Corporatizing the U.S. ATC System

Testimony of

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House Committee on Transportation & Infrastructure

Subcommittee on Aviation

March 24, 2015

Chairman LoBiondo, Ranking Member Larsen, and fellow Members:
My name is Robert Poole. I direct the transportation policy program at Reason Foundation, a nonprofit think tank with offices in Los Angeles and in Washington, DC. I'm a graduate of MIT with two degrees in mechanical engineering. My first position after graduating was with a large aerospace firm, Sikorsky Aircraft.

My Credentials on Today's Topic

I have been studying the performance of the U.S. air traffic control (ATC) system since before the 1981 controllers' strike. Following that strike I gave an invited presentation to DOT Secretary Drew Lewis and FAA Administrator Lynn Helms on a corporation approach to rebuilding the system. I presented my first paper on ATC corporatization at the Transportation Research Board annual meeting in 1982.[1] In 1985 I was an advisor to the Air Transport Association's white paper on corporatizing the ATC system. Likewise, I advised Vice President Gore's National Performance Review in 1993-94 on what became the DOT's proposal for a U.S. Air Traffic Services (USATS) corporation. I was also an advisor to the Mineta Commission in 1997, which recommended an approach similar to corporatization. In 2001, a Reason Foundation study that I co-authored with Viggo Butler was a detailed proposal for a user-funded ATC corporation.[2] That plan received the support of 12 retired FAA officials, including three previous Administrators.[3]

This decade I have been a member of two working groups seeking to develop consensus recommendations for fundamental ATC restructuring. One was convened by the Business Roundtable starting in 2011. It has included a number of former DOT and FAA officials, as well as leading aviation researchers and consultants. The other working group was convened by the Eno Transportation Center in 2013. Co-chaired by former DOT Secretary Jim Burnley and former Sen. Byron Dorgan, it has engaged 16 aviation stakeholder groups to seek agreement on ATC reform principles. I also serve on the National Aviation Studies Advisory Panel of the Government Accountability Office (GAO) and am a long-time member of the Air Traffic Control Association.

Over the years, since the first ATC corporatization in 1987 (Airways New Zealand), I have followed the progress of this change in the structure, funding, and governance of the entities providing this vital service. I have visited the headquarters and met with the leaders of Airways New Zealand (in Wellington) and Nav Canada (in Ottawa). I served on the advisory board of the first empirical study of the performance of corporatized ATC providers, alongside former Administrator Langhorne Bond and future Administrator Randy Babbitt. I have met their counterparts at a number of other corporatized Air Navigation Service Providers (ANSPs) at conferences organized by the Air Traffic Control Association (ATCA) and the Civil Air Navigation Services Organization (CANSO).

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[1] Robert W. Poole, Jr., "Privatizing Air Traffic Control," *Transportation Research Record 912*, 1983
[2] Robert W Poole, Jr. and Viggo Butler, "How to Corporatize Air Traffic Control," Policy Study No. 278, Reason Foundation, February 2001
[3] "A Statement Concerning the Future of the U.S. Air Traffic Control System," 12 former FAA officials, May 1, 2001 (http://reason.org/news/show/1002978.html)

Assessment of the Problem

Broadly speaking, I agree with the assessments made by the FAA Management Advisory Council in January 2014 and many others about the problems plaguing the FAA's Air Traffic Organization (ATO). These problems can be grouped into three categories, as follows:

- **Funding:** uncertain, unstable, and poorly suited to paying for large-scale capital modernization programs such as NextGen.
- **Governance:** a system with so many legislative branch and executive branch overseers that it focuses ATO management attention far more on overseers than on ATO's aviation customers.
- **Culture:** an organizational culture that is very risk-averse and status-quo oriented.

These problems are all inter-related, but since the culture problem has received less attention than the others, I will focus mostly on that in my testimony today.

