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BEFORE THE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON AVIATION
ON THE AIR TRAFFIC ORGANIZATION AND THE JOINT PLANNING AND DEVELOPMENT OFFICE

June 21, 2006

Introduction

Good afternoon Chairman Mica, Congressman Costello, and Members of the Subcommittee. With me today is Robert Pearce, Acting Director of the Joint Planning and Development Office. We thank you for the opportunity to testify today about how the FAA's Air Traffic Organization (ATO) and the multi-agency Joint Planning and Development Office (JPDO) are working together to foster the development of the Next Generation Air Transportation System (NGATS) while providing operational and safety enhancements today.

You have been with us every step of the way – even before the enactment of the VISION 100 Century of Aviation Act – and we are most grateful for your continued leadership and commitment to this historic effort. The NGATS initiative is also a high priority and shared commitment for Secretary Mineta, Administrator Blakey, and the JPDO's partner agencies. We are all in this together.

We recognize that there are many challenges in converting JPDO's vision of the Next Generation Air Transportation System into reality. Because JPDO is not an implementing or executing agency, the FAA must work closely with the JPDO to develop an implementation schedule for the operational changes required as new technologies are deployed to realize the NGATS vision. We intend to use the construct of the Operational Evolution Plan (OEP) to help us. We will expand the scope of the OEP from a capacity only focus to a plan that will take us from today's National Airspace System (NAS) to tomorrow's NGATS.

JPDO transformational initiatives will be identified, rigorously evaluated, prototyped, and tested so they can be ready for transition into the NAS operation. Required operational implementation schedules will be tracked, as well as dates by which initiatives must be funded in order to meet those schedules. Cost will be a vital factor: we cannot create a Next Generation system that is not affordable. The NAS and NGATS Enterprise Architectures will provide the backbone of this new OEP by specifying roadmaps for system and certification requirements, operational procedures, program phasing, and prototype demonstrations. The NAS to NGATS OEP will be the mechanism by which we inform our owners, customers, and aviation community of our plans and progress towards the JPDO vision, while assuring that the JPDO and the FAA are jointly on-track to deliver the Next Generation Air Transportation System.

Achievements and Successes of ATO

Mr. Chairman, the Air Traffic Organization was created in 2004 as a result of your efforts, and the hard work of this Committee. Now, we are producing real results. In FY2005, the first full fiscal year of the ATO business structure, significant improvements were made operationally, financially, organizationally, and managerially.

One of the core responsibilities of the ATO is to ensure the safety of the users by maintaining the proper separation of aircraft; and the failure to maintain this separation is called an operational error. In FY2005, the en-route service unit significantly reduced the number of operational errors. In FY2004, there were 373 Category A and B operational errors in the en-route environment, which are the more serious types of errors. In FY2005, these were reduced to 308, an improvement of more than 17 percent. These safety gains can be attributed to increased controller awareness and performance, as well as new technology and procedural improvements related to the deployment of Domestic Reduced Vertical Separation Minimums (DRVSM) and the User Request Evaluation Tool (URET).

In 2005, the ATO implemented a new procedure, known as Domestic Reduced Vertical Separation Minima or DRVSM, which is truly exciting. DRVSM has significantly increased capacity in the en route airspace by doubling the number of usable altitudes between 29,000 and 41,000 feet. The procedure permits controllers to reduce minimum vertical separation at altitudes between 29,000 and 41,000 feet from 2,000 feet to 1,000 feet for properly equipped aircraft. DRVSM allows greater access to fuel efficient routes that was previously unavailable due to the increased separation requirements. We

originally estimated DRVSM would save airlines approximately $5 billion through 2016, an estimate that could be conservative in light of the increase in fuel prices in the last year.

The User Request Evaluation Tool (URET) is a tool used by pilots to request from air traffic controllers a new, more direct course between point A and point B, and the controller to predict potential aircraft to aircraft, and aircraft to airspace conflicts earlier, allowing them to construct alternative flight paths. URET allows these conflicts to be addressed in a strategic sense rather than a tactical sense, with fewer deviations to the route or altitude. Fewer deviations can result in less fuel burn. The system makes it easier for controllers to respond to pilot requests for more efficient routings, more fuel efficient altitudes, and wind-optimal routes, all while improving safety at the same time. Estimated savings for the aviation industry from URET in FY 2005 were 25 million miles in aircraft travel, and $175 million in operating expenses.

