2016-2025 AVIATION SAFETY WORKFORCE PLAN

FEDERAL AVIATION ADMINISTRATION
UNITED STATES DEPARTMENT OF TRANSPORTATION

2016 – 2025

Aviation Safety

Workforce Plan

Federal Aviation Administration

United States Department of Transportation

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2015 HIGHLIGHTS

OFFICES IN OVER
80
LOCATIONS

NEARLY
7,200
EMPLOYEES

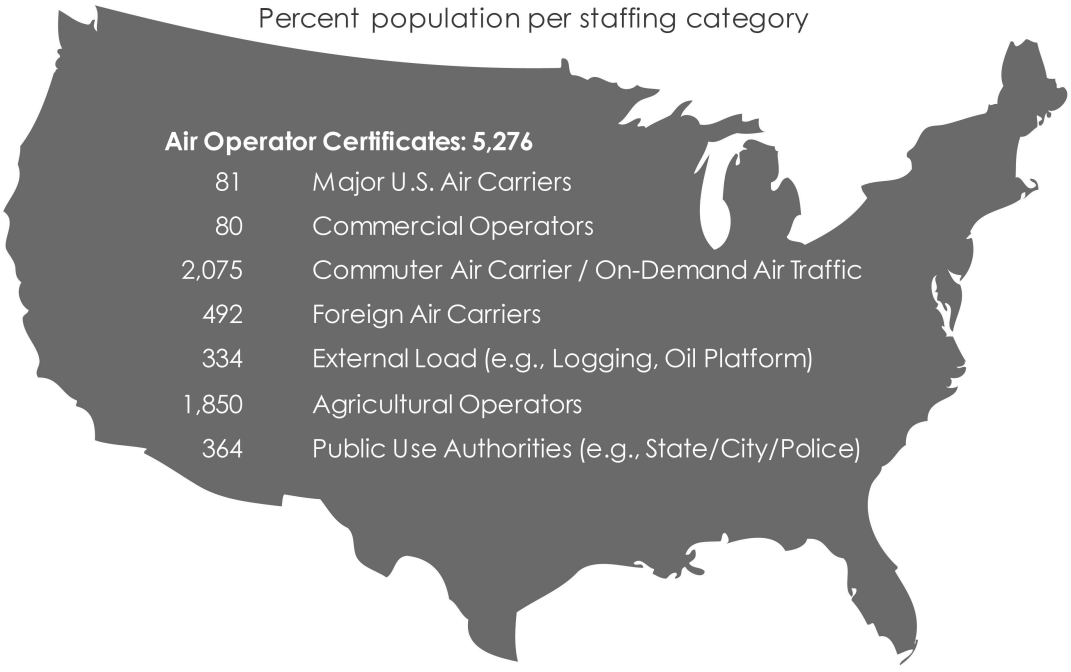
USES NEARLY
10,000
DESIGNEES

73%
Safety Critical

13%
Safety Technical

14%
Operational Support

Percent population per staffing category



OVERVIEW OF THE REPORT

This is the Federal Aviation Administration's (FAA) tenth 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 2015. This 2016 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, 2016 (P.L. 114-113) and the FAA Modernization and Reform Act of 2012 (Public Law 112-95, Section 606(b)), the FAA has prepared an annual AVS Workforce Plan which:

- Provides the background for current staffing levels
- Describes the evolving AVS environment
- Provides an Aviation Safety Inspector (ASI) and Aviation Safety Engineer (ASE) staffing forecast based on model results
- Forecasts expected attrition and specific hiring targets over a 10-year period
- Details strategies for meeting staffing needs

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 within the National Airspace System (NAS).

INDUSTRY & TECHNOLOGY UPDATES

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

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

UNMANNED AIRCRAFT SYSTEMS

The FAA, in order to facilitate the safe and efficient integration of Unmanned Aircraft Systems (UAS) into the NAS, is in the process of establishing the UAS Integration Office. Toward this 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

Within the FAA, AVS is responsible for developing regulations, policies, procedures, guidance materials, and training requirements to support safe and efficient UAS operations in the NAS. AVS is working collaboratively with other departments and agencies to address related areas of concern such as privacy and national security.

The process of developing regulations is resource intensive. To establish an appropriate UAS oversight framework, the FAA will need to review and revise many policies, guidance, and rules to specifically address UAS integration and evolution within the NAS. UAS activities and associated workforce projections are currently reflected within Flight Standards (AFS).

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

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 in FY 2016. By leveraging a combination of innovative mobile learning and traditional Classroom-Based Instruction (CBI) AVS is preparing its workforce to meet future demands of a dynamic aviation environment.

SUCCESSION PLANNING

AVS remains focused on building and maintaining a pipeline of skilled employees who are prepared to take on roles of increasing responsibility within the organization. AVS tends to hire people much later in their career. However, there is no mandatory retirement in AVS as there is for Air Traffic Controllers.

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 Fiscal Year (FY) 2015, the enacted staffing level for AVS was 7,238 positions. AVS ended FY 2015 with a staffing level of 7,196, marginally below the staffing target of 7,238 employees by 42 positions. The FY 2016 staffing level for AVS is 7,406 positions.

