

Aviation Safety *2019 Year in Review*



Rena Allmond
Aviation Safety Inspector



✈️ A Message from the Associate Administrator for Aviation Safety

Our Aviation Safety (AVS) organization’s mission is to provide the safest, most efficient aerospace system in the world through a data-driven, risk-based, systems approach for standards, certification, and oversight.

While our team’s vigilant pursuit of this mission is driving safety advances in both commercial and general aviation, the tragic Lion Air Flight 610 and Ethiopian Airlines Flight 302 accidents seared our collective safety conscience. We know that behind this year’s data is lasting human anguish. Learning from these accidents and working to return the Boeing 737 MAX to service with a greater level of safety is our primary focus, along with maintaining the continued operational safety of the National Airspace System.

Throughout Fiscal Year 2019, our team responded to the significant challenges putting our organization in the public spotlight with focus and purpose. We welcome scrutiny as it will make us stronger.

We also recognize the challenges and opportunities of a more complex National Airspace System filled with greater air traffic, rapidly expanded utilization of Unmanned Aircraft Systems, increased commercial space activities, and soon, the renewal of supersonic passenger flights. For the first time ever, we now have a 5-year strategic plan that will position us to be more effective in addressing the aviation environment of the future.

This report provides a broader picture of the creative and diligent work that our team applied to a number of complicated safety issues, and highlights AVS people who are passionate about aviation safety. I am proud of our people and appreciate the opportunity to recognize their dedicated work.

Ali Bahrami

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“Why I’m Passionate about Aviation Safety”



By Ivania Blanco, Program Analyst, Aerospace Medicine

For a living, I help make America’s skies safe. Not many people get to say that. I was a languages major in college, and I still work in communications as a program analyst in Aerospace Medicine’s Management Support Branch. Aviation in America depends on people who are willing to work behind the scenes.

I’m one of them.

I’m committed to aviation safety. I’m surrounded by a thousand colleagues who feel the same way. It’s a community of safety.

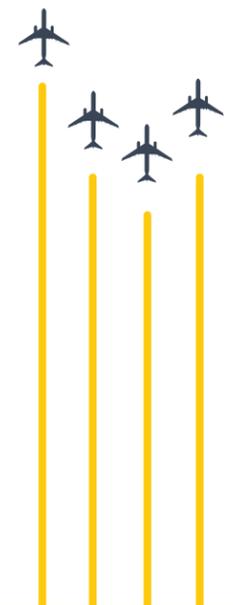
When you think about the impact aviation has on this nation—and on the future of this nation—it’s easy to see why people love to work here. We’re on page 1 and at the top of the 6 o’clock news. When our Administrator says something, people all across the globe take notice.

But it’s more than that. We’re making sure that the cutting edge of technology has a place in aviation from drones and commercial space, to satellites and supersonic aircraft. When there’s a disaster—a wildfire, a hurricane, a group of hikers stranded on a mountain—I’m proud when unmanned aircraft zoom in and help save the day. My organization makes that possible. That’s a feeling that’s hard to describe.

That’s the opportunity public service gives me. The opportunity that turns a passion for numbers into a career for safety.

I consider myself fortunate to be part of it.

“Aviation in America depends on people who are willing to work behind the scenes.”



Safety Innovations



Within the Aviation Safety (AVS) organization, dedicated professionals are constantly seeking better ways to advance our safety mission. In 2019, the following innovations and actions helped make AVS a more efficient and effective organization.

Safe Drone Flights over People

- In a major step forward for the safe testing and integration of drones into our economy, FAA issued its first air-carrier certification to Alphabet Inc.'s Wing Aviation unit to perform package delivery in Blacksburg, Va. with flights above people and beyond visible line-of-sight.



Photo courtesy of Mark Blanks, Virginia Tech

Improved Non-towered Airport Flight Operations

- A rewrite of Advisory Circular 90-66B for non-towered airport flight operations has improved communications between aircraft and reduced common errors seen in accidents. It helps airmen better understand self-announce procedures as described in the Aeronautical Information Manual.



Performance-Based Rulemaking

- The Office of Rulemaking (ARM) launched a Performance-Based Rulemaking Course, enabling 165 employees to learn how to avoid issuing prescriptive regulations that could inadvertently prevent the use of new and innovative technologies, processes, and procedures.

Photo by Eric Grabow - Space Vector Corporation

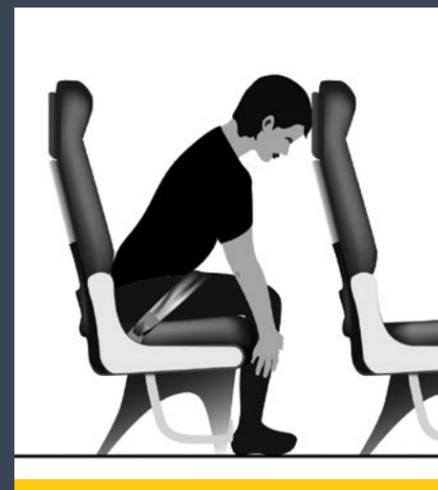


Searchable Wiki of Unique Hazards

- AVS's office of Accident Investigation & Prevention Safety Data and Analysis Team developed a searchable wiki of unique hazards related to 14 CFR Part 121, which will contain hazard descriptions, event data, mitigation, and related historical work products (e.g., associated safety analyses and white papers). The hazard library can be accessed at <http://hazlib.faa.gov>.

New Guidelines for "Brace for Impact"

- Applying lessons learned from the "Miracle on the Hudson" and testing done at FAA's Civil Aerospace Medical Institute, the FAA has revised the instructions for "brace for impact" positions on passenger Safety Cards. The new Advisory Circular on Passenger Safety Information Briefing and Briefing Cards also encourages the application of innovative research, such as the use of "Serious Games" and computer applications to improve the retention of safety information through "edutainment." These efforts, along with CAMI's work with the University of Udine, Italy on smartphone applications for passenger education, will help improve passengers' chances of survival and reduce their risk of injury in an aircraft accident or incident.



Aviation Safety ODA Office

- The new Organization Designation Authorization Office within the Aircraft Certification Service, established in March, will oversee and ensure the consistency of the FAA's audit functions under the ODA program across the FAA. By looking at the ODA system from a OneAVS perspective, this office will support standardized outcomes and improvements across the ODA program that will resolve concerns raised by both the FAA and industry.

Building a Strong Safety Culture

✈️ By Rick Domingo, Executive Director, Flight Standards Service

Aviation safety is the core of the FAA's mission and our top priority. Along with other FAA lines of business, the Flight Standards Service is working tirelessly to take a more proactive, data-driven approach to oversight that instills a culture of safety both inside the FAA and within the aviation community that we regulate.

Safety culture is not just a set of programs that can be "established" or "implemented." It is a way of living and working, and it requires the open and transparent exchange of information both internally and with the FAA's many external stakeholders.

In the ongoing effort to build a strong safety culture, we continue to see successes as the Compliance Program moves into its fifth year. Flight Standards alone has documented over 23,000 compliance actions since we started this program. FAA-industry relationships continue to grow in trust and transparency. We increasingly see cases in which operators voluntarily inform Flight Standards of safety issues they have discovered, instead of waiting for our inspectors to find them. For example, upon discovering that some of its pilots had flown as required crewmembers without the required proficiency checks, one operator took immediate action to resolve the issue and then worked cooperatively with us to develop procedures to prevent reoccurrence.

In another example, the Columbia, South Carolina Flight Standards District Office (FSDO) worked closely with the local aviation community to address concerns about illegal charters. This team spearheaded a movement that led to changes in state law, the development of standardized procedures, increased information sharing, education, and monthly outreach meetings.

We see other areas of growing transparency. Our voluntary programs (Aviation Safety and Reporting System, Voluntary Disclosure Reporting Program, and the Aviation Safety Action Program) have seen notable increases in submissions.

Our reorganization has also allowed us to perform our safety standards and certification functions with greater agility, efficiency, and consistency. The UAS sector provides several examples. In April, for example, Wing Aviation became the first Unmanned Aircraft System (UAS) air carrier to fly as a single pilot operator. We issued a first-ever exemption permitting air carrier operations without on-board pilots and use of visual observers for beyond visual line-of-sight operations. As this fiscal year ended, we had certified Wing Aviation for Part 135 (Commuter or On Demand Aircraft Operations) operation using multiple pilots and multiple locations. We had worked with multiple operators to approve Part 119 (Air Carrier and Commercial Operators) management for use in UAS operations, and we continue to collaborate across the agency on a UAS remote identification rulemaking project that will enable further integration of these aircraft into the National Airspace System.

