



**STATEMENT OF THE  
NATIONAL BUSINESS AVIATION ASSOCIATION**

**ED BOLEN  
PRESIDENT AND CEO**

**SUBMITTED TO  
THE UNITED STATES SENATE  
COMMITTEE ON COMMERCE, SCIENCE, AND  
TRANSPORTATION  
SUBCOMMITTEE ON AVIATION SAFETY,  
OPERATIONS, AND INNOVATION**

**REGARDING:**

**“ADDRESSING CLOSE CALLS TO IMPROVE AVIATION SAFETY”**

**NOVEMBER 9, 2023**

Chair Cantwell, Ranking Member Cruz, Subcommittee Chair Duckworth, Subcommittee Ranking Member Moran and Members of the Subcommittee on Aviation Safety, Operations, and Innovation, thank you for holding this hearing to examine and address close calls in the National Airspace System and improve aviation safety. On behalf of the National Business Aviation Association's (NBAA's) 11,000-member companies, I am honored to submit testimony for this hearing.

NBAA's members, many of which are small businesses, rely on general aviation aircraft to meet some portion of their transportation needs. These aircraft provide connectivity to communities in every state, which is especially critical to communities with little or no airline service. Business aviation is keeping small businesses globally competitive and bolstering our national economy with 1.2 million American jobs and \$247 billion in economic output.

The aviation industry overall – from commercial aviation, to general aviation, manufacturing, Advanced Air Mobility and other emerging technologies and associated businesses – accounts for more than 5% of the United States gross domestic product.

We applaud Chair Cantwell and Ranking Member Cruz for holding this hearing focused on safety—a core value for our industry. Since the dawn of flight, safety has been integral to everything we do, on the ground and in the air. Since NBAA was founded in 1947, we have been intentional in developing partnerships with government leaders and other stakeholders to deliver the products, procedures and policies that continually increase the safety of flight. Because of this continued, comprehensive focus on innovative approaches to safety, aviation is the safest mode of transportation, and the U.S. stands as the global leader in aviation safety.

Safety is not a destination - it is a journey and a practice that requires vigilance and a supportive culture to thrive. Although the business aviation community has built an impressive safety record, there have been some recent incidents that require thorough review and response.

General aviation (GA) has a strong role to play in shaping the future of aviation safety, in part because it is the proving ground for the industry. GA is where aviation was born, and it's the point of entry for many in the community, from the pilot's first hours of flight to the mechanic's first oil change.

We take this responsibility seriously. Just this week, nearly 500 business aviation professionals are gathering in Wichita, KS for the Bombardier Safety Standdown presented in close partnership with NBAA. This annual event, which began in 1996, is a premier forum to bring our community together and work on solutions to improve aviation safety standards and sustain positive changes within the industry. The aviation safety program is free of charge and the information is catered towards pilots, crewmembers, maintenance technicians and managers, no matter what aircraft they operate. In addition to the event, the Safety Standdown website provides access to live seminar webcasts, as well as a variety of safety-related articles written by experts in the industry.

Recognizing the increase in serious numbers of incursions and the recent near misses and close calls involving business aviation aircraft, NBAA continues its efforts and collaboration with the FAA, NTSB, NATCA and other organizations to raise awareness and to develop and promote educational resources on the subject.

NBAA members have organized a number of committees to engage in improving safety across the industry. Foremost, our Safety Committee, one of our oldest committees, biennially studies and identifies [Top Safety Focus Areas](#), to help promote safety-enhancing discussions and initiatives within flight departments and among owner-flown operations.

We are proud to announce that NBAA is standing up a Runway and Surface Safety Working Group that brings experts together across NBAA committees and across the industry to address the recent runway incidents and incursions.

NBAA has played a leadership role in a number of stakeholder meetings over the course of the last year to discuss close-call events. I participated in the FAA Safety Summit, held this spring emphasizing those efforts. NBAA's Director of Airports has been serving as the Industry Co-Chair of the Surface Safety Group and representing the industry on the Runway Safety Council. NBAA participated in the NTSB Runway Incursion Roundtable this spring. We have written a number of web stories and have held a number of podcasts on the subject, most recently one with the Chair of NTSB and the FAA Manager of Runway Safety. We are planning for a second portion of that in partnership with NATCA, to focus on pilot-controller interactions related to runway safety and wrong-surface operations, as well as a live webinar. NBAA members and staff participate in the local Runway Safety Action Team (RSAT) and Special Focus RSAT meetings and other runway safety initiatives across the country and those presented virtually.