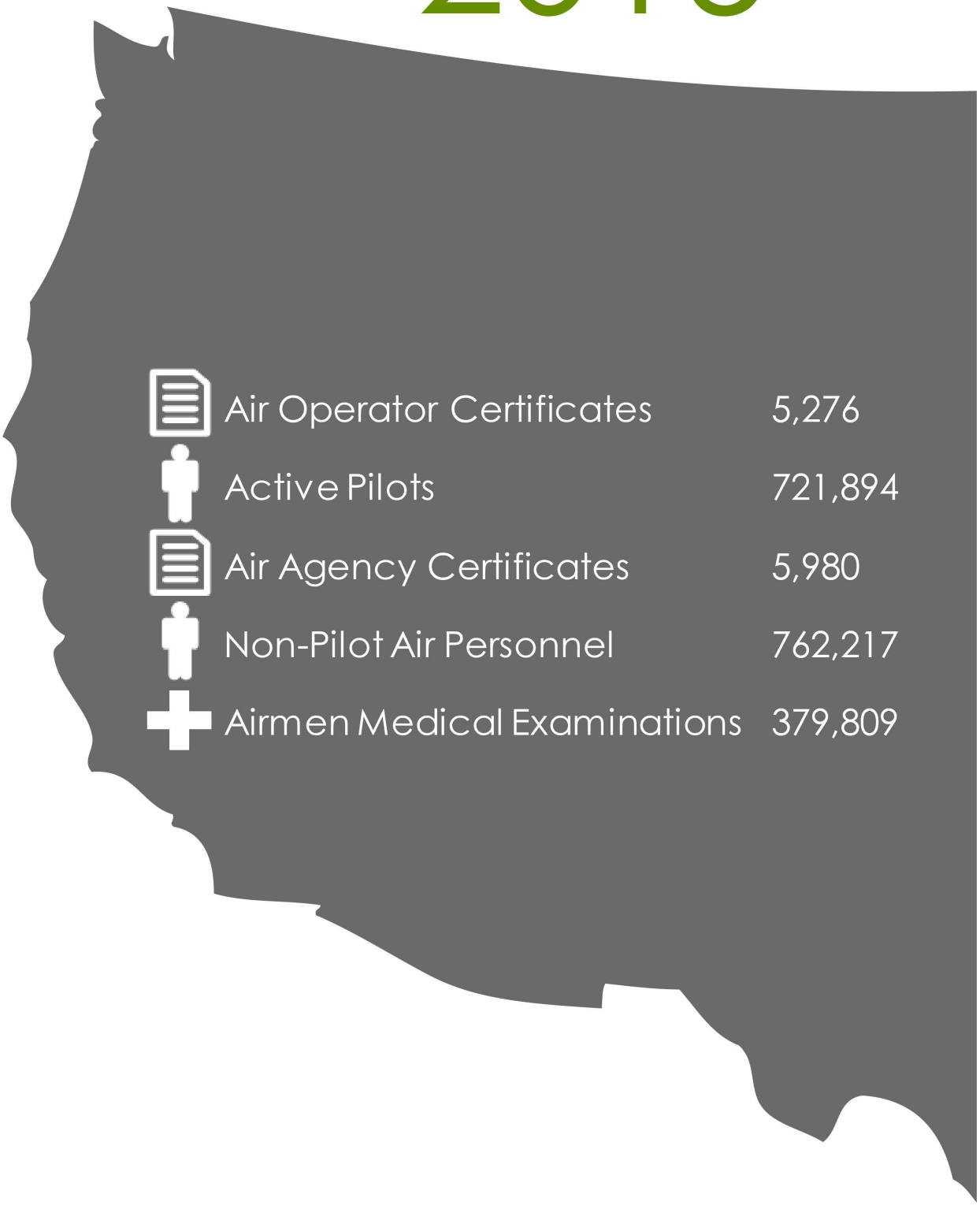
ATTRITION

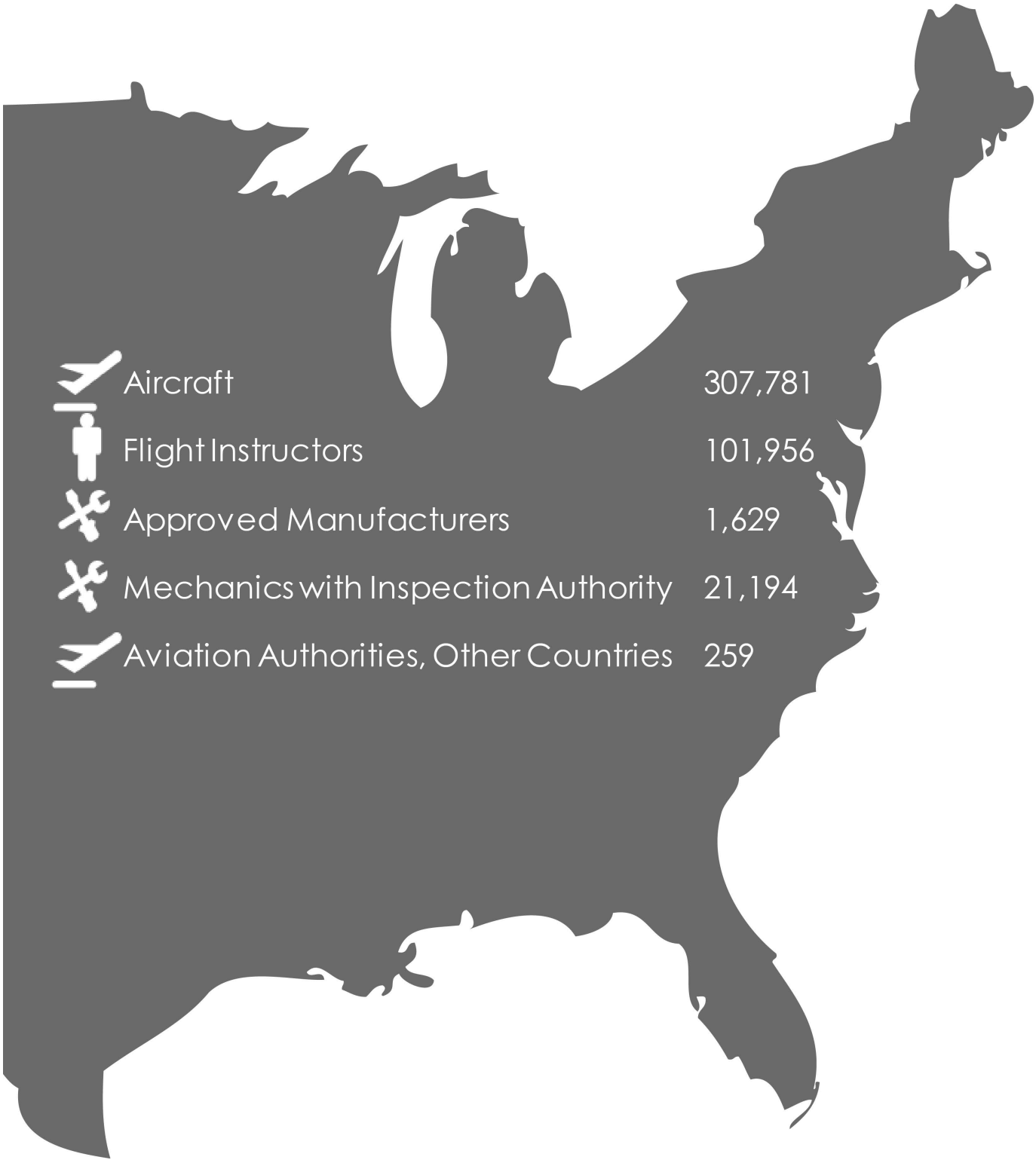
In FY 2015, AVS lost 418 safety professionals through attrition, including 272 due to retirement.

The FY 2015 attrition rate for AVS was approximately 6.0 percent, very close to previously forecasted out-year projections. AVS forecasts attrition levels are between 5.7 and 6.0 percent for FY 2016 and beyond.

AVIATION ENVIRONMENT

2015




Aircraft 307,781
Flight Instructors 101,956
Approved Manufacturers 1,629
Mechanics with Inspection Authority 21,194
Aviation Authorities, Other Countries 259

UNDERSTANDING THE AVS MISSION

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 materials that apply to people, organizations, and equipment operating within 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 other aircraft parts.

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 necessary safety requirements, standards, and regulations.

FIGURE 1: AVS SAFETY CONTINUUM

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 within the National Airspace System (NAS) continues to meet safety standards.

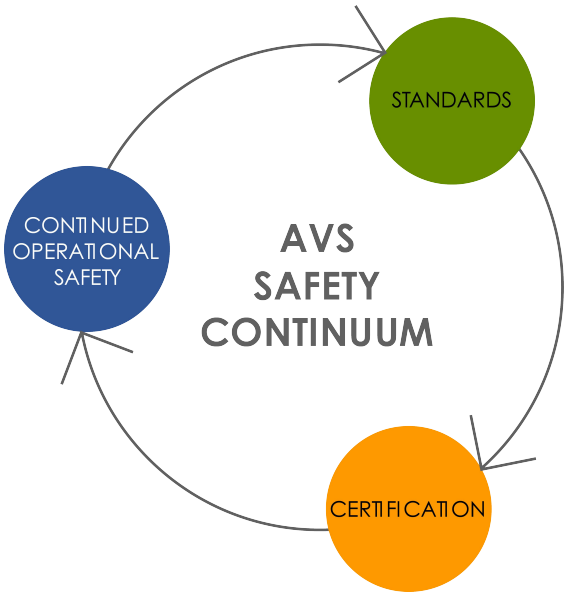
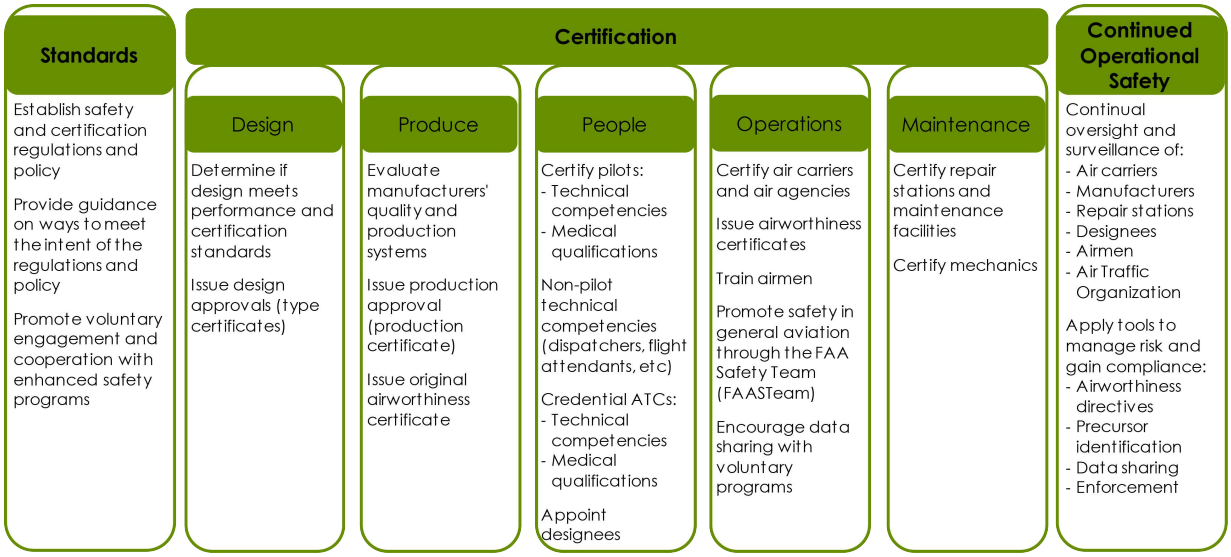


FIGURE 2: LIFECYCLE OF AN AIRCRAFT

Figure 2 describes the AVS safety continuum and every aspect within the lifecycle of an aircraft.



MEETING THE CHALLENGE THROUGH RISK-BASED DECISION MAKING

The aviation landscape has changed over the last decade. Several factors in particular are introducing change into the aerospace system, including 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 aeronautical products (e.g., supply chains). In order to mitigate potential safety risk associated with these changes, the FAA Administrator has identified the Risk-Based Decision Making (RBDM) Strategic Initiative as a top priority to address the challenges faced by the FAA. The implementation of RBDM 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.

Safety Management System

The Safety Management System (SMS) is a formal, comprehensive, process-oriented approach to incorporating RBDM into the aviation community. It includes entity-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** – Provides a formalized method of safety-related hazard identification, risk analysis, risk assessment, 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 SMS will build on existing processes, procedures, and tools, thereby enabling integration and interoperability across FAA Lines of Business (LOB) 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*.

SMS Tools

Alongside other aviation industry organizations, AVS must develop and implement advanced tools and techniques to assess and mitigate the aviation risks within a changing environment. AVS is currently using or implementing several technological capabilities that were developed to manage the risk of accidents.

- The **Safety Assurance System (SAS)** is an IT system that supports the Safety Assurance component of the Flight Standards Service (AFS) 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 AFS safety oversight and inspection processes by implementing the International Civil Aviation Organization (ICAO) SMS.
- The **Aviation Safety Information Analysis and Sharing (ASIAS)** program connects a wide variety of safety data and information sources across industry and government, including voluntarily provided safety data. ASIAS partners with the Commercial Aviation Safety Team (CAST) and the General Aviation Joint Steering Committee (GAJSC) to monitor known risk, evaluate the effectiveness of deployed mitigations, and detect emerging hazards.
- The **Monitor Safety/Analyze Data (MSAD)** process and IT tool are used in the Aircraft Certification Service (AIR) to analyze event-based safety data, identify the appropriate response to significant events in support of continued operational safety, and detect trends that could influence future events. The MSAD process helps 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** process and IT tool are used in AIR to 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 involvement and prioritization decisions, allowing AIR to manage resources with a consistent understanding of the risks based on real-time data. Risk-Based Resource Targeting provides a means to identify what activities warrant the assignment of

FAA resources and allows AVS 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 variety 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 (ATCS). 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. 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 FY 2018.
- The FAA is developing a new **Hazard Identification, Risk Management and Tracking (HIRMT)** tool. AVS is leading this FAA-level effort to enable 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; bring visibility to complex safety issues across multiple organizations' areas of responsibility; and track the status of hazard analysis and risk management efforts to provide an overall view of FAA and organizational safety portfolios.
- The **Regulation and Certification Infrastructure for System Safety (RCISS)** provides hardware and software capability for safety applications throughout AVS. These applications assist in prioritizing limited AVS resources based on changing workload demands.

DESIGNEES AND DELEGATED PROGRAMS

Designees and delegated organizations are the private persons and organizations to which AVS assigns the limited authority of performing functions on behalf of the Administrator. Through risk management, designees and delegated organizations enable the FAA to expand its coverage and better leverage federal resources to focus on efforts that cannot be delegated.