Also, we removed the geographic limits for all Designated Pilot Examiners (DPE). By allowing DPEs to test anywhere within the United States or its territories and possessions without the need to request permission from local Flight Standards offices, we better served the public by increasing test availability and improving efficiencies.

Finally, I am proud of how the Flight Standards Service has dealt with the intense scrutiny and pressure arising from the year's tragic accidents. Aviation is complex and our work is very technical, so it is difficult for people not immersed in this environment to understand the details and nuances of the data-driven, risk-based processes and procedures we increasingly take for granted. In addition to continuing the critical technical work, our team worked hard to support senior officials as they testified at hearings with our own regulators – elected members of Congress – to explain how we perform our work and to answer their questions. We always welcome the opportunity to talk about what we do and how carefully we do it. It is part of being accountable to the public we serve.

“Safety culture is not just a set of programs that can be ‘established’ or ‘implemented.’ It is a way of living and working...”

“Why I’m Passionate about Aviation Safety”

✈️ By Kieran O’Farrell, Aviation Safety Inspector, Flight Standards Service

“Experience will guide us to the rules,” he said. “You cannot make rules precede practical experience.”

—*Night Flight*, by Antoine de Saint-Exupery

17:06:34 - KLM 3: “Is he not clear, that Pan American?”

—*March 27, 1977, Tenerife in the Canary Islands. Two 747 jumbo jets collided on a fog-shrouded runway, killing 583 people in what is still the deadliest crash in aviation history.*

Today we have some very sophisticated warning devices in our aircraft. But inside us, we also have an internal one called instinct—that uneasy feeling that something is wrong. Instinct is often very accurate. As accident investigators listening to black box or air traffic controller (ATC) transmissions, we often hear someone on the flight deck or ATC questioning something moments before the accident. I call these “epitaph echoes.”

Such echoes have been in my mind over the last two years in my role as FAA co-chair on the General Aviation Joint Steering Committee-Controlled Flight Into Terrain (GAJSC- CFIT) workgroup. We analyzed 68 fatal CFIT accidents and used

root causes to develop safety enhancements to reduce CFIT accidents. The work has been haunting, but it has also been one of the most meaningful projects I have worked on in my 23 years at the FAA.

My passion for improving aviation safety stems from flying in Alaska for 24 years, as a Certified Flight Instructor and later as a Part 135 (Commuter or On Demand Aircraft Operations) pilot flying DeHavilland Beavers and Otters throughout southeast Alaska. Over those 24 years, I attended funerals for 17 colleagues and friends who were killed flying; most of them in CFIT-related accidents that occurred in Alaska’s unforgiving environment. A number of the CFIT accidents the GAJSC studied were Alaskan accidents. I humbly saw myself in them... almost every single one. This is why we do what we do; why we care so much; why we are driven to improve aviation safety; and why we have a duty to educate others.

Paying it forward. These days I mentor high school students from the Central Florida Aerospace Academy. I smile as I watch them rebuild a Super Cub and study engineering diagrams after school in their hangar. These students are our future. They will be designing and flying planes capable of the extraordinary.

“Today we have some very sophisticated warning devices in our aircraft. But inside us, we also have an internal one called instinct — that uneasy feeling that something is wrong.”



Continued Operational Safety: Elevating Risk Management to the Fleet Level and Beyond



By Earl Lawrence, Executive Director, Aircraft Certification Service

Continued Operational Safety (COS) assures the integrity of a product throughout its service life. It includes mandatory requirements for aircraft modification, maintenance, inspection, and corrective action. Through its COS oversight, the Aircraft Certification Service (AIR) addresses unsafe conditions occurring on specific models of aviation products in large part through the issuance of Airworthiness Directives (ADs). In 2018, the FAA issued 409 ADs covering the full range of aircraft and components.

While this traditional approach has helped us correct many specific unsafe product conditions, it will not enable us to get ahead of the pace of innovation happening today. To achieve the next level of safety, we must expand our view of COS and start to connect the dots. We must move beyond the product-based focus to a COS management approach that identifies broader, potentially less obvious safety threats at the system level. When we issue an AD, we are not done. Rather, we must look at it as the beginning.

We are already taking significant steps in this direction. For example, when the cause of an engine failure on a Boeing 767 was determined to be an undetected nickel melt anomaly, we issued an AD to inspect all other GE CF6-80 engines. We did this to ensure that other CF6-80 engines did not have a melt defect that could lead to failure. However, we didn't stop there. Leveraging the Engine Standards Branch's ongoing working relationship with the Aerospace Industries Association and their Rotor Integrity subcommittee, we rallied industry partners behind the following preventive actions:

- Enhancing damage tolerance design methods;
- Establishing a standing quality committee of nickel melters to monitor and reduce the industry's defect rate; and
- Establishing industry teams to identify inspection improvements.

We achieved this kind of interdisciplinary solution because we reached across divisions, organizations, and outside the FAA to our industry and international partners and invited

their thinking into our COS strategies. We are more successful when we work together. This mode of collaboration will be more fully supported by our organizational structure through the establishment of two new AIR organizations: the Program Management Safety Office (PMSO) and the Operational Safety (OS) Branch. These organizations, which will be in place by the end of 2019, will reinforce our commitment to COS collaboration.

The PMSO will integrate and provide national strategic oversight for product-related safety activities, which include COS. It will provide a national accident and incident COS program management function, including coordinating and tracking major incident/accident response.

The OS Branch will centralize COS oversight and safety monitoring by combining resources from 16 different offices. This branch will process all FAA COS actions, such as issuing ADs and tracking and managing high risk COS activities. It will facilitate the implementation of process improvements and expand the use of information data systems in support of fleet-related operational safety.

This new structure will only work if we change our mindset from doing COS piecemeal, one AD at a time. We will change this mindset through empowering our people. We will put a structure and processes in place that will allow employees to be innovative problem solvers and help us get out in front of systemic issues. I personally commit to facilitating the safety culture that will foster this sort of candor and innovation.

Safety is about addressing unsafe conditions in a coordinated way that gets to root cause. That's why I'm passionate about system-level safety and the two new AIR organizations. This year, we continued to lay the groundwork for our COS evolution. Looking ahead, we will strengthen our stakeholders engagement to enhance our COS collaboration. With the help of the experts in the new OS Branch, our industry stakeholders, and our international partners, we will achieve this goal.



“Safety is about addressing unsafe conditions in a coordinated way that gets to root cause.”

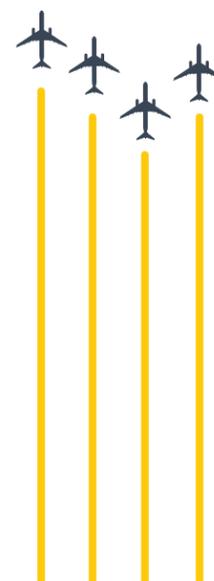


“Why I’m Passionate about Aviation Safety”



By Lisa Mitchell, Senior Communications Specialist, Aircraft Certification Service

“What struck me immediately ... was how much everyone cared about what they were doing.”



Twenty-two years ago, I was hired to do administrative work for a government agency I had only passing familiarity with – I knew, as I know now, that it all had something to do with airplanes. I have no aviation background, no time as a pilot, air traffic controller, or inspector. What struck me immediately as I dutifully assisted with Time & Attendance, travel vouchers, and the all important concurrence “grids” (you old timers know what I’m talking about) was how much everyone cared about what they were doing. It was personal for them, and could be summed up in a single powerful word: safety.

Well, gradually, I began to have the sense that I, too, by extension, was doing my part for this amazing ideal. The day-to-day work held significance – it mattered, if only in that it supported those other people who were doing the safety work. This sense of mission, I believe, is stronger here in FAA, and Aviation Safety in particular, than most any other civilian agency I’ve ever come in contact with, or amongst private sector companies as well. This never fails to keep my focus above temporary frustrations or setbacks. The pride I’ve developed in my association with the organization keeping people safe as they travel the world by air is very strong.

Aviation safety has meaning for me not only in the memory of the many people I’ve been fortunate to know who have had significant impacts on it in one way or another, but also as something I can straighten my back and lay a claim to supporting each and every day.



