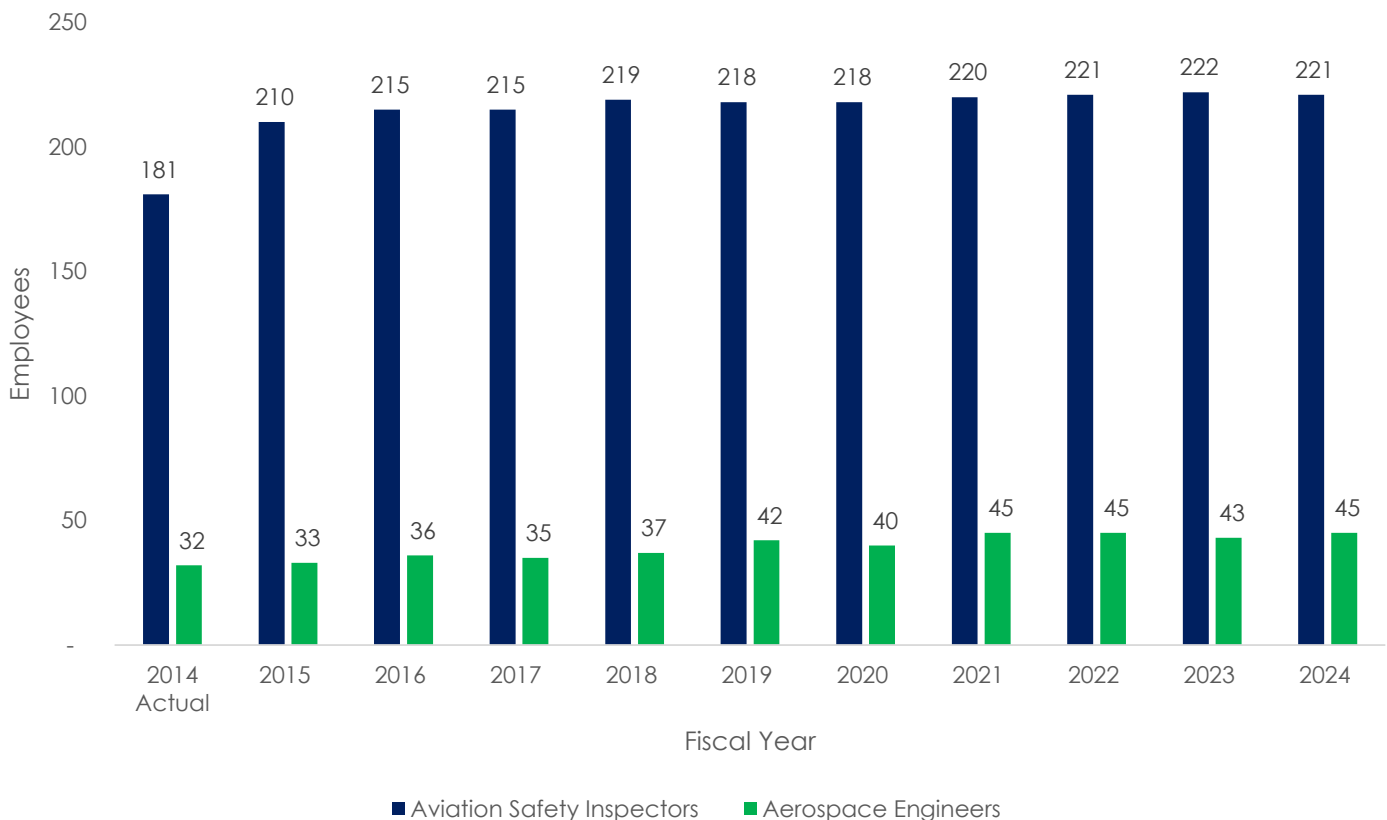
Technology (IT) personnel to an agency-wide shared services structure. The projected average annual loss is 437 for FY 2015 through FY 2024.

The figure also illustrates planned hires for the AVS workforce over the next 10 years and compares FY 2014 actual data with FY 2015 and out-year projections.

In FY 2014, actual hires were 493, and the projected average annual increase in staffing is 1.0 percent for FY 2015 through FY 2024, based on methodologies discussed in Forecasting Models and Methods.

Figure 11, shown on page 29, illustrates anticipated staffing attrition for the two largest AVS workforce components, ASIs and ASEs.