The Flight Standards Service (AFS), Aircraft Certification Service (AIR), and Office of Aerospace Medicine (AAM) combined oversee nearly 10,000 designees or delegated organizations.

Figure 3 provides further explanation of tasks performed by designees, delegated organizations, and check airmen on behalf of the FAA.

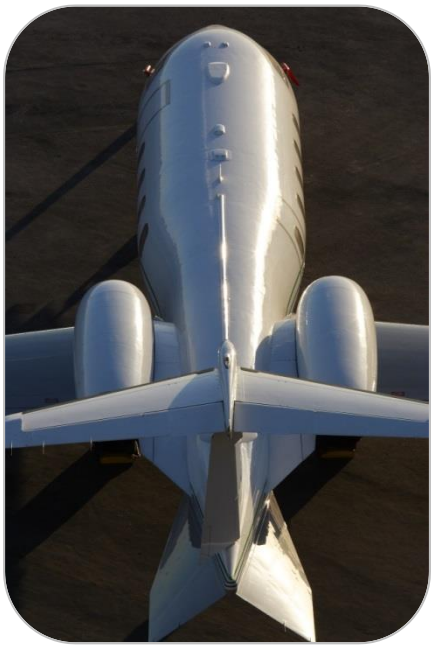


FIGURE 3: DELEGATED ROLES AND CHECK AIRMEN

Figure 3 explains the tasks performed by designees, delegated organizations, and check airmen on behalf of the FAA.

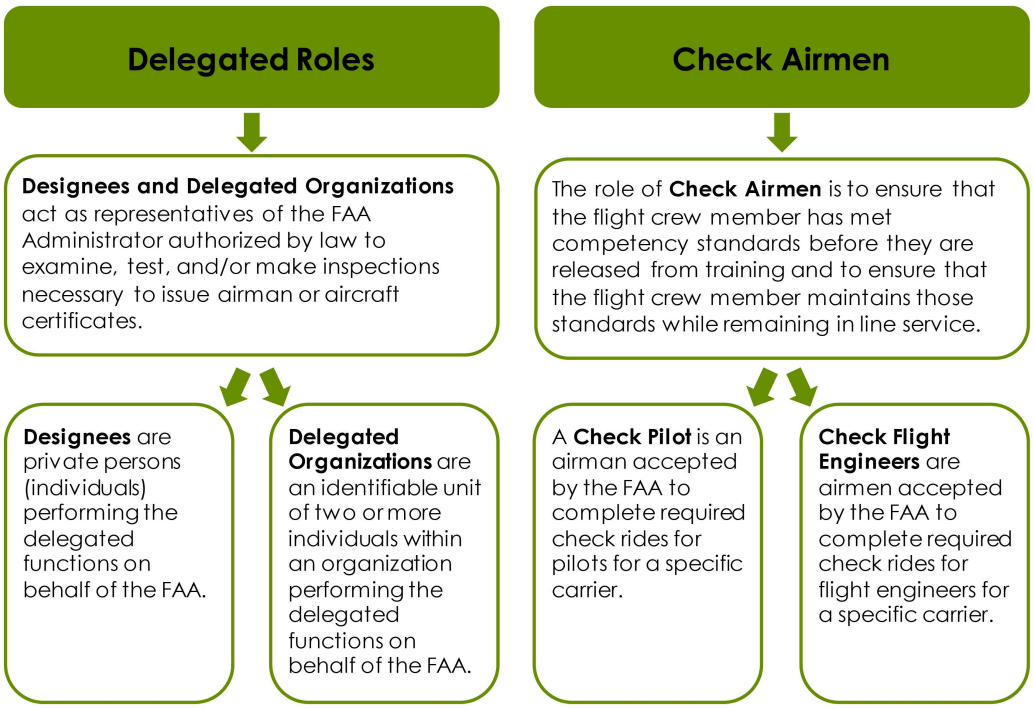
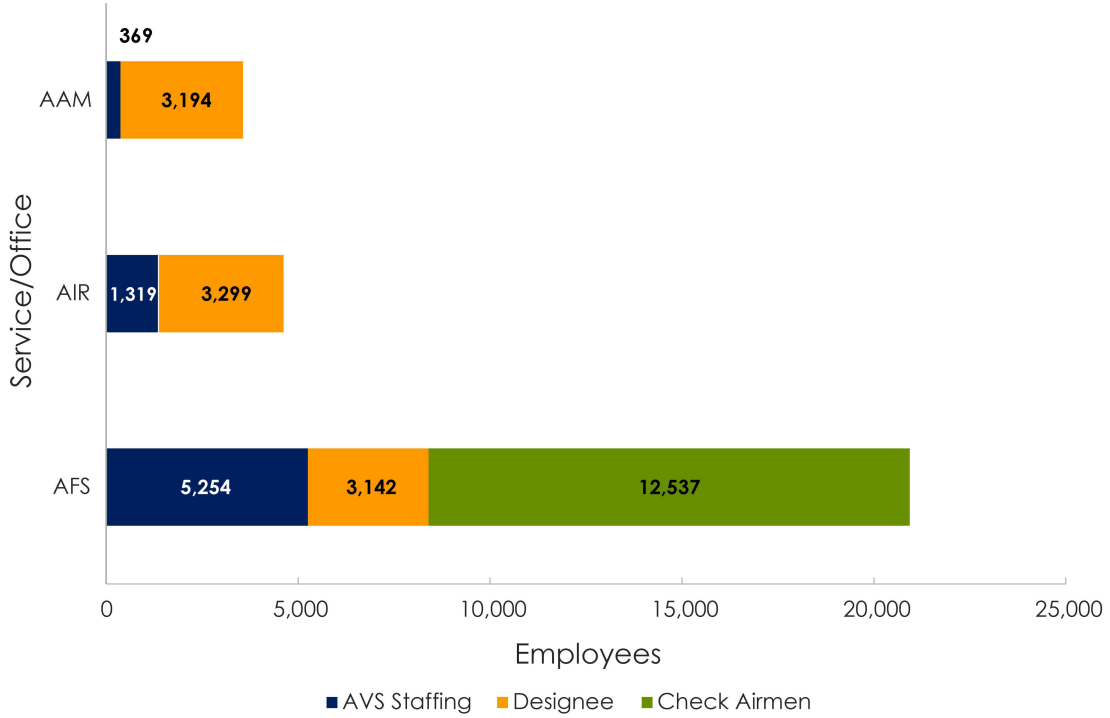


FIGURE 4: LEVERAGING DELEGATION

Figure 4 provides further detail on how AFS, AIR, and AAM leverage individual designees and check airmen to offset workload. The graphic does not include other AVS services and offices as these organizations do not have an individual designee or check airmen component.



As the current aviation industry grows, the FAA will enhance the numbers and types of designees to keep up with increased workload. By doing so, the Aviation Safety Inspector (ASI) and Aviation Safety Engineer (ASE) roles will be further transformed to monitor the performance of designees who perform the certification activities rather than performing those activities themselves. It is important for the FAA to have the data, evaluative processes, and a well-trained staff to monitor the designee program effectively to ensure that goals are met and a positive impact on safety and efficiency is attained.

UNDERSTANDING THE AVS WORKFORCE

STAFFING CATEGORIES

Three staffing categories constitute the AVS workforce, each with its own distinct set of 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:

- 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 air agencies
- Monitoring and enforcing Air Traffic Organization (ATO) compliance with safety standards
- Certifying aircraft alterations, equipment, and avionics
- Overseeing and monitoring AVS designee programs
- Monitoring and enforcing industry drug and alcohol testing programs
- Investigating accidents and incidents
- Overseeing and monitoring UAS introduction within the NAS

Safety Technical Specialist Staff

Safety Technical Specialist Staff provide the support necessary for safety critical operational staff to do 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 programs
- Developing new programs, activities, and methods for improved oversight activities and enhanced industry safety
- Implementing 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
- Designing, developing, and delivering technical training curricula for safety critical operational staff
- Maintaining airmen and aircraft registries and the airmen medical certification system
- Guiding development and publication of FAA rules and regulations through the rulemaking process

Operational Support Staff

Operational Support Staff consist of all AVS personnel, including managers, in functions that are not classified as Safety Critical Operational Staff or Safety Technical Specialist Staff. These individuals perform functions such as management, supervision, resource planning, and project administration at the service, region, and office level.

AVS SERVICES AND OFFICES

AVS serves the aviation community by promoting safety and providing a breadth of services from setting regulations and standards to issuing various certifications. The AVS workforce includes seven services/offices located domestically and abroad. The population distribution charts shown in the following section represent the FY 2015 workforce.

Services

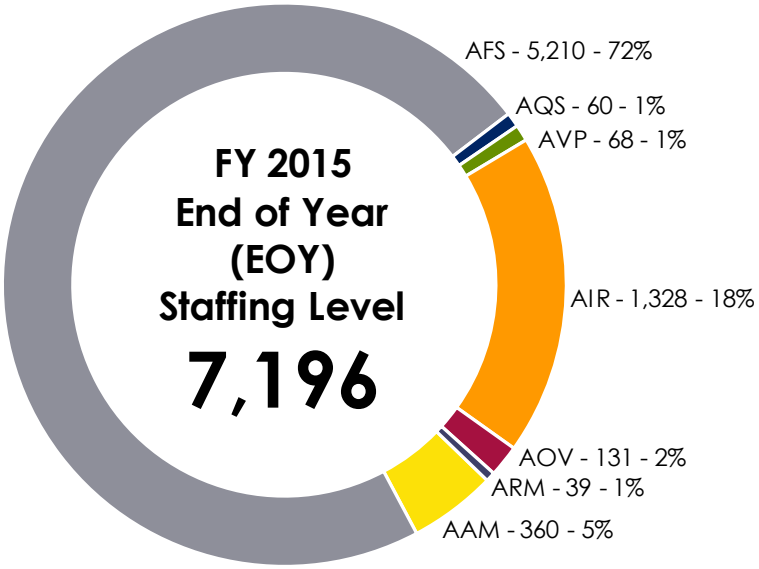
- Flight Standards (AFS)
- Aircraft Certification (AIR)
- Air Traffic Safety Oversight (AOV)

Offices

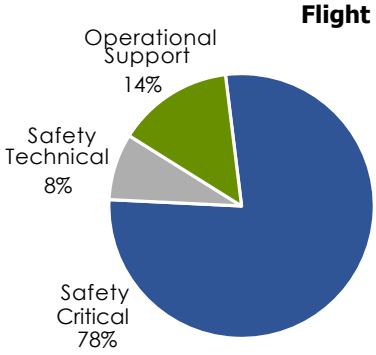
- Aerospace Medicine (AAM)
- Accident Investigation & Prevention (AVP)
- Rulemaking (ARM)
- Quality, Integration & Executive Services (AQS)

FIGURE 5: FY 2015 AVS POPULATION

Figure 5 displays the composition of the Aviation Safety Workforce by services/offices.