Tackling Safety Issues Across the Agency and Beyond



By Steve Gottlieb, **Executive Director**, Office of Accident Investigation & Prevention

Aviation Safety's (AVS) Office of Accident Investigation and Prevention (AVP) is the FAA's principal organization for accident investigation and all activities related to the National Transportation Safety Board (NTSB). Our mission is to make air travel safer through investigation, data collection, risk analysis, and information sharing. Through our vision as the FAA and industry leader in safety investigation, analysis, and information sharing, we work to provide an unbiased source of integrated information to prevent aviation accidents.

AVP works across FAA organizations and with stakeholders to identify safety issues, and develop safety risk control strategies to mitigate risk to an acceptable level. We thoroughly study system data, identify emerging safety issues, and take actions to mitigate risk before accidents occur. This helps us focus on decreasing the aviation fatal accident rate while using our resources wisely in addressing the most pressing safety risks.

So what does this mean in practice? An example from this past year illustrates how AVP tackles important safety issues.

Early in 2019, staff from the Aircraft Certification Alternative Fuels Program identified a potential safety issue involving jet fuel contamination with diesel exhaust fluid (DEF). The jet fuel was contaminated due to inadvertent filling of fuel truck Fuel System Icing Inhibitor (FSII) reservoirs with DEF instead of FSII fluid by Fixed Base Operator line personnel. DEF is required by the Environmental Protection Agency for use in the diesel engines of the refueling trucks. It is easily confused with FSII, which is a common jet fuel additive. The confusion between the two fluids has led to the accidental contamination of the jet fuel, which has caused many in-flight engine shutdowns and other engine operability issues on several commercial and general aviation aircraft.

We entered the issue into the Hazard Identification, Risk Management and Tracking tool and raised it to the AVS Safety Management System (SMS) Coordination Group. It subsequently was elevated to the FAA SMS Committee and entered

the Safety Issue Identification and Management process.

After a thorough review and analysis of available data, a preliminary safety assessment revealed a medium risk hazard, warranting a deeper look into the issue with additional subject matter expertise. The FAA SMS Committee agreed that a Safety Risk Management (SRM) Team should be established to perform an in-depth safety risk assessment.

This June, AVP quickly pulled an SRM Team together for a safety risk assessment conducted by FAA and industry subject matter experts. They assessed the jet fuel contamination issue as a high risk and formulated recommendations to mitigate the hazard, including having the FAA communicate the risk level to the EPA, and for industry to request an EPA exemption from the use of DEF in airport vehicles. AVP is working with EPA to further develop the recommendation and resulting actions.

AVP will continue to keep the FAA SMS Executive Council and AVS SMS Management Board abreast of the safety issue through their regularly scheduled meetings, as well as through Hazard Identification, Risk Management and Tracking reporting.

Over the past year, AVS has looked into a variety of safety issues, each despite their elements in common requiring a slightly different path in terms of what we did to analyze, assess, and address the issue. Each issue required AVP to work together within our office, but also to look to other FAA organizations and industry for more data/information and to gather the appropriate FAA stakeholders to determine the path forward. All of our divisions within AVP have the same overarching goal in mind—to use all available safety data and our extensive and diverse expertise to be proactive about safety and use safety management principles to support FAA management in making smarter, risk-based decisions throughout the agency and with our industry and global stakeholders.

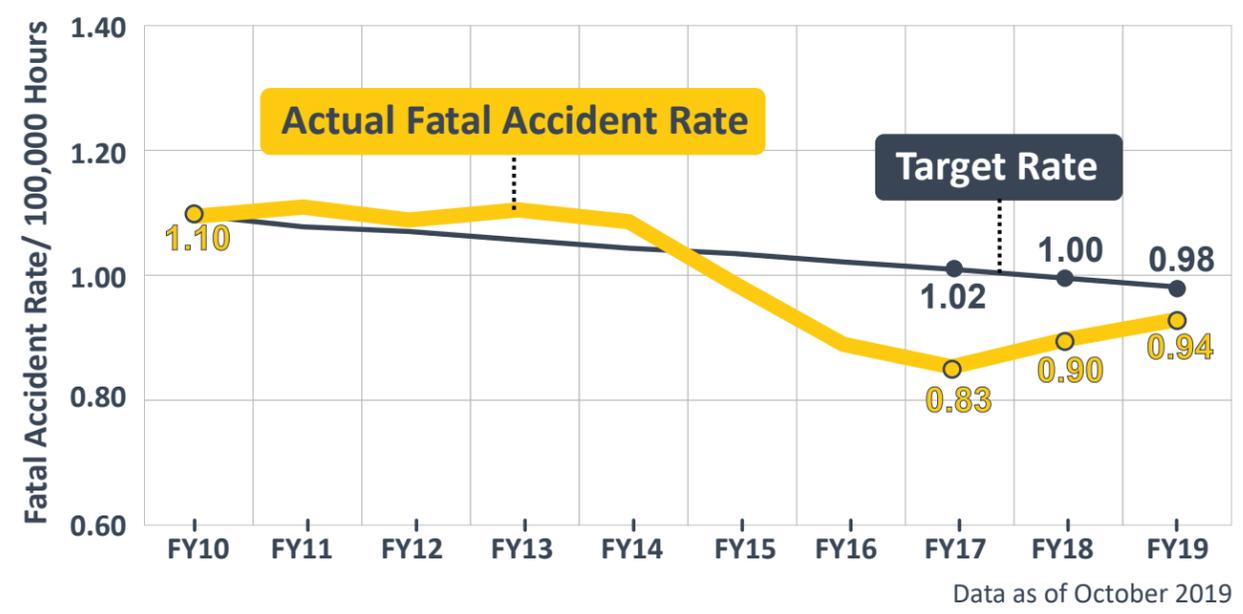
“ We thoroughly study system data, identify emerging safety issues, and take actions to mitigate risk before accidents occur. ”

Working Toward Safer Skies



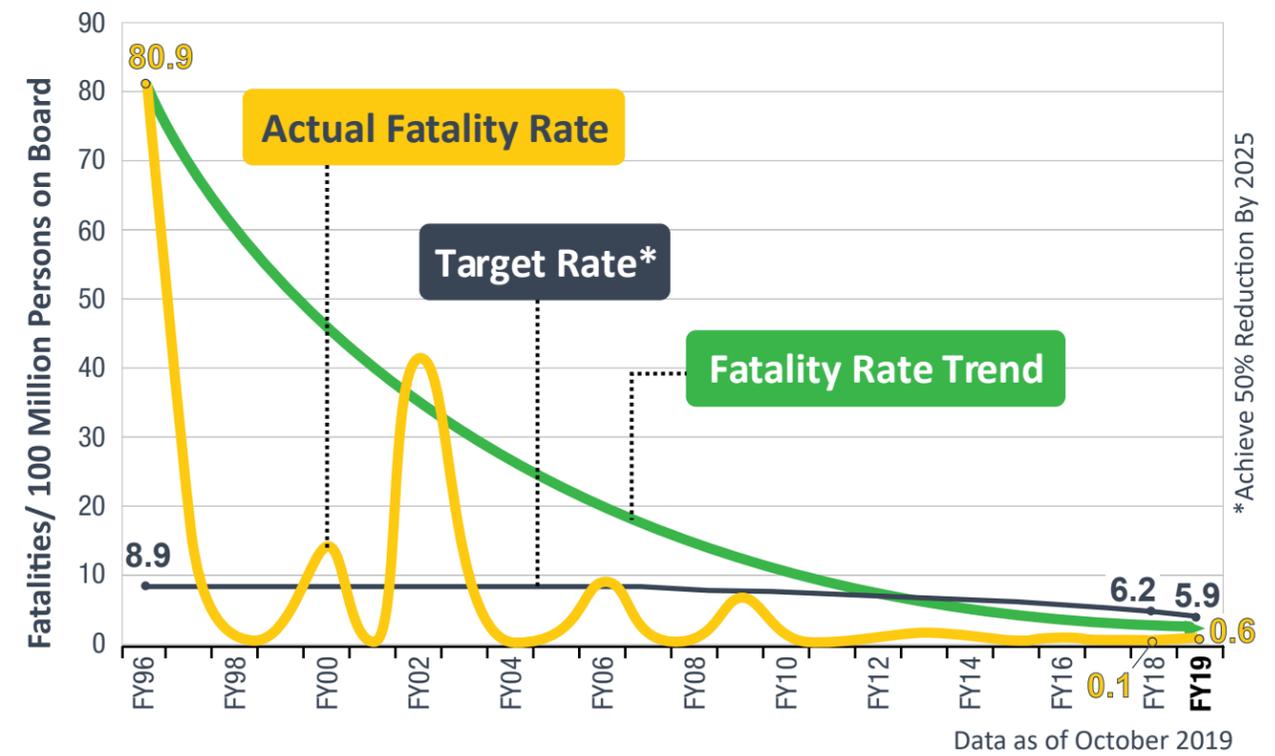
Year in Safety for General Aviation

AVS
Safety Performance



Year in Safety for Commercial Air Carriers

AVS
Safety Performance



“Why I’m Passionate about Aviation Safety”

 By Nicholas Sorokin, Public Affairs Specialist, Aircraft Certification Service

As a newcomer to the FAA, I’d like to share why I joined AVS right out of college.