**FIGURE 11: AVIATION SAFETY INSPECTOR/AEROSPACE ENGINEER - ESTIMATED STAFFING LOSSES**



# LOOKING FORWARD: WORKFORCE DEVELOPMENT

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# FORECASTING THE FUTURE

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511

PROJECTED AVERAGE  
ANNUAL HIRES  
(FY 2015 - FY 2024)

437

PROJECTED AVERAGE  
ANNUAL LOSSES  
(FY 2015 - FY 2024)

7,765

PROJECTED FY2024  
WORKFORCE

1.0%

AVERAGE ANNUAL  
PROJECTED INCREASE  
IN PERSONNEL

# LOOKING FORWARD

## WORKFORCE DEVELOPMENT

### [SUCCESSION PLANNING]

Currently, 3,240 AVS employees are eligible to retire by September 30, 2019. Fifty-five percent of AVS managers and 66 percent of AVS executives (22 of 33) will be eligible to retire. Due to these high percentages, AVS focuses succession planning efforts on leadership positions across all job series, not just safety critical positions. While not all employees retire upon becoming eligible for retirement, AVS recognizes that a risk still exists and plans to mitigate those risks through succession planning.

AVS manages its talent pool and maintains a pipeline of trained and capable professionals who can assume leadership positions as they become vacant without interrupting the provision of safety services.

AVS continues to equip and develop its workforce with the leadership skills necessary to successfully sustain these safety services through specialized training and leadership development programs, including: AVS's Leadership, Enhancement, and Development Program (LEAD), the FAA's Senior Leadership Development Program (SLDP), and the FAA's Program for Emerging Leaders (PEL).

### [WORKFORCE DEVELOPMENT PLAN]

#### TRAINING GOALS

AVS develops its workforce by providing employees with necessary training in a timely manner to ensure its workforce has the knowledge and skills needed to respond to aviation safety challenges and assume roles of increasing responsibility.

Although AFS, AIR, AAM, and AOV maintain their own training organizations, their 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 and requirements for inspectors, engineers, 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 (e.g. BlackBoard, Adobe Connect, virtual training, and mobile learning)



**TYPE 1** **INITIAL TECHNICAL TRAINING**

AVS PROVIDES INITIAL TECHNICAL TRAINING WITHIN THE FIRST 12 MONTHS OF EMPLOYMENT USING THE BLENDED TRAINING DELIVERY MODEL. COURSES ARE PROVIDED ONLINE AND IN THE CLASSROOM TAILORED TO THE STAFF'S SPECIALIZATION.

**TYPE 2** **RECURRENT TECHNICAL TRAINING**

AVS CALLS FOR ANNUAL TRAINING REQUIREMENTS THAT ARE ROLE-BASED AND COMPETENCY FOCUSED. A NEW TOOL HAS BEEN IMPLEMENTED TO MONITOR AND REVISE TRAINING NEEDS THROUGHOUT THE YEAR.

**TYPE 3** **MANAGERIAL/LEADERSHIP TRAINING**

AVS CONTINUES TO IDENTIFY GAPS BETWEEN AGENCY-LEVEL PROGRAMS AND AVS REQUIREMENTS. ACTIVE PARTICIPATION HAS REMAINED WITH THE REDESIGN OF AGENCY-LEVEL CURRICULUM AS WELL AS WITH MANAGEMENT TRAINING.

**FIGURE 12**

Figure 12 explains the distinction between several types of training AVS provides its workforce.

- Adopting a Learning Content Management System (LCMS) to support flexible and just-in-time training
- Evolving into a role-based, competency-focused, adaptive learning organization
- Promoting information sharing and standardization of business processes
- Maintaining technical currency and proficiency in areas of expertise

Specific AVS corporate activities include:

- Providing an AVS 101 Webinar to all new hires
- Implementing standards for an AVS On-Boarding Program and supporting the establishment of an FAA-wide On-Boarding Program
- Continuing to deliver diversity and inclusion concepts through the AVS Overview Course for new hires and the Leading & Leveraging Diversity Course for managers
- Developing follow-on training for AVS leadership courses to enhance transference of skills and concepts

- Assessing opportunities for at least one nontechnical occupational series
- Incorporating standard messages and concepts on AVS programs (e.g., QMS, SMS, and NextGen) into Services/Offices-specific training
- Embedding short training clips into technical orders

**INITIAL TECHNICAL TRAINING**

Training provided to new safety critical staff varies across the different Services/Offices and ranges from two to 15 weeks depending on a new hire's specialty. For most employees, initial technical training is provided within the first 12 months of employment. AVS uses a blended training delivery model, with some components delivered through on-line courses and others delivered in the classroom.

