2017-2026

AVIATION SAFETY WORKFORCE PLAN

U.S. Department of Transportation

Federal Aviation Administration

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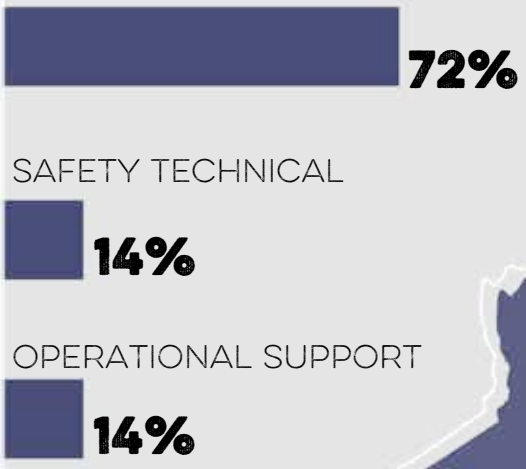
2016 HIGHLIGHTS

OFFICES IN OVER **80** LOCATIONS

7,300 EMPLOYEES

NEARLY **10K** DESIGNEES

Percent population per staffing category



AIR OPERATOR CERTIFICATES	**5,538**
MAJOR U.S. AIR CARRIERS	86
COMMERCIAL OPERATORS	90
COMMUTER AIR CARRIER / ON-DEMAND	2,267
FOREIGN AIR CARRIERS	525
EXTERNAL LOAD (E.G., LOGGING, OIL PLATFORM)	368
AGRICULTURAL OPERATORS	1,859
CIVIL AUTHORITIES (E.G., STATE / CITY / POLICE)	343

OVERVIEW OF THE REPORT

This is the Federal Aviation Administration's (FAA) tenth annual update to the Aviation Safety (AVS) Workforce Plan. It provides staffing estimates for all of the FAA's AVS Services and Offices as well as actual onboard levels as of September 2016. This 2017 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 (P.L. 112-95, Section 606(b)), the FAA has prepared an annual AVS Workforce Plan that:

- 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). In executing its responsibilities, AVS embraces the challenges of the ever-dynamic aviation safety environment. The FAA Compliance Philosophy first introduced in 2015 focuses us sharply on a core goal: to find problems and use the most effective means to fix them before they cause an accident or incident. In FY 2017, the FAA's oversight model will be evolving in response to the increasing complexity of the aviation industry to leverage industry's use of safety management principles, to exchange safety management lessons learned and best practices, and to promote a standardized, systematic approach to oversight. Flight Standards is reorganizing its structure to support the cultural change and will transition from today's geography-based structure to one based on four functional divisions: Air Carrier, General Aviation, Standards, and Foundational Business. Aircraft Certification Transformation shifts the emphasis to upfront planning, use of performance-based standards, and a robust risk-based oversight program. Engaging industry early to prepare for the introduction of new technology allows us to streamline the certification process for industry and reiterates the safety culture through all phases of the process. Unmanned Aircraft Systems (UAS) are rapidly increasing in number, technical complexity, and sophistication, and with a myriad of possible applications are driving of one of the most dynamic periods of change in the history of air transportation. Enabling rapid growth in UAS operations while maintaining the safety of the NAS for all users has become a significant portion of the AVS mission. We continue to address the challenges of establishing an appropriate UAS oversight framework, which includes development and revision of policies, guidance, and rules, primarily through realigning personnel to meet the increasing operational demand. The success of all these initiatives is embedded in AVS's diverse, highly skilled workforce.

INDUSTRY AND 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 System (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 staffing levels and manage changing workload demands.

HIRING AND 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 2017. By leveraging a combination of innovative Web-Based Training (WBT) and traditional classroom-based instruction, AVS is preparing its workforce to meet the 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. Mission-critical occupations, such as the Aviation Safety Inspector, have the highest average workforce age and lowest average tenure, which reflects the hiring of experienced employees from industry. However, there is no mandatory employee retirement age in AVS.

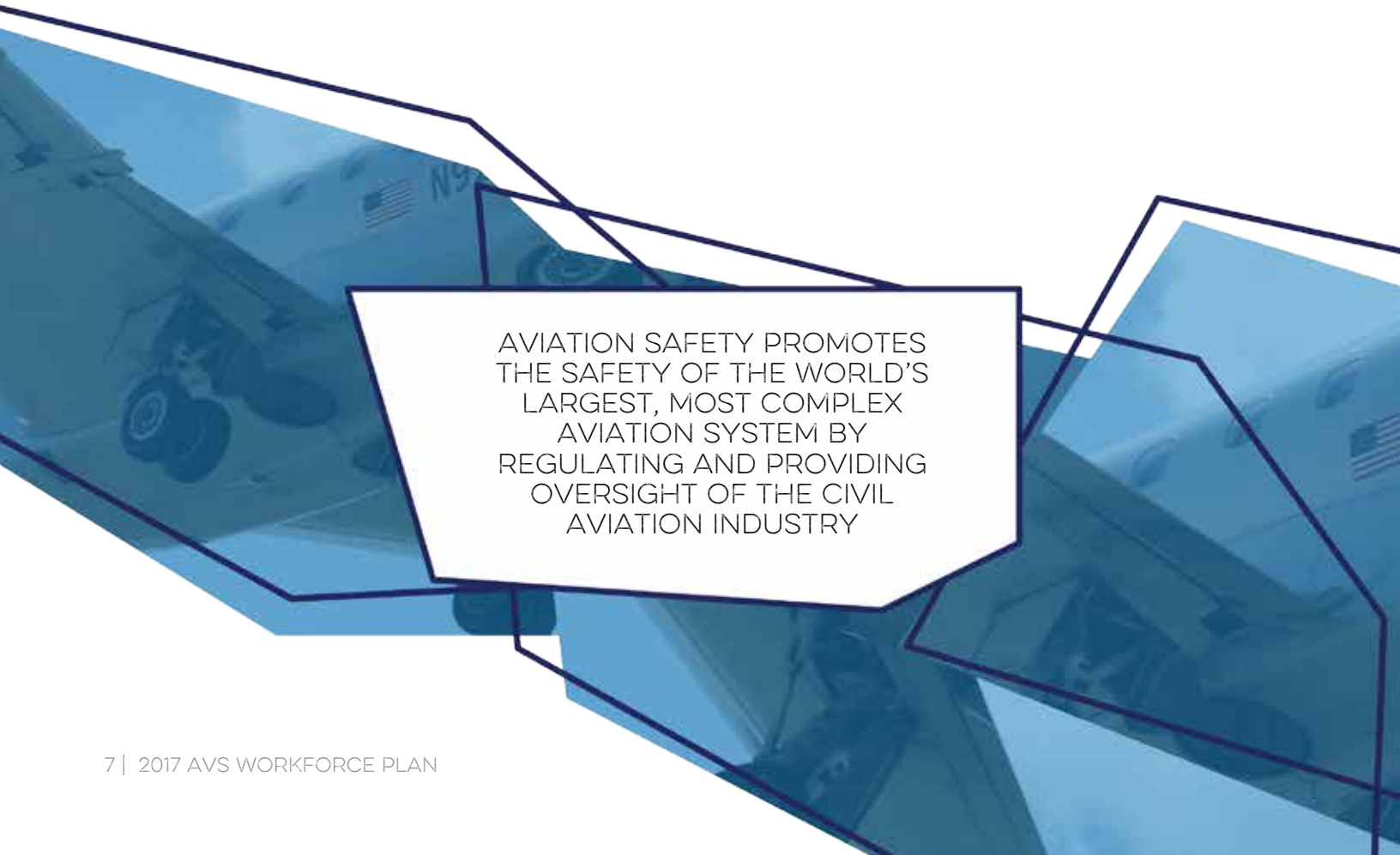
STAFFING

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 2016, the enacted staffing level for AVS was 7,406 positions. AVS ended FY 2016 with a staffing level of 7,300 and was below the end-of-year fiscal year staffing target by 106 positions.

ATTRITION

In FY 2016, AVS lost 430 safety professionals through attrition, including 300 due to retirement.

The FY 2016 attrition rate for AVS was approximately 6.0 percent, very close to previously forecasted out-year projections. AVS forecasts attrition levels between 5.7 and 6.0 percent for FY 2017 and beyond.



2016 AVIATION ENVIRONMENT

5,538 AIR OPERATOR CERTIFICATES

621,418 ACTIVE PILOTS

6,610 AIR AGENCY CERTIFICATES

683,098 NON-PILOT AIR PERSONNEL

383,337 AIRMEN MEDICAL EXAMINATIONS

2016 AVIATION ENVIRONMENT

307,781 AIRCRAFT

104,425 FLIGHT INSTRUCTORS

1,629 APPROVED MANUFACTURERS

21,685 MECHANICS WITH INSPECTION AUTHORITY

191 FOREIGN CIVIL AVIATION AUTHORITIES

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 nation's civil aviation industry. The AVS workforce is responsible for:

- Setting standards
- Certification
- Continued operational safety

FIGURE 1: AVS SAFETY MISSION

From design through operation, AVS ensures that every entity certified to operate within the National Airspace System (NAS) continues to meet required safety standards.

Setting Standards

AVS creates and amends the rules, regulations, policies, and associated guidance materials that apply to people, organizations, and equipment operating within the nation'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 subject matter experts within other FAA lines of business.

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, among others.

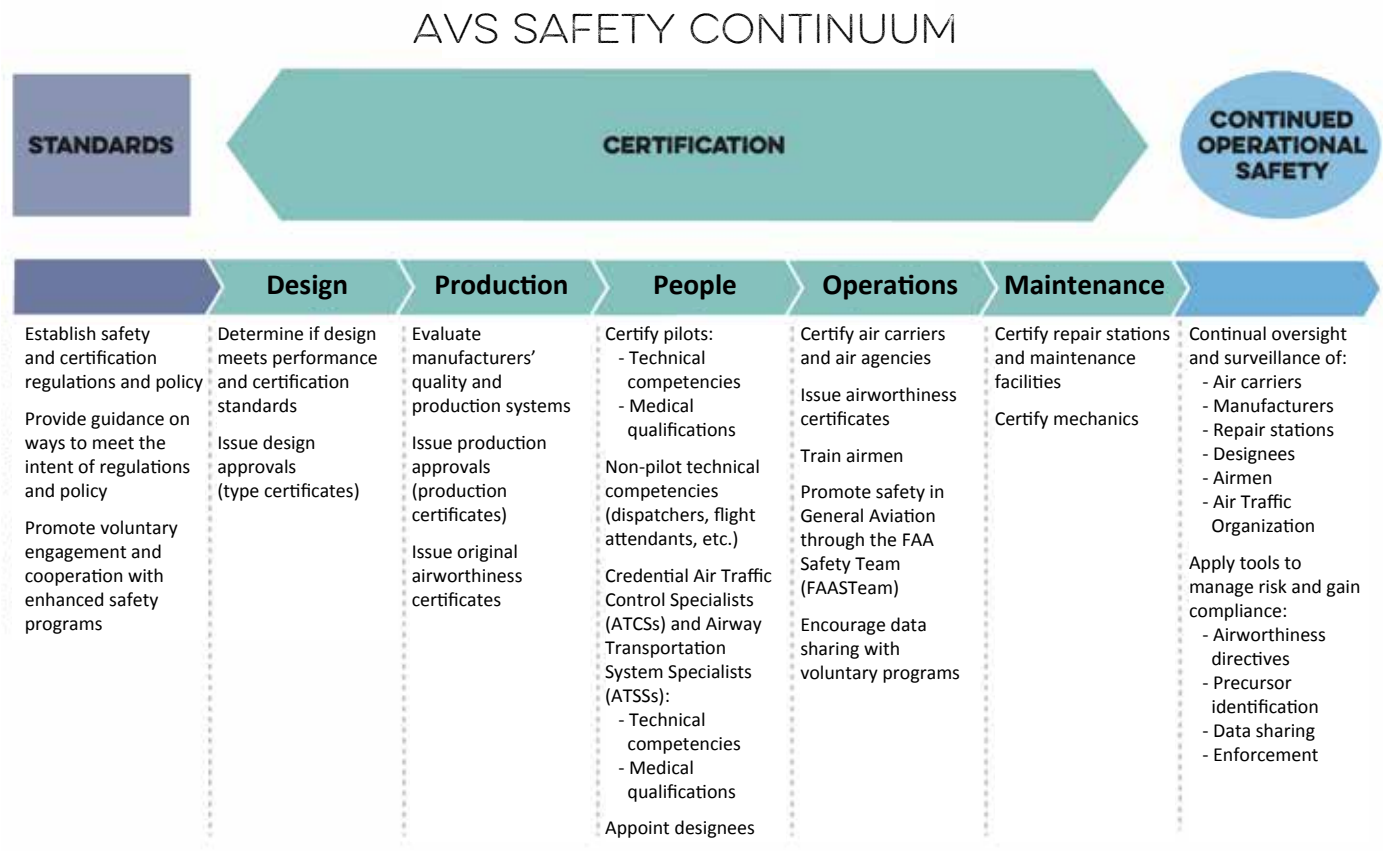
AVS also issues airworthiness approvals for aircraft, engines, propellers, and other aircraft parts.

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 2: AVS SAFETY CONTINUUM

As shown in Figure 2, the AVS safety continuum encompasses every aspect within the lifecycle of an aircraft.



COMPLIANCE PHILOSOPHY

Overview

The FAA's Compliance Philosophy Order sets forth the overarching guidance for implementing the FAA's strategic safety oversight approach. The Order clarifies and reinforces the discretion that public law and Agency policy provide for FAA program offices to take the most appropriate action to resolve deviations in the National Airspace System (NAS).

The Compliance Philosophy focuses the FAA sharply on a core goal: to find problems and use the most effective means to fix them before they cause an accident or incident. In FY 2017, the FAA's oversight model will be evolving in response to the increasing complexity of the aviation industry to leverage industry's use of safety management principles, to exchange safety management lessons learned and best practices, and to promote a standardized, systematic approach to oversight.

Applicability

This order applies to the compliance and enforcement programs and activities of all FAA offices that have regulatory responsibilities. These offices include:

- Flight Standards Service (AFS)
- Office of Aerospace Medicine (AAM)
- Aircraft Certification Service (AIR)
- Air Traffic Safety Oversight Service (AOV)
- Unmanned Aircraft Systems Integration Office (AUS)
- Airports (ARP) - non-AVS organization
- Commercial Space Transportation (AST) - non-AVS organization
- Security and Hazardous Materials Safety (ASH) - non-AVS organization

Background

Signed by Administrator Huerta, Order 8000.373, Federal Aviation Administration Compliance Philosophy became effective on June 26, 2015. Most affected lines of businesses published implementation guidance by October 1, 2015. Change management efforts have been used to increase the adoption and utilization of the updated policies and procedures.

The Compliance Philosophy represents a focus on using – where appropriate – non-enforcement methods, or "Compliance Action." Compliance Action describes the FAA's non-enforcement methods for correcting unintentional deviations or noncompliance resulting from factors such as flawed systems and procedures, simple mistakes, lack of understanding, or diminished skills.

