**FAA REAUTHORIZATION: ISSUES IN MODERNIZING AND
OPERATING THE NATION'S AIRSPACE**

**STATEMENT OF NICHOLAS E. CALIO
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BEFORE THE
UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
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Airlines for America (A4A) and its members[1] appreciate this opportunity to participate in the Committee's examination of the issues associated with the modernization of the nation's air traffic control (ATC) system.[2] This hearing is both timely and important. The Committee's assessment of those issues will serve as one of the cornerstones of Congress's development next year of Federal Aviation Administration (FAA) reauthorization legislation.

Chairman Shuster has called for a "transformational" approach to modernizing our ATC system and expediting the Next Generation Air Transportation System (NextGen). We commend the chairman for his bipartisan approach and outreach to A4A and other stakeholders for our views on ATC modernization and other important policy issues that will be addressed in the next FAA reauthorization bill. This will be no easy task, but we are committed to a fact-based search for solutions that will work to improve our ATC system.

OVERVIEW

In light of the forthcoming FAA reauthorization legislation, this is an opportune time to take stock of where our ATC system is today, what circumstances led to its current state and what challenges exist to successfully modernize the system. Airlines are entirely dependent on a modern and efficient ATC system. Air traffic control services are the crucial input for the air transportation that we provide. We neither produce nor control that input. As the presidentially-appointed Baliles Commission observed 21 years ago, "[i]n a very real sense, the federal government controls the production line of the U.S. airline industry."[3] That was not an academic observation. In 2010, the FAA's National Center of Excellence for Aviation Operations Research (NEXTOR) completed a comprehensive study of the costs and effects of flight delays in the United States. It estimated that the annual cost of flight delays for our nation's economy was

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[1] A4A does not represent Delta Air Lines in this testimony.
[2] A4A is the trade organization that represents larger U.S. scheduled passenger and cargo airlines. A4A's members are Alaska Airlines, Inc.; American Airlines, Inc.; Atlas Air, Inc.; Delta Air Lines, Inc.; Federal Express Corporation; Hawaiian Airlines; JetBlue Airways Corp.; Southwest Airlines Co.; United Continental Holdings, Inc. and UPS Airlines. Air Canada is an associate member.
[3] *Change, Challenge and Competition, The National Commission to Ensure a Strong, Competitive Airline Industry, A Report to the President and Congress,* August 1993, p. 6.

nearly $33 billion.[4] An astounding $16.7 billion of that amount is attributable to economic losses that passengers suffer because of delays. The status quo is clearly unacceptable – our country deserves an ATC system that:

- Makes it faster and easier for passengers to reach their destination.
- Enables airlines to save fuel and reduce noise and emissions.
- Enhances our economy in a way that creates jobs and drives aviation exports.

While we have the safest ATC system in the world, we should be striving to be the most efficient and cost-effective that we can be. Historically, the United States has been the leader in air traffic management and technology. However, the record is mixed on where we stand today.

For decades, policymakers and stakeholders have almost unanimously recognized the need to modernize our antiquated, radar-based, World War II-era ATC system. The FAA has been attempting to modernize the National Airspace System (NAS), expanding its capacity and increasing its productivity, since it launched the NAS plan in 1982. For over three decades, however, the DOT Office of Inspector General (DOT IG), U.S. Government Accountability Office (GAO) and numerous bipartisan federal airline commissions found that the FAA's progress with delivering planned NextGen capabilities has not met industry stakeholder expectations. At the subcommittee's Feb. 5, 2014, hearing on NextGen, the DOT IG warned that implementation costs for government and industry – initially estimated at $20 billion for each – could double or triple – and that NextGen implementation may take an additional decade.

While stakeholders support NextGen, they have been unable to agree on how to address these well-documented implementation obstacles. The Committee has a historic opportunity to drive the institutional change needed to ensure that we have the very best ATC system in the world. The historic delays and cancellations that occurred in April 2012, due to the federal budget sequester-driven air traffic controller furloughs; the partial shutdown of the FAA in August 2011, due to the failure of Congress to extend the agency's authorization; and billions of dollars in cost overruns and delays in the FAA's multi-year NextGen initiative are distressing realities, but may be just the impetus needed to drive change.

Expediting the most cost-beneficial components of NextGen is one of the five pillars of A4A's National Airline Policy, which we hope the Committee will enact as part of the FAA bill.

In preparation for the next FAA reauthorization bill, we are in the process of benchmarking and developing a fact-based assessment of governance, financial and operational performance of the U.S., Canadian and European ATC models. We are also evaluating the risks and opportunities of reform as well as developing potential options for improving the current system. While our work is not yet complete, some basic observations are emerging.

