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**House Transportation and Infrastructure Subcommittee on Aviation**  
**“Future of Air Traffic Control Modernization”**  
**May 9, 2007**

Chairman Costello, Representative Petri and members of the Subcommittee, thank you for the opportunity to testify before you today regarding an issue of great importance to the entire aviation community; the transformation to the Next Generation Air Transportation System (NextGen).

I am here today as President and Chief Executive Officer of the General Aviation Manufacturers Association (GAMA), an international trade association based in Washington, D.C., representing the manufacturers of general aviation (GA) airplanes and component parts. GAMA's 60 member companies include almost every leading aviation manufacturer in the world. Many of these member companies build avionics systems for all segments of the industry and will therefore play a critical role in modernization as we transform from a ground-based to a cockpit/satellite-based navigation and surveillance system.

It is with that membership base that I address the Subcommittee today, hopeful that in the coming years, the United States will possess the world's most advanced and efficient air transportation system, one that is capable, within the next decade, of efficiently moving a predicted one billion passengers per year around our great nation. As the Commission on the Future of the United States Aerospace Industry stated,

...(the) superior mobility afforded by air transportation is a huge asset and competitive advantage for the United States. Because of the tremendous benefits derived from a highly mobile citizenry and rapid cargo transport, the United States must make consistent and significant improvements to our nation's air transportation system a top national priority.<sup>1</sup>

**Industry-wide Support for the NextGen System**

Despite the many differences that exist between the major airline, general aviation, regional airline and cargo communities regarding future funding of the Federal Aviation Administration (FAA), our industries steadfastly agree on one important issue; the need to transform our nation's air traffic management system from one based on 1950s technology to a state of the art system capable of meeting the capacity demands of the future.

Whether it occurs in the next five, seven or ten years, there is wide agreement amongst industry and the FAA that enplanements will top one billion passengers per year in the next decade. Demand for increased capacity of this nature will require not only additional

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<sup>1</sup> Final Report of the Commission on the Future of the United States Aerospace Industry; November, 2002  
Page 2-15.

runways and airport improvements, but also a modern air traffic control (ATC) mechanism to move the increased traffic in a safe and efficient manner. An economy based on just-in-time delivery and freedom of movement demands a system capable of meeting this imminent need. It is therefore critical that we begin to do more than simply talk about the vision or concept of NextGen. We must produce an actionable plan that includes design specifications for equipment, in order to lay the foundation for the ability to move information and data at very high speeds between not only ground facilities and aircraft, but also from aircraft to aircraft directly.

Although GA flight activity comprises less than three percent of traffic at the nation's top 20 airports, the need to increase system capacity at the airline hubs is a key factor that will determine the future vitality of GA. As these hub chokepoints become more saturated, the airlines look to other airports to ease congestion. We see this today at our nation's 35 busiest airports (the Operational Evolution Partnership 35 Airports) where 90 percent of reported delays occur.<sup>2</sup> Whether at Midway, Fort Lauderdale or numerous other airports around the country, when airlines increase their footprint at an airport, GA is the most vulnerable user of the system and pays the ultimate cost; loss of access. This is why increasing system capacity is so important and why, when it comes to transformation, the GA community is not just "talking the talk." GA actively supports the transformation effort with involvement in every facet of the Joint Planning and Development Office (JPDO) and the NextGen process and takes a back seat to no one in our support for, and dedication to, developing the NextGen System.

### **Joint Planning and Development Office and Intergovernmental Relationships**

The JPDO was designed (as part of the Vision 100 legislation of 2003) to take advantage of the institutional and technical knowledge available at the many federal agencies involved in the transformation process. It was believed that in order for the JPDO to succeed in a timely and cost efficient manner, these partner agencies [the Departments of Defense, Homeland Security, Transportation and Commerce, the Office of Science and Technology Policy, the FAA and the National Aeronautics and Space Administration (NASA)] would need to provide significant expertise, manpower and funding.

Unfortunately, in some cases these partnerships have failed to adequately mature. This failure is easiest to identify when examining the relationship between the JPDO and NASA. In recent years, NASA has refocused its efforts on the President's Moon-Mars Initiative and moved away from much of the cutting edge aeronautics research that made the United States the world leader in aviation. This redirection of resources (NASA funding for aeronautics research has dropped more than 50 percent since fiscal year 1994) provides yet another challenge for NextGen as much of the air traffic management and safety research required for National Airspace System (NAS) transformation was to be conducted by NASA. NASA's decision to limit its research to that which is foundational in nature raises the question of who will conduct or fund the critical transitional research required for NextGen completion. Perhaps most worrisome are the figures produced by the Research Engineering and Development Advisory Committee

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<sup>2</sup> "FAA Operational Evolution Plan Version 5" and the 6 percent would be "FAA ETMS-C" database.