AFS has four main areas of technical specialization, with each requiring a series of initial courses called "string training":

- General Aviation Operations
- General Aviation Airworthiness

- Air Carrier Operations
- Air Carrier Airworthiness

AIR requires a series of initial courses for all Safety Critical Operational Staff, but encourages other staff to take these as well. The Safety Critical Operational Staff also take required job function training in their area of specialization, which includes:

- Aerospace Engineering (Airframe, Propulsion, Systems, and Software)
- Aviation Safety Inspection-Manufacturing

Employees with other technical specialties in AVS (such as 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 AVS employees complete the initial technical courses, additional training needs are identified during annual calls for training requirements. These requirements are role-based and competency focused. Supervisors work with their employees to determine what kind of training

employees need and when they need it. They also evaluate the skill sets represented in their offices to determine if additional skills are needed. Inspectors, designee advisors, and flight test pilots are required to receive initial and recurrent training tailored to their particular job responsibilities. Training requirements are reviewed annually by supervisors and their employees. This ensures employees have input for any training they believe is needed to keep pace with changes in the aviation industry.

In FY 2014, AVS implemented a new "call for training" tool for AFS. The new tool provides greater flexibility to monitor and revise training needs throughout the year. AIR will begin using the tool in FY 2015, and it will later be expanded to other Services/Offices.

## **MANAGERIAL/LEADERSHIP TRAINING**

In FY 2015, AVS will continue to review leadership development opportunities in collaboration with the FAA Office of Learning and Development and other FAA lines of business, particularly the ATO. This assessment will identify gaps between the Agency-level program

and AVS requirements. AVS continues to assess the best way to meet those requirements, whether at a corporate level or at the Services/Offices level.

AFS has been active in the area of management training. It has established an AFS Managers Curriculum Oversight Team (COT) to manage the curriculum for managers, implement content that focuses on leadership and communication skills, and streamline content across various mandatory training courses. In addition, the COT oversees the common curriculum requirements that impact multiple courses in the curriculum and provides corporate leadership on strategies and policies that impact the training required by managers. The AFS approach is a blend of activities related to organizational health, coaching, mentoring, and training. AVS continues to monitor the AFS initiatives to consider expanding AFS management and leadership activities across all Services/Offices.

## **[RETENTION PLAN]** **EMPLOYEE ENGAGEMENT**

Once AVS has hired an employee, the focus shifts to retention. To increase

employee satisfaction and engagement levels, AVS continues to strive to become a workplace of choice by ensuring:

- Employees have a professional, open, transparent, and safe work culture that encourages innovation, empowerment, and growth
- Training stays current with agency strategic challenges and strengthens leadership and technical competencies
- Employees have the opportunity to participate in development programs to strengthen leadership skills

Senior leaders take an active role in communicating with and engaging employees by:

- Using Town Hall meetings to update AVS employees on current activities and accomplishments
- Conducting site visits to offices throughout the country
- Encouraging participation in the U.S. Department of Transportation's (DOT) IdeaHub, a DOT-wide online collaborative tool

used to create ideas and help shape solutions for improving the FAA's workplace

- Distributing the *AVS Flyer*, an internal communications resource emailed to all AVS employees biweekly
- Holding various meetings and conferences to provide managers and other employees the resources and skills needed to better support day-to-day operations
- Participating in panel discussions at the Aviation Safety Overview and AVS New Managers classes
- Using the Federal Air Surgeon Bulletin to communicate with AAM employees

### COMPENSATION INCENTIVES

To better compete with private industry recruitment practices, AVS offers a limited number of incentives, such as leave enhancements, new-hire pay flexibilities, telework, and degree completion programs.

## [RECRUITMENT PLAN]

### HIRING

AVS continues to focus on its leadership and safety critical

workforce eligible to retire within the next five years. To sustain uninterrupted safety services, AVS continues to cultivate a pipeline of highly skilled employees capable of assuming increased responsibilities and leadership while embracing diversity and inclusion as critical elements to sustaining a talented workforce.

To forecast gaps, AVS continuously monitors attrition within its leadership cadre and safety critical workforce. AVS also continues to implement succession strategies and programs to ensure continuity in its leadership and targets its recruitment efforts in key occupations to support the accomplishment of its safety mission.

AVS considers the following factors in identifying and adjusting the organization's recruitment and retention strategy to meet current and future needs:

- Number and distribution of positions by pay plan/grade or pay band/series and geographic location
- Diversity trends
- Identification of skill competencies required

- Average grade/band by occupation
- Retirement eligibility (current and expected)
- Attrition (separations, resignations, transfers, retirements)

### RECRUITMENT

To successfully operate in a more collaborative and technologically advanced SMS and NextGen environment, AVS must continue to build a workforce adept at risk-based, data-driven decision-making, as well as systematic and critical thinking. However, AVS competes with private industry to recruit the best candidates from a limited talent pool.

This is especially true in the field of aerospace engineering. As the number of people entering specialized technical aviation fields continues to decrease, the competition to hire them continues to increase. It has become particularly difficult for AVS to recruit engineers, resulting in a significant workforce challenge.