Our work to date has shown that the FAA's organizational structure and funding model are hindering the agency's efforts to modernize the ATC system and implement NextGen. From an organizational perspective, many air navigation service providers (ANSPs) of other countries have a multi-stakeholder board of directors. Many of these other countries have adopted and implemented new ATC technologies and procedures faster and at lower cost than the FAA due in large part to a collaborative approach with stakeholders, who also fund the system.

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[4] *National Center for Excellence for Aviation Operations, Total Delay Impact Study: A Comprehensive Assessment of the Costs and Impacts of Flight Delay in the United States, p.* 14 (table 2-4).

In contrast to the FAA, these ANSPs have also been able to close underutilized air traffic control towers, consolidate radar facilities and make other efficiency gains.

From a funding perspective, it does not make sense to fund a long-term capital budget through an annual appropriations process. In today's budget environment, relying on annual appropriations creates significant uncertainty on the part of users as to when the FAA will actually have various NextGen capabilities in place. Annual budget allocations, subject to annual cuts and policy changes, frequently assures that planned new ATC technologies will be obsolete by the time they are operational. It also needlessly subjects our ATC system to disruption caused by budget battles on Capitol Hill, as evidenced in April 2013 following the sequester-driven air traffic controller furloughs and the partial-shutdown of the agency in August 2011. The FAA's Management Advisory Council, an 11-member board that advises the agency, sent a letter to congressional transportation policy leaders on Aug. 2, 2013, stating that sequester cuts to the FAA's budget underscored "the need to reform the policy, funding and governance structure of the FAA."

As the Committee seeks to address these long-standing obstacles to ATC modernization and NextGen implementation in the next FAA reauthorization bill, it will have to ask and answer two fundamental questions:

- Does the United States have the best governance and funding structures in place to deliver the most efficient, modern ATC system?
- Have the ATC models used by other countries enhanced safety and efficiency, and if so, can the best attributes of these models be adopted by the United States without adversely impacting safety?
- If yes, would their adoption improve our system? At what cost?

MULTIPLE INDEPENDENT REPORTS HAVE CITED ATC MODERNIZATION AND NEXTGEN COST OVERRUNS AND DELAYS

Since the early 1990s, a string of reports from presidentially appointed aviation commissions, the DOT IG, the Government Accountability Office (GAO), and independent private sector experts found that the FAA's ATC modernization and NextGen implementation efforts have been plagued by significant cost overruns and delays, calling into question the agency's ability to deliver under the existing funding and governance structure:

- **"The U.S. air transportation system must be efficient and technologically superior. For too long, too many people and products have been spending too much of their time sitting on the ground in airplanes and not enough time flying them. This is true despite the fact that a new ATC technology is available that would reduce delays and increase efficiency. New technology lies within our grasp but has been thwarted by a federal funding and procurement process that is the antithesis of a rapidly changing, high technology-driven air transportation system."[5]**

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[5] *Change, Challenge and Competition, The National Commission to Ensure a Strong, Competitive Airline Industry, A Report to the President and Congress,* August 1993, p. 2.

- **"Authority and accountability are too diffused to run a 24 hour-a-day, high technology, rapidly changing operating system for a major commercial industry. Everyone responsible for the current ATC system – the FAA, the DOT, the aviation industry, the Administration and the Congress – wants to make the system work. But there are too many people in charge. The problems are systemic and require basic changes in command and control."[6]**

- **"Federal budget rules are crippling. The present system of federal budget regulation is inappropriate for an air traffic control system controlling commercial operations that needs to be driven by demand for services. Budget rules that govern the federal aviation system must be revised."[7]**

- **"The ATC's problems can't be fixed without a major reorganization. Under its current structure, the system is subject to federal budget, procurement and personnel rules designed to prevent mismanagement and the misuse of funds. The rules, however, prevent the system from reacting quickly to events, such as buying the most up-to-date technology."[8]**

- **"To ensure the safety of those who fly, the FAA must frequently modernize ATC technology. But this has been virtually impossible, because the FAA's money comes in annual appropriations. How can the FAA maintain a massive, state-of-the-art, nationwide computer system when it doesn't know what its appropriation for next year or the years beyond will be?"[9]**