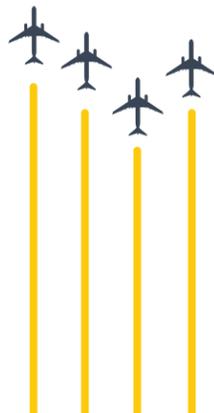
Apart from the coolness factor of supporting big metal containers full of people being catapulted across continents, I was drawn to work at the FAA because of its mission to promote public safety. I care deeply about industries in which members of the public have little to no active role in ensuring their own safety. Each time someone boards an aircraft, they place their trust and well-being in the hands of aircraft engineers, flight crews, and FAA safety specialists.

As a member of the flying public, I’ve often taken safety for granted. My biggest concern has been how much armrest space I’ll get during a flight. No longer.

I’m consistently impressed by the knowledge, care, and expertise that our safety professionals bring to work each day. These qualities are integral to the collaborative, systematic approach that AVS employs to promote public safety.

While I didn’t join FAA with an explicit passion for aviation, I find myself increasingly invested in our organizational outcomes. It’s been rewarding to work as part of Aircraft Certification’s strategic relations team, and I look forward to further supporting AVS’s efforts to continuously improve FAA’s programs and record in achieving the safest skies anywhere for an appropriately and justifiably trusting flying public.

“ Each time someone boards an aircraft, they place their trust and well-being in the hands of aircraft engineers, flightcrew, and FAA safety specialists. ”



UAS Integration Pilot Program **Going Strong**



By Jay Merkle, **Executive Director**, Unmanned Aircraft Systems Integration Office

Most people probably haven't given much thought to how vital medical samples and specimens are transported in metropolitan areas. Certainly, this subject wouldn't have been in Aviation Safety's "lane" until the FAA, North Carolina Department of Transportation, UPS, Matternet, and WakeMed teamed up through our Unmanned Aircraft System Integration Pilot Program (IPP) to demonstrate a groundbreaking new logistics service to deliver medical samples via unmanned aircraft.

Up until now, most medical samples and specimens were transported across WakeMed's large Raleigh, N.C. medical campus by courier cars, often taking over an hour. Drone transport provides an option for on-demand delivery within minutes, thus lowering costs and providing patients with potentially life-saving benefits when time is of the essence. This IPP initiative provides a single waiver under Part 107 for small drone operations over people, with a delivery route requiring active airspace coordination and deconfliction with hospital helicopter medevac operations.

Halfway across the country, the Choctaw Nation of Oklahoma is teaming up with the UAS IPP effort, using drones to survey storm damage, inspect pecan orchards for quality control, count grazing cattle, inspect power lines, and inform the public about drone safety.

These are just two of the creative and beneficial uses of drones advanced in 2019 by the IPP, which in addition to the North Carolina Department of Transportation and Choctaw Nation, has the following lead participants:

- Innovation and Entrepreneurship Investment Authority, Virginia
- Kansas Department of Transportation
- Memphis, Tennessee Shelby County Airport Authority
- North Dakota Department of Transportation
- City of Reno, Nevada
- City of San Diego, California
- University of Alaska-Fairbanks

Together, the nine Lead Participants have conducted thousands of flights involving medical package delivery, linear

infrastructure inspection, damage assessments, aircraft inspections, precision agriculture, and other operations.

Additional highlights over the past year illustrate how the program has assisted state, local, and tribal governments with missions beyond those specifically identified at the start of the program.

A year ago in September, after Hurricane Florence made landfall near Wrightsville Beach, N.C., the North Carolina Department of Transportation quickly mobilized its UAS assets to assess inland flood damaged roads and leveraged IPP industry partner assets to help manage the airspace and safely separate its drones from other search and rescue aircraft.

Also, one of the Virginia IPP team's partners, State Farm Insurance, worked with us to quickly obtain a waiver to conduct property damage assessments over several southern states hit by the flooding from Hurricanes Florence and Michael, which soon followed.

Building on those operations, the North Dakota IPP team used its IPP partners to help survey flooding in eastern North Dakota last April. After images were posted on the North Dakota DOT's website, there was a dramatic reduction in "Lookie Lou" drivers attempting to explore dangerous flooded areas.

Also in April, the FAA issued the first ever Part 135 (Commuter or On Demand Aircraft Operations) drone air carrier certificate to Wing Aviation LLC. This certificate allows Wing to perform drone package delivery operations in communities around Blacksburg, Va. as part of the Virginia IPP team, led by the Mid-Atlantic Aviation Partnership and Virginia Tech.

And in July, the University of Alaska-Fairbanks IPP team obtained the program's first waiver to fly beyond visual line-of-sight without visual observers, and conducted Aleyska pipeline inspection flights near Fairbanks. The team used detection automation on board the UAS, as well as ground-based radars, to spot any unexpected aircraft in the area and avoid them.

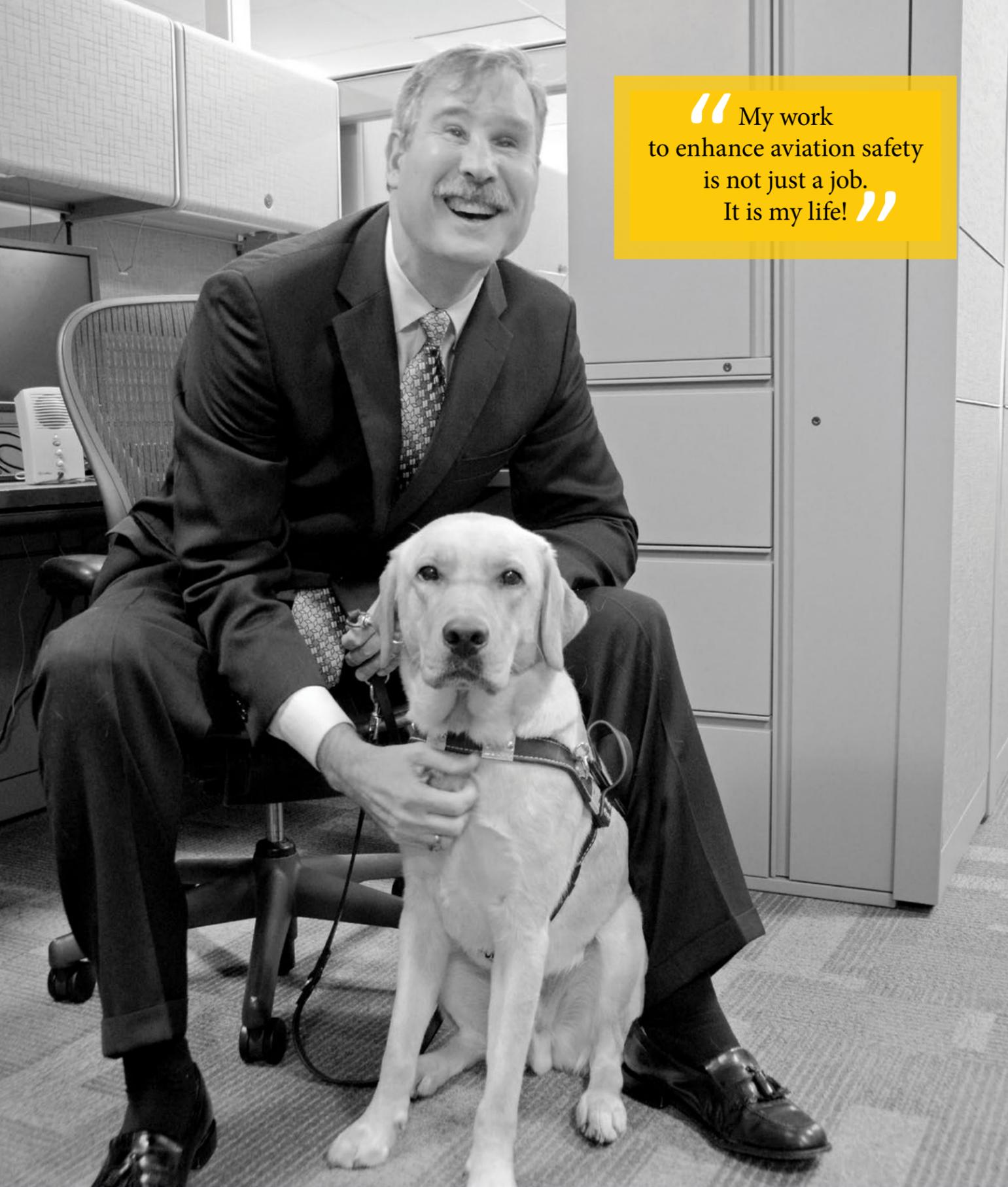
Finally, two of the IPP Lead Participants have chosen to operate under the FAA's public aircraft rules: the Choctaw Nation, a first for a tribe, and the Chula Vista, California Police Department, which dispatches drones in response to 911 calls to survey the area before first responders arrive. The program has helped the police department make a number of arrests and has provided critical situational awareness to