The primary recruitment and hiring vehicle AVS uses to hire its workforce is the Automated Vacancy Information Access Tool for Online Referral

(AVIATOR), an automated hiring system used by applicants, managers, and human resource professionals to facilitate the overall application and selection process for positions. In 2013, the AVIATOR system was integrated into the Office of Personnel Management's automated hiring system, USAJOBS. This change has allowed AVS to reach a wider pool of candidates for all of its positions.

AVS continues to use the FAA's Managerial and Employee Leadership Competency Profiles to correlate and define interpersonal and business competencies when recruiting for positions. This "core" competency model, illustrated in Figure 11, is used to meet the hiring challenges anticipated in the future aviation environment by describing a baseline-mastery level of core business and interpersonal competencies, as well as specific technical competencies required across the organization.

This competency model allows the competencies of individual employees to be compared against the requirements of individual positions across AVS. As a result, competencies enable individuals to:

- Better understand how their individual and group job functions support the AVS mission
- Identify how their individual competency profiles compare to the competencies required across AVS

Use of assessment tools allows AVS to fill safety critical positions with individuals who possess the needed skills to support the implementation of SMS and NextGen. Specifically, the competency model provides a systematic approach of looking at the entire lifecycle of any existing position to determine what is required for the incumbent to successfully perform the duties assigned.

AVS also continues to use core interpersonal and business competencies as a part of the knowledge, skills, and abilities (KSA) when creating vacancy announcements. AVS has adopted an agency-wide hiring practice of conducting a thorough job analysis on all of its positions to ensure that an accurate and timely assessment of the duties to be performed and competencies required are identified prior to recruiting and filling positions.

### **Operational Support Hiring**

Due to the level of expertise required to ensure NAS safety, AVS is composed mostly of technical employees such as inspectors, engineers, pilots, physicians, nurses, and accident investigators. Operational support personnel in field facilities, regional offices, and headquarters provide business and administrative support to technical employees.

Although AVS places significant emphasis on hiring initiatives for safety critical positions, AVS is equally committed to attracting and retaining its operational support workforce. Currently, AVS is not experiencing significant challenges in hiring and staffing operational support positions. In contrast to the limited number of qualified candidates available to fill safety critical positions, AVS continues to benefit from a growing talent pool of qualified operational support candidates.

### **Entry-Level Hiring**

To strengthen the AVS pipeline of candidates who will eventually replace retiring leaders, AVS continues to focus on the goal of recruiting new hires in safety critical occupations at



**FIGURE 13: AVS COMPETENCIES**

Figure 13 depicts the AVS competency model and reflects the workforce planning approach AVS uses to recruit, hire, and retain a world-class workforce.

lower pay bands/grades. It is becoming evident that AVS has to rapidly cultivate its pipeline and increase its efforts to hire a technically skilled workforce at the entry and experienced levels who can gain the knowledge and experience required to carry out the safety mission.

Of the new employees hired in FY 2014 for safety critical position, 24 percent were at the lower pay bands/grades.

## Diversity and Inclusion

AVS has prioritized strengthening its collaboration with the Office of Human Resource management (AHR) and the Office of Civil Rights (ACR) in order to conduct analysis of hiring practices. Such ongoing analyses will ensure that AVS is able to assess best practices, identify barriers to developing and improving hiring procedures, and conduct briefings and provide training materials for hiring managers to keep them informed and equipped with the resources/tools necessary to hire the candidates with the right skill sets for the job. For example, the AVS Persons with Targeted Disabilities program (PWTD) is part of the agency's workforce hiring goals and contributes to diversity.

In 2013, AVS began a collaborative project with AHR, ACR, the Office of Chief Counsel (AGC), and members of the FAA Employee Associations to develop and implement the AVS Diversity and Inclusion Work Plan, which is designed to ensure the organization is attracting and hiring talented applicants from diverse backgrounds. This plan supports the FAA's Strategic Initiative to create a workforce with leadership, technical,

and functional skills necessary to ensure the U.S. has the world's safest and most productive aviation sector.

The AVS Diversity and Inclusion Work Plan establishes long-term goals, strategies, and actions to assist managers to successfully recruit, hire, promote, educate, and retain a more diverse workforce. It also identifies initiatives that help build a culture that encourages respect, collaboration, flexibility, and fairness. This plan represents the AVS executive management team's commitment to developing and maintaining the workforce of the future and to becoming a workplace of choice by recruiting, hiring, and retaining a qualified, diverse workforce that better mirrors the nation.

The AVS Diversity and Inclusion Work Plan was finalized in June 2013. Since its implementation, AVS has been successfully using the plan and its strategic initiatives to fully incorporate diversity and inclusion priorities into its hiring practices. In FY 2014 AVS completed 23 of the plan's activities and have identified an additional 23 activities from the plan to complete in FY 2015. The plan's major goals and priorities are shown in Figure 14.