In accordance with FAA strategic initiatives, the Compliance Philosophy allows the FAA to move to an oversight approach that begins to proactively manage risks globally through the identification and control of existing or emerging safety issues. It allows the FAA to concentrate resources on risk identification and problem solving. The Order also establishes a framework that enables the FAA to place more emphasis on effective compliance – how certificate holders ensure compliance rather than just a simple determination of whether they comply.

The Compliance Philosophy promotes safety management principles to address emerging safety risks by using consistent, data-informed approaches to make system-level, risk-based decisions. To foster an open and transparent exchange of information, the FAA believes that Compliance Philosophy, supported by an established safety culture, is instrumental in ensuring compliance with regulations, identification of hazards, and management of risks.

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 National Airspace 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 National Airspace System and allocate resources to the areas of greatest concern.

Safety Management System (SMS)

An SMS is a standardized approach to managing safety that incorporates organizational structures, accountabilities, policies, and procedures. An SMS establishes a formalized, safety risk-based approach to the management of an organization, whereby every process, decision, activity, acquisition, procedural change, or program modification is examined from a safety risk perspective in order to ensure that most of the potential associated hazards are uncovered, examined, and mitigated. It includes Agency-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, an SMS consists of four main components: Safety Policy, Safety Risk Management, Safety Assurance, and Safety Promotion. These components work together to enable AVS to manage safety risk in the aerospace system.

- Safety Policy – the documented commitment to safety, which defines its safety objectives and the accountabilities and responsibilities of its employees in regard to safety.

- Safety Risk Management (SRM) - a process within the SMS composed of describing the system, identifying the hazards, and analyzing, assessing, and controlling risk.

- Safety Assurance – includes processes within the SMS that function systematically to ensure the performance and effectiveness of safety risk controls and that the organization meets or exceeds its safety objectives through the collection, analysis, and assessment of information.

- Safety Promotion – a combination of training and communication of safety information to support the implementation and operation of the SMS.

An SMS builds on existing processes, procedures, and tools, enabling integration and interoperability across FAA lines of business (LOB) and AVS Services and Offices. It also allows for the introduction of new capabilities to meet the requirements in the current version of FAA Order 8000.369(B), *FAA Safety Management System*, and FAA Order vs 8000.367(A), *Aviation Safety (AVS) Safety Management System Requirements*.

Safety Management System Tools

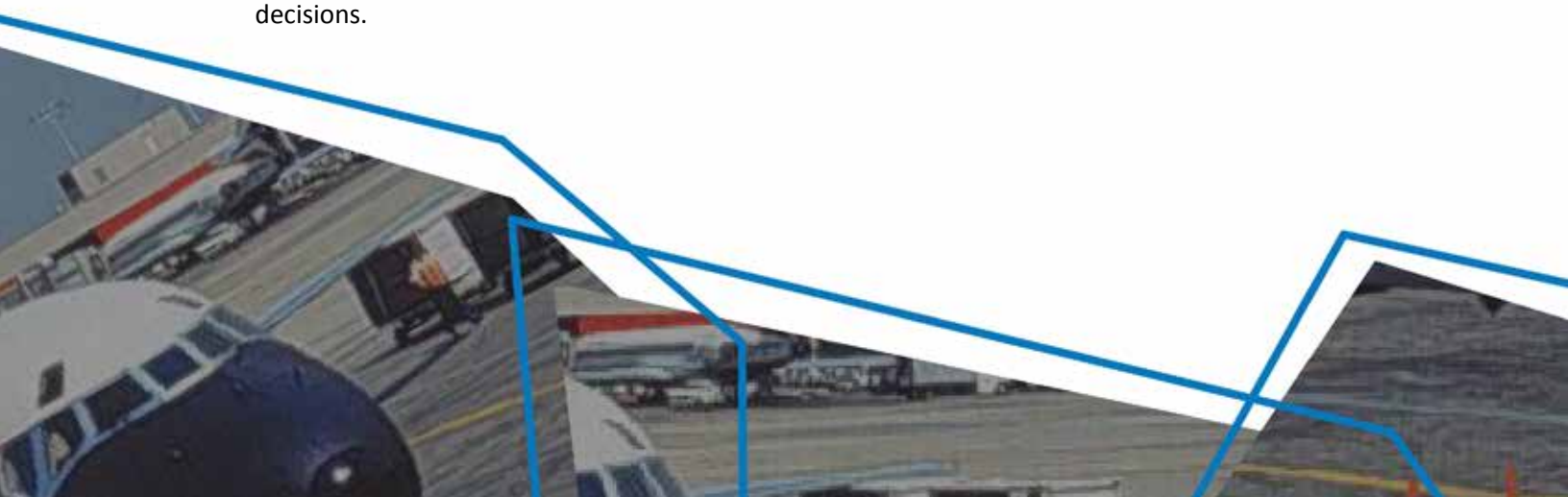
AVS must develop and implement advanced tools and techniques to assess and mitigate the aviation risks within a changing environment. AVS, alongside other aviation industry organizations, is currently using or implementing several technological capabilities that were developed to manage the risk of accidents.

- The **Safety Assurance System (SAS)** is an information technology (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 for 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.

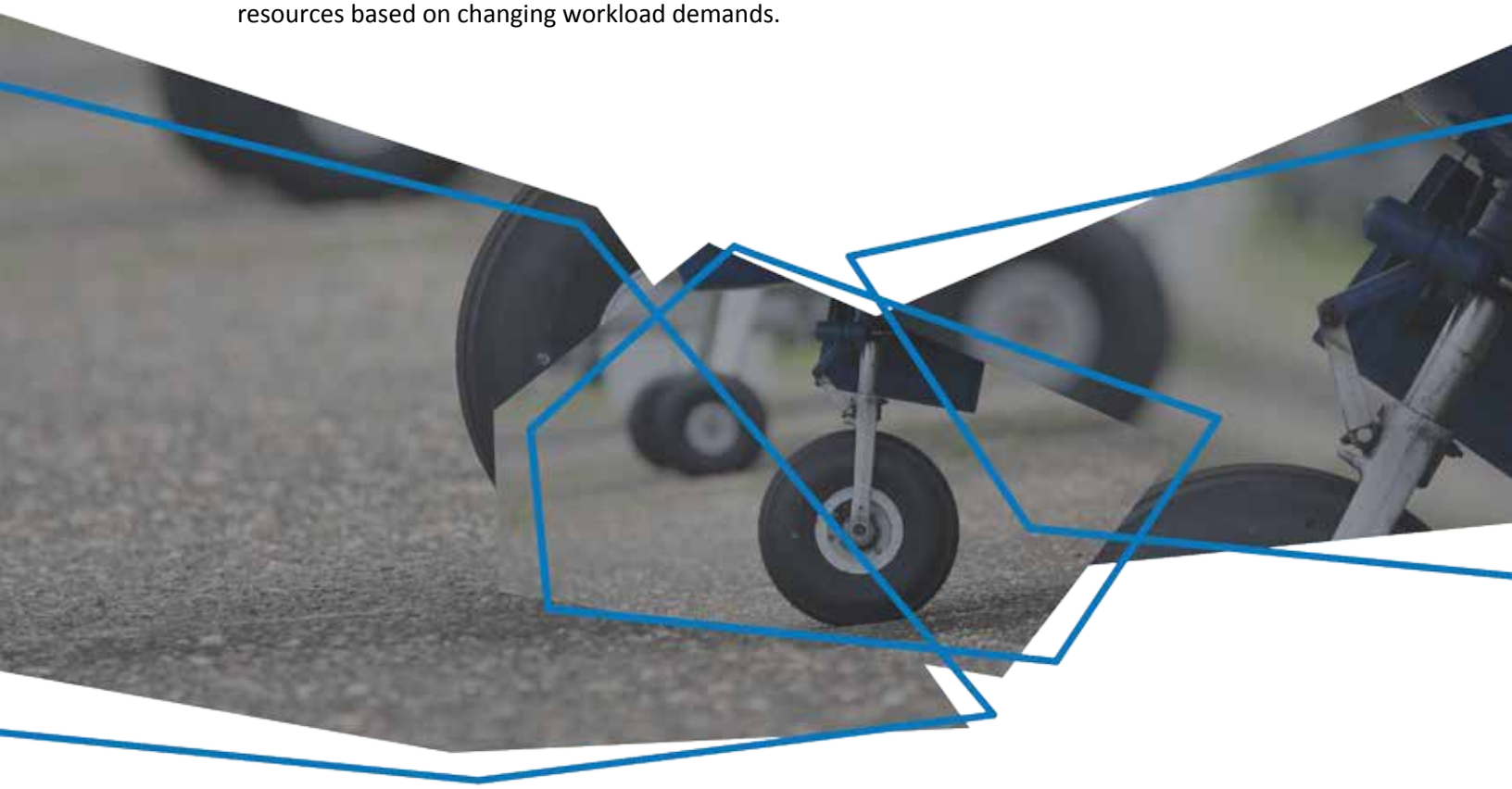
- The **Risk-Based Resource Targeting (RBRT)** process and IT tool are used in AIR to assess risk and identify risk management options in order to establish work priorities and allocate resources. It is a sub-process used in other AIR business processes such as type and production certification, certificate 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. RBRT 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 projected for implementation in FY 2018.

- The **Hazard Identification, Risk Management and Tracking (HIRMT)** tool is a FAA-wide tool used to track aviation safety hazards, risks, and mitigation outcomes. The HIRMT tool provides 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 AVS resources based on changing workload demands.



DESIGNEES, DELEGATED PROGRAMS, AND CHECK AIRMEN

Designees, delegated organizations, and check airmen 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, delegated organizations, and check airmen 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: DELEGATED ROLES AND CHECK AIRMEN

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

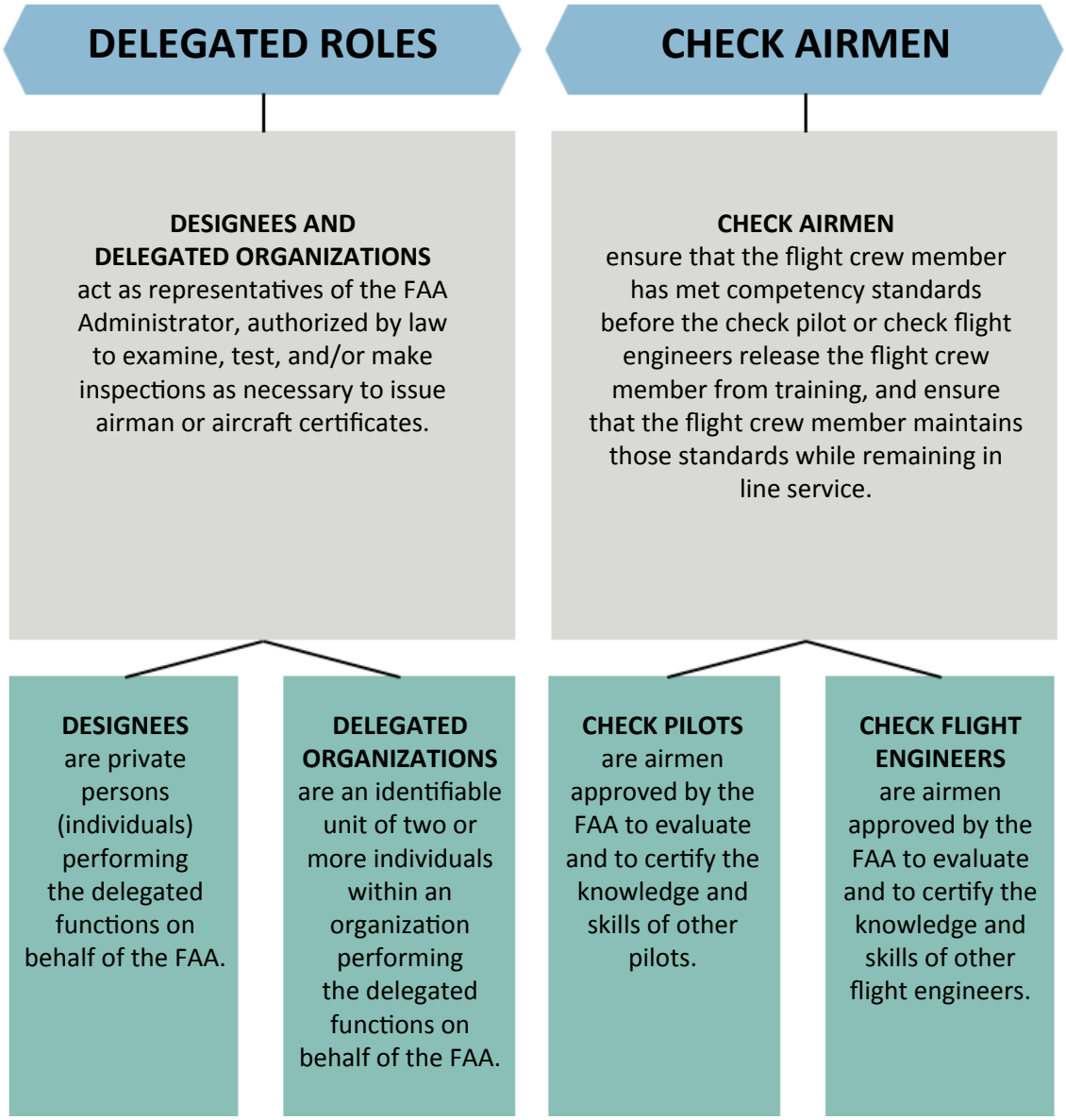
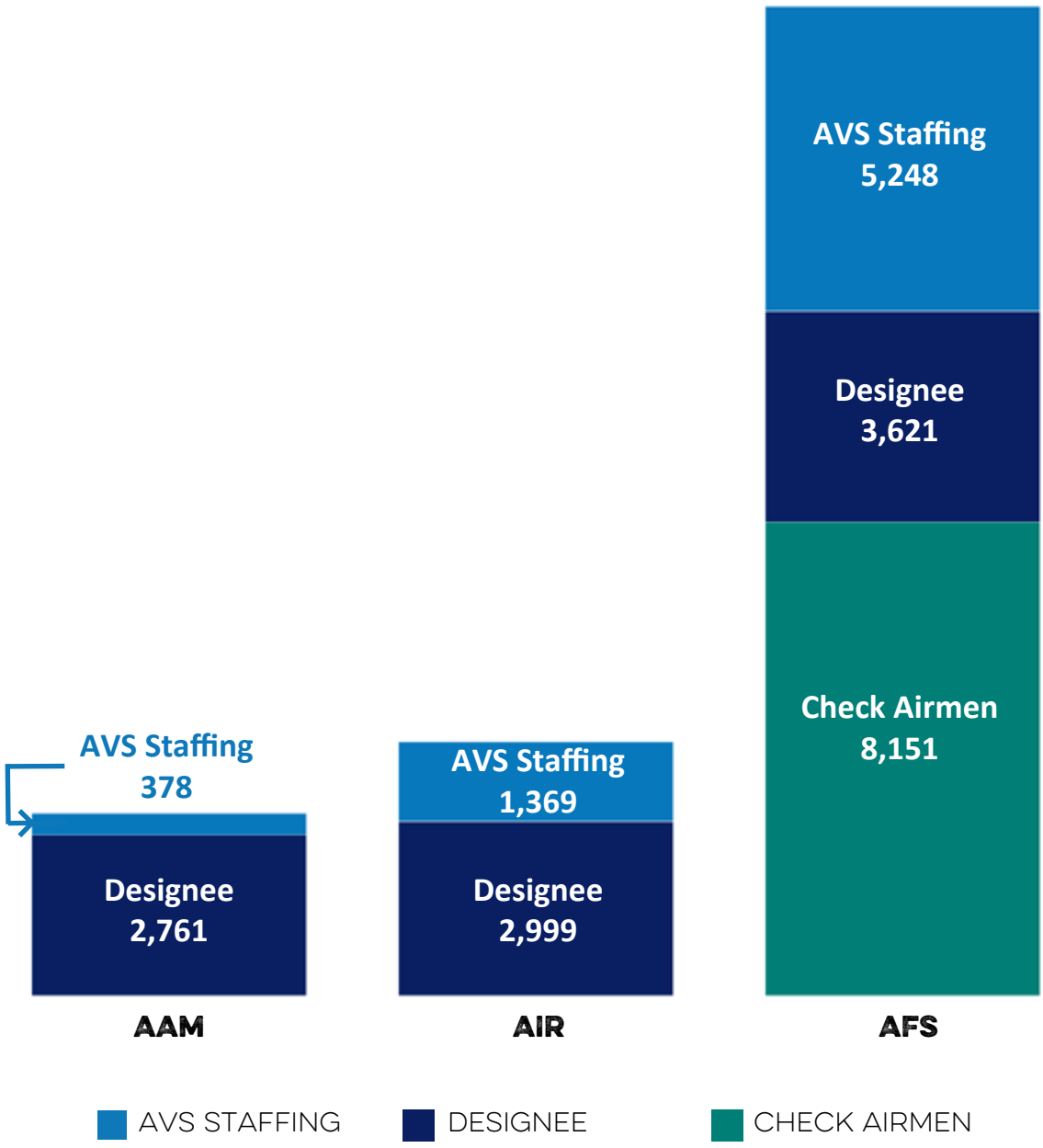


FIGURE 4: LEVERAGING DELEGATION

Figure 4 provides further detail on how AFS, AIR, and AAM leverage individual designees and check airmen to absorb 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.