My most recent research on ATC reform was a study commissioned by the Hudson Institute as part of their Initiative on Future Innovation. My task was to examine the extent to which FAA generates innovation in its area of operation (the ATC system) and to explore what would lead it to be more successful in doing that.[4] In the project I selected seven disruptive innovations in air traffic control and did brief case studies on each, observing how each innovation has been dealt with by the ATO and by its corporatized ANSP counterparts overseas. The innovations are as follows:

1. Digital communications between pilots and controllers (DataCom)
2. Replacing ILS with GPS-based landing systems (GBAS)
3. Using GPS for surveillance (ADS-B)
4. Performance-based navigation (PBN)
5. Real-time weather data
6. Remote towers
7. Facility consolidation

The ATO's approach to each of these was far more hesitant than that of corporatized ANSPs in other countries. These findings illustrated its conservative culture and status-quo bias. I next identified five possible explanations of why this culture exists, and the draft report was then sent out to about 15 highly knowledgeable peer reviewers. Hudson convened a one-day workshop at which these reviewers provided feedback, which supported all five hypotheses based on their experience either within FAA or working with FAA over many years. Those five detrimental aspects of organizational culture are as follows:

1. Self-identity as a safety agency, rather than as a technology user. This stems from the ATO being embedded within FAA, whose mission is safety. Nearly all the innovations relevant to NextGen come largely from the aerospace/avionics industry, which has a much more innovative, dynamic culture. All those companies are regulated at arm's

[4] Robert W. Poole, Jr., "Organization and Innovation in Air Traffic Control," Hudson Institute, January 2014 (http://reason.org/files/air_traffic_control_organization_innovation.pdf)

length by FAA safety regulators—but the ATO is embedded inside the aviation safety regulation organization.

2. Loss of technical expertise. Partly due to its status-quo culture and partly due to civil service pay scales, the FAA has a chronic problem with not attracting or not being able to retain the best engineers and software professionals. This means that a lot of the detailed requirements for new systems end up being defined by contractors, which can lead to costly additions that make the systems more complex than is needed and more costly than necessary.
3. Loss of management expertise. For the same reasons that FAA has limited technical expertise, it also has trouble attracting and keeping top-notch program managers who are used to being held accountable for results.
4. Excessive oversight. Inherent in being a large government agency that is spending taxpayers' money, the FAA must be held accountable to all the normal government overseers. The ATO must respond to oversight by the FAA Administrator, the DOT Secretary, the DOT Inspector General, the Office of Management & Budget, the Government Accountability Office, and up to 535 Members of Congress. Responding to all these overseers takes up a large amount of senior management time.
5. Lack of customer focus. Because the ATO gets its funding from Congress, it ends up—de-facto—acting as if its customer is Congress, rather than the aviation customers it is set up to serve.

Fixing the ATO's Organizational and Structural Problems

When I compared this set of problems with what I have observed over the past 15 years in corporatized ANSPs, the remedies appeared to be fairly straightforward.

To directly change the status-quo culture to something more like the innovative culture we observe in the Boeings and Honeywells of the world, the first requirement is to *organizationally separate the ATO from its safety regulator parent*. That would put the ATO at arm's length from its safety regulator, like all the other key players in aviation—airlines, business aviation, general aviation, airframe manufacturers, engine producers, pilots, mechanics, etc. For more than a decade, separation of ANSPs from safety regulators has been ICAO policy[5], and the United States is the last developed country that has not taken this step. This change is *necessary* for changing the ATO's organizational culture, but is not sufficient by itself.

The second requirement is to *change the funding system*. Instead of having users of the system pay taxes to the government, which channels the funds through the federal budget process and leads to the ATO acting as if Congress is its customer, shift to the system used everywhere else in the world in which airspace users pay fees and charges directly to the ANSP, which in this case would be the newly separate ATO. That would refocus the organization's attention on satisfying its aviation customers, as is true of every other high-tech service business. This is also the model on which airports operate in nearly every developed country, including the United States. Airports issue revenue bonds, based on their predictable stream of revenues that come directly from users, to finance large-scale capital modernization efforts. So do the larger corporatized ANSPs.