### **Building a Culture of Safety**

In addition to responding to specific events in the national airspace system, a key strategy for continually enhancing business aviation's safety posture is to cultivate a culture of safety, from training and education to studying and mitigating human factors, to acknowledging excellence in safety leadership within the industry. Everyone - from the pilot, to the cabin crew, to the dispatcher, to the maintenance technician and beyond - has an important role in the safety of flight.

Technologies, and their implications for aviation, are a key element in the safety formula, but technology cannot replace the human element in the equation. That's why the business aviation community places a sharp strategic focus on human factors - how fatigue, stress, confusion and other influences can impact decision-making - in thinking about safety.

There are a number of misperceptions that can lead a pilot to take off or land from a wrong taxiway, runway, or even a wrong airport. These incidents are known as wrong-surface events. They often involve human factors, and reducing them is a top priority for FAA, NBAA and the industry. We are actively working with the FAA and other stakeholders in the Surface Safety

Group focused on developing tools to increase situational awareness for pilots at airports with a high number of wrong-surface incidents.

The association participated in the FAA's Surface Safety Symposium, which brought together commercial airlines, ground vehicle drivers and general aviation pilots and operators to discuss and develop solutions to runway and surface safety challenges. NBAA also provided a platform to the FAA Runway Safety organization at its October 2023 NBAA-BACE, which included 20,000 attendees from across the industry, to engage with attendees during the convention's Meet the Regulators session.

NBAA is also working to reduce runway excursions, another event often driven by human factors, in which an airplane inappropriately exits a runway. Like incursions, these events require strategically driven mitigation planning, along with tools developed by experts for industry. To that end, the association has gathered some of the best expertise on excursions at events, including our National Safety Forum in 2022, and continues to develop resources, including our Guide for Reducing Business Aviation Runway Excursions, which has been updated by the Safety Committee in collaboration with the Domestic Operations Committee and is in the process of being published.

In 2022, NBAA launched its Business Aviation Safety Manager Certificate Program. This online accreditation was designed to educate individuals to effectively manage a business aviation organization's proactive safety efforts. It includes an in-depth look at the four elements of a Safety Management System (SMS), including Safety Policy, Risk Management, Safety Assurance and Safety Promotion, as well as modules on Safety Leadership and Emergency Response. The effort goes beyond initial education, by connecting certificate applicants to each other, in a community of engagement through peer-to-peer learning that fosters continuous safety improvement across the board, while also meeting the specific operational needs of any given aviation operation. In just a single year since this program's launch, more than 300 people have completed the course, obtaining recognition for safety leadership, while building an enduring peer community of safety advocates in business aviation.

NBAA honors safety leadership in other important ways. For several decades the association has annually issued its Flying Safety Awards, a standards-based honor that recognizes exceptional achievement in safe flying operations, and pays tribute to the skill of a company's management, maintenance, pilot, scheduler/dispatcher and support-personnel teams.

NBAA's Safety Committee administers the annually issued Dr. Tony Kern Professionalism in Aviation Awards, which specifically honor individuals for outstanding professionalism and leadership in support of aviation safety. The committee's newest honor, the Above and Beyond Award, is given to individuals whose application of safety best practices played a key role in avoiding injury, loss of life, or catastrophic aircraft damage in hazardous flying circumstances.

### **Addressing Human Factors to Strengthen Safety**

Safety in aviation goes beyond the flight deck to all aspects of the industry. Recognizing this, the NBAA maintenance committee has taken a proactive approach by developing educational

initiatives at its annual Maintenance Conference to emphasize the crucial role of the human factor in ensuring safety. This initiative underscores the fact that, despite the advancements in technology and the stringent protocols in place, we must remember that aviation professionals are only human. By addressing human factors in maintenance practices and procedures, the committee seeks to foster a culture of vigilance, continuous learning, and open communication to mitigate risks and enhance safety across the aviation industry. These efforts are critical to addressing safety issues before they ever reach the flight deck.