A major initiative under the Diversity and Inclusion Work Plan is the Standardized Hiring for AVS Rating and Referral Program (SHARP). This program establishes a structured, consistent and objective hiring process for targeted safety critical positions, and covers the General Aviation Maintenance and Operations Inspectors, FG-1825-12 and below, Manufacturing Aviation Safety Inspectors, FG-1825-12 and below, and Aerospace Engineers, FV-861-I and below. AVS redesigned and made adjustments to SHARP in FY 2014 to improve the process in place for the hiring of Aviation Safety Inspectors and Aerospace Engineers. AVS used the program in FY 2014 and will continue to make recommendations for improvement during FY 2015 critical safety hiring efforts.

**GOAL 1** **WORKFORCE DIVERSITY**  
 AVS SHALL RECRUIT FROM A DIVERSE, QUALIFIED GROUP OF POTENTIAL APPLICANTS TO SECURE A HIGH-PERFORMING WORKFORCE DRAWN FROM ALL SEGMENTS OF AMERICAN SOCIETY.

**GOAL 2** **WORKPLACE INCLUSION**  
 AVS SHALL CULTIVATE A CULTURE THAT ENCOURAGES COLLABORATION, FLEXIBILITY, AND FAIRNESS TO ENABLE INDIVIDUALS TO CONTRIBUTE TO THEIR FULL POTENTIAL AND FURTHER RETENTION.

**GOAL 3** **SUSTAINABILITY**  
 AVS SHALL DEVELOP STRUCTURES AND STRATEGIES TO EQUIP LEADERS WITH THE ABILITY TO MANAGE DIVERSITY, BE ACCOUNTABLE, MEASURE RESULTS, REFINE APPROACHES ON THE BASIS OF SUCH DATA, AND ENGENDER A CULTURE OF INCLUSION.

**FIGURE 14: AVS DIVERSITY AND INCLUSION**

The AVS Diversity and Inclusion Work Plan establishes long-term goals, strategies, and actions to assist managers to successfully recruit, hire, promote, educate, and retain a more diverse workforce.

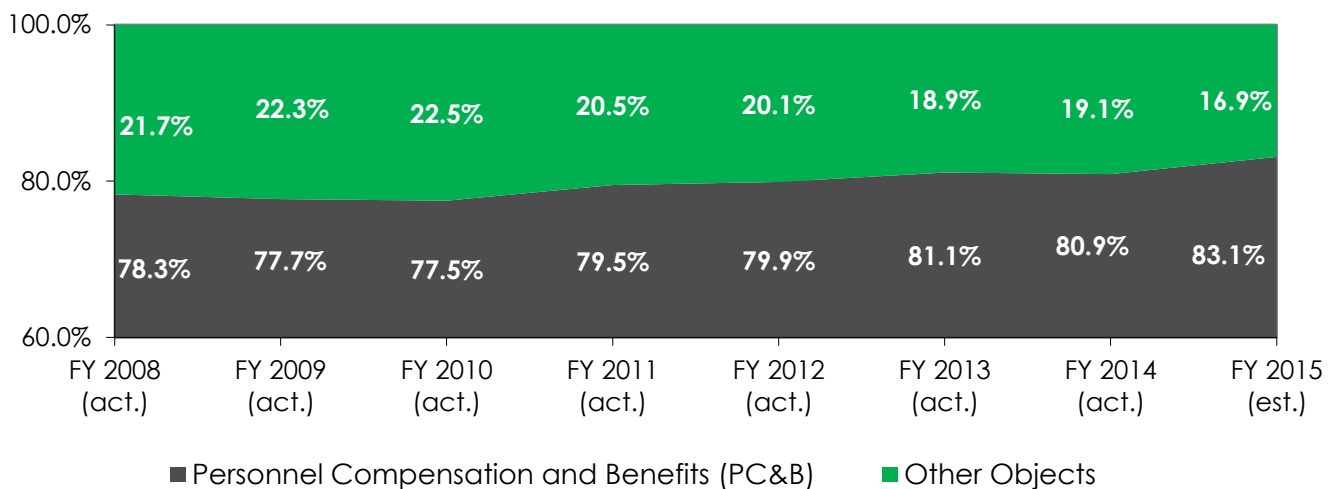
**[FUNDING]**

Staffing is AVS's greatest cost outlay. AVS's average and overall personnel compensation costs are projected to rise in FY 2015 as a function of increased staffing levels, annual pay increases, negotiated labor agreements, and the increased cost of employer benefit contributions. Because personnel compensation and benefits are anticipated to consume over 83 percent of the AVS FY 2015 operational budget, controlling these costs will be critical to the long-term sustainability of operations.

Although AVS mainly relies on attrition to manage personnel costs, it continues to monitor hiring and staffing to control pay, compensation and benefit costs.