AIRCRAFT CERTIFICATION SERVICE (AIR) TRANSFORMATION

AIR has played a critical role in ensuring that the National Airspace System is the safest in the world. This level of safety has been achieved through the development of safety standards, policy, and guidance to assure that aviation products are designed and produced to meet these standards. The airspace system is changing rapidly. It is becoming more complex, more interconnected, and more reliant on new technologies. Most notably, the certification process affects the time and cost of bringing products to market—key drivers of industry competitiveness. While safety is its number one priority, AIR is accountable to its stakeholders in terms of these outcomes. AIR is therefore embarking on new strategies and structures to continue to meet the demand for safety in the most cost-effective manner.

The challenges that complicate AIR's continued ability to advance these important outcomes in the twenty-first century environment include:

- Industry Growth: Industry expands and contracts quickly.
- Globalization of Aviation: Industry is made up of international networks and complex business arrangements that are challenging our traditional regulatory model.
- Velocity of Change: Technological advances and business model changes are precipitating higher rates of change and increasing the need for organizational agility and adaptability.
- Heightened Expectations: The public, industry, and government entities continue to increase their expectations of AIR to provide certification services faster and without error.

AIR Transformation is a comprehensive approach to improving efficiency and effectiveness by shifting the timing of AIR engagement activities with industry. Currently, core activities are transactional steps that create a hard dependency on the critical path in the middle of the certification process. AIR Transformation shifts the emphasis to upfront planning, use of performance-based standards, and a robust risk-based oversight program. Engaging industry early to prepare for the introduction of new technology allows AIR to streamline the certification process for industry and reiterates the safety culture through all phases of the process.

AIR Transformation is structured around three pillars that encompass the range of Transformation Initiatives:

- Refresh the certification strategy.
- Invest in management systems to improve performance.
- Improve the organization and invest in its people.

Industry commitment and change management have facilitated the need for this transformation and continue to underscore the importance of this strategic shift in activities.

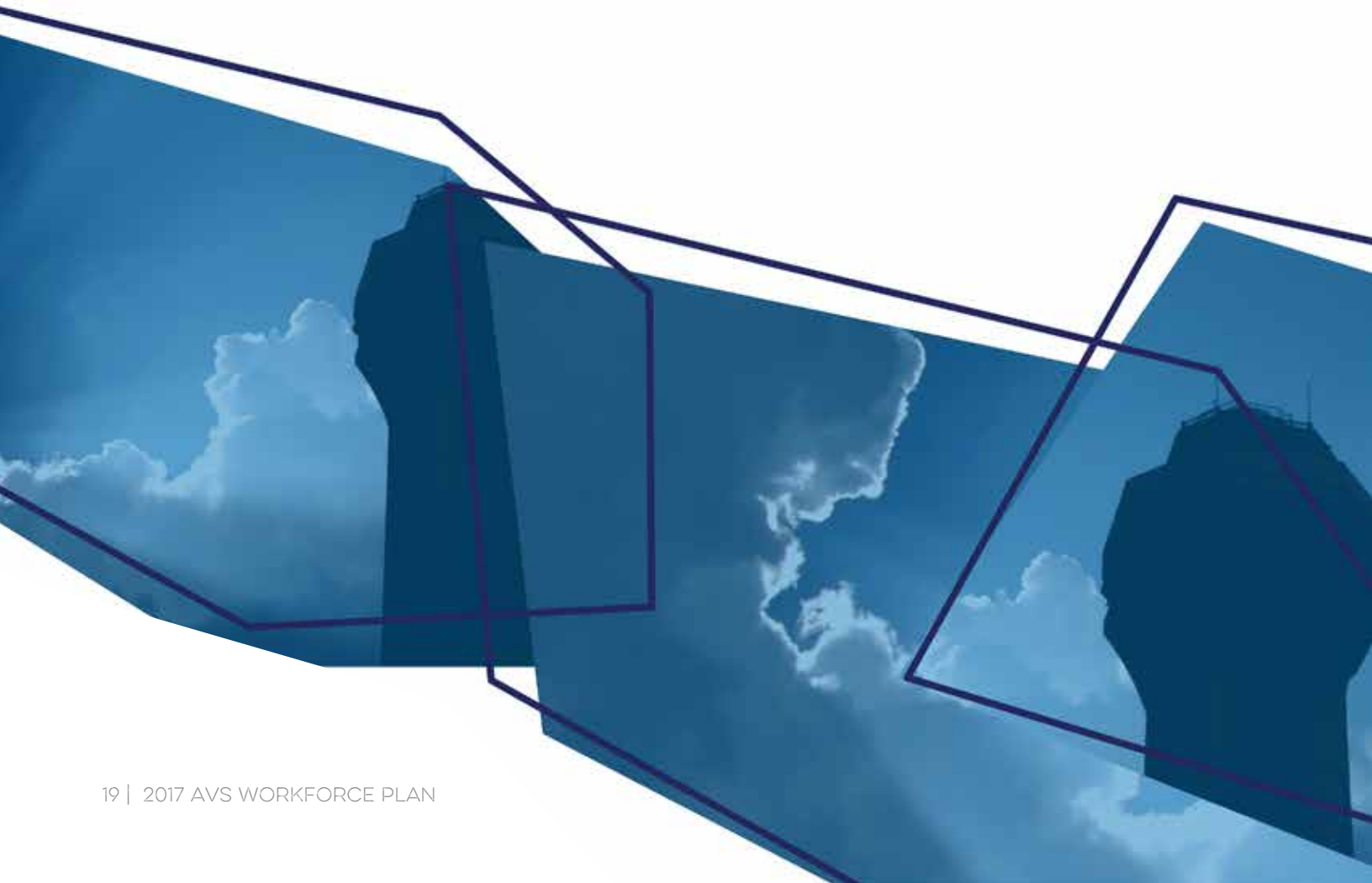
FUTURE OF FLIGHT STANDARDS

To effectively implement RBDM in the oversight of a highly dynamic industry, the Flight Standards Service (AFS) needs to adapt into a more agile, effective, and consistent organization that operates with greater accountability, better use of resources, and change readiness. This requires both cultural and structural changes.

AFS is in the process of reorganizing its structure to support the cultural change and will transition from today's geography-based structure to one based on functions. The core of this transition is the shift from a total of 22 headquarters and regional divisions to the following four functional divisions: Air Carrier, General Aviation, Standards, and Foundational Business. This shift advances the core attributes of Critical Thinking, Interdependence, and Consistency that are now embedded in each AFS employee's work requirements.

The AFS restructuring effort strives to accomplish the following objectives:

- Provide a reasonable and balanced span of control at all levels.
- Optimize organizational complexity.
- Reduce or eliminate barriers to optimal allocation of resources.
- Support alignment and collaboration.
- Facilitate consistent development, interpretation, and application of guidance.
- Enable the attraction, development, and retention of the right talent.
- Enable open and effective communication.
- Minimize redundancy.
- Support safety culture.
- Support core functions and priorities of the Flight Standards Service.
- Accomplish this change in a manner that minimizes disruption to workforce and stakeholders.



UNMANNED AIRCRAFT SYSTEMS (UAS)

UAS operations are quickly increasing in number, technical complexity, and sophistication, and are representative of one of the most dynamic periods of change in the history of transportation. The growth in popularity of UAS presents a number of challenges. The FAA, in order to facilitate the safe and efficient integration of UAS into the NAS, established the UAS Integration Office (AUS) in December 2016. AVS has identified activities the FAA will perform over the next five years to enable a risk-based regulatory framework supporting the integration of UAS into the NAS. The FAA collaborates 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 process of developing regulations is resource intensive. To establish an appropriate UAS oversight framework, the FAA will continue to develop, review, and revise policies, guidance, and rules to specifically address safe and efficient UAS integration and evolution within the NAS.

The FAA has adjusted manual processes and procedures and realigned personnel to meet the increasing UAS operational demand. These efforts have been primarily achieved by reallocating personnel to support UAS activities, which include standing up the UAS Integration Office, developing the Agency framework for UAS integration into the NAS, and conducting the initial implementation of the Small UAS Rule (14 CFR Part 107), which was designed to ensure safe, routine UAS operations while not stifling innovation. Multiple services across AVS and the FAA participated in the implementation of part 107. Subsequent rulemaking efforts will be required for continued integration of UAS into the NAS, including rules to address concerns about UAS security and about operations currently being authorized through waivers to the part 107 rule.

UNDERSTANDING THE AVS WORKFORCE

STAFFING CATEGORIES

Three staffing categories constitute the AVS workforce, with their 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 aviation 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 integration into 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 U.S. Department of Transportation Office of the Inspector General (OIG), the NTSB, and other oversight organizations.
- Designing, developing, and delivering technical training curricula.
- 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 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 eight services and offices located domestically and abroad. The population distribution charts shown in the following section represent the FY 2016 workforce for all offices except AUS, which was established in early FY 2017.

Services

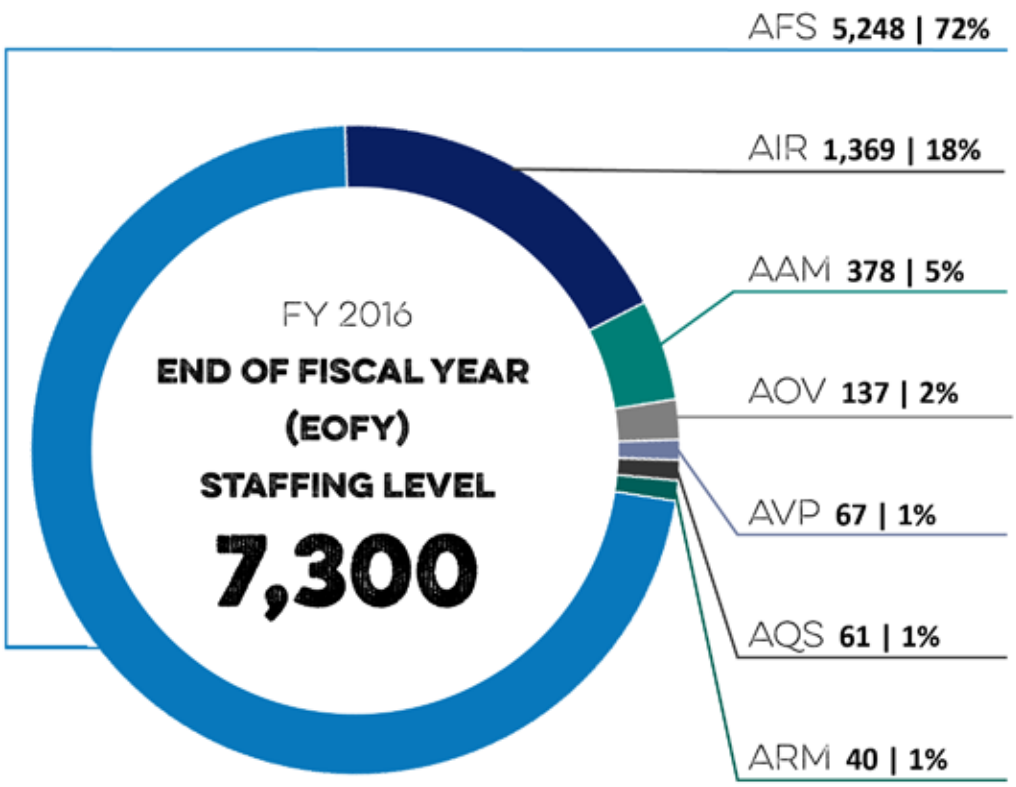
- Flight Standards (AFS)
- Aircraft Certification (AIR)
- Air Traffic Safety Oversight (AOV)

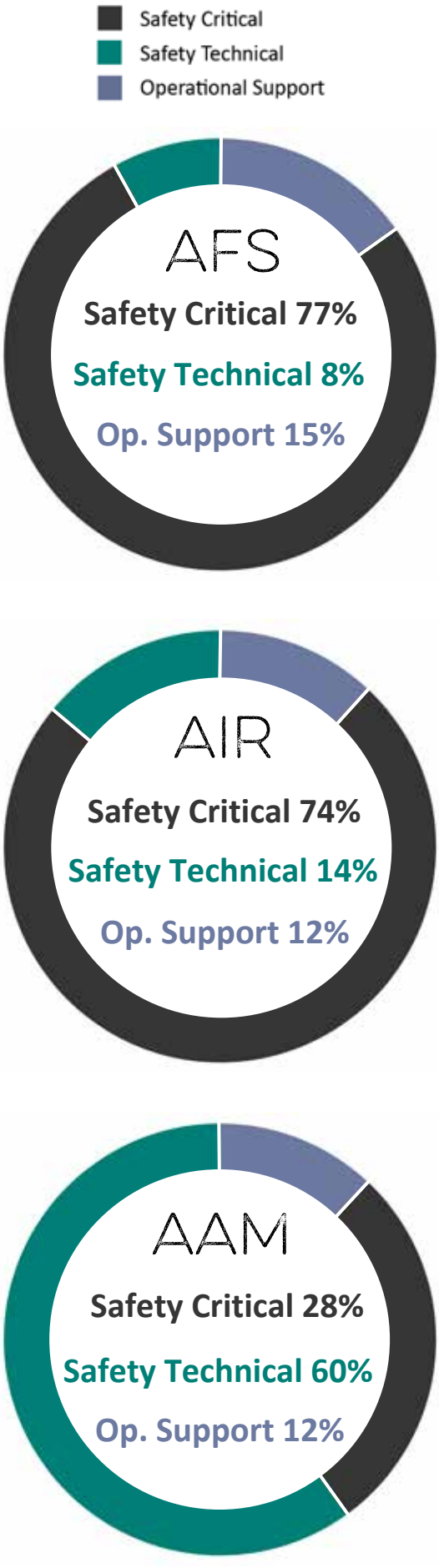
Offices

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

FIGURE 5: AVS POPULATION

Figure 5 displays the composition of the Aviation Safety Workforce by Services and Offices.