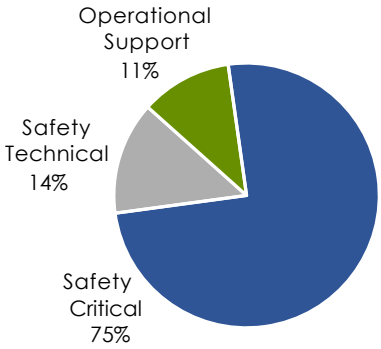


SERVICE/OFFICE DESCRIPTION



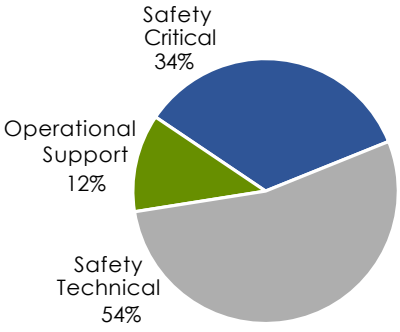
Flight Standards (AFS) 5,210 (72%) The Flight Standards Service promotes safety in air transportation by setting the standards for certification and oversight of airmen, air operators, air agencies, and designees as well as safety of flight of civil aircraft in air commerce by:

- 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



Aircraft Certification (AIR) 1,328 (18%) The Aircraft Certification Service develops and administers safety standards governing the design, production, and airworthiness of civil aeronautical products. The following responsibilities support their mission:

- 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

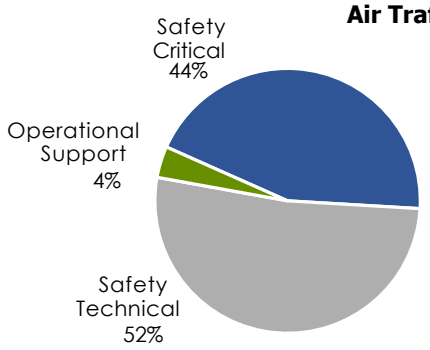


Aerospace Medicine (AAM) 360 (5%) The Office of Aerospace Medicine is responsible for a broad range of medical programs and services for both the domestic and international aviation communities and provides global leadership for Aerospace Medicine in the 21st century. It has the following responsibilities:

- Enabling medical certification of airmen
- Providing Airmen Medical Education and Training
- Inspecting and overseeing aviation industry drug and alcohol testing programs
- Implementing medical standards and regulations
- Providing medical clearance of Air Traffic Control Specialists
- Providing drug and alcohol testing of FAA employees with safety-sensitive jobs and jobs that require security clearances
- Providing support for aerospace medicine and human factors research
- Drafting and distributing the Federal Air Surgeon Bulletin

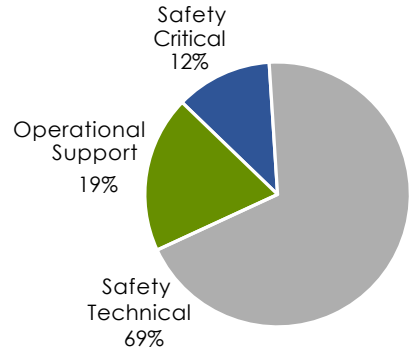
AVS SERVES THE AVIATION COMMUNITY BY PROMOTING SAFETY AND PROVIDING A BREADTH OF SERVICES FROM SETTING REGULATIONS AND STANDARDS TO ISSUING VARIOUS CERTIFICATIONS.

SERVICE/OFFICE DESCRIPTION



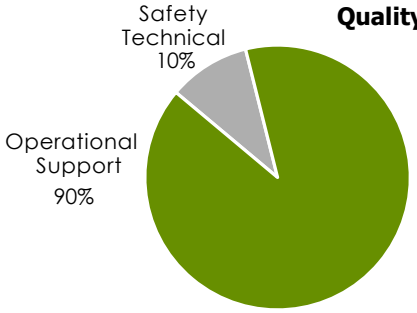
Air Traffic Safety Oversight (AOV) 131 (2%) The Air Traffic Safety Oversight Service is responsible for ensuring compliance of the FAA's Air Traffic Organization (ATO) with safety standards and with its Safety Management System (SMS). AOV's oversight of the ATO follows a systems safety approach for continued operational safety, SMS standards, and credentialing. Its 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



Accident Investigation and Prevention (AVP) 68 (1%) The Office of Accident Investigation and Prevention's overall mission is to make air travel safer through accident and incident investigation, data collection, risk analysis, and information sharing. Its responsibilities include:

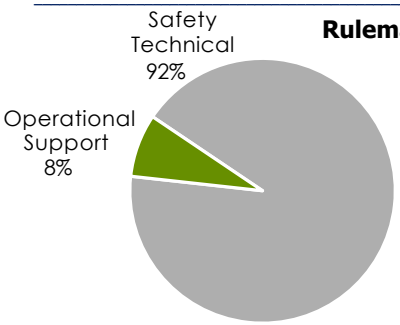
- Investigating major or significant accidents and incidents to identify safety deficiencies and unsafe conditions and trends and to recommend policy
- Coordinating with the responsible FAA office for evaluation and corrective action
- Analyzing accident/incident data and other safety data to identify safety issues and trends
- Addressing 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
- Leading and managing the U.S. State Safety Program, FAA SMS, AVS SMS and safety management related international collaboration activities
- Leading the FAA in the integration of safety management principles across the organization
- Managing the Administrator's Risk-Based Decision Making (RBDM) Initiative
- Managing the AVS Research and Development Portfolio



Quality, Integration & Executive Services (AQS) 60 (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 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 administrative management

SERVICE/OFFICE DESCRIPTION



Rulemaking (ARM) 39 (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
- Guiding, supporting, and coordinating FAA cross-organizational strategies for aviation regulations
- Coordinating with international partners

AVIATION SAFETY INSPECTORS AND AVIATION SAFETY ENGINEERS

The Flight Standards (AFS) and Aircraft Certification (AIR) services are the two largest entities within the Aviation Safety organization, representing 90 percent of positions. The two largest occupational series, Aviation Safety Inspectors (ASI) and Aviation Safety Engineers (ASE), make up 77 percent of the personnel within AFS and AIR. These positions comprise over two-thirds of all positions within AVS.

PROFESSIONAL DISCIPLINE DESCRIPTION

Aviation Safety Inspectors (ASI) ASIs 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, policies, and guidance for operations, maintenance, and avionics-related issues (ASI headquarters level responsibility)

AIR ASI responsibilities:

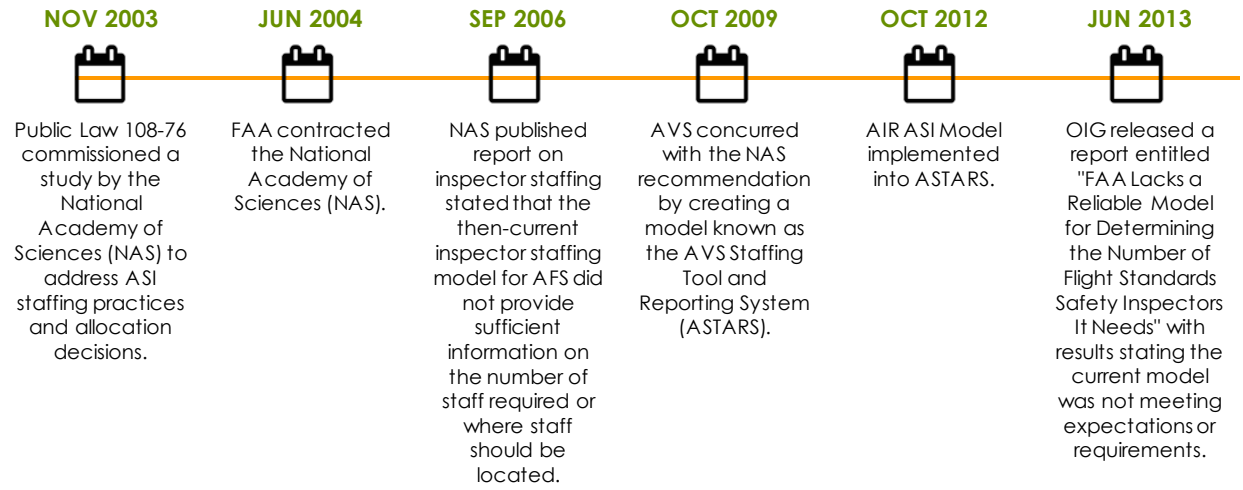
- Administer and enforce safety regulations and standards governing the production, airworthiness, and continued operational safety of aircraft, aircraft engines, propellers, and other parts
- Provide oversight of approval holders, designees, and delegated organizations
- Ensure continued operational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

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

- Administer safety standards governing the 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

FIGURE 6: AVS STAFFING TOOL AND REPORTING SYSTEM (ASTARS) TIMELINE

Figure 6 (continued on the next page) shows some of the major milestones of the AVS Staffing Tool and Reporting System (ASTARS).