Financially, capital programs are also being managed better through phased development and implementation. In FY2005, 92 percent of schedule goals were met for 31 major programs, and 97 percent of major acquisition programs met budget goals. Increased oversight for major capital investments has resulted in three Facilities and Equipment (F&E) programs being rejected, and ten others being restructured for additional savings.

The ATO has continued to improve its organizational structure, yielding considerable operational improvements and cost savings. The ATO completed the outsourcing of Flight Service Stations, the largest non-Defense outsourcing effort in the Federal

government, which will save $1.7 billion over 10 years. Further organizational realignments are underway, with the ATO presence in the nine FAA regions being consolidated into three service areas, which we expect to result in over $460 million in savings over the next 10 years. ATO executive staffing was reduced 20 percent and management was reduced by 10 percent. This translates to a 3 percent cut overall since ATO's inception, with the largest reductions occurring in non-safety positions. This resulted in lowering our labor cost per flight by 1.5 percent, even as the ATO absorbed a 5.1 percent salary increase.

Improvements in all areas stem from the managerial improvements. The Strategic Management Process, which is what we call our business scorecard process, was fully implemented in FY05, with Strategy Map's four pathways being completed. The ATO has linked metrics to the objectives on the strategy map, and deployed tools to allow our managers to "drill down" to individual service delivery points to determine why these targets are being met or missed. As a result, the ATO has improved its ability to meet the performance targets on its scorecard. In FY04, the ATO met only three of its seven targets, while in FY05, six of seven targets were met. We are using the Strategic Management Process to formulate our FY2008 capital budget along the lines of the four strategic pathways. The JPDO participates as a full member of Pathway 4, entitled, "Ensure a Viable Future," and has submitted FY2008 budget requests to ATO via this Pathway. Moreover, JPDO takes part in reviewing ATO capital projects and prioritizing ATO projects submitted to Pathway 4.

Operational Improvements: Today and 2025

The ATO and the JPDO have taken a dual and complementary approach, keeping our eyes focused on the 2025 Vision, while we are working in concert to use existing technology to provide important and tangible operational benefits now and in the future to those who use the national aviation system. We are finding ways to make existing capacity work more efficiently, through advanced technology and operational improvements. Indeed, some of these efficiencies are not only providing relief today, but are helping to lay the foundation for the Next Generation System.

One major ATO initiative is expanding the implementation of Area Navigation (RNAV) procedures to additional airports. In 2004, thirteen RNAV departure procedures and four RNAV arrival procedures went into full operation at Atlanta Hartsfield-Jackson International Airport – the world's busiest airport. RNAV procedures provide flight path guidance that is incorporated into onboard aircraft avionics systems, requiring only minimal air traffic instructions. This significantly reduces routine controller-pilot communications, allowing more time on frequency for pilots and controllers to handle other safety-critical flight activities. Also, RNAV procedures use more precise routes for take-offs and landings, reducing fuel burn and time intervals between aircraft on the runways, and allowing for increases in traffic, while enhancing safety.

In post-implementation studies by MITRE and the Center for Advanced Aviation System Development (CAASD), the annual operational benefits to airline operators from RNAV procedures at Atlanta are estimated to be $39 million. Delta Airlines anticipates potential

benefits up to $30 million with refinements to the procedures published in 2005. Additionally, sixteen RNAV departures implemented at Dallas/Fort Worth International Airport in 2005 are expected to provide operators with estimated savings of $10 million annually through reduced delays. American Airlines anticipates operational benefits up to $20 million with increased throughput and departure capacity gains. The FAA has over seventy-five RNAV procedures under development this year.

In the en route environment, we plan to publish more than 20 low-altitude and high altitude RNAV routes. The high altitude routes eliminate the need to over-fly ground-based navigation aids and allow the design of more direct, efficient routes. Low altitude RNAV routes allow direct routing through terminal airspace for Global Navigation Satellite System equipped aircraft. These routes are especially useful for general aviation flights, which previously would have been vectored around the terminal airspace.

ATO is currently implementing additional technological innovations, including a system known as Required Navigation Performance (RNP). RNP uses on-board technology that allows pilots to fly more direct point-to-point routes reliably and accurately. RNP is extremely accurate, and gives pilots not only lateral guidance, but vertical precision as well. RNP reaches all aspects of the flight – departure, en route, arrival, and approach. For example, in January 2005, in partnership with Alaska Airlines, we implemented new RNP approach procedures at Palm Springs International Airport, which is located in very mountainous terrain. Under the previous conventional procedures in use at Palm Springs, planes could not land unless the ceiling and visibility were at least 2,300 feet and three miles. With these new RNP procedures, air carriers with properly equipped aircraft can

now operate with a ceiling and visibility as low as 734 feet and one mile. This lower landing minima has allowed Alaska Airlines to "save" 27 flights between January and November, 2005, flights which would have otherwise had to divert to Ontario, California—an added distance of at least 70 miles.