Flight Standards (AFS) 5,248 (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) 1,369 (18%)

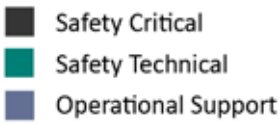
The Aircraft Certification Service develops and administers safety standards governing the design, production, and airworthiness of civil aeronautical products. The following responsibilities support their mission:

- 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) 378 (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 twenty-first 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*.



Air Traffic Safety Oversight (AOV) 137 (2%)

The Air Traffic Safety Oversight Service is responsible for ensuring compliance of the FAA's 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 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) 67 (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:

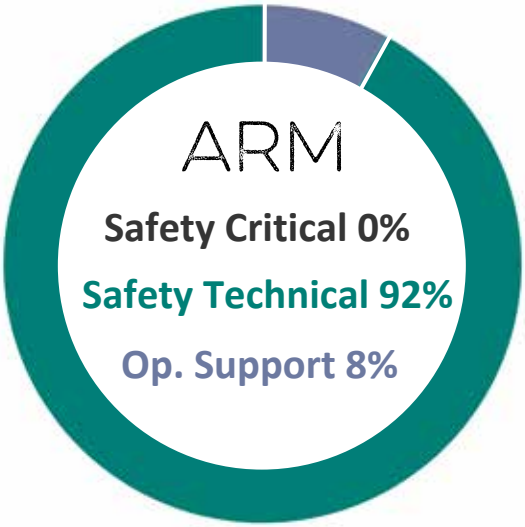
- Investigating major or significant accidents and incidents to identify safety deficiencies and unsafe conditions and trends and to recommend policy.
- Addressing NTSB and internal FAA safety recommendations.
- Directing ASIAS initiative, conducting data analyses, and creating an environment to share data with government and industry to enhance safety.
- Facilitating the Administrator's RBDM initiative.
- Overseeing the AVS Research and Development Portfolio.
- Coordinating the collaborative efforts of the government and industry safety teams - CAST, GAJSC.

Quality, Integration & Executive Services (AQS) 61 (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.

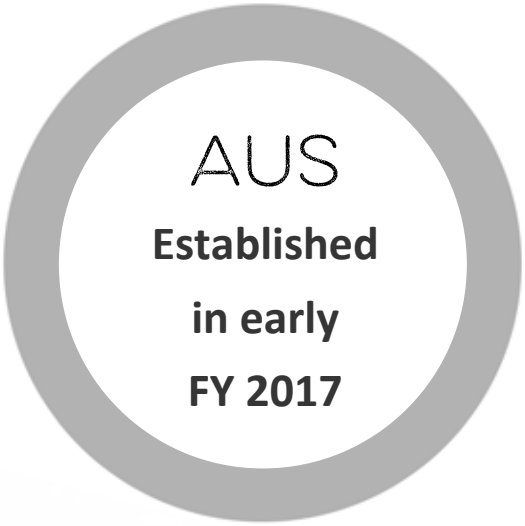
Safety Critical
Safety Technical
Operational Support



Rulemaking (ARM) 40 (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 aviation-related issues.
- Guiding, supporting, and coordinating FAA cross-organizational strategies for aviation regulations.
- Coordinating with international partners.



Unmanned Aircraft Systems Integration (AUS)

The Unmanned Aircraft Systems Integration Office is responsible for facilitating the safe, efficient, and timely integration of UAS into the NAS. Its responsibilities include:

- Managing and coordinating international activities for UAS within AVS, with other FAA LOB, and Services and Offices.
- Ensuring alignment of UAS international activities with U.S. and FAA strategy and collaborating with foreign civil aviation authorities to improve global aviation safety.
- Strategic planning and direct support of continued UAS Research and Development (R&D).
- Managing projects and data for all UAS programs and activities.
- Supporting standards and policy development related to UAS and providing engineering resources to support UAS projects.
- Coordinating operational aspects of safe and timely integration of UAS into the NAS.

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

AVIATION SAFETY INSPECTORS AND AVIATION SAFETY ENGINEERS

The Flight Standards Service (AFS) and Aircraft Certification Service (AIR) 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.

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:

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

AIR ASI responsibilities:

- Administering and enforcing safety regulations and standards governing the production, airworthiness, and continued operational safety of aircraft, aircraft engines, propellers, and other civil aeronautical products.
- Providing oversight of approval holders, designees, and delegated organizations.
- Ensuring 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:

- Administering safety standards governing the design of aeronautical products.
- Evaluating designs for compliance with safety regulations and standards.
- Providing oversight of approval holders, designees, and delegated organizations.
- Ensuring continued operational safety of aircraft, engines, and propellers.

FORECASTING AVS WORKFORCE 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)
- AAM Office of Aerospace Medicine airmen medical certification and ATCS medical clearance

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.

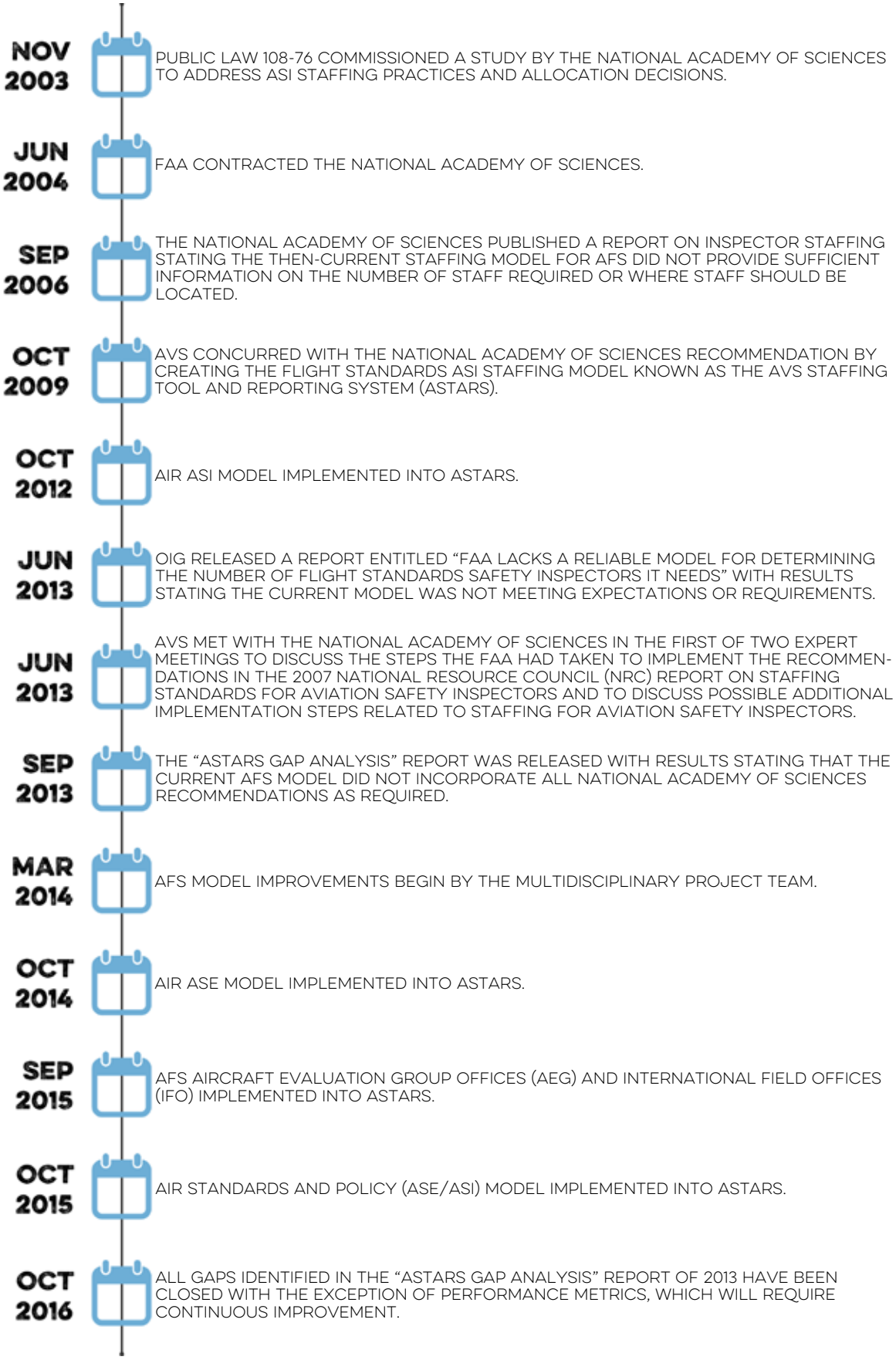
Forecasting

The number of activities is forecasted for the next ten 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 was 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.

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

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



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 multidisciplinary 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 (e.g., 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.

As a result, the model is a more reliable source for data-informed decision making.

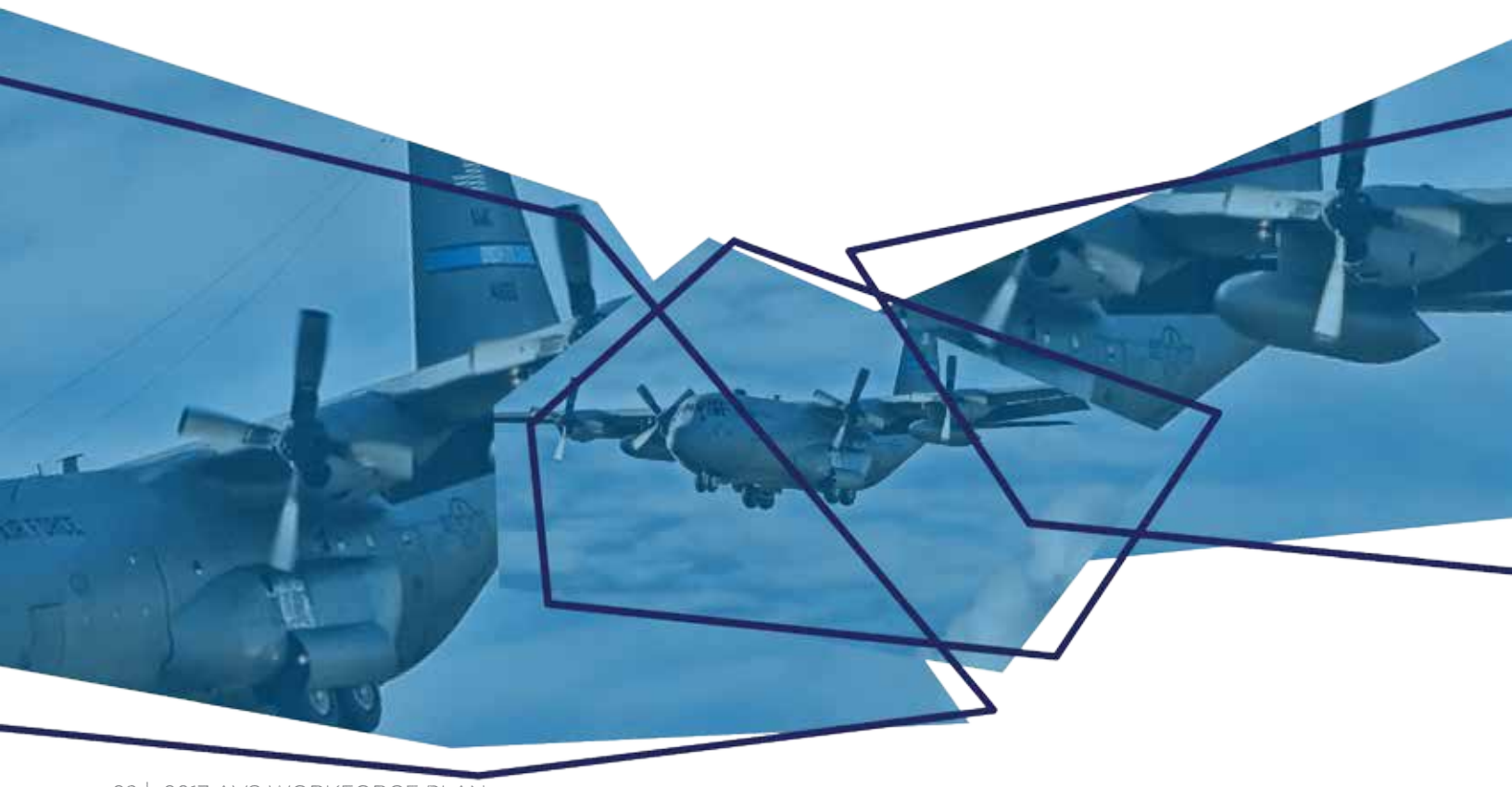
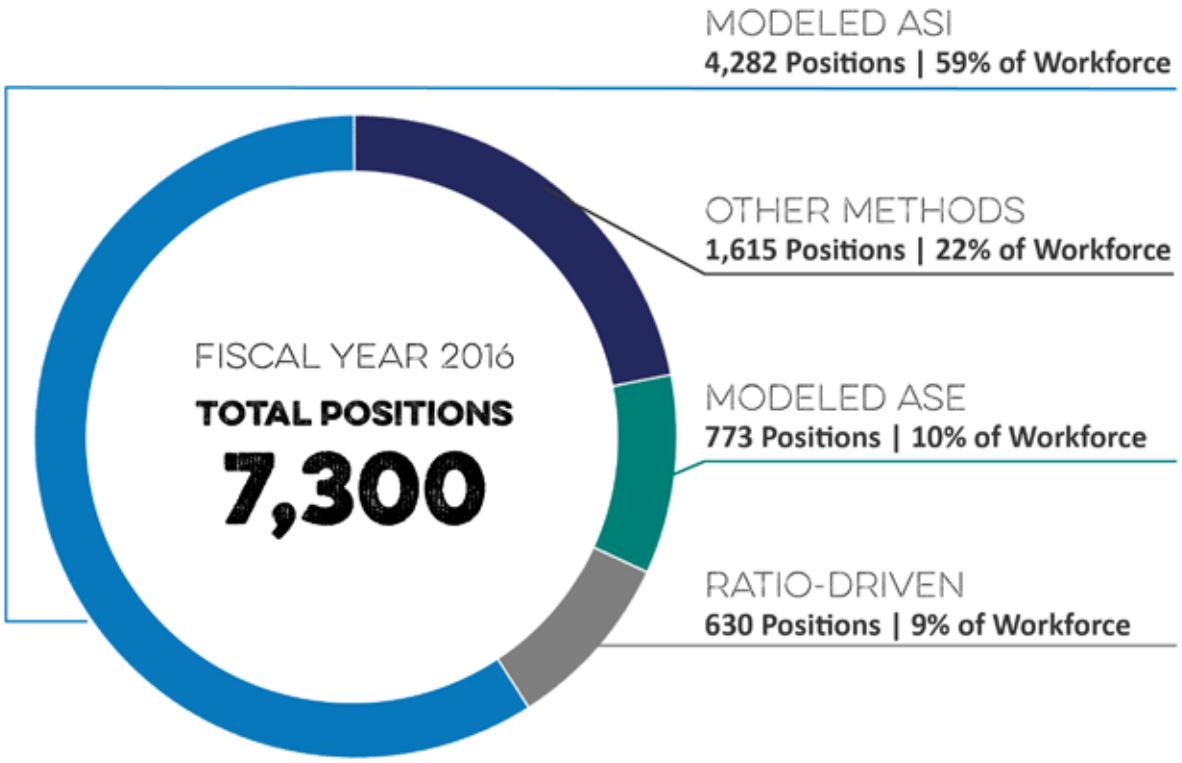


FIGURE 7: METHODS FOR FORECASTING POSITIONS WITHIN AVS

Figure 7 identifies methods used to forecast staffing within AVS. Information shown represents actual positions at the end of FY 2016.



