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Air Traffic Control Modernization and NextGen: Near-Term Achievable Goals
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Introduction

Chairman Costello, Ranking Member Petri, distinguished members of the Subcommittee; my name is Pete Bunce and I am the President and CEO of the General Aviation Manufacturers Association (GAMA). GAMA's sixty-seven member companies are the world's leading manufacturers of general aviation airplanes, engines, avionics, and components. Our member companies also operate aircraft fleets, airport fixed-based operations, pilot training and maintenance facilities worldwide. On behalf of our members, I appreciate your convening this important hearing and providing me the opportunity to testify before the Subcommittee about air traffic control modernization and NextGen.

As the committee knows, general aviation (GA) is an essential part of our transportation system that is especially critical for individuals and businesses that need to travel and move goods quickly and efficiently in today's just-in-time environment. General aviation is also an important contributor to the U.S. economy, supporting over 1.2 million jobs, providing \$150 billion¹ in economic activity and, in 2008, generating over \$5.9 billion² in exports of domestically manufactured airplanes. We are one of the few remaining manufacturing industries that still provide a significant trade surplus for the United States.

As you are aware, our industry, like others, is struggling in today's difficult economic situation. Due to the economic downturn, the credit crunch, and other factors, our industry has seen more than 12,000 layoffs over the last six months and significant future layoffs have been announced. We are deeply saddened by this and are committed to remaining competitive and building a better future for our companies and their employees. Our companies have always believed in driving innovation regardless of the state of the economy and we will continue to develop new products to take full advantage of the economic recovery when it comes.

¹ General Aviation Contribution to the US Economy, Merge Global 2006.

² 2008 General Aviation Statistical Databook and Industry Outlook, GAMA 2009.

Similarly, it is imperative that the FAA continue to move forward on air traffic control modernization during this challenging time. It is our firm belief that modernization will bring substantial benefits to our economy and the environment.

This hearing today is an important step in this process and I will outline in my testimony the direction we think NextGen should take over the next few years; the benchmarks our members think are important to measure progress; opportunities available to accelerate the program so as to reap benefits earlier; and ways to ensure adequate staffing at the FAA to support NextGen implementation.

General Support of NextGen

GAMA has long supported air traffic control modernization and the NextGen program. We were a member of the Commission on the Future of the United States Aerospace Industry that recommended the creation of the NextGen program and we strongly supported the Vision 100 Century of Aviation Reauthorization Act which contained many of the Commission's recommendations. We continue today to actively engage and provide guidance to the FAA through the NextGen Institute Management Council and the Air Traffic Management Advisory Committee as well as targeted FAA activities such as the ADS-B Aviation Rulemaking Committee.

Providing a forum for industry involvement in air traffic control modernization is imperative for its success. GAMA has asked the FAA to properly focus its advisory groups to best leverage government and industry resources which will help move the NextGen program forward. We are pleased to see the FAA take initial steps to better leverage industry through the creation of the RTCA NextGen Implementation Task Force launched last month, but more needs to be done. Industry resources are not being used effectively today.

The entire aviation industry believes that air traffic control modernization is a critical way to improve on an already enviable record of continuous improvement in aircraft efficiency that has dramatically reduced emissions over the past few decades and further enhance the environmental performance of the aviation industry. Industry has joined together and introduced a set of principles for aviation and the environment and point to NextGen as a primary means of improving environmental performance. I have included a copy of the industry's environmental principles and would ask for it to be part of the record of this hearing.

We are also pleased that general aviation has been the proving ground for technologies that are now the center pieces of NextGen. GAMA supported the deployment of civil Global Positioning System (GPS) in the early 1990s and advocated for the Wide Area Augmentation System (WAAS) that enhances the precision of GPS. General aviation was also the test bed for the Alaska CAPSTONE program that provided the standards being established for ADS-B.

Our members have also created many new technologies that are finding a home within NextGen including Enhanced Flight Vision Systems (EFVS), Synthetic Vision Systems (SVS), and moving map technologies. We hope the Committee will continue to value general aviation not only as a critical form of transportation but as an opportunity to develop and demonstrate new technology.

GAMA's Expectation of Mid-Term (2018) NextGen Environment

GAMA believes that the FAA must remain focused on the long-term goal of a complete transformation of the National Airspace System (NAS) by 2025.