arriving officers.

We are delighted with the results thus far from IPP operations. They have indeed demonstrated how creative use of our existing regulatory authorities can spur many tangible societal and economic benefits. And we look forward to the innovations this program will offer in 2020.



“ [IPP results] have indeed demonstrated how creative use of our existing regulatory authorities can spur many tangible societal and economic benefits. ”



“ My work to enhance aviation safety is not just a job. It is my life! ”

“Why We’re Passionate about Aviation Safety”



By Barry Hyde, PhD, Aviation Safety Analyst, Flight Standards Service

My work to enhance aviation safety is not just a job. It is my life!

Growing up in North Carolina, I always aspired to be an aviator. I eventually became a flight instructor, doing what I loved best—flying every day—and was one week away from interviewing with a major airline, when, on June 1, 1998, as a passenger, I survived a horrific aircraft accident, and lost my sight due to a serious head injury.

During my recovery, I attended the Rehabilitation Center for the Blind in Raleigh, N.C. and trained with my first guide dog, Lincoln, a black Labrador Retriever. Soon thereafter, I became the FAA’s first and only blind Advanced Ground Instructor and Instrument Ground Instructor. I then attended the University of North Carolina at Charlotte, where Lincoln and I graduated with a Bachelor of Arts in History. In 2007, I became the first and only blind graduate student, when

Lincoln and I graduated from Embry-Riddle Aeronautical University with a Masters of Science in Aeronautics, including specializations in Aviation Safety and Aviation Operations. Plus, I graduated “With Distinction”—a perfect 4.0 GPA.

During 2009, Lincoln retired and my new guide dog, Jet, came onto the scene. Then, in March 2010, I began my career with the FAA as an Aviation Safety Analyst in Washington, D.C. In July 2017, I completed my Doctoral Degree in Business Administration with an Aeronautical Safety specialization. And, in May 2019, my newest guide dog, Bravo, and I began an exciting new chapter with the Airman Testing Standards Branch, where we provide stakeholder communications and change management support for the Airman Certification Standards System.

I desire to utilize my passion, education, and experience to further safety and help pilots and the blind attain their goals.

Flying High with Bravo



Bravo, Guide Dog, AVS

This story is about me, Bravo, a yellow Labrador Retriever. I am special because I have the ability to give sight. I was not born with this talent but developed it over the past few years with the help of people who selected me for training.

I met my future owner, a pilot who went blind by the name of Dr. Barry Hyde. He had lived through a plane crash that changed his entire life. After finding out everything he had been through, we were in class for two weeks together. I knew he was the right person for my talents. We were destined to become the best of friends and partners.

Dr. Hyde’s philosophy of life has been an inspiration to me as well. He says, “The incidents in my life have taught me no matter how bad our individual situations appear, life goes on and so do we.” I am glad to help Dr. Hyde achieve his lifelong dreams, and I hope that you will see how very important giving sight to a blind person can be.

I am Bravo, and I am special because I help a blind pilot see.



Advancing Innovation While Ensuring Safety Through Rulemaking



By Brandon Roberts, Acting Executive Director, Office of Rulemaking

In fiscal year 2019, the FAA's Office of Rulemaking (ARM) facilitated more than 50 individual rulemaking projects, each tied to the agency's safety goals. Likewise, ARM worked with our partners in the Aviation Safety (AVS) organization policy offices to complete over 500 regulatory exemptions for individuals and organizations operating in special circumstances. This work included precedent-setting exemptions for drone package delivery, as well as timely responses to facilitate disaster-recovery efforts.

Additionally, ARM worked with our industry partners on a number of rulemaking committees and advisory groups to solicit stakeholder input to inform the FAA's safety and rulemaking programs.

While accomplishing these activities, ARM also completed a realignment of its strategic rulemaking goals in FY 2019, focusing on regulations that would safely integrate Unmanned Aircraft Systems (UAS) into the National Airspace System (NAS), streamline commercial space requirements, and address safety and environmental issues for the design and testing of supersonic passenger aircraft.

• UNMANNED AIRCRAFT SYSTEMS

The FAA developed two proposed rules that are critical to advance UAS integration without compromising the safety and security of the NAS.

The Remote Identification of UAS Notice of Proposed Rulemaking (NPRM) addresses safety, security, and law enforcement concerns regarding the further integration of unmanned aircraft into the NAS. Remote ID will provide a regulatory foundation for accountability and security in UAS operations, and is a necessary first step before more complex operations including beyond line-of-sight in a UAS traffic management system. The Remote ID NPRM is scheduled to publish this fall.

The Operation of Small UAS Over People NPRM, published February 13th, proposes to allow routine operations of certain UAS over people without a required FAA waiver. To qualify for these operations, the UAS must meet FAA safety requirements and manufacturers must demonstrate compliance through testing methods developed by industry consensus or international standards bodies. The proposal also builds on experience gained through the Part 107 (small UAS Operations) waiver process to prescribe requirements for operating a UAS at night.

• COMMERCIAL SPACE

In FY 2019, the FAA proposed to streamline commercial space regulations by replacing many prescriptive regulations with performance-based rules, giving industry greater flexibility to develop means of compliance while maintaining public safety.

The Streamlined Launch and Reentry Licensing Requirements NPRM, published April 15th, would streamline and increase flexibility in the FAA's commercial space launch and reentry regulations, and remove obsolete requirements. This action would consolidate and revise multiple regulatory parts and apply a single set of licensing and safety regulations across several types of operations and vehicles. The proposed rule describes the requirements to obtain a vehicle operator license, the safety requirements, and the terms and conditions of a vehicle operator license.

• SUPERSONIC AVIATION

Recognizing the growing industry interest in civil supersonic aviation, as well as new technologies available for the design and manufacture of advanced aircraft, the FAA developed amendments to Parts 36 (Aircraft Noise Certification) and 91 (General Operating and Flight Rules) in FY 2019.



“ We're working with our partners throughout the agency and departments to embed safety in the underlying regulatory framework for these exciting operations in the future. ”

The Special Flight Authorizations for Supersonic Aircraft NPRM, published June 28th, would streamline and clarify procedures for obtaining FAA approval for supersonic flight testing in the United States. Current regulations prohibit overland supersonic civil flights in the U.S., but include a procedure to request authorization for these flights for the purposes of test and development of new aircraft.

The Domestic Noise Certification of Supersonic Aircraft NPRM would add noise certification standards for new civil supersonic aircraft, enabling the FAA to complete the certification of supersonic aircraft. Title 14 of the Code of Federal Regulations does not currently include noise certification standards for supersonic aircraft operating at subsonic speeds

(such as landing and takeoff) nor at speeds in excess of Mach 1 when sonic booms are produced. Aircraft noise and performance data are required to develop such standards. The FAA is working to gather design and operational data from potential manufacturers of supersonic aircraft that would support a final rule. The NPRM is scheduled to publish next March.