Ratio Methodology Used for Safety Technical Specialist and Operational Support

For both AIR and AFS, the Safety Technical Specialist Staff and Operational Support Staff 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. Forecasts of ASI and ASE positions (5,055) are generated by the ASTARS staffing models and together comprise 69 percent of all AVS staffing. An additional 630 positions are Safety Critical Operational Staff derived as a ratio of the ASTARS forecasts. The remaining 1,615 positions are determined independently of the ASTARS model, an improvement from the first AVS Workforce Plan incorporating ASTARS (FY 2010) for which the number was 3,218. The FAA continues to work to incorporate other workforces into data-driven models.

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 FY 2019) 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. This is consistent with the National Academy of Sciences 2006 report, which recommended the incorporation of subject matter expertise with model results.

LOOKING FORWARD

This section provides anticipated workforce needs, estimated levels of attrition, and the planned hiring for AVS from FY 2017 to FY 2026. FY 2016 is shown in each figure to illustrate end-of-fiscal-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 2016, actual losses were 430, including 300 positions due to retirement. The projected average annual attrition is 445 positions for FY 2017 through FY 2026.

Figure 8 also illustrates planned hires for the AVS workforce over the next ten years and compares FY 2016 actual data with FY 2017 and out-year projections.

In FY 2016, actual hires were 534, and the projected average annual change in staffing is 0.87 percent for FY 2017 through FY 2026, based on methodologies discussed in the Forecasting AVS Needs section.

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

Figure 8 shows the FY 2016 actual staffing level, actual hires, and actual losses, as well as planned staffing levels, planned hires, and estimated losses for FY 2017 through FY 2026, for all of AVS.

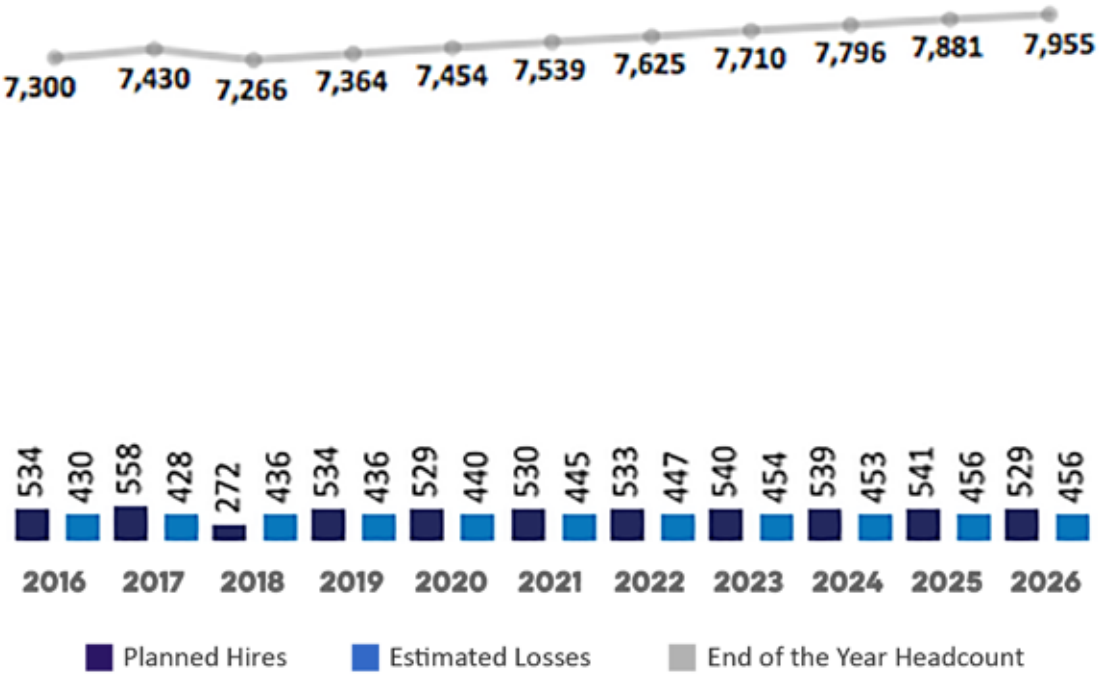


FIGURE 9: ASI FORECAST WITH PLANNED HIRES AND ESTIMATED LOSSES

Figure 9 shows the FY 2016 actual staffing level, actual hires, and actual losses, as well as planned staffing levels, planned hires, and estimated losses for FY 2017 through FY 2026, for all ASIs in AVS.

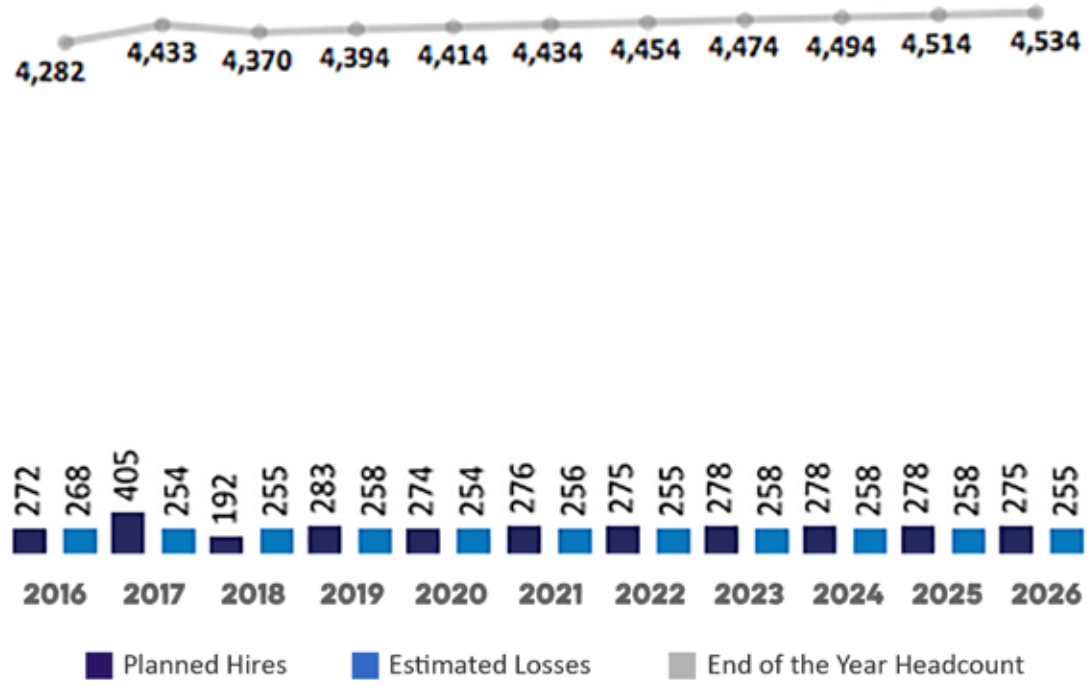


FIGURE 10: ASE FORECAST WITH PLANNED HIRES AND ESTIMATED LOSSES

Figure 10 shows the FY 2016 actual staffing level, actual hires, and actual losses, as well as planned staffing levels, planned hires, and estimated losses for FY 2017 through FY 2026, for all ASEs in AVS.

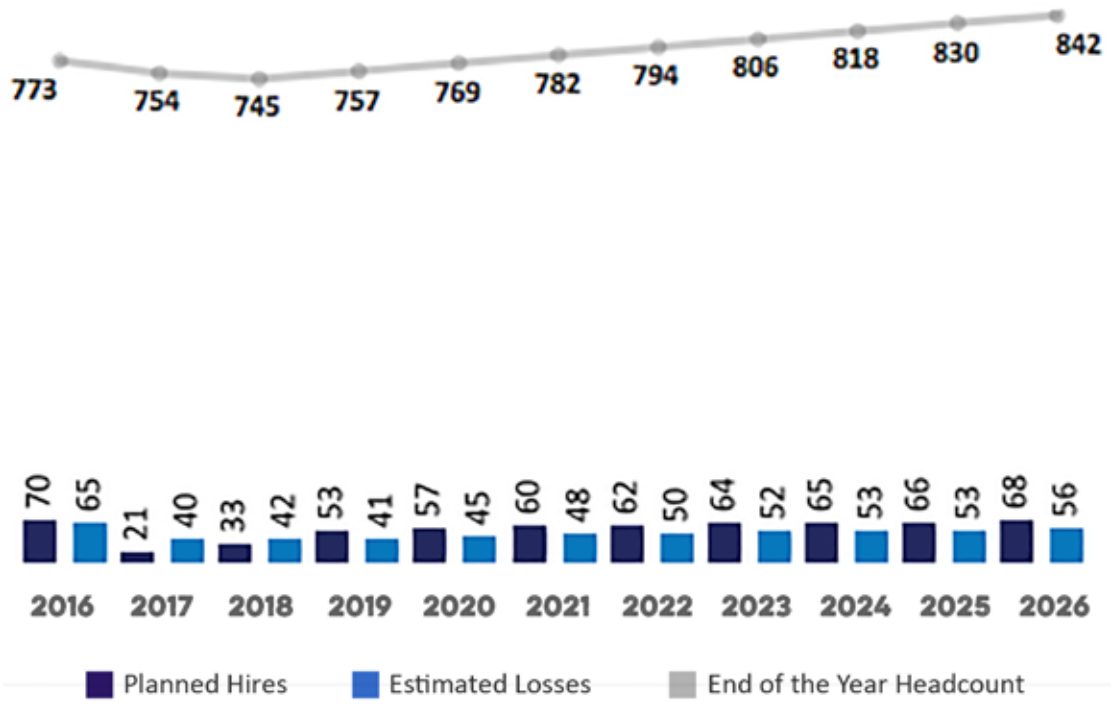
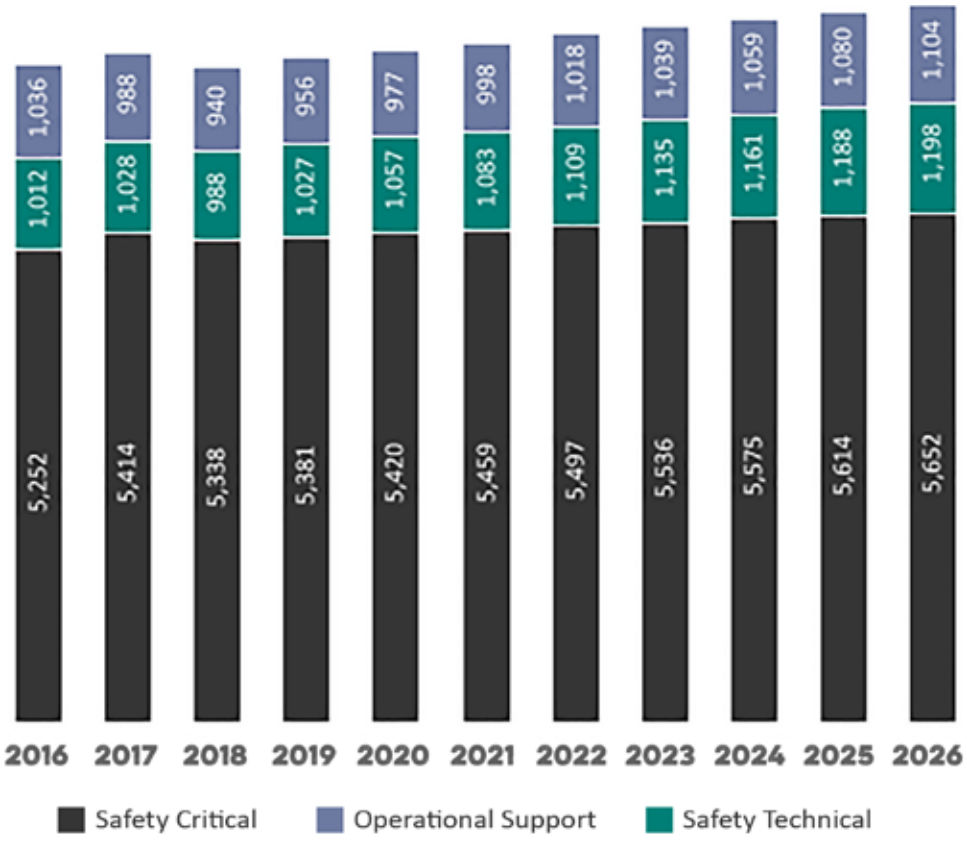


FIGURE 11: PROJECTED STAFF BY STAFFING CATEGORY

Figure 11 illustrates the anticipated needs specifically for Safety Critical Staff, Safety Technical Staff, and Operational Support Staff.