AVS requires specialized training and equipment, as well as supplies, travel, and other non-payroll funding for its employees to effectively perform the organization's safety oversight and surveillance responsibilities. AVS policy is to maintain a mobile workforce that is trained and equipped to carry out the organization's safety mission.

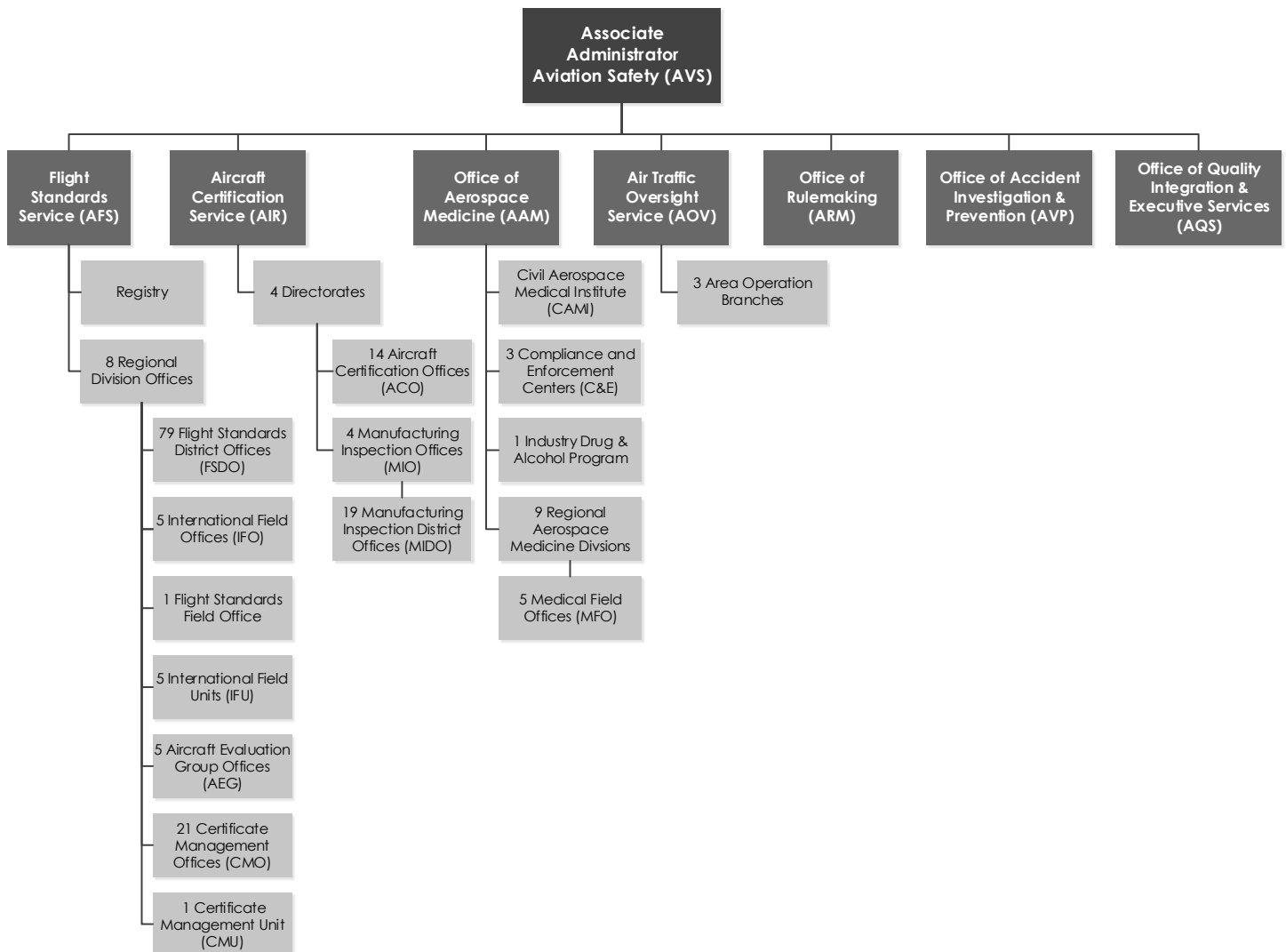
**FIGURE 15: PERSONNEL COMPENSATION AND BENEFITS (PC&B) AND NON-PC&B SHARES IN AVS**



# SUPPLEMENTAL INFORMATION

## APPENDICES & REFERENCE INFORMATION

### APPENDIX 1: AVIATION SAFETY SERVICES/OFFICES FIELD OFFICE ORGANIZATION





## APPENDIX 2: AVIATION SAFETY FULL-TIME EMPLOYEES AND SERVICES/OFFICES RESPONSIBILITIES

Based on enacted FY 2015 Budget

### Service/Office Responsibilities

#### Flight Standards Service (AFS)

5,254



#### Promotes:

- Safety in air transportation by setting the standards for certification and oversight of airmen, air operators, air agencies, and designees.
- Safety of flight of civil aircraft and air commerce by:
  - Accomplishing certification, inspection, surveillance, investigation and enforcement.
  - Setting regulations and standards.
  - Managing the system for registration of civil aircraft and all airmen records.

