# Next Generation Air Transportation System

## *Executive Summary*

# Introduction: A Crisis in the Making

Our Nation's air transportation system has become a victim of its own success. We created the most effective, efficient and safest system in the world and like a best selling product, the world couldn't get enough of it.

We now face a looming crisis – demand for air services is on the rise, and could as much as triple over the next two decades. While the industry downturn and the effects of the September 11 attacks temporarily slowed the tremendous growth in air travel that started in the late 1990s, demand is growing again, and in a big way.

The warning signs are everywhere. Flight delays and cancellations reached unacceptable levels last summer at choke-points like O'Hare. For trips less than 500 miles, the curb-to-curb destination speed fell to between 35 and 80 miles an hour. Passengers began turning in their boarding passes for car keys.

Consumers stand to lose $30 billion annually due to people and products not reaching their destinations within time periods we expect today. The Commission on the Future of the United States Aerospace Industry concluded that without improvement, the combined economic cost of delays from 2000-2012 will be an estimated $170 billion.

And since 9/11, we have made a series of security enhancements to our airports and airspace, but typically by layering them on top of an existing system rather than including them in the design from the beginning.

Other issues, ranging from environmental concerns to homeland security are placing additional stresses on the system. For example, the 9/11 Commission reported that once the terrorists had gained a control of the aircraft, existing protocols for U.S. airspace defense "were unsuited in every respect for an attack in which hijacked planes were used as weapons." And the challenges keep mounting.

If we fail to address issues such as increased capacity in a deliberate and focused way, we will suffocate the great engine of economic growth we call civil aviation.


# Taking Deliberate and Focused Action

*"Our Next Generation Plan will deliver a system with the capacity to allow travelers to choose how, where and when they travel – while making the experience as safe, secure and hassle free as possible."*
DOT Secretary Norman Mineta

That is why last year, the Administration and Congress took on what is admittedly a very big idea – the notion that we can pull all available public and private sector resources together and literally transform the way our air transportation system works today, through the year 2025 and beyond.

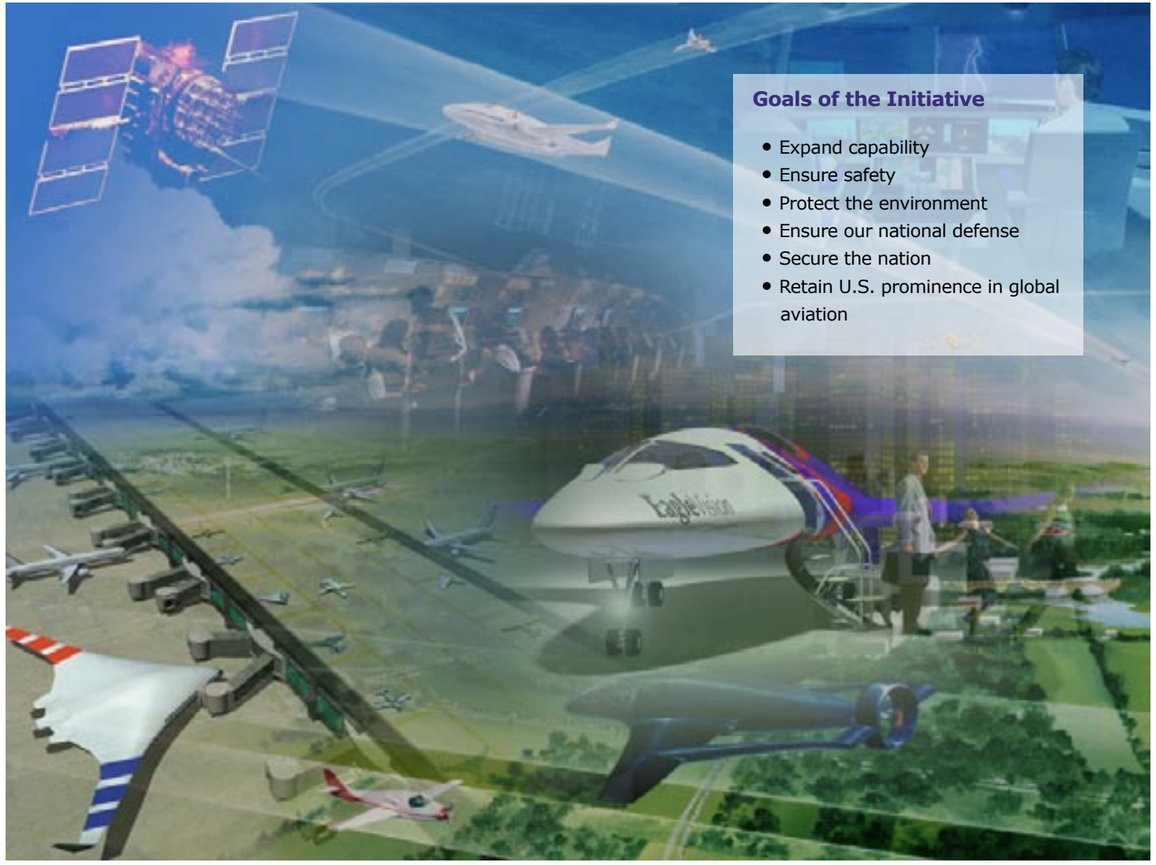
In the short term, we are doing all the things we can do to increase the capacity of our current air transportation system: building new runways; redesigning airspace to wring out more capacity from the current system; working with industry to help increase operational efficiency; and examining ways to manage demand more effectively at our most congested airports.