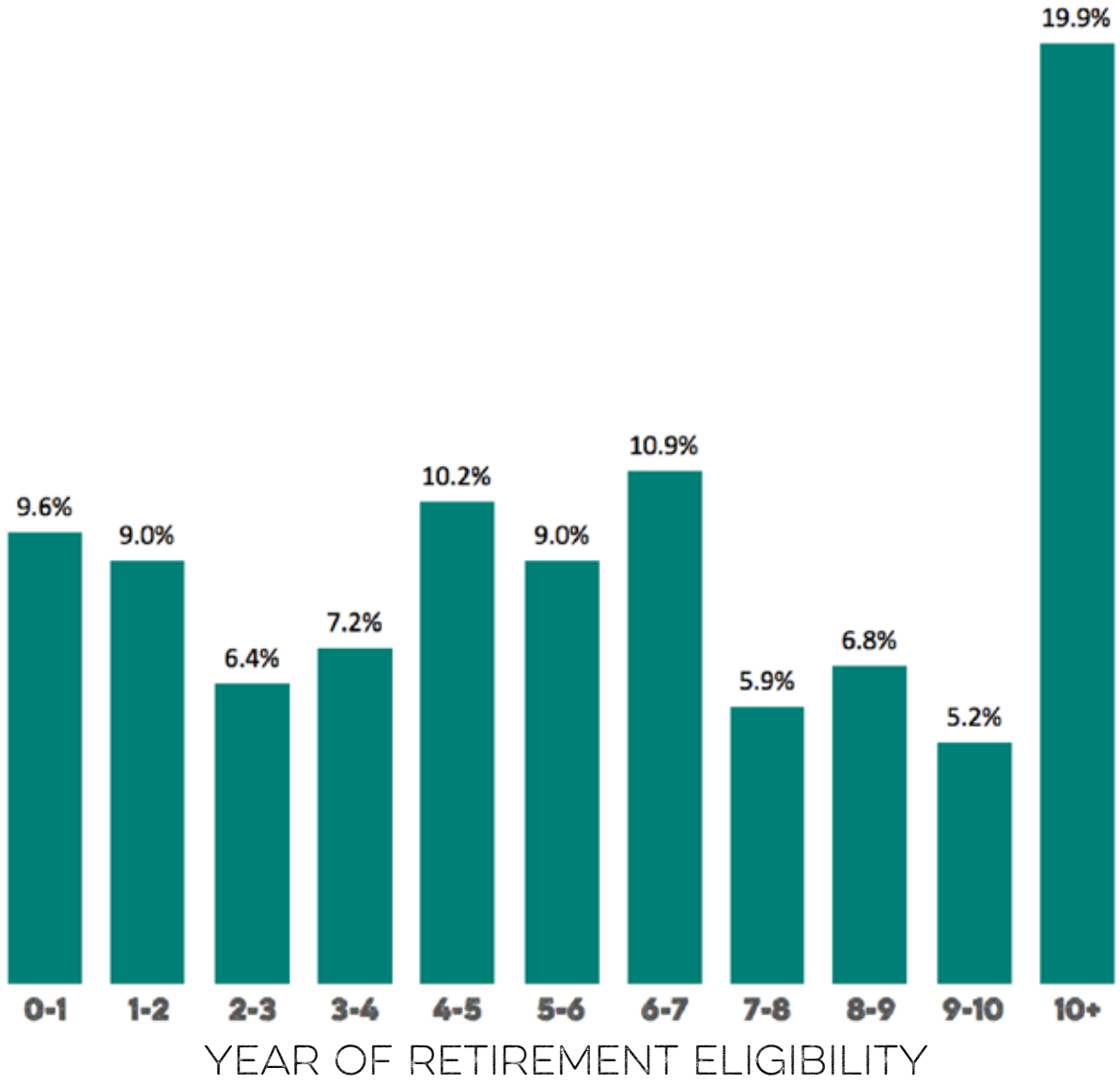


SUCCESSION PLANNING

AVS tends to hire a very experienced safety workforce for many of its positions. The average age of AVS employees when hired is 45 and the current average age of AVS employees is 53. 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 shows the historical rates of retirement with respect to year of eligibility.

FIGURE 12: PERCENT OF AVS EMPLOYEES RETIRING BY YEAR OF ELIGIBILITY

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 private industry and other government agencies to recruit the best candidates from a specialized talent pool.

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.

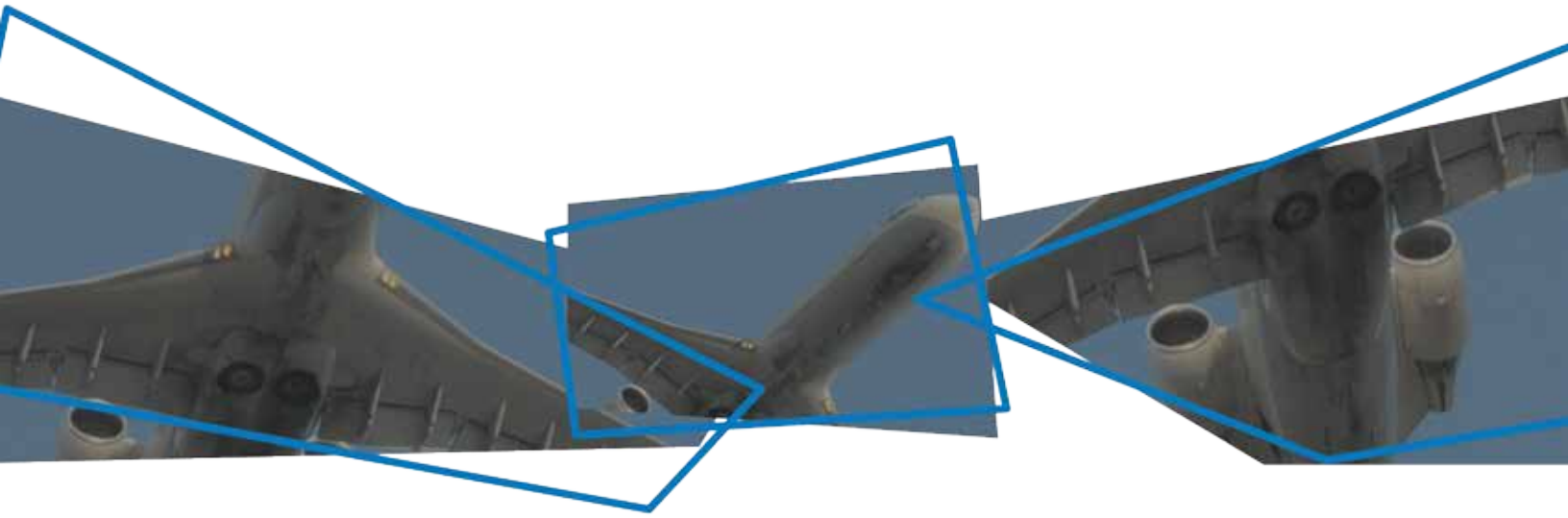
AVS continues to use the FAA's Managerial and Employee Leadership Competency Profiles to correlate and define interpersonal and business competencies when recruiting for positions. This core competency model is used to meet the hiring needs anticipated in the future aviation environment by describing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

This 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) assessment 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.



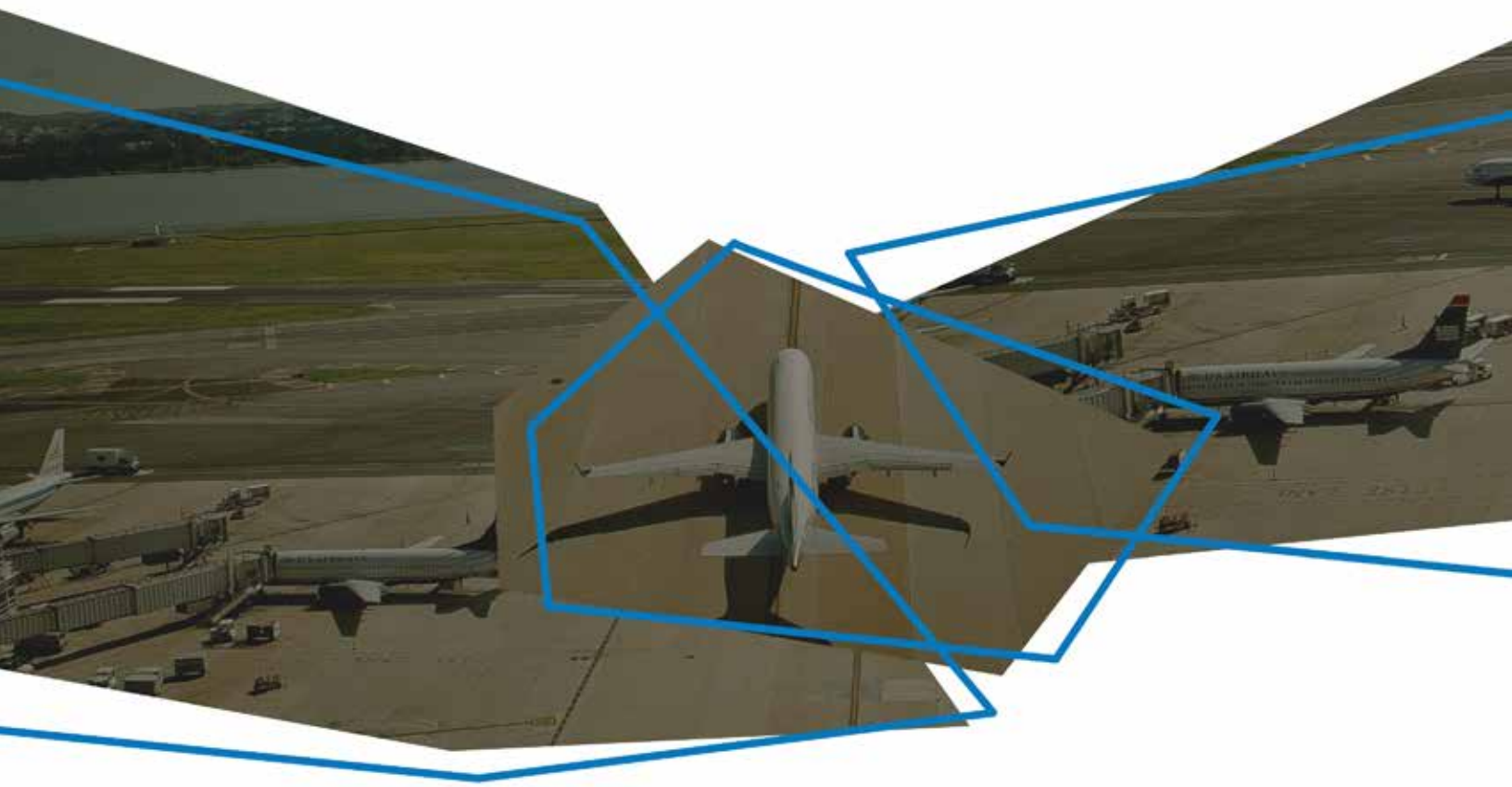
Operational Support Hiring

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 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.



DIVERSITY AND INCLUSION

AVS has continued its collaboration with the Office of Human Resource Management (AHR) and the Office of Civil Rights (ACR) to conduct an analysis of hiring practices. The ongoing analysis will ensure that AVS is able to assess best practices and identify barriers to developing and improving hiring procedures. The analysis 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 candidates with the right skill sets for the job.

In FY 2015, a Barrier Analysis was completed for ASI positions 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 found potential 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 continued its collaboration with AHR to develop a draft *Corrective Action Plan* (CAP), which identified strategies to further improve and standardize the hiring process. In FY 2017, AVS will work with AHR and ACR to implement the identified strategies.

AVS continues its collaborative project with AHR, ACR, the Office of Chief Counsel (AGC), and members of 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 the 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 develop and maintain the workforce of the future and to become 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 45 activities contained in the plan and has identified an additional 13 activities from the plan to complete in FY 2017.

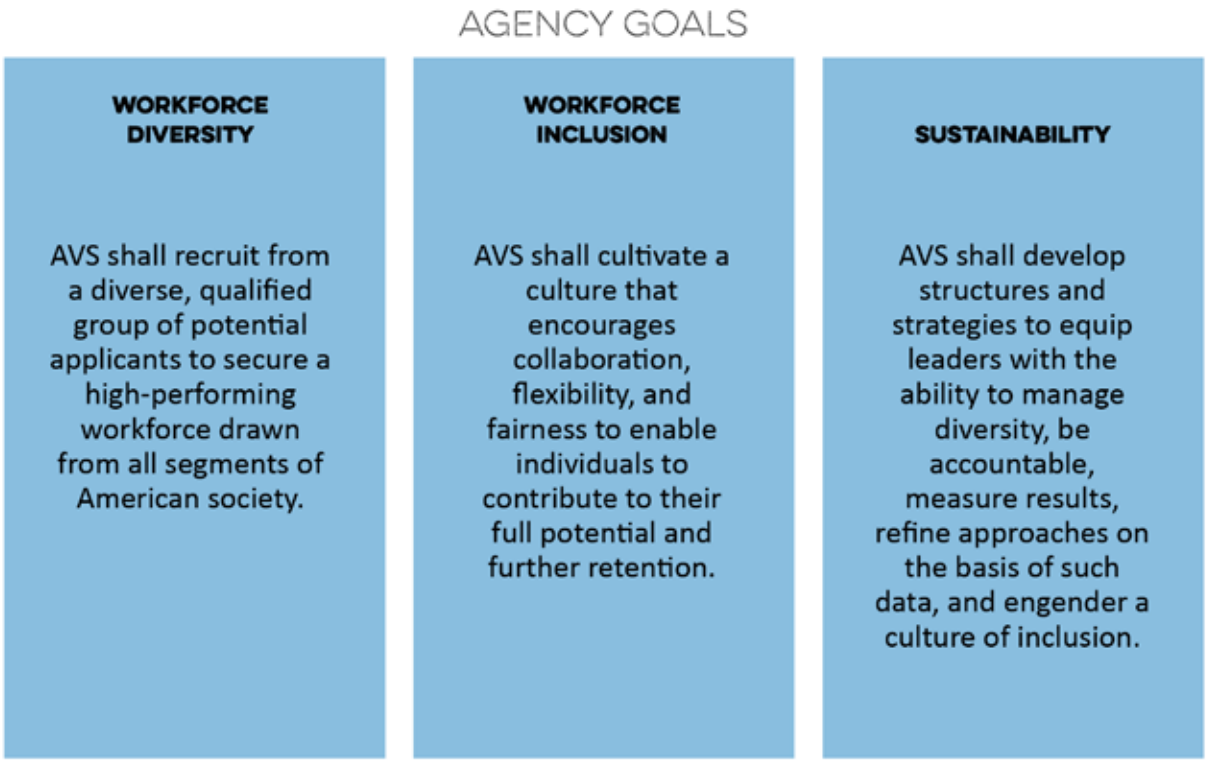
For example, AVS has supported the Agency's Persons with Targeted Disabilities (PWTD) hiring initiative, which directly contributes to increased diversity. In FY 2016, AVS hired 25 PWTD, which represented 4.56 percent of total new hires in AVS, exceeding the Agency-wide PWTD hiring goal of 2.33 percent.

In 2016, AVS supported ACR by hosting 11 training sessions covering multiple EEO topics. More than 150 AVS employees were trained during a one-week training blitz. The goal for FY 2016 was to train 60 percent of managers and 10 percent of employees. AVS exceeded this goal by training 87 percent of managers and 38 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 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 FY 2016 and will continue to make recommendations for improvement during FY 2017 critical safety hiring efforts.

FIGURE 13: 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 hires 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 with weekly content updates.
- Holding various meetings and conferences to provide managers and other employees with the resources and skills needed to better support day-to-day operations.
- Participating in panel discussions with new employees at the Aviation Safety Overview Course.
- Using the *Federal Air Surgeon Bulletin* to communicate with AAM employees.
- Monthly brown bag meetings with small groups of employees and senior leadership.

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 Web-Based Training (WBT) (student and instructor present at the same time), asynchronous WBT (self-paced), and traditional classroom-based 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, training webinars, self-paced WBT, and mobile learning).
- Implementing FAA Compliance Philosophy in curricula where applicable.
- Reinforcing AVS curricula 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 onboarding program for new hires.
- 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 and Offices-specific training.
- Embedding short training clips into technical orders.