(established by the FAA) that estimate NextGen delays of five years and increased costs of \$150 million annually if NASA were to abandon aeronautics research completely.<sup>3</sup>

This pending failure by government organizations to clearly identify and commit to a scope of work for the endeavor exemplifies one of the key disappointments with the JPDO, its relationships with other government agencies. In fact, even today, more than three years after the passage of Vision 100, the JPDO has yet to secure signatures from both the Department of Defense and the Department of Homeland Security regarding their participation in the NextGen process.

GAMA believes that in order for the JPDO to be successful, fundamental changes are necessary, the first of which would be increased authority granted to the JPDO Director. Currently, the Director has only a handful of employees who report directly to him, with nearly all employees working on this project on loan from, but still reporting to, other government agencies. In fact, the Director has a total of just two engineers assigned directly to the JPDO. For there to be any type of coherent modernization plan moving forward, increased authority must be provided to the JPDO Director. For a leader to be successful, he must be responsible for and to those in his organization. Put simply, those who work for the JPDO should report to the JPDO.

Structural problems not only exist for those working at the JPDO, but also in regards to whom the JPDO Director is responsible. We must examine the leadership and decision making authority currently available to the JPDO. Although a multi-agency project such as this provides many potential benefits in terms of shared expertise and costs, it also leads to the problematic issue of unclear final authority. In many cases, it is uncertain who in the NextGen process can make a final decision. The lines of authority and accountability for the JPDO are unclear, at best. JPDO's organizational charts indicate that the Director of the JPDO is directly accountable to the JPDO Board and then to the Senior Policy Committee, as outlined by the Vision 100 legislation. As the JPDO plans and coordinates activities within seven different government agencies, this line of authority seems appropriate. However, FAA's organizational charts indicate that the head of the JPDO is accountable to the FAA's Chief Operating Officer and at least tacitly to the FAA Administrator. Clearly, the scope of the JPDO is much broader than the FAA, or even the Department of Transportation. GAMA therefore encourages Congress to allow for the JPDO Director to report solely to the FAA Administrator.

It has become abundantly clear that, as currently designed, neither the Department of Transportation (DOT), nor the FAA, nor even the JPDO has the ability or apparent desire to compel any of the other government agency partners to step forward and commit to the research or funding that the JPDO views as crucial to timely planning and future implementation of NextGen. In fact in a March 2007 statement before the Senate Aviation Subcommittee, Susan Fleming of the Government Accountability Office stated,

As JPDO is a coordinating body, it has no authority over its partner agencies' key human and technological resources needed to continue developing plans and system

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<sup>3</sup> FAA Research, Engineering and Development (R,E&D) Advisory Committee, NAS Operations Subcommittee Report.

requirements for NextGen. For example, JPDO has been working to establish a memorandum of understanding (MOU) with its partner agencies to more clearly define partner agencies' roles and responsibilities since at least August 2005. As of March 16, 2007, however, the MOU remained unsigned.<sup>4</sup>

Unfortunately, the problems regarding government-wide support extend to the highest levels of each organization. The Vision 100 language called for the establishment of a Senior Policy Committee to be made up of the senior-most officials of each of the JPDO involved organizations and to provide overall leadership and direction for the NextGen process.<sup>5</sup> Yet even this organization is failing to function, as the last Senior Policy Committee meeting was held in November of 2005 and the next is not scheduled until June of 2007. In the 18 months since the last meeting, the federal government has completed two budget cycles, and now whatever is accomplished in June, in the best case, would have impacts on the fiscal year 2009 budget but more likely not until fiscal year 2010.

We urge Congress, as part of the 2007 reauthorization process, to examine the fundamental structure of the JPDO and the entire NextGen effort and to better align and manage this complex multi-agency program while encouraging more involvement from the critical JPDO partner agencies.

Perhaps most importantly, we must move away from the “stovepipe” approach to the acquisition process currently being employed by the Operational Evolution Partnership (OEP). Due to the nature of the acquisition process, each project is currently treated individually. This type of construct and the lack of a systems engineering approach in the OEP does not allow for a more global view of the NextGen System and therefore may lead to delays and increased cost.

Another problem is the way projects are considered for funding by the FAA's Joint Resources Council (JRC). Each individual project must pass a stand alone benefit/cost analysis before it is approved. This is an antiquated way of evaluating projects. Total benefits from implementing NextGen will be greater than the sum of benefits identified for each individual modernization project. Benefits from one project often amplify the benefits from others, and the whole is definitely greater than the sum of the parts. Unfortunately, the FAA's Acquisition Management System prohibits applying the same benefits to more than one project. Once a pool of benefits have been used to justify one project, they cannot be used again to justify another project. This artificially “stove pipes” benefits to single projects and ignores any benefits derived from synergy between projects.