- **"Although FAA is recognized for safety and relative efficiency, its attempts to modernize the ATC system have been less successful. We have chronicled the difficulties FAA has faced completing what it envisioned initially in 1981 as a 10-year program to upgrade and replace National Airspace System facilities and equipment. For example, in August 1995, we found substantial cost and schedule overruns. To address these difficulties, in the past Congress gave FAA acquisition and human capital flexibilities to improve the agency's management of the modernization program … However, modernization difficulties have persisted."[10]**

- **"The three [ATC] programs with the largest cost increases – totaling more than $4 billion – are key to ATC modernization."[11]**

- **" … FAA's organizational culture – which is highly operational, tactical and safety-oriented – has been slow to embrace NextGen's transformational vision. Gaps in leadership have further undermined the Agency's efforts to advance NextGen. These weaknesses have contributed to stakeholders' skepticism about NextGen's**

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[6] *Avoiding Aviation Gridlock and Reducing the Accident Rate: A Consensus for Change*, National Civil Aviation Review Commission, Norman Y. Mineta, Chair, December 1997, p. 5.
[7] Id. at pp. 4-5.
[8] *From Red Tape to Results: Creating a Government that Works Better & Costs Less*, Report of the National Performance Review, Vice President Al Gore, September 1993, pp. 68-69.
[9] Id.
[10] *Air Traffic Control System: Selected Stakeholders' Perspectives on Operations, Modernization, and Structure*, U.S. Government Accountability Office, GAO-14-770, September 2014, pp. 7-8.
[11] *Air Traffic Control Modernization: Management Challenges Associated with Program Costs and Schedules Could Hinder NextGen Implementation*, U.S. Government Accountability Office, GAO-12-223, February 2012, pp. 12-13.

feasibility and reluctance to invest – particularly in efforts that require airspace users to purchase and install costly equipment in their aircraft."[12]

- **In a recent GAO survey of 70 industry stakeholders on the FAA's ability to implement NextGen, only 13 said that the agency's overall implementation was going well."[13]**

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THE CHALLENGES

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We understand the importance of NextGen and are passionate about it. A4A member airlines provide the FAA with operational data, participate in pilot programs, and serve on countless NextGen working groups and federal advisory committees. But our consistent qualifier has been: **"show us the benefits, so that we can make the business case for investment."** Regrettably, we have little to show for the $5 billion to $6 billion that the DOT IG and GAO estimate has been spent by the FAA on NextGen implementation to date. We agree with the DOT IG and GAO that ATC modernization and NextGen implementation are not hindered by a lack of funding or technology. Instead, internal issues related to implementation funding and procedure development and approvals often cause lengthy delays and a lack of uniform support from users. As noted above, a February 2012 GAO study found that half of all NextGen projects experienced delays, and that implementation costs had exceeded estimates by $4.2 billion.[14]

Performance-Based Navigation Procedures

We simply cannot afford to wait for all of the pieces of NextGen to come together before we see benefits. In the near-term, we must focus on leveraging equipment already on our aircraft to implement the most cost-beneficial elements of NextGen that are available now, most notably performance-based navigation (PBN) procedures. The benefits of PBN for your constituents – our passengers – include more direct, and therefore, shorter flight paths; improved airport arrival rates; enhanced controller productivity; increased safety due to repeatable, predictable aircraft routings; fuel savings; and a reduction in aircraft emissions. These paybacks are why A4A's National Airline Policy calls for the FAA to focus on developing and implementing PBN procedures at higher-volume airports as soon as possible.

We commend the FAA for working with the airline industry to implement the prioritized NextGen capabilities recommended by the NextGen Advisory Committee (NAC), which include PBN.[15] These priorities are in line with prior NAC recommendations and an FAA-commissioned government-industry task force, RTCA Task Force 5, in 2009, and former Secretary of Transportation Ray LaHood's Future of Aviation Advisory Committee (FAAC).[16] Although FAA has important PBN efforts under way, including the Greener Skies Over Seattle project, the agency faces obstacles that make it uncertain when airlines and other users can expect to realize widespread benefits. Airlines have invested hundreds of millions of dollars in the on-

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[12] See note 9, p. 3.

[13] *Air Traffic Control System: Selected Stakeholders' Perspectives on Operations, Modernization, and Structure*, U.S. Government Accountability Office, GAO-14-770, September 2014, p. 11.

[14] *Air Traffic Control Modernization: Management Challenges Associated with Program Costs and Schedules Could Hinder NextGen Implementation*, U.S. Government Accountability Office, GAO-12-223, February 2012, p. 12.

[15] The NAC is a Federal advisory committee that develops recommendations for NextGen portfolios with an emphasis on the midterm (through 2018). The NAC includes representation from affected user groups, including airlines and other operators, manufacturers, air traffic management, aviation safety, airports, and environmental experts.