At the same time, we believe significant focus and effort must be placed on the mid-term timeframe of 2018³ because as technologies mature opportunities to start providing capacity, efficiency and safety benefits will present themselves. As such, the aviation industry is starting to develop a clearer expectation of a mid-term system capability that is built around performance based navigation, Automatic Dependent Surveillance Broadcast (ADS-B), and initial data communications capabilities.

Performance based NAVIGATION, commonly known as area navigation (RNAV) and required navigation performance (RNP), allows the operator as well as the FAA to know more precisely an airplane's location within the national airspace system. As a result, the FAA can build more efficient procedures and, by leveraging ADS-B, enhance capacity within the current airspace system because airplanes will be able to fly closer together and more efficiently without compromising safety.

To fully realize performance based navigation, two critical steps must be taken jointly by FAA and industry:

- Development of air traffic procedures that are not just overlays of existing procedures, but new procedures that deliver improved performance at new airports and runways.
- Modernization of airplane Flight Management Systems (FMS) with increased use of satellite-based position information. For many aircraft this will involve the installation or upgrade of their GPS and adding a display capability.

These two steps have been underway for many years and are straight forward initiatives. For the FAA further acceleration in procedure development is needed. For operators significant investments to upgrade onboard avionics are required. These technologies, however, are mature and are already being deployed by airlines and general aviation operators.

³ The FAA's NextGen Implementation Plan identifies the "mid-term" as the 2012 through 2018 timeframe.

We also support using third parties to design and execute new flight procedures. We know the Chairman has asked for the DOT Inspector General to look at the use of these third party developers and we believe this review will show the advantages of using these third parties to further our efforts in modernization. GAMA would be glad to arrange further briefings on this issue for the Subcommittee to discuss the importance of continuing this program along with increased FAA resources.

Automatic Dependent SURVEILLANCE Broadcast (ADS-B) has received most of the attention over the past two years as a result of the FAA awarding the ground infrastructure service contract to ITT and the active rulemaking program with its proposal for mandated equipage by 2020. There is also significant work underway to define all the underlying requirements for ADS-B and its integration with the rest of the NextGen environment.

GAMA supports ADS-B and has been involved with the ADS-B Aviation Rulemaking Committee (ARC) over the past couple of years. The FAA's approach of mandating ADS-B "Out" first while vigorously undertaking work to provide structure, requirements, operational procedures and benefits around the future use of ADS-B "In" is the right one. GAMA expects the FAA to release the final rule and requirements for ADS-B "Out" by April 2010 and, in the interim, we are working with the FAA to further vet ADS-B "In" and its use in the national airspace system.

It is critical that the FAA continue to move forward with the ADS-B program or the United States will lose its international leadership. Today the FAA is coordinating closely with Eurocontrol, the European Aviation Safety Agency, and other international partners such as Canada, Australia, and China to ensure parallel efforts remain coordinated. The United States' foreign partners are moving forward with their programs with a European proposal requiring 100 percent equipage by 2015 and Canadian airspace requirements across Hudson Bay introduced over the next couple of years and offering enhanced services for equipped aircraft. It is imperative that the FAA program move forward on schedule for technology harmonization efforts.

As has been seen in the navigation domain, procedure development is critical to the successful use of the surveillance technology. ADS-B will also require a suite of procedures to enable the advanced airspace operations. GAMA encourages the FAA to fund and accelerate the development of these advanced procedures so that benefits will align with the proposed equipage.

Data COMMUNICATIONS is the area within air traffic control modernization where industry has asked more questions than it has received answers from FAA regarding the agency's plan. While industry is comfortable with the direction of the performance based navigation and Automatic Dependent Surveillance Broadcast programs, the same is not true for the data communications program.

The FAA is still primarily working inside the agency with limited stakeholder input to define the role of Data Communications in NextGen. Last year, the agency issued a Request for Information (RFI), the results of which are still being considered by the FAA. We understand the FAA is planning an approach very similar to the ADS-B program where data communications will be contracted to outside service providers.⁴ GAMA believes the agency should be more public about its plans for the communications component of NextGen. We continue to encourage the FAA to develop a plan for initial data communications capabilities for 2018 that will integrate with the long-term plan for navigation and surveillance that is consistent with global standards to ensure interoperability.

Opportunities to Accelerate and Enhance Benefits of ATC Modernization

I have described the mid-term state of 2018 and would now like to discuss the opportunities that GAMA sees for accelerating and enhancing the benefits of air traffic control modernization including earlier deployment of technologies. This description of the mid-term should not be taken as accepting incremental improvement to the NAS. Instead GAMA believes it is imperative that we continue to push toward a transformed air traffic control system that leverages integration of modern technologies and new operational concepts.