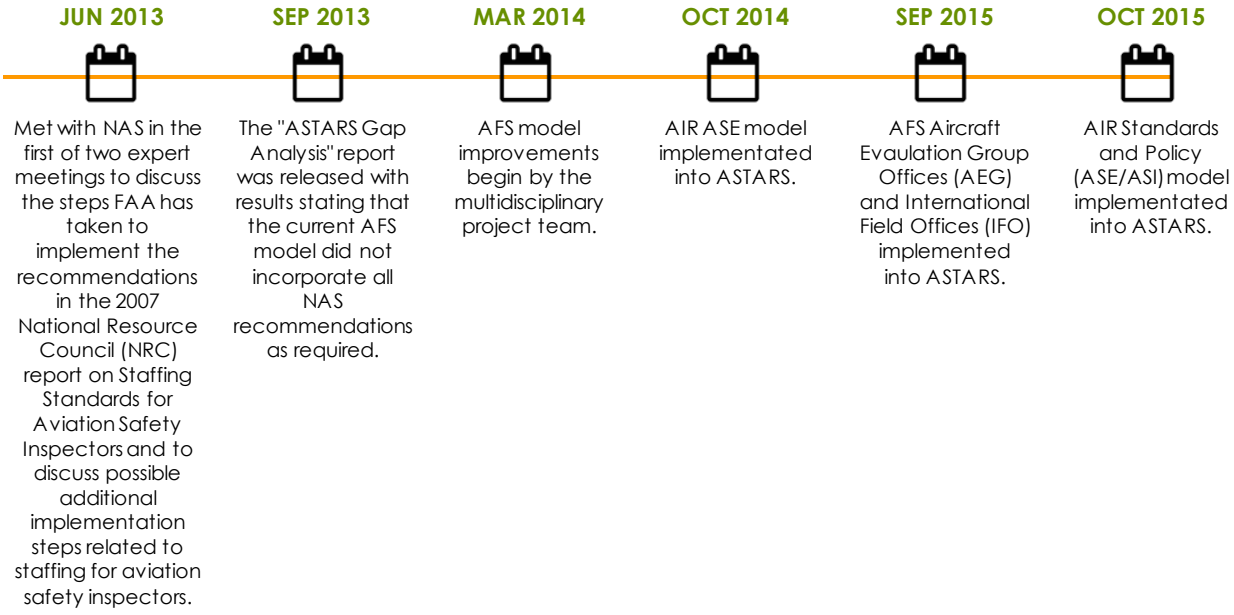
FORECASTING AVS NEEDS

Because the majority of positions within AVS are ASIs and ASEs, forecasting and modeling efforts have concentrated on assessing the requirements for these positions. The AVS Staffing Tool and Reporting System (ASTARS) assists the FAA in identifying staffing requirements for ASIs and ASEs.

AVS STAFFING TOOL AND REPORTING SYSTEM (ASTARS)

Multiple distinct staffing models forecast workforce needs under ASTARS

- AFS Flight Standards District Offices (FSDO) and Certificate Management Offices (CMO)
- AFS Aircraft Evaluation Groups (AEG)
- AFS International Field Offices (IFO)
- AIR Standards Management Team (SMT)
- AIR Manufacturing Inspection Offices (MIO) and Manufacturing Inspection District Offices (MIDO)
- AIR Aircraft Certification Offices (ACO)



Historical Work Activities and Work Hours

The models 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 (LDR) system and appropriate oversight activity tracking systems.

Forecasting

The number of activities is forecasted for the next 10 years based upon the relationship to demand drivers. Annual model improvement activities include analyzing and incorporating regression analysis to validate that a relationship exists between demand drivers and activities. Where possible and applicable, FAA-produced forecasts are used to predict workload change associated with industry growth. These forecasts are combined with field-level knowledge of expected workload changes.

The required 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 would be required if the same level of effort needed to support current activities were forecasted based upon the growth or contraction of the current industry. The forecast is adjusted to account for new industry efforts for UAS and the implementation of new automation applications.

Calculation Review

All ASTARS models follow the same general development process that includes both historical data calculation and Subject Matter Expert (SME) review. The nominal times and distributions are examined by a team of headquarters and field personnel for accuracy, trends, and outliers. The ASTARS review team is a multi-disciplinary group of model developers such as operations research analysts, economists, industrial engineers and mathematicians. The team also includes field ASIs, ASEs, managers and policy makers charged with developing AVS work activities. The focus of the review is to research and identify workload information that is supported with data and with field experience.

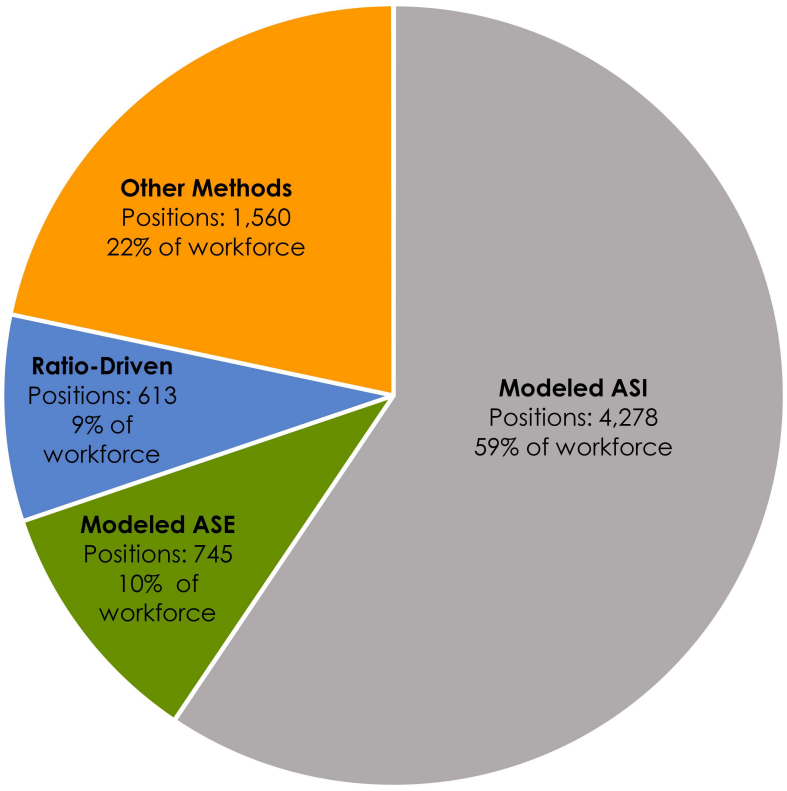
Data Quality Improvements

AVS has applied significant effort in the last five years on improvement of data quality of workload and work hour tracking systems. The improved data quality has allowed the ASTARS program to:

- Identify and review actual time spent working on the various activities of ASIs and ASEs
- Categorize and priority-rank work 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 Air Transportation Oversight System (ATOS), the Program Tracking and Reporting Subsystem (PTRS), and the Safety Assurance System (SAS))
- Examine the year-over-year change in time spent per activity and estimate future workload
- Examine workload differences between offices and identify potential causes (work type, company profile and travel times)
- Quantify and project all work hours including those spent on training, administrative activities, leave, and travel
- Examine the workload impact associated with designee oversight

FIGURE 7: METHODS FOR FORECASTING POSITIONS WITHIN AVS

Figure 7 identifies methods used to forecast staffing within AVS. Information shown represents actual positions at the end of FY 2015.



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 69 percent of all AVS staffing. An additional 613 positions are Safety Critical Operational Staff derived as a ratio of the ASTARS forecasts. The remaining 1,560 positions are determined independently of the ASTARS model.

In 2016, the AVS organization is continuing to develop a model to forecast staffing required for medical certification services of airmen and air traffic controllers. Through the continued development and future implementation of this model, AVS will increase forecasted positions to approximately 5,440 (74 percent), while reducing independently calculated positions to 1,342 of its overall staffing of 7,406 employees.

Managerial Input

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 resource guidance. For instance, the ASTARS model forecasts out-year (beyond 2017) 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 SMEs 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 2016 to FY 2025. FY 2015 is shown in each figure to illustrate end-of-year actual levels. Detailed views into anticipated staffing requirements for safety critical and operational support personnel, as well as ASIs and ASEs, are also presented in the following pages.

Figure 8, Total AVS Forecast with Planned Hires and Estimated Losses, projects estimated losses due to natural attrition, retirements, net transfers, and other losses. In FY 2015, actual losses were 418, including 272 positions due to retirement. The projected average annual loss is 432 positions for FY 2016 through FY 2025.

The figure also illustrates planned hires for the AVS workforce over the next 10 years and compares FY 2015 actual data with FY 2016 and out-year projections.

In FY 2015, actual hires were 589, and the projected average annual increase in staffing is 0.84 percent for FY 2016 through FY 2025, based on methodologies discussed in the Forecasting AVS Needs section.

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

Figure 8 shows FY 2015 actual staffing levels, the FY 2016 enacted staffing levels, and out-year projected staffing levels through FY 2025. The staffing target for FY 2016 is 7,406 with estimated growth to 7,823 in FY 2025.

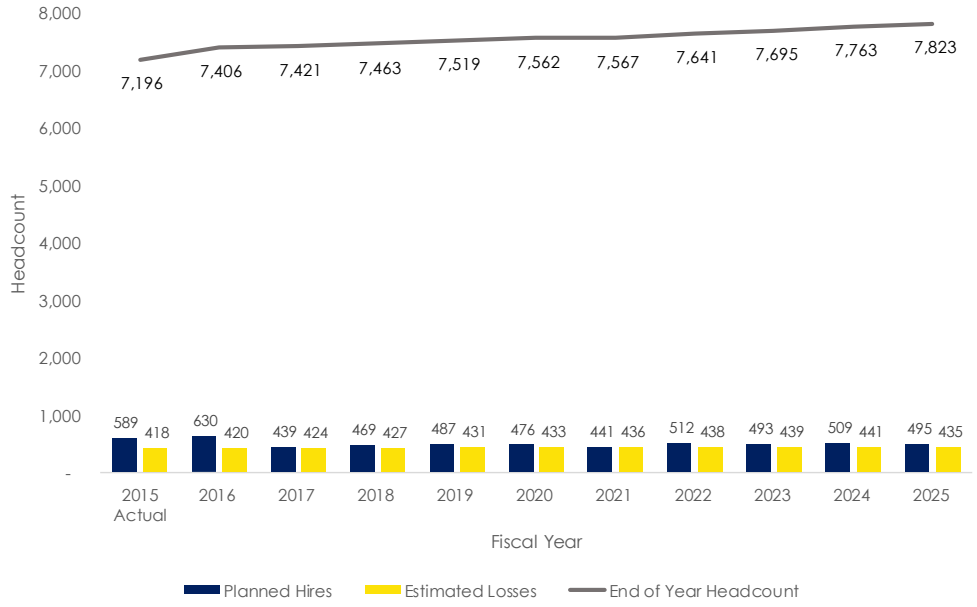


FIGURE 9: AVS PROJECTED HIRES AND LOSSES

Figure 9 shows FY 2015 actual staffing levels as well as planned hires and estimated losses for FY 2016 through FY 2025.

