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**STATEMENT OF TOM BRANTLEY
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**BEFORE THE HOUSE COMMITTEE ON TRANSPORTATION AND
INFRASTRUCTURE – SUBCOMMITTEE ON AVIATION**

**ON
NEXTGEN: AREA NAVIGATION (RNAV)/
REQUIRED NAVIGATION PERFORMANCE (RNP)**

JULY 29, 2009

Chairman Costello, Congressman Petri and members of the subcommittee, thank you for inviting PASS to testify today on the Next Generation Air Transportation System (NextGen): Area Navigation (RNAV)/Required Navigation Performance (RNP). The Professional Aviation Safety Specialists, AFL-CIO (PASS) represents approximately 11,000 FAA and Department of Defense employees in seven separate bargaining units throughout the United States and in several foreign countries. PASS members include Technical Operations employees (systems specialists, electronics technicians and computer specialists) who install, maintain, repair and certify the radar, navigation, communication and environmental systems making up the air traffic control system; Flight Standards and manufacturing aviation safety inspectors responsible for inspecting and certifying every aspect of the commercial and general aviation industries; flight inspection pilots, mission specialists and flight procedures development specialists in Aviation System Standards (AVN); examiners in the FAA's Civil Aviation Registry; and support staff.

The FAA is employing new Performance-Based Navigation (PBN) routes and procedures in its effort to modernize the aviation system. The two primary elements of the PBN structure are Area Navigation (RNAV) and Required Navigation Performance (RNP). RNAV allows aircraft to fly on a flight path within the coverage of ground- or space-based navigation aids, within the limits of the capability of the self-contained systems, or within a combination of both capabilities. RNP is the same as RNAV but also includes an onboard performance monitoring and alerting capability. Both PBN components are critical to the design and installment of flight paths, and the FAA states that "several NextGen solutions are dependent on RNAV and RNP implementation as enabling technology in the NAS [National Airspace System]."¹

It is generally accepted among government and industry that the use of RNAV/RNP routes and procedures has great potential to enhance system capacity and productivity as well as reduce environmental impacts and fuel costs. PASS agrees that these benefits should be fully and safely pursued to help our nation's aviation industry remain viable into the future. However, the promise of anticipated benefits without clear guidance and leadership from the FAA has led to conflicting ideas among industry, FAA and even congressional proponents as to how these benefits can be realized.

PASS thanks the subcommittee for holding this hearing to consider all points of view so that the integrity and safety of the NAS is not compromised.

Strategy Needed for NextGen Success

An agenda supported by many in the aviation industry and advanced by some members of Congress promotes setting quotas for the production of new RNP procedures without regard for the feasibility of such an approach. While the number most advanced by proponents of this approach is 200 RNP procedures annually, PASS believes that any quota at this time is unrealistic, very likely unachievable, and would not be based on the potential safety, capacity and operational benefits to the overall NAS.

¹ Federal Aviation Administration, "Fact Sheet: NextGen Goal: Performance-Based Navigation RNAV and RNP Evolution Through 2025," April 24, 2009.

The time required for the development of any procedure depends on many factors, including the complexity of the airspace, interactions with other procedures, the need for environmental assessments or obstruction evaluations, and the amount of coordination required between aviation customers, other major stakeholders such as the airport authority and appropriate offices within the FAA. Therefore, the push for large quantities of procedures to be developed will not necessarily result in the procedures being implemented into the system due to all the other factors that must be considered.

Development of new procedures can take two paths: (1) public-use procedures meant for the use of all qualified users within the aviation community and (2) special-use procedures meant for the benefit of the user developing them. Development of public-use procedures has historically been the responsibility of the FAA, and PASS believes it should remain so. It is in the development of special-use procedures where the use of third-parties has historically taken place, although the demand has never been as high as it is today. Carriers have begun to drastically increase the development of special-use procedures for their individual benefit, which aligns with the “best-equipped, best-served” policy offered by the FAA in its 2009 NextGen Implementation Plan. Under the policy, early adopters of avionics equipment that the FAA is targeting for midterm NextGen operations will receive “priority in the NAS.”² However, missing from this scenario is a clear understanding of what “best-equipped, best-served” actually means. The FAA did not define the meaning of the policy or what it would take to implement it. Instead, the agency asked the RTCA NextGen Implementation Task Force to help define the specific details, including how to implement the policy in a manner that maintains safety while also meeting the needs of the aviation community. The task force’s report is due next month, but some of the confusion that exists today is undoubtedly related to assumptions about what the policy will ultimately mean.