[16] *The Future of Aviation Advisory Committee Final Report*, U.S. Department of Transportation, April 11, 2011.

board equipment necessary to use PBN procedures; however, their opportunities to use that investment in the NAS have been spotty. They exist, to be sure, but they are far from system-wide, and there is no indication that the pace of introducing additional opportunities will accelerate any time soon. In a June 2014 report, the DOT IG cited several obstacles that hinder the FAA's efforts to increase implementation and use of PBN procedures, including outdated controller policies and procedures, a lengthy flight procedure development process, the lack of standard training for pilots and controllers, and the lack of automated controller tools to manage and sequence aircraft with differing equipment and capabilities.[17] To address the lengthy development and approval process for new PBN procedures, the FAA made 21 recommendations for streamlining the process for deploying new procedures in an internal review – the NAV Lean project.[18] In June 2011, FAA issued its plan for implementing the 21 recommendations and, according to a recent DOT IG report, the agency has implemented 9.[19] However, the FAA does not expect to complete the entire NAV Lean initiative until September 2015. Ultimately, industry will not get the full benefits of NAV Lean – to decrease the time it takes to implement new procedures by more than 40 percent – until all recommendations are implemented. While we appreciate the collaborative efforts of the FAA, we can and must do better.

New York/New Jersey/Philadelphia Airspace Redesign

Similarly, the FAA's New York/New Jersey/Philadelphia airspace redesign program has not yet produced the benefits that were projected when it was initiated nearly two decades ago. The initiative is important given the fact that the current airspace configuration was designed in the 1960s and simply is not designed to handle today's traffic demand or accommodate future growth. Congestion and delays in the New York region cascade across the NAS. Nearly one-half of all flight delays occur in the New York metropolitan area and one-third of U.S. flights are directly affected by delays in New York. As noted above, congestion and delays cost the U.S. economy about $33 billion per year, including $16 billion for passengers.[20] Moreover, completion of this project has been described as a necessary foundation for the introduction of NextGen in this area.

Despite nearly two decades of work and over $50 million in taxpayer funds spent, earlier this year the FAA indicated that the final phase of the initiative is being supplanted by a new process with no known start or end date. The FAA had planned to complete the third and final phase of the initiative by December 2016 – nearly four years later than originally planned. The FAA is now planning to tackle the program through a different initiative, based on the Metroplex approach that the agency is using in other metropolitan areas across the country. This involves the FAA working with industry to ease the bottlenecks by using PBN procedures to improve the flow of air traffic into and out of the airports in each area. In effect, the FAA is planning an airport-specific fix rather than a regional fix, which would provide far greater benefits in terms of mitigating congestion and delays in the nation's busiest airspace. The message from this experience is that the FAA's ability to introduce improved procedures relying on existing capabilities in a limited geographic area remains a major challenge.

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[17] *FAA Faces Significant Obstacles in Advancing the Implementation and Use of Performance-Based Navigation Procedures*, Office of the Inspector General, U.S. Department of Transportation, AV-2014-057, June 17, 2014, p. 2.
[18] NAV Lean was a cross-agency project to streamline policies and processes used to implement instrument flight procedures in response to a 2009 joint FAA-industry task force report recommendation.
[19] *Progress and Challenges in Meeting Expectations for NextGen*, Office of the Inspector General, U.S. Department of Transportation, CC-2014-023, June 25, 2014, pp. 6-7.
[20] See note 3.

Automatic Dependent Surveillance-Broadcast (ADS-B)

In addition, A4A and our members have supported ADS-B technology as an integral part of NextGen. It is one of the cornerstones of that program. However, ADS-B has become a classic example of the FAA embracing a technology without the requisite business review of benefits and costs to stakeholders. In fact, our 2008 comments to the FAA's ADS-B rulemaking proceeding made that very point and, regrettably, still resonate.

The FAA's approach to ADS-B Out (onboard avionics for broadcasting flight information to controllers and FAA ground systems) and the 2020 mandate is not harmonized with European and other international ATC systems and will primarily benefit the FAA, not airspace users. According to the DOT IG, FAA certification and flight-standards officials have already identified problems that could hinder the airline industry's efforts to meet the 2020 mandate.[21] The FAA estimates it will cost all airspace users (commercial and general aviation) $4 billion to equip for ADS-B Out. In October, the FAA held a "Call to Action" meeting with stakeholders to discuss ADS-B implementation challenges. While this is a good first step, we cannot support the current 2020 mandate for ADS-B Out until these issues are resolved.