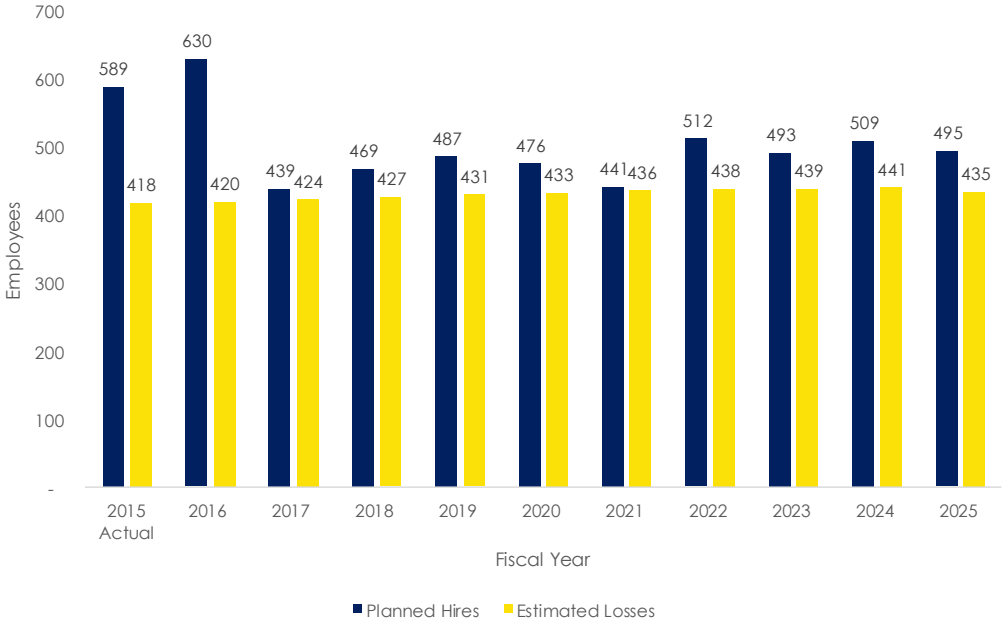


FIGURE 10: PROJECTED STAFF BY STAFFING CATEGORY

Figure 10 illustrates the anticipated needs specifically for safety critical staff, safety technical staff, and operational support staff.

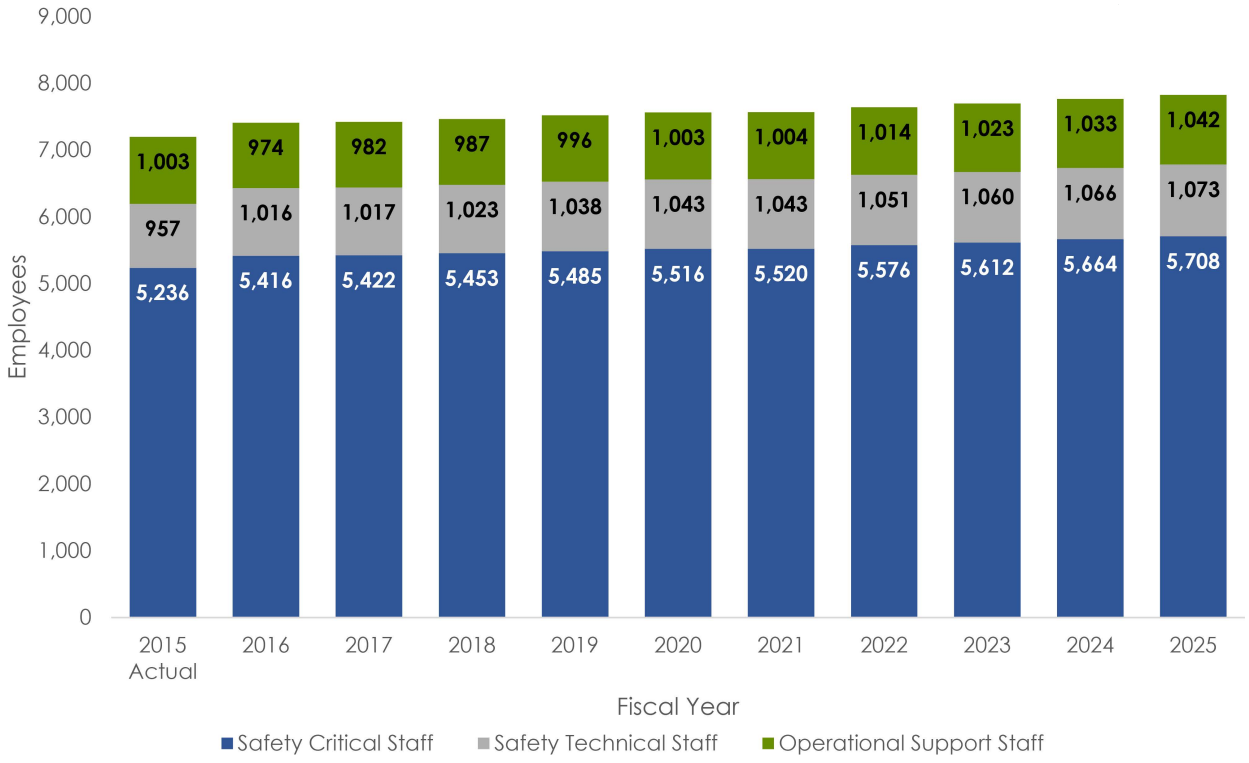
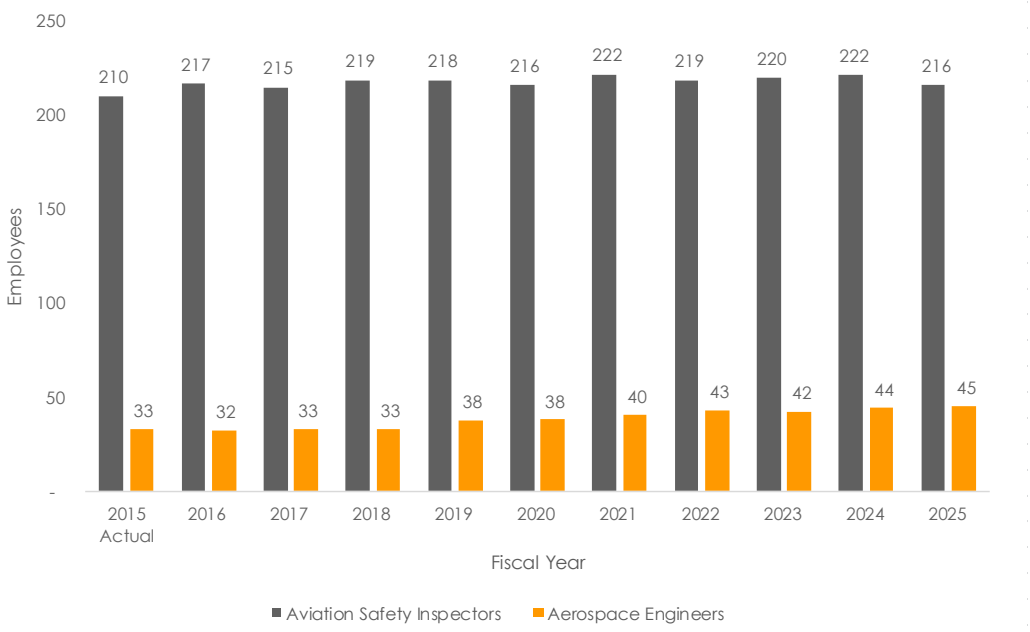


FIGURE 11: ASI AND ASE ESTIMATED STAFFING LOSSES

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



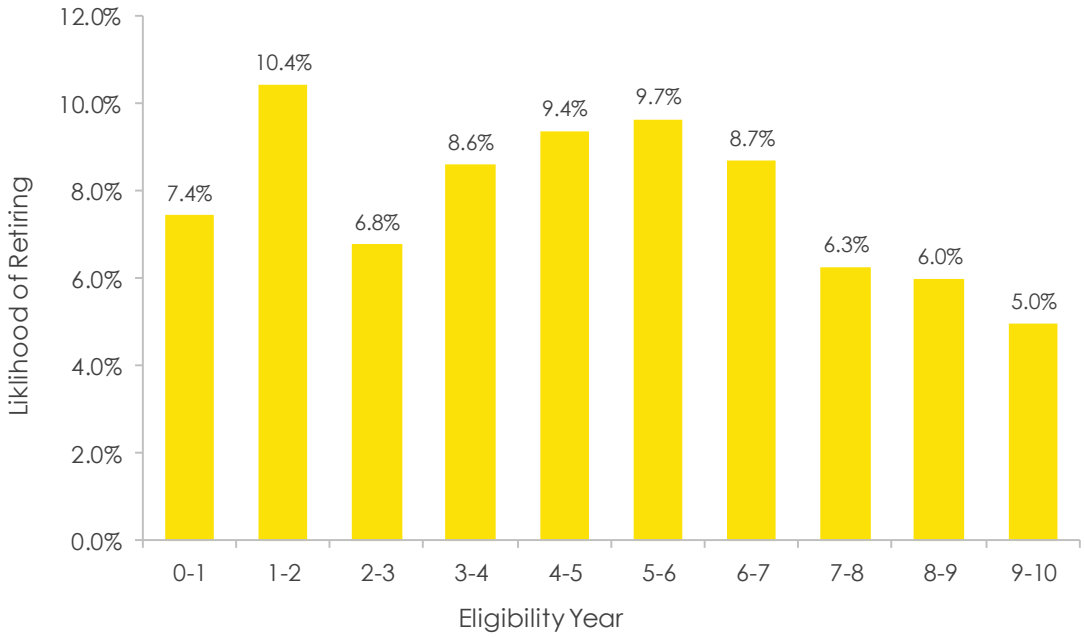
LOOKING FORWARD

SUCCESSION PLANNING

AVS tends to hire a very experienced safety workforce for many of its positions. The average age of AVS employees when hired is 42 and the current average age of AVS employees is 54. Over the last two years the average age at retirement for AVS personnel was 65. Past behavior reflects that a low percentage of employees actually retire immediately upon becoming eligible, and there is no mandatory retirement age for AVS employees as there is for Air Traffic Controllers. Figure 12 below shows the historical rates of retirement with respect to year of eligibility.