A premise that has always been followed by the FAA in approving special-use procedures is that they may not unduly conflict with the public use of airspace.³ This can be in direct conflict with the “best-equipped, best-served” policy that the agency is advocating. Areas in which industry may realize the greatest benefit are also some of the busiest airports in the country. That means that a special-use procedure developed for the benefit of a single user must be integrated into the overall management of the airspace, which may not always satisfy the “best-equipped, best-served” philosophy. If one carrier has an approved special-use procedure, does it now have priority over all other airspace users, regardless of how many other users there are? In other words, if a special-use procedure interacts with or overlaps a public-use procedure, does the lone special-use carrier take priority over all other users of the airspace? Congested airspace, as found in nearly all areas where new procedures will be targeted, involves complex design requirements with strict criteria, including computer modeling, human factors studies, and actual flight and simulator trials. Quite simply, the development of new procedures aimed at meeting an arbitrary target does not take into account the need to coordinate new procedures with corresponding airspace redesign efforts so that potential conflicts are not created that can ultimately slow the realization of benefits to the aviation community.

² Federal Aviation Administration, *FAA’s NextGen Implementation Plan 2009* (Washington, D.C.: revised February 10, 2009), p. 13.

³ FAA Order 8260.3B, United States Standard for Terminal Instrument Procedures (TERPS), paragraph 120b.

The FAA has said that it believes it needs to take a strategic approach to RNP procedures development and any corresponding airspace redesign work that is required to deploy those procedures. PASS agrees with this approach to developing new RNP procedures and stands ready to work with the FAA and other stakeholders to accomplish the transition to the new capabilities.

Procedures Development and Oversight

Flight procedures and flight inspection employees in AVN are charged with developing, evaluating, certifying by flight inspection and maintaining the more than 18,000 instrument flight landing and takeoff procedures for every major and municipal instrument-capable airport across the country. PBN procedures make up 43 percent of this total.⁴ AVN flight procedures and flight inspection employees have met or exceeded every legacy and new technology PBN goal set forth by the FAA. The expansion of flight procedures capacity that has evolved because of the deployment of new instrument landing systems and other airport improvements at major and municipal airports across the country is evidence of the expertise of the AVN workforce. This growth has not only benefited commercial aviation but it has also allowed general aviation and business aviation carriers to use ground- and satellite-based navigation capabilities. The development, implementation, flight inspection and maintenance of flight procedures supporting this growth requires the proper interpretation of a complex series of computations, measurements and modeling standards, strict compliance with diverse criteria, extensive coordination with multiple stakeholders, and the frequent adaptation of procedures in an ever-changing aviation environment.

The complexity and diversity of work required to oversee the development of flight procedures is unfamiliar to most people outside of those who actually perform the work. The work involves developing an integrated infrastructure, not individual standalone procedures. Before the procedures development process even begins, aeronautical, airport and obstacle issues must be resolved; controlled airspace and air traffic flow must be taken into consideration, as well as aircraft equipage, airport infrastructure and environmental issues; military coordination and airspace rulemaking processes are initiated, where appropriate; agreements with local airport authorities are established; and coordination with the air traffic controllers' union and training requirements are assured. It is *after* a proposed procedure has been determined to be feasible that the development process can begin. During the development process of a specific procedure, changes in other procedures are often identified and further coordination needs to be initiated to ensure that all procedures are updated. The amount of coordination that occurs within the FAA to ensure that all of these things happen at the correct time and in the appropriate order is remarkable.

The quality assurance process, including the flight checking and integration of procedures into the NAS, is the backbone of assuring the safety, integrity and certification of all instrument flight procedures, whether to support legacy or performance-based RNAV and RNP requirements. The FAA flight procedures and flight inspection program is the only program in the nation that includes everything from the development to the airborne certification of navigation systems and

⁴ FAA Instrument Flight Procedures (IFP) inventory for publication July 2, 2009. Available at: <http://avn.faa.gov/index.asp?xml=nfpo/inventory-summary>.

flight procedures and their subsequent integration into the NAS. PASS is very concerned that the FAA will allow the introduction of mass quantities of third-party developed and self-certified flight procedures into the NAS without the protections in place that are established under Federal Aviation Regulation (FAR) Part 97, FAA orders and other directives, all of which establish the FAA's responsibility to guarantee the safety of flights within the U.S. airspace. If allowed to proceed unchecked, as many have advocated, the privatization of flight procedures development and oversight will virtually erase the present standard of integrity of the instrument flight procedures infrastructure in our current and future NAS.