These problematic, and ultimately costly, approaches to modernization must be addressed before the NextGen process moves from one focused on planning and development to one focused on implementation.

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<sup>4</sup> Testimony of Susan Fleming, Acting Director, Physical Infrastructure Issues, United States General Accountability Office before the United States Senate Commerce Subcommittee on Aviation, March 22, 2007.

<sup>5</sup> Section 710 of Public Law No. 108-176.

### **What is Next for NextGen?**

Despite repeated commitments by the Administration and the FAA, there is still no clear plan for transformation of the ATC system or even what technologies will be required to ensure that transformation is a success. What we do have is a draft Concept of Operations (ConOps). We have had a draft ConOps since 2002 and before that, we had a concept proposal we called “free flight.” The difference between a plan and a concept is key. A plan would have the specificity to allow manufacturers to know what to build when. For example, aircraft coming off the production line today have components of Automatic Dependent Surveillance - Broadcast (ADS-B), because the concept includes ADS-B as a core-level technology for NextGen. But without knowing the true design specifications of the NextGen System that would be included in an integrated plan, those same aircraft will have to be retrofitted when final decisions are made on system architecture. This sort of ambiguity about the NextGen System continues to lead many to have serious concerns about the future system as a whole. Another example deals with facility realignment. If a coherent, time phased plan existed, the Administration would be able to tell Congress definitively when we, as a nation, could divest of expensive ground infrastructure like radar and navigational aids. Without knowing when we can shed this costly infrastructure, the business case for transformation becomes more difficult to quantify.

We strongly encourage Congress to push the JPDO, the FAA, the DOT and other participating government agencies to work with industry to clearly define what it is they intend to build and how they intend to build it. This comprehensive plan, defining both time required and cost, must incorporate reasonable scenarios for program development, policy implementation, rule development and equipage. No business could ever attempt to secure funding for modernization before a detailed plan is developed. It is, therefore, incomprehensible to many in industry to have a debate on future funding before this critical planning task is complete. Unfortunately, the Administration and the FAA see things differently, choosing to focus on funding rather than completion of a plan for ATC modernization.

The FAA’s reauthorization proposal, entitled “The Next Generation Air Transportation System Financing Reform Act of 2007” focuses too little on modernization and too much on abolishing the current funding system (based on fuel and excise taxes). In fact, of the 88 pages in the FAA’s reauthorization document, only two pages are dedicated to issues dealing with the JPDO.<sup>6</sup>

In reality, there is absolutely no link between NextGen and the Administration’s FAA funding proposal based on user fees. The NextGen System can, and should, be funded under the current excise and fuel tax system. In fact, over the next five years, when the FAA has budgeted \$4.6 billion for NextGen projects, the current funding mechanism would raise \$900 million more than their proposed user fee scheme.

As part of their 2007 reauthorization proposal, the FAA is also asking for more freedom in how it funds its operations and less Congressional oversight. GAMA believes that the opposite is called for. Over the next 20 years the FAA will enter into an enormously time

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<sup>6</sup> “The Next Generation Financing Reform Act of 2007” Pages 60-61.

sensitive venture to transform our air traffic control system. Oversight by the Congress will become more important than ever in order to keep focus on timelines and costs. Now is not the time for Congress to lessen its financial or programmatic oversight.

It is time for the airlines, GA and cargo to move past the debate over funding and unite behind a transformed air traffic management system. Our industry and our nation's economy cannot withstand the impact of a system in gridlock. We must work together to ensure that we create the safest and most efficient system possible.

### **Costs of the NextGen System**

The Administration is projecting NextGen costs between \$15 and \$22 billion for government investment through 2025, but this estimate is only half the picture. In order for the system to work, aircraft owners (both commercial and GA) will have to equip their aircraft to operate in the new system at what the FAA Administrator describes as a cost approximately equal to that required by the government for NextGen. The sooner equipage occurs, the earlier the new satellite-based system will be operable and provide benefits to the users, the government and the general public.

It should be stated that, in many cases, NextGen cost figures are merely educated guesses. As mentioned above, the FAA and the JPDO continue to lack a cohesive and overarching plan for the NextGen System or even for which technologies might be employed, particularly for communications. Therefore, when trying to ascertain budget estimates for an entire new system, industry has specific concerns over whether the budget numbers being discussed today will even closely resemble those we will face in 2015 or 2025.

While industry agrees with the FAA that ADS-B is one of the key building blocks for the future NAS, the ADS-B (Out) rulemaking (currently being developed by the FAA) is just one of many pieces needed for a transformed NAS. Although ADS-B is seen as the technology that will handle primary surveillance in the busy and high altitude airspace of the future, other technologies will still be needed for secondary surveillance (back-up) and to address non-participating aircraft (for security purposes).