[5] International Civil Aviation Organization, *Safety Oversight Manual*, Doc. 9734, Part A, Paragraph 2.4.9 (2001)

The third needed change is a *different governance model*. Since the revamped ATO would no longer be spending taxpayers' money, the proper oversight should to come from those providing the revenues—its aviation customers. So those customers, along with other key stakeholders such as airports and employees, should be the ones responsible for oversight and governance (apart, of course, from arm's length safety regulation by the revamped FAA). If organized as a non-profit corporation governed by a stakeholder board, the result would be an organizational form called a user co-op. There are many thousands of user co-ops in America, particularly in electric and water utilities.

Evidence from Abroad

There is growing evidence over the past 25 years that ATC corporatization has led to better performance by self-funded ANSPs.

The first major study was published in 2006, carried out by MBS Ottawa with support from George Mason University, Syracuse University, and McGill University[6]. It assembled before-and-after data from 10 corporatized ANSPs, and assessed their performance on safety, modernization, service quality, cost, financial stability, and public interest considerations. From the executive study comes the overall conclusion, backed up by detailed data in the 103-page report:

> "The major finding is that commercialization models that provide the right balance of incentives have resulted in significant cost reductions, dramatic improvements in modernization, and major improvements in service quality, while improving safety. Commercialized ANSPs exhibit three main strengths—sensitivity to customer needs, agility in reaching a decision, and ability to carry it through. These characteristics have led to continuous improvements in efficiency, business discipline that delivers projects on schedule and on budget, and rapid deployment of modern technology to enhance service quality."

A second major study appeared in book form in 2007, researched and written by Clinton V. Oster, Jr. of Indiana University and John S. Strong of the College of William and Mary.[7] Their book provides a detailed review of the transition from government agency to self-supporting ANSP in Australia, Canada, Europe, New Zealand, and the United Kingdom. This is followed by three chapters on ATC problems in the United States and suggestions on how to apply the lessons learned in other countries to U.S. ATC reform. The IBM Center for the Business of Government had Oster and Strong produce a 65-page report using the Canadian and British experiences to recommend a corporatization approach for the United States.[8]

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[6] MBS Ottawa Inc., *Air Traffic Control Commercialization Policy: Has It Been Effective?* January 2006 (provide URL)

[7] Clinton V. Oster, Jr. and John S. Strong, Managing the Skies: Public Policy, *Organization, and Financing of Air Traffic Management*, Ashgate Publishing, 2007

[8] Clinton V. Oster, Jr. and John S. Strong, "Reforming the Federal Aviation Administration: Lessons from Canada and the United Kingdon," IBM Center for the Business of Government, 2006 (www.uquebec.ca/observgo/fichiers/92684-fichier%2013.pdf)

In recent years, two international organizations have been collecting and publishing data on ANSP performance and cost-effectiveness: Eurocontrol and CANSO. Eurocontrol's Performance Review Commission deals only with the ANSPs of the 39 European members of Eurocontrol. CANSO, which has 90 ANSP members worldwide, relies on voluntary reporting from member ANSPs, and some of the higher-cost ones have not always released their numbers. CANSO's 2014 report includes performance figures for a number of developed-country ANSPs, including the FAA's ATO. One key performance indicator is *cost per IFR flight-hour*. Figures for several ANSPs are presented here:

Cost per IFR Flight-Hour (US$)

ANSP	Country	2010	2011	2012	2013
FAA ATO	United States	$444	$452	$454	$450
Nav Canada	Canada	$335	$338	$325	$334
Airways NZ	New Zealand	$385	$404	$416	$414

Source: CANSO, *Global Air Navigation Services Performance Report*, 2014, adjusted for exchange rates.

For comparison purposes, the latest available figures for several other developed countries are for 2011, and are $650 for Germany's DFS, $774 for the UK's NATS, and $801 for Spain's ENAIRE. While many factors account for differences in ANSP performance, it is noteworthy in comparing Nav Canada and the FAA ATO that the former is significantly more productive, as measures by cost per IFR flight hour, despite Nav Canada being only one-ninth the ATO's size and activity level.

Which Organizational Form Is Best?

Of CANSO's, 90 full members, including the FAA's ATO, about two-thirds (60) are commercialized, i.e., self-supporting from fees and charges and regulated at arm's length by the government's safety regulator.