As Clay Jones, Chairman, President and CEO of Rockwell Collins, testified before you a couple of weeks ago, NextGen is not a mere “modernization program” but a transformation of air traffic control that will replace our current outdated system with one capable of accommodating future growth without costing the American economy tens of billions of dollars per year in lost productivity and unnecessary energy consumption resulting from flight delays and inefficient air traffic management.

When fully implemented, NextGen – with its network-enabled, satellite-based ground infrastructure and cockpit equipment – will safely and efficiently handle more than twice the air traffic we have today with less delay and far greater fuel efficiency. Those who believe that this expansion in capacity is unnecessary due to recent drops in global traffic, need only be reminded that following 9/11 – when we saw a 10.4 percent drop in system revenue passenger miles – traffic quickly recovered. In fact, by 2004 it was on par with 2001 activity levels.

GAMA believes that there are several opportunities for Congress to provide leadership and assist in accelerating air traffic control modernization and NextGen implementation over the next several years. These opportunities include expanding and accelerating the benefits of ADS-B, enhancing the FAA’s ability to place into service and take advantage of existing and emerging technologies, and providing direct financial incentives for operators to equip early with proven technologies. Importantly, Congress must also demand that FAA provide more definition and clarify around the 2025 end-state operating environment.

⁴ Initial Program Requirements for Data Communications, FAA April 28, 2008.

Funding to Accelerate ADS-B Deployment

The FAA's plan for deployment of ADS-B ground infrastructure calls for the deployment of 794 ground stations between FY2010 and FY2013 to match surveillance provided by the current radar coverage. This will cost the FAA \$207 million plus a service contract over the next several decades.

There are two ways to incentivize early equipage in this area. First, Congress could encourage the wider deployment of ADS-B ground stations beyond the 794 stations. This would expand benefits to smaller communities and airspace that are outside current radar coverage. The direct benefits to these airports and surrounding airspace are improved access during adverse weather conditions and capacity enhancements for these airports when operations under visual flight conditions are not possible. This will enhance safety in the aviation system.

In this scenario, the number of stations needed would depend on the requested enhancement in service. Expanding the coverage of ADS-B is one of the recommendations made by industry to the FAA through the ADS-B ARC.⁵

Congress could also provide the FAA with an additional \$250 million to accelerate the completion date of the planned deployment of 794 stations by two years and have the ground infrastructure operational in 2012.

In short, GAMA believes there is an opportunity to direct the FAA to use additional funds to expand services beyond current radar coverage by deploying more ground stations and to accelerate the schedule for ground infrastructure deployment.

Funding for Aircraft Avionics Certification and Installation

The FAA's certification resources have been stretched thin during the past five years as a result of the pace of new programs and increased safety oversight at the agency.

GAMA believes that the impediment to moving forward with the certification of new equipment such as ADS-B and performance based navigation is a lack of certification personnel within the FAA's aircraft certification office (AIR). GAMA urges the committee to work to ensure that the AIR has the funding necessary to support 1,243 full time equivalent staff⁶ (FTE) that we believe is the minimum needed for current activity. Additional personnel will be needed to support NextGen in subsequent years.

⁵ Optimizing the Benefits of Automatic Dependent Surveillance—Broadcast, Report from ADS-B Aviation Rulemaking Committee, October 3, 2007. Recommendation Number 4.

⁶ The 1,243 FTE accommodates the FY04 FTE level and also incorporate 77 additional personnel that have since been moved from the F&E account to AIR.

GAMA is pleased with language included in the Manager's Amendment to H.R. 915 which aims to "increase the number of safety critical positions in the Flight Standards Service and Aircraft Certification Service." Additional personnel should be directed toward both operational safety oversight and deployment of safety enhancing NextGen technology in the National Airspace System.

Funding for Procedure Development and Operational Approvals

The FAA Flight Standards Service (AFS) staff serves an important role in the authorization of equipment installed on aircraft. The role of Flight Standards is two-fold:

- To take advantage of NextGen equipage the FAA must ensure that the procedures are developed and published for use of performance based navigation and ADS-B. The work to develop and certify these procedures is done by the FAA's Flight Standards staff. Flight Standards over the past several years has produced 1,445 WAAS Localizer Performance with Vertical guidance (LPV) approaches⁷ which have allowed the introduction of performance based navigation for light GA.
- The Flight Standards staff also provide direct oversight of operators who want to obtain "Letters of Authorization" to fly performance based procedures. This staff, which is employed around the country in local FAA offices, will play an ever growing role as NextGen is deployed and it will be essential that staffing levels are properly considered.

