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Committee on Science
Subcommittee on Space & Aeronautics
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Chairman Udall, Representative Calvert, and members of the subcommittee: I appreciate this opportunity to testify on the critical need to overhaul of our nation's air transportation system as mandated by *Vision 100*, the FAA Reauthorization Act of 2003.

A safe, secure and efficient air transportation system is essential to the economic vitality of the United States. Approximately 10 percent of the U.S. economy is directly tied to aerospace and aviation. Aviation continues to drive our nation's economic growth, and it will do so increasingly as air traffic triples over the next 20 years. Transformational improvements to our nation's air transportation infrastructure are essential to address the known capacity constraints in our current system. Since that system is operating close to the point of gridlock, it is crucial that our country develop and implement the Next Generation Air Transportation System (NGATS or NextGen) under the guidelines of *Vision 100.*

Members of the Aerospace Industries Association strongly support the mission of the JPDO, first conceived and recommended by the bipartisan *Commission on the Future of the United States Aerospace Industry* in November 2002, and we remain constructively engaged to make NextGen a reality. AIA represents almost 300 manufacturing companies with over 635,000 high-wage, highly skilled production employees. We operate as the largest aerospace trade association in the United States across three sectors: civil aviation, space systems, and national defense. Our member companies export 40 percent of their total output, and we routinely post the nation's largest manufacturing trade surplus, a level that approached $55 billion last year. Aerospace companies also continue to invest heavily in R&D, spending more than $50 billion over the last 15 years.

The JPDO has steadily built a consensus around its vision for NextGen. This vision was initially expressed in its first two reports to Congress in 2004 and 2005. By spring, JPDO should complete the vision building stage when it releases more its detailed Concepts of Operations (ConOps) and Enterprise Architecture documents. Timely development and execution of an effective integrated NextGen plan is critical, especially since the current draft of the ConOps identifies 167 research issues and 77 policy issues that must be resolved to implement NextGen. These issues cross the disciplines and resources of all of the JPDO partner agencies.

The Administration and Congress must ensure that the appropriate levels of responsibility, accountability and urgency exist across the agencies to ensure that they properly manage and

conduct the full range of integrated NextGen activities. From our evaluation of JPDO's process, products, and progress to date, we find that action is needed in the following areas for JPDO to achieve its aviation safety, security, environmental and transformation missions. AIA urges the Subcommittee and Congress to explore options to rectify these persistent problems.

Lack of Urgency: Preliminary estimates provided by the JPDO indicate that in lost passenger revenue alone, the cost of *not implementing* NextGen will exceed $50 billion per year by 2025. This loss, however, does not account for the associated economic harm from not transforming into NextGen that will be felt by general aviation, cargo transportation, and other air services components. Nor does it include the adverse impacts, such as lost productivity, that will occur in other areas such as the overall manufacturing sector.

The situation is even more urgent, however. Although flight disruptions temporarily subsided during the decrease in air travel following 9/11, news stories now remind us of the disruptions that can occur as a result of weather or other factors in a system that has reached its capacity. The FAA has publicly stated that by 2015 the system will be unable to handle the projected volume of traffic. Given the length of time required to conduct research, validate or prototype concepts, create new rules and procedures, certify systems, and incorporate the necessary upgrades into our nation's infrastructure and operational fleet, we – and many others – question whether our country can meet this looming crisis.

So far, the JPDO partner agencies' actions do not seem to match the urgency of the situation. It is estimated that NextGen development and implementation will require at least $1 billion more per year, including an additional $200-$300 million annually for federal research. Unfortunately, the Administration's FY08 budget request fails to make these investments. The FAA's FY08 proposal for NextGen, for example, is only 3% higher than the FY07 requested levels[1]. Of this amount, the FAA dedicates only an additional $4.8 million for their research efforts. Similarly, the proposed funding level for NASA aeronautics research remains inadequate. Last year, NASA proposed reducing its aeronautics funding by $188 million. Congress soundly rejected this approach and instead provided $166 million over the FY07 request. Nevertheless, the Administration has once again proposed NASA aeronautics research funding comparable to the FY07 proposal.[2]

Under current timelines, the NextGen R&D of the JPDO partner agencies will not achieve full alignment until FY09 at the earliest. We cannot accept this protracted timeline. For each delay, the cost of NextGen development will increase and more disruptions will occur, posing greater risks to the nation's mobility and economic competitiveness.