FIGURE 12: RETIREMENT BEHAVIOR PROFILE BY ELIGIBILITY YEAR

Figure 12 illustrates the forecasted percentage of AVS employees expected to retire during each year of retirement eligibility.



In order to mitigate the potential talent and experience loss, AVS continues to focus on building and maintaining a pipeline of skilled employees who are trained and prepared to take on roles of increasing responsibility. Succession planning includes specific recruitment, retention, and development initiatives detailed in the following sections.

RECRUITMENT PLAN

To operate successfully 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, critical thinking. AVS must compete with the private industry and other government agencies to recruit the best candidates from a specialized 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, which has resulted in a significant workforce challenge.

The primary recruitment and hiring vehicle AVS uses to hire its workforce is FAA Jobs, an automated hiring system used by applicants, managers, and human resource professionals to facilitate the overall application and selection process for positions. FAA Jobs is integrated into the Office of Personnel Management's (OPM) automated hiring system, USAJOBS. This integration 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 13 on the next page, is used to meet the hiring needs 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 to 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

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. In contrast to the limited number of qualified candidates available to fill safety critical positions, AVS is not experiencing significant challenges in hiring and staffing operational support positions, but rather continues to benefit from a growing talent pool of qualified 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 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 levels who can gain the knowledge and experience required to carry out the safety mission.

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.

Diversity and Inclusion

AVS has strengthened its collaboration with the Office of Human Resource Management (AHR) and the Office of Civil Rights (ACR) in order to conduct an analysis of hiring practices. The ongoing analyses will ensure that AVS is able to assess best practices and identify barriers to developing and improving hiring procedures. The analyses will also allow AVS to conduct briefings and provide training materials for hiring managers that will keep them informed and equipped with the resources and tools necessary to hire the candidates with the right skill sets for the job.

In FY 2015, a Barrier Analysis was completed for the 1825 series of ASIs to identify potential barriers that existed in the hiring process that could limit employment opportunities for individuals of a particular race, ethnic background, or gender, or for individuals with disabilities.

The analysis did not identify any barriers to attracting diverse candidates to AVS. It did provide valuable information on how the hiring process can be standardized and improved across the ASI occupation, to ensure fairness and equity. In FY 2016, AVS will work with AHR and ACR to develop strategies to implement the best practices identified in the report.

AVS continues its 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, finalized in June 2013, establishes long-term goals, strategies, and actions to assist managers in successfully recruiting, hiring, promoting, educating, and retaining 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. Since its implementation, AVS has successfully used the plan and its strategic initiatives to fully incorporate diversity and inclusion priorities into its hiring practices.

Since FY 2014 AVS has completed over 40 activities contained in the plan and has identified an additional 13 activities from the plan to complete in FY 2016.

For example, AVS has supported the Agency's Persons with Targeted Disabilities (PWTD) hiring initiative, which directly contributes to increased diversity. In FY 2015, AVS hired 11 PWTD, which represented 2 percent of total new hires in AVS, meeting the Agency-wide PWTD hiring goal of 2 percent.

In 2015, AVS supported ACR by hosting 13 synchronous training programs covering multiple EEO topics. More than 1,000 AVS employees were trained within a one week training blitz. The goal was to train 60 percent of managers and 10 percent of employees. AVS exceeded the goal by training 64 percent of managers and 27 percent of employees.

A major initiative under the Diversity and Inclusion Work Plan is the Standardized Hiring for AVS Rating and Referral Program (SHARP). SHARP establishes a structured, consistent, and objective hiring process for targeted safety critical positions, and covers the Air Carrier and General Aviation Maintenance, Operations, and Avionics Inspectors (FG-1825-12 and below), Manufacturing ASIs (FG-1825-12 and below), and ASEs (FV-861-I and below). AVS redesigned SHARP in FY 2014 to improve the process for the hiring of ASIs and ASEs. AVS used the program regularly in FY 2015 and will continue to make recommendations for improvement during FY 2016 critical safety hiring efforts.

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.

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
- 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.

WORKFORCE DEVELOPMENT PLAN

Training Goals

AVS develops its workforce by providing employees with necessary training to ensure they have the knowledge and skills needed to respond to aviation safety challenges and assume roles of increasing responsibility. AVS training leverages a combination of innovative training, including synchronous mobile learning (student and instructor present at the same time), asynchronous mobile learning, and traditional classroom-style instruction.

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)
- Implementing FAA Compliance Philosophy in curriculum where applicable
- Reinforcing AVS curriculum with Risk-Based Decision Making concepts

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
- Incorporating standard messages and concepts on AVS programs (e.g., Quality Management System [QMS], SMS, and NextGen) into services/offices-specific training
- Embedding short training clips into technical orders

FIGURE 15

Figure 15 explains the distinction between several types of training AVS provides its workforce.

Initial Technical Training

Training provided to new safety critical staff varies across the different services/offices and ranges from one to fifteen 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 online courses and others delivered in the classroom.

AFS has four main areas of technical specialization:

- General Aviation Operations
- General Aviation Airworthiness
- Air Carrier Operations
- Air Carrier Airworthiness

Each of the four areas listed above require a series of initial courses called "string training".

AIR requires a series of initial courses for all Safety Critical Operational Staff and is currently developing a new required course intended for all other staff to promote alignment of the AIR workforce to organizational goals. The Safety Critical 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. Employees involved in rulemaking activities are provided detailed training on the rulemaking and exemption processes.

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 employees need and when they need it. They also evaluate the skill sets represented in their offices to determine if employees require additional skills. 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 continuously review training requirements in order to keep pace with changes in the aviation industry.

In FY 2014, AVS implemented the Consolidated Management Resource Information System (CMRIS), a new "call for training" tool for AFS that provides greater flexibility to monitor and revise training needs throughout the year. AIR implemented CMRIS in FY 2015, and will extend the system to other services/offices in the future.

AVS directly supports FAA's Compliance Philosophy Order by developing, implementing, and monitoring completion rates of AVS employees through the Compliance Philosophy Briefing training. The Compliance Philosophy class is designed to be delivered online through the e-Learning Management System (eLMS). AVS achieved a training completion rate of 98 percent of all AVS employees in 2015. In addition to this e-training, AVS integrated the Compliance Philosophy into the AVS 101 webinar and the AVS Overview course.

Managerial/Leadership Training

In FY 2015, AVS continued to review leadership development opportunities in collaboration with the FAA Office of Learning and Development and other FAA lines of business, particularly the FAA Leadership and Learning Institute (FLLI). The assessment identified gaps between the Agency-level program and AVS requirements. AVS continues to assess the best way to meet those requirements, at the corporate and the services/offices level.

AQS continued to train AVS managers in effective communications via the Crucial Accountability (CA) course. The CA course has reached all eight services/offices. AVS continues to conduct the AVS Overview course, which includes a panel session with senior AVS leadership.

AFS continues to use its Curriculum Oversight Team (COT) to oversee 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 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.

FUNDING

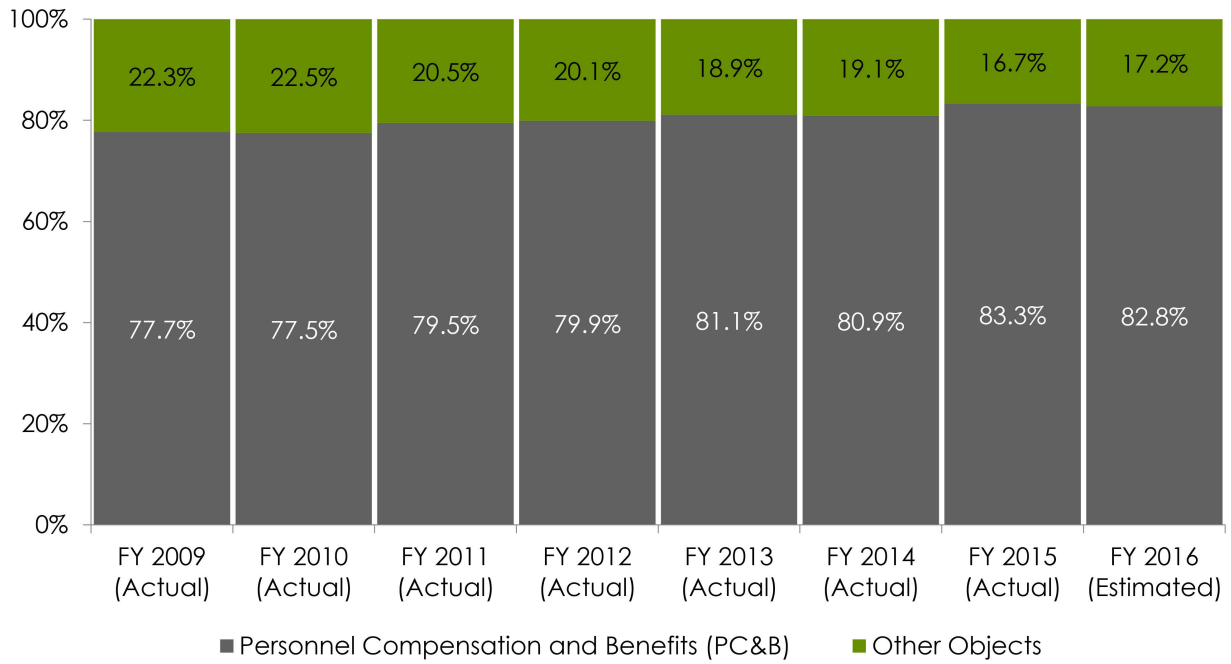
Staffing is AVS's greatest cost outlay. The average and overall personnel compensation costs for AVS are projected to increase in FY 2016, relative to the FY 2015 costs, as a function of increased staffing levels, annual pay increases, negotiated labor agreements, and the increased cost of employer benefit contributions. Because personnel compensation and benefits are anticipated to consume close to 83 percent of the AVS FY 2016 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 perform the organization's safety oversight and surveillance responsibilities effectively. AVS policy is to maintain a mobile workforce that is both trained and equipped to carry out the organization's safety mission.