Another important part of the work to address the impact of human factors on aviation safety lies in our sector's focus on mental health and fitness for duty. More than a small-bore approach to myriad, stand-alone psychological and physical symptoms, the work in this area looks at the whole person, recognizing that aviation is a physically and mentally demanding environment in which a clear mind and well-rested, healthy body is essential to safe business aircraft operations, maintenance and management.

Studies confirm the prevalence of this concern, as well as the need for both action and compassion on the matter: one recent report<sup>1</sup> concluded that nearly 60% of pilots avoid seeking health care due to the fear of losing their aviation medical certificate. NBAA is concerned that some aeromedical certification requirements may needlessly impede eligibility for pilot certification, severely dissuading pilots from seeking treatment for a troubling condition.

As with so many other aspects of aviation safety, partnerships between industry and government can produce solutions to the problem without compromising safety, and we have proven successes with such an approach. For example, we have worked with the FAA to develop multiple pathways for Aviation Medical Examiners (AMEs) to issue airmen medical certificates at the conclusion of an exam, thereby minimizing wait times for FAA reviews. We have also emphasized the need for AMEs to research and identify for aviators the full menu of pharmacological treatment options that can safely be used in the aviation environment to address a given condition, and to better define the criteria for requiring or deferring neurocognitive testing.

We continue to be an active partner in educating the business aviation community on these policies; in the past year alone, NBAA hosted an interactive News Hour webinar and a National Safety Forum discussion with aviation mental health experts and the FAA Federal Air Surgeon. We have engaged with the aviation community on these policies at events such as the Experimental Aviation Association's annual AirVenture Oshkosh show, the University of North Dakota's yearly Aviation Mental Health Symposium, as well as regularly held FAA Human Intervention Motivational Study and InfoShare Conferences and FAA General Aviation Joint Safety Committee (GAJSC) meetings, among others.

Collectively, these efforts will help address misperceptions about mental wellness and fitness for duty, while reducing barriers that interfere with obtaining treatment and healthcare, getting pilots

---

<sup>1</sup> Hoffman et al. 2022. Healthcare Avoidance in Aircraft Pilots Due to Concern for Aeromedical Certificate Loss. *J Occup Environ Med.* 64(4):e245-e248. 11

the help they need, maintaining pilots' livelihoods, aiding employers in understanding the readiness of their workforce - and, most importantly, enhancing safety.

### **Safety Leadership Through Pioneering Technologies**

As this committee knows, many of the technologies and solutions that have revolutionized aviation safety were born in the business aviation community. We led the way with GPS, a transformative navigation and safety technology. We led the way in development of airborne collision-avoidance systems that ensure situational awareness at all altitudes. We led the way in developing enhanced vision systems that can identify unanticipated ground obstructions in thick fog, and see through clouds to locate terrain while in flight. We partnered with the FAA in integrating the Reduced Vertical Separation Minimum (RVSM) technology that has vastly increased the efficiency and safety of aviation system management. Similarly, we were the early adopters of Automatic Dependent Surveillance Broadcast (ADS-B), a cornerstone technology for ushering in the next generation aviation system's enhancements to safety, as well as efficiency and sustainability.

### **Safety Leadership Through Data-Based Programs**

Of course, the deployment of world-leading technologies has been only one piece of the safety equation for aviation. The development and implementation of innovative programs that identify the root causes of safety threats, and offer proven ways to eliminate them, is also a key building block for a solid safety foundation.

For example, 20 years ago, NBAA and its members joined with the International Business Aviation Council in developing the safety focused International Standard for Business Aircraft Operations (IS-BAO), a set of best practices focused on safety management as a data-driven team effort, including pilots and cabin crew, schedulers, dispatchers, maintenance technicians and others.

Since the program's founding, more than 700 business aviation operators in 35 countries have become IS-BAO registered, improving their safety risk profile. Today, the business aviation community is an active participant in a variety of government-industry programs that aggregate operational data to identify risks, capture behaviors that contribute to accidents, and pinpoint ways to mitigate those events.