#### Aircraft Certification Service (AIR)

1,319



#### Develops and administers safety standards governing the design, production, and airworthiness of civil aeronautical products:

- Setting safety standards governing the design, production, and airworthiness of civil aeronautical products.
- Overseeing design, production, and airworthiness certification programs to foster compliance with prescribed safety standards.
- Establishing and maintaining a safety management system for continued operational safety of aircraft and managing safety standards governing the design, production, and airworthiness of civil aeronautical products.
- Providing oversight of approval holders, designees, and delegated organizations.
- Working with aviation authorities, manufacturers, and other stakeholders to help them improve safety in the international air transportation system.

#### Office of Aerospace Medicine (AAM)

369



#### Manages medical programs and services:

- Medical certification of airmen.
- Inspection and oversight of aviation industry drug and alcohol testing programs.
- Medical clearance of air traffic control specialists.
- Drug and alcohol testing of FAA employees with safety-sensitive jobs and jobs requiring security clearances.
- Aerospace medicine and human factors research.
- Oversight of Aviation Medical Examiners.

#### Air Traffic Safety Oversight Service (AOV)

133



#### Oversees the Air Traffic Organization:

- Providing safety oversight of the ATO.
- Approving the ATO SMS and monitoring the ATO for compliance with the approved SMS.
- Reviewing and approving the ATO's safety implementation actions and risk management strategies.
- Ensuring consistency in application of requirements:
  - Credentialing program for ATO operational personnel.
  - Safety audits of ATO operations and system processes.

#### Office of Accident Investigation & Prevention (AVP)

67



#### Investigates aviation accidents and incidents to detect unsafe conditions and trends and to coordinate the corrective action process:

- Investigating major or significant accidents and incidents to identify safety deficiencies and unsafe conditions and recommend policy.
- Coordinating with the responsible FAA office for evaluation and corrective action.
- Analyzing accident and incident data and other safety data to identify safety issues and trends.
- Addressing National Transportation Safety Board and internal FAA Safety Recommendations.
- Leading SMS implementation efforts for the FAA and AVS.

#### Office of Quality, Integration & Executive Services (AQS)

60



#### Supports AVS's safety mission:

- Approving, overseeing, and facilitating integration initiatives among the AVS Services/Offices.
- Overseeing the AVS quality management system.
- Providing budget and labor distribution reporting support.
- Providing planning and human resource management support.

#### Office of Rulemaking (ARM)

36



#### Manages the FAA's rulemaking program, processes and timelines:

- Developing proposed and final rules, and managing responses to petitions for rulemaking.
- Managing responses to petitions for exemption from regulatory requirements.
- Overseeing rulemaking advisory committees that provide advice and recommendations on myriad aviation-related issues.

### APPENDIX 3: AVS STAFFING (OPERATIONS APPROPRIATION)

The enacted FY 2015 budget will provide the AVS organization with 7,238 employees. Of those, 4,362 are Aviation Safety Inspectors (ASIs) and 746 are Aerospace Engineers (ASEs) located within AFS or AIR. This chart shows where ASI and ASE positions align with the ASTARS model for AFS and AIR.