These proposed regulatory changes demonstrate the FAA's commitment to safety, while recognizing the need to provide a regulatory pathway for innovative and beneficial uses of the National Airspace System. Together as One AVS, we're working with our partners throughout the agency and departments to embed safety in the underlying regulatory framework for these exciting operations in the future.



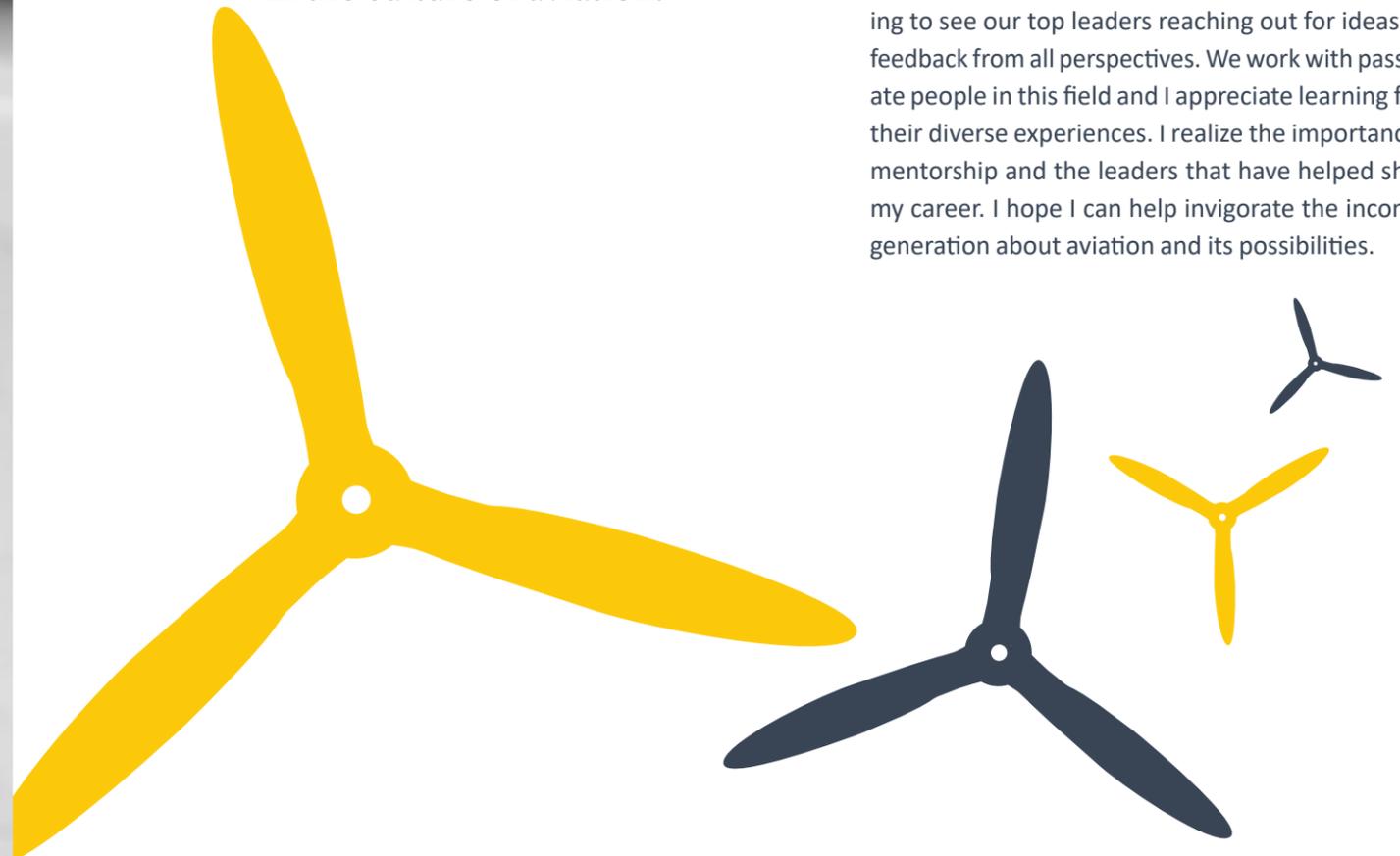
“Why I’m Passionate about Aviation Safety”



By Catherine A. Pociask, AVS Reauthorization Program Manager, Quality, Integration and Executive Services

“It’s thrilling to be at the forefront of advancing technologies, as well as seeing a change in the culture of aviation.”

Aviation technologies are at a critical juncture of innovation. Between commercial space, unmanned aircraft, and supersonic technologies, the aviation construct has to revolutionize to keep up with industry and the public’s needs. It’s a very exciting time for regeneration in the industry. It’s thrilling to be at the forefront of advancing technologies as well as seeing a change in the culture of aviation. While we’ve remained a safety-driven culture, it’s really heartening to see our top leaders reaching out for ideas and feedback from all perspectives. We work with passionate people in this field and I appreciate learning from their diverse experiences. I realize the importance of mentorship and the leaders that have helped shape my career. I hope I can help invigorate the incoming generation about aviation and its possibilities.



Strengthening the FAA Aerospace Medicine Brand

✈️ By Michael A. Berry, MD, **Federal Air Surgeon**, Office of Aerospace Medicine

The FAA Aerospace Medicine brand has never been stronger or better defined. It is recognized and emulated by the Aerospace Medicine community nationally and internationally. Working with FAA Human Resources personnel and the Aviation Safety (AVS) Management Team permitted the Office of Aerospace Medicine (AAM) the ability to hire critically needed personnel to support our medical certification processes and safety mission. Notably, we hired a deputy psychiatrist to assist the Chief Psychiatrist with that burgeoning caseload that AAM manages, as well as a neuropsychologist and a pharmacologist to assist in the approval of new medications that airmen and air traffic control personnel may use, allowing these individuals to retain their safety critical medical clearances.

One of the most significant events affecting all of the FAA, and particularly AVS and AAM, was the federal government shutdown and furlough. AAM had planned ahead after the last furlough and ensured we had adequate staffing to continue the maintenance of medical certification of airmen and medical clearances of Air Traffic Controllers in support of the safety of the National Airspace System. The major difficulty encountered was the length of the shutdown and the need to recall employees to keep medical certifications moving smoothly. We accomplished this but still experienced an increase in the backlog of cases, from which we are still recovering. Part of the process involved our two ongoing medical consultant panels, which had been canceled. We were able to restart these in the first month of returning to work. The Cardiac Panel was able to clear 140 cardiac cases, and the Neurology Panel, despite logistical limitations, recommended certification of over 30 complex neurology cases.

The FAA Reauthorization Act of 2018 required major attention from many AAM Divisions over the past year, and work is ongoing. Section 307: Emergency Medical Equipment on Passenger Aircraft required additional outreach to the Aerospace Medical Association. The recommended changes to airline Emergency Medical Kits will now require rulemaking. Section 326: Aircraft Air Quality has engaged AAM experts in

our Civil Aerospace Medical Institute (CAMI) research divisions in collaboration with AVS Aircraft Certification; Section 535: Allergic Reactions on Aircraft is another area requiring expertise from outside medical organizations. Sections 536: Passenger Oxygen Masks and 577: Minimum Dimensions for Passenger Seats have also required collaboration with AVS Aircraft Certification and the Flight Standards Service as well as obtaining outside contracts for required studies. All of this work will be continuing into FY 2020.

A major task, which has been in development for the last several years, is a protocol for Special Issuance Medical Certification of 1st and 2nd class airmen with insulin-treated diabetes. With the benefit of technological advances in this field, using new medical devices allowing Continuous Glucose Monitoring, AAM was able to develop a risk-based protocol, which will allow us to return and restore the careers of certain airmen who are insulin dependent.

At the end of the FY 2018, AAM held a first ever Oncology Summit in Washington, DC, bringing in the foremost U.S. experts in different specialty areas of cancer. The purpose was to educate these physicians in our aerospace medical risk-based assessment of airmen and for AAM to better understand the cutting-edge advances in this rapidly changing field. The task for AAM in 2019 has been to consolidate all of this new information into guidelines to permit airmen and air traffic control employees with cancer to return to work. We have made great progress, but still have a long way to go. Due to our success with this method of increasing our clinical knowledge, AAM is looking at other fast changing fields of medicine for future summits.

AAM's global outreach and active participation in multiple international medical meetings have assisted the worldwide aviation community by sharing our airman medical certification policies, rationale, and implementation. We look for this engagement to grow in FY 2020 along with our influence on similar organizations worldwide.