Both flight validation and flight inspection are the responsibility of the FAA. Flight validation is an assessment of the flyability of a procedure or, in laymen's terms, a determination whether a procedure can be safely flown. Flight inspection certifies that appropriate navigational aids, such as the Distance Measuring Equipment (DME) facilities that are critical to many performance-based RNAV procedures, adequately support each procedure. It also certifies that procedure-controlling obstacles are verified, that adequate obstacle and terrain clearance are provided, navigation data is correct, all required infrastructure are in place and operative, and that other operational concerns such as human factors have been effectively considered in the development process. This must all be performed whether a procedure will be flown by experienced or less-experienced pilots in a multi-engine air transport or single-engine Cessna. Flight inspection is carried out as part of the program regulated by the U.S. Standards Flight Inspection Manual and is performed by qualified, certificated flight inspectors using uniquely equipped Automatic Flight Inspection Systems (AFIS) aircraft that gather data to certify procedures for use by any aircraft capable of using that procedure.

Current administration regulations and directives provide for third-party development of special-use operational and approach procedures; as explained above, special-use procedures are not fully integrated into the NAS. However, over the last few years, the FAA has been pressured to contract out the development of public-use procedures. AVN employees represented by PASS have expressed concern with the FAA's ability to fully and safely integrate third-party developed procedures into the system since a single procedure cannot just be added into the system without considering the affect such an addition will have on the NAS as a whole. PASS believes this safety-critical work to be inherently governmental and should not be outsourced to private vendors.

Furthermore, PASS has identified issues with outside vendors developing procedures. PASS has learned of a situation in which a vendor was contracted to perform RNP work for a major airline but procedures for at least two airports (Raleigh-Durham International Airport, N.C., and Boise Air Terminal/Gowen Field, Idaho) had to be redone by AVN employees. The work originated with the vendor but has since been moved back to the FAA with the vendor now serving as a sort of consultant. While private companies make claims to be able to produce procedures "faster" and "cheaper," if the procedures are not correct or properly coordinated, the purported benefits of outsourcing the work are nonexistent.

The FAA recently stated that it has the production capacity to meet existing implementation demand by reallocating resources to meet production goals. The agency emphasized that if its ongoing focus is on development and implementation of the appropriate procedures at that time,

rather than arbitrary quotas that are not directly related to user and operational benefit, it can accomplish the necessary development without large-scale privatization of the function. PASS concurs with the FAA's assessment of the situation and believes that there should be no efforts to expand the contracting out of this work. With airspace infrastructure around our nation's airports becoming increasingly crowded and complex, delegating out the work performed by professional FAA flight inspection and flight procedures employees puts at risk the basis of this country's aviation system.

Conclusion

The AVN workforce is critical to the safe development and implementation of RNAV and RNP procedures. FAA flight procedures development specialists and flight inspectors receive intensive training before being deemed qualified and certified with the responsibility and authority to develop and integrate flight procedures into the NAS and to certify the flight inspection of NAS equipment and instrument flight procedures.

PASS appreciates the efforts of this committee to include language in its version of the FAA reauthorization legislation requiring the Department of Transportation Inspector General (IG) to review third-party approach procedures development. Examining the effectiveness of the oversight activities conducted by the FAA over any third party charged with the development of flight procedures will no doubt assist both FAA and Congress in determining areas in need of strengthening in order to protect work performed on the NAS. PASS is especially encouraged by the language calling on the IG to assess whether the administration has sufficient existing personnel to guarantee the safe development of flight procedures.

PASS agrees that the FAA must take a strategic approach to RNAV and RNP procedures development. To accomplish this successfully, PASS believes the FAA must include all stakeholders, including representatives of affected agency employees, in developing a plan that identifies what changes must be made to realize the benefits of NextGen operations. This plan should incorporate all aspects of the significant changes that will be required to achieve the efficiency and capacity gains that NextGen capabilities will allow. Among these are changes to performance-based RNAV and RNP operations and the procedures associated with those changes, as well as the integration of current and future airspace redesign efforts into the plan. The plan should also contain the actions required for implementation, including timelines and specific milestones. Finally, the plan should prioritize the development and implementation of new flight procedures based on their potential safety, capacity and operational benefits to the overall NAS and not arbitrary quotas.

Without a doubt, there are benefits in terms of safety and operation that can be achieved through the safe expansion of PBN procedures. PASS stands ready to work with the FAA and other stakeholders to accomplish the transition to the new capabilities. The highly skilled and professional AVN employees are fully capable of meeting the performance-based RNAV and RNP needs of NextGen. PASS believes that keeping this inherently governmental where it belongs—being performed by the FAA's flight procedures and flight inspection program—is not only the fastest and most cost efficient way to proceed but the only manner that will protect the safety of the aviation system.