We are also guided by the principle that there should be no more regulations than necessary and those issued should be simpler, more comprehensible, and less burdensome.

In the longer term, however, we know that this will not be enough.

We do not pretend to know what the marketplace for air services will look like in the year 2025. What we do know is that government has a responsibility to ensure that we have in place the infrastructure to allow American entrepreneurs to work their magic without being strangled by congestion or buried in bureaucratic red tape.

That is what we are focused on – to develop a system that is flexible enough to accommodate very light jets and large commercial aircraft, manned and unmanned air vehicles, small airports and large, business and vacation travelers alike, and to handle three times the number of operations that the current system does with no diminution in safety, security and efficiency.




The 108th Congress and the President took the first critical step toward transforming our air transportation system by passing and signing into law Vision 100 – Century of Aviation Reauthorization Act. The legislation created a unique coalition of public and private partnerships to lead this historic effort.

# A Vision for the Future

The answer lies in the Next Generation Air Transportation System (NGATS) initiative launched by Transportation Secretary Norman Mineta in January 2004. He summed up the objective best when he announced the initiative: "The changes that are coming are too big, too fundamental for incremental adaptations of the infrastructure. We need to modernize and transform our air transportation system – starting right now."

Under his direction, we have spent the last year on the early phases of a major interagency, multi-year effort to transform our air transportation system. Working with our federal, state and local government partners, as well as industry and other stakeholders, we have sketched out a vision for what a future system might look like.

The system we foresee would allow for faster, more efficient movement of people and goods throughout the United States and around the world. It would be a much smarter system, allowing pilots to have greater control of their flight path and vastly improved situational awareness through greater use of technology, including satellite-based systems like GPS. It would be flexible enough to accommodate whatever type and mix of aircraft we might see in our skies by the year 2025, giving passengers and shippers more options. It would also permit flying in all but the worst of weather, secure the skies and greatly reduce curb-to-curb transit time.

Through this initiative we are bringing together the best and the brightest from throughout the federal government, including the Departments of Commerce, Transportation, Defense and Homeland Security, NASA, FAA, the White House Office of Science and Technology Policy along with industry and the academic community to determine how to design and build the NGATS. Unlike previous efforts to modernize our system, we are bringing all these agencies together now, to ensure that all the pieces of the puzzle are understood and addressed from the very outset.

*"The national plan we're releasing cuts through the red tape and duplication of effort and gets everyone in aviation across the government pulling in the same direction. With budgets stretched, that's a smart way to operate."*
FAA Administrator Marion Blakey

# Setting an Example for Government Cooperation

A special feature of the NGATS initiative is the level of participation we are enjoying from the other agencies involved. For the first time, we have deputy secretaries and administrators of some of our largest federal departments coming together to tackle this problem in a very thoughtful and sustained way.