As just one example, we can point to the FAA's Aviation Safety Information Analysis and Sharing program, also known as "ASIAS," in which more than 150 organizations capture and coordinate data and other information critical to avoiding a variety of unusual events, including bird strikes, mid-air collisions, course deviations and other aviation safety hazards.

NBAA has promoted ASIAS through discussions at our National Safety Forum on specific aviation hazards, during the NTSB Roundtable discussion at NBAA Business Aviation Convention and Exhibition (NBAA-BACE), in articles published in NBAA's safety-focused Business Aviation Insider magazine, and through our ongoing engagement at the ASIAS Executive Board and GA Issues Analysis Team governance levels within the program.

As part of Safer Skies, launched in 1998, the FAA and the general aviation community jointly pursue a goal of reducing GA fatal accidents.

The GAJSC uses a data-driven, consensus-based approach to analyze safety data to develop specific interventions that will mitigate the root causes of accidents. The GAJSC focuses on proactively assessing data to identify new emerging issues and threats to general aviation safety, analyze them, and develop mitigation strategies to address and prioritize safety issues to prevent accidents.

NBAA, a founding member of the GAJSC, has supported the valuable safety studies and analyses conducted by this group, and worked to educate our members on the tools created to address specific safety risks. The current goal is a safety improvement over the FY18 target of 1.00 fatal accidents per 100,000 flight hours to a FY28 target of 0.89 fatal accidents per 100,000 flight hours.

### **Leadership in Safety Policy Development**

A comprehensive approach to safety involves not just an investment in new technologies, or simply the development of risk-mitigation programs, but also a continuing commitment to an effective and tailored policy framework that matches the size and operational realities of business aviation. For a safety mandate to realize the benefits it seeks, it must have flexibility to scale, to fit the largest commercial operation, or the smallest charter business. NBAA and its members have led the way in this area. For example, the business aviation community has most recently been focused on a policy proposal put forward by the FAA in January, which would extend the requirement for implementation of SMS programs beyond those for the airlines to many business aircraft operations.

While NBAA and its members have always supported rigor in ensuring everyone involved in a flight maintains a premium on safety, we know that an SMS suited for the largest airline will not likely be transferable to a small operation with a single airplane. We can look outside of the United States to learn lessons as we review the FAA's new proposal. Our focus will be on ensuring that any resulting program is not only flexible, but also meaningful in driving safety, rather than confusion due to compliance burdens and other missteps that have been characteristic of the introduction of SMS for business aviation in Canada and elsewhere.

For example, Canada's SMS implementation in the mid-2000s created significant industry concerns due to lack of scalability and the government's poor transition from an historic view of prescriptive oversight to one in which risk is defined by the operator. As a result, it has taken nearly two decades to modernize those initial regulations so that they reflect the vast diversity of operations subject to the mandates involved.

A similar operator experience with an SMS rollout in New Zealand was shared in AvWeb:

“We've gone through SMS in New Zealand... We were promised from the start that it would be scaled to the size of our operations, but in the end we had to do all the requirements, even if the CAA [Civilian Aviation Authority] guys acknowledged it made little sense for us... The hardest part of implementation was a lack of understanding from CAA about SMS, since they were quite

new to it as well, so we had little effective guidance (despite a lot of effort on their part) and a lot of inconsistent directives.”

The U.S. aviation industry cannot afford to repeat the poorly developed SMS deployment we have seen elsewhere. We must get this right from the start in order to leverage the safety benefits that we know SMS can deliver. The business aviation community has experience partnering with the government in the development of effective, customized policies, and we enthusiastically welcome the same approach to the consideration of SMS requirements for our sector.

### **Continually Improving Safety**

The general aviation community appreciates the leadership and work of this Committee on the policy solutions that strengthen our unrivaled national airspace system, sustain vigilance across the industry on safety and maintain the role of the United States as the world leader in aerospace. NBAA appreciates the opportunity to contribute to the record on this important issue and will continue to engage with our members and other stakeholders to continually improve aviation safety.