GAMA recommends that the Committee ensure the FAA has the appropriate staffing levels within Flight Standards to support the expansion of procedures to allow operators to take advantage of these procedures effectively during the next several years. GAMA also believes it is important to continue to move forward with third party procedure development to further augment the FAA's capabilities.

Industry Incentives for Equipping

GAMA believes that there are opportunities for targeted financial incentives for NextGen equipment that could encourage both general aviation and the airlines to equip prior to a mandate. The concept of operational credits and equipment investment credits is endorsed by the Government Accountability Office which has stated in testimony before this Committee that the "FAA will need to work with the stakeholders to explore a range of potential options available to provide incentives to aircraft operators to purchase equipment and to suppliers to develop that equipment. [...including] operational credits, or equipment investment credits that financially support equipment implementation for a limited initial set of aircraft operators."⁸

⁷ FAA Instrument Flight Procedure (IFP) Inventory Summary website at <http://avn.faa.gov>

⁸ GAO-09-377T FAA Reauthorization Issues are Critical to System Transformation and Operations.

Mr. Chairman, we stand by our recommendation during your recent FAA reauthorization hearing that Congress authorize and appropriate three billion general fund dollars over the next four years to fund equipage of ADS-B. This funding will allow the vast majority of the commercial and GA fleet to be equipped with this important technology at a far earlier date than the current 2020 FAA rule would promote. When tied to the earlier ground equipage date, this acceleration would also allow for increased federal savings through the closure of a number of radar sites and stimulate employment activity at avionics manufacturers and repair and maintenance depots around the country.

We have seen success in the past in programs such as CAPSTONE⁹ where the government purchased equipment for a core group of operators that resulted in broader voluntary equipage after the benefits had been identified. The ADS-B ARC provides additional recommendations to the FAA about opportunities for financial incentives for ADS-B equipage which are applicable for other technologies as well.¹⁰

The opportunities identified by the ADS-B ARC include:

- Establishment of investment tax credits for equipment purchase
- Establishment of grant programs for the FAA for both research and program deployment
- Reducing the aviation excise tax rate for those operators equipped
- Creating a mechanism for interest free loans for operators to acquire equipment before a mandate
- Ensuring the continuation of the research and development tax credit¹¹
- Purchase of the equipment for operators (e.g. CAPSTONE)

The broader aviation industry recently proposed an increase in the General Fund contribution to the FAA's budget to 25 percent. GAMA believes that using general revenue is one immediate way for accelerating mature NextGen equipage such as ADS-B.

In addition, GAMA encourages to the Subcommittee to require the FAA to develop and submit a plan to you that evaluates various options for how to incentivize industry to equip, the benefits of this equipage, and what the priorities for equipage should be.

Conclusion

Over the next several years we have an opportunity to move modernization forward as we shift from planning to implementation. GAMA encourages Congress to move forward with the

⁹ The Capstone program relies on ADS-B to provide position information and weather to aircraft flying in Alaska.

¹⁰ Optimizing the Benefits of Automatic Dependent Surveillance—Broadcast, Report from ADS-B Aviation Rulemaking Committee, October 3, 2007. Recommendation Number 1.

¹¹ The existing research and development tax credit is scheduled to expire on December 31, 2009.

reauthorization of the FAA and ensure it provides the FAA with proper direction and the necessary tools to advance deployment of NextGen:

- Accelerating and expanding ADS-B ground stations
- Adequately staffing FAA's offices of aircraft certification and flight standards
- Incentivizing operators to equip with mature technology earlier by enhancing and delivering the benefits of NextGen sooner
- Requiring the FAA to develop a plan outlining the benefits and resources needed to support government funding to incentivizing early equipage of aircraft

Mr. Chairman, thank you for your leadership on this issue and for inviting me to testify before the subcommittee. There are many challenges ahead for us on the modernization front, but by moving forward with the program we will start seeing quantifiable benefits for the environment, for capacity, and for safety.

Thank you and I would be glad to answer any question that you may have.

Attachment

Aviation and Climate Change
The View of Aviation Industry Stakeholders