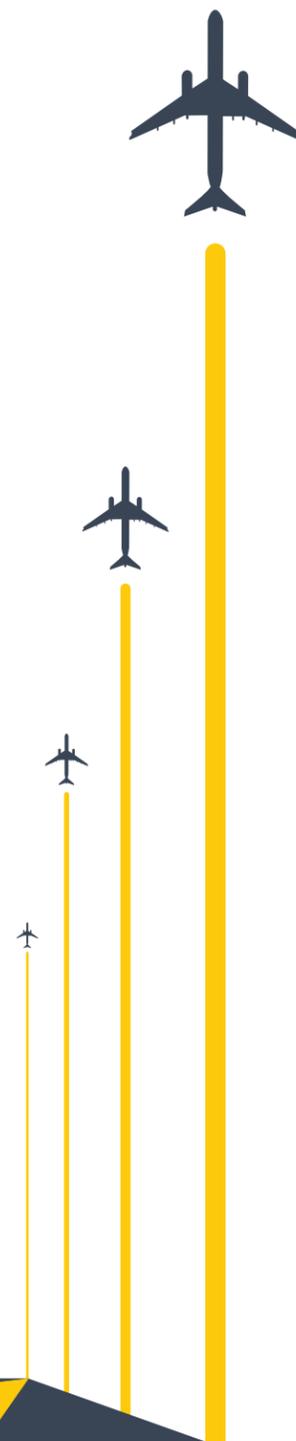
“ [Aerospace Medicine’s new risk-based protocol] will allow us to return and restore the careers of certain airmen who are insulin dependent. ”

“Why I’m Passionate about Aviation Safety”

✈ By Susan Northrup, MD, Regional Flight Surgeon, Aerospace Medicine

“ In the back of my mind ... is the question: Have we mitigated the risk of sudden or subtle incapacitation sufficiently that I would be comfortable getting on the airplane? ”

As an aerospace medicine physician, pilot, and aircraft owner, I am passionate about aviation safety. Like many travelers and airmen, I depend on our system to get me from point A to point B whether I am on a commercial flight or at the controls. Every day, flight surgeons in the Office of Aerospace Medicine render decisions affecting the safety of the National Airspace System. Always in the back of my mind when I am applying our standards and guidance to airmen or air traffic controllers is the question: Have we mitigated the risk of sudden or subtle incapacitation sufficiently that I would be comfortable getting on the airplane? Or at an even higher level, my children or someone else’s child? Every facet of aviation from aircraft manufacturing to maintenance to airmen and air traffic controllers’ health must be aimed at safety. Each part is interconnected and failure is unacceptable. Recently, my eldest son earned his private pilot license and my youngest son soloed. Was I nervous? Yes. But I knew, due to the dedication of the safety professionals at the FAA and their instructors, they were ready.



An Integrated Approach to Proactive Safety Oversight

✈️ By Michael O'Donnell, Executive Director, Air Traffic Safety Oversight Service

In early Fiscal Year 2019, the longest federal government furlough in American history challenged all of Aviation Safety's (AVS) Services and Offices. In the Air Traffic Safety Oversight Service (AOV), it stalled our ongoing Organizational Assessment. Our management was forced to draw a line between ongoing work and corresponding guidance in order to identify and assess risks that may go unaddressed in the absence of an oversight body. Although originally a necessity, this exercise actually drove progress toward an information management strategy for the future.

As I told our team, "We're not changing for the sake of change." Everyone was and continues to do great work. The exercise was simply an opportunity to ask, 'Are we doing the right things? Are we looking at the system and going in a risk-based direction? And, are we aligned to support future challenges?'

Two AOV priority projects over the past year focused on answering those questions. A Risk Identification Team (RIT2) continued work done during the furlough to identify and prioritize emerging safety issues, and an AOV Organizational Assessment began to determine how best to align resources to meet the safety mission both now and in the future.

AOV's mission is to provide independent, risk-based, data-driven safety oversight of air navigation services. In order to transform how safety oversight is conducted, AOV first needed to determine what data is necessary and how it will be used to identify and prioritize safety issues.

To that end, the RIT2 conducted several rounds of employee engagement sessions in each of the four AOV offices over the summer. In these sessions, participants discussed how their work contributes to and complements the bigger picture and explored all aspects of the Air Traffic Organization's (ATO) implementation of Safety Management System (SMS) components. A deep dive "Activity Summit" in

early August then brought representatives from each area office together to validate the information collected (inputs, outputs, risks, etc.) and complete functional models for each AOV activity, such as credentialing and event validation.

At the same time, the RIT2 also created several comprehensive process maps to visually depict how AOV and ATO are fulfilling the roles and responsibilities delineated by the foundational FAA Order 1100.161. Together with the functional models of AOV activities, this provided an accurate picture of the current state and helped illustrate gaps in how AOV conducts safety oversight.

AOV will use the results of the RIT2 effort to bridge identified gaps—in recurrent training or surveillance activities for example—using an integrated approach to proactive safety oversight. This approach emphasizes the review and consistent use of data to integrate risk into the oversight assessment process and enable proactive, systemic decisions.

AOV, having recognized that agility would be necessary to innovate and advance the data-driven, proactive safety oversight model, began to take action to evaluate the current organizational structure in early FY19. An official AOV Organizational Assessment kicked off in March to identify gaps and determine how best to align resources to meet the safety mission – both now and in the future.

Using an independent contractor, AOV secured perspectives and ideas from managers and employees about workloads, work processes, and other factors that contribute to, or detract from, the ability to execute the safety mission. In collaboration with AFSCME, AOV conducted an anonymous, voluntary employee survey—securing a response rate of 72 percent, about twice the average for such a survey. To ensure a comprehensive picture, AOV also gathered input from external stakeholders including ATO and the Office of International Affairs.

During a face-to-face meeting in September, AOV management discussed interim report findings from the contractor. This included several organizational structure recommendations to address identified issues, including limited employee engagement, role ambiguity, stunted team matrixing, and resource underutilization. The contractor provided a final report with a more detailed analysis of internal and external stakeholder input on October 15th. AOV leadership is analyzing the alternatives and will use their next face-to-face meet-

ing in November to make a plan to engage employees about the best way forward.

In summary, AOV's activity over the past year began operationalizing an initiative identified by the AVS Strategic Plan: establish the framework and criteria for data-driven decisions, prioritizations of initiatives, and resource allocation. From AOV's perspective, there is much more work to come. Stay tuned!



“ [We asked] Are we doing the right things? Are we looking at the system and going in a risk-based direction? And, are we aligned to support future challenges? ”



Registered Aircraft:		Total:
Recreational UAS	1,067,682	1,711,826
Part 107 small UAS	407,028	
Air Carrier Aircraft	7,387	
Commuter Air Carrier Aircraft	713	
On Demand Air Taxi Aircraft	8,928	
General Aviation Aircraft	220,088	
Flight Instructors		112,427
Approved Manufacturers		1,539
Mechanics with Inspector Authority		22,787

Data as of October 1, 2019



Active Pilots:		Total:
Remote Pilots Certificated	150,803	658,504
Other Active Pilots	507,701	
Designees:		9,097
Aircraft Certification Designees	2,675	
Flight Standards Designees	3,814	
Aerospace Medicine Designees	2,608	
Air Operator Certificates		5,047
Air Agency Certificates		6,312
Airmen Medical Examinations		393,791
Air Traffic Specialist Credentials		20,710

Data as of October 1, 2019

“Why I’m Passionate about Aviation Safety”

✈ By Tim Brooks, Management and Program Analyst, Flight Standards Service

“ After over a year of research and development, the panel faced the unprecedented challenge of the 9/11 terrorist attacks on America and our aviation security system. At this specific moment I discovered my passion for aviation safety. ”

My already established FAA career took me to the Flight Standards credentialing program staff in 2000. We faced multiple challenges with our Aviation Safety Inspectors’ 110A credentials, the very record needed to do anything official as a qualified ASI. Nearly three-quarters of our 3,800 active inspectors were experiencing chronic ID validation issues while performing en route surveillance assignments at airport checkpoints. As a result, the airline industry experienced hundreds of airport delays until 100 percent verification for safety inspectors was confirmed.

Our staff discovered a number of problems: the old, two-part credential needed a revision to comply with changing security elements; our credential data repository was antiquated; and over 60 percent of field offices were grossly

understaffed. To address these problems, “The Panel,” comprised of myself, subject matter experts, and senior managers, worked long and hard to mitigate these systemic issues.