Through a Senior Policy Committee that Secretary Mineta chairs, we have been able to bring these senior officials to the table to actively engage in the development of our national vision. We will continue to call on them to help solve what are sure to be challenging policy issues that will arise as the system is further developed.

The first product from this landmark effort was an Integrated National Plan delivered to Congress in December 2004, which can be viewed at www.jpdo.aero. This strategic business plan lays out a common vision for the Next Generation Air Transportation System, establishes benchmarks for our success, and establishes a structure by which we can design and implement the changes we need to make.

### Members of the Senior Policy Committee

- Secretary of Transportation, Chair
- Secretary of Defense
- Secretary of Homeland Security
- Secretary of Commerce
- Director of the Office of Science and Technology Policy
- Administrator of the National Aeronautics and Space Administration (NASA)
- Administrator of the Federal Aviation Administration (FAA)

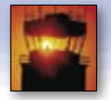

# The Joint Planning and Development Office: A Test Bed for New Ideas

Creating the NGATS is no simple task, and will require unprecedented cooperation among the participating agencies, something that is already happening through the Joint Planning and Development Office – or JPDO – that is jointly managed by the FAA and NASA and supported by staff from all the agencies involved. The Senior Policy Committee oversees the work of the JPDO.

The JPDO now serves as a focal point for coordinating the research related to air transportation for all of the participating agencies. A successful transformation will also require a close partnership with the research community, industry and other stakeholders, and the JPDO is working to establish a formal structure within which to manage those relationships to ensure a full public-private partnership as we move forward.

# The Roadmap to Success

Achieving the NGATS vision will require collaboration among federal, state, and local government and private industry. These efforts will be coordinated through eight major strategies that broadly address the NGATS goals and objectives. Supporting these strategies will be a combination of research, development, and implementation activities. The eight major strategies are:



### 1. Develop Airport Infrastructure to Meet Future Demand

Provide a system that meets or exceeds user demand by integrating airport, airspace and air traffic management design, development and deployment. Empower local communities and regions to create alternative concepts of how airports will be used and managed in the future.

### 2. Establish an Effective Security System without Limiting Mobility or Civil Liberties

Embed security measures throughout the air transportation system – from curb to curb. Create a transparent set of security layers that will deliver security without producing undue delays, limiting access, or adding excessive costs and time.

### 3. Establish an Agile Air Traffic System

Create a responsive air traffic system by devising alternative concepts of airspace and airport operations to serve present and future aircraft. As new vehicle classes and business models emerge, such as remotely operated vehicles and spaceports, the safe and efficient operation of all vehicles in the National Airspace System will be critical to creating new markets in aviation and beyond.

### 4. Establish User-Specific Situational Awareness

Provide each traveler and operator in the system with the specific situational awareness they need to reach decisions through the creation of a combined information network. All users of the system will have access to the air transportation system data they require for their operations.

### 5. Establish a Comprehensive Proactive Safety Management Approach

Manage safety through a comprehensive and proactive approach that can integrate major changes, such as new technologies or procedures. This will be done in a timely manner and without compromising aviation's current enviable safety record.

### 6. Develop Environmental Protection that Allows Sustained Aviation Growth

Introduce new policies, operational procedures, and technologies to minimize the impact of noise and emissions on the environment and eliminate ground contaminants at airports. This effort includes exploration of alternative fuels, engine and aircraft designs. These actions will result in reduced environmental impact and sustained aviation growth.

### 7. Develop a System-Wide Capability to Reduce Weather Impacts

Reduce the impact of weather on air travel through a system-wide capability for enhanced weather observations and forecasts, integrating them with the tools used by air system operators. This capability will substantially improve airspace capacity and efficiency while enhancing safety.

### 8. Harmonize Equipage and Operations Globally

Develop and employ uniform standards, procedures, and air and space transportation policies worldwide, enhancing safety and efficiency on a global scale.