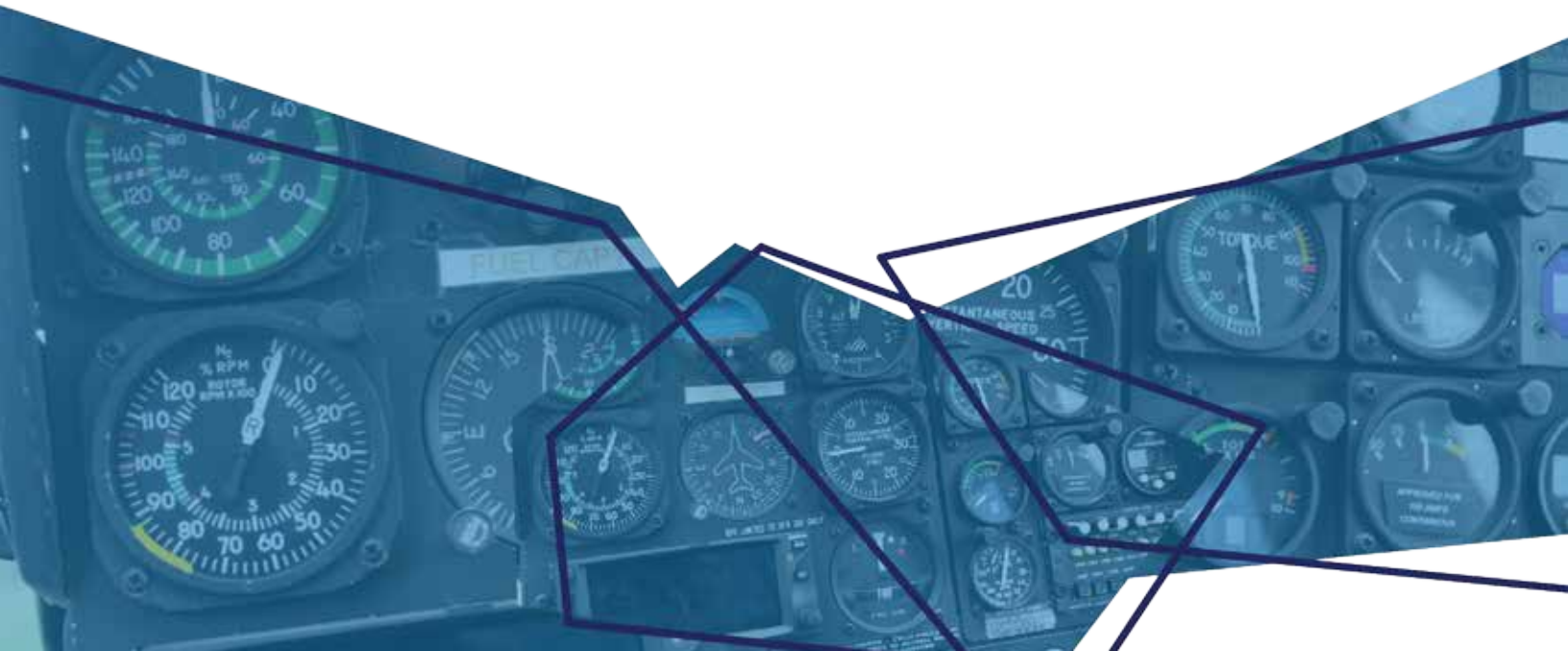
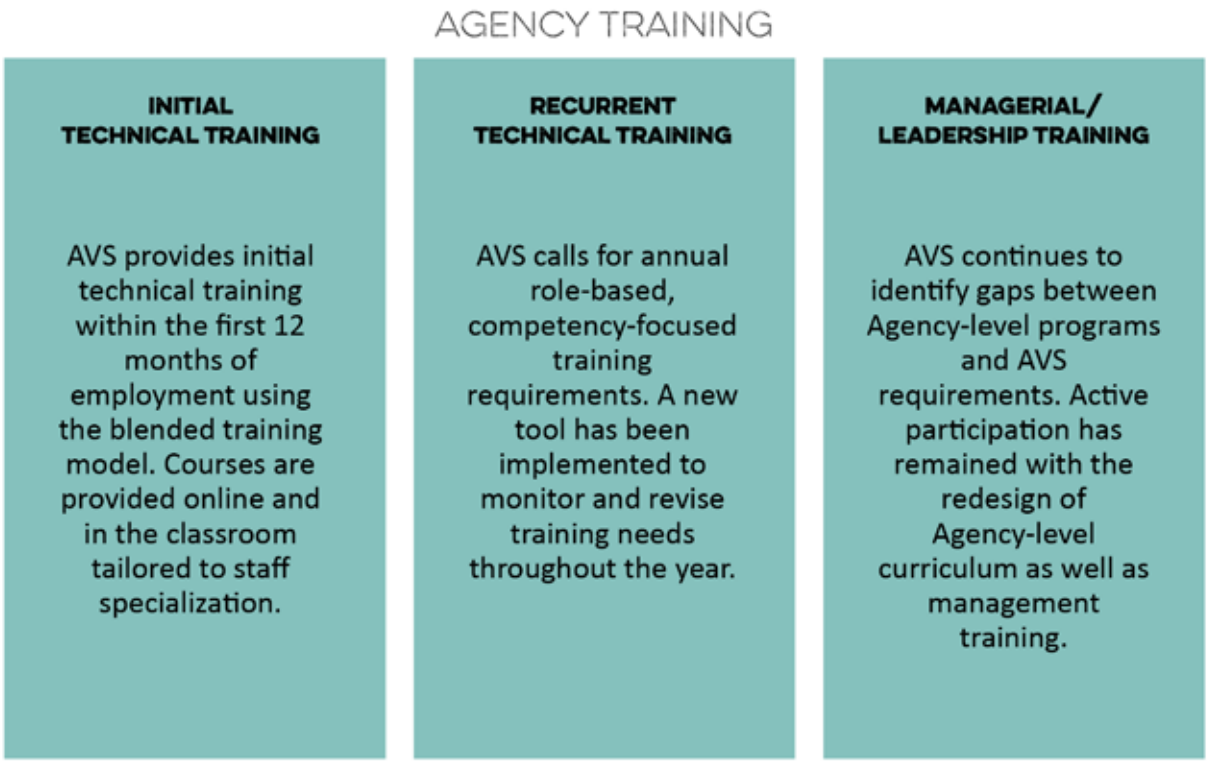


FIGURE 14

Figure 14 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 and 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 all AIR employees to attend AIR Indoctrination training to introduce and familiarize employees with the AIR organization. This is followed up with other courses tailored to an employee's anticipated role in the organization. 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

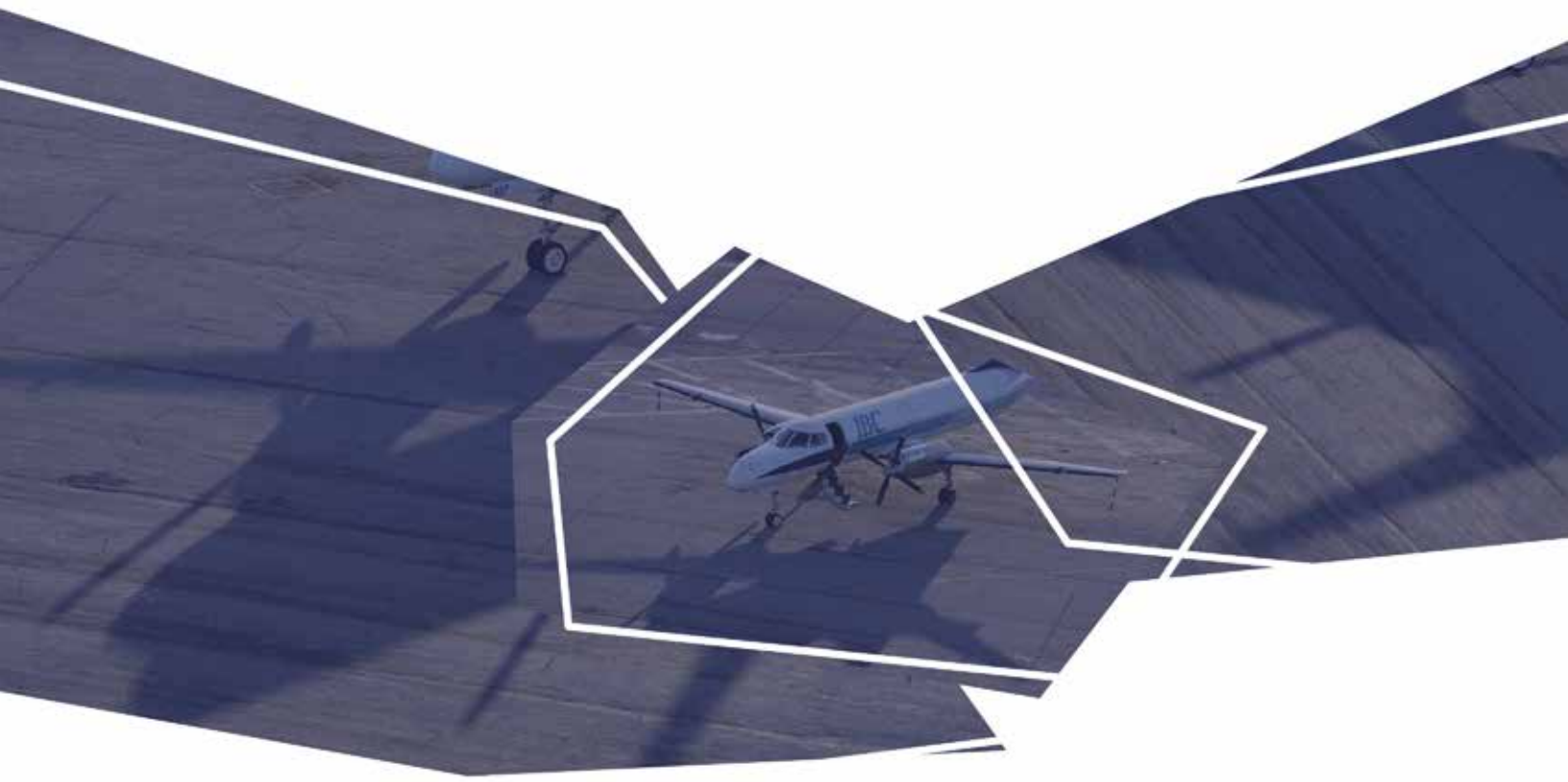
Employees with other technical specialties in AVS (e.g., Drug Abatement Inspectors, Air Traffic Safety Inspectors, and Rulemaking staff) receive structured initial technical training specific to their field of expertise. Employees involved in rulemaking activities are provided detailed training on the 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 and AIR that provides greater flexibility to monitor and revise training needs throughout the year.

AVS supports the FAA's Compliance Philosophy Order by offering Compliance Philosophy training to all AVS employees. This training is delivered online through the e-Learning Management System (eLMS). AVS achieved a training completion rate of 98 percent of all AVS employees in 2016. In addition, AVS has integrated Compliance Philosophy training content into the AVS 101 Webinar and the AVS Overview Course.



Managerial/Leadership Training

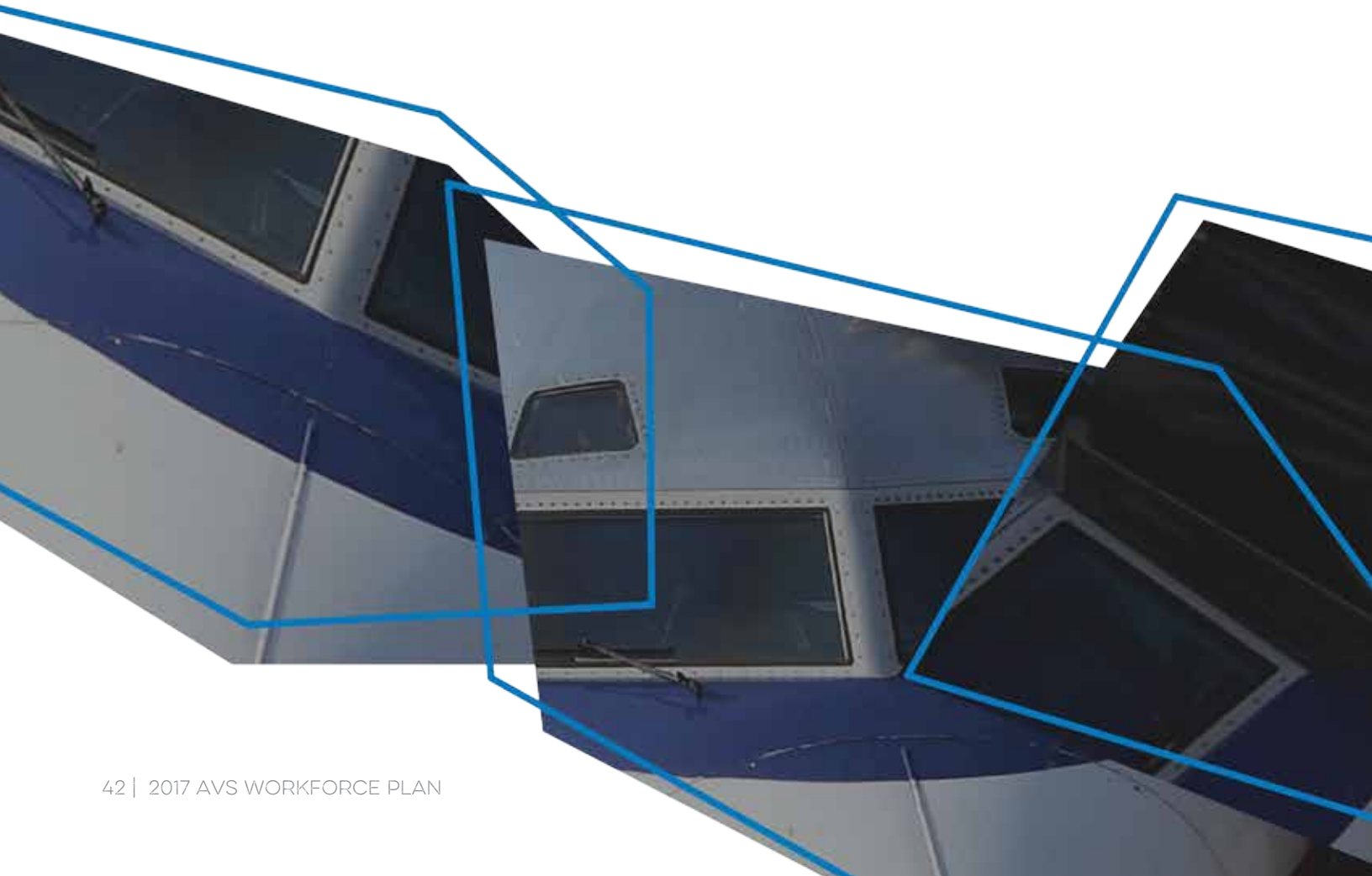
Of the 919 AVS managers, 375 managers are eligible for retirement as of 2018, representing 41 percent of all levels of management. In order to mitigate the potential loss of talent and experience, AVS continues to focus on building and maintaining a pipeline of skilled employees who are trained and prepared to take on roles of increasing responsibility.