Authority & Accountability: The *Vision 100* legislation tasks the JPDO with "creating and carrying out an integrated plan for a Next Generation Air Transportation System." The recently released National Aeronautics R&D Policy also recognizes the importance of the JPDO. On

[1] FAA's Budget in Brief provides figures for NextGen-related funding levels: Total NextGen Transformational and Contributor Programs request: FY07 $1,152 billion, FY08 $1,188 billion; RE&D Contributor Programs: FY07 $57.9 million, FY08 $62.7 million.

[2] NASA proposed $724.8 million for aeronautics for FY07. Their FY08 proposal is $554 million. However, NASA's accounting system has changed due to a new scheme to handle facilities charges. In NASA's FY08 budget submission they note that the $554 million request equates to $731.8 million under the old accounting system.

December 20, 2006, President Bush signed the Executive Order that requires the policy's implementation. According to the explicit language of the policy, the JPDO "should be responsible for planning, coordination, and oversight of both research and implementation for the NGATS to meet the nation's civil, military, and homeland security needs." The policy also highlights the critical importance of inter-agency alignment with JPDO goals, and instructs the JPDO partner agencies to "…integrate their operational mission-specific requirements into the NGATS plan," and to align their air transportation system-related R&D efforts "with NGATS objectives to the maximum extent practicable."

Creating and implementing a national plan that depends on systematic inter-agency cooperation is a challenging task, especially since the JPDO cannot provide or direct agency resources. While many debate whether the JPDO has sufficient authority to complete its objective, it is clear that there is a lack of agency accountability. Accountability must be increased to ensure that agencies fully engage JPDO and execute as necessary to meet the Vision 100 objective. With the onset of the implementation phase, it is even more crucial that the agencies are held accountable for all of their respective roles in NextGen: conducting the research; defining and implementing the policies, requirements, and systems acquisitions that are needed. Clear, measurable, and visible performance metrics must be defined. Both the Administration and Congress must hold the agencies accountable to these performance metrics if NextGen is to become a reality.

On a more immediate level, insufficient accountability and authority is inherent in the current JPDO operational structure. None of the agency employees assigned to the JPDO (with a few exceptions) report to the JPDO Director, nor does he have direct input into their performance reviews. This lack of accountability to the JPDO Director and his inability to directly incentivize personnel makes a tough job even harder. Both the JPDO and other appropriate agency personnel should have all performance-based compensation that they receive linked to the achievement of NextGen milestones.

From our perspective, a partial solution to the lack of agency accountability could be the broader application of an anticipated DOD plan to designate a senior-level officer as the responsible individual for all military-related NextGen programs and the Pentagon's engagement with the JPDO. This is so simple, yet so efficient and effective, that we believe it should be required of all JPDO participating agencies. Then it will be clear, both within the Administration and to Congress, who is responsible for each agency's NextGen-related performance.

Program Alignment/Integration/Management: A lack of sufficient NextGen program integration across the various JPDO agencies poses a significant risk. For this reason, the relevant agencies must make every effort to complete the alignment of their activities and resources with the JPDO planning process now. Schedules and resource requirements must be realistic and reflect the input and capabilities of both government and industry stakeholders. Robust systems integration tools must be consistently used. Clearly visible and traceable alignment of federal funding must be established for this multi-agency effort. JPDO's coordination with the Office of Management and Budget (OMB) is a significant step in this direction: identifying existing partner-agency programs and funding that align with NextGen requirements. But the current timelines fail to address immediate needs.

Dependence on OMB for program integration, however, is not a long-term solution. The JPDO's system engineering and program management capabilities must continue to be strengthened. JPDO's pending reorganization of the office, which AIA applauds, will place an increased emphasis on systems engineering. At the same time, the JPDO requires additional resources to bring its system engineering, planning, and program management capabilities up to the level required to meet the *Vision 100* objectives. While Congress authorized up to $50 million per year for the JPDO in its authorizing legislation, JPDO's budget has never approached that level. The FAA's FY08 budget proposal would contribute only $14.3 million for JPDO operations.