End-of-Year Employment – Full-Time Positions (FTP)		FY 2014 Actual	FY 2015 Enacted	FY 2016 Request
<b>Flight Standards (AFS)</b>	Engineers	22	12	12
	Aviation Safety Inspectors	3,926	4,104	4,184
	Safety Technical Specialists	415	448	456
	Operational Support	724	690	702
	<b>Total</b>	<b>5,087</b>	<b>5,254</b>	<b>5,354</b>
<b>Aircraft Certification (AIR)</b>	Aviation Safety Inspectors	252	258	270
	Pilots, Engineers, and CSTAs	713	734	756
	Safety Technical Specialists	174	170	172
	Operational Support	153	157	159
	<b>Total</b>	<b>1,292</b>	<b>1,319</b>	<b>1,357</b>
<b>Aerospace Medicine (AAM)</b>	Physicians, Physician Assistants, Nurses	51	55	57
	Alcohol/Drug Abatement Inspectors	69	68	70
	Safety Technical Specialists	196	206	226
	Operational Support	45	40	44
	<b>Total</b>	<b>361</b>	<b>369</b>	<b>397</b>
<b>Air Traffic Safety Oversight (AOV)</b>	Air Traffic Safety Inspectors	51	58	58
	Safety Technical Specialists	70	68	68
	Operational Support	5	7	7
	<b>Total</b>	<b>126</b>	<b>133</b>	<b>133</b>
<b>Accident Investigation and Prevention (AVP)</b>	Air Safety Investigators	9	9	9
	Safety Technical Specialists	45	48	49
	Operational Support	11	10	10
	<b>Total</b>	<b>65</b>	<b>67</b>	<b>68</b>
<b>Quality, Integration, and Executive Services and AVS Executive Staff (AQS)</b>	Safety Technical Specialists	8	12	12
	Operational Support	51	48	49
	<b>Total</b>	<b>59</b>	<b>60</b>	<b>61</b>
<b>Rulemaking (ARM)</b>	Safety Technical Specialists	32	33	33
	Operational Support	3	3	3
	<b>Total</b>	<b>35</b>	<b>36</b>	<b>36</b>
<b>Sub Total</b>	<b>Safety Critical Staff</b>	<b>5,093</b>	<b>5,298</b>	<b>5,416</b>
<b>Sub Total</b>	<b>Safety Technical Staff</b>	<b>940</b>	<b>985</b>	<b>1,016</b>
<b>Sub Total</b>	<b>Operational Support Staff</b>	<b>992</b>	<b>955</b>	<b>974</b>
<b>Grand Total</b>	<b>AVS Staff</b>	<b>7,025</b>	<b>7,238</b>	<b>7,406</b>

Notes: AVS staffing for FY 2014 was 7,025 as of 09/20/2014, the last full pay period of the fiscal year. AVS staffing on 09/30/2014 was 7,095. The AVS FY 2016 staffing target is based on the President's Budget Request.

## APPENDIX 4: AVIATION SAFETY PRIMARY STAKEHOLDERS AS OF JULY 2014

### Air Operator Certificates: 5,311

81	Major U.S. Air Carriers
2,101	Commuter Air Carriers/On Demand Air Taxi
83	Commercial Operators
482	Foreign Air Carriers <sup>1</sup>
329	External Load (e.g. Logging, Oil Platform)
1,861	Agricultural Operators
374	Public Use Authorities (e.g. State/City/Police)

### Air Agency Certificates: 5,911

708	Pilot Training Schools
4,774	Repair Stations
171	Maintenance Training Schools
258	Pilot Training Centers

### Aircraft: 210,463

7,279	Air Carrier Aircraft
471	Commuter Air Carrier Aircraft
10,420	On Demand Air Taxi Aircraft
181,782	General Aviation
10,511	Inactive Aircraft

### Aviation Authorities-other countries: 416

36	Authorities/Entities with Bilateral Agreements
192	Foreign Civil Aviation Authorities
188	Accident Investigation Authorities

### Check Airmen: 7,584 <sup>2</sup>

4453	Part 121
123	Part 121/135
3008	Part 135

### Designees: 9,944 <sup>3</sup>

3,312	Aircraft Certification
3,299	Flight Standards
3,333	Aerospace Medicine

### Flight Instructors: 98,294

### Mechanics with Inspection Authority: 20,944

### Approved Manufacturers: 1,619

### Active Pilots: 744,576

148,293	Airline Transport Pilot
133,681	Commercial
207,742	Private
221	Recreational
4,418	Sport
121,500	Student
128,721	Foreign Pilot

### Non-Pilot Air Personnel: 742,256

380,543	Mechanics/Repairmen
38,970	Control Tower Operators
171,474	Flight Attendants
73,859	Ground Instructors
77,410	Other (e.g. dispatchers, flight navigators, parachute riggers, flight engineers)

### ATCS Medical Clearance Exams: 13,305

13,219	Air Traffic Controller Workforce
86	Flight Service Station Workforce

### ATO Designee Examiners/ATO Credential Personnel: 23,063

360	ATCS Proficiency Managers
78	ATSS Proficiency Managers
1,845	ATCS Designated Examiners
460	ATSS Designated Examiners
14,944	ATCS Credential Holders
4,771	ATSS Credential Holders
605	CTO Examiners

### Airmen Medical Examinations: 378,187

32,540	Special Issuances
345,647	Standard Issuances

### Aviation Industry Entities Covered by Anti- Drug and Alcohol Programs: 7,200

### National Transportation Safety Board

96	Safety Recommendations (5-year average)
32	Major Investigations (average/year) (new)
420	Open NTSB Safety Recommendations

<sup>1</sup> The FAA does not issue Certificates to Foreign Air Carriers. They are only issued Operations Specifications.

<sup>2</sup> 14 CFR Part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations.

14 CFR Part 135 Operating Requirements: Commuter and On Demand Operations and Rules Governing Persons On Board Such Aircraft

<sup>3</sup> Designee numbers were recently revalidated by the Designee project manager.