In addition, we do not believe FAA is in the position to mandate ADS-B In (which enables the display of the broadcast information in the cockpit). As the DOT IG noted in a September 2014 report, requirements for ADS-B In continue to evolve, creating significant challenges related to developing and certifying ADS-B In avionics, raising questions about whether the technology will be available by 2020.[22] Similarly, a report by the ADS-B In Aviation Rulemaking Committee (ARC), on which we served, cautioned that the air-to-air applications for ADS-B In were not mature and that the costs and benefits were uncertain. The report also stated that FAA lacks well-defined policy, equipment standards and certification procedures. Consequently, the ARC did not support an ADS-B In equipage mandate.

In addition to establishing technical specifications and standards, we believe the FAA should provide additional funding for airspace users to purchase ADS-B equipment and enter into additional partnerships with airlines to develop and demonstrate ADS-B applications and procedures. It may be useful for the FAA to determine how to demonstrate early benefits in the northeast oceanic airpsace through the use of space-based ADS-B. FAA currently estimates the cost of the ADS-B program (through 2035) to be $4.5 billion, an increase of $400 million from original estimates. In a recent DOT IG report, the FAA stated that the total costs for the current ADS-B program, including funding that has already been spent, now outweigh the projected benefits of the program by as much as $588 million.[23]

Operational Impacts of the Chicago Air Route Traffic Control Center Outage

The FAA's Chicago Air Route Traffic Control Center in Aurora, Illinois, was effectively shut down for two weeks beginning Sept. 26, 2014, due to a fire set by an FAA contractor, who is now in federal custody. The incident affected airline operations for 17 days, resulting in the cancellation of 6,600 flights impacting 462,000 passengers. We are extremely grateful for the heroic efforts of the FAA, from Administrator Huerta and his executive team to the FAA air traffic controllers,

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[21] *ADS-B Benefits are Limited Due to a Lack of Advanced Capabilities and Delays in User Equipage*, Office of the Inspector General, U.S. Department of Transportation, AV-2014-105, Sept. 11, 2014, p. 11.
[22] Id. pp. 2-3.
[23] Id. p. 3.

who handled more flights at Chicago O'Hare International Airport than any other airport in the country for the duration of the Chicago Center shutdown, and the technicians who had to restore and test more than 20 racks of equipment, 835 telecommunications circuits and more than 10 miles of cable at Chicago Center. However, there is something seriously wrong when a single fire can cripple our nation's ATC system. Despite some dramatic technological advances, the Chicago Center incident calls into question the efficacy of an ATC system that cannot withstand a disruption and still deliver services the travelling public expects and that users schedule to. While NextGen programs are underway that would enable air route traffic control centers to work with aircraft beyond their geographical purview, the FAA needs to develop a continuity of operations plan that ensures resiliency and that meets the agency's own efficiency measures, or remotely approaches the efficiency and economic goals of airlines. Airlines and their passengers, who pay 94 percent of all Airport and Airway Trust Fund (AATF) taxes, deserve better.

PREVIOUS REFORM EFFORTS HAVE COME UP SHORT

As noted previously, several bipartisan federal commissions that examined the state of U.S. civil aviation proposed reforms to enable modernization of the ATC system.[24] Those recommendations, coupled with their assessments of its shortcomings, have provided authoritative support for reform of the system. That support has not resulted in meaningful improvements. While Congress has enacted personnel and procurement reforms for the FAA in an effort to further modernize of the air traffic control system, those initiatives have had only a modest effect. Why have all these recommendations accomplished so little? While the Air Traffic Organization (ATO) is now a performance-based organization, a modest first step in the direction of serious institutional reform, there has been too little change in results.

CONCLUSIONS

The points made above make it clear that a serious examination of our ATC system – and the best possible solutions for bringing it into the 21st Century – is in order. In making that examination, we urge the Committee to keep an open mind and consider all options, including the wide-ranges of organizational and funding models that have been successfully adopted in other countries. If the Committee determines that significant reforms are not necessary – or, are politically unachievable – then we need to address the biggest bottlenecks and obstacles to progress that exist in the current system, and we may well find some solutions in the work others have already done and tested.

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[24] National Commission to Ensure a Strong, Competitive Airline Industry, chaired by former Virginia Governor Gerald Baliles (1993); Vice President Gore's National Performance Review Commission (1993); and the National Civil Aviation Review Commission, chaired by former Secretary of Transportation Norm Mineta (1997).