Enhanced Engagement with Industry: Testifying before the House Transportation & Infrastructure Subcommittee on Aviation last week, the DOT Inspector General characterized the overall NextGen program as "extremely high risk" and the Government Accountability Office (GAO) echoed this view. According to their assessment, some of the chief issues that have derailed programs in the past – such as underestimating complexity, requirements creep, and inadequate stakeholder input – will likely reoccur with NextGen. Continuing to strengthen engagement with industry will help minimize these risks and promote more effective and timely implementation. Manufacturers in particular have significant expertise to offer in complex program development, risk management, system engineering, and integration. Not only can industry bring valuable insights and expertise to the JPDO, but it will likely pay a substantial portion (approximately half) of NextGen implementation costs. By current estimates, industry's share of NextGen development and implementation expenditures will approach the $15-$20 billion range. Therefore, it is critical that industry stakeholders have a strong voice in setting the detailed system requirements and implementation timelines.

While industry has been involved with the JPDO's Integrated Product Teams for some time, the engagement must become more robust and effective. The JPDO's evolving reorganization should strengthen industry engagement on the critical elements of JPDO planning. With this planned reorganization that is patterned after the recommendations of the DOT Inspector General and the National Research Council for greater industry coordination, JPDO should have a sharpened product-driven focus and greater clarity regarding the tasks and deliverables of its working groups. This deeper private sector partnership will allow JPDO to enhance its productivity and focus on delivering realistic system requirements and plans. Yet engagement cannot end with the initial planning phases. As implementation activities begin throughout the agencies, the need for them to continue to engage both JPDO and industry remains crucial if critical planning and execution details are to remain aligned.

Closing the R&D Gap: We must ensure that sufficient transitional R&D is conducted so that technologies are sufficiently mature when implementation decisions are made or NextGen is likely to stray off course. Perhaps the most crucial challenge facing timely and effective NextGen development and implementation is the transitional R&D gap that exists between FAA and NASA. This gap has emerged from NASA's new focus on foundational aeronautics research. Foundational technologies must be properly assessed and validated before they can be implemented in either new standards or products. However, the FAA lacks the ability and resources to conduct the transitional research needed to mature NASA's foundational

technologies. As a result, no agency claims responsibility for this critical research segment. AIA raised this issue last summer in testimony before this subcommittee and the DOT Inspector General's office amplified the same concern in its February report. The importance of transitional research also emerged as a significant discussion topic at the subcommittee's hearing on FAA R&D programs last week.

The transitional research gap need not exist and it must be closed as soon as possible. Congress and this subcommittee in particular have shown outstanding leadership in addressing aeronautics research issues by mandating the development of the National Aeronautics R&D Policy and its associated integrated research roadmap. At the same time, three provisions of the NASA Reauthorization Act of 2005 set the stage for addressing the transitional research gap. Section 422 of the Act set targets for NASA to develop and demonstrate critical aviation critical technologies related to environmental performance and other areas that are directly related to achieving NextGen goals. Sections 423 and 424 require NASA to align its airspace systems and safety research to the JPDO's Next Generation Air Transportation System Integrated Plan within one year of enactment. Furthermore, the National Aeronautics R&D Policy highlights NASA's role in transitional research for public interest research (e.g., safety, environment), high-risk technology gaps, and government internal R&D, including support of the FAA and JPDO. It also calls for NASA to align its programs to NextGen objectives "to the maximum extent practicable." However, the full, integrated aeronautics roadmap still needs to be developed and NASA has yet to meet its obligations under sections 422 – 424.

In addition to providing critical direction on aeronautics, the FY07 Continuing Resolution allocated an additional $166 million for NASA's Aeronautics Research Mission Directorate. In AIA's July 2006 testimony, we recommended that any additional aeronautics research funds NASA receives above the requested amount go towards NextGen-related transitional R&D. Congress has provided the necessary funds. Now it is up to NASA, working with JPDO and FAA, to jumpstart its research execution this year and close the research gap now. Our country cannot afford to wait. One point is certain: our entire nation will reap the benefits of NextGen success. Just as certainly, our entire nation will suffer the negative consequences if it is allowed to fail.

Thank you once again, Mr. Chairman, for this opportunity to testify.