In its recent report on ATC corporatization, the Congressional Research Service provided a table listing 22 ANSPs with their number of centers, number of employees, and organizational form.[9] The most common form (13 of the 22) is a government-owned corporation. Another five are government agencies, and three are various forms of non-government companies. These three are Nav Canada, Skyguide (Switzerland), and NATS (U.K.). Though not listed in the CRS table, AeroThai is also a non-government corporation.

In choosing between a government corporation model and a non-profit corporation model, it is important to understand the profound difference between a "government corporation" in countries such as Australia, Germany, and New Zealand versus the typical "government corporation" in the United States. In most modern western nations, a government corporation is for all practical purposes a real business, incorporated under normal corporate law, but with all of its shares owned by the government. In most cases, it is entirely self-supporting from customer revenues and has access to the bond market to finance long-lived assets.

[9] Bart Elias, "Air Traffic, Inc.: Considerations Regarding the Corporatization of Air Traffic Control," Congressional Research Service, 7-5700, January 5, 2015

That is dramatically different from most government corporations in the United States. Most of our government corporations remain part of the federal budget. Many have congressional oversight committees, require OMB budget approval, and are subject to audits by GAO and possibly by an Inspector General. Even the nominally independent U.S. Postal Service is subject to congressional intervention in what should be business decisions such as closing unneeded facilities, and its rates are overseen by a Postal Regulatory Commission that pursues multiple goals beyond ensuring a well-run, cost-effective business. Even the Tennessee Valley Authority, one of America's largest electric utilities, though only nominally on-budget, still has congressional oversight committees, an arbitrary cap on bond issuance, and a politically appointed board.

An alternative that has received serious attention from the Business Roundtable is a *federally chartered nonprofit corporation*. The American Red Cross and the U.S. Olympic Committee were chartered by acts of Congress as self-supporting, tax-exempt, nonprofit corporations. COMSAT, which pioneered communications satellites, was originally organized this way, but later became an ordinary for-profit company. The Red Cross and Olympic Committee boards are not political appointees; they are selected by these organizations based on candidates' relevant knowledge and experience. This model is actually closer in how it functions to the well-managed government ATC corporations like Airways New Zealand, than typical U.S. government corporations like the Postal Service and the TVA.

There is also extensive U.S. experience with the nonprofit user co-op model. There are thousands of examples of rural utility co-ops, agricultural co-ops (Sunkist, Ocean Spray) and federally chartered credit unions. User co-ops are also common in U.S. aviation. There are many common-use co-ops in operation at airports, such as LAXFuel Corporation, jointly owned by airlines serving Los Angeles International Airport to operate a fuel farm and provide aircraft fueling services. And two major entities in aviation were organized as user co-ops—ARINC and SITA. ARINC was set up by fledgling U.S. airlines in 1929 to be the licensee for air-to-ground radio services. It went on to develop the earliest air traffic control services (which were taken over by the Commerce Department in 1936). ARINC remained in business as a user co-op providing worldwide communications and other services to aviation into the first decade of the 21st century, when it was purchased by the Carlyle Group and more recently acquired by Rockwell Collins. SITA has retained its original nonprofit, user co-op status and among its many aviation services is partnering with CANSO to provide ANSP billing services worldwide.

Canada's ANSP, Nav Canada, is similar to the user co-op model. It was chartered by an Act of Parliament as a not-for-profit, stakeholder-governed corporation, designated by Canada as its provider of ATC services, consistent with ICAO policies. It has an excellent track record, and as noted in the table above, is delivering ATC services at higher productivity than the nine-times-larger ATO. To me, that suggests the potential productivity gains that might be achieved by corporatizing the ATO as a federally chartered, nonprofit, tax-exempt stakeholder-governed corporation.

After three decades of research on ATC reform, my conclusion is that the nonprofit corporation model with stakeholder governance is the best organizational form. In particular, it is most likely

to produce the kind of organizational culture we need to regain U.S. leadership in air traffic control. And I'm happy to report that this is also the conclusion of the Business Roundtable's extensive efforts.

I will be happy to answer any questions you may have, either today or subsequently in writing.