# Integrated Product Teams

The JPDO is coordinating the work of eight Integrated Product Teams – or IPTs – that were created to break this rather complex project into manageable pieces. Each agency leads at least one of these IPTs, and is therefore accountable for its piece of the puzzle. These IPTs will first develop more specific strategies for making each component of the NGATS a reality. They will also be working closely with our stakeholders to ensure that they have an early window into our thinking and that we take full advantage of their expertise along every step of the way.

# Getting Involved

Given the JPDO's unique structure and mission, we are employing a blend of traditional and non-traditional mechanisms to help foster and expand our "engage and then decide" outreach process.

Federal advisory committees will be used to ensure all plans and decisions receive broad review and public comment. These committees will include senior-level executives from across industry empowered to provide advice on strategy and transition issues.

However, the JPDO has another approach as well. We have established a public-private partnership—the NGATS Institute.

The Institute will have two distinct missions. First, it is a think tank made up of the best minds that the private sector can provide. This organization will provide teams of experts to recommend solutions and answers to the tough technical and socio-economic questions asked by the JPDO and it's IPTs.

The second part of this public private partnership is a clearinghouse to help place members on in the IPTs. Here too, the collective goal is to foster new technology and best practices and concepts.

We are also forming a National Strategic Outreach group. Made up of governmental, public policy and business organizations ranging from the National Governors Association to the U.S. Chamber of Commerce, it would deal with specific public needs and benefits and how transformation affects the economy and job creation on the national, state and local level.


Image courtesy of **Adam Aircraft**

# Next Steps: Making a Difference Today and in the Future

As Administrator Blakey said at the roll-out of the Integrated National Plan in December, "this plan is designed to make a difference today… and that is precisely what it does." A good example is the Network Enabled Operations (led by NASA) demonstration project that cuts across FAA, NASA, DOD and DHS.

Scheduled for the end of FY 05, NEO is a communications link that's designed to provide a shared picture of the system to all parties. In terms of security, it gives a shared situational awareness that we don't have but one that's needed beyond a shadow of a doubt. Eventually, we expect to extend network-enabled operations beyond security to include air traffic control.

Everyone gets the information they need: What the aircraft are; their intent and what they're doing. The goal is to share information freely for decision-making. By networking communications systems together, we can make a difference right away.

For the longer-term, the IPTs are already hard at work on their individual strategies allowing each of them to generate more detailed research plans and ultimately action plans that establish the mechanics of how we transition to the system of the future. A second edition of the Integrated National Plan, which will reflect this progress, will be delivered to Congress in December 2005.


# Costs

Many have suggested that creating the NGATS might be a budget-buster and therefore a non-starter in these challenging fiscal times. To the contrary, we are using the JPDO process as a way to ensure full coordination of research across agency lines, and between the government and private sector, in ways that simply have not been done in the past.

We already have a sizable amount of resources being spent each year on air transportation-related research. By better coordinating our actions and tying them to a long-term integrated, national plan we can maximize the benefits of those public and private investments, get a much larger bang for our buck and actually save money.

# Conclusion

History will judge us based not necessarily on what we accomplish in the near term but on what actions we take to help sustain our world-class air transportation system far into the future.

There are many different ways to define and calculate the success of the Next Generation Air Transportation System. However, the ultimate arbiters of our success will be the users of the system.

They must feel we have made a real and tangible difference in their lives for the better. They must be confident that their government is working for them and that they are safe and secure. They must believe that the Next Generation Air Transportation System is an efficient and effective investment of their hard-earned taxpayer dollars.

Secretary Mineta stepped up and first answered the call – and we invite you to become part of this exciting project. You have an opportunity to contribute as we move to design and build the Next Generation Air Transportation System. We encourage you to read the Integrated National Plan and contact the JPDO to find out how you can help.

### How We Will Measure Success

- Improved curb-to curb service
- Fewer delays and less hassles
- More flying options
- Greater job creation and economic *growth*
- Lower costs to both government and industry

For more information visit
**www.jpdo.aero**

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