In FY 2016, AVS reviewed leadership development opportunities in collaboration with the FAA Office of Learning and Development, particularly the FAA Leadership and Learning Institute (FLLI), as well as other FAA lines of business. The assessment identified gaps between the Agency-level programs and AVS-specific requirements. In FY 2017, AVS will continue to assess the best way to meet these identified gaps.

AVS strongly encourages personnel to participate in leadership development opportunities offered by the Agency such as the Program for Emerging Leaders (PEL) for staff-level personnel aspiring to be managers, the Federal Executive Institute (FEI) for all levels of management, and the Senior Leadership Development Program (SLDP) for high potential senior managers.

AQS continues to train AVS managers in effective communications via the Crucial Accountability (CA) course. The CA course has reached all eight Services and 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 provide corporate leadership with 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 and Offices.



FUNDING

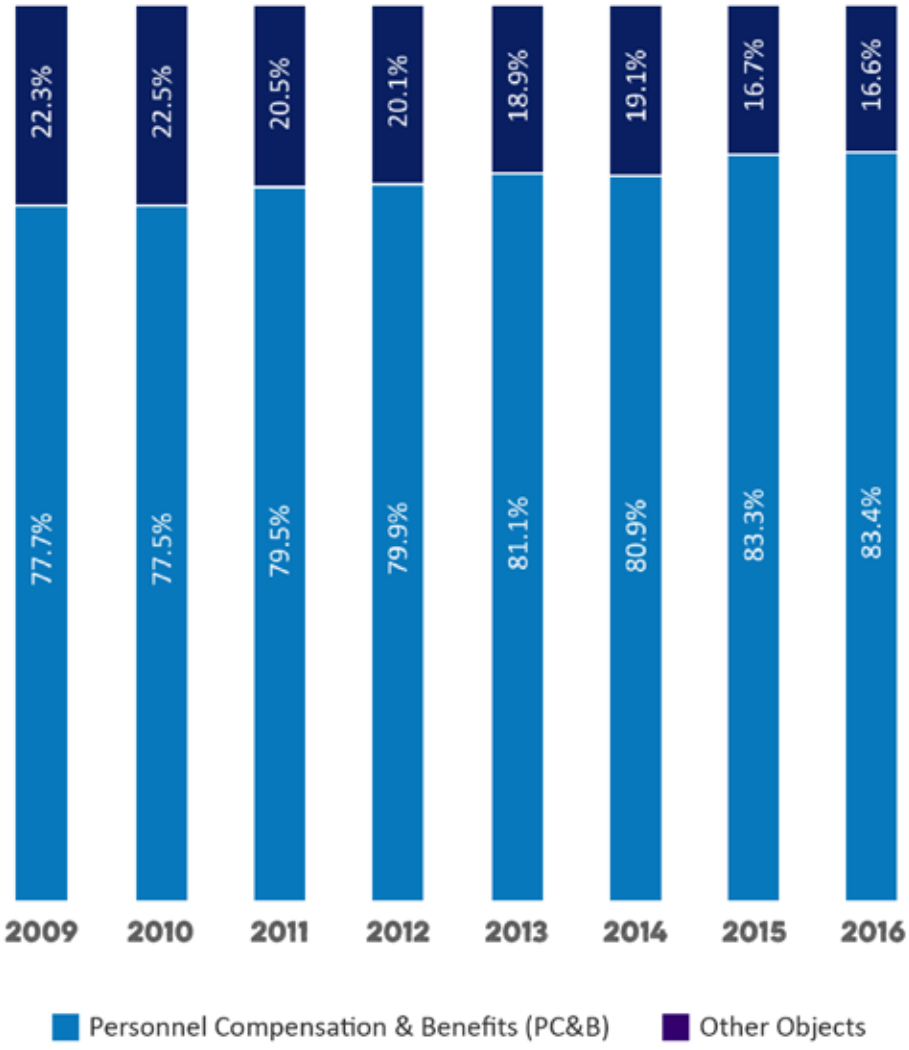
Staffing is AVS's greatest cost outlay. The average and overall personnel compensation costs for AVS increased in FY 2016, relative to the FY 2015 costs, as a function of increased monthly onboard staffing levels, annual pay increases, negotiated labor agreements, and the increased cost of employer benefit contributions. Because personnel compensation and benefits consumed over 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 15: PERSONNEL COMPENSATION AND BENEFITS (PC&B) AND NON-PC&B SHARES IN AVS

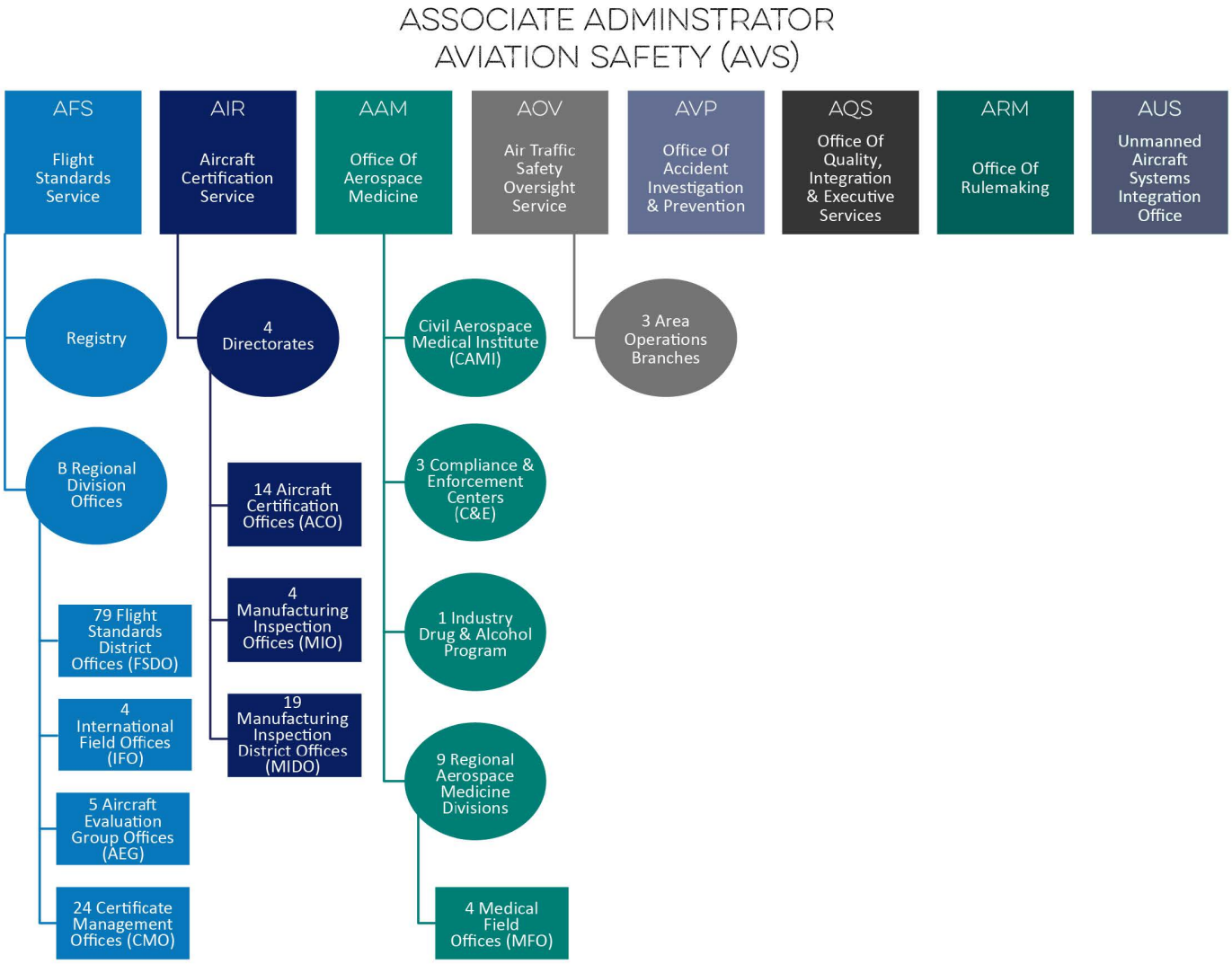
Figure 15 depicts AVS actual and projected percentage funding by fiscal year and major object classification.



SUPPLEMENTAL INFORMATION:

APPENDICES AND REFERENCE INFORMATION

APPENDIX 1: Aviation Safety Services and Offices and Field Office Organization



The FY 2017 budget as enacted provided the AVS organization with 7,430 employees. Of those, 4,433 are Aviation Safety Inspectors (ASIs) and 758 are Aviation Safety Engineers (ASEs) located within AFS or AIR.

APPENDIX 2: AVS Staffing (Operations Appropriation)

Safety Critical | Safety Technical | Operational Support

End-of-Year Employment – Full-Time Positions (FTP)		FY 2016 Actual	FY 2017 Enacted	FY 2018 Request
FLIGHT STANDARDS	Engineers	22	4	4
	Aviation Safety Inspectors	4,036	4,161	4,103
	Safety Technical Specialist Staff	432	446	428
	Operational Support	758	705	667
	Total	5,248	5,316	5,202
AIRCRAFT CERTIFICATION	Aviation Safety Inspectors	246	272	267
	Pilots, Engineers, CSTAs (ASEs)	773	754	745
	Safety Technical Specialist Staff	191	173	165
	Operational Support	159	160	152
	Total	1,369	1,359	1,329
AEROSPACE MEDICINE	Physicians, Physician Assistants, Nurses	52	57	56
	Alcohol/Drug Abatement Inspectors	56	70	69
	Safety Technical Specialist Staff	226	220	213
	Operational Support	44	44	43
	Total	378	391	381
AIR TRAFFIC SAFETY OVERSIGHT	Air Traffic Safety Inspectors	59	58	57
	Safety Technical Specialist Staff	74	68	66
	Operational Support	4	7	7
	Total	137	133	130
RULEMAKING	Safety Technical Specialist Staff	37	37	34
	Operational Support	3	3	3
	Total	40	40	37
ACCIDENT INVESTIGATION AND PREVENTION	Air Safety Investigators	8	9	9
	Safety Technical Specialist Staff	45	53	51
	Operational Support	14	10	10
	Total	67	72	70
UNMANNED AIRCRAFT SYSTEMS INTEGRATION	ASIs and ASEs	0	29	28
	Safety Technical Specialist Staff	0	19	19
	Operational Support	0	10	10
	Total	0	58	57
QUALITY, INTEGRATION, AND EXECUTIVE SERVICES AND AVS EXECUTIVE STAFF	Safety Technical Specialist Staff	7	12	12
	Operational Support	54	49	48
	Total	61	61	60
GRAND TOTAL	Safety Critical Staff	5,252	5,414	5,338
	Safety Technical Specialist Staff	1,012	1,028	988
	Operational Support Staff	1,036	988	940
	AVS Staff	7,300	7,430	7,266

APPENDIX 3: Aviation Safety Primary Stakeholders as of December 2016

Air Operator Certificates: 5,514

74	Major U.S. Air Carriers
2,255	Commuter Air Carriers/On Demand Air Taxi
90	Commercial Operators
525	Foreign Air Carriers
368	External Load (e.g. Logging, Oil Platform)
1,859	Agricultural Operators
343	Public Use Authorities (e.g., State/City/Police)

Air Agency Certificates: 6,610

890	Pilot Training Schools
5,203	Repair Stations
196	Maintenance Training Schools
321	Pilot Training Centers

Aircraft: 311,448

Unmanned Aircraft Registered: 879,696*

80,409*	Commercial (on-line and paper)
799,287*	Hobby

Check Airmen: 8,151

5,067	Part 121
149	Part 121/135
2,935	Part 135

Designees: 9,381

2,999	Aircraft Certification
3,621	Flight Standards
2,761	Aerospace Medicine

Foreign Authorities/Entities with Bilateral Agreements: 48

Foreign Civil Aviation Authorities: 191

Foreign Accident Investigation Authorities: 196

* as of July 2017

Flight Instructors: 104,425

Mechanics with Inspection Authority: 21,685

Approved Manufacturers: 1,629

Active Pilots: 642,542

163,253	Airline Transport Pilot
111,941	Commercial
173,768	Private
174	Recreational
5,906	Sport
129,572	Student
36,804	Foreign Pilot
21,124	UAS Remote Pilots

Non-Pilot Air Personnel: 683,098

318,012	Mechanics/Repairmen
25,531	Control Tower Operators
212,953	Flight Attendants
65,165	Ground Instructors
61,437	Other (e.g., dispatchers, flight navigators, parachute riggers, flight engineers)

ATCS Medical Clearance Exams: 13,895

13,802	Air Traffic Controller Workforce
93	Flight Service Station Workforce

ATO Examiners and Credential Holders: 23,063

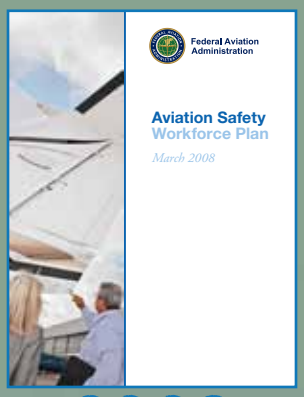
Airmen Medical Examinations: 383,337

42,378	Special Issuances
340,959	Standard Issuances

Aviation Industry Entities Covered by Anti-Drug and Alcohol Programs: 6,955

National Transportation Safety Board: 683

44	Safety Recommendations (5-year average)
335	Formal NTSB requests for FAA research and information
304	Open NTSB Safety Recommendations



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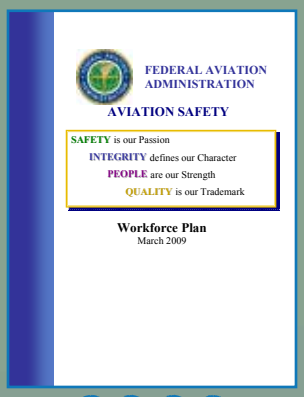

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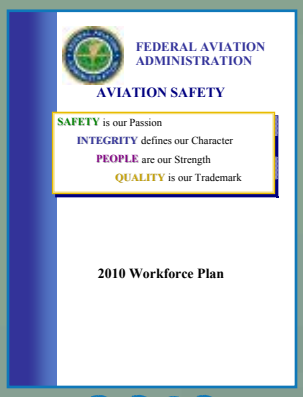

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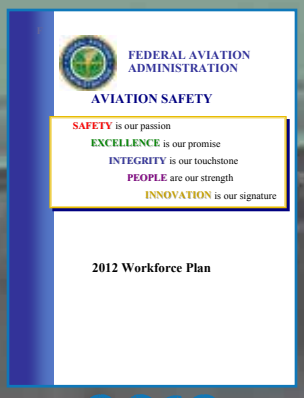

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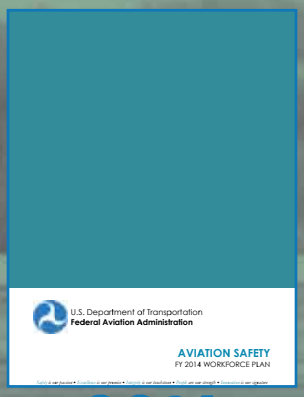

2014

2015

2016

U.S. Department of Transportation
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591