The FAA is the primary beneficiary of transitioning to ADS-B (Out). The agency will ultimately be able to save hundreds of millions of dollars by shutting down many secondary radars, and by avoiding the expense of replacing older ones. On the other hand, operators should see benefits of ADS-B (Out) if this technology enables closer separation criteria at night and in weather.

In contrast, ADS-B (In) will provide significant safety benefits to all users, such as real-time traffic display in all airspace, relay of real-time graphical weather information to the cockpit and perhaps most importantly, operational efficiency and increased capacity due to more refined air-to-air separation data.

For the foreseeable future, the FAA only plans to implement ADS-B (Out) and in September of this year, the FAA plans to issue a notice of proposed rulemaking that will

mandate ADS-B (Out) equipage in certain airspace with the final ADS-B rule taking effect in the fall of 2009. FAA projects that 26 to 40 percent of the fleet will be equipped with ADS-B (Out) by 2014 with mandatory compliance set for 2020. This timeline for equipage presents tremendous challenges for the implementation of the entire NextGen System and the business case analysis to support it.

Typically, airplane operators do not install new avionics until near the mandatory installation date. Recent experience with the transition to Reduced Vertical Separation Minimums (RVSM) is a great example of this behavior. As late as six months prior to the RVSM mandatory compliance date of January 20, 2006, many operators still had not scheduled their aircraft for mandatory avionics upgrades. Manufacturers accumulated large inventories, and “slots” at avionics installation shops went unused. But six months before the mandatory date, all that changed. Operators rushed into installation shops - only to find that all of the “slots” had been filled. Fortunately, with a great deal of overtime, installers were able to complete nearly all of the upgrades before the mandatory date.

Similar behavior could negatively impact the FAA’s concept for the implementation of ADS-B (Out) given a mandatory compliance date of 2020. If operators wait to equip until the end of the compliance window, the bedrock technology of NextGen could slide other enabling technologies further into the future.

### **Incentivized Equipage**

The main concern facing industry regarding the ADS-B roll-out is that the small benefit received by industry to equip with the early version of the technology [requirements for ADS-B (In) equipage, a technology with greater benefit to operators have yet to be defined] will impede any mass migration to this new technology. As with RSVM, we believe most operators will wait until the end of the window to make the large investment (\$10,000 - \$50,000 for GA and light jets, and \$30,000 - \$60,000 for the current regional and mainline air carrier fleet<sup>7</sup>) in equipage. GAMA believes that Congress must identify a reasonable, performance-based and revenue neutral strategy to incentivize system users to equip with this new technology, one which will act as the basis for future system improvement and transformation.

ADS-B (Out) is only the first step in the process. NextGen will be a system of systems with each piece built upon its predecessor. Only upon further development by the JPDO, FAA and industry, will we be able to grasp a clear understanding of what will come next.

### **Conclusions**

- The general aviation community continues to support the NextGen System through its involvement in every aspect of the Joint Planning and Development Office and we look forward to playing an instrumental role in developing the world’s safest and most efficient air traffic management system.

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<sup>7</sup> MITRE; General Aviation ADS-B Transition Costs.

- It is time to move past the “user fee” funding debate and work together to determine how, under a system of excise and fuel taxes, the air traffic management system of tomorrow will be developed.
- With the help of industry, the FAA and the JPDO must move forward to produce a comprehensive plan to determine what the NextGen System will entail, when each portion of the system will be constructed, the proper timelines for rulemaking and implementation, and a reliable cost estimate for both government and industry equipage.
- The 2007 FAA reauthorization proposal calls for decreased Congressional oversight of FAA revenue collection and expenditures. Congress must maintain its oversight role at this critical time as we embark on a multi-billion dollar modernization effort.
- The JPDO must be strengthened with better staffing and clear reporting lines established. The stovepipe approach to equipment acquisition by the OEP must be replaced with a systems integration approach that leverages each technology to complement the entire spectrum of NextGen.
- The first phase of NextGen [ADS-B (Out)] will benefit government far more than any system user, particularly general aviation which encompasses the vast majority of the fleet. As such, Congress should examine ways by which system users would be offered incentives to equip as early as possible. Any measure to incentivize equipage should be performance based and revenue neutral.

We no longer have time to wait. With predictions of one billion enplanements in the years ahead, accelerated planning and implementation of the NextGen System must begin. Runways must be constructed, satellite based navigation and surveillance systems must be deployed and operators must equip if we are to meet the coming demands.

Chairman Costello, Representative Petri and members of the Subcommittee, thank you for the opportunity to testify before you today and I look forward to answering your questions.