We must also make sure we are using the best technology to maintain a safe and efficient air traffic system. The en route air traffic control computer system is considered the heart of the NAS. En Route Automation Modernization (ERAM) provides the basic foundation upon which many of the transforming technologies moving us from the current NAS to NGATS needs. ERAM replaces the software for the Host Computer System and its backup. It will enable the FAA to increase capacity and improve efficiency in a way that cannot be realized with the current system, which is a mix of different technologies that evolved over the years and is extremely difficult to expand or upgrade. In addition to supporting new transformational technologies, ERAM itself can process more than double the number of flight plans, and use almost triple the number of surveillance sources as the current system. The ERAM system is scheduled to be deployed and operational at all 20 Air Route Traffic Control Centers by 2010.

Traffic Flow Management (TFM) is the "brain" of the NAS, and is the reason that we could handle more traffic at our major airports in 2005 than in 2000, without the long delays that made the summer of 2000 the worst on record. The TFM system is the nation's single source for capturing and disseminating traffic information for the purposes of coordinating traffic across the aviation community. As the NAS is impacted by severe weather, congestion and/or outages, the TFM system provides timely information to our

customers to expedite traffic and minimize system delays. The FAA is currently in the process of modernizing the TFM infrastructure through its TFM Modernization program. We are currently introducing new Airspace Flow Management technology to reduce the impact of delays incurred during the severe weather season. FAA estimates show that TFM provides roughly $340 million in benefits to our customers on a yearly basis in reduced direct operating costs through delay reductions. ERAM and TFM together will enable flexible routing around congestion, weather, and flight restrictions, and help controllers to automatically coordinate flights, during periods of increased workload.

The JPDO and ATO will work together to analyze the changes that will needed to both ERAM and TFM so they meet the needs of 4-dimensional air trajectory-based operations – a key capability of the Next Generation System. Today's flight planning and air traffic paradigms will be transformed into a system that manages operations based on aircraft trajectories, regularly adjusts the airspace structure to best meet customer and security/defense needs and relies on automation for trajectory analysis and separation assurance.

The Next Generation Air Transportation System

Our vision of the Next Generation System is not limited to increased capacity. It is one which encompasses the whole air travel experience – from the moment the passenger arrives at the curb of his departure airport to his or her exit from their destination airport. The Next Generation System includes security, safety, and efficiency of passenger, cargo and aircraft operations. Technology will change the way America flies. Aircraft will be

able to use information technology in a more robust way, with enhanced cockpit, navigation and landing capabilities, and far more comprehensive and accurate knowledge of real time weather and traffic conditions.

The Next Generation Air Transportation System will be more flexible, resilient, scalable, adaptive, and highly automated. The NGATS operational vision is not just related to the air traffic management system alone, but also includes the preservation and growth of airports, heliports, and other future landing and departure facilities to fully incorporate the emerging NGATS benefits. This system will be built on a far more robust information network than anything we have seen to date, ensuring that the right information gets to the right person at the right time, while keeping the nation safe and the flow of traffic running smoothly. We will increasingly cut the cord between ground and air as we put more information directly into the cockpit of intelligent aircraft through sensors and satellites linked together through network communications.

The importance of developing this system of the future is also quite clear to policymakers in Europe, where a comparable effort is well underway. This presents both a challenge and an opportunity to the United States. Creating a modernized, global system that provides interoperability could serve as a tremendous boost to the aerospace industry, fueling new efficiencies and consumer benefits. Alternatively, we could also see a patchwork of duplicative systems and technologies develop, which would place additional cost burdens on an industry already struggling to make ends meet.

Our overarching goal in the NGATS System initiative is to develop a system that will be flexible enough to accommodate a wide range of users -- very light jets and large commercial aircraft, manned and unmanned air vehicles, small airports and large, business and vacation travelers alike, while handling a significantly increased number of operations with no diminution in safety, security and efficiency. Research will continue to help us find the right balance between a centralized ground system and a totally distributed system, where aircraft "self-manage" their flight with full knowledge of their environment.