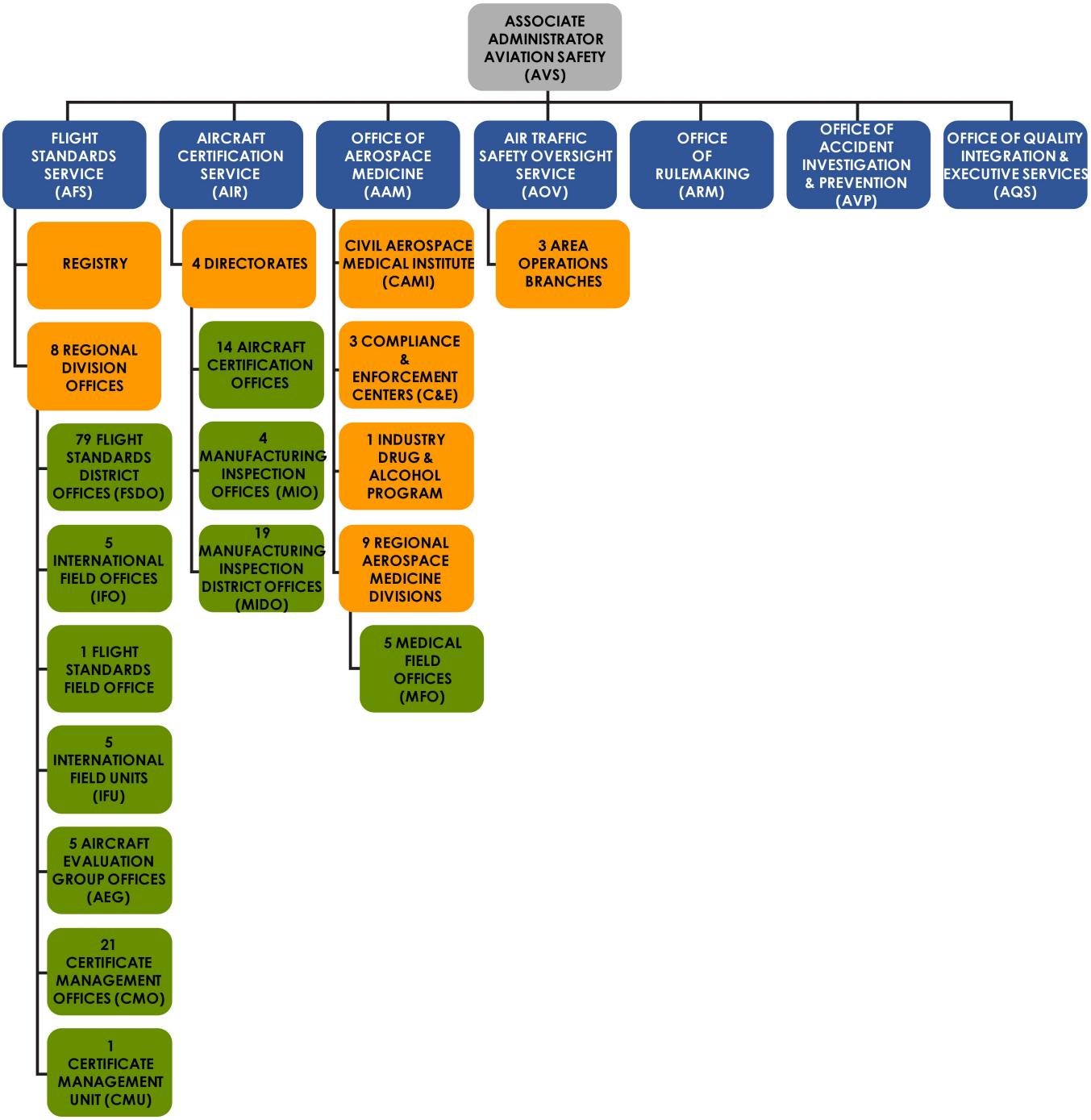
FIGURE 16: PERSONNEL COMPENSATION AND BENEFITS (PC&B) AND NON-PC&B SHARES IN AVS

Figure 16 depicts AVS actual and projected percentage funding by fiscal year and major object classification.



SUPPLEMENTAL INFORMATION: APPENDICES AND REFERENCE INFORMATION

Appendix 1: Aviation Safety Services/Offices Field Office Organization



Appendix 2: Services and Offices Responsibilities

Service/Office	Responsibilities
Flight Standards Service (AFS)	**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)	**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 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
Office of Aerospace Medicine (AAM)	**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)	**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

Service/Office	Responsibilities
Office of Accident Investigation & Prevention (AVP)	**Supports aviation safety through accident and incident investigation, data collection, risk analysis, and information sharing:** ▪ 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 and managing the ASIAS program, conducting data analysis and creating an environment to share data with government and industry to enhance safety ▪ Leading the FAA in the integration of safety management principles across the organization ▪ Managing the Administrator's RBDM Initiative ▪ Managing the AVS Research and Development Portfolio
Office of Quality, Integration, & Executive Services (AQS)	**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 administrative support
Office of Rulemaking (ARM)	**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 ▪ Managing rulemaking prioritization processes ▪ Coordinating rulemaking activities with those of our international partners

Appendix 3: AVS Staffing (Operations Appropriation)

The enacted FY 2016 budget will provide the AVS organization with 7,406 employees. Of those, 4,454 are Aviation Safety Inspectors (ASIs) and 768 are Aviation Safety Engineers (ASE) 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 2015 Actual	FY 2016 Enacted	FY 2017 Request
Flight Standards	Engineers	23	12	12
	Aviation Safety Inspectors	4,026	4,184	4,192
	Safety Technical Specialist Staff	424	456	457
	Operational Support	737	702	703
	Total	**5,210**	**5,354**	**5,364**
Aircraft Certification	Aviation Safety Inspectors	252	270	270
	Pilots, Engineers, and CSTAs	745	756	760
	Safety Technical Specialist Staff	183	172	172
	Operational Support	148	159	160
	Total	**1,328**	**1,357**	**1,362**
Aerospace Medicine	Physicians, Physician Assistants, Nurses	52	57	57
	Alcohol/Drug Abatement Inspectors	72	70	70
	Safety Technical Specialist Staff	193	226	226
	Operational Support	43	44	44
	Total	**360**	**397**	**397**
Air Traffic Safety Oversight	Air Traffic Safety Inspectors	58	58	58
	Safety Technical Specialist Staff	68	68	68
	Operational Support	5	7	7
	Total	**131**	**133**	**133**
Rulemaking	Safety Technical Specialist Staff	36	33	33
	Operational Support	3	3	3
	Total	**39**	**36**	**36**
Accident Investigation and Prevention	Air Safety Investigators	8	9	9
	Safety Technical Specialist Staff	47	49	49
	Operational Support	13	10	10
	Total	**68**	**68**	**68**
Quality, Integration, and Executive Services and AVS Executive Staff	Safety Technical Specialist Staff	6	12	12
	Operational Support	54	49	49
	Total	**60**	**61**	**61**
Grand Total	**Safety Critical Staff**	**5,236**	**5,416**	**5,428**
	Safety Technical Specialist Staff	**957**	**1,016**	**1,017**
	Operational Support Staff	1,003	974	976
	AVS Staff	**7,196**	**7,406**	**7,421**

Appendix 4: Aviation Safety Primary Stakeholders as of July 2015

Air Operator Certificates: 5,276

81	Major U.S. Air Carriers
2,075	Commuter Air Carriers/On Demand Air Taxi
80	Commercial Operators
492	Foreign Air Carriers
334	External Load (e.g. Logging, Oil Platform)
1,850	Agricultural Operators
364	Public Use Authorities (e.g., State/City/Police)

Air Agency Certificates: 5,980

736	Pilot Training Schools
4,795	Repair Stations
171	Maintenance Training Schools
278	Pilot Training Centers

Aircraft: 307,781

7,237	Air Carrier Aircraft
155	Commuter Air Carrier Aircraft
10,695	On Demand Air Taxi Aircraft
289,694	General Aviation

Aviation Authorities-other countries: 259

36	Authorities/Entities with Bilateral Agreements
191	Foreign Civil Aviation Authorities
32	Accident Investigation Authorities

Check Airmen: 12,537

4,553	Part 121
161	Part 121/135
7,823	Part 135

Designees: 9,635

3,299	Aircraft Certification
3,142	Flight Standards
3,194	Aerospace Medicine

Flight Instructors: 101,956

Mechanics with Inspection Authority: 21,194

Approved Manufacturers: 1,629

Active Pilots: 721,854

157,738 Airline Transport Pilot

118,548 Commercial

190,115 Private

218 Recreational

5,244 Sport

123,128 Student

126,863 Foreign Pilot

Non-Pilot Air Personnel: 762,217

384,155 Mechanics/Repairmen

36,855 Control Tower Operators

193,972 Flight Attendants

71,509 Ground Instructors

75,726 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

Airmen Medical Examinations: 379,809

32,540 Special Issuances

347,269 Standard Issuances

Aviation Industry Entities Covered by Anti- Drug and Alcohol Programs: 1,629

National Transportation Safety Board: 447

74 Safety Recommendations (5-year average)

341 Major Investigations (average/year) (new)

32 Open NTSB Safety Recommendations