After over a year of research and development, the panel faced the unprecedented challenge of the 9/11 terrorist attacks on America and our aviation security system. At this specific moment I discovered my passion for aviation safety. I wanted to contribute everything within my power to improve our system’s safety.

In 2002, the panel implemented a new policy that resulted in our first automated credential system (IVIS) to serve as the repository for over 10,000 safety inspectors. This new system produced a one-part credential with an accommodating badge medallion. I was oversight lead for a team of 12 dedicated employees who worked many long hours converting thousands of records and sorting through over 8,000 badges. The new credential combo gave our inspectors a 90 percent increased visibility at security checkpoints and overwhelmingly improved our safety reliability standards by 78 percent in fewer than two years.

In the following year, we launched our first stand-alone secure 110A Credential website, currently holding over 12,000 Personally Identifiable Information records from several lines of business. We now have one of the most highly recognized credential systems in the federal government.

The growth I’ve experienced during that process has been invaluable to me and continues to nurture my passion for aviation safety.



Taking on Aviation Safety's Workforce Challenges

✈️ By Sunny Lee-Fanning, Exec. Dir., Office of Quality, Integration & Exec. Services

The Aviation Safety (AVS) workforce ranges from highly skilled veteran employees, who experienced the dawn of supersonic passenger flight, to talented new hires eagerly taking on the challenges of safety in a national airspace filled with drones, commercial launch vehicles and spacecraft, and soon, low-boom, fuel efficient supersonic aircraft. As no workforce remains static in composition or talent, we constantly strive to up our game by addressing current and future workforce needs.

In 2019, AVS quickened the drumbeat of activities aimed at inspiring the next generation of aviation professionals and hiring the highly qualified safety experts needed to advance our safety mission. We also expanded succession planning to ensure we have the right people in place to assume the roles of retiring baby boomers.

I'm very excited about what we are doing to utilize Science, Technology, Engineering, and Mathematics (STEM) activities to teach our younger generation to be creative problem solvers and forward thinkers about technology. This September, AVS hosted the second of our STEM Career Symposiums at FAA Headquarters, giving students firsthand experiences with flyable micro drones, fatigue and alcohol effect glasses, and a flight simulator. AVS's new STEM program manager, Aisha Small, helped us triple the number of students attending to 150. It was incredibly energetic and refreshing to connect with these students, who indeed represent the future of our work.

At the Symposium, several students and teachers approached me about future opportunities. One student was thrilled to hear that I have an MBA degree as she wants to pursue an MBA. She pulled a binder out of her backpack filled with training certificates, her resume, and scholarship offers. Talk about being ready just in time to make a positive impression with a future employer!

With respect to AVS's current workforce, in 2018 the attrition rate for Aviation Safety Inspectors (ASI) leaving our workforce either through retirement or going to the private sector (261) was much higher than the number of newly hired ASIs (154). This worrisome imbalance was especially acute in AVS's Flight Standards Service, where ASIs have critical oversight and safety promotion responsibilities. In response, AVS launched an aggressive ASI Hiring Campaign, using enhanced hiring tools such as a higher initial salary and relocation expenses. The Office of Quality, Integration & Executive Services (AQS) is spearheading a communications campaign to promote our hiring effort, with posts on FAA's Twitter, Instagram, Facebook, and LinkedIn accounts; a video highlighting a day in the life of an ASI; and direct messages via GovDelivery to the Flight Standards General Aviation and Commercial Division's (AFS-800) 40,000 subscribers. Because of this campaign, we have successfully increased the pool of qualified candidates for Air Carrier Operations and General Aviation Operations ASIs. We are also looking at ways to retain AVS employees in these categories.

Another challenge we face is building our AVS leadership "bench strength," as 33 percent of AVS executives and managers are currently eligible for retirement. To help build and maintain a leadership talent pipeline, last year we piloted our Aviation Safety Executive Succession Planning program. In the first year we assessed 19 diverse candidates for leadership positions based on their executive success competencies and filled 50 percent of our targeted vacancies with these candidates. This year, through the AVS Managerial Succession Plan Program Pilot, 44 frontline managers are participating in leadership development.

Importantly, in all of our recruitment, hiring, and succession efforts, AVS is committed to tap the talents of people from diverse backgrounds. Our work in collaboration with

FAA's Office of Human Resource Management, Office of Civil Rights, and Office of Chief Counsel 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 safest and most productive aviation sector.

Staying on top of AVS's workforce challenges is a task requiring the attention of the entire AVS Management Team. Working together, we are making significant progress in helping to strengthen our current talent base and create a dynamic workforce for the future.



“AVS quickened the drumbeat of activities aimed at inspiring the next generation of aviation professionals and hiring the highly qualified safety experts needed to advance our safety mission.”

Sunny Lee-Fanning, Executive Director, Quality, Integration and Executive Services and Deputy Executive Director Heather Danner.



“The AVS Strategic Plan is what we do daily and not just a glossy paper document sitting on the corner of a desk.”

Embracing New Ways of Achieving Our Goals



By Lirio Liu, Acting Deputy Associate Administrator for Aviation Safety

I have been a part of the Aviation Safety (AVS) organization for almost three decades, and have seen AVS adapt to the challenges presented to us as time has passed. In the last few years, the FAA and AVS in particular have faced the challenge of keeping pace with technology and the industry we oversee. Yet we have had unprecedented success in finding ways to address those challenges through risk-based approaches, and just as importantly, the personal engagement of our employees to gain from their experience to find solutions that allow new operational concepts while assuring the safety level we expect in our aviation system.

Unmanned Aircraft Systems (UAS), or drones, are now a part of the FAA's daily vocabulary. Commercial Space Operations have grabbed our attention with numerous private rocket launches and the use of facilitating aircraft like the "White Knight." And supersonic commercial flights will become a reality again in the near future.

As this year began for me in the Office of Rulemaking, I was involved in establishing the regulatory framework for these new challenges. Now, I end the year in a role where I see the regulatory framework as it gets operationalized. From this vantage point, I can see the strategic direction of the "One AVS" actually play out.

The AVS Strategic Plan was the product of significant input from representatives of all the AVS Services and Offices. It was not an easy task to have a group of technical, and by nature "Tactical," people come together and think "Strategic." The first release of the AVS Strategic Plan is really quite an accomplishment, and it is a product that benefitted from the thoughtful comments of AVS employees and industry representatives. It asserts that improvements in key areas of our organization's skills, processes, systems, behaviors, and relationships will help us advance our vision of being "an innovative organization that achieves excellence and assures safety in the global aerospace system."

At the heart of the Strategic Plan is the recognition that the FAA's safety mission remains a constant, and that while we do a good job today with maintaining the operational safety of the current National Airspace System, as we look to the future, we must embrace new ways of achieving our goals. We continue to be alert for new safety risks in this increasingly

complex global enterprise, while not being overly prescriptive with rules and regulations that could stifle innovation that leads to long-term improvements in aviation safety.

The foundations of the AVS Strategy are the Department of Transportation and FAA's four strategic goals of safety, infrastructure, innovation, and accountability. These goals drive the nine AVS Strategic Plan initiatives and associated activities:

- Establish and expand voluntary safety programs.
- Collaborate globally to influence the continuous improvement of aviation safety worldwide.
- Develop a uniform continuum for performance-based responses for all oversight and regulation functions.
- Establish requirements and governance for safety data sharing across the enterprise.
- Improve the ability to identify and assess safety risks through advanced analytics.
- Establish a framework and criteria for data-driven decisions, priority ranking of initiatives, and resource allocation.
- Align workforce development and training with future needs.
- Create intentional strategies to effect culture change.
- Create a strategy for reinforcing expected behaviors.

The AVS Strategic Plan is meant to be a living, changing document, as events and circumstances dictate. By following it, we can become a more agile, forward-looking organization, one constantly seeking to improve as we work to excel domestically and lead as a model for aviation safety throughout the world.

It has been a privilege to work closely with Ali in the role of his deputy these past few months and seeing how the activities and values of the AVS Strategic Plan come to play on a daily basis in what we do. To me the AVS Strategic Plan is what we do daily and not just a glossy paper document sitting on the corner of a desk.

Just Plane Folks: AVS employees in Oklahoma City gather around the Aeronautical Center's symbol of innovation.