Under the leadership of Administrator Blakey, the JPDO now serves as a focal point for coordinating the research related to air transportation for agencies across the Federal government, including the Departments of Transportation, Commerce, Defense and Homeland Security, as well as NASA and the Office of Science and Technology Policy. The JPDO achieved important milestones in 2005 towards building the NGATS system. The JPDO completed its internal organization and created eight government/industry Integrated Product Teams (IPTs) to break this large and complex project into manageable strategies. These strategies focus on those aspects of aviation that hold the keys to capacity and efficiency improvements – airport infrastructure, security, a more agile air traffic system, shared situational awareness, safety, environmental concerns, weather and global harmonization of equipage, and operations. The Teams work closely with our stakeholders to ensure that they have an early window into our thinking and that we take full advantage of their expertise every step of the way. What truly sets this new structure apart is that it eliminates duplication of effort and resources among Federal agencies

involved in aviation and gets them working toward a common goal – creation of a NGATS system.

One of the misconceptions about the Next Generation System initiative is that we have to wait until 2025 to start seeing the benefits. This idea is demonstrably false. In 2005, the JPDO moved ahead with plans to accelerate the development of key NGATS projects, such as Automatic Dependent Surveillance-Broadcast (ADS-B), and System Wide Information Management (SWIM). In FAA's Fiscal Year 2007 budget request, the Administration proposed several targeted investment areas, to promote early implementation of elements of the NGATS system. The details of other programs will evolve over time as the Enterprise Architecture is fully developed and system requirements are established. These accomplishments are highlighted in the recently published "2005 Progress Report to the NGATS Integrated Plan" that was transmitted to Congress on March 10th as required by Vision 100.

One of these very promising initiatives, with potential for broad operational applications, is the Automatic Dependent Surveillance-Broadcast (ADS-B) system, a technology that will replace ground-based radar systems and revolutionize air navigation and surveillance. For FY 2007, the President's budget includes $80 million for the FAA for the ADS-B program. The ADS-B system was the key enabling technology for the Capstone demonstration program in Alaska. Capstone is a technology-focused safety program that seeks near-term safety and efficiency gains in aviation by accelerating implementation and use of modern technology, in both avionics and ground system

infrastructure, with the goal of reducing the exceedingly high accident rate in Alaska for small aircraft operations, which was nearly five times greater than the national average. Through 2005, the program achieved significant safety and efficiency results. Aircraft equipped with ADS-B have had a consistently lower accident rate than non-equipped aircraft. From 2000 through 2005, the rate of accidents for ADS-B-equipped aircraft dropped significantly--by 49 percent. That is real progress.

Given its fundamental importance to the success of the NGATS System, establishing an initial Network-Enabled Operations (NEO) capability is a high priority for JPDO and its member agencies. Current efforts focus on identifying the network architecture and enacting standards for information and safety data sharing. This is the situation today: DoD has already invested considerable resources in information technology and telecommunication research focused on NEO and information access and sharing. FAA, DHS and Commerce are also committed to developing network-centric information architectures. The opportunity now exists to synchronize these efforts, especially in the areas of data interoperability and compatible network-to-network interface mechanisms. Two on-going DoD initiatives – the synchronization of DoD and DHS classified networks and DoD's development of its Net-Centric Enterprise Services – will serve as templates for this effort.

In 2005, the JPDO, FAA and an industry team demonstrated how network-enabled concepts developed for the military customers can be applied to Air Traffic Management. The Joint Network-Enabled Operations Security Demonstration connected seven Air Traffic Management and security systems distributed over 12 different locations. It

showed how sharing information in real time across air traffic, air defense, and law enforcement domains helps agencies respond to a security incident more efficiently. The exciting part of the NEO demonstration project is that it enabled communication between agencies' individual, stove-piped networks, eliminating the need to throw out all the individual legacy systems and create a brand new mega-system, which would be prohibitively expensive.

The President's budget proposal for Fiscal Year 2007 requests $24 million for FAA's System Wide Information Management (SWIM) program to conduct a follow-on to the very successful NEO demonstration and to jump start the FAA acquisition program responsible for implementing such technologies operationally.

These technological and operational improvements are positive steps down the road to building the Next Generation Air Transportation System. We know, however, that we continue to face many challenges. Over the next few years we will work to achieve better cost management; determine the best solution for our aging and deteriorating facilities; plan more effectively for catastrophic events, like hurricanes or terrorist attacks; and, conduct research on convective weather to reduce flight delays associated with summer storms. Everything in our business – pay, job performance, future technology, the nation's economy – is linked together. We strive to improve efficiency, while searching for innovative ways to provide safer services even more efficiently. As we decide how to wisely invest in our future, we will continue to work closely with our customers, our employees, and of course, Members of Congress.

Mr. Chairman, this concludes our testimony. We would be happy to answer any questions the Committee may have.